State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 29-07578

Priority: March 31,1981

Maximum Diversion Rate: 175.00 CFS
Maximum Diversion Volume: 100,100.0 AF

It is hereby certified that MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83404 has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated February 02, 1981; and has submitted Proof of Beneficial Use on December 07, 1994. An examination indicates that the works have a diversion capacity of 250.4 cfs of water from:

SOURCE
PORTNEUF RIVER **Tributary:** SNAKE RIVER

and a water right has been established as follows:

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE	ANNUAL DIVERSION VOLUME
POWER	01/01 to 12/31	175.00 CFS	100,100.0 AF

LOCATION OF POINT(S) OF DIVERSION:
PORTNEUF RIVER L3 SE¼NW¼ Sec. 22, Twp 09S, Rge 37E, B.M., BANNOCK County

PLACE OF USE: POWER

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
09S 37E 20			X														
			L6														

CONDITIONS OF APPROVAL

1. This right does not constitute Idaho Public Utilities Commission or Federal Energy Regulatory Commission approval that may be required.
2. Use of water under this right shall be non-consumptive.
3. Use of water under this water right will be regulated by the watermaster of State Water District No. 29.
4. The rights for the use of water confirmed in this license shall be junior and subordinate to all rights for the use of water other than hydropower, within the State of Idaho that are initiated later in time than the priority of this right and shall not give rise to any right or claim against any future rights for the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this right.
5. Use of water under this approval shall comply with applicable water quality standards of the Department of Environmental Quality.
6. Right 29-07772 is also diverted through the point of diversion described above.

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State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 29-07578

7. The diversion and use of water for hydropower purposes under this license is subject to review by the Director after the date of expiration of license 10468-000 issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.

8. Prior to diverting water pursuant to this right, measuring devices and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works. Additional measuring devices may also be required for the accurate measurement of water diverted, water returned and water available to satisfy this and other water rights.

9. The adequacy of the project design to protect public and employee safety during all phases of construction and operation of the project shall be reviewed and certified by a professional engineer licensed to practice in the state of Idaho.

10. A minimum flow of ten (10) cfs or the entire available stream, if less than ten cfs, must be maintained within the bypass reach at all times, except as specified in the FERC license.

11. A shutdown bypass shall be constructed at the power plant site. The operation of the power system shall not alter normal flow characteristics of the Portneuf River.

12. The right holder shall be responsible for the cost of installing or retrofitting any diversion works, located between the project point of diversion and the downstream point of discharge, which is detrimentally affected by the hydropower diversion.

13. For purposes of interim distribution pending judicial determination, any senior unadjudicated water right, including those perfected through the beneficial use method, for which a claim is made in the pending Snake River Basin Adjudication (SRBA) shall be delivered prior to this right, provided the water is being beneficially used and provided the use is consistent with the right as recommended in the Directors Report when filed with the district court in the SRBA pursuant to Section 42-1411, Idaho Code.

14. The use of water under this right shall not give rise to any claim against the holder of a senior water right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code. The water right confirmed by this license is subject to all prior water rights and shall be used in accordance with Idaho law and applicable rules of the Department of Water Resources.

Signed and sealed this 25TH day of June, 2001.

Acting for KARL J. DREHER
Director

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State of Idaho
Department of Water Resources

APPLICATION FOR AMENDMENT

(For Licensing Purposes)

WATER RIGHT NO. 29-07578

Date of Priority: March 31,1981

Maximum Diversion Rate: 175.00 CFS
Maximum Diversion Volume: ~~81,900.0 AF~~
100,100.0 AF

Comes now MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83404 and represents to the Director of the Idaho Department of Water Resources that he is the owner and holder of Permit to Appropriate the Public Waters of the State of Idaho No. 29-07578, and requests that the permit be changed as follows:

Source: PORTNEUF RIVER **Tributary:** SNAKE RIVER

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION	ANNUAL VOLUME
POWER	01/01 to 12/31	175.00 CFS	~~81,900.0 AF~~ 100,100.0 AF

LOCATION OF POINT(S) OF DIVERSION:

PORTNEUF RIVER L3 SE¼NW¼ Sec. 22, Twp 09S, Rge 37E, B.M., BANNOCK County

PLACE OF USE: POWER

Twp Rge Sec	NE				NW				SW				SE				
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
09S 37E 20			X														
			L6														

Permit holder asserts that no one will be injured by such change and that such change will be made at permit holder's own risk. Signed this 4 day of June, 2001.

(Signature)

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Department of Water Resources

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State of Idaho
Department of Water Resources

APPLICATION FOR AMENDMENT

(For Licensing Purposes)

WATER RIGHT NO. 29-07578

FOR DEPARTMENT USE ONLY

Preliminary check by ____ Fee = 50.00 Receipted by jm # C053434 Date 4/30/01

ACTION OF THE DEPARTMENT OF WATER RESOURCES

I, Karl J. Dreher, of the Department of Water Resources hereby approve the above Application for Amendment for Permit No. 29-07578 with the following:

CONDITIONS OF APPROVAL

1. The use of water under this right shall not give rise to any claim against the holder of a senior water right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.

2. This right does not constitute Idaho Public Utilities Commission or Federal Energy Regulatory Commission approval that may be required.

3. Use of water under this right shall be non-consumptive.

4. Use of water under this water right will be regulated by the watermaster of State Water District No. 29.

5. The rights for the use of water confirmed in this license shall be junior and subordinate to all rights for the use of water other than hydropower, within the State of Idaho that are initiated later in time than the priority of this right and shall not give rise to any right or claim against any future rights for the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this right.

6. Use of water under this approval shall comply with applicable water quality standards of the Department of Environmental Quality.

7. Right 29-07772 is also diverted through the point of diversion described above.

8. The diversion and use of water for hydropower purposes under this license is subject to review by the Director after the date of expiration of license 10468-000 issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.

9. Prior to diverting water pursuant to this right, measuring devices and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works. Additional measuring devices may also be required for the accurate measurement of water diverted, water returned and water available to satisfy this and other water rights.

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10. The adequacy of the project design to protect public and employee safety during all phases of construction and operation of the project shall be reviewed and certified by a professional engineer licensed to practice in the state of Idaho.

11. A minimum flow of ten (10) cfs or the entire available stream, if less than ten cfs, must be maintained within the bypass reach at all times, except as specified in the FERC license.

12. A shutdown bypass shall be constructed at the power plant site. The operation of the power system shall not alter normal flow characteristics of the Portneuf River.

13. The right holder shall be responsible for the cost of installing or retrofitting any diversion works, located between the project point of diversion and the downstream point of discharge, which is detrimentally affected by the hydropower diversion.

14. For purposes of interim distribution pending judicial determination, any senior unadjudicated water right, including those perfected through the beneficial use method, for which a claim is made in the pending Snake River Basin Adjudication (SRBA) shall be delivered prior to this right, provided the water is being beneficially used and provided the use is consistent with the right as recommended in the Directors Report when filed with the district court in the SRBA pursuant to Section 42-1411, Idaho Code.

Witness my hand this 25th day of June, 2001.

Acting for KARL J. DREHER
Director

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Department of Water Resources

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WATER RIGHT SUMMARY

ACTION	RIGHT NO.	NAME	AMOUNT CFS
Original Application	29-07578	Marsh Valley Hydroelectric Co	175.0
Full Assignment	29-07578	Marsh Valley Development Inc	175.0

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MICROFILMED
JAN 2 2 1993

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE

STATE OF IDAHO

IN THE MATTER OF PERMIT NO. 29-07578	)	
	)	**ORDER OF**
IN THE NAME OF MARSH VALLEY DEVELOPMENT INC.	)	**REINSTATEMENT**
	)	

WHEREAS, the Department issued the above-captioned permit with the condition that proof of construction of works and application of water to beneficial use (proof of beneficial use) be submitted on or before October 1, 1994; and,

WHEREAS, the Department notified the permit holder on July 31, 1994, by certified mail that proof was due and instructed the permit holder of the steps to be taken to submit the proof of beneficial use; and,

WHEREAS, the Department notified the permit holder on October 11, 1994, that the permit had lapsed for failure to submit an acceptable proof of beneficial use or extension of time; and,

WHEREAS, Section 42-218a, Idaho Code, provides that a permit may be reinstated upon a showing of reasonable cause within sixty days of the date of the notice of lapsing; and,

WHEREAS, the permit holder has provided a reasonable showing why the permit should be reinstated by submitting an acceptable proof of beneficial use on December 7, 1994;

IT IS, THEREFORE, HEREBY ORDERED that Permit No. 29-07578 be REINSTATED with an advance in priority to March 31, 1981.

Dated this 12th day of December, 1994.

L. Glen Saxton

L. GLEN SAXTON
Chief, Water Allocation Bureau

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AUG 0 8 2001

Form No. 217
7/94

FOR OFFICE USE ONLY
Amt. of Fee $: _____
Receipt No. _____
Receipt By: _____
Date Receipted: _____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

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DEC 0 7 1994
Department of Water Resources

PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner who has been appointed by the department.

1. Permit No. 29-07578 & 29-07772 Telephone No. _____
2. Name(s) of Permit Holder(s): Marsh Valley Development Inc.
3. Mailing Address: 5203 South 11th East, Idaho Falls, ID 83404
4. Source of Water: Portneuf River If GROUNDWATER (well), Date Drilled: mo._____ / yr._____

   a. Well Driller: _____ Drilling Permit Number: ____ - ____ - ____ - ____

   b. *OPTIONAL:*
   Pump Horsepower: _____ Pressure (psi): _____ Dynamic pumping level (ft): _____

5. Use(s) (as authorized by the water right permit):

   Domestic (No. of households): _____ Stockwater (No. and type of stock): _____

   Irrigation (No. of acres): _____ Other: Power

6. Total rate of diversion and/or volume for which proof is submitted: ~~250~~ 175 cfs OR _____ acre feet
7. Measuring Device Requirement: **(refer to the approval conditions on your permit and respond accordingly)**
   (This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)

   Measuring Device: Is a measuring device required? Yes ✓ or No ____
   Has the measuring device been installed? Yes ✓ or No ____

   Flow Measurement Port: Is a flow measurement port required? Yes ____ or No ____
   Has the measurement port been installed? Yes ____ or No ____

8. Fee Enclosed: $ _____ (See Fee Schedule on back of the instructions for filing proof of beneficial use)
9. Person to contact to accompany the Department representative during field examination of the water system.

   Name: _____ Telephone Number: _____

   Address: _____

10. The information given on this form is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the State of Idaho.

Signature of permit holder: [signature] Date: 12/2/94
(Include your title, if on behalf of company of organization)
President

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AUG 0 8 2001

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DEC 2 1992
Department

State of Idaho

Department of Water Resources

ASSIGNMENT OF PERMIT

Marsh Valley Hydroelectric Company hereby assigns to Marsh Valley Development, Inc., whose principal place of business is at 2988 Tipperary Lane, Idaho Falls, Idaho 83404, all of Marsh Valley Hydroelectric Company's right, title and interest in and to Permits No. 29-7772 and 29-7578 to appropriate the public waters to the State of Idaho.

Executed this 29th day of January, 1992.

MARSH VALLEY HYDROELECTRIC COMPANY

By Lyndon Green
President

STATE OF IDAHO)
: ss
County of Bannock)

On this 29th day of January, 1992, before me, the undersigned, a Notary Public in and for said State, personally appeared Lyndon Green, known or identified to me to be the President of Marsh Valley Hydroelectric Company, the corporation that executed the instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Randall C. Budge
NOTARY PUBLIC FOR IDAHO,
Residing at Pocatello.
My Commission Expires: 10/11/94

(SEAL)

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JAN 22 1993

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 29-07578

Proposed Priority: February 2, 1981 Maximum Diversion Rate: 175.00 CFS
This is to certify, that **MARSH VALLEY HYDRO ELECTRIC CO.**
MC CAMMON, ID 83250
has applied for a permit to appropriate water from:

PORTNEUF RIVER tributary of **SNAKE RIVER**

and a permit is **APPROVED** for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
POWER	01/01 to 12/31	175.00 CFS

LOCATION OF POINT(S) OF DIVERSION: SENE Sec. 21, Township 09S, Range 37E
BANNOCK County

PLACE OF USE: POWER

TWN RGE SEC

09S 37E 21 NENW

CONDITIONS/REMARKS:

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before **October 1, 1994.**
2. Subject to all prior water rights.
3. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which permit holder had no control.
4. The right to the use of water acquired under this permit shall not give rise to any right or claim against the holder of a senior right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.
5. The issuance of this permit in no way grants any right-of-way or easement across the land of another.
6. This permit is subject to the provisions of Sections 42-205 through 42-210, Idaho Code, restricting the sale, transfer, assignment, or mortgage of this permit. Failure to comply with these provisions is cause for immediate cancellation of this permit.
7. Water used under this permit if discharged into a natural channel or subsurface system shall meet Idaho Water Quality Standards.

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JAN 22 1993

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 29-07578

CONDITIONS/REMARKS:

8. The water right acquired under this permit for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.
9. This permit does not constitute Idaho Public Utilities Commission or Federal Energy Regulatory Commission approval that may be required.
10. Use of water under this permit shall be non-consumptive.
11. Prior to diverting water pursuant to this permit, measuring devices and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works. Additional measuring devices may also be required for the accurate measurement of water diverted, water returned and water available to satisfy this and other water rights.
12. The Director retains jurisdiction of the permit and any license subsequently issued, to require streamflow augmentation or other action needed to protect prior surface water and groundwater rights.
13. The diversion and use of water under this permit and any license subsequently issued is subject to review by the Director on the date of expiration of any license issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.
14. Use of water under this permit is under the control of the watermaster of State Water District No. 29, Portneuf River.
15. A minimum flow of ten (10) cfs or the entire available stream if less than ten cfs must be maintained within the bypass reach at all times, except as specified in the FERC license.
16. A shutdown bypass shall be constructed at the power plant site. The operation of the power system shall not alter normal flow characteristics of the Portneuf River.
17. The permit holder shall be responsible for the cost of installing or retrofitting any diversion works, located between the project point of diversion and the downstream point of dishcharge, which is detrimentally affected by the hydropower diversion.

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State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 29-07578

CONDITIONS/REMARKS:

18. The adequacy of the project design to protect public and employee safety during all phases of construction and operation of the project shall be reviewed and certified by a professional engineer licensed to practice in the state of Idaho.
19. Prior to operation of the hydropower facility, the permit holder shall provide an operation plan to the Department for review and approval. The operation plan shall provide for the protection of public safety and ensure adequate bypass and maintenance of the Portneuf River regime.
20. For purposes of interim distribution pending judicial determination, any senior unadjudicated water right, including those perfected through the beneficial use method, for which claim is made in the pending Snake River Basin Adjudication ("SRBA" - Twin Falls County Case No. 39576) shall be delivered prior to the right under this permit, provided the water is being beneficially used and provided the use is consistent with the right as recommended in the Director's Report when filed with the district court in the SRBA pursuant to Section 42-1411, Idaho Code.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the seal and signature of the Director, affixed at Boise, this 24th day of September, 1990.

for R. Glen Saxton
R. Keith Higginson, Director

RECEIVED
JAN 2 2 1991

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Boise, ID 83706 - P.O. Box 83720, Boise, ID 83720-0098
Phone: (208) 327-7900 Fax: (208) 327-7866 Web Site: www.idwr.state.id.us

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

June 26, 2001

MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83404

RE: License No. 29-7578 - Issuance of License

Dear Water Right Holder(s):

The Department of Water Resources has issued the enclosed Water Right License confirming that a water right has been established in accordance with your permit. Please be sure to thoroughly review the conditions of approval and remarks listed on your license.

The license is a PRELIMINARY ORDER issued by the Department pursuant to section 67-5243, Idaho Code. It can and will become a final order without further action by the Department unless a party petitions for reconsideration or files an exception and/or brief within fourteen (14) days of the service date as described in the enclosed information sheet.

Please note that water right owners are required to report any change of water right ownership and/or mailing address to the Department within 120 days of the change. Failure to report these changes could result in a $100 late filing fee. Contact any office of the Department or visit the Department's homepage on the Internet to obtain the proper forms and instructions.

If you have any questions, please contact me at 208-327-7946.

Sincerely,

for Shelley W. Keen
Water Rights Supervisor

SWK:klt

Enclosure(s) (includes copy of approved amendment application)

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AUG 0 8 2001

CERTIFICATE OF MAILING

I hereby certify that on June 26, 2001 I mailed a true and correct copy, postage prepaid, of the foregoing PRELIMINARY ORDER(Approved License) to the person(s) listed below:

RE: WATER RIGHT NO. 29-7578

MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83404

Kari Lynn Townsend

Kari Lynn Townsend
Secretary

MICROFILMED

AUG 0 8 2001

EXPLANATORY INFORMATION
TO ACCOMPANY A
PRELIMINARY ORDER

The accompanying order or approved document is a "**Preliminary Order**" issued by the department pursuant to section 67-5243, Idaho Code. It can and will become a final order without further action of the Department of Water Resources (department) unless a party petitions for reconsideration, files an exception and brief, or requests a hearing as further described below:

PETITION FOR RECONSIDERATION

Any party may file a petition for reconsideration of a preliminary order with the department within fourteen (14) days of the service date of this order. The department will act on a petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See Section 67-5243(3) Idaho Code.

EXCEPTIONS AND BRIEFS

Within fourteen (14) days after (a) the service date of a preliminary order, (b) the service date of a denial of a petition for reconsideration from this preliminary order, or (c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration from this preliminary order, any party may in writing support or take exceptions to any part of a preliminary order and may file briefs in support of the party's position on any issue in the proceeding with the Director. Otherwise, this preliminary order will become a final order of the agency.

REQUEST FOR HEARING

Unless a right to a hearing before the department or the Idaho Water Resource Board (Board) is otherwise provided by statute, any person aggrieved by any final decision, determination, order or action of the Director of the department and who has not previously been afforded an opportunity for a hearing on the matter may request a hearing pursuant to section 42-1701A(3), Idaho Code. A written petition contesting the action of the Director and requesting a hearing shall be filed within fifteen (15) days after receipt of the denial or conditional approval.

ORAL ARGUMENT

If the Director grants a petition to review the preliminary order, the Director shall allow all parties an opportunity to file briefs in support of or taking exceptions to the preliminary order and may schedule oral argument in the matter before issuing a final order. If oral arguments are to be heard, the Director will within a reasonable time period notify each party of the place, date and hour for the argument of the case. Unless the Director orders otherwise, all oral arguments will be heard in Boise, Idaho.

CERTIFICATE OF SERVICE

All exceptions, briefs, requests for oral argument and any other matters filed with the Director in connection with the preliminary order shall be served on all other parties to the proceedings in accordance with IDAPA Rules 37.01.01302 and 37.01.01303 (Rules of Procedure 302 and 303).

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AUG 0 8 2001

FINAL ORDER

The Director will issue a final order within fifty-six (56) days of receipt of the written briefs, oral argument or response to briefs, whichever is later, unless waived by the parties or for good cause shown. The Director may remand the matter for further evidentiary hearings if further factual development of the record is necessary before issuing a final order. The department will serve a copy of the final order on all parties of record.

Section 67-5246(5), Idaho Code, provides as follows:

> Unless a different date is stated in a final order, the order is effective fourteen (14) days after its issuance if a party has not filed a petition for reconsideration. If a party has filed a petition for reconsideration with the agency head, the final order becomes effective when:
>
> (a) the petition for reconsideration is disposed of; or
> (b) the petition is deemed denied because the agency head did not dispose of the petition within twenty-one (21) days.

APPEAL OF FINAL ORDER TO DISTRICT COURT

Pursuant to sections 67-5270 and 67-5272, Idaho Code, if this preliminary order becomes final, any party aggrieved by the final order or orders previously issued in this case may appeal the final order and all previously issued orders in this case to district court by filing a petition in the district court of the county in which:

I. A hearing was held,
ii. The final agency action was taken,
iii. The party seeking review of the order resides, or
iv. The real property or personal property that was the subject of the agency action is located.

The appeal must be filed within twenty-eight (28) days of this preliminary order becoming final. See section 67-5273, Idaho Code. The filing of an appeal to district court does not itself stay the effectiveness or enforcement of the order under appeal.

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AUG 0 8 2001

Memorandum

To: Files 29-07578 and 29-07772

From: Kay Walker KW

RE: Annual Volume Recommendations

Date: March 30, 2001

In review of the additional information submitted by Mr. Brockway on 3/8/2001 (in response to request of 2/27/2001) we decided to use the total annual volume diverted in 1997 as the basis for the proposed licenses. Mr. Brockway submitted daily production records for the power plant for calendar year 1997 which the permit holder stated was the best water year since the plant was put into production. In 1997 the plant used an annual volume of 117,494.6 af. Pursuant to Application Processing Memorandum No. 6 we are to limit diversion volumes to a maximum of 3 significant figures so we are recommending 117,000 af under both permits. I found that we can allow a volume of 81,900 af for Permit 29-07578 and 35,100 af for Permit 29-07772.

81,900 + 35,100 = 117,000 af.

6/25/01 – allow 143,000. AF as Sorenson requests –

29-07578 = 100,100.
29-07772 = 42,900.
143,000.

KW

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0 8 2001

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JUN 16 2001

Department of Water Resources

MARSH VALLEY HYDROELECTRIC COMPANY
5203 SOUTH 11TH EAST
IDAHO FALLS, IDAHO 83404
208-522-8069 FAX 208-522-8223
E-mail: ted@tsorenson.net

MEMORANDUM

TO: Kay Walker
Sr Water Resource Agent
IDWR
P.O. Box 83720, Boise, Idaho 83720-0098

DATE: June 4, 2001

FROM: Ted S. Sorenson P.E.

SUBJECT:
Permits 29-07578 and 29-07772

REMARKS:
Here are the signed amendments as requested in your letter of May 4, 2001.
As I stated in my previous letter I believe the total volume allowed diverted should be higher than 35,100 + 81,900 = 117,000 A.F. The 117,000 A.F reflects the highest year since start up in 1993 which was 1997. My feasibility and investment was based on analyses of water years 1950 thru 1990. The peak year was 1984. Because I enlarged the canal (see attached) the 1984 year would accumulate 143,273 A.F. Am I to be limited in the future because I've built to handle 143,273 A.F but not yet received it after only 8 years of operation? Regards

SIGNED: Ted Sorenson

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AUG 08 2001

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JUN 6 2001

Department of Water Resources

1/09/91

Marsh Valley Hydro — Turbine Analyses--Frances
Generator--Syncr.
T.S. Sorenson P.E. — Rated KW- 1700.00

Static Head 101.00

Penstock Hazen Williams	Segment	Diameter Inch	Length FT	Friction Factor
	1	60.00	550.00	130.00
	2	48.00	0.00	100.00

Year: 1984

Month	Flow CFS	Net Head FT	Effic. %	KW	KW-HR X 1000	Mills KW-HR	Revenue	Flow Acre-ft
Jan	237.20	97.88	84.7%	1663.5	1237.7	54.49	$67,441	14,706
Feb	235.90	97.91	84.7%	1655.0	1122.1	54.49	$61,141	13,210
Mar	245.50	97.67	84.7%	1719.9	1279.6	54.49	$69,726	15,221
Apr	~~207.80~~ 250	98.55	84.7%	1469.0	1057.7	54.49	$57,632	~~12,468~~ 15,000
May	~~130.00~~ 250	99.97	83.8%	922.3	686.2	54.49	$37,391	15,500
Jun	~~50.00~~ 200	100.83	82.8%	353.3	254.4	54.49	$13,862	12,000
Jul	49.80	100.83	83.5%	354.8	264.0	54.49	$14,383	3,088
Aug	35.20	100.91	83.5%	251.0	186.7	54.49	$10,175	2,182
Sep	210.00	98.51	82.9%	1451.5	1045.1	54.49	$56,947	12,600
Oct	199.20	98.74	84.4%	1404.7	1045.1	54.49	$56,947	12,350
Nov	223.10	98.21	84.7%	1571.6	1131.6	54.49	$61,660	13,386
Dec	226.30	98.14	84.4%	1586.0	1180.0	54.49	$64,299	14,050
		Subtotal			10490.0		$571,603	

TOTAL (5.0% Downtime Allowance) 9965.5 $543,023

Maximum Output 1719.9 KW

Total 143,273

Overall Plant Factor 66.9%

NOTES

Flow Data Source; USGS # 13073000
Minimum bypass flow 10 cfs year-round
Maximum turbine capacity 250 cfs
Maximum canal capacity 250 cfs enlarged to 450 cfs TSS
Irrigation requirements:
Jan,Feb,Mar,Apr 1-15: 0 cfs
Apr 15-30: 80 cfs
May 1-20: 120 cfs
May 20-31,June,July,Aug,Sep 1-15: 200 cfs
Sep 15-30: 40 cfs
Oct: 20 cfs
Nov,Dec: 0 cfs

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State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Boise, ID 83706 - P.O. Box 83720, Boise, ID 83720-0098
Phone: (208) 327-7900 Fax: (208) 327-7866 Web Site: www.idwr.state.id.us

May 4, 2001

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

MARSH VALLEY DEVELOPMENT INC
ATTN: TED S SORENSON
5203 S 11 E
IDAHO FALLS ID 83404

RE: Permits 29-07578 and 29-07772

Dear Mr. Sorenson:

We are in receipt of your letter of April 26, 2001, regarding the above referenced permits. Please note that we received your amendment fees, in the amount of $100.00, but we did not receive the signed license amendment forms. I have included new amendment forms for your use, in case the previous ones were misplaced. Please submit the amendment forms at your earliest convenience.

In regard to your concerns regarding the conditions we proposed to attach to your licenses, we find that we can remove Condition No. 7, as you requested. I have removed this condition from the enclosed amendment forms per your request. If you recall, this condition stated "The director retains jurisdiction to require a by pass flow for maintenance of fish, wildlife, riparian and aquatic habitat." You were correct when you stated this condition was not on the permits when approved and should not be added at this time.

In regard to the proposed volume of water to be licensed, we find we cannot allow more than proposed unless you can submit documentation that shows you have used more than this amount since your system went online. We based the proposed volumes on information submitted by Charles E. Brockway on March 6, 2001. Since your project was not on line during water years 1982 and 1983, we cannot base your licenses on the water flows for those years. If you wish to submit additional documentation that shows your plant has used a greater volume of water since going online, we would be happy to review that information. Please submit any additional documentation that you may have within the next 30 days. We will withhold licensing these permits until June 4, 2001 to allow you time to gather and submit additional information.

If you have any further questions or concerns regarding the licensing of these permits, please do not hesitate to contact our office.

Sincerely,

Kay Walker

KAY WALKER
Sr. Water Resource Agent

KW:k
Enclosures

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APR 30 2001

Department of Water Resources

MARSH VALLEY DEVELOPMENT, INC.
5203 South 11th East
Idaho Falls, Idaho 83404

Phone: 208-522-8069
Fax: 208-522-8223
E-mail: 308-522-8223

April 26, 2001

no amendment forms-

Kay Walker
Senior Water Resource Agent
State of Idaho
Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098

RE: Water Right Permit Nos. 29-07578 and 29-07772

Dear Mrs. Walker:

Enclosed please find the enclosed amendments for points of diversion and points of use. Also enclosed is a check for $100.00.

In reviewing the conditions of approval I have the following concerns:

1. Condition of approval No. 7 states "The director retains jurisdiction to require a by pass flow for maintenance of fish wildlife raparian and aquatic habitat. This condition was not included in the original permit to appropriate water. The original permit contained a requirement for "a minimum flow of 10 CFS or the entire available stream flow of less than 10 CFS must be maintained within the bypass reach at all times except as specified in the FERC license. This requirement is also covered under item 11 of the new conditions of approval. This new condition of approval leaves open the amount of water to generate hydropower and would have been a major concern to finance the project in 1992 and will be a major concern for refinancing in the future. Being that it was not in the original permit, I request that it be removed. -OK can remove

2. The permitted volume of diversion under both permits totals some 81,900 plus some 35,100 equals 117,000 acre-feet. This amount of permitted

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total volume to be diverted in the year approximates water year 1997. However, the power plant when built in 1992 was projected on the previous 70 years of flow data as modeled by the adjacent USGS flow measuring gage. As I remember, the model showed that water years 1982 and 1983 were greater in terms of energy produced and, therefore, of water used than 1997, which the permit proposes. Therefore, if we are limited to this 117,000 acre feet in the future, I have been impacted on my financial viabilityof the plant. The plant can divert up to 182,500 acre feet of water per year at the rate of 250 CFS if it is available. Therefore, I request that the volume be increased to 127.750 acre feet for 29-0758 and 54,750 acre feet for 29-07772 as this is the amount that can and would be used on wetter years if the water is available.

allow 30 days to submit new info

Please give consideration to these items and I thank you in advance for your consideration.

Very Truly Yours,

Ted S. Sorenson

Ted S. Sorenson, P.E.

TSS/ptj
Enc.

2000letters\Walker.ltr

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State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Boise, ID 83706 - P.O. Box 83720, Boise, ID 83720-0098
Phone: (208) 327-7900 Fax: (208) 327-7866 Web Site: www.idwr.state.id.us

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

April 3, 2001

MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83404

RE: Water Right Permit No. 29-07578

Dear Permit Holder:

The Department of Water Resources is reviewing the permit referenced above prior to issuing a water right license. By issuing a license, the Department confirms the extent of development that has been established in compliance with the terms of the permit. The examiner who verified your water use reported that certain elements of the permit have been developed differently than described on your permit. Changes that do not increase the authorized use of water under the permit can be requested and approved in accordance with Section 42-211, Idaho Code. Before a license can be issued, your permit must be amended to depict your water use as it was actually developed.

Based on the examiner's report, the following elements were developed differently than described on your permit:

✓ **Point(s) of Diversion**

✓ **Place(s) of Use**

The enclosed Application for Amendment form depicts the elements of the water right as they will appear on the license when it is issued. Please review the amendment form carefully. If you concur with the information presented, please sign the form and return it with the $50.00 filing fee within 14 days.

If you have any questions, please call me at 208-327-7944.

Sincerely,

Kay Walker

KAY WALKER
Sr. Water Resource Agent

Enclosure

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4-19-2001
Ted Sorenson called - has questions on conditions/remarks on proposed license - requested copies of permits which I have sent to him - needs more time to review & submit amendments. allow 2 extra weeks for submittal. KW

BROCKWAY
ENGINEERING
P.L.L.C.

Hydraulics
Hydrology
Water Resources

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Department of Water Resources

March 6, 2001

Mr. Shelley Keen, Supervisor
Water Allocations Section
Idaho Department of Water Resources
1301 North Orchard
P.O. Box 83720
Boise, ID 83720-0098

Subject: Beneficial Use Exam Permit Nos. 29-07578, 29-07772

Dear Shelley:

I too reviewed the Water District 29 records for flows through the Portneuf Marsh Valley Canal and found them lacking in data sufficient to determine reasonable flows for licensing the Marsh Valley Hydro project.

The best estimate of flows actually diverted through the hydro system can be determined from plant records and the discharge/kw relationships developed for the plant during the beneficial use field exam.

Mr. Ted Sorenson furnished daily production records for the plant for calendar year 1997, which he indicated is the best water year since the plant was put into production. Based on this data, I prepared the attached spreadsheet to calculate average monthly production and discharge based on the calibrated discharge v. output relationship. The estimated total annual volume for 1997 was 117,495 af.

The Portneuf Marsh Valley Canal was enlarged during the construction of the power plant to transport all existing water rights plus the design discharge of the power plant according to plant construction records. Therefore, whenever the flow of the river is adequate to fill all irrigation and stockwater water rights plus the hydro right including the bypass flow of 10 cfs, the canal has adequate capacity to deliver the total 250.4 cfs design flow to the turbines.

According to past plant records, flows are oftentimes available during the summer months for hydro production when irrigation demand is down or river flows are high due to good water years or rainstorms.

It is therefor possible that the full plant discharge capacity could be available in some years for the full season, although that has not occurred to date.

The plant is not over designed so it seems reasonable to allow the potential annual volume based on the allowed combined rate of diversion of 250.0 cfs for the full year or 180,992 acre feet per year.

CHARLES E. BROCKWAY, PH.D., P.E.

CHARLES G. BROCKWAY, PH.D., P.E.

2016 NORTH WASHINGTON STREET • SUITE 4

TWIN FALLS, IDAHO 83301

208•736•8543

FAX: 736•8506

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I have added my recommendation of annual volume to the Beneficial Use Field Report and am returning it for final processing.

Sincerely,

Charles E. Brockway

cc: Marsh Valley Development Inc.

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Marsh Valley Hydro

1997 Daily average KW plant output

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	1,251	1,557	1,480	1,756	1,562	1,587	156	-	-	1,233	1,656	1,158
2	1,306	1,538	1,542	1,689	1,565	1,597	(3)	-	-	1,254	1,350	1,151
3	1,621	1,513	1,523	1,735	1,238	1,573	(4)	-	-	1,300	1,174	1,109
4	1,609	1,490	1,510	1,711	1,166	1,461	-	-	-	1,278	1,140	1,108
5	1,565	1,493	1,489	1,664	1,313	1,489	-	-	-	1,251	1,136	1,113
6	1,338	1,411	1,576	1,672	1,666	1,249	-	-	-	1,246	1,136	1,126
7	1,197	1,377	1,609	1,641	1,622	1,250	-	-	-	1,302	1,139	1,137
8	1,264	1,284	1,615	1,635	1,679	1,564	-	-	-	1,237	1,140	1,163
9	1,234	1,342	1,607	1,668	1,506	1,567	-	-	-	1,534	1,139	1,145
10	1,229	1,379	1,597	1,649	1,408	1,568	-	-	-	1,558	1,131	1,077
11	1,234	1,409	1,720	1,599	1,399	1,563	-	-	-	1,622	1,137	1,040
12	1,186	1,396	1,725	1,562	1,411	1,514	-	-	-	1,623	1,141	1,080
13	944	1,368	1,673	1,535	1,317	1,558	-	47	-	1,573	796	1,016
14	1,034	1,359	1,729	1,524	1,306	1,592	-	215	-	1,566	1,124	1,079
15	1,316	1,460	1,714	1,522	1,625	1,575	-	363	(7)	1,568	1,084	1,128
16	1,273	1,492	1,744	1,658	1,581	1,542	-	407	293	1,559	1,080	1,016
17	1,290	1,510	1,727	1,679	961	1,528	-	386	545	1,587	1,118	1,079
18	1,318	1,529	1,622	1,715	299	1,500	-	297	548	1,565	1,129	1,128
19	1,315	1,511	1,676	1,715	1,204	1,476	-	110	658	1,553	1,150	1,116
20	1,310	1,492	1,740	1,652	1,365	1,254	-	273	668	1,540	1,149	1,055
21	1,330	1,482	1,699	1,619	1,315	1,271	-	364	929	1,531	1,075	1,083
22	1,303	1,484	1,720	1,569	1,435	1,199	-	285	935	1,529	1,153	1,105
23	1,323	1,526	1,721	1,645	1,474	1,164	-	160	931	1,500	1,146	1,052
24	1,238	1,467	1,671	1,635	1,418	1,103	-	119	1,012	1,574	1,155	1,091
25	1,324	1,496	1,674	1,670	1,519	792	-	128	1,309	1,558	1,158	1,064
26	1,448	1,143	1,767	1,673	1,602	408	-	5	1,227	1,595	1,146	1,035
27	1,496	1,555	1,737	1,647	1,575	383	-	-	1,296	1,628	1,184	1,038
28	1,369	1,508	1,732	1,574	1,585	367	-	-	1,298	1,621	1,182	1,055
29	1,323	-	1,672	1,590	1,476	297	-	-	1,337	1,614	1,163	1,066
30	1,280	-	1,686	1,581	1,577	-	-	-	1,317	1,604	1,159	1,065
31	1,423	-	1,721	-	1,551	-	-	-	-	1,315	-	1,064

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Avg. kw	1312.5806	1308.7	1658.5	1586.6	1410.3	1193.2	4.8	101.9	461.1	1484.4	1115.1	1088.5
Avg cfs**	192.5	192.0	238.1	228.6	205.4	176.7	20.0	32.8	80.2	215.2	166.4	162.9
Monthly af	11,835.6	11,803.8	14,640.8	14,057.4	12,627.7	10,867.4	1,230.8	2,017.9	4,931.3	13,229.1	10,234.5	10,018.3

** Based on generator calibration CEB Q=19.385 +0.131879*KW (See Beneficial Use Field Report GENVQ.XLS)

Total annual af 117,494.6 for 1997

Rated Generator Outpu 250.4 cfs

Max Annual Volume= 181,281 af assuming plant operating at capacity

Permitted discharge 250 cfs

Annual Volume 180,992 af assuming plant operting at full permitted discharge

Note: Canal is sized to transport total irrigation and stock water rights plus hydropower right.

In wet years, irrigators sometimes shut off due to rain or to allow additional discharge through the hydro plant from which they derive revenue.

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McCARTHY, MED

Form 219
6/92

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Department of Water Resources

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit Nos 29-07578, 29-07772

1. Owner: Marsh Valley Development Inc Phone No. 208-522-8069

Current Address: 5203 South 11th East Idaho Falls, ID 83404

2. Accompanied by: Ted Pilling EXAM DATE: 10/22/94

Address: 9058 Crystal Springs Rd. McCammon ID 83250 Phone No. 208-254-3615

Relationship to Permit Holder: Plant Manager

3. Source: Portneuf River tributary to Snake River

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None

2. Other water rights with the same point of diversion:

C. DIVERSION AND DELIVERY SYSTEM

1. **Point(s) of Diversion:**

Ident No.	Gov't Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
		SE	NW		22	9S	37E	BANNOCK	USGS 7.5' QUAD

2. **Place(s) of Use:** Indicate Method of Determination USGS 7.5' QUAD

TWP	RGE	SEC	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
9S	37E	20			P														

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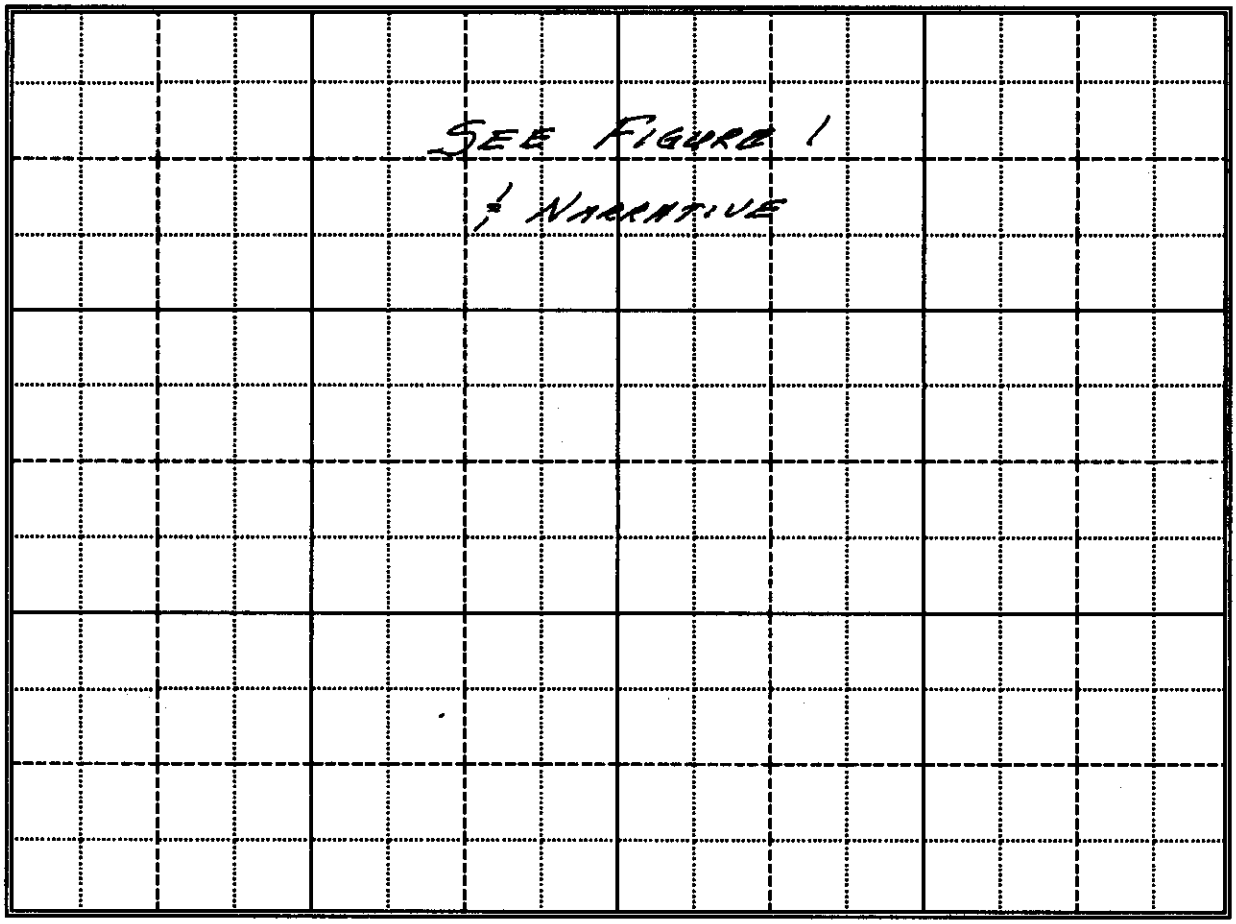
3. **Delivery System Diagram**: Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.



Scale: 1" = _____.

✓ Copy of USGS Quadrange Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

___ Aerial Photo Attached (required for irrigation of 10+ acres)

✓ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
15' Parshall Flume						
and Turbine rating						

2. **Measurements:** See Narrative

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E. NARRATIVE/REMARKS/COMMENTS

Attached

Have conditions of permit approval been met? ✓ yes ___ no

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F. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method:

Based on turbine rating and Parshall flume - discharge v. generation
See narrative and computation sheet

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = _____

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 = _____

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = _____

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	Period of Use To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Power (29-07578)	01/01	12/31	175.0	126,694
Power (29-07772)	01/01	12/31	75.0	54,298
		Totals:	250.0	180,992

CEB 3/16/01

2. Recommended Amendments

___ Change P.D. as reflected above ___ Add P.D. as reflected above ___ None

X Change P.U. as reflected above ___ Add P.U. as reflected above ___ Other

I. AUTHENTICATION

Field Examiner's Name Charles E. Brockway Date 12/3/94

Reviewer _____ Date _____

REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO CHARLES E. BROCKWAY SEAL 12/3/94

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AUG 08 2001

WATER RIGHTS EXAMINER'S REPORT-NARRATIVE

Permit Nos.

Owner: March Valley Hydro Electric Co.

Examiner C. E. Brockway P.E.

Dated December 1, 1994

The field examination for beneficial use on Permit Nos. 29-07578 and 29-07772 was performed on October 22, 1994.

The water supply for the Marsh Valley hydroelectric facility includes a diversion from the Portneuf River consisting of two, 10 ft wide vertical slide gates, Photo #1, and a two mile long power canal. The diversion structure is located in the SE1/4, NE 1/4 Sec 22 T9S R37E BM. Figure 1 shows the diversion, power canal and power plant. The gate structure meets the requirements for a lockable controlling works as required under condition 11 of both permits. The power canal is jointly used by the Portneuf Marsh Valley Canal Co. with hydroelectric generation occurring during the non-irrigation season. Inflow to the project is measured through a 15 ft Parshall flume in the power canal approximately 0.75 mile downstream of the diversion, Photo #2. This measuring device meets the requirements under Condition 11 of the permits. At the time of the exam, the head reading on the flume was 0.81 ft. which corresponds to a discharge of 41.2 cfs.

Diversion from the power canal and the power plant are located in the SW 1/4 NE 1/4 Sec 20 T9S R37E. Flow to the powerhouse is diverted from the canal through a gated diversion structure, Photo #3, into the penstock. Flow can be bypassed down the irrigation canal for stock water or a 42 inch diameter shutdown bypass pipe allows return of power plant flow to the river. This satisfies Condition 16 of the permits. The penstock drops approximately 100 ft to the powerhouse and thence into the tailrace and returns to the Portneuf river, Photo #4. .

The penstock serves two turbines coupled to a single generator unit with capacities and specifications taken from nameplate data as shown in Table 1.

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Table 1 Turbine Nameplate Data

	Turbine #1 (North)	Turbine #2 (south)
Manufacturer	Hangchow Electrical Equipment Works, Peoples Republic of China	Hangchow Electrical Equipment Works, Peoples Republic of China
Type	HLD06A-WJ-71	HLA244-WJ-84
Speed	514.3 Rev/min	514.3 Rev/min
Power	580 Kw	1232 Kw
Standard No.	JB626-80	JB626-80
Head	29.87 meters	29.87 meters
Serial No	91121-2	91121-4
Flow Rate	2.26 m^3/s	4.81 m^3/s
Date	91.10	91.10

The generator nameplate data is shown in Table 2

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Table 2 Generator Nameplate Data

Manufacturer	Ideal Electric Mansfield Ohio	Phase	3
Serial No.	911054-01	Hz	60
Frame	11320-29	Rev/min	518
Type	ATG	Amps	291
Code	0	Volts	4160
Kw	1650	Duty	Continuous
Volts	4150	SF	1.15

The power plant for the Marsh Valley Hydro project consists of two (2) turbines coupled to a single generator unit with a combined nameplate hydraulic capacity of 7.07 m^3/s.(250.4 cfs), Photo #5, The forebay maximum water level elevation is maintained by hydraulic gates and an overflow spillway in the power canal..

Flow available for power generation has been below average since the project went on line in March 1992. Power plant log sheets maintained by the plant operator were obtained to determine historical generation and discharge measurements. The pertinent logs are attached to this narrative. Concurrent recorded discharge and kilowatts generated were extracted from the log sheets to determine a discharge rating for the turbine generator system. Figure 2 shows the generation and discharge data utilized and the comparison with the rated generation capacity and discharge. The concurrent discharge and Kw data used to determine the fitted curve on Figure 2 is limited to Kw output below 1065 Kw. However, the r^2 value for the linear fit is 0.74 which is reasonable. The extrapolated fitted curve shows a discharge of 258.4 cfs at the rated generator output of 1812 Kw. The manufacture's rated discharge is shown as the lower line in Figure 1 and indicates a rated discharge of 250.4 cfs at 1812 Kw.. This line shows approximately 8 to 10 cfs lower discharge than the fitted curve for the same Kw output. The difference is likely due to seepage in the power canal or leakage through the gates in the power canal controlling the forebay elevation.

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On November 5, 1994, short term, high flow tests were conducted to determine system generation capacity. Short term storage in the power canal was used and both turbines were coupled to the generator. Recorded power generation for a sequence of 4 tests was 1782Kw, 1451Kw, 2005Kw, 2003Kw, and 1994Kw.(see attached power plant log and narrative). The 2005Kw power generation corresponds to an estimated 277 cfs from the manufacture's rated curve and 284 cfs from the fitted curve based on canal flow at the Parshall flume. This was a short term test, but does confirm that the facility is capable of generating in excess of the manufacturers rated output and with a flow considerably in excess of the rated discharge.

Historically, the flow available for diversion from the Portneuf river during the non-irrigation season has exceeded the rated 250.4 cfs and the power canal has the capacity to deliver that amount to the turbines. Maximum flows in February, March and April of the Portneuf River at Topas , just upstream of the power diversion, in excess of 400 cfs are common(Water Resources Data for Idaho, 1993)

These permits include Condition 15 which requires a minimum bypass flow of 10 cfs or the entire available stream if less than 10 cfs. The bypass reach has a rated discharge section approximately 500 feet upstream of the tailrace. This section was rated on March 23, 1993 by C.E. Brockway P.E. A copy of the rating curve is attached. At the time of this exam, the bypass gage read 0.45 ft which corresponds to a discharge of 10.0 cfs.

At the time of the exam, only the No 1 turbine was operating and the generator output was 325 Kw which is considerably less than the rated output for the project.

Based on the turbine rating and historical Kw generation, the recommended combined discharge for licensing is the permitted discharge of 250 cfs under permits 29-07772(75.00 cfs) and 29-07578(175.00 cfs).

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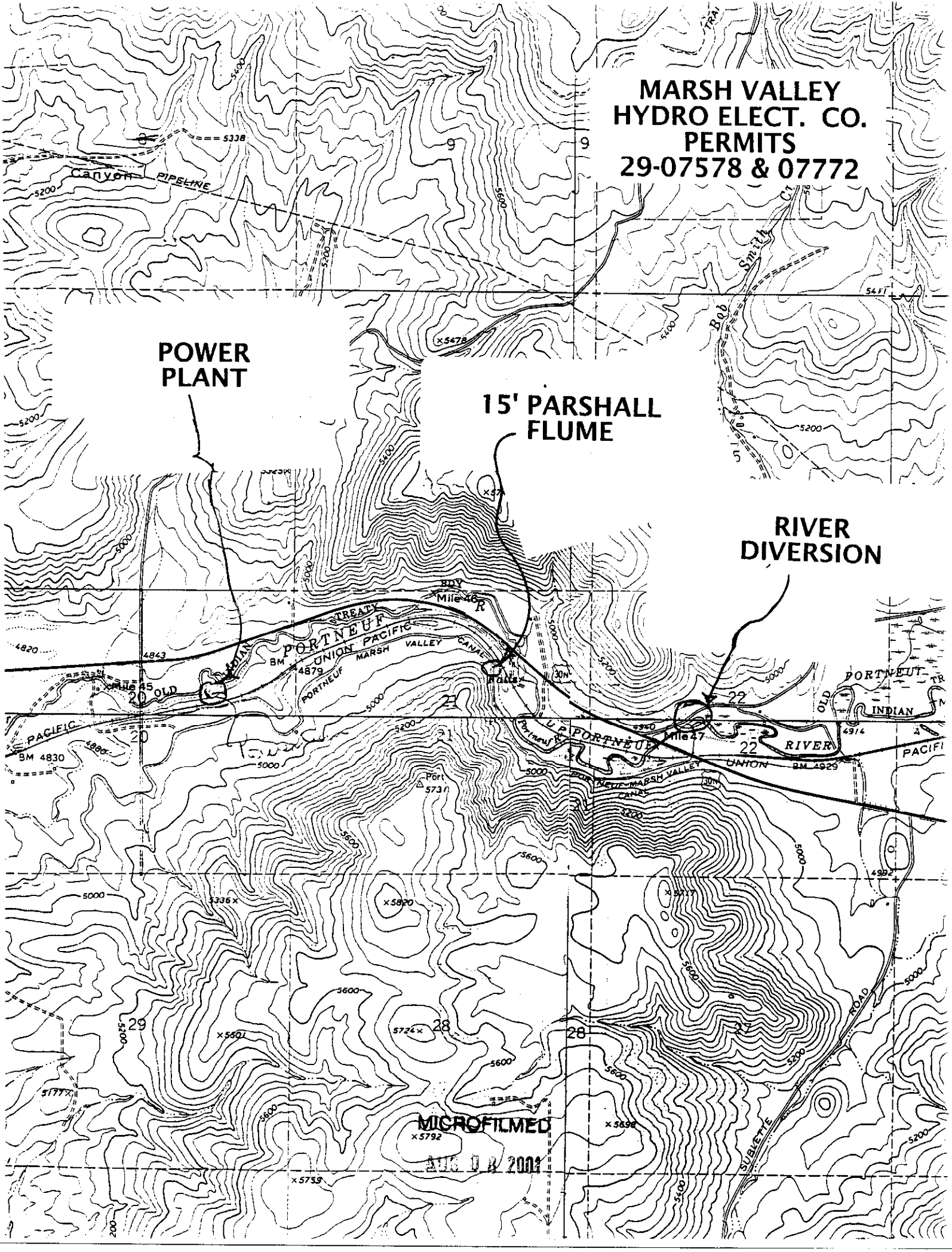
MARSH VALLEY
HYDRO ELECT. CO.
PERMITS
29-07578 & 07772
POWER
PLANT
15' PARSHALL
FLUME
RIVER
DIVERSION
Canyon
PIPELINE
Bob Smith
PORTNEUF
UNION PACIFIC
MARSH VALLEY CANAL
PORTNEUF
INDIAN
OLD
Mile 46
Mile 45
Mile 47
RIVER
PACIFIC
BM 4830
BM 4879
BM 4929
SUBLETTE
ROAD
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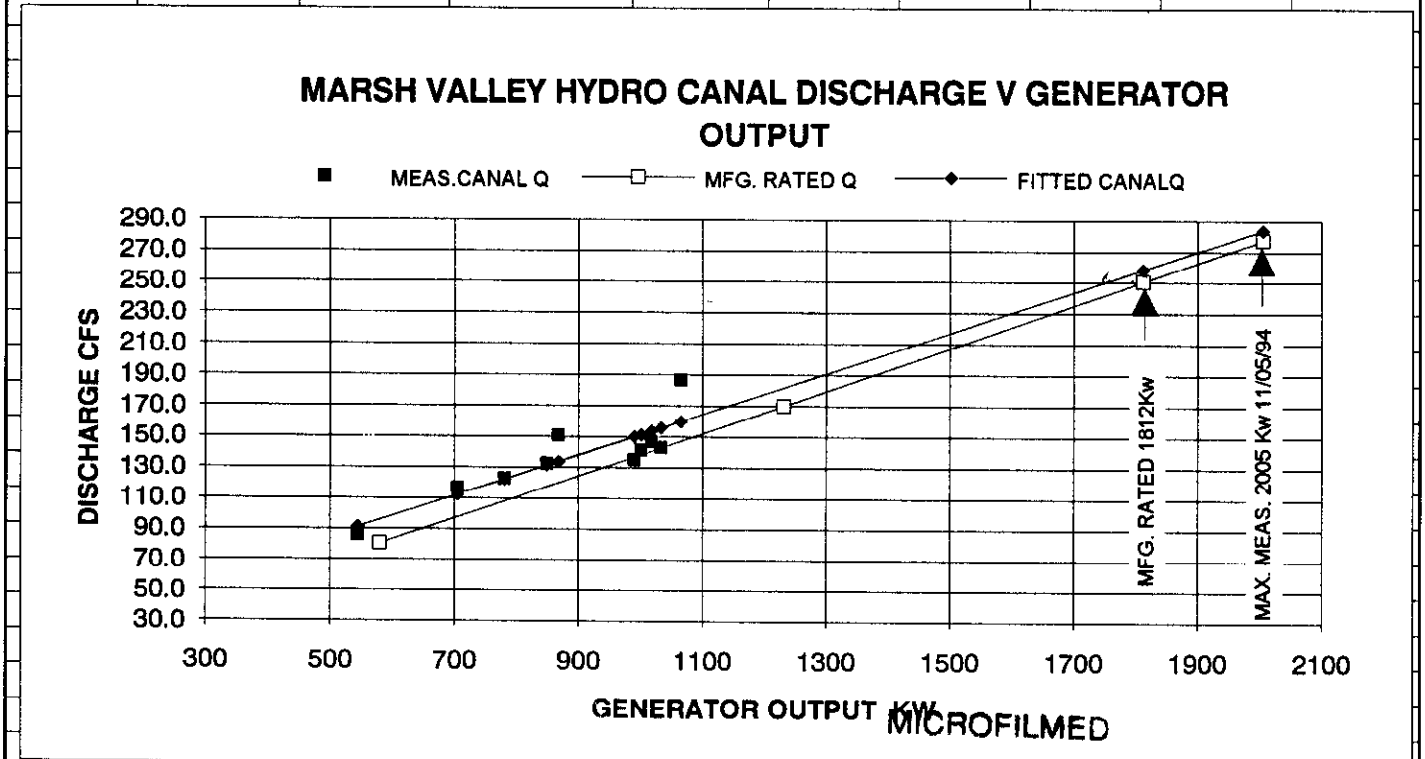
MARSH VALLEY HYDRO BENEFICIAL USE EXAM FIGURE 2

CORRELATION OF CANAL DISCHARGE WITH GENERATOR OUTPUT

15 FT PARSHALL FLUME IN POWER CANAL
DISCHARGE EQUATION Q= 57.81 *H^ 1.6
DATA FROM COMPANY RECORDS
COMPILED BY C.E. BROCKWAY P.E. 23-Oct-94
CANAL DISCHARGES USED ENTIRELY THROUGH POWER PLANT

TURBINE #1 RATED A		2.28	M^3/SEC=	80.5	CFS	580	KW		
TURBINE #2 RATED A		4.81	M^3/SEC=	169.9	CFS	1232	KW		
MAXIMUM RATED Q		7.09	M^3/SEC=	250.4	CFS	1812	KW		
DATE	PARSHALL	GENERAT	DISCHARGE						
	FLUME	OUTPUT				RATED K	MFG. RATED Q		
	FT	KW	MEAS.CANAL	FTITED CANAL Q		580	80.5		
		GEN KW	CFS			1232	169.9		
2/18/94	1.68	849	132.6	131.4		1812	250.4		
2/25/94	2.08	1065	186.6	159.8		2005	277	<<PROJECTED	
3/4/94	1.28	544	85.8	91.1	BYPASSING?SEE LOG				
3/11/94	1.82	867	150.7	133.7					
3/18/94	1.75	1001	141.5	151.4	MAX RECORDED				
3/25/94	1.70	990	135.1	149.9	1674	240.2			
4/2/94	1.76	1033	142.8	155.6			LINEAR FIT KW V Q		
4/8/94	1.79	1017	146.7	153.5			0.131879	19.38512	#N/A
4/16/94	1.60	780	122.6	122.3			0.027676	24.89515	#N/A
4/22/94	1.55	705	116.6	112.4			0.739471	14.04484	#N/A
		1812		258.4			22.70672	8	#N/A
11/5/94		2005		283.8	<<SHORT TERM TEST				
10/22/94	0.81	325	41.3	62.2	BYPASSING FOR STOCK				



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MARSH VALLEY HYDRO DISCHARGE RATINGS

FROM CURRENT METER MEASUREMENTS BY C.E. BROCKWAY P.E. MARCH 23, 1993

STAFF GAGE DATA

BENCH MARK IS STEEL PIPE WITH INDIAN ALLOTMENT CORNER MARKER

ADJACENT TO ACCESS ROAD APPROXIMATELY 100 FEET NORTH OF BRIDGE

UPPER STAFF GAGE AT CURRENT METER STATION, 50 YES UPSTREAM OF ACCESS BRIDGE

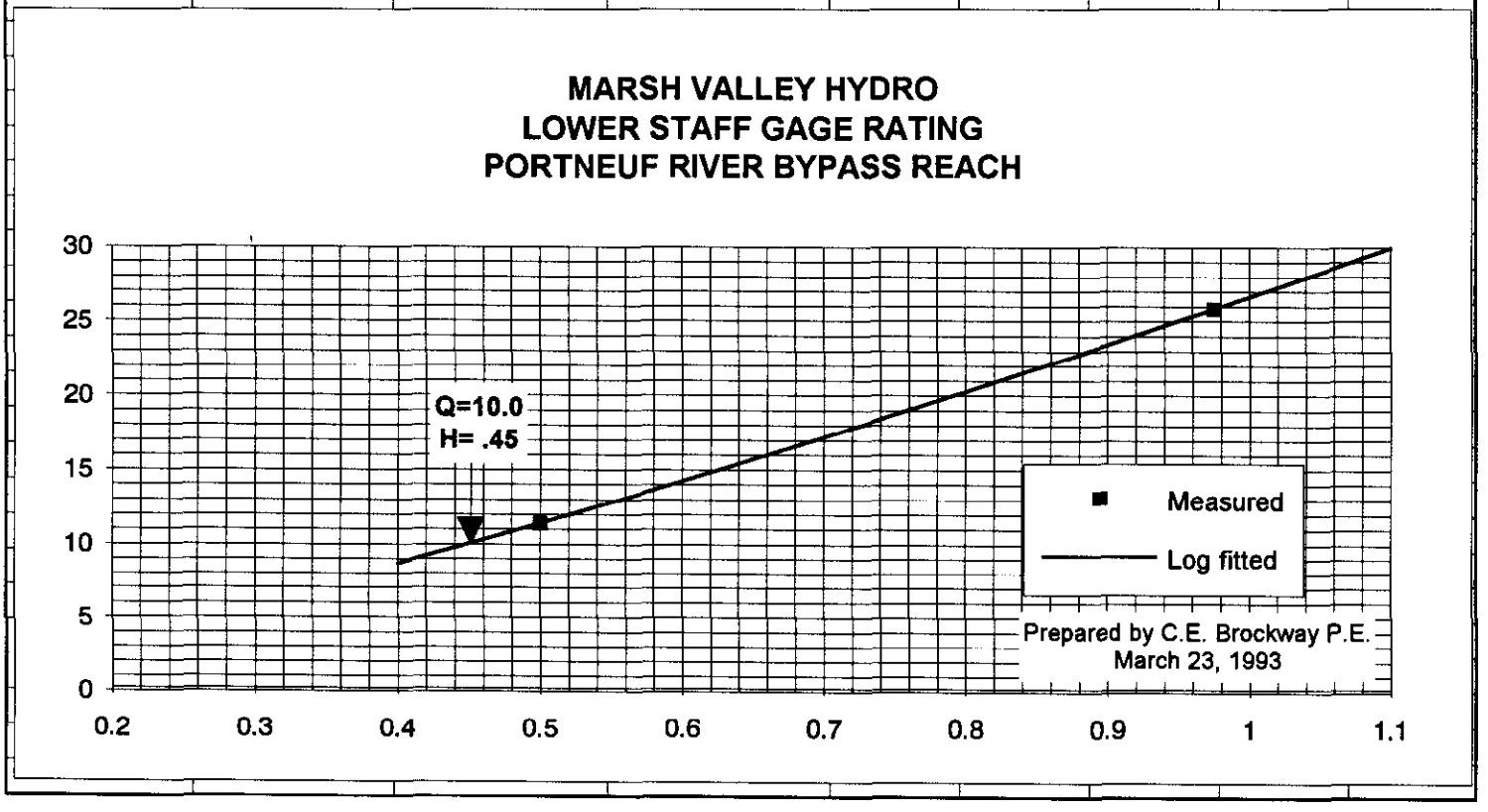
SURVEYED ELEVATION OF ZERO OF UPPER STAFF GAGE= 86.03 FT

LOWER STAFF GAGE APPROXIMATELY 30 FT DOWNSTREAM OF BRIDGE

SURVEYED ELEVATION OF ZERO OF LOWER STAFF GAGE= 85.80 FT

ELEVATION OF TOP OF CHANNEL STEEL NE CORNER OF BRIDGE= 96.35ft

UPPER GAGE FEET	LOWER GAGE FEET	DISCHARGE CFS
1.59	0.5	11.37
1.835	0.975	25.84



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(4RS)

0 + 13.5 — 5.5 + 0

HYDRO — DEV

.3 Nov 1 - Logged plant, cleaned trashracks, D.P. tried to fully close Downing Water.

1.5 Nov. 2 - Logged plant, cleaned trashracks, ~~opened~~ McC. head gate, lowered River Gate,
1 Visited S.B., dropped off logs, Hours.

1 Nov. 3 - Logged plant, cleaned trashracks, McC = 0.38 Called around looking for Downing material prices, got Hes room. 0.5

2 Nov. 4 - McC - 0.37, D - 1.27 M.F. 0.28 Drove canal, raised River Gate, cleaned trashracks, consulted w/ Hes about upcoming work, Logged Plant.

1 Nov. 5 - RS: 4 hrs Logged plant, cleaned trashracks, opened & cleaned River gate, connected large turbine, ran high KWs for 2-3 seconds at a time. 1782 kw, 1951 kw, 2005 kw, 2.003 kw, 1994 kw. Δ cleaned trashracks constantly while RS, played with the controls. Two shutdowns tonight due to low Head (about - 21'!). Had to play with the Programming and babysit the controls manually because the Automatic Sensors are flat - screwy and don't work unless manually alpha changes give them time to (resp) [illegible] the world! 4RS 5

3

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1 Nov. 6 - Logged powerplant, cleaned trashracks

	DATE NOV 94	TIME	MIN. FLOW GAUGE	BATTERIES	HOUSE TEMP.	HPU OIL PRESSURE LEV	1	SMALL TEMP. (°F) UNIT #1 BEARINGS 2	3	LARGE TEMP. (°F) UNIT #2 BEARINGS 1	2	3	GEN. BEARING #1 TEMP. (°F)	GEN. BEARING #2 TEMP. (°F)	GENERATOR TEMPERATURE STAT (°F) #1	#2	#3	AVERAGE
1	1300	0.48	✓	72	✓	95	[illegible]	[illegible]	104	–	–	–	120	120	119	126	123	122	80
2	1225	0.51	✓	71	✓	95	[illegible]	[illegible]	105	–	–	–	121	123	124	131	128	126	80
3	0940	0.45	✓	69	✓	94	[illegible]	[illegible]	104	–	–	–	116	121	120	127	124	122	83
4	1100	0.38	✓	66	✓	94	[illegible]	[illegible]	104	–	–	–	118	121	119	126	124	122	80
5	1300	0.38	✓	69	✓	94	[illegible]	[illegible]	104	–	–	–	121	122	124	131	128	127	81
6	1230	0.35	✓	69	✓	97	101	[illegible]	106	–	–	–	120	124	128	135	132	131	81
7	1100	0.40	✓	69	✓	97	101	[illegible]	107	–	–	–	122	121	[illegible]	132	130	128	81
8	1100	0.39	✓	69	✓	96	100	[illegible]	108	–	–	–	119	120	121	128	125	123	816
9	1035	0.30	✓	70	✓	95	100	[illegible]	108	–	–	–	121	123	126	133	131	129	819
10	1400	0.38	✓	70	✓	96	101	[illegible]	108	–	–	–	122	125	129	136	134	131	821
11	1030	0.40	✓	70	✓	95	101	[illegible]	107	–	–	–	120	125	128	135	132	131	824
12	1230	0.48	✓	72	✓	97	101	[illegible]	108	–	–	–	121	122	124	131	128	127	826
13	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14	1450	0.42	✓	65	✓	93	99	[illegible]	[illegible]	–	–	–	118	119	118	124	121	120	831.5
15	1430	0.40	✓	61	✓	93	99	[illegible]	[illegible]	–	–	–	115	121	122	128	125	123	833
16	1600	0.42	✓	65	✓	94	100	[illegible]	[illegible]	–	–	–	115	121	124	131	129	127	836
17	1105	0.46	✓	62	✓	93	99	[illegible]	[illegible]	–	–	–	117	118	119	126	124	122	838
18	1200	0.45	✓	61	✓	94	100	[illegible]	[illegible]	–	–	–	116	118	119	126	123	122	840
19	1530	0.48	✓	53	✓	–	–	–	92	[illegible] 27	97	111	[illegible]	109	115	117	113	843
20	1400	0.48	✓	55	✓	–	–	–	94	[illegible]	100	117	[illegible]	113	120	118	117	845
21	1055	0.43	✓	56	✓	–	–	–	95	[illegible]	100	117	[illegible]	114	121	118	118	847
[illegible]	[illegible]	[illegible]	✓	61	✓	–	–	–	95	[illegible]	100	108	[illegible]	109	116	113	113	849

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RE	RUN TIME HOURS-MINUTES	HEAD LEVEL	SCREEN LEVEL	WICKET #1 (%)	WICKET #2 (%)	VOLTAGE	AMPS	KW	KW-HR	COOL WATER	SEAL WATER	SUMP PUMPS	OIL LEVEL GEN BRGS	OIL LEVEL #1	OIL LEVEL #2	TRASH PENSTOCK	RIVER HEADGATES	DONNEY FLUME	McCAMMON FLUME	OPERATOR	COMMENTS
8006	17.8	6.5	44	-	4260	147	258		6,266,126	✓	✓	✓	✓	✓	✓	✓	-	-	-	TP	NOW 5, BOTH TURBINES
2029	18.0	6.1	55	-	4211	100	339		6,273,993	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	RAN NIGHT 6.15 TODAY 1782, 1951
3051	16.9	5.5	57	-	4249	164	343		6,281,420	✓	✓	✓	✓	✓	✓	✓	-	-	-	TP	2005, 2003, 1994
5076	17.7	6.1	54	-	4248	164	350		6,291,314	✓	✓	✓	✓	✓	✓	✓	-	1.27	0.57	TP	TCP END
1	17.8	4.8	66	-	4252	169	429		6,301,972	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	KILL GENERATION
122	21.9	7.2	71	-	4230	173	492		6,311,448	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
5145	22	6.9	68	-	4232	171	466		6,322,032	✓	✓	✓	✓	✓	✓	✓	-	-	-	TP	
169	22	6.2	68	-	4200	173	465		6,333,171	✓	✓	✓	✓	✓	✓	✓	✓	-	0.35	TP	
92	21	5.2	66	-	4257	172	463		6,344,068	✓	✓	✓	✓	✓	✓	✓	✓	-	0.36	TP	
216	22	3.5	66	-	4248	171	456		6,355,415	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
40	22	4.5	63	-	4245	170	439		6,365,985	✓	✓	✓	✓	✓	✓	✓	✓	1.28	0.34	TP	
65	17	13	59	-	4243	167	403		6,377,249	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	SICK
15	16	11	57	-	4259	166	382		6,389,708	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
537	13	7	78	-	4244	175	513		6,410,062	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
60	11	5	76	-	4273	176	503		6,420,891	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	1307 KW
83	12	5	81	-	4248	176	522		6,432,965	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	1245 KW #2 100%
109	11	4	91	-	4250	178	534		6,446,530	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	SWITCHING TO CHARGE TURBINE
32	11	3	-	46	4253	172	478		6,458,306	✓	✓	✓	✓	✓	✓	✓	✓	1.40	[illegible]	TP	
51	11	3	-	49	4250	176	523		6,468,721	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
26	10	1	-	50	4209	177	556		6,463,677	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
8	10	1	-	52	4255	180	563		6,496,235	✓	✓	✓	✓	✓	✓	✓	✓	-	-	TP	
																				TP	

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	DATE	TIME	MIN. FLOW GAUGE	BATTERIES	HOUSE TEMP.	HPU OIL PRESSURE LEVEL	TEMP. (°F) UNIT #1 BEARINGS 1	2	3	TEMP. (°F) UNIT #2 BEARINGS 1	2	3	GEN. BEARING #1 TEMP. (°F)	GEN. BEARING #2 TEMP. (°F)	GENERATOR TEMPERATURE STATORS #1	#2	#3	AVERAGE	HOURS RUNNING	HEAD LEVEL	SCREEN LEVEL	WICKET #1 (%)	WICKET #2 (%)	VOLTAGE	AMPS	KW	KW-HR	COOL WATER	SEAL WATER	SUMP PUMPS	OIL LEVEL GEN BRGS	OIL LEVEL #1	OIL LEVEL #2	TRASH PENSTOCK	RIVER HEADGATES	DOVAEY FLUME	McCAMMON FLUME	OPERATOR	
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11	1400	A5	✓	63°	✓	67	67	62	103	128	106	119	1202	1328	1345	1384	138	5502	13.04	8.66		60.3	42.49	199	754	4,457,187	✓	✓	✓	✓	✓	✓	TP	TP	—	—	TP		
12	1050	A2	✓	58°	✓	—	—	—	100	127	104	1163	1103	1156	122.5	121.0	1200	5523	12.70	7.59		56	42.33	188	660	4,471,453	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		2220
13	1030	0.45	✓	57°	✓	—	—	—	100.8	129	105	112.9	113.2	1204	123.0	125.6	124	5547	12.0	9.01		55	42.60	190	682	4,487,155	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		On
14	1095	0.45	✓	60°	✓	—	—	—	101.4	128	105	116.8	118.6	1279	134.2	1330	131	5571	12.71	9.32	—	56.05	42.23	192	702	4,503,767	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		Valve Cove
15	0920	0.45	✓	60°	✓	—	—	—	101.6	128	105	117.3	112.0	1196	126.0	124.8	123	5593	12.04	8.94	—	53.36	42.37	187	652	4,519,425	✓	✓	✓	✓	✓	✓	—	—	—	—	TP		Out
16	1205	0.43	✓	65°	✓	—	—	—	102.7	129	106	122.4	119.3	1355	142.2	140.9	139	5618	13.59	7.97	—	59.20	42.34	196	754	4,537,847	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		Broke Valve
17	0930	0.43	✓	68°	✓	—	—	—	103.5	129	107	126.1	123.7	139.8	146.7	145.4	144	5640	12.57	8.00	—	55.82	42.70	195	708	4,553,192	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		515 Inch
18	0945	0.50	✓	68°	✓	—	—	—	103.9	128	107	122.7	127.4	145.4	152.2	151.4	150	5664	13.80	10.66	—	62.96	42.52	203	848	4,573,474	✓	✓	✓	✓	✓	✓	✓	✓	1.66	—	TP		5.50 Inch
19	1140	0.43	✓	67°	✓	—	—	—	109.2	128	107	121.5	124.8	142.1	148.7	147.7	147	5690	12.57	9.63	—	58.25	42.67	201	769	4,594,587	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		
20	1140	0A1	✓	61°	✓	—	—	—	101.8	128	106	119.0	116.4	129.3	131.8	130.1	128	5714	13.42	10.91	—	53.62	42.36	189	666	4,612,138	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		
21		0A1	✓	63°	✓	—	—	—	103.5	130	107	121.2	123.1	138.2	144.9	143.8	142	5738	13.39	10.36	—	61.15	42.37	193	768	4,629,419	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		
22	1...	0A1	✓	62°	✓	—	—	—	102.6	131	107	119.7	119.6	130.9	136.8	139.5	133	5761	13.28	10.66	—	59.43	42.40	189	668	4,645,982	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		
23	0955	0A1	✓	62°	✓	—	—	—	102.9	131	107	119.2	120.5	131.4	137.8	136.9	134	5784	13.54	10.65	—	57.57	42.37 / 42.54	191	687	4,662,252	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		
24	1020	0A1	✓	64°	✓	—	—	—	103.7	131	108	122.0	123.2	138.6	144.9	144.2	142	5809	13.63	10.81	—	60.97	42.52	198	745	4,679,895	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP		
25	1115	0A1	✓	66°	✓	—	—	—	106.3	132	109	125.5	124.0	138.2	146.5	165.4	162	5833	?	?	—	8[illegible].97	42.40	235	1065	4,699,628	✓	✓	✓	✓	✓	✓	✓	✓	2.08	—	TP		
26	0900	Low	✓	70°	✓	89.1	92	103	104.0	126	106	123.2	132.9	180.5	188.3	189.7	187	5852	12.40	6.27	0 / 78.5	66.44	42.46	263	1270	4,723,655	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		
~~27~~				10:00 PM 2-26-94 Plant OFF for Almost 4 hrs. Turbines turning 90 to 100 RPM Not Good EM Ra																																					
~~28~~				Blockout - Low Head - Low RW High Sand Screen Dirty Screen Plugged Small																																					
27 ~~29~~	0920	Low	✓	68°	✓	86.5	90	101	106.5	122	106	119.3	126.2	185.9	199.2	196.2	191	5868	12.64	4.72	100	80.45	42.10	323	1674	4,747,351	✓	✓	✓	✓	✓	✓	✓	—	—	TP		
28 ~~30~~	0925	—	✓	75°	✓	92.5	94	103	111.4	124	110	126.5	139.6	208.8	211.2	212.3	209	5892	13.21	6.52	76.47	85.80	42.16	317	1623	4,786,152	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP		
31																																							2[illegible]

NOTE: ALL TEMPERATURES ARE FAHRENHEIT DEGREES (°F)

FERC NO. 10468 MARSH VALLEY HYDROELECTRIC FACILITY MONTH FEB 1994

MICROFILMED AUG 0 8 2001

TIME	MIN. FLOW GAUGE	BATTERIES	HOUSE TEMP.	HPU OIL PRESSURE LE	TEMP. (°F) UNIT #1 BEARINGS 1	2	3	TEMP. (°F) UNIT #2 BEARINGS 1	2	3	GEN. BEARING #1 TEMP. (°F)	GEN. BEARING #2 TEMP. (°F)	GENERATOR TEMPERATURE #1	#2	#3	AVERAGE	HOURS RUNNIN	HEAD LEVEL	SCREEN LEVE	VICKET #1 G	VICKET #2 G	VOLTAGE	AMPS	KW	KW-HR	COOL WATER	SEAL WATER	SUMP PUMPS	OIL LEVEL GEN	OIL LEVEL #	OIL LEVEL #	TRASH PENST	RIVER HEADL	DOWNEY FLU	McCAMMON FL	OPERATOR	
0955	1.78	✓	76°	✓	87.3	90	102	105.2	122	107	123.2	136.0	204.4	215.8	216.2	210	5915	13.13	7.35	90.13	91.49	4235	335	1732	4,824,856	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
																																						working
		working on #2 crane w/ Rory + vent. fan. Disconnected #2, #1 on line 1820																																	TP	working
0910	1.23	✓	68°	✓	97.5	100	105	—	—	—	115.5	116.4	118.1	125.5	122.3	122	5973	23.87	24.47	100	—	4235	177	544	4,903,905	✓	✓	✓	✓	✓	✓	✓	✓	1.92	—	TP	"
						Brought to Troy before going off-line to hook up #2																														on line
1030	0.45	✓	73°	✓	92.0	95	103	108.5	125	108	124.8	121.4	155.4	163.6	163.1	161	6022	13.33	9.07	58.16	61.18	4245	250	1174	4,944,027	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
1040	0.38	✓	73°	✓	94.7	94	103	108.1	126	108	122.5	122.2	152.5	160.3	160.3	157	6046	13.54	9.63	58.44	58.19	4243	241	1110	4,972,131	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
1020	0.41	✓	74°	✓	90.5	94	104	106.8	126	108	125.2	119.6	144.8	152.4	151.3	148	6069	13.62	9.01	59.40	56.50	4240	232	1037	4,997,411	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
1040		✓	73°	✓	89.5	92	103	106.5	126	108	122.5	119.4	144.4	152.2	151.4	149	6093	13.03	11.02	61.27	59.63	4254	229	1014	5,021,439	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	Shutdown
0925	0.37	✓	72°	✓	87.5	91	104	102.1	124	105	121.6	119.5	143.5	150.4	150.1	149	6116	13.08	10.89	55.94	52.05	4240	225	986	5,044,465	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	031 KW;
1600	0.40	✓	75°	✓	88.4	92	104	103.9	125	106	123.6	118.2	140.4	148.1	147.1	146	6100	13.40	11.26	56.37	50.93	4224	222	967	5,068,738	✓	✓	✓	✓	✓	✓	✓	✓	1.82	—	TP	canal runoff
1130	0.40	✓	72°	✓	88.4	91	103	103.0	125	106	123.0	119.0	143.6	151.1	150.1	149	6166	13.28	11.01	62.87	53.03	4247	230	1028	5,093,868	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
1950	0.40	✓	73°	✓	87.9	91	103	101.7	120	105	120.5	119.8	139.8	147.0	146.5	145	6188	13.36	11.20	62.13	48.94	4240	220	938	5,115,247	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
0955	0.38	✓	74°	✓	87.9	91	104	102.6	124	106	119.3	121.5	145.3	152.2	152.2	149	6212	12.75	10.00	67.31	50.25	4231	226	984	5,137,845	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	Shutdown Discom
1045	0.41	✓	76°	✓	—	—	—	108.7	127	110	126.9	123.3	151.9	159.3	159.0	157	6236	13.41	0.66	—	74.90	4236	236	1070	5,162,750	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
1115	0.43	✓	80°	✓	—	—	—	109.0	126	110	130.6	125.5	158.0	169.8	165.3	162	6261	13.73	10.25	—	72.88	4258	232	1040	5,188,487	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
0955	0.42	✓	77°	✓	—	—	—	108.0	127	109	125.9	119.7	139.6	147.2	146.9	143	6283	13.22	8.87	—	75.73	4233	236	1072	5,212,273	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
0950	0.42	✓	80°	✓	—	—	—	107.9	127	109	130.9	122.3	151.7	159.4	159.1	155	6307	13.12	9.95	—	70.85	4264	228	1001	5,236,820	✓	✓	✓	✓	✓	✓	✓	—	1.75	—	TP	metal wire
1115	0.42	✓	75°	✓	—	—	—	107.8	127	109	125.9	118.1	143.9	153.4	152.9	151	6333	13.12	9.61	—	74.13	4226	234	1061	5,263,071	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
0940	0.41	✓	71°	✓	—	—	—	105.8	127	108	124.5	113.6	136.2	144.2	143.3	142	6355	13.06	10.40	—	69.86	4244	225	987	5,286,028	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
1000	0.42	✓	72°	✓	—	—	—	106.8	127	108	124.4	118.5	145.1	152.3	151.6	148	6379	13.53	10.05	—	70.66	4240	225	986	5,310,015	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
0940	0.42	✓	77°	✓	—	—	—	108.0	128	109	128.1	117.5	142.2	149.8	149.1	148	6403	13.38	8.24	—	71.22	4240	225	987	5,333,091	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
09[illegible]	[illegible]2	✓	69°	✓	—	—	—	109.7	127	107	121.1	111.3	131.4	139.0	138.3	137	6427	13.69	11.11	—	71.49	4216	228	994	5,357,061	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
0945	0.38	✓	67°	✓	—	—	—	106.7	128	107	121.8	112.5	133.2	140.6	139.7	139	6450	13.32	10.81	—	67.37	4256	218	922	5,379,510	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	min. leg
0925	0.42	✓	70°	✓	—	—	—	106.3	128	108	124.4	118.1	143.8	151.4	150.4	148	6475	13.33	8.98	—	72.25	4244	226	990	5,403,222	✓	✓	✓	✓	✓	✓	✓	—	1.70	—	TP	
0940	0.42	✓	71°	✓	—	—	—	106.8	128	109	124.4	117.0	140.8	148.2	147.2	146	6499	12.87	10.44	—	67.64	4241	217	924	5,426,283	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	
1105	0.40	✓	70°	✓	—	—	—	106.6	128	109	124.4	116.2	133.3	142.7	141.5	140	6524	13.11	10.32	—	65.30	4246	210	855	5,449,742	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
1233	0.35	✓	72°	✓	—	—	—	108.1	128	109	125.5	119.4	144.9	151.9	151.3	149	6550	13.46	14.93	—	69.92	4232	219	933	5,472,814	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	water "
09[illegible]	0.48	✓	70°	✓	—	—	—	107.5	128	109	119.1	118.1	137.9	145.0	143.8	141	6570	13.22	10.51	—	66.72	4264	211	868	5,490,372	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	low "
0930	0.43	✓	70°	✓	—	—	—	107.0	128	109	122.7	116.2	131.9	139.1	137.9	137	6595	13.14	10.26	—	64.47	4224	206	830	5,511,887	✓	✓	✓	✓	✓	✓	✓	—	—	—	TP	
0907	0.42	✓	74°	✓	—	—	—	108.0	129	110	125.3	117.5	137.8	145.4	144.1	143	6618	13.44	9.46	—	67.73	4241	217	888	5,532,448	✓	✓	✓	✓	✓	✓	✓	✓	—	—	TP	

NOTE: ALL TEMPERATURES ARE FAHRENHEIT DEGREES (°F)

FERC NO. 10468 MARSH VALLEY HYDROELECTRIC FACILITY MONTH March 1997

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Photo #3 Permits 29-97578 and 29-07772 Penstock Diversion from Power Canal

Photo # 4 Permits 29-97578 and 29-07772-15 ft. Power Plant and Tailrace in Portneuf River

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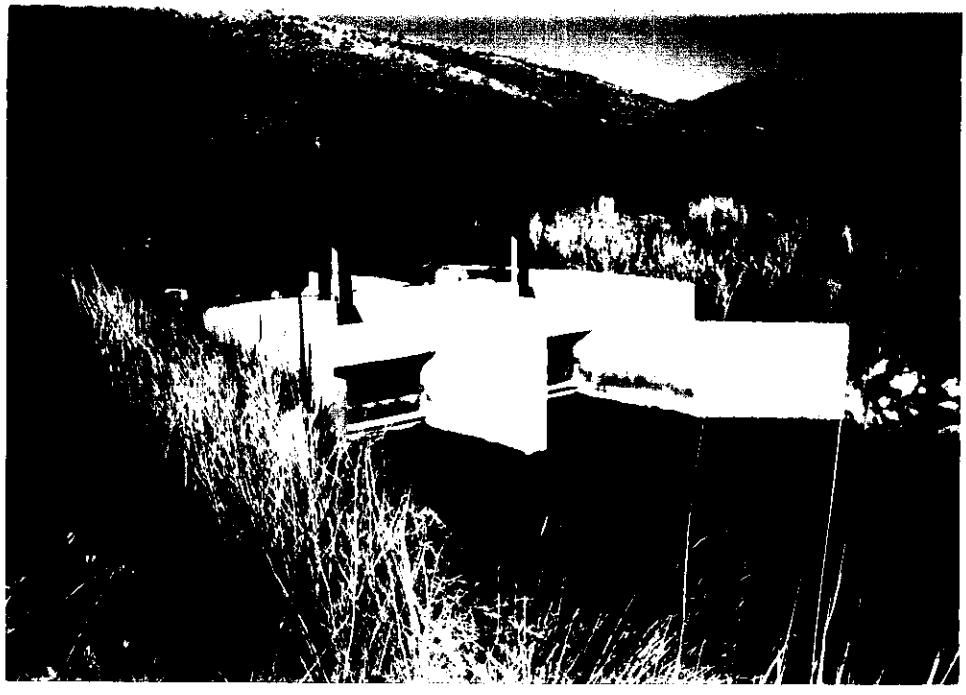

Photo #1 Permits 29-97578 and 29-07772 Diversion Structure from Portneuf River

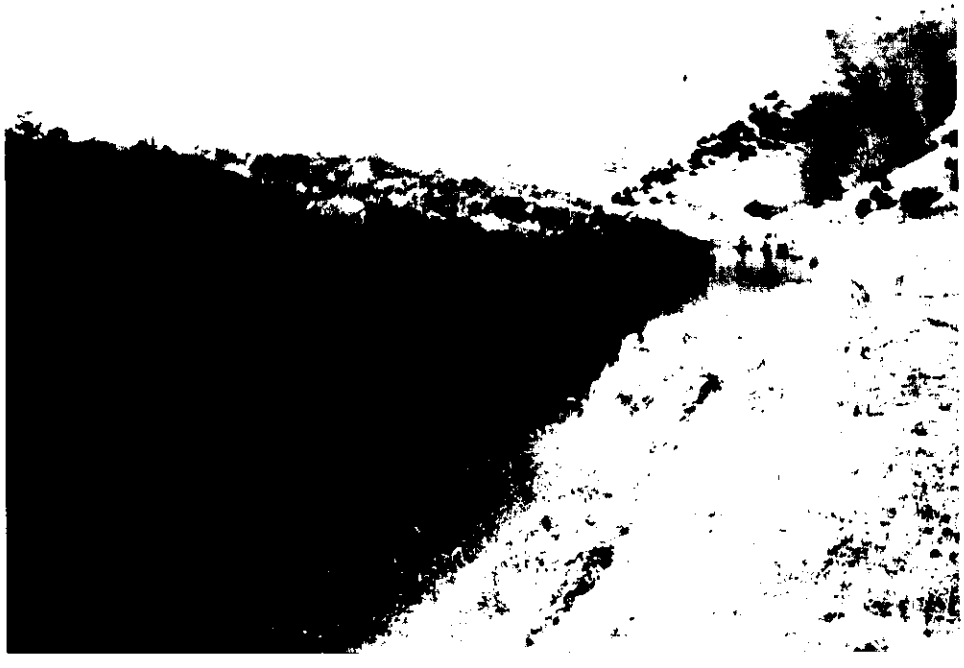

Photo # 2 Permits 29-97578 and 29-07772-15 ft. Parshall Flume in Power Canal

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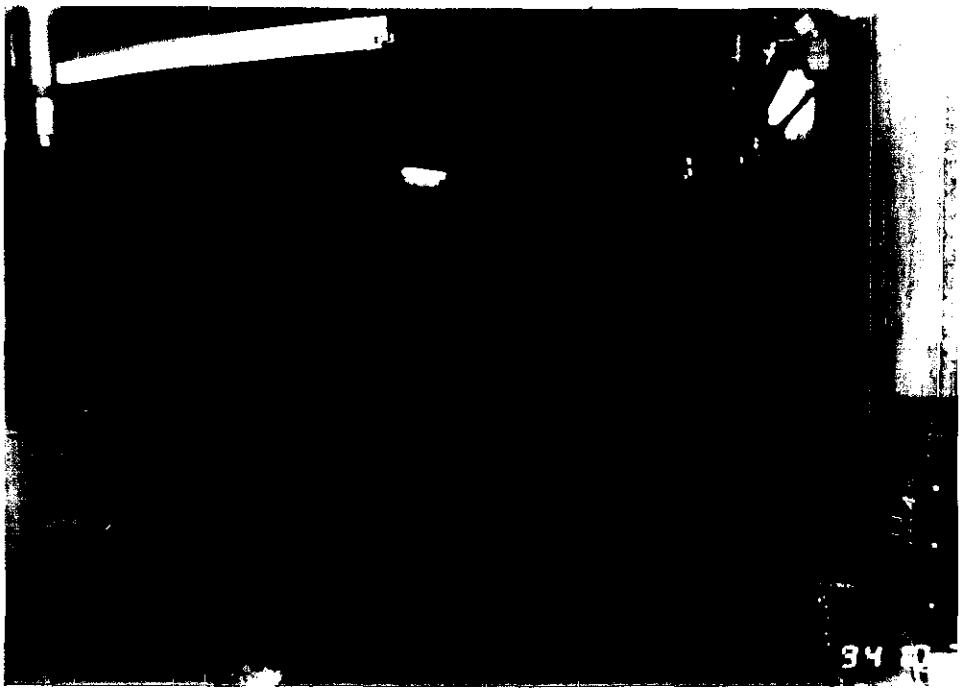

Photo #5 Permits 29-97578 and 29-07772 Generator and Turbines in Power Plant

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State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 327-7900 FAX: (208) 327-7866

DIRK KEMPTHORNE
GOVERNOR

KARL J. DREHER
DIRECTOR

February 27, 2001

C E BROCKWAY PE
BROCKWAY ENGINEERING
2016 WASHINGTON NORTH
TWIN FALLS ID 83301

RE: Permit Nos. 29-07578 and 29-07772

Dear Mr. Brockway:

We have been reviewing the above referenced permits and find we do not have enough information to complete the licensing process. The beneficial use field report that you submitted contains no information regarding the volume of water that has been used in the hydropower facility. Beneficial Use Examination Rule 035.01.J exempts only municipal and fire protection uses from the requirement to report an annual volume based on actual use during the authorized development period. We are, therefore, returning the field exam to you to compile information regarding the amount of water actually diverted and used in the facility so an annual volume can be determined for this system.

We have reviewed the records submitted by Water District No. 29 for the 1992 - 1993 seasons and find they do not contain enough information. The water district records only contain information regarding the amount of water delivered to the canal company during the irrigation season and do not address the non-irrigation season.

If you have any questions regarding this matter, please feel free to contact me at 327-7946 or Kay Walker at 327-7944.

Sincerely,

Shelley Keen

SHELLEY W. KEEN
Supervisor, Water Allocation Section

CC: MARSH VALLEY DEVELOPMENT INC
ATTN: TED SORENSEN
5203 S 11TH E
IDAHO FALLS ID 83404

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MEMORANDUM

TO: Files 29-07578 and 29-07772

FROM: KAY WALKER

RE: Clarification of Examination

Date: February 8, 2001

I called and discussed these exams with Charles E. Brockway (Sr.) this morning to request clarification of the season of use recommended for these rights. Mr. Brockway stated that the narrative on his exam was correct but did not include all of the facts. The hydro facilities produce power all year long. During the irrigation season both the canal company and the hydro facility use the canal company rights.

In regard to the volume amount to be licensed, Mr. Brockway stated we should use the 250 cfs (rate of both rights combined) times 365 days/year times 1.9835.

I told him we have tried to limit the volume to the amount of water actually diverted and used on prior hydro licenses; and would try to limit the volume to the amount actually used in this hydro facility if we have the information. I told him I would review the water district records and see if I could come up with the amount of water actually delivered to the facility. I also mentioned that we might utilize information based on river flows if the Department had that information in their records.

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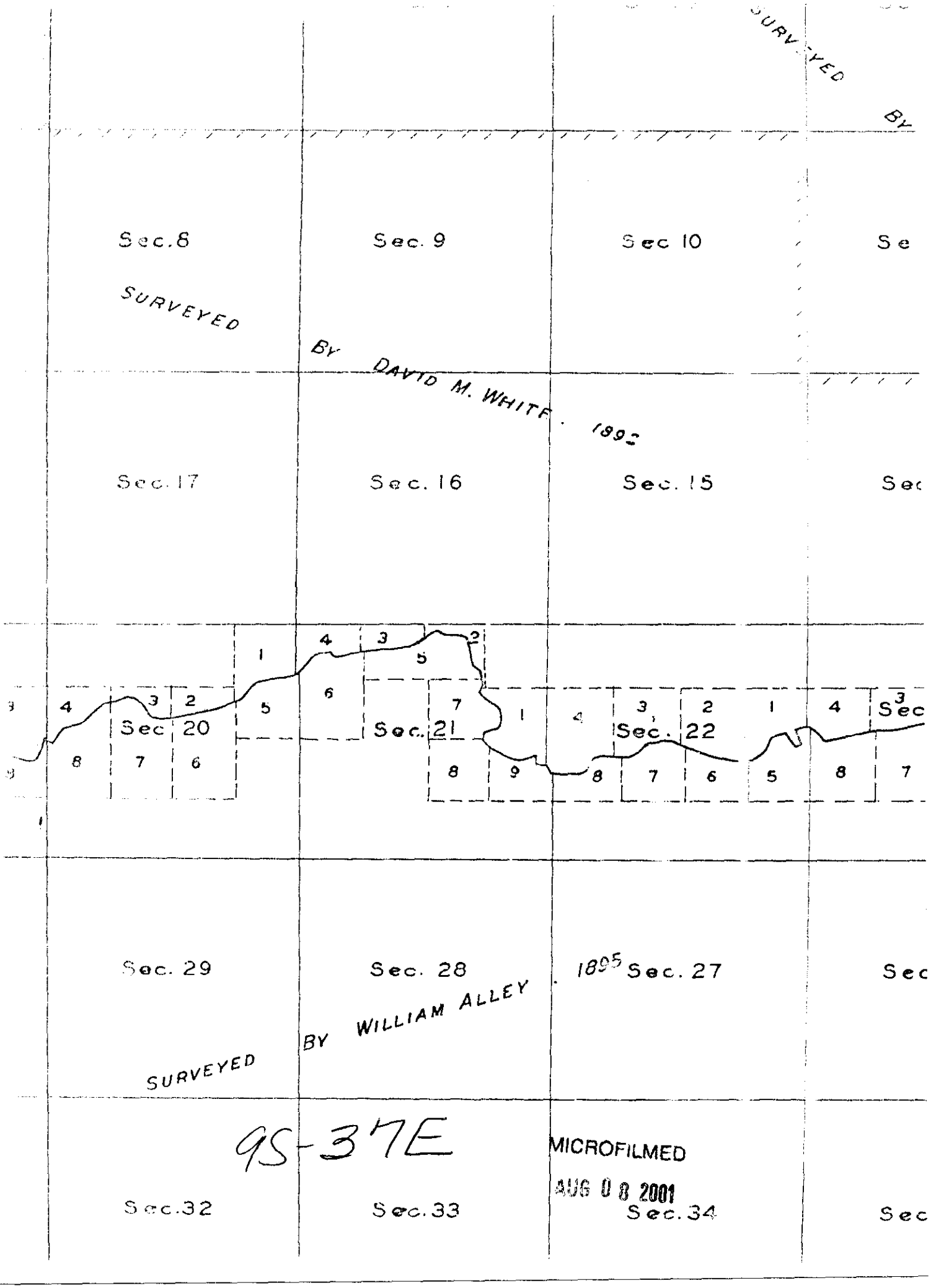

95-37E

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PORTNEUF-MARSH VALLEY CANAL COMPANY'S CANAL. This canal diverts from the Portneuf River in Lot 7, Section 22, Township 9 South, Range 37 East. From the Southwest corner of Section 22, the point of diversion bears North 31 degrees and 30 minutes East, 3125 feet.

TOPONCE FEEDER CANAL, of the Portneuf-Marsh Valley Canal Company, diverts water from Toponce Creek to supply storage water in the reservation hereinafter described. This canal diverts water from Toponce Creek in the Southeast quarter of the Southeast quarter of Section 33, Township 6 South, Range 38 East. From the Northwest corner of Section 3, Township 7 South, Range 38 East, the point of diversion bears North 58 degrees and 40 minutes West, 393 feet.

THE PORTNEUF-MARSH VALLEY CANAL COMPANY RESERVOIR AND DAM is located in the following legal subdivisions; The dam proper is located in Lot 4, Section 19, Township 6 South, Range 39 East, and covers lands in Sections 11, 13, 14 and 24, Township 6 South, Range 38 East. The point of diversion of this dam, which is located across the channel of the Portneuf River, is in Lot 4, Section 19, Township 6 South, Range 39 East. From the Southwest corner of Section 19, the point of diversion bears North 41 degrees and 30 minutes East, 1285 feet.

The Drainage canal of said company begins at the outlet of impounding dam above described or in the Southwest quarter of the Southwest quarter, Section 19, and enters the Portneuf River at or about the North quarter corner of Section 26, Township 7 South, Range 38 East.

41. PORTNEUF-MARSH VALLEY CANAL COMPANY Normal Flow.
29 0052 1907 Dec. 18 176.85 c.f.s
~~29-0581~~ 1912 July 6
29-0589

Storage water 16,410 Acre Feet. This being the capacity of the storage reservoir above described. This storage water to be delivered free from loss, from the reservoir to the point of diversion on the Portneuf River above described, for the Portneuf-Marsh Valley Canal Company's canal, through said Company's drainage canal, and the River channel.

42. PORTNEUF-MARSH VALLEY CANAL COMPANY FEEDER CANAL FROM TOPONCE
29 0053 1912 July 6 164.43 c.f.s.

During the non-irrigating season, that amount being the maximum capacity of said feeder canal, to supply storage water above listed.

For the irrigation of 8842.4 acres of land located in the following legal sub-divisions; The East half of the Southwest quarter, Section 5; the Northeast quarter of the Southeast quarter, the Northwest quarter of the Northeast quarter, the East half of the Northeast quarter, Section 17; the Northwest quarter of the Northeast quarter, the Southeast quarter of the Northwest quarter the Southwest quarter of the Northeast quarter, the Northwest quarter of the Southeast quarter, Section 20; The East half of the Northwest quarter, the West half of the Northeast quarter, the East half of the Southwest quarter, the Southwest quarter of the Southwest quarter, Section 29; the Northwest quarter of Northwest quarter, the West half of the Southeast quarter, the East half of the Southwest quarter, the Northwest quarter of the Northeast quarter, the Northeast quarter of the Southeast quarter,

(Suitable measuring devices shall be installed on the Portneuf River above the flow line of the Portneuf-Marsh Valley Irrigating Company reservoir, and immediately below the dam of said reservoir, at which point the water comes into the reservoir, that the water released may be more accurately determined, in order that the normal flow of the Portneuf River may not be obstructed by the reservoir, with reference to the amount of water delivered through same during the irrigating season. No charge shall be made against.

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AUG 0 8 2001
MICROFILMED
MAY 1 5 1996

PROVED PER COMMISSION ORDER NO. 24253, CASE NO. UPL-E-89-11.

Myrna J. Walters
MYRNA J. WALTERS
COMMISSION SECRETARY

AMENDMENT TO

POWER PURCHASE AGREEMENT

MARSH VALLEY HYDROELECTRIC COMPANY

AND

UTAH POWER & LIGHT COMPANY

This Amendment to Power Purchase Agreement is entered into this 20th day of March, 1992, by and between Marsh Valley Hydroelectric Company, ("Seller") and Utah Power & Light Company ("Buyer") with respect to the Power Purchase Agreement between Seller and Buyer dated November 21, 1986, ("Power Purchase Agreement").

A. Pursuant to the Power Purchase Agreement, Seller agreed to construct, own, operate, and maintain a hydroelectric power plant and sell the electrical energy from the Facility to Buyer, and Buyer agreed to purchase the electric energy from the Facility.

B. A dispute has arisen over the calculation of the variable energy rate to be paid by Buyer to Seller for energy delivered pursuant to the Power Purchase Agreement.

C. The Parties wish to resolve their dispute over the variable energy rate by amending the Power Purchase Agreement as specified herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

Post-It® Fax Note 7671	Date 2/7	# of pages ▸ 4
To KAY WALKER	From IPUC	
Co./Dept.	Co.	
Phone # AMENDMENT	Phone #	
Fax #	Fax #	

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AUG 0 8 2001

1. Definitions. The terms used in this Amendment to Power Purchase Agreement shall have the same meaning as specified in the Power Purchase Agreement, including all Appendices.

2. Appendix B. The Variable Energy Rate portion of Appendix B to the Power Purchase Agreement is hereby amended in its entirety to read as set forth in the Restated Appendix B which is attached hereto and incorporated herein by reference.

IN WITNESS WHEREOF, the Parties have executed this Amendment to Power Purchase Agreement as of the date hereinabove set forth.

SELLER:
MARSH VALLEY HYDROELECTRIC COMPANY

BY: Lyndon Green

BUYER:
UTAH POWER & LIGHT COMPANY

BY:

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AUG 0 8 2001

RESTATED APPENDIX B

SCHEDULE OF ENERGY PURCHASED RATES

Fixed Energy Rates

Scheduled Commencement of Service	Term of Agreement (Years) 4	6	10	15	20	25	30	35
1986-$/kW-Yr	106	115	133	161	188	215	241	266
-Mills/kWh[1]	16.13	17.50	20.24	24.50	28.61	32.72	36.68	40.49

The fixed energy rate figure shall not be subject to escalation or change except as stated in Appendix C, Section D.

Variable Energy Rate

(Mills/kWh)

1986 14.00

1. Through June 30, 1992, the variable energy rate shall remain 14 mills per kWh.

2. Effective July 1, 1992 and continuing through June 30, 2003, the variable energy rate shall be 14 mills per kWh, which represents Buyer's estimated levelized variable fuel and operation and maintenance (O&M) cost during that time period.

3. Beginning July 1, 2003 and continuing throughout the Term of the Power Purchase Agreement, including any extensions, the variable energy rate shall be calculated in accordance with the following methodology:

(a) The variable energy rate shall be the sum of Buyer's fuel cost and variable O&M cost.

(b) Buyer's fuel cost shall be the average cost of fuel consumed in Buyer's Utah Division coal-fired generating stations, specifically the Carbon, Hale, Naughton, Huntington and Hunter generating plants. If any of the specified plants does not operate as a coal-fired power plant in any calendar year, such plant shall be excluded from the calculation of the average cost of fuel. The average cost of fuel shall be calculated using data reported in Buyer's FERC Form 1. For

[1] Based on a 75 percent capacity factor.

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1990, Buyer's fuel costs are reported at pages 402-403, lines 12 and 21 of the FERC Form 1. In the event that the FERC Form 1 ceases to include the cost of fuel or net generation data, comparable data based upon Buyer's normal accounting practices shall be used.

(c) Buyer's variable O&M cost shall be calculated using the methodology adopted by the Idaho Public Utilities Commission in Order No. 23738 for determining the variable avoided O&M cost of the Surrogate Avoidable Resource, excluding the State of Montana generation tax and the line loss adjustment. For example, Buyer's variable O&M cost for 1990 would be $1.089 per MWh (based on Colstrip 1989 costs) and for 1991 would be $1.401 per MWh (based on Colstrip 1990 costs).

(d) The variable energy rate shall be updated annually effective July 1 of each year based upon Buyer's fuel cost and variable O&M cost for the preceding calendar year. The adjustment to the variable energy rate may be up or down. Buyer shall notify Seller and the Idaho Public Utilities Commission of the updated variable energy rate on or before July 1 of each year.

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AUG 0 8 2001

file 8478

UTAH POWER & LIGHT COMPANY

1407 WEST NORTH TEMPLE STREET
SALT LAKE CITY, UTAH 84140

RECEIVED ☒
FILED ☐

89 FEB 6 AM 11 59

PLANNING & ENGINEERING DEPARTMENT
COMMERCIAL UTILITIES DIVISION
ROOM 8318
(801) 220-4293

Post-it™ Fax Note 7671	Date 2/7	# of pages ▸ 2
To Kay Walker	From	
Co./Dept.	Co. IPUC	
Phone #	Phone #	
Fax # letter	Fax #	

February 3, 1989

Ted S. Sorensen, P.E.
550 Lindon Drive
Idaho Falls, ID 83401

Re: **Power Purchase Agreement Between Utah Power and Marsh Valley**

Dear Mr. Sorensen:

Utah Power & Light Company and Marsh Valley Hydro Electric Company entered into a power purchase agreement dated November 11, 1986. Paragraph 4.3 of that agreement states that Utah Power may unilaterally terminate the agreement twelve months after the Scheduled Operation Date if the facility has not commenced delivery of energy unless Marsh Valley can show just cause why the facility is not complete and that it will be operational within a reasonable period of time. As you know, the scheduled operation date for this project was March 1988.

Paragraph 4.4 of the power purchase agreement states that Utah Power can unilaterally terminate the agreement twelve months after its execution date if Marsh Valley has failed to obtain all necessary licenses and permits to construct and operate the facility. As you know, the execution date of the power purchase agreement was November 21, 1986.

Because Marsh Valley has failed to obtain its FERC license within twelve months following the execution of the agreement and still does not have it and because Marsh Valley has notified Utah Power that it will not be able to commence delivery of energy within twelve months following the Scheduled Operation Date, Utah Power hereby notifies March Valley that it is terminating the power purchase agreement pursuant to paragraphs 4.3 and 4.4.

Pursuant to the Public Utilities Regulatory Policies Act and the rules and regulations of the Idaho Public Utilities Commission, Utah Power will be pleased to discuss entering into a new power purchase agreement

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consistent with the rates and security provisions now in effect. In that regard, please contact me or Mr. Paul Erickson.

Sincerely,

Russell A. Pack

Russell A. Pack

cc: Randall C. Budge, Esq.
Scott Woodbury, Esq., Idaho PUC

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AUG 0 8 2001

Service Date

APR 17 1992

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF PACIFICORP DBA UTAH POWER & LIGHT COMPANY FOR APPROVAL OF A CHANGE IN THE VARIABLE ENERGY RATE UNDER CERTAIN QUALIFYING FACILITY CONTRACTS.	CASE NO. UPL-E-89-11 ORDER NO. 24253

Post-it® Fax Note 7671
To KAY WALLER
Co./Dept. 4 pgs.
Phone #

On December 29, 1989 PacifiCorp dba Utah Power & Light Company (UP&L; Company) filed an Application with the Idaho Public Utilities Commission (Commission) for approval of a change in the variable energy rate from 14.0 mills/kWh to 10.0 mills/kWh for power delivered under certain existing Qualifying Facility (QF) Power Purchase Agreements. In this Order we approve the terms of a negotiated settlement and approve Amendments to the affected Power Purchase Agreements.

The variable rate terms in the underlying QF Power Purchase Agreements substantially provide as follows:

> A variable rate of 14.0 mills per kilowatt hour, updated annually and approved by the Idaho Public Utilities Commission, as specified in Appendix B, to reflect the current average price of coal to buyer with a base at 1984 being 14.0 mills per kilowatt hour.

Appendix B to the Power Purchase Agreements specifies that:

> The variable energy rate figure shall be updated annually commencing on January 1 of each year after the date energy is first delivered by seller to buyer. The rate paid will be the average cost of fuel consumed in buyer's coal-fired generating stations determined pursuant to buyer's normal accounting practices. The adjustment may be up or down.

There have been no prior adjustments to the variable energy rate under the identified Power Purchase Agreements.

As reflected in its Application, effective January 9, 1989, Utah Power and Pacific Power & Light Companies have operated as divisions of PacifiCorp and the power supply functions of the two divisions have been consolidated. UP&L states that this consolidation of power supply functions was undertaken for the purpose of achieving operating and power marketing efficiencies that would not be achievable by operating the divisions on a stand-alone basis. The

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existing Power Purchase Agreements contain no specific language regarding the potential ramifications and consequences of a merger with respect to calculation of the variable component. UP&L states that the average cost of fuel (i.e., coal, fuel oil and natural gas) for all of PacifiCorp's coal-fired generating stations for the period commencing January 1, 1989 and ending November 30, 1989 was 9.8 mills/kWh.

On May 22, 1991, the Commission in Case No. UPL-E-89-11 pursuant to request of the parties issued a Notice of Stay of Proceedings. The Commission was advised that the Company and active affected contract parties (those appearing at the prehearing conference and represented by legal counsel) were engaged in settlement negotiations. It was the Commission's understanding that any offer of settlement would be conditioned upon obtaining the participation of all parties with Power Purchase Agreements affected by the case and settlement approval by the Commission. The Company found itself unable to reach settlement with all affected parties. Those parties active in the case agreed to settlement. Those parties inactive in the case remained silent. Failing to achieve the participation of all affected partes, the case was therefore reactivated.

A public hearing in Case No. UPL-E-89-11 was held in Boise on January 16, 1992. A stipulation and proposed settlement affecting all active parties was presented. Assuming the Commission at conclusion of hearing would find the tendered stipulation and proposed settlement to be reasonable, the ostensible purpose of the hearing was to create a record supporting the reduction of the variable rate to 10.791 mills/kWh for those QFs with affected Power Purchase Agreements not participating in the settlement or appearing at the hearing.

The proposed settlement was represented to be fair to the contract parties and ratepayer neutral. Indeed that was the conclusion of all parties performing levelized calculations. We agree with their assessment. Under the proposed settlement, amendments to the respective Power Purchase Agreements fix the variable energy rate for a period of years and include a methodology for calculating the variable energy rate after the end of the fixed rate period.

The settlement resolves the disputed issues of whether or not variable O&M costs should be included in the variable energy rate calculation and also which of the Company's coal-fired plants should be included in the fuel cost calculation. As set forth in the testimony of Company witness Miller:

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The proposed Amendment provides that the variable energy rate specified in Appendix B of each QF party's Power Purchase Agreement would remain at its current level, it would neither be increased nor decreased through June 30, 1992. With the exception of the City of Preston which has a variable energy rate of 12 mills/kWh, and Jerry Pancheri, who has a variable energy rate of 15 mills/kWh, all of the signing parties' Power Purchase Agreements currently provide for a variable energy rate of 14 mills/kWh.

Beginning July 1, 1992 and continuing through June 30, 2003, the variable energy rate for all Power Purchase Agreements would be 14 mills/kWh, which represents Pacific's estimated levelized fuel and variable O&M costs during that time period.

Fixing the variable energy rate through June 30, 2003, would stabilize prices for the signing parties for a specified term, stabilize costs to the ratepayer, and eliminate the administrative burden and regulatory expense of recalculating and refiling the variable energy costs annually.

Beginning July 1, 2003 and continuing through the remaining term of the Power Purchase Agreement, including any extensions, the variable energy rate would be calculated in accordance with the following methodology:

1. The variable energy rate would be the sum of the Company's fuel and variable O&M costs.

2. The Company's fuel costs would be based on the average cost of fuel consumed in the Company's Utah division coal-fired generating stations, specifically the Carbon, Hale, Naughten, Huntington and Hunter generating plants.

3. The Company's variable O&M costs would be calculated using the methodology approved in Order No. 23738 for determining the variable avoided O&M cost of the surrogate avoidable resource (SAR), excluding the State of Montana generation tax and a line loss adjustment.

At the conclusion of the hearing the Commission approved the stipulation and proposed settlement as fair, just and reasonable. The Company requested the opportunity until closure of record to extend the settlement offer to the remaining parties. We agreed. The Company's efforts were successful. All parties with affected contracts have agreed to the settlement. Executed

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AUG 0 8 2001

amendments to all Power Purchase Agreements have now been submitted. An additional QF with a similar contract, Marsh Valley Hydroelectric Company was also discovered. The Company recommends that its Amendment also be approved. We agree.

Thus approving the stipulation and settlement we find it unnecessary to resolve the questions otherwise presented in this case. We approve the Power Purchase Agreement Amendments for the following QF projects:

QF	Date of Amendment	Underlying Agreement (Approval)
Jake Amy	1/29/92	Case No. U-1009-174 ON 21018
Birch Creek Power Company, Inc.	1/20/92	Case No. U-1009-154 ON 19451
CDM Hydroelectric Company	2/05/92	Case No. U-1009-149 ON 19365
Robert Fackrell	2/06/92	Case No. U-1009-163 ON 20172
Georgetown Irrigation Company	2/05/92	Case No. U-1009-151 ON 19448
Ingram Warm Springs Ranch Partnership	2/05/92	Case No. U-1009-145 ON 20503
Myron Jones, Nola Jones, Larry Oja and Christie Oja	1/24/92	Case No. U-1009-166 ON 20680
Orville Nicholson dba Nicholson Sunny Bar Ranch	2/05/92	Case No. U-1009-160 ON 19906
City of Preston	1/29/92	Case No. P-300-12 ON 17218
Briggs Project--Teton River	1/21/92	Case No. U-1009-156 ON 19658
Westinghouse Credit Corp. as successor to HDI Associates IV, Limited Partnership	1/31/92	Case No. U-1009-168 ON 20683
Pancheri Inc.	3/20/92	Case No. P-300-12 ON 18112
Marsh Valley Hydroelectric Company	3/20/92	Case No. U-1009-172 ON 20979

The terms of the Amendments including the variable rate and associated methodology established therein are fair, just and reasonable. We also

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AUG 0 8 2001

approve payments made under the Amended Agreements as prudently incurred expenses for ratemaking purposes.

CONCLUSIONS OF LAW

I

The Idaho Public Utilities Commission has jurisdiction over PacifiCorp dba Utah Power & Light Company, an electric utility, pursuant to the authority and power granted it under Title 61 of the *Idaho Code* and the Public Utility Regulatory Policies Act of 1978 (PURPA).

II

The Idaho Public Utilities Commission has authority under the Public Utility Regulatory Policies Act of 1978 and the implementing regulations of the Federal Energy Regulatory Commission (FERC) to set avoided costs, to order electric utilities to enter into fixed term obligations for the purchase of energy from small power producers, and to implement FERC Rules.

O R D E R

In consideration of the foregoing and as more particularly described above, IT IS HEREBY ORDERED that the submitted Amendments to the identified Power Purchase Agreements and the variable rates established therein be approved and that Case No. UPL-E-89-11 be closed.

THIS IS A FINAL ORDER. Any person interested in this Order (or in issues finally decided by this Order) may petition for reconsideration within twenty-one (21) days of the service date of this Order with regard to any matter decided in this Order. Within seven (7) days after any person has petitioned for reconsideration, any other person may cross-petition for reconsideration. See *Idaho Code* § 61-626.

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AUG 0 8 2001

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DONE by Order of the Idaho Public Utilities Commission at Boise, Idaho, this 16 th day of April 1992.

MARSHA H. SMITH, PRESIDENT

DEAN J. MILLER, COMMISSIONER

RALPH NELSON, COMMISSIONER

ATTEST:

MYRNA J. WALTERS, SECRETARY

SW:vld/O-1718

MICROFILMED
AUG 0 8 2001

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 327-7900 FAX: (208) 327-7866

January 23, 2001

DIRK KEMPTHORNE
GOVERNOR

KARL J. DREHER
DIRECTOR

Ted S. Sorensen
Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, ID 83404

RE: Licensing of Permits 29-07578 and 29-07772

Dear Mr. Sorensen:

This morning I received your request for licensing of water appropriation permits 29-07578 and 29-07772. We will begin reviewing the files to determine if water right licenses can be issued. Due to the volume of documentation associated with these permits, it may take several days, possibly up to a few weeks, to thoroughly review the files.

If you have any questions, please contact me at 208-327-7946.

Sincerely,

Shelley Keen

Shelley Walter Keen
Water Rights Supervisor

MICROFILMED
AUG 08 2001

S:\SKeen\NAMELTRS\sorensen2907578.doc

RECEIVED
JAN 22 2001
Department of Water Resources

Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, Idaho 83404

Phone: (208) 522-8069
Fax: (208) 522-8223
e-mail: sorenson@ida.net

January 18, 2001

Glen Saxton, Chief
Water Allocation Bureau
Idaho Department of Water Resources
1301 North Orchard Street
Boise, ID 83706-2237

07772

RE: Permits 29-07578 and 29-0772

Dear Mr. Saxton:

This letter is written to inquire as to the issuance of the license for these two permits. Proof of beneficial use according to my records was filed on December 5, 1994. On December 9, 1994 we received a Proof Acknowledgment Letter. Please advise as to the status of the issuance of the license for these two permits.

Very Truly Yours,

Ted S. Sorenson

TSS/ptj

C:\My Documents\Word Perfect\Ted's Letters\Saxton1.ltr.wpd

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AUG 08 2001

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

NOTICE OF TRANSFER OF LICENSE

(March 15, 1996)

29-7578

Take notice that the following hydroelectric application has been filed with the Commission and is available for public inspection:

a. Type of Application: Transfer of License

b. Project No.: 10468-015

c. Date Filed: February 28, 1996

d. Applicant: Marsh Valley Hydroelectric Company
Marsh Valley Development, Inc.

e. Name of Project: Marsh Valley

f. Location: On the Portneuf River, in Bannock County, Idaho

g. Filed Pursuant to: Federal Power Act, 16 USC §§ 791(a)-825(r)

h. Applicant Contact: Ted S. Sorenson, President
Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, ID 83404
(208) 522-8069

i. FERC Contact: Regina Saizan, (202) 219-2673

j. Comment Date: **MAY 3, 1996**

k. Description of Request: Marsh Valley Hydroelectric Company (MVHC), licensee, and Marsh Valley Development, Inc. (MVDI) request that the license for the Marsh Valley Project be transferred from MVHC to MVDI.

l. This notice also consists of the following standard paragraphs: B, C1, and D2.

B. Comments, Protests, or Motions to Intervene -- Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of Rules of Practice and Procedure, 18 CFR 385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may

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become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application.

C1. Filing and Service of Responsive Documents -- Any filings must bear in all capital letters the title "COMMENTS", "RECOMMENDATIONS FOR TERMS AND CONDITIONS", "PROTEST", OR "MOTION TO INTERVENE", as applicable, and the Project Number of the particular application to which the filing refers. Any of the above-named documents must be filed by providing the original and the number of copies provided by the Commission's regulations to: The Secretary, Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426. A copy of any motion to intervene must also be served upon each representative of the Applicant specified in the particular application.

D2. Agency Comments -- Federal, state, and local agencies are invited to file comments on the described application. A copy of the application may be obtained by agencies directly from the Applicant. If an agency does not file comments within the time specified for filing comments, it will be presumed to have no comments. One copy of an agency's comments must also be sent to the Applicant's representatives.

Lois D. Cashell
Secretary

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MAR 2 6 1996
Department of Water Resources

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydro Electric Company Project No. 10468-012
Idaho

29-7578

ORDER AMENDING ARTICLE 401

(Issued March 11, 1996)

On February 1, 1995, Marsh Valley Hydro Electric Company, licensee for the Marsh Valley Project, filed a request to amend article 401 of the project license.[1] The licensee requests that the requirement to paint the powerhouse dark earthtones be deleted because the powerhouse was actually built below ground with a gravel roof finished with natural colored pea gravel and an earth toned metal trim. The area around the raceway of the powerhouse has been planted with willow trees.

Background

The licensee states that the original requirement to paint the powerhouse was based on a recommendation by the Bannock County Planning and Development Commission (BCPDC). At the time the BCPDC made this recommendation, it was contemplated that the powerhouse would be constructed above ground. The licensee requested a variance of the painting requirement from the BCPDC by letters dated April 1 and August 11, 1993. BCPDC, in a letter dated August 24, 1993, approved the variance request.

Discussion

The license requirement in article 401 to paint the powerhouse a dark earthtone was based on the premise that the powerhouse would be constructed above ground. BCPDC, believing that this would be the outcome, recommended painting with dark earthtones. The powerhouse was actually constructed below ground which mitigated the necessity to paint the powerhouse as originally required. The licensee states that it planted the vegetation as required; the willow trees around the powerhouse

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[1] See: Order Issuing License (Major Project), 49 FERC ¶62,193 (December 1, 1989).

Article 401 of the license states:

"The licensee, within 1 year after completion of project construction, shall revegetate all project related disturbed lands with plant species that visually blend with the adjacent landscape and shall paint all exterior surfaces of the powerhouse dark earthtones."

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raceway would provide a screening effect. Further, BCPDC approved a variance of the painting requirement. Staff viewed photographs of the below ground powerhouse and determined that the constructed powerhouse has very little effect on the site's visual resources and concurs with the licensee's request. The licensee's request should be granted.

The Director orders:

(A) Marsh Valley Hydro Electric Company's February 1, 1995, request to delete the requirement in article 401 to paint the project powerhouse dark earthtones is approved.

(B) Article 401 is amended to read:

"The licensee, within 1 year after completion of project construction, shall revegetate all project-related disturbed lands with plant species that visually blend with the adjacent landscape."

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. Mark Robinson
J. Mark Robinson
Director, Division of Project Compliance and Administration

RECEIVED
MAR 1 8 1996
Department of Water Resources

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICIAL BUSINESS
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P-10468 101465
LOREN HOLMES DISTRICT MGR
IDAHO DEPARTMENT OF WATER RESOURCES
1301 NORTH ORCHARD STREET

BOISE, ID 83706-2237

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

CECIL D. ANDRUS
GOVERNOR

R. KEITH HIGGINSON
DIRECTOR

December 9, 1994

MARSH VALLEY DEVELOPMENT
5203 S 11TH E
IDAHO FALLS ID 83404

PROOF ACKNOWLEDGEMENT LETTER

RE: PERMIT NO. 29-07578

Dear Permit Holder:

The department acknowledges receipt of the proof of beneficial use form submitted for the above referenced permit.

Enclosed is an order reinstating your permit since proof of beneficial use was received after the proof due date. Please note that the priority date has been advanced to March 31, 1981.

The next step in the process of developing a water right is for the department to conduct a field examination to determine and confirm the use being made of the water.

If you have questions concerning this matter, please feel free to contact the EASTERN Regional Office in Idaho Falls, at (208)525-7161.

Sincerely,

Julie L. Yarbrough

JULIE L. YARBROUGH
Senior Secretary

Enclosure

c: IDWR - Region

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AUG 0 8 2001

CHARLES
BROCKWAY
ENGINEERING

RECEIVED
DEC 7 1994
Department of Water Resources

December 5, 1994

Mr. Glen Saxton, Chief
Water Allocation Bureau
Idaho Dept. of Water Resources
1301 N. Orchard Street
Boise, Idaho 83706-2237

Subject: Beneficial Use Exam Permits 29-07578 and 29-07772
Marsh Valley Development Inc.

Dear Glen:

Enclosed please find the completed Proof of Beneficial Use Form, completed Beneficial Use Field Report for Permits 29-07578 and 29-07772 owned by Marsh Valley Development Inc. Supporting documents including power plant operations logs, turbine rating, and bypass flow discharge rating curve are also attached.

Sincerely,

C. E. Brockway, P.E.

cc: Marsh Valley Development Inc
Mr. Ted Sorenson

CHARLES E.
BROCKWAY,
PHD, P.E.

706 SUNRISE
BOULEVARD
NORTH

TWIN FALLS,
IDAHO 83301

208 •733 •0938
FAX: 733 •1746

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AUG 0 8 2001

29-7578
7772

RECEIVED
NOV 16 1994
Department of Water Resources

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company

Project No. 10468-011
Idaho

ORDER GRANTING EXTENSION OF TIME
(Issued November 9, 1994)

The licensee for the Marsh Valley Hydroelectric Project has requested an extension of time to comply with Paragraph F of the Order Approving As-Built Exhibits and Revising Annual Charges issued June 13, 1994.[1] The reasons advanced by the licensee in support of the requested extension of time are reasonable and justify the extension.

The Director orders:

(A) The deadline for filing an original and two duplicate sets of aperture cards with 35mm microfilm reproductions of the drawings approved in the June 13, 1994 order, is extended to November 13, 1994.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

Joseph D. Hogan
J. Mark Robinson
Director, Division of Project Compliance and Administration

---

1 67 FERC ¶ 62,237 (1994).

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WARNING

CANCELLED OR LAPSED

This permit has been officially CANCELLED or LAPSED.

Ninety days following the date of official action this file will be DESTROYED.

October 11, 1994

MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83405

LAPSE NOTICE

RE: PERMIT NO. 29-07578

Dear Permit Holder:

You are hereby notified that under the provisions of Section 42-218A, Idaho Code, the above referenced permit has lapsed and is of no further force nor effect. The department provided the proper forms to you in our proof due notice dated July 31, 1994. No further construction or additional development is authorized under this permit unless it is reinstated.

The permit can only be reinstated if you submit an acceptable proof of beneficial use or an acceptable request for extension of time to the department within sixty (60) days of the mailing of this lapse notice. An acceptable proof of beneficial use submittal must include the examination fee or a completed field examination report. A request for extension of time must be accompanied by a fifty dollar ($50.00) fee.

Enclosed again for your use are a proof of beneficial use form and a request for extension of time form. Please note that only one extension of time can be granted unless the project has not been completed because of lack of a necessary approval by a government agency or by litigation which may bring title to the water in question.

L. GLEN SAXTON
Chief, Water Allocation Bureau

Enclosures

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AUG 0 8 2001

CERTIFICATION OF MAILING
I hereby certify that on 10/11/94
~~a copy~~/an original of this document was deposited in the United States mail, postage prepaid addressed to the individual(s) named above.

July 31, 1994

MARSH VALLEY DEVELOPMENT INC
5203 S 11TH E
IDAHO FALLS ID 83405

PROOF DUE NOTICE

RE: PERMIT NO. 29-07578

Dear Permit Holder:

One of the conditions of approval of the above referenced water permit was that proof of the extent of your beneficial use must be submitted to this office on or before October 1, 1994. (See last page of your approved permit or your last approved extension request.) Enclosed is a form which when accompanied by the license examination fee or a complete field examination report prepared by a certified water right examiner may be used to submit the required proof.

If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental agency or by litigation which might bring title to the water in question, more than one extension of time can be granted. An extension of time request form is enclosed for your convenience.

Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the lapse notice, the permit will no longer be of any force nor effect.

SINCERELY,

JULIE L. YARBROUGH
Senior Secretary

Enclosures

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AUG 0 8 2001

CERTIFIED MAIL
NO. 14477

RSH VALLEY DEVELOPMENT I
5203 South 11th East
Idaho Falls, Idaho 83404
(208) 529-2469
(208) 522-8223 fax

RECEIVED
JUL 14 1993
Department of Water Resources
Eastern District Office

July 12, 1993

State of Idaho
Department of Water Resources
150 Shoup Ave., Suite 15
Idaho Falls, ID 83402

RE: Marsh Valley Development, Inc.
Change of Address
Permit Numbers 29-7772 and 29-7578

Dear Sir or Madam:

This letter is to inform you that effective May 27, 1993 the mailing address for Marsh Valley Development, Inc. will be as follows:

Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, ID 83405

Please correct your records.

Sincerely yours,

Gayle A. Sorenson

GAS/mjm

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AUG 08 2001

RECEIVED
JUN 01 1993

May 27, 1993

Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, ID 83404

State of Idaho
Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, ID 83720-7866

Re: Marsh Valley Development, Inc.
Change of Address
Permit Nos.: 29-7772 & 29-7578

Dear Sir or Madam:

This letter is to inform you that effective May 27, 1993 the mailing address for Marsh Valley Development, Inc. will be as follows:

Marsh Valley Development, Inc.
5203 South 11th East
Idaho Falls, ID 83405

Please correct your records.

Sincerely yours,

Gayle A. Sorenson

Gayle A. Sorenson

Database updated 6-4-93. CS
Ser gg

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06 08 2001

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

CECIL D. ANDRUS
GOVERNOR

R. KEITH HIGGINSON
DIRECTOR

January 19, 1993

MARSH VALLEY DEVELOPMENT INC
2988 TIPPERARY LN
IDAHO FALLS ID 83404

Re: Permit Nos. 29-07578 & 29-07772

Dear Permit Holder(s):

We acknowledge receipt of the correspondence transferring ownership of the above referenced water right to you. We have modified our computer records to reflect this change in ownership.

If you have any questions regarding this matter, please feel free to contact us.

Sincerely,

Brenda L. Miller

BRENDA L. MILLER
Water Resource Agent

BLM:cz

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JAN 22 1993

MARSH VALLEY DEVELOPMENT, INC.
550 Linden Drive
Idaho Falls, Idaho 83401
(208) 522-8069
(208) 522-8223 fax

January 5, 1993

RECEIVED
JAN 8 1993
Department of Water Resources

Brenda L. Miller
Idaho Dept. of Water Resources
Statehouse Mail
Boise, Idaho 83720-9000

RE: ASSIGNMENT OF PERMIT NOS 29-7578 & 29-7772

Dear Ms. Miller:

Enclosed is the "Certificate of Corporate Status of Marsh Valley Development, Inc." you need to complete the assignment process. We will appreciate your completing this as soon as possible.

Thank you.

Sincerely yours,

Gayle A. Sorenson

Gayle A. Sorenson

Encl.

JAN 22 1993

State of Idaho

Department of State

CERTIFICATE OF CORPORATE STATUS

OF

MARSH VALLEY DEVELOPMENT, INC.

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that I am the custodian of the corporation records of this State.

I FURTHER CERTIFY That the records of this office show that the above named corporation was incorporated under the laws of Idaho and was issued a certificate of incorporation in Idaho on March 23, 1987.

I FURTHER CERTIFY That the corporation is in goodstanding on the records of this office.

Dated: December 14, 1992

PROPERTY BOND

JAN 2 2 1993

Pete T. Cenarrusa

SECRETARY OF STATE

By Sheryl Davies

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

CECIL D. ANDRUS
GOVERNOR

R. KEITH HIGGINSON
DIRECTOR

December 10, 1992

GAYLE A SORENSON
MARSH VALLEY DEVELOPMENT INC
2988 TIPPERARY LN
IDAHO FALLS ID 83404

RE: ASSIGNMENT OF PERMIT NOS 29-7578 & 29-7772

Dear Mrs. Sorenson:

We are in receipt of the correspondence concerning transferring ownership of the above referenced permits to Marsh Valley Development, Inc.

Before we can process the assignment, according to Section 42-206, Idaho Code, we must have proof that Marsh Valley Development is authorized to conduct business in the state of Idaho.

Once the required documentation is received, I will complete the assignment process.

Sincerely,

Brenda L. Miller

Brenda L. Miller
Water Resource Agent

JAN 2 2 1993

M ~ SH VALLEY DEVELOPMENT, IN
2988 Tipperary Lane
Idaho Falls, Idaho 83404
(208) 529-2469

RECEIVED
DEC 2 1992
Department of Water Resources

November 30, 1992

State of Idaho
Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, ID 83720-7866

Re: Assignment of Permit No's 29-7772 and 29-7578

Dear Sir or Madam:

Enclosed is an Assignment of Permit for the above described permits. Please stamp and file the same and send us acknowledgement.

Thankyou for your consideration.

Sincerely,

Gayle A. Sorenson

Gayle A. Sorenson

RECORDED
JAN 2 2 1993

57 FERC ¶ 62,165

29-7578

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company — Project No. 10468-004 & -005, Idaho

ORDER APPROVING AN EROSION, SLOPE STABILITY, AND SEDIMENT CONTROL PLAN AND APPROVING AND MODIFYING A STREAMFLOW GAGING PLAN

(Issued December 2, 1991)

On July 26, 1991, the Marsh Valley Hydroelectric Company (licensee) filed an erosion, slope stability, and sediment control plan and a streamflow gaging plan for the Marsh Valley Hydroelectric Project (FERC No. 10468). These filings were required by articles 402 and 406 of the project license, respectively.

Article 402 states that the licensee, after consulting with the Soil Conservation Service (SCS), the Idaho Department of Health and Welfare (DHW), the Idaho Department of Fish and Game (DFG), and the Bannock County Office of Planning and Development Services (BCOPDS), shall file for Commission approval a plan to control erosion and prevent slope instability and to minimize the quantity of sediment resulting from project construction and operation. The licensee's proposed plan contains the required descriptions of site conditions, control measures, and documentation of agency consultation. The plan also includes provisions for maintenance of control measures and revegetation of disturbed areas.

Article 406 of the project license requires the licensee, after consulting with the DFG and the U.S. Fish and Wildlife Service (FWS), to file for Commission approval a plan to install, operate, and maintain a streamflow gage in the Portneuf River to monitor the minimum flow releases required by article 405 of the project license. The licensee proposes to install a staff gage approximately 200 yards upstream of the powerhouse, in the bypassed reach. The staff gage would be placed in a "natural weir-type drop" and rated according to accepted standards of the Idaho Department of Water Resources. The gage would be read daily and the readings recorded on the plant log. Data would be made available to the agencies on a quarterly or bi-annual basis.

Agency Comments

The BCOPDS, by letter dated June 25, 1991, accepted the erosion, slope stability, and sediment control plan. The SCS, DHW, and DFG did not comment on the proposed plan.

The FWS reviewed the proposed streamflow gaging plan and stated that it would like to receive flow reports on a quarterly basis, but otherwise had no comments on the plan. The DFG did not comment on the plan.

Discussion

The erosion, slope stability, and sediment control plan filed on July 26, 1991, contains the required elements and would serve to control erosion, prevent slope instability, and minimize the quantity of sediment resulting from project construction and operation. Consequently, the plan should be approved.

The streamflow gaging plan filed on July 26, 1991, would provide for accurate measurement of flows in the bypassed reach and serve as the basis for monitoring of the minimum flow release of 10 cfs required by article 405 of the project license. Consequently, the streamflow gaging plan should be approved.

However, the stream gaging plan does not indicate how the stream gaging data will be used to ensure that the prescribed minimum flows are maintained. To ensure that the prescribed minimum flows are released at all times, the licensee should adjust project structures or operation daily, as needed, based on the daily streamflow data. The licensee should also report any violations of the minimum flow requirement to the Commission.

The Director orders:

(A) The erosion, slope stability, and sediment control plan filed on July 26, 1991, pursuant to article 402 is approved.

(B) The streamflow gaging plan filed on July 26, 1991, pursuant to license article 406 and as modified in paragraph C, below, is approved.

(C) The licensee shall make daily adjustments to project structures or operation, as necessary based on the daily streamflow data, to ensure the release of the prescribed minimum flow. If a violation of the minimum flow required by article 405 of the project license occurs, the licensee shall file a report with the Commission within 30 days of the date of the violation. The report shall identify the cause, duration, and severity of the violation, any environmental impacts resulting from the violation, and the measures that were implemented to correct the violation. Based on the report and the Commission's investigation of the violation, the Commission reserves the right to require modifications to project facilities and operation to ensure future compliance.

RECEIVED
JAN 22 1992
RECEIVED
Department of Water Resources

29-7578

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DEC 04 1991
Department of Water Resources

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company

Project No. 10468-006
Idaho

ORDER GRANTING EXTENSION OF TIME

(Issued November 26, 1991)

The licensee for the Marsh Valley Project has requested an extension of the deadline for commencing project construction. The reasons advanced by the licensee in support of the requested extension of time are reasonable and justify the extension. The deadline for completion of construction will be similarly extended.

The Director orders:

(A) The deadline for commencing project construction is extended to November 30, 1993.

(B) The deadline for completing project construction is extended to November 30, 1995.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. M. Robinson

J. Mark Robinson
Director, Division of Project Compliance and Administration

DC-A-11

JAN 22 1993

29-7578

RECEIVED
DEC 03 1991
Department of Water Resources

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company

Project No. 10468-006
Idaho

ORDER GRANTING EXTENSION OF TIME

(Issued November 26, 1991)

The licensee for the Marsh Valley Project has requested an extension of the deadline for commencing project construction. The reasons advanced by the licensee in support of the requested extension of time are reasonable and justify the extension. The deadline for completion of construction will be similarly extended.

The Director orders:

(A) The deadline for commencing project construction is extended to November 30, 1993.

(B) The deadline for completing project construction is extended to November 30, 1995.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. Mark Robinson
Director, Division of Project
Compliance and Administration

DC-A-11

PROCESSED
JAN 22 1993

RECEIVED
SEP 27 1990
Department of Water Resources

Lyndon Green
Marsh Valley Hydroelectric Company
1791 East South
McCammon, ID 83250

September 20, 1990

R. Keith Higginson
Director, Idaho Department of Water Resources
Statehouse Mail
1301 North Orchard
Boise, ID 83720

RE: MARSH VALLEY HYDROELECTRIC PROJECT
WATER RIGHT APPLICATION #29-7578 AND 29-7772

Dear Mr. Higginson:

This water right application has ben held up for some time pending an appeal for late intervention by parties represented by Mr. Ken Arment. This intervention was denied by the district court.

The water right is the "last piece" prior to proceeding with the project. We would be most grateful if the water right could be issued by October 15, 1990, if at all possible.

Your help in this matter is sincerely appreciated.

Very truly yours,

Lyndon Green

Lyndon Green
Marsh Valley Hydroelectric

TSS:mbk

MICROFILMED
JAN 22 1993

RA
Norm

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069
FAX 208-522-8223

RECEIVED
SEP 24 1990
Department of Water Resources

September 20, 1990

R. Keith Higginson
Director, Idaho Department of Water Resources
Statehouse Mail
1301 North Orchard
Boise, ID 83720

RE: MARSH VALLEY HYDROELECTRIC PROJECT
WATER RIGHT APPLICATION #29 7578 29 7772

Dear Mr. Higginson:

This letter is written concerning the above referenced permit. The project has been placed "on hold" pending the issuance of the water right. We would appreciate issuance of this water right as soon as possible. We understand that the appeal for late intervention by parties as represented by Kenneth Arment was denied.

We would appreciate receiving the permit within the next thirty days.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:mbk

JAN 22 1993

Glen —
What is status?
Issued yet?

RECEIVED
SEP 28 1990
Department of Water Resources

Lyndon Green
Marsh Valley Hydroelectric Company
1791 East South
McCammon, ID 83250

September 20, 1990

R. Keith Higginson
Director, Idaho Department of Water Resources
Statehouse Mail
1301 North Orchard
Boise, ID 83720

RE: MARSH VALLEY HYDROELECTRIC PROJECT
WATER RIGHT APPLICATION #29-7578 AND 29-7772

Dear Mr. Higginson:

This water right application has ben held up for some time pending an appeal for late intervention by parties represented by Mr. Ken Arment. This intervention was denied by the district court.

The water right is the "last piece" prior to proceeding with the project. We would be most grateful if the water right could be issued by October 15, 1990, if at all possible.

Your help in this matter is sincerely appreciated.

Very truly yours,

Lyndon Green

Lyndon Green
Marsh Valley Hydroelectric

TSS:mbk

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JAN 22 1993

State of I ho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 327-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

October 2, 1990

Permit No. 29-7578

Marsh Valley Hydro Electric Co.
McCammon, ID 83250

Dear Permit Holder:

Enclosed is a copy of your approved Application for Permit. We direct your attention to the conditions of approval on the fourth page.

Please note the requirement that as a permit holder you must commence the excavation or construction of diverting works within one year of the date the permit was issued, and you must proceed diligently until the project is completed. The enclosed blue card must be completed and returned to this office as soon as you commence construction, no later than one year from the date the permit was approved.

We have enclosed a form entitled "Instructions of Proof of Beneficial Use." Please read the instructions carefully since you must take further action to develop this permit into a license.

Sincerely,

JIM JOHNSON, Supervisor
Water Right Permits Section

JJ:js

MICROFILMED
JAN 22 1993

Kent W. Foster, Esq.
Donald L. Harris, Esq.
HOLDEN, KIDWELL, HAHN & CRAPO
P.O. Box 50130
Idaho Falls, Idaho 83405
Telephone: (208) 523-0620

BEFORE THE DEPARTMENT OF WATER RESOURCES
FOR THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS ~~FOR TRANSFER~~ NOS. 29-7578 and 29-7772.	R E S P O N S E

COMES NOW Donald L. Harris, of the firm Holden, Kidwell, Hahn & Crapo and pursuant to the Department's instruction, provides notice that counsel represent Marsh Valley Hydro Electric Company and Ted S. Sorenson, P.E., d/b/a Sorenson Engineering.

DATED this 18th day of May, 1990.

Donald L. Harris
HOLDEN, KIDWELL, HAHN & CRAPO

RECEIVED
MAY 1 3 1990
Department of Water Resources
Eastern District Office

RECEIVED
MAY 1 8 1990
Department of Water Resources
Eastern District Office

RECEIVED
MAY 3 0 1990
Department of Water Resources

JAN 2 2 1993

CERTIFICATE OF SERVICE

I hereby certify that I am a duly licensed attorney in the State of Idaho, resident of and with my office in Idaho Falls, Idaho; that I served a copy of the following described pleading or document on the attorneys listed below by hand delivering or by mailing, with the correct postage thereon, a true and correct copy thereof on this 18th day of May, 1990.

Document Served: R E S P O N S E

Individuals Served:

Kenneth R. Arment, Esq. (MAIL)
BRADY, SAETRUM & LERMA, CHTD.
P.O. Box 1398
Boise, Idaho 83701-1398

Ted S. Sorenson, P.E. (MAIL)
SORENSON ENGINEERING
550 Linden Drive
Idaho Falls, Idaho 83401

Donald L. Harris
HOLDEN, KIDWELL, HAHN & CRAPO

#6066.00
8598h/srr

JAN 22 1993

2 9-7518
2, -7772

Ref
Please file

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company) Project No. 10468-001

NOTICE OF INTENT TO ACT AND
ACCEPTING LATE-FILED APPEAL

(April 2, 1990)

Lava Irrigation Company, Dempsey Irrigation Company, Topaz Irrigation Company, Fish Creek Irrigating Company, Jim Andrus, Ken Andrus, and Max Hall (Irrigators) have filed an appeal of the November 30, 1989 order of the Director, Office of Hydropower Licensing, issuing a license to Marsh Valley Hydroelectric Company for the proposed Marsh Valley Project No. 10468. 49 FERC ¶ 62,192 (1989). Irrigators' appeal was late-filed. Upon consideration, there appears to be good cause for accepting their appeal for consideration on its merits. This notice does not constitute a grant or denial of the appeal on its merits in whole or in part.

Further time is required to consider the issues raised on appeal. The Commission intends to act on appellants' appeal, which shall not, therefore, be deemed denied by operation of law pursuant to 18 C.F.R. § 385.1902(c) (1989).

By direction of the Commission.

(S E A L)

Lois D. Cashell

Lois D. Cashell,
Secretary.

JAN 22 1993

29-1578
29-7772

Best File please

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APR 3 1990
Department of Water Resources

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company) Project No. 10468-001

NOTICE OF EXTENSION OF TIME

(March 29, 1990)

On March 14, 1990, Marsh Valley Hydroelectric Company (Marsh Valley) filed a motion for an extension of time to file an answer to an appeal filed March 5, 1990, in the above-proceeding on behalf of Lava Irrigation Company, Dempsey Irrigation Company, Topaz Irrigation Company, Fish Creek Irrigating Company, Jim Andrus, Ken Andrus and Max Hall (Lava Irrigators). In its motion, Marsh Valley states that additional time is needed because of the extensive nature of the issues raised in the appeal and because the company experienced a delay in its receipt of a copy of the filing.

Upon consideration, notice is hereby given that an extension of time for filing an answer is granted to and including March 30, 1990.

Lois D. Cashell
Secretary

RECEIVED
JAN 22 1993

LAW OFFICE
BRADY, SAETRUM & LERMA
CHARTERED
FIRST INTERSTATE CENTER
877 WEST MAIN STREET SUITE 800
P.O. BOX 1398
BOISE, IDAHO 83701-1398
(208) 345-8400
Facsimile (208) 345-8790

MICHAEL G. BRADY
RODNEY R. SAETRUM*
JOHN J. LERMA
KENNETH R. ARMENT
DAVID E. DAY**
MICHAEL E. POWERS
KENT V. REYNOLDS

*Also licensed in Utah
**Also licensed in Oregon

OFFICES IN
TWIN FALLS, IDAHO
303 SHOSHONE STREET NORTH
83301
(208) 734-0801

March 19, 1990

RECEIVED
MAR 20 1990
Department of Water Resources

Donald L. Harris, Esq.
Holden, Kidwell, Hahn & Crapo
P. O. Box 50130
Idaho Falls, ID 83405

Re: Lava Irrigation District v. Idaho Department of Water Resources
Ada County Case No. 93069

Dear Mr. Harris:

In response to your letter dated March 16, 1990, you should check your facts and own pleadings prior to accusing me of deliberate misrepresentation. Enclosed for your information are copies of the front two pages of your Response to Objection to Petition for Issuance of License and Motion for Sanctions before the IDWR. The language highlighted on page 1 of this document states as follows: "COMES NOW, Marsh Valley Hydro Electric Company, by and through counsel of record, Donald L. Harris." On page 2 of this document is the following language: "Regardless of whether Mr. Arment agrees with that decision, undersigned counsel are counsel of record on the appeal **and before the Department** (emphasis added)". My good faith interpretation of this language is that you represented that you were indeed counsel of record for the applicant before the IDWR. In fact, you made these statements in response to my objection which stated that you were not counsel of record before the IDWR.

Because of your representations, I wrote to Mr. Spackman to obtain copies of your Notice of Appearance for Marsh Valley Hydro Electric Company before the IDWR. As you know, your client and your firm have engaged in ex parte communications on more than one occasion before the IDWR, and since I also did not receive a copy of your Notice of Appearance before the IDWR, I asked Mr. Spackman, as custodian of the record, to supply a copy to me. Now, in your March 16, 1990, correspondence you allege that I lied and that you have never represented yourself as counsel of record for Marsh Valley Hydro Electric Company before the IDWR!

Regarding your concern that I have not addressed the scope of your representation of your client/clients directly, our last letter to you on this issue with regard to your status on appeal

JAN 22 1993

of IDWR's decision went unanswered. Enclosed is a copy of my January 4, 1990, correspondence to you addressing your three notices of appearance before the state Court proceeding. On your first notice, you appeared on behalf of the Idaho Department of Water Resources. You subsequently filed what appeared to be two identical Amended Notices of Appearance. Then in the proceedings before the IDWR, you filed an unprecedented Motion for the IDWR to issue a license (even though no permit existed) wherein you represented that you were counsel of record before the IDWR for the applicant, Marsh Valley Hydro Electric Company.

In the meantime, you have not responded to a telephone inquiry with regard to potential for a negotiated settlement. That response, of course, is well within the prerogative of your client. The ramifications of that decision will be seen when decisions on the FERC appeal and IDWR appeal to state Court are issued.

On an additional matter, you reference a "board" in your March 16, 1990, letter. I assume you are referring to Idaho Water Resource Board. I am unaware of any proceedings in front of the Idaho Water Resource Board. The only matters which I am involved in include: (1) the FERC appeal; (2) appeal of the IDWR decision to Idaho state Court, Judge Schwartzman presiding; and (3) the administrative processing of the applicant's water rights before the IDWR, which was not stayed by our appeal. If you would like to discuss this matter, I would be happy to communicate with you by telephone or in correspondence.

Very truly yours,

BRADY, SAETRUM & LERMA,
CHARTERED

Ken Arment

Kenneth R. Arment

KRA:ts
cc/enc: Gary Spackman
Randy Budge
Ted Sorenson
Kent Foster
Lava Irrigation

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JAN 22 1993

RECEIVED FEB 1 5 1990

COPY

KRA

Kent W. Foster, Esq.
Donald L. Harris, Esq.
HOLDEN, KIDWELL, HAHN & CRAPO
P. O. Box 50130
Idaho Falls, Idaho 83405
Telephone: (208) 523-0620

BEFORE THE DEPARTMENT OF WATER RESOURCES
FOR THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS) FOR TRANSFER NOS. 29-7578) and 29-7772.))	RESPONSE TO OBJECTION TO PETITION FOR ISSUANCE OF LICENSE AND MOTION FOR SANCTIONS

COMES NOW Marsh Valley Hydro Electric Company by and through counsel of record, Donald L. Harris, and responds to the objection filed on behalf of Lava Irrigation Company, Dempsey Irrigation Company, Topaz Irrigation Company, Fish Creek Irrigating Company, Jim Andrus, Ken Andrus and Max Hall filed by Kenneth R. Arment. Counsel for the parties which attempted to intervene but whose intervention was filed late and which are not technically parties before the Department of Water Resources in this matter, allege several so-called improprieties.

Mr. Arment apparently does not wish undersigned counsel and his firm to appear on behalf of Marsh Valley Hydro Electric Company even though counsel has appeared for the record on the

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JAN 2 2 1993

appeal for Marsh Valley Hydro Electric Company (Marsh Valley). Regardless of whether Mr. Arment agrees with that decision, undersigned counsel are counsel of record on the appeal and before the Department.

It is Marsh Valley's position that there was no impropriety in filing for record with the Department notice that the FERC permit had been issued and ironically it is through Marsh Valley's service upon Mr. Arment that his clients' became aware of the issuance of the license by FERC. In his objection counsel alleges "Further, Attachment 'A' to this objection and motion reveals there is [sic] outstanding issues of the validity of the FERC license." All Attachment "A" demonstrates is that FERC, for whatever reason, did not consider their Motion to Intervene. It does not demonstrate that there are any outstanding issues as to the validity of the FERC license.

With regard to the alleged impropriety requiring sanctions, Marsh Valley submits that a letter was written by Kent W. Foster of the firm and Ted Sorenson regarding the issues raised by Marsh Valley that were before the Department. Such letters are not subject to any sanction by the Department and do not rise to the level of an improper ex parte communication.

RECEIVED
JAN 22 1993

LAW OFFICE
BRADY, SAETRUM & LERMA
CHARTERED
FIRST INTERSTATE CENTER
877 WEST MAIN STREET SUITE 800
P.O. BOX 1398
BOISE, IDAHO 83701-1398
(208) 345-8400
Facsimile (208) 345-8790

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JOHN J. LERMA
KENNETH R. ARMENT
DAVID E. DAY**
MICHAEL E. POWERS
KENT V. REYNOLDS

*Also licensed in Utah
**Also licensed in Oregon

OFFICES IN
TWIN FALLS, IDAHO
303 SHOSHONE STREET NORTH
83301
(208) 734-0801

January 4, 1990

Donald L. Harris, Esq.
Holden, Kidwell, Hahn & Crapo
P. O. Box 50130
Idaho Falls, ID 83405

Re: Lava Irrigation District v. Idaho Department of Water Resources
Ada County Case No. 93069

Dear Mr. Harris:

We have received the Second Amended Notice of Appearance filed by you in the above-referenced matter dated December 22, 1989. We are unable to ascertain any difference between the Second Amended Notice of Appearance and your Amended Notice of Appearance dated December 7, 1989. Our previous telephone calls to you on this matter did not clearly resolve the issue of who you represent.

Accordingly, based on your Second Amended Notice of Appearance, we are assuming you represent Marsh Valley Hydro Electric Company, which is an Idaho corporation incorporated and owned in total by the McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd. The Marsh Valley Hydro Electric Company had previously been represented by Randy Budge.

We are also required to assume from your Notice of Appearance that you are not representing the Marsh Valley Development Company, which is the entity that the Marsh Valley Hydro Electric Company contracted with to develop the project. It is our understanding that Ted Sorensen is an officer and stockholder of Marsh Valley Development Company, but is not an officer or stockholder of Marsh Valley Hydro Electric Company. It was our previous understanding, based upon your firm's prior involvement in the above-referenced matter, and telephone conference with your office, that your firm intended to represent Mr. Ted Sorensen and his interest. It was also our understanding that Mr. Sorensen was involved in the above-referenced project through his personal interest or on behalf of Marsh Valley

JAN 22 1993

Development Company) and not on behalf of Marsh Valley Hydro Electric Company. We are, however, bound by who you say you represent. If the foregoing is not correct, please notify us.

If you have any comments or questions, please let us know.

Very truly yours,

BRADY, SAETRUM & LERMA,
CHARTERED

Ken Arment

Kenneth R. Arment

KRA:ts
cc: Randy Budge
Judge Alan Schwartzman
Lava Irrigation District
Phil Rassier

JAN 2 2 1993

29-7578
7772

LAW OFFICES
HOLDEN, KIDWELL, HAHN & CRAPO

WEST ONE BANK BUILDING
P.O. BOX 50130
IDAHO FALLS, IDAHO 83405

TELEPHONE (208) 523-0620
TELEFAX (208) 523-9518

FRED J. HAHN
KENT W. FOSTER
ROBERT E. FARNAM
WILLIAM D. FALER
STEPHEN E. MARTIN
CHARLES A. HOMER
GARY L. MEIKLE
MICHAEL D. CRAPO
GAYLE A. SORENSON
DONALD L. HARRIS
GREGOR S. CHVISUK
RANDALL B. REED
MARIE T. FEELEY
ROBERT M. FOLLETT

ARTHUR W. HOLDEN (1877-1967)
ROBERT B. HOLDEN (1911-1971)
TERRY L. CRAPO (1939-1982)
WILLIAM S. HOLDEN (1907-1988)

R. VERN KIDWELL, OF COUNSEL

COPY

March 16, 1990

RECEIVED
MAR 19 1990
Department of Water Resources

Kenneth R. Arment, Esq.
BRADY, SAETRUM & LERMA, CHTD.
P.O. Box 1398
Boise, Idaho 83701-1398

RE: Marsh Valley Hydro

Dear Mr. Arment:

I am in receipt of a letter dated March 13, 1990 where you have advised Mr. Spackman that I represented that I have appeared as counsel of record for the applicant before the Idaho Department of Water Resources. I believe that you know that the representation you have made is not correct and that I represent Marsh Valley before the District Court on your appeal of the agency's decision. My only contact with the board has been to file a request that the licenses be issued based upon FERC's issuance of a license. I am involved before the IDWR as a partner of Kent W. Foster and on behalf of our firm. As you will recall, IDWR has required all documents to be served on Mr. Foster and he has been a limited participant.

If you have some concern with my representation, I suggest that you deal with that issue directly, rather than in the manner which you are doing it.

Very truly yours,

Donald L. Harris

Donald L. Harris

#6066.00/srr

cc: Gary Spackman
Randall C. Budge
Ted S. Sorenson

MICROFILMED
JAN 2 2 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 327-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

March 16, 1990

Donald Harris
Holden, Kidwell, Hahn & Crapo
P.O. Box 50130
Idaho Falls, ID 83405

RE: Applications Nos. 29-7578 and 29-7772; in the Name of Marsh Valley Hydro Electric Company

Dear Mr. Harris:

Please find enclosed an Order Denying Petition for Issuance of License (Permit) and Order Denying Motion for Sanctions on the above referenced applications.

If you have any questions concerning this matter, please feel free to contact this office.

Respectfully,

Gary Spackman

GARY SPACKMAN, Manager
Water Right Permits Section

GS:js

Enclosure

JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 327-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

March 16, 1990

Kenneth Arment
Brady, Saetrum, & Lerma
First Interstate Center
877 West Main St., Suite 800
P.O. Box 1398
Boise, ID 83701-1398

RE: Applications Nos. 29-7578 and 29-7772; in the Name of Marsh Valley Hydro Electric Company

Dear Mr. Arment:

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Respectfully,

Gary Spackman

GARY SPACKMAN, Manager
Water Right Permits Section

GS:js

Enclosure

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JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 -(208) 327-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

March 16, 1990

Randall C. Budge
Racine, Olson, Nye, Cooper & Budge
P.O. Box 1391
Pocatello, ID 83204-1391

RE: Applications Nos. 29-7578 and 29-7772; in the Name of Marsh Valley Hydro Electric Company

Dear Mr. Budge:

Please find enclosed an Order Denying Petition for Issuance of License (Permit) and Order Denying Motion for Sanctions on the above referenced applications.

If you have any questions concerning this matter, please feel free to contact this office.

Respectfully,

Gary Spackman

GARY SPACKMAN, Manager
Water Right Permits Section

GS:js

Enclosure

JAN 2 2 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 327-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

March 16, 1990

Ted Sorenson
550 Linden Dr.
Idaho Falls, ID 83401

RE: Applications Nos. 29-7578 and 29-7772; in the Name of Marsh Valley Hydro Electric Company

Dear Mr. Sorenson:

Please find enclosed an Order Denying Petition for Issuance of License (Permit) and Order Denying Motion for Sanctions on the above referenced applications.

If you have any questions concerning this matter, please feel free to contact this office.

Respectfully,

Gary Spackman

GARY SPACKMAN, Manager
Water Right Permits Section

GS:js

Enclosure

MICROFILMED
JAN 22 1993

29-1578
29-1772

4 S FERC 1 0 1 9 3

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company — Project No. 10468-000
Idaho

ORDER ISSUING LICENSE
(Major Project)

(Issued December 1, 1989)

Marsh Valley Hydroelectric Company filed a license application under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Marsh Valley Project, located on the Portneuf River, in Bannock County, Idaho. The project would affect the interests of interstate commerce. To an existing dam and canal, the applicant would add a new diversion structure on the canal, a penstock, and a powerhouse containing a single generating unit with a rated capacity of 1,700 kilowatts (kW).

Notice of the application has been published. The Idaho Department of Fish and Game filed a motion to intervene, raising concerns about adverse impacts to riparian and wildlife habitat. We (the staff) discuss these concerns in the attached environmental assessment (EA). No protests were filed and no agency objected to issuance of this license. The comments filed by interested agencies have been fully considered in determining whether to issue this license.

Comprehensive Development

Section 4(e) of the Act states that in deciding whether to issue a license, the Commission, in addition to considering the power and development purposes of the project, shall give equal consideration to the following: the purposes of energy conservation; the protection of, mitigation of, damage to, and enhancement of, fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. These purposes are considered in the comprehensive development section of the EA.

The proposed project would generate 7.6 gigawatthours of electrical energy per year. The project also provides for the long-term energy conservation and the displacement of fossil-fueled electric power plant generation for the betterment of air quality and the conservation of fossil fuels.

In the EA, we evaluate the effect of project construction and operation on the environmental resources of the project area

JAN 2 2 1993

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DEC 13 1989
Department of Water Resources

and discuss mitigative and enhancement measures that should be implemented. Mitigative measures recommended: run of river operation, erosion control measures, raptor protection, and visual quality protection. Enhancement recommended: a year-round minimum flow of 10 cfs in the bypass reach, where currently the river is dewatered for 4 to 5 months annually.

Section 10(a)(2) of the Act requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Under section 10(a)(2), federal and state agencies filed 24 comprehensive plans that address various resources in Idaho. Of these, we identified and reviewed seven plans relevant to this project.1/ No conflicts were found.

Based on our review of agency and public comments filed in this proceeding and on our independent analysis, the Marsh Valley Hydroelectric Project is best adapted to a comprehensive plan for the Portneuf River.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. In the EA, we address the concerns of the fish and wildlife agencies raised during the public notice period and provide recommendations consistent with those of the agencies.

Summary of Findings

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

1/ Idaho state water plan, 1986, Idaho Water Resources Board; Idaho fisheries management plan, 1986, Idaho Department of Fish and Game; Idaho water quality standards and wastewater treatment requirements, 1985, Idaho Department of Health and Welfare; Idaho outdoor recreation plan, 1983, Idaho Department of Parks and Recreation; Columbia River Basin fish and wildlife program, 1986, Northwest Power Planning Council; Protected areas amendments and response to comments, 1988, Northwest Power Planning Council; Northwest conservation and electric power plan, 1986, Northwest Power Planning Council.

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069
FAX 208-522-8223

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NOV 30 1989
Department of Water Resources

November 27, 1989

Gary Spackman
Manager
Water Rights Permit Section
Idaho Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, ID 83720

RE: MARSH VALLEY HYDROELECTRIC APPLICATION FOR PERMITS #29-7578 AND #29-7772

Dear Mr. Spackman:

Pursuant to your order issued on October 18, 1989, comments were to be received by November 18, 1989. As no comments have been received, I see no reason why the water rights cannot be issued. The delay in the issuance of the water right is now adversely affecting the project.

Your prompt attention to this matter is sincerely appreciated.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:mbk

MICROFILMED
JAN 22 1993

BRADY, SAETRUM & LERMA, CHARTERED
Kenneth R. Arment
First Interstate Center
877 West Main Street, Suite 800
P.O. Box 1398
Boise, Idaho 83701-1398

TELEPHONE (208) 345-8400

Attorneys for Petitioners

RECEIVED
NOV 21 1989
Department of Water Resources

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

LAVA IRRIGATION COMPANY; DEMPSEY IRRIGATION COMPANY; TOPAZ IRRIGATION COMPANY; FISH CREEK IRRIGATING COMPANY; JIM ANDRUS; KEN ANDRUS; and MAX HALL, Petitioners, vs. MARSH VALLEY HYDRO ELECTRIC COMPANY; PORTNEUF-MARSH VALLEY CANAL CO., LTD.; and McCAMMON DITCH COMPANY, Respondents.	Application Numbers: 29-7578 29-7772 **INFORMATION SUBMITTED PURSUANT TO ORDER OF THE IDAHO DEPARTMENT OF WATER RESOURCES**

Pursuant to the Idaho Department of Water Resources' ("IDWR") Order Denying Petition for Rehearing and Amending Order Denying Petitions dated October 17, 1989, and mailed October 18, 1989, for service on Petitioners, Petitioners submit the following information for IDWR's consideration of the above-referenced water rights application.

JAN 22 1993

(1) Petitioners submit for consideration their previously filed Petitions to Intervene; File Protest; Cancel Applications; and for Inquiry filed August 31, 1988, with IDWR, which petitions are incorporated herein by this reference;

(2) Petitioners submit for consideration their previously filed Petition for Rehearing filed July 31, 1989, with IDWR, which petition is incorporated herein by this reference;

(3) Due to the water distribution practices on the Portneuf River, Petitioners' water rights have been injured and incorrectly shorted as they must stand the transmission losses for junior storage water transmissions in the natural channel of the Portneuf River for the benefit of the Portneuf-Marsh Valley Canal Company and McCammon Ditch Company. As a result of elevating the junior storage water rights above Petitioners decreed water rights, Petitioners have been forced to resort to obtaining irrigation water out of the Portneuf River beyond the time frame of the irrigation season established by the Union Grain & Elevator Company decree. If Applicant's applications are approved without conditions protecting these necessary and historic water practices, it is very likely that the operator of the project will seek to have Petitioners' water uses curtailed outside the established irrigation season in favor of the junior, nonconsumptive hydropower project, if it is approved. The operator of the project, or one of his entities, has filed

JAN 22 1993

litigation against upstream consumptive water users in similar situations, i.e., on Birch Creek;

(4) Petitioners and their constituents are composed primarily of family farm operations that would be devastated by the inability to receive their makeup water during the enclosed "nonirrigation season" as a result of the water distribution practices on the Portneuf River;

(5) Petitioners are concerned with regard to the ultravirus activities of McCammon Ditch Company and Portneuf-Marsh Valley Canal Company in creating Marsh Valley Hydro Electric Company. If any liabilities are created by Applicant's project or if something goes wrong, the Portneuf-Marsh Valley Canal Company and McCammon Ditch Company could then disclaim the actions taken by their corporate officers in creating Applicant and operating the project as ultravirus activities of their respective corporations, leaving only the individual officers and/or board members personally responsible. Applicant has previously demonstrated that it is not well capitalized, as its water rights applications were delayed several years in attempts to obtain a developer with financial backing for the project and has submitted no information on its own financial condition. Accordingly, Applicant and/or officers of the McCammon Ditch Company and Portneuf-Marsh Valley Canal Company should be required to file bonds to safeguard the public interest or they should be required to amend their Articles of Incorporation so that their activities with

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regard to the project are not ultravirus. It would not be difficult for the amendments to their Articles of Incorporation to be made, as they have been amended in the past;

(6) The processing of these applications for water rights for a period of over eight years in light of dynamics of the water supply system of the Portneuf River without interim notice to the public to protest or comment on the water right applications is not in the public interest. Especially, where no notice was provided that the original application in 1981 would be combined with a subsequent application made in 1984. Petitioners do not believe that the department's rather minimal notice requirements, coupled with strict limitations on the time period to file protests, should apply on an application for water rights on the Portneuf River, which has been languishing in IDWR's files for almost a decade;

(7) Incorporated herein as Exhibit "A" are a statement of facts and problems of distribution of water in the Portneuf River District 29 area, copy of a page of recorded transcript of a meeting, and two affidavits.

DATED this 17th day of November, 1989.

BRADY, SAETRUM & LERMA,
CHARTERED

By Ken Arment
Kenneth R. Arment

JAN 2 2 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 17th day of November, 1989, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid addressed to:

Randall C. Budge
Racine, Olson, Nye, Cooper
& Budge, Chartered
P.O. Box 1391
Pocatello, ID 83204-0391

Kent W. Foster
Holden, Kidwell, Hahn & Crapo
P.O. Box 50130
Idaho Falls, ID 83405-0130

Kenneth R. Arment

JAN 2 2 1993

INFORMATION SUBMITTED PURSUANT TO ORDER OF THE IDAHO
KRA:vrd:pl:ALAV01

PORTNEUF RIVER DISTRICT 29 AREA FROM CHESTERFIELD TO DOWNEY, ID.

FACTS AND PROBLEMS OF DISTRIBUTION OF WATER

1. Petitioners decreed water rights are later than many others.

2. Petitioners decreed water rights are smaller than the other canal companies, giving them very little representation in river board meetings.

3. Portneuf Marsh Valley Canal Co. has a storage reservoir in the Chesterfield area, puts the water into the river channel for transportation to their diversion point, between 20 and 30 miles down stream.

4. Because of a court proceedure in 1922 the decree used to govern these water rights is a decision of one judge.

   A. A judge has no authority to make a law.

   B. Decree provides for Portneuf Marsh Valley Canal Co. (PMV) to transport their storage water loss free all this distance. While Idaho law states anyone mingling their water in a public stream must make due allowance for loss and seepage, and the amount of water of prior appropriators shall not be diminished.

   C. In a meeting of a number of water users held in Lava Hot Springs August 23, 1982 at which Ron Carlson of the IDWRwas present, Tom Bloxham, watermaster, made the statement if he shut off the flow of the reservoir you could not tell any difference this far downstream. This was in reference to about 40 cfs he had cut down the reservoir flow while mossing the channel and had made no adjustments down stream to accomodate the loss.

   D. The petitioners are bearing the burden of all the loss as the large canals with early rights claim no responsibility and IDWR will not make any changes. We believe all water users covered by this decree should stand a percentage of the loss according to the amount of their decree and the distance of their diversion from the reservoir.

   E. PMV claims reason for the loss free decision was, the building of the reservoir drained swampy areas making up for most of the loss in transportation.
      In fact the Toponce feeder canal carries the majority of this said water into the reservoir making it storage water not free flow river water.

   F. By the time the river is low enough that PMV must release water from the reservoir all the excess water from spring run off is gone.

5. Judges decree provides for an irrigation season April 15 to September 15 presumably to allow for storage of water.

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EXHIBIT "A"

A. All the petitioners water rights were before the reservoir was built so this was taking previously decreed water for storage water, contrary to Idaho law.

B. Water flowing into the river channel below the reservoir supplies water for irrigation during the non irrigation season and the petitioners have historically used it in any amount desired any time they choose, first come first serve down the river.

C. Lava Irrigation Co. has filed a claim of use with the IDWR claiming historical use until November 15 annually. The IDWR will not make a commitment as to whether they will honor or enforce this claim.

6. At the time the decree was handed down PMV reservoir capacity was 16,410 A. feet. About 30 years later the capacity was increased about 8,000 A. feet. Petitioners are being required to go by the same loss free regulations on this additional water when it does not come under the same decree. The IDWR has acknowledged this is not covered by the decree but they have not done anything to correct the problem.

A. There needs to be a graph recording the amount of water released from the reservoir so that when the 16,410 A. feet has been released the rivermaster can assess loss on all the rest of the water released.

7. The decree requires all the water flowing into the reservoir during the irrigation season to be measured and released for the river flow users if needed. There are no measuring devices to determine this amount that can be read except with a current meter.

8. The judges decree requires "automatic measuring and registering devices on all diversions diverting 30 cfs or more." There are none anywhere on the river system. This would allow a way to make corrections when there are errors. All diversions are required to have acceptable measuring devices, many do not have any. Measuring devices are to be as close to the point of diversion as feasible. PMV measuring device is a rated section, requires a different way of reading than most, and is about a mile down the canal because the canal is rocky and seeps water. There is a good feasible place close to the diversion point.

9. The past rivermaster (we have a new one now) said he kept one record of water distribution for the IDWR and another for his own use. The one turned into IDWR was determined to frequently be inaccurate so he was asked to show his personal record. To this request, he refused even to the representatives of IDWR.

A. His records some times covered the fact that the petitioners water was cut way down or off and one time PMV sold water to Lava Irrigation Co. stockholders because their water was cut off and there was no record of this.

B. After checking water flow of the canals many times, it was determined water was not being delivered consistently within the bounds of the decreed amounts.

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10. The IDWR has allowed many wells to be drilled in the Portneuf River drainage, many very close to the river, all since the petitioners water rights were established. Evidence indicates these wells significantly drain the acquafer and contribute to the shortage of water in the Portneuf River.

A. Rivermaster seems to have no jurisdiction over these wells.

11. In a Bannock County planning and zoning meeting concerning the proposed hydropower plant, testimony was given by Randy Budge that after or before the irrigation season, the power plant would take the water. See copy of a partial transcript of that meeting included with this information.

12. At a meeting in Pocatello October 20, 1988 of the representatives of the hydro companies and the petitioners representatives, Ted Sorenson said he had no qualms about the way the petitioners have been using the water in the past but when asked for a written agreement stating that, his council Kent Foster indicated it would be illegal. When in fact the council for the petitioners had received an indication from IDWR that they would accept and encorce such an agreement.

A. This simple agreement could have saved all this time, expense and mental distress.

B. Ted Sorenson proposed we guarantee the river flow would not drop below a given amount of water or he would have th e petitioners water shut off.
No one can guarantee any specific amoun t of water will flow in any river. In addition there are over 100 other water diversions upstream from the petitioners diversions that make a difference to the amount of water flowing in the river.

13. The river channel has a great deal of moss, watercress and silt in it, being extremely bad since the reservoir was drained in 1986 and 1987. This holds the water back sometimes to the point of going over the banks.

A. Rivermaster has been taking the decreed water of the petitioners until he gets all of it and reaches the point that the water of McCammon canal company has to be cut, then he says the channel is plugged and he cannot get their water through so the storage water is shut down to a point at which the water will flow in the channel.

B. Government agencies have been objecting to cleaning the channel, now we believe the IDWR would be able to help expedite this permission and a way of proceeding.

14. Because of all these conditions the petitioners have very little water for irrigation in the summer and have used the water during the non irrigating season every year, allowing the hydro plants to be able to shut our water off during the non irrigating season would completely devastate many of these farmers.

15. Many of the personnel in both the Idaho Falls and Boise offices of the IDWR have been aware of these situations since 1982 and they have been contacted frequently for assistance in solving

JAN 22 1993

as many of these problems as possible but have done very little.

A. We did get a letter from IDWR directing watermaster not to shut our water off for the other rights until such time as PMV would comply with the provisions of the decree. However Norman Young recinded the letter on lack of Knowledge of all the problems. Then he never did correct his mistake.

B. Knowing all these problems it seems IDWR would have notified at least some of the petitioners by letter or phone instead of depending on just legal advertisement in the newspaper.

C. We believe however when the hydro plants applied for water the recommendation from the Idaho Falls office to the Boise office was negative for the reason there are so many problems on this river already.

D. After all this one hydro plant has been approved just above Lava HOt Sprin gs and now pending, another just a few miles down stream.

JAN 2 2 1993

water, and is already a part of the agreement with Idaho Fish and Game Department in order to obtain their approval.

Question, Avery: What are the dates they are allowed to use this water?

Answer, Budge: Their [the canal companies] water rights give them the right year-round and they will use it to the extent water is not needed for irrigation. As water uses peak to maximun during the summer, the canal will be full and water will be run on down to the farms. When it is not needed for irrigation, it will be diverted to the power plant.

Question, Avery: The watermaster takes water from us and gives it to the canal company; what guarantee do we have they will not take more water from us?

Answer, Budge: They cannot take more water from you for the 10 CFS to flow on down the river.

Question, Avery: Can you give me a copy of the FERC permit?

Answer Budge: It will be available from the engineer once it's issued.

Question, Avery: The Water Resources Board recommended that this hydroelectric plant be given permission to operate, is that correct?

Answer, Budge: The Idaho Department of Water Resources had to approve the application by Marsh Valley Hydroelectric to run water through the plant. It was an application to use the water year-round on a non-consumptive basis.

Question, John Andrus, 8716 E. Oregon Trail: How much water is there today in that canal?

Answer, Keith Bennett: About 46-50 feet in the canal for Arimo ditch. Marsh Valley Canal's reservoir went dry the 15th of July so we have no water in it.

Question, J. Andrus: What will happen on September 15th when water rights no longer prevail?

Answer, Bennett: It's anybody's water. The feasibility study used averages over many years. In normal years, the river will have 8 to 10 CFS between the diversion point and the proposed plant.

Question, Kenneth Andrus: If I want to irrigate after September 15th, who has the water, me or the power company?

Answer, Budge: The power company would have, beyond the irrigation season.

JAN 22 1993

11-13 -

Some years back while meeting with Judge Baum We were talking to him about the water loss, from the Chesterfield resivoir to the Downey point of Diversion.

He said when I made my ~~judgment~~ adjudication we concluded that by the mantainence of the river Channel the loss would be Nil

But it isnt that way and if you will retain me I'll get you your water"

Nathan M. Carpenter

RECEIVED

JAN 22 1993

State of Idaho)
)
County of Bannock)

On this 13th day of November 1989, before me personally appeared Nathan M. Carpenter to me known to be the person ~~(s) described in and~~ who executed the foregoing instrument, and acknowledged to me that he executed the same as his free act and deed.

Notary Public

3-11-93
Term Expires

Residing At

11-13-89

At a water meeting in Pocatello I remember Judge Baum saying that when he made his adjudication on the Portneuf River he allowed the reservoir water to be transported free of loss and since then I have become ~~aware~~ aware that there is a loss. If you will retain me I will get your water.

John S Andrus

State of Idaho)
)
County of Bannock)

On this 13th day of November 1989, before me personally appeared John S Andrus to me known to be the person(s) ~~described in and~~ who executed the foregoing instrument, and acknowledged to me that he executed the same as his free act and deed.

RECEIVED

2 2 1993

Notary Public

3-11-93
Term Expires

Residing At

LAW OFFICE
BRADY, SAETRUM & LERMA
CHARTERED
PARKCENTER POINTE
1501 TYRELL LANE
P.O. BOX 1398
BOISE, IDAHO 83701-1398
(208) 345-8400
Facsimile (208) 345-8790

MICHAEL G. BRADY
RODNEY R. SAETRUM
JOHN J. LERMA
KENNETH R. ARMENT
DAVID E. DAY
MICHAEL E. POWERS

OFFICES IN
TWIN FALLS, IDAHO
101 SHOSHONE STREET NORTH
83301
(208) 734-0801

November 14, 1989

RECEIVED
NOV 15 1989
Department of Water Resources

Ada County Clerk's Office
Ada County Courthouse
Box 877
Boise, ID 83701

Re: Marsh Valley Hydro Electric Company
Application Numbers 29-7578 and 29-7772

Dear Clerk:

Please file the enclosed Notice of Appeal in the above-referenced matter. I have enclosed a check in the amount of $46.00 for the filing of the Appeal.

Thank you.

Very truly yours,

BRADY, SAETRUM & LERMA,
CHARTERED

Ken Arment

Kenneth R. Arment

KRA:ts
cc/enc: Randy Budge
R. Keith Higginson
Philip J. Rassier
Kent Foster
Ted Sorenson

MICROFILMED
JAN 22 1993

BRADY, SAETRUM & LERMA, CHARTERED
Kenneth R. Arment
First Interstate Center
877 West Main Street, Suite 800
P. O. Box 1398
Boise, Idaho 83701-1398

TELEPHONE (208) 345-8400

Attorneys for Lava Irrigation District

RECEIVED
NOV 15 1989
Department of Water Resources

IN THE DISTRICT COURT OF THE FOURTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF ADA

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	Application Numbers 29-7578 and 29-7772 **NOTICE OF APPEAL**

TO: RESPONDENTS, IDAHO DEPARTMENT OF WATER RESOURCES, MARSH VALLEY HYDRO ELECTRIC COMPANY, AND THEIR ATTORNEYS, RANDY BUDGE, P. O. BOX 1391, POCATELLO, IDAHO 83204-1391; PHILLIP J. RASSIER, DEPUTY ATTORNEY GENERAL, IDAHO DEPARTMENT OF WATER RESOURCES, STATEHOUSE MAIL, BOISE, IDAHO 83720; KENT FOSTER, P. O. BOX 51030, IDAHO FALLS, IDAHO 83403; AND THE CLERK OF THE ABOVE-ENTITLED COURT

NOTICE IS HEREBY GIVEN THAT:

1. Appellant, Lava Irrigation District, appeals against the Idaho Department of Water Resources ("IDWR") to the Ada County District Court from the Order Denying Petition for Rehearing and Amending Order Denying Petitions, entered in the above-entitled proceeding on the 18th day of October, 1989, R. Keith Higginson, Director presiding.

2. That the party has a right to appeal to the Ada County District Court, and the Order described in Paragraph 1 above is

FILMED
JAN 22 1993

appealable under and pursuant to Idaho Rules of Civil Procedure Rule 83(c), Idaho Code Sections 42-1701, 67-5215, and 67-5216.

3. (a) A reporter's transcript is not requested. The IDWR did not provide any hearings.

4. Appellant requests the following documents to be included in the agency's record in addition to those automatically included under Idaho Rules of Civil Procedure Rule 83(n):

(a) The IDWR's file regarding the petition for hearing and investigation which has been taken under advisement;

(b) The IDWR's file on the petition for inquiry which has been granted;

(c) All materials in IDWR's possession relating to the above-referenced matter which are not contained in the official file;

(d) The IDWR Eastern Region's file maintained with regard to the above-referenced matter;

(e) IDWR's files and memoranda regarding due process notice requirements for water rights; and

(f) IDWR's files and memoranda regarding ex parte communications.

5. I certify:

(a) That the IDWR charges no estimated fee for preparation of the agency's record in accordance with Idaho Rules of Civil Procedure Rule 83(n).

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JAN 22 1993

(b) That the appellate filing fee has been paid.

(c) That service has been made upon all parties required to be served pursuant to Idaho Appellate Rules Rule 20 and the Attorney General pursuant to Idaho Code Section 67-1401(1)].

6. This Appeal is taken upon matters of law and fact.

7. STATEMENT OF ISSUES

Issues on appeal include but are not limited to the following:

1. The Director's finding that the applicant responded to the Department's request for information on August 31, 1988;

2. Whether the Director violated constitutional provisions or exceeded his authority or made a clearly erroneous or arbitrary decision with regard to denying Petitioner's petitions and applications for hearing on the various petitions despite the lack of protest from the applicant regarding the same;

3. Whether the IDWR provided sufficient due process to notify Petitioners of the applications for water rights, where such applications were made in 1981 and 1984, under different names and did not include notice that the applications were conjunctive, and despite knowledge of Petitioner's interest, the only notice which was provided was pursuant to a legal notification which was only published twice for each application;

4. Whether the real party in interest is required to bring the application forward in its or his own name;

AUTHENTICATED
JAN 22 1993

5. Whether Petitioners are entitled to an award of attorney fees against the IDWR as a result of the Director's decisions and findings which have not had a reasonable basis in fact or law in accordance with Idaho Code Section 12-117, including the issues raised by Petitioners in their Petition for Rehearing;

6. The issue of the IDWR's ex parte contacts with Ted Sorenson and inclusion of parties not privy to the administrative proceedings on the Department's service list and why the Department included said individuals or parties;

7. Whether the IDWR may process a water right application from a corporation which is wholly owned by two parent corporations, where one of the parent corporations is a nonprofit corporation and the other has specific Articles of Incorporation limiting its powers which do not include the ability to create additional corporations to conduct non-irrigation related business; and

8. Whether the applications should be cancelled because of applicants' failure to timely proceed with the same.

DATED this 14th day of November, 1989.

BRADY, SAETRUM & LERMA,
CHARTERED

By _____
Kenneth R. Arment
Attorneys for Petitioners

JAN 22 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 14th day of November, 1989, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid to:

Randy Budge
Attorney at Law
P. O. box 1391
Pocatello, ID 83204-1391

R. Keith Higginson
Idaho Department of Water Resources
Statehouse Mail
Boise, Idaho 83720

Philip J. Rassier
Deputy Attorney General
Idaho Department of Water Resources
Statehouse Mail
Boise, Idaho 83720

Appellants include the following on their certificate of mailing only because the Director has indicated that they are to be served all pleadings, and "technical data" in this matter. Appellants protest the inclusion of these individuals as they are not parties, interveners, or designated agents with regard to the Petitions and appeal.

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P. O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Kenneth R. Arment

JAN 22 1993

October 18, 1989

<address>

Dear <sal>:

Enclosed is an Order Denying Petition for Rehearing and Amending Order Denying Petitions.

The enclosed order is a final order of the Director of the Department of Water Resources. If you wish to contest the order, you must appeal the decision to District Court of the state of Idaho within thirty (30) days of the date of service of this order.

Respectfully,

GARY SPACKMAN, Manager
Water Right Permit Section

GS:js

Enclosure

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JAN 2 2 1993

LAW OFFICES
HOLDEN, KIDWELL, HAHN & CRAPO

FRED J. HAHN
KENT W. FOSTER
ROBERT E. FARNAM
WILLIAM D. FALER
STEPHEN E. MARTIN
CHARLES A. HOMER
GARY L. MEIKLE
CURT R. THOMSEN
MICHAEL D. CRAPO
JAMES D. HOLMAN
GAYLE A. SORENSON
DONALD L. HARRIS
GREGOR S. CHVISUK
RANDALL B. REED
G. LANCE NALDER
J. MICHAEL WHEILER
MARIE T. FEELEY
ROBERT M. FOLLETT

WEST ONE BANK BUILDING
P.O. BOX 50130
IDAHO FALLS, IDAHO 83405

TELEPHONE (208) 523-0620
TELEFAX (208) 523-9518

ARTHUR W. HOLDEN (1877-1967)
ROBERT B. HOLDEN (1911-1971)
TERRY L. CRAPO (1939-1982)
WILLIAM S. HOLDEN (1907-1988)

R. VERN KIDWELL, OF COUNSEL

RECEIVED
AUG 21 1989
Department of Water Resources

August 18, 1989

Idaho Department of
Water Resources
ATTENTION: Gary Spackman, Manager
Water Rights Permit
1301 North Orchard
Statehouse Mail
Boise, Idaho 83720

RE: Application for Permits Nos. 29-7578 and 29-7772

Dear Gary:

We are in receipt of the copy of the letter dated August 10, 1989 in the above entitled matter sent to you by Randall C. Budge. On behalf of Marsh Valley Development Company which is vitally interested in the outcome of this matter, we wish to join in Mr. Budge's request that the Petition for Rehearing be immediately denied. To our knowledge, there is no new or additional evidence not already presented by the petitioners for intervention and it appears to us that the Petition for Rehearing has no purpose other than further delay. Since the petitioner has adequate appeal rights, we believe that the Petition for Rehearing ought to be immediately denied so that if an appeal is necessary, it can be prosecuted with dispatch. Thank you for your kind attention to this matter.

Yours very truly,

Kent W. Foster

Kent W. Foster

#6066.00/srr

cc: Mr. Ted Sorenson
Randall C. Budge

MICROFILMED
JAN 22 1993

LAW OFFICE
BRADY, SAETRUM, TINGEY, DAY & JOYCE
CHARTERED
PARKCENTER POINTE
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MICHAEL G. BRADY
RODNEY R. SAETRUM
JOEL E. TINGEY
MICHAEL DAY
T. STEVE JOYCE
LINNEA K. REARDON
MICHAEL E. POWERS

OFFICES IN
TWIN FALLS, IDAHO
101 SHOSHONE STREET NORTH
83301
(208) 734-0801

August 15, 1989

RECEIVED
AUG 16 1989
Department of Water Resources

Idaho Department of Water
Resources
Statehouse Mail
Boise, ID 83720

Re: In the Matter of Applications for Permit
Nos. 29-7578 and 29-7772

Dear IDWR:

Please file the enclosed Motion to Strike Answer to Petition for Rehearing in the above-referenced matter.

Thank you.

Very truly yours,

BRADY, SAETRUM & LERMA,
CHARTERED

Ken Arment

Kenneth R. Arment

KRA:ts
cc/enc: Randy Budge
Kent Foster
Ted Sorenson

MICROFILMED
JAN 22 1993

BRADY, SAETRUM & LERMA, CHARTERED
Kenneth R. Arment
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877 West Main Street, Suite 800
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Boise, Idaho 83701-1398

TELEPHONE (208) 345-8400

Attorneys for Lava Irrigation District

RECEIVED
AUG 16 1989
Department of Water Resources

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	)	Application Numbers 29-7578 and 29-7772 **MOTION TO STRIKE ANSWER TO PETITION FOR REHEARING**

COME NOW, Petitioners, in the above-entitled matter, and move the Director of the Idaho Department of Water Resources for his Order striking any portion of the August 10, 1989, letter from Randall C. Budge to Gary Spackman that may be deemed to be an Answer to Petitioners' Petition for Rehearing on the basis of Rule 3, 6 of the Department's Practice and Procedural Rules and Regulations. Further, for the Director's information, Petitioners note that the prior ex parte communications by Ted Sorenson also violate Rule 7, 2, of the Department's Practice and Procedural Rules and Regulations.

JAN 22 1993

DATED this 15th day of August, 1989.

BRADY, SAETRUM & LERMA,
CHARTERED

By _____
Kenneth R. Arment
Attorneys for Petitioners

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 15th day of August, 1989, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid to:

Randy Budge
Attorney at Law
P. O. box 1391
Pocatello, ID 83204-1391

Petitioners include the following on their certificate of mailing only because the Director has indicated that they are to be served all pleadings, and "technical data" in this matter. Petitioners protest the inclusion of these individuals as they are not parties, interveners, or designated agents with regard to the Petitions.

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P. O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

_____
Kenneth R. Arment

JAN 22 1993

MOTION TO STRIKE ANSWER TO PETITION FOR FOR REHEARING
KRA:ts/kpl

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204-0391

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE
JOHN A. BAILEY, JR.
JOHN R. GOODELL *
JOHN B. INGELSTROM
DANIEL C. GREEN
REED W. LARSEN
CARY B. COLAIANNI
BRENT O. ROCHE
PATTI POWELL **
FRED J. LEWIS
KIRK B. HADLEY

*ALSO MEMBER ILLINOIS BAR
**ALSO MEMBER WASHINGTON BAR

TELEPHONE
AREA CODE 208
232-6101

TELEX
208-232-6109

August 10, 1989

RECEIVED
AUG 16 1989
Department of Water Resources

State of Idaho
Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720
Attn: Gary Spackman, Manager
Water Rights Permits Section

Re: Application for Permits Nos. 29-7578 & 29-7772

Dear Gary:

Pursuant to our recent phone conversation and in accordance with Director R. Keith Higginson's Order dated July 11, 1989, specifically Paragraphs 5 and 7, we are enclosing herewith for filing a CORRECTED ASSIGNMENT OF PERMIT with respect to Permit No. 29-7578 which you will note reflects Marsh Valley Hydro Electric Co. as the Assignee and lists the Permit as No. 29-7578.

Further, please consider this our written request that the Department correct the spelling of the name listed on Application No. 29-7772 to reflect the Applicant as: "Marsh Valley Hydro Electric Co."

On behalf of the Permit holder, Marsh Valley Hydro Electric Co., please consider this formal request that the Department deny the Applicant's Petition for Rehearing dated July 31, 1989, and issue Permits numbered 29-7578 and 29-7772, without further notice or hearing.

Very truly yours,

RANDALL C. BUDGE

RCB:gr
Enclosures
cc: Kent Foster w/encl.
Ken Arment w/encl.
Ted Sorenson w/encl.
McCammon Ditch Company w/encl.
Marsh Valley Hydro Electric Co. w/encl.

JAN 22 1993

LAW OFFICE
BRADY, SAETRUM & LERMA
CHARTERED
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P.O. BOX 1398
BOISE, IDAHO 83701-1398
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MICHAEL G. BRADY
RODNEY R. SAETRUM
JOHN J. LERMA
KENNETH R. ARMENT
DAVID E. DAY
MICHAEL E. POWERS

OFFICES IN
TWIN FALLS, IDAHO
101 SHOSHONE STREET NORTH
83301
(208) 734-0801

RECEIVED
JUL 31 1989
Department of Water Resources

July 31, 1989

Idaho Department of Water
Resources
Statehouse Mail
Boise, ID 83720

Re: In the Matter of Applications for Permit
Nos. 29-7578 and 29-7772

Dear IDWR:

Please file the enclosed Petition for Rehearing in the above-referenced matter.

Thank you.

Very truly yours,

BRADY, SAETRUM & LERMA,
CHARTERED

Ken Arment

Kenneth R. Arment

KRA:ts
cc/enc: Randy Budge
Kent Foster
Ted Sorenson

RECEIVED
JAN 22 1993

BRADY, SAETRUM & LERMA, CHARTERED
Kenneth R. Arment
ParkCenter Pointe
1501 Tyrell Lane
P. O. Box 1398
Boise, Idaho 83701-1398
Telephone: (208) 345-8400

Attorneys for Lava Irrigation District

RECEIVED
JUL 31 1989
Department of Water Resources

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	Application Numbers 29-7578 and 29-7772
	PETITION FOR REHEARING

COMES NOW, the above-named Petitioners and ask the Director of Idaho Department of Water Resources for an Order granting Petitioners a "rehearing" with regard to the Director's July 11, 1989, Order denying petitions. Grounds for the rehearing are the Director's mistakes of fact and law incorporated in said Order as set forth below:

(1) The Director's finding of fact #8 is incorrect. The applicant had not responded to the Department's request for information by August 31, 1988, the date Petitioners' petitions were filed. The Department's records clearly indicate that although the introductory letter from Ted Sorenson with the alleged information was dated August 31, 1988, it was not received until September 7, 1988. Which facts establish that

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JAN 22 1993

pursuant to regular service of process by mail, Applicants had notice of the contested proceedings prior to Ted Sorenson sending the additional information to the Department. Further, neither the Department nor Applicants notified the Petitioners of the additional information and their ex parte communication and consultations with the Department violate of Idaho Code Section 67-5213;

(2) Ted Sorenson's illegal ex parte communications with the Department have tainted the Department's administrative process and Petitioners are entitled to a hearing on their petitions by an independent hearing officer;

(3) With regard to the Director's conclusion of law #7, the Director failed to establish that he considered numerous other communications to the Applicant requiring it to submit information necessary to process their applications for permits to water rights, including, but not limited to, the following: June 16, 1982, letter from Glen Saxton; July 7, 1983, letter from Jim Johnson; September 22, 1983, letter from Jim Johnson; October 6, 1983, letter from Ernest Carlson; December 6, 1984, letter from Glen Saxton; August 12, 1986, letter from Jim Johnson; and March 12, 1987, "Notice of Pending Action to Reject Application" sent by Ernest Carlson all of which informed the Applicant that its applications for permits were in jeopardy of being canceled for lack of progress;

(4) The Director failed to find that the Department, on December 2, 1987, pursuant to a letter from Glen Saxton, informed

JAN 2 2 1993

the Applicant and its interested associates that the applications would be based on the "Water Appropriation Rules and Regulations" of the Department, which were adopted in 1986 and which specifically include Rule 4, 1, 4;

(5) With regard to the Director's conclusion of law #3, the Director apparently failed to recognize application of Rule 4, 1, 4 and 4, 5, 1 and the clear inadequacy of the Applicant's notice of applications for water rights given that one of the two applications had been pending for over eight years and the Applicant knew of the existence and identity of Petitioners and their interest in the Portneuf River, yet only provided published noticed. Further, application #29-7772 was improperly advertised as it made no reference that its development would be in conjunction with #29-7578 or vice-versa;

(6) The real party in interest for Applicant is Ted Sorenson, d/b/a Marsh Valley Development Company as evidenced by his participation in these proceedings despite no appearance or notice to the Department or Petitioners and further evidenced by the assignment of the Applicants' real property rights to Ted Sorenson, d/b/a Marsh Valley Development Company, evidence of which is contained in the Department's files and the fact that the only information on financial ability was submitted by Ted and Sheila Sorenson, and Robert and Shirley Snedigar dated September 7, and September 9, 1988, respectively. Further, Ted Sorenson, d/b/a Marsh Valley Development Company should be required to proceed as the real party in interest, rather than

JAN 22 1993

the Applicant who appears to be a mere "straw-man", by analogy to Idaho Rules of Civil Procedure Rule 17(a);

(7) The Director's conclusions of law #6 and #9 are incorrect as a matter of law and are in violation of Rule 6, 1 of the Department's Practice and Procedures Rules and Regulations, especially where Applicants have not contested the Petitions except for the untimely ex parte communications of Ted Sorenson in violation of Idaho Code Section 67-5213;

(8) The Director's conclusion of law #9 is incorrect as Rule 4, 1, 4 of the Department's Water Appropriation Rules and Regulations contemplates that applications for permits will not be delayed for a period to exceed one year or interrupted for a period in excess of six months even where an Applicant requests the same;

(9) The Director's conclusion of law #16 is incorrect as a matter of law as the Director is required to consider factors which may effect financial resources of an applicant and the effect upon public interest of providing water right permits to a subsidiary corporation for purposes for which the parent corporation themselves have declared that they have no power or authority to create additional corporations nor conduct the activities related to the applications;

(10) The Director has erred with regard to conclusions of law #11 and #12 based upon the Director's findings of noncompliance by the Applicant as raised by Petitioners without Applicant contesting the Petitions and order paragraph #5, which

JAN 22 1993

directs another non-party to the applications, McCammon Ditch Company, to take remedial action in order for Applicant's applications to comply with Idaho law.

(11) The Department has erred as a matter of law by failing to provide Petitioners with a hearing with regard to their petition to cancel the applications;

(12) The Director erred as a matter of law in that having been provided with knowledge of Applicant's alleged violations with regard to the appropriation and use of water, the Director has not conducted his own investigation or provided a hearing on the same in compliance with his statutory duties provided under Idaho Code §§ 42-1805(1) and (9), 351 and 352, but, rather, stated that he will only consider "technical data" submitted with regard to only one of the petitions (petition to intervene); and

(12) The Director's Order with regard to the foregoing does not have a reasonable basis in fact or law.

WHEREFORE, Petitioners pray for relief as follows:

1. That the Director grant a "rehearing" to the Petitioners before an independent hearing officer in accordance with the Petition for Rehearing or alternatively grant Petitioners leave to intervene;

2. That the Director provide a hearing and initiate proceedings with regard to Petitioner's Petition to cancel Applicant's Applications;

JAN 22 1993

3. That the Director exercise his statutory duties in accordance with Idaho Code Sections 42-1805, 201, 351, and 352 and conduct an inquiry with a corresponding hearing with regard to water distribution on the Portneuf River; and

4. That the Director award attorney fees in favor of Petitioners as against the Idaho Department of Water Resources as a result of the Director's decisions and actions which have not had a reasonable basis in fact or law in accordance with Idaho Code Section 12-117.

5. Oral argument is requested

DATED this 31st day of July, 1989.

BRADY, SAETRUM & LERMA,
CHARTERED

By _____
Kenneth R. Arment
Attorneys for Petitioners

JAN 22 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 31st day of July, 1989, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid to:

Randy Budge
Attorney at Law
P. O. box 1391
Pocatello, ID 83204-1391

Petitioners include the following on their certificate of mailing only because the Director has indicated that they are to be served all pleadings, and "technical data" in this matter. Petitioners protest the inclusion of these individuals as they are not parties, interveners, or designated agents with regard to the Petitions.

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P. O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Ken Arment

Kenneth R. Arment

JAN 22 1993

KRA:ts/kpl

BRADY, SAETRUM & LERMA, CHARTERED
Kenneth R. Arment
ParkCenter Pointe
1501 Tyrell Lane
P. O. Box 1398
Boise, Idaho 83701-1398
Telephone: (208) 345-8400

RECEIVED
JUL 31 1989
Department of Water Resources

Attorneys for Lava Irrigation District

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	Application Numbers 29-7578 and 29-7772
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JAN 2 2 1993

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JAN 2 2 1993

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JAN 2 2 1993

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JAN 22 1993

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JAN 2 2 1993

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4. That the Director award attorney fees in favor of Petitioners as against the Idaho Department of Water Resources as a result of the Director's decisions and actions which have not had a reasonable basis in fact or law in accordance with Idaho Code Section 12-117.

5. Oral argument is requested

DATED this 31st day of July, 1989.

BRADY, SAETRUM & LERMA,
CHARTERED

By _____
Kenneth R. Arment
Attorneys for Petitioners

RECEIVED
JAN 22 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 31st day of July, 1989, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid to:

Randy Budge
Attorney at Law
P. O. box 1391
Pocatello, ID 83204-1391

Petitioners include the following on their certificate of mailing only because the Director has indicated that they are to be served all pleadings, and "technical data" in this matter. Petitioners protest the inclusion of these individuals as they are not parties, interveners, or designated agents with regard to the Petitions.

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P. O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Ken Arment

Kenneth R. Arment

JAN 22 1993

KRA:ts/kpl

State of Idaho
DEPARTMENT OF WATER RESOURCES (208) 327-7900
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - [redacted]

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

April 17, 1989

Kenneth R. Arment
Attorney at Law
P.O. Box 1398
Boise, ID 83701-1398

RE: Lava Irrigation Company, et. al vs. Marsh Valley Hydroelectric Company; Application for permit nos. 29-7578 and 29-7772

Dear Ken:

I received a copy of a proposed stipulation resolving your clients dispute with Marsh Valley Hydroelectric Company. I trust that you will submit an executed copy of the stipulation to me once it is signed.

I will continue to withhold action on the motion to intervene for another 30 days.

Sincerely,

Gary Spackman

Gary Spackman, Manager
Water Right Permits Section

cc: Ted Sorenson
Randy Budge
Ken Foster

RECEIVED
JAN 22 1993

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069
FAX 208-522-8223

RECEIVED
APR 14 1989
Department of Water Resources

April 12, 1989

Gary Spackman
Supervisor
Allocation Section
Idaho Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, ID 83720

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Dear Mr. Spackman:

This letter is to confirm my recent telephone conversation. We protest the right of the Lava irrigators to intervene in this project at this late date. The project was noticed properly in the paper several years ago. We have made a good faith effort to settle the matter with no response. We feel that they have no standing due to the lateness of their motion.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:mm

cc: Randy Budge

MICROFILMED
JAN 22 1993

LAW OFFICE
BRADY, SAETRUM & LERMA
CHARTERED
PARKCENTER POINTE
1501 TYRELL LANE
P.O. BOX 1398
BOISE, IDAHO 83701-1398
(208) 345-8400
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MICHAEL G. BRADY
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DAVID E. DAY
MICHAEL E. POWERS

OFFICES IN
TWIN FALLS, IDAHO
101 SHOSHONE STREET NORTH
83301
(208) 734-0801

April 11, 1989

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APR 12 1989
Department of Water Resources

Randall C. Budge
RACINE, OLSON, NYE, COOPER & BUDGE
P.O. Box 1391
Pocatello, ID 83204-0391

Re: Lava Irrigation Company, et al v. Marsh Valley Hydro Electric Company
Applications Nos. 29-7578 and 29-7772

Dear Randy:

Enclosed is a copy of the Stipulation which was sent to our clients in accordance with their prior instructions for review and execution. Substantive changes were made in paragraphs 6, 8, and a new paragraph 11. My understanding is that you have agreed to all of these modifications at some point in the past. I have informed Mr. Spackman by telephone of our proceedings to settle this matter and he has lifted the time constraint of April 10, 1989, which he established by a letter to the parties.

Once the Stipulation is executed, we will execute a Stipulation withdrawing our Motion to Intervene in the FERC matter.

If you have any comments or questions, please let us know.

Very truly yours,

BRADY, SAETRUM, & LERMA,
CHARTERED

Kenneth R. Arment

KRA:ts
cc/enc: Gary Spackman
Kent Foster

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JAN 22 1993

49 FERC ¶ 62,193

RECEIVED
DEC 13 1989
Department of Water Resources

JAN 22 1993

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelectric Company — Project No. 10468-000
Idaho

ORDER ISSUING LICENSE
(Major Project)

(Issued December 1, 1989)

Marsh Valley Hydroelectric Company filed a license application under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Marsh Valley Project, located on the Portneuf River, in Bannock County, Idaho. The project would affect the interests of interstate commerce. To an existing dam and canal, the applicant would add a new diversion structure on the canal, a penstock, and a powerhouse containing a single generating unit with a rated capacity of 1,700 kilowatts (kW).

Notice of the application has been published. The Idaho Department of Fish and Game filed a motion to intervene, raising concerns about adverse impacts to riparian and wildlife habitat. We (the staff) discuss these concerns in the attached environmental assessment (EA). No protests were filed and no agency objected to issuance of this license. The comments filed by interested agencies have been fully considered in determining whether to issue this license.

Comprehensive Development

Section 4(e) of the Act states that in deciding whether to issue a license, the Commission, in addition to considering the power and development purposes of the project, shall give equal consideration to the following: the purposes of energy conservation; the protection of, mitigation of, damage to, and enhancement of, fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. These purposes are considered in the comprehensive development section of the EA.

The proposed project would generate 7.6 gigawatthours of electrical energy per year. The project also provides for the long-term energy conservation and the displacement of fossil-fueled electric power plant generation for the betterment of air quality and the conservation of fossil fuels.

In the EA, we evaluate the effect of project construction and operation on the environmental resources of the project area

and discuss mitigative and enhancement measures that should be implemented. Mitigative measures recommended: run of river operation, erosion control measures, raptor protection, and visual quality protection. Enhancement recommended: a year-round minimum flow of 10 cfs in the bypass reach, where currently the river is dewatered for 4 to 5 months annually.

Section 10(a)(2) of the Act requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Under section 10(a)(2), federal and state agencies filed 24 comprehensive plans that address various resources in Idaho. Of these, we identified and reviewed seven plans relevant to this project.1/ No conflicts were found.

Based on our review of agency and public comments filed in this proceeding and on our independent analysis, the Marsh Valley Hydroelectric Project is best adapted to a comprehensive plan for the Portneuf River.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. In the EA, we address the concerns of the fish and wildlife agencies raised during the public notice period and provide recommendations consistent with those of the agencies.

Summary of Findings

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

1/ Idaho state water plan, 1986, Idaho Water Resources Board; Idaho fisheries management plan, 1986, Idaho Department of Fish and Game; Idaho water quality standards and wastewater treatment requirements, 1985, Idaho Department of Health and Welfare; Idaho outdoor recreation plan, 1983, Idaho Department of Parks and Recreation; Columbia River Basin fish and wildlife program, 1986, Northwest Power Planning Council; Protected areas amendments and response to comments, 1988, Northwest Power Planning Council; Northwest conservation and electric power plan, 1986, Northwest Power Planning Council.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if constructed, operated, and maintained in accordance with the requirements of this license. We analyzed related issues in the attached Safety and Design Assessment.

The Director of the Office of Hydropower Licensing concludes that the project would not conflict with any planned or authorized development and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Marsh Valley Hydroelectric Company (licensee) for a period of 50 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Marsh Valley Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the Act.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by exhibit G:

Exhibit G-	FERC No. 10468-	Showing
1	6	Project Profile
2	7	Powerhouse Site Plan Project Boundaries
3	8	Project Location Map

(2) Project works consisting of: (a) a 10-foot-high diversion dam at elevation 4,921 feet, diverting water from the Portneuf River into; (2) the 11,670-foot-long Portneuf-Marsh Valley Irrigation Canal; (3) a 7-foot-high concrete diversion structure located on the Portneuf-Marsh Valley Canal at elevation 4,911 feet; (4) an intake structure; (5) a 500-foot-long, 60 or 72-inch-diameter penstock; (6) a powerhouse containing a single turbine-generator unit with a rated capacity of 1,700 kW operating under an average head of 96 feet; (7) a 50-foot-long tailrace discharging into the Portneuf River; (8) a 0.5-mile-long, 12.4-KV transmission line, tying into an existing Utah Power and Light Company's line northeast of the powerhouse; and (9) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the S&DA.

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the S&DA are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-11, (October 1975), entitled "Terms and Conditions of License for unconstructed major project affecting the interests of interstate or foreign commerce," except article 20 and the following additional articles.

Article 201. The licensee shall pay the United States the following annual charge, effective the first day of the month in which this license is issued:

> For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount, as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 2,270 horsepower.

Article 202. The licensee shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project that result from maintenance, operation, or alteration of the project works. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate federal, state, and local statutes and regulations.

Article 203. Pursuant to section 10(d) of the Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return on the net investment in the project shall be used for determining surplus earnings of the project for establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization

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reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts, properly includable in the licensee's long-term debt, and proprietary capital accounts, as listed in the Commission's Uniform System of accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series), computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 301. The licensee shall begin construction of the project works within 2 years after the issuance date of the license and shall complete construction of the project within 4 years after the issuance date of the license.

Article 302. At least 60 days before starting construction, the licensee shall submit one copy to the Commission's Regional Director and two copies to the Director of the Division of Inspections and Dam Safety of the final contract drawings and specifications for pertinent features of the project, such as water-retention structures, all necessary transmission facilities, the powerhouse, and water conveyance structures. The Director of the Division of Inspections and Dam Safety may require changes in the plans and specifications to assure a safe and adequate project.

Article 303. Within 90 days after constructing the project, the licensee shall file for Commission approval revised exhibits A, F, and G to describe and show the project as built.

Article 401. The licensee, within 1 year after completion of project construction, shall revegetate all project related disturbed lands with plant species that visually blend with the

adjacent landscape and shall paint all exterior surfaces of the powerhouse dark earthtones.

Article 402. The licensee, after consultation with the Soil Conservation Service, the Idaho Department of Health and Welfare, the Idaho Department of Fish and Game, and the Bannock County Office of Planning and Development Services, and at least 90 days before starting any project related land-clearing, land-disturbing, or spoil-producing activities, shall file for Commission approval a plan to control erosion and prevent slope instability and to minimize the quantity of sediment resulting from project construction and operation.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: (a) a description of the actual-site conditions; (b) detailed descriptions, design drawings, and specific topographic locations of all control measures, and (c) documentation of agency consultation and agency comments. Road cuts and fills shall be minimized. This plan shall include provisions for cleaning of the sediment trap, proper disposal of the removed sediment, and method of cleaning of the sediment trap. For areas to be revegetated, the plan shall also identify species mix, seeding rate, mulch, and soil amendments.

The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area. No project-related land-disturbing, land-clearing, or spoil-producing activities shall begin until the licensee is notified that the plan complies with the requirements of this article.

Article 403. The licensee, before starting any land-clearing, land-disturbing, or spoil-producing activities within the project boundaries, other than those specifically authorized in this license, shall consult with the Idaho State Historic Preservation Officer (SHPO), shall conduct a cultural resources survey of these areas, and shall file for Commission approval a resource management plan to avoid or mitigate impacts to any significant archeological or historic sites identified during the survey. The survey and plan shall be based on the recommendations of the SHPO and shall be conducted and prepared by a qualified cultural resources specialist.

If the licensee discovers any previously unidentified archeological or historic sites during the course of constructing or developing project works or other facilities at the project, the licensee shall stop all land-clearing and land-disturbing activities in the vicinity of the sites, and shall also consult with the SHPO, and shall file for Commission approval a cultural resources management plan to avoid or mitigate impacts to

significant resources, prepared by a qualified cultural resources management specialist.

The survey and plan shall be documented in a report containing the following: (1) a description of each discovered site, indicating whether it is listed or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered site; (3) proposed measures for avoiding or mitigating the effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan or the report.

The licensee shall not begin land-clearing, land-disturbing, or spoil-producing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of a site discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.

Article 404. The licensee shall design all aerial project transmission lines in accordance with the guidelines in Suggested practices for raptor protection on power lines: the state of the art in 1981, Raptor Research Report No. 4, issued by the Raptor Research Foundation, Inc. Within 90 days after completing construction of the transmission line, the licensee shall file as-built drawings with the Commission.

Article 405. The licensee shall release from the Marsh Valley dam, on the Portneuf River, a continuous minimum flow of 10 cubic feet per second (cfs) or the inflow to the project, whichever is less, for the protection of fish and wildlife resources in the Portneuf River. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods on mutual agreement among the licensee, the Idaho Department of Fish and Game, and the U.S. Fish and Wildlife Service.

Article 406. The licensee, after consultation with the Idaho Department of Fish and Game and the U.S. Fish and Wildlife Service, and at least 90 days before starting any project related land-clearing, land-disturbing, or spoil-producing activities, shall file for Commission approval a plan to install, operate, and maintain a streamflow gage in the Portneuf River to monitor the minimum flow releases required in Article 405.

The plan shall include the location and design of the gage, a schedule for installation, the method of collecting flow data, and a provision for providing the data to the agencies. The licensee shall include comments from the consulted agencies on

the plan. The Commission reserves the right to require changes to the plan.

No project-related land-disturbing, land-clearing, or spoil-producing activities shall begin until the licensee is notified that the plan complies with the requirements of this article.

Article 407. The Commission, on its own motion or on the recommendation of federal or state fish and wildlife agencies or affected Indian Tribes, reserves the right to order changes in project structures and operations, to take into account to the fullest extent practicable, at each stage of the decision-making process, the Columbia River Basin Fish and Wildlife Program, developed and amended in accordance with the Pacific Northwest Electric Power Planning and Conservation Act.

Article 408. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee also shall have continuing responsibility to supervise and control the use and occupancies for which it grants permission and to monitor the use of and to ensure compliance with the covenants of the instrument of conveyance for any interests that it conveys under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for the protection and enhancement of the project's scenic, recreational, or other environmental values or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying structures and facilities.

(b) The types of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are these: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where the facility is intended to serve single-family dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and

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occupancy of facilities for access to project lands or waters. The licensee also shall ensure to the satisfaction of the Commission's authorized representative that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall do the following: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee, among other things, may establish a program for issuing permits for the specified types of use and occupancy of project lands and waters that may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across or leases of project lands for these purposes: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) nonproject overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than 1 million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report that briefly describes for each conveyance made under this paragraph (c) during the prior calendar year the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for the following: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) nonproject overhead electric transmission lines requiring erection of support structures within the project boundary for

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which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and that are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved exhibit R or an approved report on recreational resources of an exhibit E; and (7) other uses, if these conditions exist: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the licensee shall submit a letter to the Director, Office of Hydropower Licensing, stating the licensee's intent to convey the interest and briefly describing the type of interest and the location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with appropriate federal and state fish and wildlife or recreational agencies and with the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or an approved report on recreational resources of an exhibit E or if the project does not have an approved exhibit R or an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance shall include covenants running with the land adequate to ensure the following: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands occur in a manner that protects the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article shall be excluded from the project only on a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including the preservation of shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings are filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(G) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to the Commission filing. Proof of service on these entities must accompany the filing with the Commission.

(H) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Fred E. Springer
Director, Office of
Hydropower Licensing

ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE

Marsh Valley Hydroelectric Project

FERC Project No. 10468-000

Idaho

JAN 22 1993

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
825 N. Capitol St., NE
Washington, DC 20426

November 6, 1989

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ENVIRONMENTAL ASSESSMENT
FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING, DIVISION OF PROJECT REVIEW

Marsh Valley Hydroelectric Project

FERC Project No. 10468-000--Idaho

November 6, 1989

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A. APPLICATION

1. Application Type: Major License

2. Date filed with the Commission: September 4, 1987

3. Applicant: Marsh Valley Hydroelectric Company

4. Water body: Portneuf River River basin: Snake River

5. Nearest City or town: McCammon (See figure 1.)

6. County: Bannock State: Idaho

B. PURPOSE AND NEED FOR ACTION

1. Purpose

The proposed project would provide an estimated average of 7.6 gigawatthours (GWh) of electrical energy per year. The applicant proposes to sell the project energy to Utah Power and Light Company.

2. Need for Power

The power from the project would be useful in meeting a small part of the need for power projected by the Northwest Power Planning Council for the northwest region. From the time the project goes into commercial operation, it would be available to displace fossil-fueled power generation in the Western System Coordinating Council (WSCC) region, thereby conserving nonrenewable fossil-fuels and reducing the emission of noxious byproducts caused by the combustion of fossil fuels.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action. (See figure 2.)

The proposed run-of-river project would consist of: (1) an existing 10-foot-high diversion dam at elevation 4,921 feet, that diverts water from the Portneuf River into the existing 11,670-foot-long Portneuf-Marsh Valley Irrigation Canal; (2) a 7-foot-high concrete diversion structure, located on the existing

Portneuf-Marsh Valley Canal at elevation 4,911 feet; (3) an intake structure; (4) a 500-foot-long, 60- to 72-inch-diameter penstock; (5) a powerhouse containing a single turbine-generator unit with a rated capacity of 1,700 kilowatts (kW), operating under an average head of 96 feet; (6) a 50-foot-long tailrace discharging into the Portneuf River; (7) a 0.5-mile-long, 12.4-kilovolt (kV) transmission line, tying into an existing Utah Power and Light Company line; and (8) support facilities.

2. Applicant's proposed mitigative measures

a. Construction

The applicant proposes: painting the powerhouse earthtone colors, designing a low-profile powerhouse, and burying the penstock. The applicant proposes to prevent erosion by avoiding excessive stripping of vegetation, replacing vegetation after completing construction, and minimizing the steepness of slopes.

b. Operation

The applicant proposes to maintain 10 cubic feet per second (cfs) in the bypassed reach to support the existing vegetation and fishery. To protect raptors from electrocution, the applicant proposes to raptor-proof the transmission line. The applicant would install an energy dissipator and sediment trap to minimize erosion and sedimentation during project operations.

3. Federal lands affected.

_X_ No. ____ Yes; _____ ; acreage=___;
(agency)

4. Alternatives to the proposed project

a. _X_ No reasonable action alternatives have been found.
____ Action alternartive:

b. Alternative of no action

No action, denial of a license, would preclude the applicant from constructing the proposed project. No action would involve no alterations to the existing environment and would preclude the applicant from producing electrical power at the site.

D. CONSULTATION AND COMPLIANCE

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish and Wildlife Service (FWS): _X_ Yes. ___ No.
b. State(s): Idaho Department of Fish

and Game (IDFG): _X_ Yes. ___ No

c. National Marine Fisheries Service (NMFS): ___ Yes. _X_ No.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: _X_ None. ____ Present:

b. Consultation: _X_ Not required.
____ Required; completed: __/__/__.

Remarks: The FWS says no federally listed or proposed threatened or endangered species occur in the area (letter from John P. Wolfin, Field Supervisor, U.S. Fish and Wildlife Service, Department of the Interior, Boise Field Office, Boise, Idaho, September 3, 1987).

3. Section 401 certification (Clean Water Act).

___ Not required.

_X_ Required; applicant requested certification on 05/12/87.

Status: _X_ Granted by the certifying agency on 09/03/87.

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer (SHPO): _X_ Yes. __ No.
b. National Park Service (NPS): _X_ Yes. __ No.
c. National Register status: _X_ None. __ Eligible or listed.
d. Council: _X_ Not required. __ Required.
e. Further consultation: _X_ Not required. __ Required.

Remarks: The SHPO says that no archeological or historic sites would be impacted by construction or operation of the project (letter from Dr. Thomas Green, Deputy State Historic Preservation Officer, Idaho State Historical Society, Boise, Idaho, June 24, 1987).

5. Recreational consultation (Federal Power Act).

a. U.S. Owners: __ Yes. _X_ No.
b. NPS: _X_ Yes __ No.
c. State(s): _X_ Yes. __ No.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: _X_ None. ___ Listed. Determination completed: __/__/__.
Administering agency: _____

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7. Land and Water conservation Fund Lands and facilities (Land and Water Conservation Fund Act).

Status: _X_ None. ___ Designated.
___ Determination completed: __/__/__.

Administering agency: _____.

8. Pacific Northwest Power Planning and Conservation Act

Under section 4(h) of the Pacific Northwest Power Planning and Conservation Act, the NPPC developed the Columbia River Basin Fish and Wildlife Program (Program) to protect, mitigate, and enhance fish and wildlife resources associated with development and operation of hydroelectric projects within the Columbia River Basin. Section 4(h) states that responsible federal agencies should provide equitable treatment for fish and wildlife resources in addition to other purposes for which hydropower is developed. Section 4(h) further states that these agencies shall take into account, to the fullest extent practicable, the Program adopted under the Act.

The Program directs agencies to consult with federal and state fish and wildlife agencies, appropriate Indian Tribes, and the NPPC during the study, design, construction, and operation of any hydroelectric development in the basin. At the time the application was filed, the Commission's regulations required applicants to initiate prefiling consultation with the appropriate federal and state fish and wildlife agencies the Tribes, and provide these groups with post filing opportunities to review and to comment on the application. This consultation process has occurred.

The Program states that authorization for new hydroelectric projects should include conditions of development that would mitigate the impacts of the project on fish and wildlife resources. The relevant federal and state fish and wildlife agencies have reviewed and commented on the application. In addition, any license issued would provide for mitigative measures to protect fish and wildlife resources and therefore, is consistent with section 1103 of the Program. Further, a condition of any license issued would reserve to the Commission the authority to require future alterations in project structures and operation in order to take into account, to the fullest extent practicable, the applicable provisions of the Program.

E. COMMENTS

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 07/20/88.

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Commenting agencies and other entities	Date of letter
Department of the Interior, U.S. Fish and Wildlife Service	10/07/88 and 11/07/88

Motions to intervene	Date of motion
Idaho Department of Fish and Game	09/20/88

2. _X_ The applicant responded to the comments by letters dated 12/08/88, 01/27/89, and 07/12/89.

___ The applicant did not respond to the comments or motion(s) to intervene.

F. AFFECTED ENVIRONMENT

1. General description of the locale.

a. Description of the Portneuf River Basin.

The drainage area is about 570 square miles and is at a mean altitude of 6,080 feet above mean sea level (msl). The project is located on the Portneuf-Marsh Valley (PMV) Canal at about elevation 4,900 feet msl.

The area of the project is rural, with no major population centers in the vicinity. Lands in the vicinity of the project are used mostly for livestock grazing and agriculture. The cropland in the area is used mainly to grow hay and grain.

The Portneuf River is narrow with hills on each side. The project would lie parallel to Union Pacific Railroad and U.S. Highway 30 rights-of-ways along the north and south banks, respectively.

The weather conditions in the area are variable. High temperatures reach 90 degrees Fahrenheit (°F) during the summer and low temperatures drop below zero °F during the winter. The annual precipitation is generally around 15 inches.

b. Existing licensed projects in the river basin, as of 10/31/89:

Project No.	Project name
7447	Portneuf River

c. Except for the subject application, there are no pending applications for license or exemption in the river basin, as of 10/31/89.

d. Cumulative impacts: We assessed the regional significance and geographic distribution of the resources within the river basin

and identified rainbow trout and brown trout as target species. The proposed run-of-river project would not add to the cumulative impact of previous water diversions on trout survival because of the project's limited scope, the limited presence of the trout, and the proposed and recommended mitigative and enhancement measures outlined in section G.

2. Descriptions of the resources in the project impact area (Source: Marsh Valley Hydroelectric Project, 1987, application, exhibit E, unless otherwise indicated).

a. Geology and soils: Bedrock in the project area includes both sedimentary and igneous rock, such as the fractured basalt bedrock underlying the existing canal. Most of the project area is within an alluvial deposit. The existing canal appears to be stable. Soils in the project range from very cobbly silt loam to silt loam in texture; these soils have a very high hazard of water erosion except on very level areas near the river.

b. Streamflow:

low flow: 143 cfs;	flow parameter:	mean monthly flow for October.
high flow: 342 cfs;	flow parameter:	mean monthly flow for May.
average annual flow:	196 cfs.	

Data for this project was derived from 64 years of USGS gaging records at gage no. 103073000 on the Portneuf River near Topaz, Idaho, about 1.5 miles upstream from project intake.

c. Water quality: The Idaho Department of Health and Welfare's water quality measurements of the Portneuf River, 30 miles downstream of the project, indicates that water quality is poor. The water quality of the river in the project area is suspected to be poor also because of the discharge of urban, municipal, and agricultural wastes upstream and downstream; in addition, during the irrigation season from June to October, the volume of water in the river is reduced, which contributes to water temperature increases.

d. Fisheries:

Anadromous: X Absent. ___ Present.

Resident: __ Absent. X Present.

Some of the more important sport fish in the project area are brown trout, rainbow trout, Utah chub, bluehead sucker, and Utah sucker. Forage fish present include speckled dace, redside shiner, and mottled sculpin.

e. Vegetation:

Cover type	Dominant species
sagebrush grassland	sagebrush, cheatgrass, rabbitbrush, wheatgrass
riparian	cottonwood, willows, wild rose.

f. Wildlife: Typical inhabitants of the project area include beaver, muskrat, various ground squirrels, badger, skunk, and mule deer. Game birds such as mourning dove, quail, Hungarian partridge, and ring-necked pheasant are found in the vicinity. Waterfowl such as ducks and geese are commonly found in the project area. Raptors, such as red-tailed hawk, goshawk, Cooper's hawk, and golden eagle, and various songbirds commonly occur in the area.

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g. Cultural:

X National Register (listed and eligible) properties have not been recorded.

h. Visual quality:

The landscape of the Portneuf Valley is typical of southeastern Idaho. The combination of an open, green and brown colored valley flanked by sagebrush and grass covered hills, the Portneuf River, and the bright blue sky produces a high quality visual scene. Highway 30, the irrigation canals, and to a lesser extent, the river itself, are linear features that blend with the relatively level lands of the valley bottoms.

i. Recreation: There is limited hunting and fishing near the project vicinity.

j. Land use: Livestock graze in the project vicinity. Land that would be used for the project is occupied by a privately owned irrigation canal.

G. ENVIRONMENTAL ISSUES AND PROPOSED RESOLUTIONS

There are five issues addressed below.

1. Visual Resources: The landscape is typical of southern Idaho, and has a high visual quality. The landscape components combine to form a relatively natural-appearing, uncluttered scene.

The applicant proposes burying the penstock, giving the powerhouse a low profile, painting it in earthtones, and replacing disturbed vegetation after construction. These

measures would greatly reduce adverse visual impacts and the licensee should implement them.

2. Erosion and Sedimentation: Land-clearing, land-disturbing, and spoil-producing activities would cause temporary, localized erosion and sedimentation. In addition, construction activities within the active stream could adversely affect fish by physical contact and bottom disturbance. Also riparian and upland vegetation could be disturbed during construction. The IDFG and the FWS express concern that construction activities associated with the proposed project may increase sedimentation of the Portneuf River below the project. The IDFG, the FWS, and the Bannock County Office of Planning and Development Services (County) want the applicant to prepare a detailed plan for the control of erosion and sedimentation and to revegetate all areas disturbed during project construction to reduce soil erosion into the drainage. The IDFG says vegetation removed should be replaced by similar plantings at a loss:replacement ratio of 1:1.5. The County also recommends that the road be constructed in such a way that cutting and filling is unnecessary or is kept to only that amount that is absolutely necessary. The IDFG states that an operation and maintenance plan for cleaning of the sediment trap (retention wall), located in the PMV canal upstream of the diversion, should be developed and implemented after project construction and should address the disposal of the removed sediment and the method of cleaning of the sediment trap.

The applicant proposes to avoid excessive removal of vegetation, to replace vegetation upon completion, and to minimize the steepness of slopes.

Most of the project features are already existing, so the construction area would be small and would be localized around the penstock, powerhouse, and tailrace, and associated access road. Construction would, however, take place in highly erodible soils.

We recommend the applicant prepare a detailed, site-specific plan to control erosion and sedimentation and to maintain slope stability, including measures to revegetate disturbed areas and to properly dispose of sediments to be removed during project operation. If the applicant does this, project impacts would be minor and short-term.

3. Archeological or historic sites discovered during construction or operation of the project, or that may be impacted from changes in the location of project facilities: The SHPO's comments on the proposed project are based on the premise that the project would be constructed as described in the application without significant changes.

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Changes to the project, especially changes in the proposed location and design of a project, are occasionally found to be necessary after a license has been issued, and may require an applicant to amend a license. Under these circumstances, whether or not an application for amendment of license is required, the SHPO's comments would no longer reliably depict the cultural resources impacts that would result from developing the project.

Therefore, before beginning land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license and previously commented on by the SHPO, the licensee should consult with the SHPO about the need to conduct a cultural resources survey and to implement avoidance or mitigative measures.

Also, land-clearing and or land-disturbing activities could adversely affect archeological and historic sites not identified in the vicinity of the proposed project.

Therefore, if the licensee encounters such sites during the development of project works or related facilities, the licensee should stop land-clearing and land-disturbing activities in the vicinity of the sites, should consult with the SHPO on the eligibility of the sites, and should carry out any necessary measures to avoid or to mitigate impacts to the sites.

Either before starting land-clearing or land-disturbing activities associated with any changes to the project, both proposed and necessitated, or before resuming land-clearing and land-disturbing activities in the vicinity of any previously undiscovered sites, the licensee should file with the Commission a plan and a schedule for conducting the appropriate studies, along with copies of the SHPO's written comments on the plans and the schedule.

The licensee should not start or resume land-clearing or land-disturbing activities, other than those specifically authorized in this license and commented on by the SHPO, or resume such activities in the vicinity of an archeological or historic site discovered during construction, until informed by the Commission that the requirements discussed above have been fulfilled.

4. Raptor protection: The proposed 0.5-mile-long overhead transmission line would be an electrocution hazard to raptors if the spacing between conductors is not sufficient. The IDFG and the FWS recommend that the applicant design and construct the project transmission line according to the Raptor Research Foundation, Inc.'s guidelines (Raptor Research Foundation, Inc., 1981). The applicant agrees to do so.

Since raptors such as red-tailed hawk, goshawk, Cooper's hawk, and golden eagle commonly occur on the reach of the Portneuf River that includes the project area, the transmission line should be designed and constructed to protect golden eagles and other raptors from electrocution hazards. Therefore, the licensee should make the transmission line raptor-proof by designing the poles, crossarms, and conductor placements to ensure a separation of 60 inches between energized hardware, as recommended by the Raptor Research Foundation, Inc. (1981).

5. Minimum flows for the benefit of aquatic resources: Presently, all river water is diverted into the PMV canal during the irrigation season (approximately June to October). Consequently, for 4 to 5 months annually, the Portneuf River is dewatered for about 3.5 miles downstream of the diversion, until tributary and spring flows enter the river about 3,500 feet downstream of the proposed powerhouse location. Fish survive in the 3.5-mile-long reach of Portneuf River because of the presence of numerous deep pools, which remain watered and that provide a refuge during the low or no-flow periods. As a result of the applicant's proposed minimum flow release (discussed below), flows in the 3.5-mile-long reach would be increased during the irrigation season.

During the non-irrigation season (approximately October to June), the project would divert approximately 250 cfs from the Portneuf River at the existing Marsh Valley Diversion and would return that flow through the powerhouse to the river at a point about 15,000 feet downstream of the diversion. Flows in the 15,000-foot-long bypass section would be reduced during the non-irrigation period.

The applicant proposes to maintain a minimum flow of 10 cfs in the bypass reach year-round to perpetuate and to enhance aquatic resources, including the riparian vegetation and trout fishery. Although IDFG and FWS have not provided specific minimum flow recommendations, the agencies agree that providing flows of 10 cfs during the irrigation season, when several miles of the Portneuf River are dewatered, would be an improvement over the existing no-flow condition. The IDFG says the proposed 10-cfs minimum flow would have beneficial impacts several miles downstream and would guarantee aquatic production year-round.

Maintaining 10-cfs minimum flow year-round would ensure that the pools and about 80 to 85 percent of the habitat for adult rainbow and brown trout would be present year-round in the bypass reach (Chapman Consultants, 1989). Without the proposed project, no minimum flow would occur and only about 30 to 35 percent of the habitat would be present for adult rainbow and brown trout. The proposed 10-cfs minimum flow would provide minor enhancement to the aquatic resources over the existing conditions in the proposed bypass reach of the Portneuf River and the licensee

should release it. To ensure the 10-cfs minimum flow is maintained, the licensee should install a streamflow gage just below the PMV canal diversion in the river.

H. ENVIRONMENTAL IMPACTS

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major;
A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	Impact P	Impact Ps	Impact A	Resource	Impact P	Impact Ps	Impact A
a. Geology-Soils	1AS			f. Wildlife	1AS		
b. Streamflow	1BL			g. Cultural: Archeological	0		
c. Water quality: Temperature	0			Historical	0		
Dissolved oxygen	0			h. Visual quality	1AL		
Turbidity and sedimentation	1AS			i. Recreation	1AS		
d. Fisheries: Anadromous	0			j. Land use	0		
Resident	1BL			k. Socioeconomics	0		
e. Vegetation	1AS						

Remarks:

a. Construction activities would cause localized erosion, sedimentation, dust, and minor, temporary increases in turbidity in the Portneuf River.

b. Maintenance of a minimum flow of 10 cfs throughout the year in the bypass reach of the Portneuf River would ensure that the bypass reach is not dewatered at any time.

c. Short-term increases in turbidity would occur during project construction.

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d. Eliminating the dewatering that now exists in the bypass and ensuring a 10-cfs minimum flow would enhance the fish habitat.

e. Approximately 0.8 acres of sagebrush grassland would be removed or damaged during construction. The appplicant proposes to reseed disturbed areas to accelerate the rate of revegetation.

f. Local wildlife populations would be disturbed by increased noise and human activity.

i. During construction, public access would be denied to a small segment of the Portneuf River.

2. Impacts of the no-action alternative.

Under the no-action alternative, there would be no construction of project facilities and no changes to the existing physical, biological, or cultural components of the area. Electrical power that would be generated by the proposed hydroelectric project would have to be generated from other available sources or offset by conservation measures.

3. Recommended alternative (including proposed, required, and recommended mitigative measures):

X Proposed project. ___ Action alternative. ___ No action.

4. Reason(s) for selecting the preferred alternative.

The proposed project would generate electrical energy from a renewable resource without significantly affecting the existing environmental conditions in the project area.

I. UNAVOIDABLE ADVERSE IMPACTS OF THE RECOMMENDED ALTERNATIVE

Minor, temporary localized erosion and sedimentation and increases in turbidity would be unavoidable during project construction. Wildlife would experience a minor, short-term impact as a result of human disturbances during the construction period and minimal loss of habitat. Approximately 0.8 acres of sagebrush would be removed or damaged; these areas would be reseeded to accelerate the rate of revegetation. During the construction period, public access to the Portneuf River in the project vicinity would be denied; this would have a minor, short-term, adverse impact on recreationists.

J. COMPREHENSIVE DEVELOPMENT

Section 4(e) of the Federal Power Act (Act) states that in deciding whether to issue a license, the Commission, in addition to considering the power and development purposes of the project,

shall give equal consideration to the purposes of energy conservation, the protection, mitigation of, damage to, and enhancement of, fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

In section 10(a), the Act further states that the project adopted shall be such that in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, utilization, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation flood control, water supply, and recreational and other purposes discussed in section 4(e).

As we said, the proposed project would generate 7.6 GWh of electrical energy per year. The project also would provide for displacement of fossil-fueled electric power plant generation, improved air quality, and conservation of fossil-fuels.

This environmental assessment evaluates the effect of project construction and operation on the resources of the project area and discusses mitigative and enchancement measures that should be implemented. The mitigative measures we recommend are implementing an erosion control plan, visual resource protection, protecting raptors from transmission lines, and keeping minimum flows in the bypass to protect resident fish.

Based on our review under sections 4(e) and 10(a), we conclude that the proposed project, with proposed and recommended mitigative and enhancement measures, would be best adapted to a comprehensive plan for developing the Portneuf River.

K. CONCLUSION

X **Finding of No Significant Impact.** Approval of the recommended alternative [H(3)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

__ **Intent to Prepare an EIS.** Approval of the recommended alternative [H(3)] would constitute a major federal action significantly affecting the quality of the human environment; therefore, an EIS will be prepared.

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L. LITERATURE CITED

Chapman Consultants, Inc., 1989. Supplemental Information on flows and fish habitat, Marsh Valley Hydroelectric Project, FERC Project No. 10468, Portneuf River, Idaho, June, 1989.

Federal Energy Regulatory Commission. 1981. Hydropower sites of the United States. Map no. 79. January 1981. p. 175.

Marsh Valley Hydroelectric Company, 1987. Marsh Valley Hydroelectric Project, application for a minor project, FERC Project No. 10468, Idaho. June 1987. Revised September 1, 1987.

Raptor Research Foundation, Inc. 1981. Suggested practices for raptor protection on powerlines: the state of the art in 1981. Raptor Research Report No. 4. 111 pages.

White Horse Associates. 1988. Botanical resources--Marsh Valley Hydroelectric Facility, Bannock County, Idaho. February 1988.

M. LIST OF PREPARERS

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Figure 1. Location of the proposed Marsh Valley Hydroelectric Project, FERC No. 10468, (Source: Federal Energy Regulatory Commission, 1981)

Figure 2. Major features of the proposed Marsh Valley Hydroelectric Project, FERC No. 10468, Idaho (Source: White Horse Associates, 1988, as modified by staff).

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SAFETY AND DESIGN ASSESSMENT
MARSH VALLEY HYDROELECTRIC PROJECT
FERC NO. 10468-000 - IDAHO

Dam Safety

The proposed run-of-river hydroelectric project would use a new 7-foot-high concrete diversion structure and intake facilities on the existing Portneuf-Marsh Valley Canal, in Bannock County, Idaho. An existing 10-foot-high earthen diversion structure on the Portneuf River diverts irrigation flows into the Portneuf-Marsh Valley Canal.

The new diversion structure would impound about 0.4 acre-feet of water. The failure of the project's structures would not endanger downstream life or property. The project structures would be safe if constructed in accordance with sound engineering practice.

Consideration of Council's Power Plan

We reviewed the Northwest Power Planning Council's Northwest Conservation and Electric Power Plan to determine if the project is consistent.

The Council's Plan envisions meeting the growing regional energy requirements in the most economical manner with environmentally acceptable resources. The plan considers any environmentally acceptable resource that is less expensive than coal-fueled steam electric generation as an acceptable resource for development before the development of coal-fueled power plants (the Council's planned marginal resource).

We developed life-cycle costs of energy from the Council's planned generic coal plant, assumed to be needed in the year 2002 under the Council's medium-high load growth assumption, for determining if proposed hydroelectric projects are, in the long term, consistent with the Council's plan, as required by section 10 (a)(2) of the Act.

Since we find that the life-cycle levelized cost of the proposed project is less, as of its projected on-line date, than the levelized life-cycle cost of the least cost or marginal long-term alternative, included in the plan, the proposed project, as proposed, is consistent with the Council's Power Plan, and is economically feasible within the long-term objectives of the plan.

Water Resource Planning

The project's Francis turbine-generator unit would have an installed capacity of 1.7 megawatts and a hydraulic capacity of 250 cubic feet per second (cfs) at a gross head of 101 feet. The project would be operated as a run-of-river facility, using water

diverted from the Portneuf River. Based on the Geological Survey's flow records, recorded from 1919 to 1983 at gauge number 103073000 on the Portneuf river near Topaz, Idaho, the average annual stream flow for the Portneuf River is about 196 cfs. The applicant agrees to a year-round minimum flow of 10 cfs. Based on the available flows for power generation, the project's hydraulic capacity would be exceeded about 18 percent of the time; because of irrigation and minimum flows requirements, the project would be shut down during the summer months (the irrigation season).

The applicant estimates that the project would have an average annual generation of about 7.6 gigawatthours. We find this estimate reasonable. The project's size is adequate, under the available flows and head, to develop the hydropower potential of the site.

Section 10(a)(2) of the Act requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Under section 10(a)(2), federal and state agencies filed 24 comprehensive plans that address various resources in Idaho. Of these, we identified and reviewed one plan relevant to this project.1/ We found no conflicts.

Our review of agency and public comments shows the project does not conflict with any existing or planned water resource development in the basin. No comments or recommendations were made about flood control, water supply, or irrigation requirements for the Portneuf River.

Our Upper Snake River Basin Planning Status Report and our Hydropower Resources Assessment Report show that the project would not affect any proposed or constructed project on the Portneuf River and would not conflict with any pending application for exemption, license, or preliminary permit.

In summary, our analysis shows that the Marsh Valley Hydroelectric Project would adequately develop the hydroelectric potential of the site and would not conflict with any existing or planned water resource development in the basin.

1/ Idaho State Water Plan, 1986, Idaho Water Resources Board.

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Primary Transmission Facilities

The license for the proposed Marsh Valley Hydro Project should include the following: 2.4-kV generator leads; a 2.4/12.5-kV, 2.0-MVA transformer; a 0.5-mile-long, 12.5-kV transmission line; and appurtenant facilities.

Economic Evaluation

A proposed project is economically beneficial so long as its projected levelized cost is less than the long-term, levelized cost of alternative energy to any utility in the region that can be served by the project.

Based on current economic conditions, we estimate the levelized power value in the region to be 76.2 mills per kilowatthour (kWh). We base our estimate on the generic coal-fueled steam-electric plant, forecasted by the Northwest Power Planning Council in its proposed resource portfolio to come on-line about the year 2002. We assume the cost of money at 11 percent and that the project would be operational in October 1992. The project's levelized cost of energy thus would be about 54 mills/kWh, and the project would be economically beneficial with a levelized net annual benefit of 22.2 mills/kWh.

The power purchase agreement between the applicant and Utah Power and Light company expired on November 20, 1988. Because of the economic benefits of the project, however, the project would be potentially financially feasible with a discounted cash flow rate of return of 15.8 percent.

Exhibits

The following parts of revised exhibit A and the following revised exhibit F drawings conform to the Commission's rules and regulations and are approved and made a part of the license.

Exhibit A: Section 1(i), 1(ii), 1(iii), and 1(vi).

Exhibit	FERC No.10468-	Showing
F-1	1	Intake Structure
F-2	2	Powerhouse Plan
F-3	3	Powerhouse Elevation
F-5	5	Diversion Bypass Structures

Preparers: Mohamad Fayyad, Civil Engineer
Roland George, Electrical Engineer

Form L-11
(October, 1975)

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FEDERAL ENERGY REGULATORY COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED MAJOR PROJECT AFFECTING THE INTERESTS OF INTERSTATE OR FOREIGN COMMERCE

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to

show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any features or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water

rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the state and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for

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hearing, to require such alterations in the number, character and locations of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public

uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal Agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relasionship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such

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reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or

upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statues and regulations.

Article 21. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 22. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

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IDAHO DEPARTMENT OF WATER RESOURCES
1301 NORTH ORCHARD STREET
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Article 22. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

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BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	)	Application Numbers 29-7578 and 29-7772 **STIPULATION**

The parties hereto hereby stipulate and agree as follows:

1. Applicant for Permits Nos. 29-7578 and 29-7772 is Marsh Valley Hydro Electric Company, an Idaho corporation, of which the stockholders are Portneuf Marsh Valley Canal Company, Ltd. and McCammon Ditch Company.

2. Petitioners for intervention are Lava Irrigation Company, Dempsey Irrigation Company, Topaz Irrigation Company, Fish Creek Irrigation Company, Jim Andrus, Ken Andrus, and Max Hall.

3. Application for Permit No. 29-7578 for 175 cubic feet per second of the waters of the Portneuf River for hydro power purposes was filed by the McCammon Ditch Company on or about February 2, 1981. Said application was subsequently assigned to Marsh Valley Hydro Electric Company on or about June 23, 1983. Application for Permit No. 29-7772 for an additional 75 cubic

JAN 22 1993

feet per second of the waters of the Portneuf River for hydro power purposes was filed by Marsh Valley Hydro Electric Company on or about June 5, 1984.

4. The above named petitioners for intervention filed a document herein entitled "PETITIONS TO INTERVENE; FILE PROTESTS; CANCEL APPLICATIONS; AND FOR INQUIRY" on or about August 30, 1988.

5. The above named petitioners also filed a Motion to Intervene in the Matter of the Application for Major License by Marsh Valley Hydro Electric Company, for the Marsh Valley Project, pending before the Federal Energy Regulatory Commission, Project No. 10668-000 on or about August 29, 1988.

6. The stockholders of applicant and the petitioners for intervention are the holders of rights to the use of waters of the Portneuf River for irrigation purposes. The lands, diversions, and delivery systems of the stockholders of applicant are located further downstream than those of the petitioners for intervention. Petitioners for intervention have developed a practice over many years of increasing diversions from the Portneuf River, commencing as early as September 15th, and continuing as late as November 15th, and applying the same to the lands of, or served by, the petitioners for intervention. For the twenty year period, 1968 through 1987, such diversions have had the net effect of diminishing normal flows of the Portneuf River at the Topaz USGS Gauging Station No. 13073000 during the above referenced period of each year by an average of 17.7 cubic feet per second.

7. No rights to the use of the waters of the Portneuf River for the historic practice described above have ever been formally documented. The parties anticipate that any such rights will be quantified and documented in due course in the connection with the pending Snake River Basin Adjudication proceeding.

8. Applicant, Portneuf Marsh Valley Canal Company, McCammon Ditch Company, and Marsh Valley Development Company which is owned and managed by Ted Sorenson hereby agree that until such time as any such rights may be formally recognized in connection with the Snake River Basin Adjudication proceeding, they will not object to the continuation of the described historic practice, or take any action to inhibit or prevent its continuation, so long as the historic practice of the Petitioners is not enlarged. The above also will not object to the continuation of Max Hall's historic practice of using water before the start of the recognized irrigation season pending adjudication of said right in the Snake River Basin Adjudication. The parties to this agreement are not prohibited from challenging the extent of each other's water rights in the Snake River Basin Adjudication.

9. Petitioners agree to and do hereby withdraw their "Petitions to Intervene; File Protests; Cancel Applications; and for Inquiry" filed herein, and further hereby waive any protest to the applications numbered above and join with applicant in requesting the immediate granting of said Applications for Permit.

10. Petitioners further agree to and by hereby withdraw

JAN 22 1993

their Motion to Intervene file in the Matter of the Application for Minor License by Marsh Valley Hydro Electric Company, for the Marsh Valley Project, pending before the Federal Energy Regulatory Commission as Project No. 10468-000, and further, hereby waive any protest to said Application and join with Applicant in requesting the immediate granting of said Application for major license by Marsh Valley Hydro Electric Company.

11. Applicant, Portneuf Marsh Valley Canal Company, McCammon Ditch Company, and Marsh Valley Development Company agree that they will not bring any suit or make any other demand for damages against Petitioners allegedly caused by any delay due to Petitioners' motions filed in the above-referenced matter. All parties agree to pay their own costs and attorney fees.

IN WITNESS WHEREOF the parties have hereunto set their respective hands and seals the day and year set forth opposite their respective seals and signatures.

MARSH VALLEY DEVELOPMENT COMPANY

By_____, its_____ DATE_____

MARSH VALLEY HYDRO ELECTRIC COMPANY

By_____, its_____ DATE_____

PORTNEUF-MARSH VALLEY CANAL COMPANY, LTD.

By_____, its_____ DATE_____

McCAMMON DITCH COMPANY

By_____, its_____ DATE_____

JAN 22 1993

LAVA IRRIGATION COMPANY

By_____, its_____ DATE_____

DEMPSEY IRRIGATION COMPANY

By_____, its_____ DATE_____

TOPAZ IRRIGATION COMPANY

By_____, its_____ DATE_____

FISH CREEK IRRIGATING COMPANY

By_____, its_____ DATE_____

_____ DATE_____
MR. JIM ANDRUS

_____ DATE_____
MR. KEN ANDRUS

_____ DATE_____
MR. MAX HALL

JAN 22 1993

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401

Mr. Gary Spackman
Personal & Confidential

RECEIVED
SEP 07 1988
Department of Water Resources

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401

Sorenson Engineering
Consulting Engineers
550 Linden Drive
Idaho Falls, ID 83401

Date 09/05/88

Ted and Gayle Sorenson
Statement of Assets and Liabilities
As of June 20, 1988

ASSETS		
Cash:		
Merrill Lynch Checking	$392,300	
Idaho First National Checking	$2,300	
Idaho First National Savings	$35,800	
Vanguard Bond Fund	$13,900	
Bank of Pullman Savings	$12,300	$456,600
Retirement Accounts:		
Ted Vanguard 97519807 (IRA)	$32,000	
Ted Vanguard 978097276 (SEP)	$22,100	
Gayle Vanguard 97519806 (IRA)	$31,400	
Gayle Idaho First (Keogh)	$16,500	
Ted Merrill Lynch (Pension)	$92,300	$194,300
Stock:		
Kaneb Services Inc.	$50	
MIT 9th PUT SER BONDS(10,000 FV)	$9,600	
Idaho Housing 0 Coupon Bonds	$5,000	
(Maturity Date 2015,FV $100,000)		$14,650
Real Estate:		
Personal Residence	$100,000	
Ammon Rental House	$49,000	
Palisades Vacation Lot	$14,000	$163,000
Miscellaneous:		
Gold Kruggerands (8 oz.)	$2,700	
Silver Coins	$850	
Coin Collection	$2,200	
Jewelry	$1,200	$6,950
Vehicles:		
Toyota Corolla (1979)	$1,500	
Prindle Catamaran	$1,500	$3,000
Business Assets:		
Idaho First Checking Account	$60,000	
BayBank Checking	$162,000	
Accounts Receivable	$148,000	
Backhoe	$16,000	
Engineering Equipment	$12,000	
Office Furniture and Equipment	$10,000	
Birch Power Project 5,100,000		
Less: BayBank Loan 2,600,000	$2,500,000	
Vehicles	$9,000	$2,917,000
Partnership Interests:		

Date 09/05/88

Georgetown Power-Equity	$230,000	
Georgetown Power-Account Receivable	$41,600	$271,600
TOTAL ASSETS		$4,027,100
LIABILITIES		
Mortagage - Personal Residence	$56,000	
Mortgage - Rental Unit	$24,950	
Contingent Liab. Northwest Pipe	$140,000	
TOTAL LIABILITIES		$220,950
NET WORTH		$3,806,150

Doyle A. Sorenson

Ted Sorenson

Gary,

Robert Jacobson will send his financial statement under seperate cover

Robert Snedigar
321 E. Concorda Drive
Tempe, Arizona 85282

Snedigar Companies
1201 S. Alma School #12000
Mesa, Az 85210

RECEIVED
SEP 09 1988
Department of Water Resources

ROBERT & SHIRLEY SNEDIGAR

STATEMENT OF FINANCIAL CONDITION
AS OF
MAY 15, 1988

****

Anderson, Church & Co.
CERTIFIED PUBLIC ACCOUNTANTS

Anderson, Church & Co.

CERTIFIED PUBLIC ACCOUNTANTS

424 EAST SOUTHERN AVENUE
TEMPE, ARIZONA 85282
(602) 829-1919

Robert and Shirley Snedigar
321 Concorda Drive
Tempe, Arizona 85282

We have compiled the accompanying statement of financial condition of Robert and Shirley Snedigar as of May 15, 1988 from information furnished by Robert Snedigar and company records, in accordance with standards established by the American Institute of Certified Public Accountants.

A compilation is limited to presenting in the form of financial statements information that is the representation of management. We have not audited or reviewed the accompanying statement and, accordingly, do not express an opinion or any other form of assurance on it.

Anderson, Church & Co.

May 26, 1988

ROBERT & SHIRLEY SNEDIGAR

STATEMENT OF FINANCIAL CONDITION
MAY 15, 1988

	ESTIMATED CURRENT VALUE
ASSETS:	
Cash	$ 302,500
Notes receivable (Note 3)	1,893,610
Investment properties (Note 4)	2,074,600
Investment in hydroelectric projects (Note 5)	11,145,100
Marketable securities - Farmers & Merchants Bank of Buckeye, 16,709 shares ($15.00 per share)	250,635
Inventory - semen	11,978
Investment in -	
Land - 589 acres, Buhl, Idaho (MAI appraisal)	2,957,000
Property and equipment:	
Buildings	380,000
Machinery and equipment	250,000
Transportation	40,000
Furniture and fixtures	100,000
Other assets:	
New Resources, Inc.	50,000
25% interest - University and Stapley (Circle K)	150,000
Residence	250,000
Vacation home - Lot 291, Pinetop Country Club, pledged on mortgage	325,000
Personal belongings	200,000
Total assets	20,380,423
LIABILITIES:	
Notes payable - Hydro projects (Note 5)	1,539,400
FLB loan - Idaho, semi-annual payments of $17,500 including interest at 12.75%	223,281
Mortgage payable, Pinetop Country Club (original $150,000, dated 5/88), monthly payments of $1,200 including interest at 10.75%	150,000
Line of credit, secured by principal residence, due within one year	140,000
Total	2,052,681
ESTIMATED INCOME TAXES - Difference between estimated current values of assets and estimated current amounts of liabilities and their tax bases (Note 2)	2,750,000
Total liabilities	4,802,681
NET WORTH	$15,577,742

See Accompanying Notes and Accountant's Report.

By _____ Date _____

ROBERT & SHIRLEY SNEDIGAR

NOTES TO FINANCIAL STATEMENTS

1. BASIS OF FINANCIAL STATEMENT

The information for the accompanying statement of financial condition was furnished by Robert Snedigar and company records.

2. ESTIMATED CURRENT VALUE BASES

Estimated income taxes have been provided on the excess of the estimated current values of assets over their tax bases as if the estimated current values of the assets had been realized on the statement date, using applicable tax laws and regulations. The provision will probably differ from the amounts of income taxes that eventually might be paid because those amounts are determined by the timing and the method of disposal or realization and the tax laws and regulations in effect at the time of disposal or realization.

3. NOTES RECEIVABLE

Notes receivable as of May 15, 1988 consist of the following:

Note receivable - well site (McKay) (original $40,000) semi-annual interest only payments at 10% until 1/1/85, commencing 7/1/85 semi-annual principal and interest instalments of $5,000, including interest at 10%	$ 20,765
Loan receivable - S. Snedigar	29,500
Co-op retainage	24,838
Note receivable - individual (M.M.)	122,500
Note receivable - R. Frackrel	25,000
Note receivable - J. Snedigar, 12% due 1/89	15,000
Note receivable - OJ Hydroelectric Project, 11.5% interest, monthly payment of $2,687, secured by first position	226,007
Note receivable - Porcupine Hydroelectric Project, 11% interest, secured	325,000
Note receivable - Ridge View Unit 1, 126 lots, 11 1/2% interest, secured by deed, due on sale	1,105,000
TOTAL	$1,893,610

4. INVESTMENT PROPERTIES

Real estate and other investment properties as of May 15, 1988 consist of the following:

Lot #5, Village Grove Estates	$ 20,000
Lot #27, Village Grove Estates	16,000
50% interest in 685 acres in Stanfield, AZ section 11C (Cash invested $275,000)	275,000
25% interest in 873 acres in Stanfield, AZ section 13 (Cash invested $165,000)	165,000
Equity in 11 lots Pinhigh Red Mountain Ranch Joint Venture (Cash invested $95,000)	275,000
Equity in Triangle Energy, Inc.	10,000
Equity in Ocean Fresh business	149,000
Equity in Ridge View Unit #1 Joint Venture, 125 lots	597,100
Equity in Shea Blvd Joint Venture	100,000
Equity in New Energy, Inc.	136,000
45% interest in Bell Mountain Power Project	145,000
40% interest in O.J. Power Project	54,000
13% interest in Porcupine Power Project	32,500
50% equity in Golden Hills - 70 lots (Future projects at $350,000)	100,000
TOTAL	$2,074,600

5. INVESTMENT IN HYDRO PROJECTS

Investment in hydro projects properties as of April 15, 1988 consists of the following:

Description			Estimated Current Value	Debt
Snedigar Hydro Project - (Buhl, Idaho), project operational 1/1/85 (original cost $975,000) 35 year revenue sales agreement with Idaho Power Co., financing by Prudential Capital Group Co. (Prudential Financial Services Corp.), original $725,000 (8/10/85), interest at 13.01% per annum, monthly payments of $9,180, fifteen year amortization, maturity in 1990, secured by sales agreement and related equipment				
Valuation determined by present value of net cash flow over 35 year contract period, net of operating expenses and debt service using a 10% discount factor				
Annual Projected Cash Flow				
Annual projected revenue		$165,000		
Less: Insurance & taxes	$ 8,000			
Repairs (Est.)	5,000			
Debt service ($9,180 x 12) for 15 years	110,160	123,160		
Net positive cash flow through 15 years		$ 41,840		
Present value at 100% ownership			$1,510,100	$ 702,000
Georgetown Hydro Project - (Georgetown, Idaho), completed January 1, 1986, (cost at $650,000), 35 year revenue sales agreement with Utah Power Co., interim financing by Uniwest Business Credit, permanent financing with Prudential Capital Group, original $610,000, interest at 350 basis points over 5 year T-bond, fifteen year amortization, maturity in 1991, secured by sales agreement and related equipment				
Valuation determined by present value of net cash flow over 35 year contract period, net of operating expenses and debt service using a 10% discount factor				
Amount at 100%			1,400,000	590,000
Less amount owned by another party (37.5%)			(525,000)	(221,250)
Portion at 62.5%			875,000	368,750

(Forward)

5. INVESTMENT IN HYDRO PROJECTS (Continued)

Description	Estimated Current Value	Debt
Bell Mountain Hydro Project - (Howell, Idaho), construction completed 12/86 (cost estimated at $960,000, 35 year revenue sales agreement with Idaho Power Co., financing by Bay Bank of Boston, for $700,000		
Amount at 100%	1,800,000	700,000
Less amount owned by other parties (55%)	(990,000)	(385,000)
Portion at 45%	810,000	315,000
O.J. Hydro Project - (Malad, Idaho), completed 12/86 (cost at $448,000), 35 year revenue sales agreement with Utah Power & Light, financing for $220,000		
Valuation determined at	900,000	220,000
Less amount owned by others (60%)	(540,000)	(132,000)
Portion at 40%	360,000	88,000
Porcupine Hydro Project - (Ogden, Utah), completed 12/86 (cost at $755,000), 35 year revenue sales agreement with Utah Power & Light, financing pending for $325,000 and U P & L for $180,000		
Valuation determined at	1,500,000	505,000
Less amount owned by others (87%)	(1,305,000)	(439,350)
Portion at 13%	195,000	65,650
Hi-Drop Hydro Project - (Bliss, Idaho), estimated completion date 12/88, (cost estimated at $11,600,000), 35 year revenue sales agreement projected with Idaho Power Co., financing pending, original amount $10,600,000, terms similar to above, secured by sales agreement and property		
Valuation by estimate at completion date (12/87) at 50% equity	5,200,000	
Add loan due from Ravencroft at 12%	135,000	
Total equity - Hi-Drop	5,335,000	

(Forward)

5. INVESTMENT IN HYDRO PROJECTS (Continued)

Description	Estimated Current Value	Debt
Portnuef River Project - (Idaho), estimated completion at $2,000,000), 35 year revenue sales agreement with Utah Power & Light, financing pending		
Cash invested	60,000	
Valuation by estimate at completion at 50% equity	2,000,000	
TOTAL ALL PROJECTS	$11,145,100	$1,539,400

State of Idaho
DEPARTMENT OF WATER RESOURCES (208) 327-7900
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 -[redacted]

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

March 16, 1989

Randy Budge
Attorney at Law
P.O. Box 1391
Pocatello, Idaho 83204-0391

Ken Arment
Attorney at Law
P.O. Box 1398
Boise, Idaho 83701-1398

RE: Applications for permit to appropriate water nos. 29-7578 and 29-7772 in the name of Marsh Valley Hydro Electric Company.

Gentlemen:

On August 31, 1988, Ken Arment filed a "Petition to Intervene; File Protest; Cancel Applications; and for Inquiry" with respect to the applications nos. 29-7578 and 29-7772 on behalf of the Lava Irrigation Company, Dempsey Irrigation Company, Topaz Irrigation Company, Fish Creek Irrigating Company, Jim Andrus, Ken Andrus and Max Hall.

The Department delayed action on the petition because of negotiations to resolve the dispute. To date, however, the matter has not been resolved.

This letter is notice that the Department will act on the petition if the dispute is not resolved by written agreement or written withdrawal of the petition by April 10, 1989.

Sincerely,

Gary Spackman

Gary Spackman, Manager
Water Right Permits Section

cc: Ted Sorenson
Kent Foster

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JAN 2 2 1993

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204-0391

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE
JOHN A. BAILEY, JR.
JOHN R. GOODELL*
JOHN B. INGELSTROM
DANIEL C. GREEN
REED W. LARSEN
BRENT O. ROCHE
PATTI POWELL**
CARY B. COLAIANNI
FRED J. LEWIS

*ALSO MEMBER ILLINOIS BAR
**ALSO MEMBER WASHINGTON BAR

TELEPHONE
AREA CODE 208
232-6101

TELEX
208-232-6109

March 7, 1989

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MAR 08 1989
Department of Water Resources

Gary Spackman, Manager
Water Right Permits Section
State of Idaho
Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

Re: Marsh Valley Hydro Electric Company: Application Numbers 29-7578 and 29-7772

Dear Gary:

In response to your February 24 inquiry, please be advised that on February 15, 1989, we forwarded to Ken Arment a proposed Stipulation to settle this matter which would included the withdrawal of their Motions to Intervene in both the IDWR and FERC cases. It is my understanding that Ken has sent the Stipulation to his clients for their review and approval.

We have just responded to some concerns raised by Ken but feel that they are minor and that we will have no difficulty in resolving them. I am following up with Ken and am hopeful that we can have the Stipulation finalized in a form acceptable to all parties for their signature in the near future.

Very truly yours,

RANDALL C. BUDGE

RCB:gr

cc: Ken Arment
Kent Foster

MICROFILMED
JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 334-7900

CECIL D. ANDRUS
GOVERNOR
R. KEITH HIGGINSON
DIRECTOR

February 24, 1989

Randy Budge, Attorney at Law
P.O. Box 1391
Pocatello, Idaho 83204-0391

RE: Marsh Valley Hydroelectric Company: Application numbers 29-7578 and 29-7772

Dear Randy:

This letter is an inquiry about resolution of Ken Arment's motion to intervene. It was my understanding, after speaking to both of you in a telephonic conference call, that an agreement had been reached for settlement of the motion. I am awaiting some final response. Can you provide an update?

Sincerely,

Gary Spackman

Gary Spackman, Manager
Water Right Permits Section

cc: Ken Arment

JAN 22 1993

29-7578 ✓
29-7772

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Marsh Valley Hydroelctric Company) Project No. 10468-000

NOTICE GRANTING LATE INTERVENTION
(January 19, 1989)

The Idaho Department of Fish and Game (IDFG) filed a late motion to intervene in the above-captioned proceeding.

IDFG has shown good cause to be permitted to intervene late and no opposition to its motion has been filed. See 18 C.F.R. § 385.214(d) (1987).

Accordingly, pursuant to Section 375.302(e) of the Commission's regulations, 18 C.F.R. § 375.302(e) (1987), IDFG is permitted to intervene in this proceeding, subject to the Commission's rules and regulations under the Federal Power Act, 16 U.S.C. § 791(a). Participation of this intervener shall be limited to matters set forth in its motion to intervene. The admission of the intervener shall not be construed as recognition by the Commission that the intervener might be aggrieved by an order entered in this proceeding.

Linwood A. Watson, Jr.
Acting Secretary

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JAN 30 1989
Department of Water Resources

DC-A-18

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JAN 22 1989

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

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PENALTY FOR PRIVATE USE, $300

U.S.MAIL

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FEDERAL ENERGY
REGULATORY COMMISSION
FERC 351

MODIFIED

JAN 2 2 1993

P -0010468000 131572
DIRECTOR
DEPARTMENT OF WATER RESOURCES (ID)
1301 NORTH ORCHARD STREET

BOISE, ID 83706

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LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204-0391

TELEPHONE
AREA CODE 208
232-6101

TELEX
208-232-6109

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
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JOHN A. BAILEY, JR.
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DANIEL C. GREEN
REED W. LARSEN
BRENT O. ROCHE
PATTI POWELL**
CARY B. COLAIANNI
FRED J. LEWIS

*ALSO MEMBER ILLINOIS BAR
**ALSO MEMBER WASHINGTON BAR

November 8, 1988

Kenneth R. Arment
BRADY, SAETRUM, TINGEY,
DAY & JOYCE, Chartered
Park Center Pointe
1501 Tyrell Lane
P. O. Box 1398
Boise, Idaho 83701-1398

Re: Lava Irrigation Company, et al. v. Marsh Valley Hydro Electric Company
Application Nos. 29-7578 and 29-7772

Dear Ken:

The meeting was held in our offices as scheduled on October 20th. Ken Andrus along with representatives from Lava, Dempsey Topaz and Fish Creek Irrigation Companies were in attendance. Lyndon Green and Keith Bennett attended on behalf of Marsh Valley Hydro Electric Company and as Presidents of McCammon Ditch Company and Portneuf Marsh Valley Canal Company respectively as did the Developer/Engineer Ted Sorenson and his attorney Kent Foster. A copy of the roster signed by those in attendance is enclosed. While we would have welcomed your presence, we appreciated the opportunity to meet directly with your clients with your consent.

The issues were openly discussed and I am sure all left with a better trust and understanding of the other's position and concerns. Notwithstanding the multiple issues raised by your Intervention Petitions, it appears that there is but a single primary issue which is a mutual concern to all parties. As we understand it, your client's only concern is that their historic irrigation and stock watering practices after September 15th when the normal irrigation season ends are preserved and protected.

The distribution of the natural flow waters of the Portneuf River during the normal irrigation season by the District 29 Watermaster to the holders of decreed water rights is a well established practice and not of concern. Nor is there any concern about the historical stock watering practices on a year round basis.

JAN 22 1993

During the normal irrigation season your clients are regularly cut back prior to September 15th to satisfy downstream right holders with an earlier priority, primarily Portneuf-Marsh Valley Canal Company and McCammon Ditch Company. After September 15th when the Watermaster stops deliverying water rights under the decree and the diversions by Portneuf - Marsh Valley Canal Company and McCammon Ditch Company are diminished, it appears to have been the historic practice of your clients to divert the then available water to "catch up" on irrigation needs depending, of course, on weather and soil conditions. According to your clients, historic use after September 15th involved greater diversions during September which diminished steadily until approximately November 1 to November 15th when all irrigation diversions cease, primarily due to freezing weather.

As I am sure you are aware, your client's claims to this type of historical use established after September 15th are not presently established legal rights. However, the extent of any such rights will be determined in the pending Snake River Basin Water Rights Adjudication assuming that your clients submit appropriate claims to the same. To the extent that your clients as well as ours may establish in the Snake River Basin Adjudication water rights after September 15th based upon their historic use, such rights would then be recognized by the Idaho Department of Water Resources and could be administered by the Water Master or the Department. Any such right undoubtedly would have a priority superior to the permits pertaining to the hydroplant which were not applied for until 1981 and 1984.

Marsh Valley Hydro Electric Company and the developer, Ted Sorenson, share similar concerns that the historic practices of your clients after September 15th are not enlarged or expanded in quantity of use or duration of use beyond what has been the historical use, which would diminish water available to the hydroplant. The feasability of the hydroplant was based upon historical flow records which would reflect whatever historical uses have in fact been made over past years by your clients which they seek to preserve and we have no desire or intention of interfering with.

The problem appears to be temporarily protecting the historic diversions and uses of your clients while simultaneously protecting our clients from any expansion of the same until these non-irrigation season uses have been formally established in the Snake River Basin Adjudication which might take up to ten years. Short of a summary supplemental adjudication under

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Idaho law, which would be time consuming and expensive to all of the parties and would not likely receive favorable support from the Idaho Department of Water Resources since the rights are in the process of being adjudicated anyway, the difficulty is in specifying the quantity and period of use of these historic uses.

Ted Sorenson has all of the measured flow data of record on the Portneuf on a daily as well as monthly average basis. It was felt that the flows over the past 20 years would be more representative since they are after the enlargement of the Chesterfield Reservoir and would reflect more recent farm and irrigation practices. Based on this information, he is going to do some statistical studies in an attempt quantify a range of the historic flows after September 15th which the parties might agree upon maintaining pending completion of the formal adjudication. It is our understanding that some of your clients are also going to attempt to quantify their historic uses during the non-irrigation season. We will be in touch with you with a more specific proposal once this has been completed.

In the meantime, it appears obvious that the proceedings pending before the IDWR on our client's water permits are not the appropriate forum for addressing the historical use claims asserted by your clients. Accordingly, we would request the prompt withdrawal of the Petitions submitted to FERC and IDWR. Any delay in issuing the permits or FERC licenses caused by your client's filings and delaying the project could expose your client's to considerable damage claims.

Also, I am enclosing copies of the September 16th and October 12th letters received from IDWR Director R. Keith Higginson which were mentioned at the meeting. Some of your clients asked for copies which were not distributed at the time and I thought you could forward.

Very truly yours,

RANDALL C. BUDGE

RCB:gr

Enclosures
cc: Kent Foster
Lyndon Green
Keith Bennett
Ted Sorenson

JAN 22 1993

Meeting 10/20/-0

Individual	Representing
Ted S. Sorensen Pitz	Marsh Valley Hydro
Dean Day	Fish Creek Irr.
Rex Baker	Dempsey Irr. Co.
Earl M. Vetter	Marsh Valley Hydro
Keith Bennett	Portneuf Marsh Valley Canal
Lyndon Green	McCammon Irrig. Co
Randy Budge	Att. For Marsh Valley Hydro
Vera Avery	Vera Irrigation Co.
John Andrus	Topaz
Arthur M. Carlson	Topaz
Ken Andrus	Bob Smith

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JAN 22 1993

State of I ho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 334-7900

CECIL D. ANDRUS
GOVENOR
R. KEITH HIGGINSON
DIRECTOR

September 1, 1988

Honorable Steven D. Symms
U.S. Senator (Idaho)
207 Federal Building
Pocatello, ID 83201

RE: Proposed Marsh Valley Hydroelectric Project - Applications for Permit Nos. 29-7578 and 29-7772

Dear Senator Symms:

The department has received your letter of inquiry dated August 26, 1988 in connection with the above referenced project.

Department files show that Application No. 29-7578 was filed with the department on February 2, 1981 and proposes the year around diversion of 175 cubic feet per second (cfs) from the Portneuf River for hydropower purposes. The application has been assigned to Marsh Valley Hydroelectric Company which also filed Application No. 29-7772 on June 5, 1984 proposing the additional year around diversion of 75 second from the Portneuf River for hydropower purposes. The applications were advertised upon receipt and were not protested during the period provided by statute.

Whether an application is protested or not, Idaho water right statutes provide for the department to evaluate, among other considerations, whether the proposed new use will adversely affect existing water rights. As a part of this evaluation, the department requested additional information from the applicant in connection with the proposed project. Among the questions asked by the department was evidence to show that injury will not occur to other users and justification of the period of use requested since water likely is not available at the rate requested during the peak irrigation months.

Department procedures allow the applicant to coordinate the submittal of information relative to the water right with the preparation and submittal of the FERC licensing information. When the information is available, final action can be taken on the applications. If approved, the applications would be conditioned as necessary to protect existing water rights.

JAN 2 2 1993

Please feel free to contact me if I can provide additional information.

Sincerely,

NORMAN C. YOUNG
Administrator
Resource Administration Division

NCY:alw
cc: Eastern Region

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JAN 22 1993

STEVE SYMMS
IDAHO

United States Senate

WASHINGTON, DC 20510

RECEIVED
AUG 29 1988
Department of Water Resources

August 26, 1988

Keith Higginson, Director
Id. Dept of Water Resources
Statehouse
Boise, Idaho 83720

Dear Keith:

You will find enclosed a letter recently received in my Washington office regarding a Marsh Valley hydroelectric project. The letter was accompanied by several petitions, only one of which is enclosed.

In trying to be responsive to my constituents, I would appreciate it if you could provide information to my Pocatello office regarding the concerns expressed in the letter and petition and the process and procedures the Department follows before approving or denying a water right application.

Thank you very much for your assistance in this matter.

Yours for a free society,

Steve

STEVE SYMMS
United States Senator

SS/jh
Enclosure

ANSWERED
2 2 1993

PLEASE REPLY TO:

☐ IDAHO FALLS OFFICE
482 C STREET, SUITE 305
IDAHO FALLS 83402
(208) 522-9779

☑ POCATELLO OFFICE
207 FEDERAL BUILDING
POCATELLO 83201
(208) 236-6775

☐ TWIN FALLS OFFICE
401 2D ST. N. #106
TWIN FALLS 83301
(208) 734-2515

☐ BOISE OFFICE
BOX 1190
BOISE 83701
(208) 334-1776

☐ LEWISTON OFFICE
301 D STREET #103
LEWISTON 83501
(208) 743-1492

☐ MOSCOW OFFICE
105 FEDERAL BUILDING
MOSCOW 83843
(208) 882-5560

☐ COEUR D'ALENE OFFICE
305 FEDERAL BUILDING
COEUR D'ALENE 83814
(208) 664-5490

August 1988

Dear Senator:

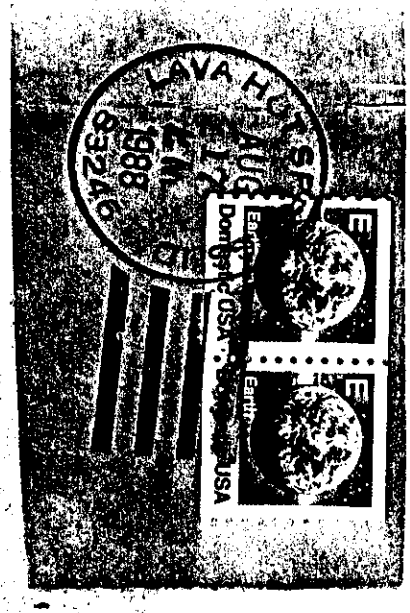
Marsh Valley Hydroelectric Co. has an application in for a licence to generate power in our district 29. The other people on this district who have water rights for irrigation are going to be hurt, burned up, if this is allowed to go through as applied for.

We have taken steps to have a motion to intervene sent in to F.E.R.C. I am enclosing a copy of the petitions so you can see how many people are opposed to this action.

If you can do anything to help us prevent the loss of our existing water rights we would be very grateful.

Sincerely,

Vera Avery



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WE THE UNDERSIGN_ HEREBY PETITION THE DEPA. ENT OF WATER RESOURCES TO NOT APPROVE MARCH VALLEY HYDROELECTRIC COMPANY APPLICATION #29-7578 FOR 175 cfs. AND #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APRIL 15 THROUGH NOVEMBER 15, EACH YEAR. ALSO FEDERAL ENERGY REGULATORY COMMISSION NOT APPROVE THEIR APPLICATION #10468-000 BECAUSE OF THE INTERFERENCE WITH OUR EXISTING WATER RIGHTS AND THE FACT THAT WE HAVE BEEN USING THIS WATER BEYOND THE WATERING SEASON SINCE THE BEGINNING OF THESE DECREED RIGHTS.

NAME	ADDRESS	AMOUNT WATER DECREE
Topaz Irrigation Company		
Nathan M. Carlson	Lava Hot Springs Id.	47 Shares in Topaz Irrig. Company
Brett Carlson	Lava Hot Springs, Idaho	3.62 feet in Bonneville Ditch
		45 Shares in Topaz
Dean Day	Lava Hot Springs Idaho	75 Shares of Topaz
Helen Fagnant	Box 293 Lava Hot Springs, Id. 83246	12 Shares Topaz Irrig.
Neil Hall	Box 6 Lava Hot Springs, Id 83246	15 Shares Topaz Irrig.
Albert Roberts	Box 695 Lava Hot Springs, Ida.	66 Shares Topaz Irrig
Gordon J. Gilman	12258 Lava Hot Springs Id.	35 Shares Topaz
Kim J. Andrus	10222 So. Dempsey Rd. Lava Id	68 Shares Topaz
John J. Andrus Jr.	R+1. Lava Hot Spgs. Id.	131 Shares Topaz
Neil Hall Pres. Lava Cemetery	Lava Hot Springs, Idaho 83246	5 Shares Topaz
Howard C. Miller	376 So 19th Poc. Idaho	102 Shares. Topaz-Dempsey
Lynn Bowman	Rt 2 Box 67 Poc. Ida	Demp. & Topaz
		1200 shares total

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Department of Water Resources

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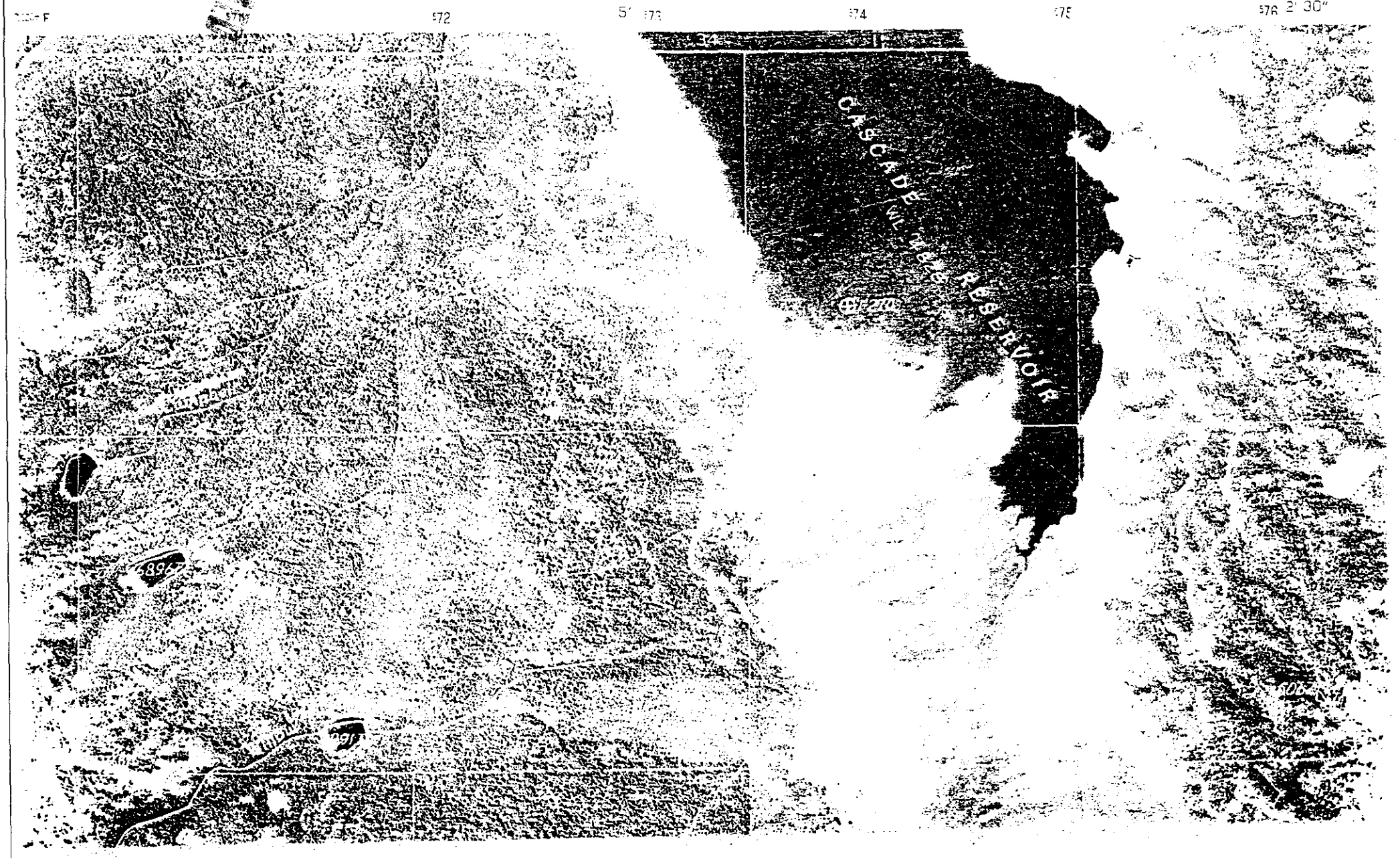
LOGICAL SURVEY



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AUG 31 1988
Department of Water Resources

LAW OFFICE
BRADY, SAETRUM, TINGEY, DAY & JOYCE
CHARTERED
PARKCENTER POINTE
1501 TYRELL LANE
P.O. BOX 1398
BOISE, IDAHO 83701-1398
(208) 345-8400
Telecopier (208) 345-8790

MICHAEL G. BRADY
RODNEY R. SAETRUM
JOEL E. TINGEY
MICHAEL DAY
T. STEVE JOYCE
MICHAEL E. POWERS
GERY W. EDSON
JOHN J. LERMA
KENNETH R. ARMENT
TODD A. JOHNSTONE

OFFICES IN
TWIN FALLS, IDAHO
101 SHOSHONE STREET NORTH
83301
(208) 734-0801

August 30, 1988

Department of Water Resources
State of Idaho
Statehouse
Boise, Idaho 83720

Re: Lava Irrigation Company, et al. vs.
Marsh Valley Hydro Electric Company, et al.
Application Numbers: 29-7578, 29-7772

Dear Sir:

Enclosed please find an original and one copy of Petitions to Intervene; File Protest; Cancel Applications; and For Inquiry in the above-referenced matter. Please file the original in your records and return a conformed copy to us in the self-addressed stamped envelope enclosed.

Thank you for your cooperation.

Very truly yours,

BRADY, SAETRUM, TINGEY,
DAY & JOYCE, CHARTERED

Ken Arment

Kenneth R. Arment

KRA:gjc

Enclosures

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Department of Water Resources

BRADY, SAETRUM, TINGEY,
DAY & JOYCE, CHARTERED
Kenneth R. Arment
ParkCenter Pointe
1501 Tyrell Lane
P.O. Box 1398
Boise, Idaho 83701-1398

TELEPHONE (208) 345-8400

Attorneys for Petitioners

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

LAVA IRRIGATION COMPANY; DEMPSEY IRRIGATION COMPANY; TOPAZ IRRIGATION COMPANY; FISH CREEK IRRIGATING COMPANY; JIM ANDRUS; KEN ANDRUS; and MAX HALL, Petitioners, vs. MARSH VALLEY HYDRO ELECTRIC COMPANY; PORTNEUF-MARSH VALLEY CANAL CO., LTD.; and McCAMMON DITCH COMPANY, Respondents.	Application Numbers: 29-7578 29-7772 PETITIONS TO INTERVENE; FILE PROTEST; CANCEL APPLICATIONS; AND FOR INQUIRY

COMES NOW, the above-named Petitioners and ask the Director of the Idaho Department of Water Resources for an order granting: (1) the Petitioners intervention in the proceedings on the two above-entitled water right applications; (2) Petitioners leave to

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file protests on the two above-referenced water applications; (3) the Petition to Cancel the two above-referenced water right applications; and (4) an inquiry regarding the present water diversion practices of the McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd. The grounds and reasons for which this relief is sought are as follows:

GENERAL ALLEGATIONS

1. Application No. 29-7578 was filed with the Idaho Department of Water Resources ("IDWR") on Feburary 2, 1981 by the McCammon Ditch Company. The application was advertised on February 12 and 19, 1981. The amount of water sought under the application was 175 cfs for hydropower purposes for the entire year. IDWR records indicate that the application was assigned to "Marsh Valley Hydro-electric Company" on June 23, 1983.

2. Application No. 29-7772 was filed with IDWR on June 5, 1984. Advertising of the application was made on June 14 and June 21, 1984. The name of the applicant was the "Marsh Valley Hydro Electric Company," which sought to appropriate 75 cfs for hydropower purposes for the entire year.

3. The "Marsh Valley Hydro Electric Company," the "Marsh Valley Hydroelectric Company," and the "Marsh Valley Hydro-electric Company," are not Idaho corporations. Further, they are not foreign corporations registered and authorized to do business in the State of Idaho. "Marsh Valley Hydro Electric Co.," is an Idaho corporation in good standing. The affidavit of the Idaho

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Secretary of State's Office to this effect is attached hereto and incorporated by reference as Exhibit A.

4. Marsh Valley Hydro Electric Co. is a wholly owned subsidiary of the McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd. A true and correct copy of the certified copy of the articles of incorporation for Marsh Valley Hydro Electric Co. is attached hereto and incorporated by reference as Exhibit B.

5. Respondents under the name of Marsh Valley Hydropower Company, have filed for a Federal Energy Regulatory Commission (FERC) license to operate a hydropower project for the use of water under both of the above-named water right applications. A Utah partnership, Marsh Valley Hydroelectric Company, however, is apparently a competing applicant for a FERC license for the project, as evidenced by a letter to IDWR from the Marsh Valley Hydroelectric Company which is attached hereto and incorporated by reference as Exhibit C.

6. Respondent Marsh Valley Hydro Electric Company, however, has apparently filed for a FERC license under the name of the other hydropower applicant as evidenced by public notice required to be published by FERC, a copy of which is attached and incorporated by reference as Exhibit D.

7. The IDWR has been addressing the above two water right applications together for the purposes of corresponding, investigating and processing the applications, as evidenced by

JAN 22 1993

the May 20, 1988 letter from IDWR to Ted S. Sorenson, P.E. which is attached and incorporated by reference as Exhibit E.

8. The attorney for Petitioners, on August 16, 1988 telephoned the Bannock County Recorder's Office and asked if anyone had registered with the county under Idaho's Assumed Business Names Act, Idaho Code, Sections 53-501 through 507 in the name of Marsh Valley Hydroelectric Company or Marsh Valley Hydro Electric Company, and was informed that there were no assumed business names filed under either of these names.

9. The Respondents Portneuf-Marsh Valley Canal Co., Ltd. and McCammon Ditch Company, both now and at the time of the creation of the Marsh Valley Hydroelectric Company, are not empowered by their corporate charters and articles of incorporation to create and hold shares in a new corporation conducting a for profit business outside the scope of both companies' stated corporate purposes. Riley v. Callahan Mining Co., 28 Idaho 525, 540, 543; 155 P. 665 (1916). True and correct copies of the relevant portions indicating corporate purposes of the certified copies filed with the Idaho Secretary of State are attached hereto and incorporated by reference as Exhibits F and G.

10. Accordingly, Respondents Portneuf-Marsh Valley Canal Co., Ltd. and McCammon Ditch Company were not empowered by their specific corporate purposes to create and own the Marsh Valley Hydro Electric Co. or similar enterprise, therefore the newly

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formed corporation is a nullity as it constitutes an ultra vires act of the underlying irrigation companies.

PETITION TO INTERVENE

1. Petitioners are senior water right users of the Portneuf River, who are not represented in the above-entitled proceedings, and are directly and substantially affected by the proceedings and whose rights will be prejudiced if they are not allowed to participate.

2. That in the Union Grain & Elevator Company decree, Case No. 2203 District Court of the Fifth Judicial District of the State of Idaho, entered by Judge Baum on December 4, 1922, the Court awarded the Petitioners and/or their predecessors in interest water rights with priority dates earlier than that of the 1912 priority date for the storage water right of Portneuf-Marsh Valley Irrigation Co., Ltd. The Court, however, also ruled that the Portneuf-Marsh Valley Irrigation Company's storage water right would be transported free from any transmission losses between the reservoir and the irrigation company's point of diversion, a distance of over 25 miles. Furthermore, that such ruling may or may not have been unconstitutional at the time depending on whether there were transmission losses which resulted in the prior appropriators having to bear the transmission loss for a junior water right in violation of Article 15, Section 3, Idaho Constitution. In any event, because of subsequent ground water development or other hydrologic

JAN 22 1993

reasons, transmission losses exist in the Portneuf River System such that the Petitioners, as prior appropriators, are being injured by the allowance of the junior water right for the Portneuf-Marsh Valley Irrigation Company as if no transmission losses occurred.

3. That in addition to the foregoing, the Court ruled at page 77 that:

> All such devices shall be of such design as to accurately register the amount of water so diverted, and in case of ditches diverting more that 30 cubic feet per second, automatic measuring and registering devices shall be installed and shall at all times be subject to the inspection of any party to this action, or to any public officials or water masters having jurisdiction over the distribution and diversion of water, and no dam or other obstruction to the natural flow of the stream shall be maintained so as to divert water from the channel of the stream, except through ditches, canals or other works, provided with such headgates, control works and measuring devices, except as in this judgment provided; and each of the parties hereto shall be perpetually enjoined from diverting from the channel of said Portneuf River, or its tributaries or sources, any water through any ditch, conduit, or other devices not provided with such headgates, control works and measuring device.

4. That the diversion canal through which the Portneuf-Marsh Valley Irrigation Company and McCammon Ditch Company receive their water, although it is in excess of 30 cfs, does not contain an automatic water measuring device as required in the Union Grain & Elevator Company decree.

5. On page 76 of the Court's decree, the Court established a very strict and short irrigation season beginning on April 15,

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and closing on September 15. The IDWR, in Appendix 2 of the Idaho Water Law Handbook, has recommended a suggested irrigation season for the area running from either March 15 to November 15, or from April 1 to November 1.

6. That the above-named Petitioners have beneficially used water from the Portneuf River for irrigation outside of the specific time period established by the Union Grain & Elevator Company decree. This beneficial use water practice has become even more important to the Petitioners through time, as they increasingly bore the burden of the transmission losses for the storage water right for the Portneuf-Marsh Valley Irrigation Company, in violation of the Idaho Constitution.

7. That the above-named Petitioners have attempted to have the water district address this discrepancy, but have been unsuccessful as the water users diverting from the Portneuf-Marsh Valley Canal carry the majority of votes in the water district.

8. That the difficulties faced by the above-referenced Petitioners, have been exacerbated by the inability to automatically measure the water diverted at the entrance of the Portneuf-Marsh Valley Canal and instances have been reported to the IDWR and confirmed, that this lower canal has in fact been diverting even more water than entitled to under the Union Grain & Elevator Company decree. Petitioners believe that part of this problem results from the ability and practice of the lower canal

JAN 22 1993

water users over many years to control the election of the watermaster over the objections of the above-named Petitioners. Currently the watermaster is on call only for the irrigation season designated under the Union Grain & Elevator Company decree.

9. The above-named Petitioners are concerned that if permits for the above two referenced water right applications are granted without protection to the unrecorded prior beneficial use water rights owned by the Petitioners: (1) that the lower water users in the water district will vote to expand the time period during which the watermaster is on call; (2) additional water district voting rights will be given to the Respondents for their hydropower water rights, and (3) a biased watermaster will prohibit the prior in time unrecorded beneficial use water rights to be diverted in favor of the subordinated new water right applications under Idaho Code, Section 42-607.

10. The above-referenced problems have been magnified by the recent history of drought conditions that were not evident at the time that the above-referenced water right applications were filed.

11. In 1981 when McCammon Ditch Company filed its application for 29-7578, no notice was provided that the water right application was for joint venture with the Portneuf-Marsh Valley Canal Co., Ltd.

12. When Marsh Valley Hydroelectric Co. filed its

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Application for 29-7772, in 1984, the application did not refer to Application 29-7578, but rather to 29-7585. In addition, Application No. 29-7772, states that McCammon Ditch Company's previous application has the status of an approved permit to appropriate water. Further, both applications stated that only existing diversion facilities would be used under the applications, yet Marsh Valley Hydroelectric Company's (sic) FERC Application indicates under (3) of its Notice of Application that a seven foot high concrete diversion structure will need to be constructed. The FERC Notice of Application was also the first indication to the community that the Respondents intended to obtain a major license to produce hydroelectricity with FERC, whereas the IDWR records indicate that the Respondents were seeking an exemption or minor license from FERC.

13. Because of the Respondents' inconsistent representations, confusion with competing FERC applicants, the prima facie issues raised as to whether many of the acts of the Respondents have been invalid for failure to comply with Idaho law and the Respondents failure to provide adequate notice to alert other water users of the detrimental effects on existing water rights, timely intervention should be granted to the Petitioners as a matter of right.

PETITION FOR LEAVE TO FILE PROTEST

1. In addition to the foregoing, Petitioners note that if the two above-referenced applications were first being filed in

JAN 22 1993

1988, Idaho Code, Section 42-203(a) and Rule 4, 2, 1, 1 of IDWR's Water Appropriation Rules and Regulations would require statewide advertisement due to the fact that both applications propose a rate of diversion in excess of 10 cfs. The Petitioners note that there is nothing in the files on these two applications which indicates any delay has been made on account of the Swan Falls litigation.

2. Contrary to Rule 4, 1, 4 of the IDWR Water Appropriation Rules and Regulations, the above two referenced applications have been pending before IDWR since February, 1981 for 29-7578, and June, 1984 for 29-7772.

3. That the Respondents have failed to provide a justifiable excuse, or respond to the Department's letter of May 20, 1988, giving the Respondents 60 days within which to provide certain information which IDWR records indicate has never been produced.

4. That the interested public has never been provided notice of the assignment of Water Right Application No. 29-7578 to Marsh Valley Hydro Electric Co., nor notified that the above two applications are to be used in conjunction with each other, which would have a compound effect upon the interested water users. Copies of signed petitions of local water users opposed to the unconditional granting of the applications are attached and incorporated by reference as Exhibit H.

5. Consequently, the Respondents should be required to provide new public notice, with allowance for a protest period,

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or in the alternative, IDWR should grant Petitioners leave to file protest on the grounds that: (1) the applications, if granted will reduce the quantity of water under existing water rights; (2) the applications are speculative; (3) that the Respondents do not have sufficient financial resources to complete the applications; and (4) the granting of water right permits for the project will conflict with the local public interest under both Idaho Code Sections 42-203A and 203C.

PETITION TO CANCEL APPLICATIONS

1. In addition to the foregoing, Respondents have failed to answer IDWR's May 20, 1988, letter itemizing 11 areas of concern with the Water Right Permit Applications, including issues as to whether the project will hurt existing water right users, whether the project is speculative, whether the Respondents have sufficient financial resources, and elements which impact upon the issue of whether the project would be in the local public interest. IDWR records indicate that there has been no response to the letter within the 60 day deadline.

2. The Affidavit from the Idaho Secretary of State's Office establishes that there is no entity known as the Marsh Valley Hydroelectric Company authorized to do business in the State of Idaho, and any acts with the IDWR or other transactions of business in the State of Idaho are therefore void since no such legal entity exists. See. Idaho Code, Section 30-1-135. Similarly, neither Marsh Valley Hydroelectric Company or Marsh

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Valley Hydro Electric Company have filed with Bannock County under Idaho's Assumed Business Names Act which is a prerequisite to conducting or transacting business. Idaho Code, Section 53-502.

3. Idaho Code, Section 42-206 sets forth that residence is a requisite for issuance of a permit to appropriate water for power purposes in the State of Idaho. In addition, the sale, transfer, assignment or mortgage of a permit requires that the holder be a resident of the State of Idaho. Idaho Code, Sections 42-208 and 209, state that failure to comply with this requirement immediately cancels, revokes and voids any permit. Since the Respondents have not even risen to the status of permit holders, but merely holders of an application for two permits, the same provisions should apply to void and cancel the above two referenced water right applications.

4. IDWR Water Appropriation Rules and Regulations No. 4, 1, 4 states that application for a water right may be delayed for a period not to exceed one year. The record on the above two water right applications indicates that processing has been delayed in excess of the period of one year. The foregoing indicates that the Petitioners have been injured by the delay which appears to be based in part on speculation, and that the public interest will not be served by the delay, therefore, the water right application should be cancelled.

5. Examination of the relevant corporate purposes of the

McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd. reveals that the creation of the Marsh Valley Hydro Electric Co. and its pursuit of the above two referenced water right applications are ultra vires acts for the underlying corporations, conseqauently, Marsh Valley Hydro Electric Co.'s previous and current acts are ultra vires acts.

6. The previous actions of the Respondents have resulted in flooding of land and the taking of property from the Petitioners without compensation. The IDWR records on these applications reveals that the Respondents have failed to comply with business regulation laws of the State of Idaho, their own articles of incorporation, transfer requirements, application requirements, the Union Grain & Elevator Company decree, Idaho water law, the request of the IDWR in processing the applications, and have presented conflicting representations to FERC in regard to the project. Respondents have demonstrated an inability to safeguard the rights of others while pursuing their own interests. Petitioners, therefore, respectfully request that the two above-referenced applications for permits be cancelled.

PETITION FOR INQUIRY

1. In addition to the foregoing, as a condition precedent to the granting of any water right permit applications, IDWR should condition such permits on Respondents complying with provisions of Idaho water law and the Union Grain & Elevator Company decree.

2. Petitioners note that in addition to the Court decree and other applicable laws, Idaho Code, Section 42-201(2) requires such compliance, and the IDWR should investigate the current water usage of the Respondents to determine whether action is called for under Idaho Code, Sections 42-351 and 352.

PRAYER FOR RELIEF

Based on the foregoing, the Petitioners respectfully request that the Director enter an order granting: (1) the Petition to Intervene in the above-referenced proceedings; (2) the Petition for Leave to File Protest, or in the alternative require the Respondents to republish notice, this time on a statewide scale; (3) the Petition to Cancel the applications referenced above, (Petitioners note that Idaho Code, Section 42-311 allows for the cancellation of approved permits, and neither the Petitioners nor the State should be prejudiced by their foresight to appreciate the adverse effects of the project and the lack of compliance with applicable law by Respondents on this matter); and (4) the Petition for Inquiry under Idaho Code, Sections 42-201, 351, and 352.

Dated this 30th day of August, 1988.

BRADY, SAETRUM, TINGEY,
DAY & JOYCE, CHARTERED

By Ken Arment
Kenneth R. Arment

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JAN 22 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on this 30th day of August, 1988, I caused a true and correct copy of the foregoing instrument to be deposited in the United States mail, postage prepaid addressed to:

Portneuf Marsh Valley Canal Co., Ltd.
c/o John Bowen
Box 114
Downey, ID 83234

McCammon Ditch Company
c/o Lyndon Green
Star Route, Box 37
McCammon, ID 83250

Marsh Valley Hydro Electric Co.
c/o Lyndon Green
Star Route, Box 37
McCammon, ID 83250

Ken Arment

Kenneth R. Arment

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State of Idaho

Department of State.

CERTIFICATE

MARSH VALLEY HYDROELECTRIC COMPANY

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that I am the custodian of the corporation records of this state.

I FURTHER CERTIFY That the records of this office fail to show that a corporation by the above name as ever being qualified to do business in the State of Idaho as a foreign corporationor incorporated under the laws of the State of Idaho as a domestic corporation, and is, therefore, not qualified to transact business in the State of Idaho as a corporation as of this date.

I FURTHER CERTIFY That the records of this office do show a corporation by the name of MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation, filed in this office on the 29th day of March, 1983.

Dated August 18, 1988

Pete T. Cenarrusa

PETE T. CENARRUSA
Secretary of State

Angie Hakes

Corporation Clerk

JAN 22 1993

EXHIBIT A

SECRETARY OF STATE
STATE CAPITAL
BOISE, IDAHO

State of Idaho

Department of State.

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that I am the custodian of the corporation and limited partnership records of this State.

I FURTHER CERTIFY That the annexed is a full, true and complete transcript of articles of incorporation, of MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation, received and filed in this office on the 29th day of March, 1983, including all amendments thereto, as appears of record this office as of this date.

Dated:

GREAT SEAL OF THE STATE OF IDAHO
ESTO PERPETUA

Pete T. Cenarrusa
SECRETARY OF STATE

by: Angie Hakes

JAN 22 1993

CCC 583

EXHIBIT B

State of Idaho

Department of State.

CERTIFICATE OF INCORPORATION
OF

MARSH VALLEY HYDRO ELECTRIC CO.

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that duplicate originals of Articles of Incorporation for the incorporation of *MARSH VALLEY HYDRO ELECTRIC CO.*, duly signed pursuant to the provisions of the Idaho Business Corporation Act, have been received in this office and are found to conform to law.

ACCORDINGLY and by virtue of the authority vested in me by law, I issue this Certificate of Incorporation and attach hereto a duplicate original of the Articles of Incorporation.

Dated: *March 29, 1983*

GREAT SEAL OF THE STATE OF IDAHO
ESTO PERPETUA

Pete T. Cenarrusa
SECRETARY OF STATE

by:

MICROFILMED
JAN 22 1993

CIP 181

ARTICLES OF INCORPORATION

OF

MARSH VALLEY HYDRO ELECTRIC CO.

The undersigned, acting as incorporators of a corporation under the Idaho Business Corporation Act, adopt the following Articles of Incorporation for such corporation;

1. NAME: The name of the corporation is MARSH VALLEY HYDRO ELECTRIC CO.

2. DURATION: The period of its duration is perpetual.

3. PROFIT: This is a profit corporation.

4. PURPOSES: The purpose or purposes for which the corporation is organized are:

A. To construct, own, operate and maintain a hydro electric generation plant together with all facilities, equipment, fixtures and appurtances thereto;

B. to acquire, hold, own and maintain all noncunsumptive water rights for power generation, right of ways, easements, licenses and such other things as may be necessary and useful for the construction, ownership and operation of a hydro electric generation plant; and

C. to transact any and all other lawful business for which corporations may be incorporated under the Idaho Business Corporation Act.

5. AUTHORIZED SHARES: The aggregate number of shares which the corporation shall have authority to issue is FIVE HUNDRED (500) shares without par value.

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6. ASSESSABLE SHARES: All shares of this corporation are assessable for the purpose of paying expenses, conducting business or paying debts, and the corporation shall have the power to levy and collect assessments upon such shares in a manner and form and to the extent provided by Idaho Law. Each stock certificate issued by the corporation shall have a provision for assessment noted conspicuously on the face thereof.

7. PRE-EMPTIVE RIGHTS: Shareholders shall have full pre-emptive rights to acquire unissued stock.

8. BUSINESS AFFAIRS: Provisions for the regulation of the internal affairs of the corporation are such as may be provided by the Corporation's By-Laws, including restrictions on transfer of shares.

9. REGISTERED AGENT AND OFFICE: The address of the initial registered office of the corporation is:

McCammon, Idaho 83250

and the name of the initial agent registered at the address is:

Lyndon Green

10. BOARD OF DIRECTORS: The number of directors consisting the initial Board of Directors of the corporation is six (6), and the names and addresses of the persons who are to serve as directors until the first annual meeting of the shareholders or until their successors are elected and shall qualify are:

Keith Bennett
Downey, Idaho 83234

Mike Egan
Arimo, Idaho 83214

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John Bowen
Downey, Idaho 83234

Lyndon Green
Star Route, Box 37
McCammon, Idaho 83250

Robert Henderson
Arimo, Idaho 83214

Harold C. Raymond
McCammon, Idaho 83250

11. INCORPORATORS: The name and address of each incorporator is:

McCammon Ditch Company
McCammon, Idaho 83250

Portneuf Marsh Valley Canal Co., Ltd.
Downey, Idaho 83234

DATED this 23rd day of March, 1983.

McCAMMON DITCH COMPANY

By: Lyndon Green
PRESIDENT - LYNDON GREEN

ATTESTED:

By: Harold C. Raymond
SECRETARY - HAROLD C. RAYMOND

PORTNEUF MARSH VALLEY CANAL CO., LTD.

By: Keith Bennett
PRESIDENT - KEITH BENNETT

ATTESTED:

By: John Bowen
SECRETARY - JOHN BOWEN

JAN 22 1993

STATE OF IDAHO)
: ss
County of Bannock)

I, Randall C. Budge, a Notary Public, do hereby certify that on this 23rd day of March, 1983, personally appeared before me LYNDON GREEN and HAROLD C. RAYMOND, who, being by me first duly sworn, declared that they are the President and Secretary, respectively, of McCAMMON DITCH COMPANY, that they signed the foregoing documents as officers of the corporation and that the statements therein are true.

(SEAL)

Randall C. Budge
NOTARY PUBLIC FOR IDAHO
Residing at: Pocatello, Id.
My Commission Expires: B3204 - 10/15/84

STATE OF IDAHO)
: ss
County of Bannock)

I, Randall C. Budge, a Notary Public do hereby certify that on this 23rd day of March, 1983, personally appeared before me KEITH BENNETT and JOHN BOWEN, who, being by me first duly sworn, declared that they are the President and Secretary, respectively, of the PORTNEUF MARSH VALLEY CANAL CO., LTD., that they signed the foregoing document as officers of the corporation and that the statements therein contained are true.

(SEAL)

Randall C. Budge
NOTARY PUBLIC FOR IDAHO
Residing at: Pocatello, Id.
My Commission Expires: 10/15/84

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JAN 22 1993

No. 72417

Articles of Incorporation

MARSH VALLEY HYDRO ELECTRIC CO.

500 shs npv
Perpetual

STATE OF IDAHO
Department of State
Boise, Idaho
Approved, filed and admitted to the corporation records of the State of Idaho
Date March 29, 1983
Time 8:36 am

FEES PAID
Filing $ 60.00
Tax $ 10.00

Pete T. Cenarrusa
SECRETARY OF STATE

By: Deb Simantel

CCR82015
INV 28813

ENTERED
MAR 30 1983

Registered Agent:
Lyndon Green
McCammon, Idaho 83250

Filed By:
Randall C. Budge
Racine, Olson, Nye & Cooper
PO BOx 1391
Pocatello, Idaho 83204

FILMED APR 6 1983 ROLL 1550

FILED
JAN 22 1993

Nam vet

ENERGY NATIONAL CORPORATION

P.O. Box 1929
1930 Mesquite Avenue, Suite 12
Lake Havasu City, Arizona 86403
Telephone (602) 855-1615

RECEIVED
NOV 24 1987
Department of Water Resources

November 20, 1987

Mr. Keith Higginson, Director
Idaho State Department of Water Resources
Water Rights Division
Statehouse Mail
Boise, Idaho 83720

Dear Mr. Higginson:

Marsh Valley Hydroelectric Company, a Utah partnership, is presently the "first in time" applicant for a Federal Energy Regulatory Commission Hydropower License for it's Marsh Valley Diversion Hydroelectric Project, (No. 10242-000) on the Portneuf-Marsh Valley Canal, Portneuf River, Idaho.

Michael J. Graham of Energy National Corporation is the authorized agent of Marsh Valley Hydroelectric Company.

It has come to our attention that a competing applicant, "Marsh Valley Hydro Electric Company", of McCammon, Idaho, has filed an application for water rights (Nos. 29-7578, 29-7772) with your office. This competing application is for the water rights to the river on the same diversion and canal as our project.

We have requested the proper water right application forms from your office, and would appreciate the opportunity to participate in any hearings or procedures to protest the water right application filed by Marsh Valley H.C. of McCammon. It is our intent to file an application with your office for a water right for our Marsh Valley Diversion project No. 10242-000.

While our company is currently a Utah partnership, we are in the process of forming an Idaho Corporation.

As the first-in-time FERC applicant, we would respectfully request that no water right be issued at this time for these waters at this location, until the FERC license has been issued on this project. This would allow the FERC procedures to be completed, and still be in conformance with State of Idaho requirements.

Thank you for your consideration in this matter.

Sincerely,

M. Graham

Michael J. Graham
President and Agent

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Our Ref: 10242-WR-001

EXHIBIT C

PUBLIC NOTICE
UNITED STATES OF AMERICA
FEDERAL ENERGY
REGULATORY COMMISSION
Notice of Application
Filed with the Commission
(July 20, 1988)

Take notice that the following hydroelectric application has been filed with the Federal Energy Regulatory Commission and is available for public inspection: a. Type of Application: Major License b. Project No.: 10468-000 c. Date filed: September 4, 1987 d. Applicant: Marsh Valley Hydroelectric Company, an Idaho Corporation e. Name of Project: Marsh Valley f. Location: On the Portneuf River in Bannock County, Idaho near the town of McCammon. T9S., R.37E., Section 20, Boise Meridian g. Filed Pursuant to: Federal Power Act 16 U.S.C. Sections 791 (a) - 825(r) h. Applicant Contact: Ted S. Sorenson, P.E., 550 Linden Drive, Idaho Falls, ID 83401, (208) 522-8069, Randall C. Budge, Attorney at Law, Center Plaza, Corner First & Center, Pocatello, ID 83204 i. FERC Contact: Ms. Deborah Frazier-Stutely j. Comment Date: August 31, 1988 k. Competing Application: Project No. 10242-000. Date Filed: January 12, 1987 l. Description of Project: The proposed run-of-river project would consist of: (1) an existing 10-foot-high diversion dam at elevation 4,921 feet, diverting water from the Portneuf River into; (2) the existing 11,670-foot-long Portneuf-Marsh Valley Irrigation Canal; (3) a 7-foot-high concrete diversion structure located on the existing Portneuf-Marsh Valley Canal at elevation 4,911 feet; (4) an intake structure; (5) a 500-foot-long, 60 or 72-inch-diameter penstock; (6) a powerhouse containing a single turbine-generator unit with a rated capacity of 1,700 kW operating under an average head of 96 feet; (7) a 50-foot-long tailrace discharging into the Portneuf River; (8) a 0.5-mile-long, 12.4-kV transmission line, tying into an existing Utah Power and Light Company's line; and (9) appurtenant facilities. m. Purpose of Project: Project power will be sold to Utah Power & Light Company n. This notice also consists of the following standard paragraphs: A3, A9, B, C, and D1. A3. Development Application - Any qualified applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, the competing development application or a notice of intent to file such an application. Submitting a timely notice of intent allows an interested person to file the competing development application no later than 120 days after the specified comment date for the particular application. Applications for a preliminary permit will not be accepted in response to this notice. A9. Notice of Intent - A notice of intent must specify the exact name, business address, and telephone number of the prospective applicant, and must include an unequivocal statement of intent to submit, if such an application may be filed, either a preliminary permit application or a development application (specify which type of application). A notice of intent must be served on the applicant(s) named in this public notice. B. Comments, Protests, or Motions to Intervene - Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of the Rules of Practice and Procedure, 18 C.F.R. section 385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application. C. Filing and Service of Responsive Documents - Any filings must bear in all capital letters the title 'COMMENTS,' 'RECOMMENDATIONS FOR TERMS AND CONDITIONS,' 'NOTICE OF INTENT TO FILE COMPETING APPLICATION,' 'COMPETING APPLICATIONS,' 'PROTEST' or 'MOTION TO INTERVENE,' as applicable, and the project number of the particular application to which the filing is in response. Any of these documents must be filed by providing the original and the number of copies required by the Commission's regulations to: the Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426. An additional copy must be sent to: the Director, Division of Project Review, Office of Hydropower Licensing, Federal Energy Regulatory Commission, Room 204-RB, at the above address. A copy of any notice of intent, competing application, or motion to intervene must also be served upon each representative of the applicant specified in the particular application. D1. Agency Comments - Agencies established pursuant to federal law that have the authority to prepare a comprehensive plan for improving, developing, and conserving a waterway affected by the project, federal and state agencies exercising administration over fish and wildlife, flood control, navigation, irrigation, recreation, cultural and other relevant resources of the state of which the project is located, affected Indian tribes, and states are requested to provide comments and recommendations for terms and conditions pursuant to the Federal Power Act (Act), as amended by the Electric Consumers Protection Act of 1986, the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, the Historical and Archeological Preservation Act, the National Environmental Policy Act, Public Law No. 88-29, and other applicable statutes. Recommended terms and conditions must be based on supporting technical data filed with the Commission, along with the recommendations, to comply with the requirement in Section 313 (b) of the Federal Power Act, 16 U.S.C. 8251(b), that the Commission findings as to facts must be supported by substantial evidence.

All other federal, state, and local agencies that receive this notice through direct mailing from the Commission are requested to provide comments pursuant to the statutes listed above. No other formal requests will be made. Responses should be confined to substantive issues relevant to the issuance of a license. A copy of the application may be obtained directly from the applicant. If an agency does not respond to the Commission within the time set for filing, the Commission will presume that the agency has none. One copy of an agency's response must also be sent to the applicant's representatives.

S/Lois D. Cashell
Acting Secretary
August 1, 1988
No. 34

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JAN 22 1993

EXHIBIT D

STATE OF IDAHO

DEPARTMENT OF WATER RESOURCES

CORRECTED

ASSIGNMENT OF PERMIT

McCAMMON DITCH COMPANY an Idaho nonprofit corporation of McCammon, Idaho 83250, hereby assigns to MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation with its principal place of business as McCammon, Idaho 83250, all of its right, title and interest in and to Permit No. 29-7978 to appropriate the public waters of the State of Idaho filed with the Idaho Department of Water Resources on the 2nd day of February, 1983.

This Corrected Assignment of Permit is made and filed pursuant to the Order entered by Department Director R. Keith Higginson dated July 11, 1989, IN THE MATTER OF APPLICATIONS FOR PERMITS NOS. 29-7578 and 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY for the purpose of correcting the Assignment of Permit dated June 23, 1983, and filed herein to correctly reflect the name of the Assignee as Marsh Valley Hydro Electric Co. and the permit number to Permit No. 29-7578.

DATED this 10th day of August, 1989.

McCAMMON DITCH COMPANY

By Lyndon Green
LYNDON GREEN, President

ATTESTED:

By Dona M. Hall
DONA HALL, Secretary

MICROFILMED
JAN 22 1993

STATE OF IDAHO)
:
County of Bannock)

On this 10th day of August, 1989, before me, the undersigned, a Notary Public in and for said State, personally appeared LYNDON GREEN and TINA HALL, who, being first duly sworn, declared that they are the President and Secretary, respectively, of McCAMMON DITCH COMPANY, the they signed the foregoing document as offers of the corporation and that the statements therein contained are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

Randall C. Pardee
NOTARY PUBLIC FOR IDAHO
Residing at: Pocatello, Idaho
My Commission expires: 10/15/90

(SEAL)

RECORDED

JAN 22 1993

CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT I mailed a true and correct copy of the foregoing by placing the same in the U.S. mail, postage prepaid addressed as follows on this 10th day of August, 1989.

Kent Foster
HOLDEN, KIDWELL, HAHN
& CRAPO
P. O. Box 50130
Idaho Falls, ID 83205

Marsh Valley Development Company
c/o Ted Sorenson
SORENSON ENGINEERING
550 Linden Drive
Idaho Falls, ID 83401

Ken Arment
BRADY, SAETRUM & LERMA
P. O. Box 1398
Boise, Idaho 83701

McCammon Ditch Company
c/o Lyndon Green
McCammon, Idaho 83250

Marsh Valley Hydro Electric Co.
c/o Keith Bennett
Downey, Idaho 83234

Randall C. Budge

RANDALL C. BUDGE

JAN 2 2 1993

BEFORE THE DIRECTOR OF THE DEPARTMENT OF WATER RESOURCES

OF THE

STATE OF IDAHO

IN THE MATTER OF PERMIT NOS. 29-7578 AND 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	**ORDER DENYING PETITION FOR ISSUANCE OF LICENSE (PERMIT) AND ORDER DENYING MOTION FOR SANCTIONS**

On January 31, 1990, the Department of Water Resources received a petition for issuance of license for water right filings nos. 29-7578 and 29-7772 from Donald L. Harris, on behalf of Marsh Valley Hydro Electric Company. A review of files nos. 29-7578 and 29-7772 shows that the filings are actually applications, not permits, and the petition from Mr. Harris will be considered a petition for issuance of permits, rather than issuance of a license since a permit must be approved, and a project developed prior to the issuance of a water right license. The basis for Mr. Harris' motion was that a FERC license had been issued for the project.

Kenneth R. Arment, attorney for petitioners for intervention, objected to the petition for issuance of a permit and moved for sanctions against Ted Sorenson and his attorneys and agents because of alleged ex parte communication with the Department without notice to his clients.

The initial petition for intervention was filed with the Department of Water Resources by Mr. Arment on behalf of a number of Portneuf River water users. The original petition was denied, and Mr. Arment is now appealing the decision of the Department to

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the District Court (Ada County Case No. 93069). The Department assumes that, if intervention is granted, Mr. Arment desires to present testimony about why the Department should not issue a permit to the applicant. If the Department were to issue a permit at this time, the purpose of Mr. Arment's motion to intervene, and the now pending appeal, would be frustrated. The Department of Water Resources will not issue permits for applications nos. 29-7578 and 22-7772 until the pending appeal is resolved.

The Department files contain letters from both Ted Sorenson and Kent W. Foster, encouraging the Department to issue permits for applications nos. 29-7578 and 29-7772. The Department assumes that the allegations of ex parte communication contained in Mr. Arment's motion for sanctions refer to these pieces of correspondence.

When the Department receives documentation pertaining to a contested matter, it generally assumes that copies have been served upon the other parties. This is particularly true where counsel has been retained for both sides. The Department should not be required to determine whether other parties have been served. The Department should also not be required to provide carbon copies to the parties. All of the parties must serve copies of correspondence upon the other parties.

The communication with the Department did not rise to the level of an action deserving of sanctions, however. The Department did not act on the correspondence that was sent, and only when an official petition was received by the Department did it consider the issues. According to the mailing certificate, the petition for

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issuance of a permit was served upon Mr. Arment.

Finally, there have been some questions raised regarding the the attorneys who are representing various parties.

The records of the Department show that Randall Budge, attorney at law, is representing Marsh Valley Hydro Electric Company. If Mr. Harris is now representing Marsh Valley Hydro Electric Company, a substitution of counsel would be appropriate. The Department, as well as Mr. Arment, should know who is representing the respective interests in this matter, and with whom they should communicate.

ORDER

IT IS HEREBY ORDERED that the Petition for Issuance of License (Permit) is DENIED.

IT IS FURTHER ORDERED that the petition for sanctions against Ted Sorenson and his agents or representatives is DENIED.

IT IS FURTHER ORDERED that pending resolution of judicial review of the denied petition for intervention and any documents filed with the Department by Marsh Valley Hydro Electric Company, Ted Sorenson, and attorneys representing these interests, and also by Kenneth Arment, attorney at law, must by served upon the other parties.

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IT IS FURTHER ORDERED that Mr. Harris must identify his present relationship with Marsh Valley Hydro Electric Company, or with other interested parties.

Dated this 14TH day of MARCH, 1990.

R. KEITH HIGGINSON
Director

CERTIFICATE OF MAILING

I hereby certify that on this 16th day of March, 1990, I mailed a true and correct copy of the Order Denying Applicant's Petition for Issuance of License (Permit) and Order Denying Perspective Intervenors Motion for Sanctions, postage prepaid, to the following individuals:

Kenneth Arment
Brady, Saetrum & Lerma
First Interstate Center
877 West Main St., Suite 800
P.O. Box 1398
Boise, ID 83701-1398

Donald Harris
Holden, Kidwell, Hahn & Crapo
P.O. Box 50130
Idaho Falls, ID 83405

Randall C. Budge
Racine, Olson, Nye, Cooper & Budge
P.O. Box 1391
Pocatello, ID 83204-1391

Ted Sorenson
550 Linden Dr.
Idaho Falls, ID 83401

JENNIFER SEIFERT
Clerical Assistant

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JAN 22 1993

BEFORE THE

DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 AND 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC COMPANY	)))))	**ORDER DENYING PETITION FOR REHEARING AND AMENDING ORDER DENYING PETITIONS**

A petition for leave to intervene, file protest, cancel applications and for inquiry (petition to intervene) was filed by Lava Irrigation District and other petitioners in September, 1988. The Department of Water Resources (Department) issued an Order Denying Petitions on July 11, 1989.

The petitioners filed a petition for rehearing on July 31, 1989. The first portion of this order, in narrative form, addresses the issues raised in the petition for rehearing. The issues raised by the petition for rehearing will be addressed in substantially the same order they were framed by the petitioners. The second portion of this order, labeled as findings of fact and conclusions of law, addresses issues raised by the petition to intervene.

Ex Parte Communications

Petitioners assert that the Department did not receive a letter from Ted Sorenson until after they had filed their petitions and that the communication, without notification to the petitioners, was an ex parte communication.

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Finding of fact No. 8 should be corrected to reflect that Ted Sorenson sent a letter tot he Department which was dated August 31, 1988. The Department did not receive the letter until September 7, 1988, seven days after the filing of the petition to intervene.

The acceptance of the letter by the Department was not an ex parte communication as contemplated by Idaho Code § 67-5213. The Department did not act on the information contained therein. The petitioners have not shown that the letter, by residing in the files of the Department, was prejudicial to resolution of their petition to intervene. Nor have they shown how the facts contained in the letter itself were used by the department to determine any issue raised in the petition to intervene.

Correspondence between Applicant and Department

Petitioners argue that the Department failed to recognize Department consideration of other correspondence requiring submittal of information from the applicant.

Finding of fact No. 7 contained a brief statement regarding repeated correspondence between the applicant and the Department. The petitioners have specifically identified some of the correspondence. A review of the correspondence reveals that some of the responses from the applicant were timely and some were not timely. The Department's return inquiries were also not always prompt. The delays and tardiness are not cause for cancellation at this juncture.

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Rule 4,1,4. and Rule 4,5,1. Time Requirements

Rule 4,1,4. of the Water Appropriation Rules and Regulations does not require that a request for delay of commencement or processing be filed if a delay in commencement of processing occurs. It is a mechanism whereby the applicant can obtain a period of inaction by the Department. It also does not establish expiration periods after which an application will automatically lapse, be voided, or be cancelled. The applications will not be cancelled for the expiration of a period of inaction, regardless of whether the applicant requested or did not request a delay.

Rule 4,5,1. states that failure to submit information within thirty (30) days is "cause" for the director to void an application or advance priority. The rule does not mandate the remedy, and is a discretionary tool exercised when the director determines that he must force compliance.

Improper Notice

Petitioners argue that the notice of the applications to appropriate water were inadequate because the applicant knew of the interest of the petitioners, and also because the second application, when published, did not refer to the first application.

Idaho Code § 42-203A states that publication is the method for notifying potential interested parties of a water right application. The Department is not required to publish in its notice that a filing will be used in connection with other filings.

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Real Party in Interest

The petitioners assert that Ted Sorenson, d/b/a Marsh Valley Development Company is the real party in interest and should be required to participate as the principal party.

The applicant has not totally divested itself of its interest in the project. The applicant should be entitled to hire consultants and obtain financing. The fact that the consultant may provide the financing does not necessarily divest the applicant of its interest. The Department should not require Ted Sorenson to be substituted as the real party in interest.

Ultra Vires Act

The petitioners assert that the Department should not have refused to consider an allegation of ultra vires acts by the applicants.

The conclusions and order will be amended to allow the submittal of information regarding any matter which may raise a question about any of the five criteria contained in Idaho Code § 42-203A. The applicants may also submit information that rebuts allegations by the petitioners. If this information includes an allegation of ultra vires acts, and it relates to one of the criteria, the Department will accept the information.

Correction of Names and Water Right Number

The petitioners argue that the directive to non parties to correct deficiencies in the filing was an error by the Department.

The language in the order directing McCammon Ditch Company and Marsh Valley Hydro Electric Company to correct errors in

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names and water right numbers should have been permissive rather than mandatory. The mandatory language will be changed to permissive language.

Failure by Applicants to Contest Petitions and Motion to Strike

The petitioners imply that failure by the applicants to contest its petitions should result in a default and granting of their petitions. They also argue that a letter to the Department from Randy Budge, dated August 10, 1989, should be stricken, to the extent it is deemed an answer to the petition for rehearing, because it was untimely filed.

This is not a default proceeding, and the Department must determine whether the petitions should be granted or denied. The letter from Randy Budge is a response to the first order of the Department, and does not address the issues raised in the petition for rehearing, but merely asks for a determination.

The petition for "rehearing" should be denied to the extent that it again requests intervenor status and a hearing. The findings of fact and conclusions of law are amended as follows:

FINDINGS OF FACT

1. McCammon Ditch Company filed application to appropriate water no. 29-7578 in 1981. Another application to appropriate water was filed in the name of Marsh Valley Hydro Electric Company in 1984, and was assigned water right no. 29-7772.

2. The applications were properly advertised as required by the Idaho Code. The name printed in the legal notice for application no. 29-7772 was Marsh Valley Hydro Electric Co.

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3. Application no. 29-7578 was not protested. Idaho Department of Fish and Game filed a protest against application no. 29-7772, but the protest was withdrawn on September 24, 1984.

4. The files of the Department contain an assignment purporting to assign permit no. 29-7585 from the McCammon Ditch Company to Marsh Valley Hydro Electric Company. McCammon Ditch Company has never owned permit no. 29-7585 and correspondence in Department files indicate that McCammon Ditch Company intended to assign permit no. 29-7578.

5. Department files contain an affidavit attesting to the authority of Marsh Valley Hydro Electric Co. to do business in the state of Idaho, signed by Lyndon Green, the president of Marsh Valley Hydro Electric Co.

6. The Water Appropriation Rules and Regulations were promulgated in October, 1986.

7. The Department and representatives of the applicant corresponded repeatedly about the progress of the proposal during 1986, 1987, and 1988.

8. On May 20, 1988, the Department requested that the applicant submit additional information as required by Rule 4,5. of the Water Appropriation Rules and Regulations. The letter requested a reply within sixty (60) days. The applicant responded to the Department's request for information on August 31, 1988. The letter was received by the Department on September 7, 1989.

9. On August 31, 1988, Lava Irrigation Company, Dempsey Irrigation Company, Fish Creek Irrigating Company, Jim Andrus,

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Ken Andrus and Max Hall (petitioners) petitioned the Director of the Department for leave to intervene, file protest, cancel applications, and for inquiry in the matter of applications for permit nos. 29-7578 and 29-7772.

CONCLUSIONS OF LAW

1. Rule 6,1. of the Practice and Procedure Rules and Regulations states that the Department may grant leave to intervene when "[p]ersons, other than the original parties to the proceeding, who are directly and substantially affected by the proceeding, shall secure an order from the Director . . . granting leave to intervene before being allowed to participate . . .."

2. Rule 6 contemplates that an intervention will not be granted unless a formal dispute resulting from the filing of a protest is filed, and a formal dispute is pending which may culminate in a hearing.

3. Unless notice of an application for permit is improperly advertised, readvertisement and making available another protest period is not appropriate.

4. Rule 4,5,1. of the Water Appropriation Rules and Regulations discusses the time frames within which an applicant must respond to a request for information.

> For unprotested applications and permits being reprocessed, the additional information required by Rule 4,5,3. shall be submitted within 30 days after the director notifies the applicant that the application or permit is being reviewed for decision. The director may extend the time within which to submit the information upon request by the applicant and upon a showing of good cause.
>
> Failure to submit the required information within the time period allowed will be cause for the director to void an application.

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5. The Department granted sixty days for submittal of the information. It was not received within sixty days.

6. Rule 4,5,1. does not mandate that an application be voided for tardy submittal. The rule creates "cause" for action that may be taken by the director at his discretion.

7. Prior to voiding an application, the applicant is entitled to notice of pending department action to void the application. The May 20, 1988, letter did not afford adequate notice of possible Department action.

8. Rule 4,1,4. of the Water Appropriation Rules and Regulations states that an "applicant may request in writing that commencement of processing . . . be delayed for a period not to exceed one (1) year or that processing be interrupted for a period not to exceed six (6) months."

9. Processing of applications nos. 29-7578 and 29-7772 had already begun prior to promulgation of the rules. Furthermore, the expiration of six months during processing does not result in an interruption of processing. Rule 4,1,4. creates a mechanism for requesting time for inaction; it is not a mandate that a filing be voided if action on the permit is not complete within the time frames set forth in the rule, and the applicant has not requested delay.

10. Permit No. 29-7578 has not been properly assigned to the Marsh Valley Hydro Electric Co.

11. Idaho Code § 42-206 through § 42-210 requires Department approval of assignments of hydropower permits. Failure to properly identify a water right is not grounds to void an

JAN 2 2 1993

application or permit, particularly where the Department acknowledged and recognized the assignment.

12. In this case, it appears that Marsh Valley Hydro Electric Co. substantially complied with the requirements for assigning a hydropower filing. Correction of the name and the number listed on the assignment will resolve the inconsistencies in file 29-7578. Correction of the name on application no. 29-7772 will resolve the inconsistencies in file no. 29-7772.

13. When an application to appropriate water is filed with the Department, the Department is required to consider criteria set forth in Idaho Code, § 42-203A. These criteria must be considered regardless of whether an application is protested, and regardless of whether there is an ongoing protest proceeding.

14. In evaluating the criteria, the Department must gather and consider evidence relative to the criteria.

15. Any person substantially affected by a filing may submit information about the filing to the Department of Water Resources, even after the protest period has expired. The Department will forward the information submitted to the applicant, and inform the applicant that it will consider the information and determine whether the application should be rejected or approved.

16. The petitioners may present facts that relate to the criteria of Idaho Code § 42-203A.

ORDER

IT IS HEREBY ORDERED as follows:

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1. The petitions for leave to intervene, file protest, and cancel applications are DENIED.

2. The petition to strike, petition for rehearing, and motion for attorneys fees is DENIED.

3. The petition for hearing and investigation regarding water distribution on the Portneuf River contained in the petition for rehearing need not be resolved as part of the consideration of application nos. 29-7578 and 29-7772. The petition will be taken under advisement.

4. The portion of the petition which asks for inquiry, to the extent that it seeks the opportunity to submit facts that would assist the Department in reaching a decision regarding the applications is GRANTED.

5. The petitioners may submit facts related to any of the five criteria of Idaho Code § 42-203A. The petitioners must submit the information to the Department of Water Resources within thirty (30) days of the date of service of this order.

6. Any information submitted by the petitioners or the applicant to the Department must also be served upon the other interested entities through their attorneys. An additional period of thirty (30) days shall also be granted from the date of service to rebut any evidence submitted.

7. McCammon Ditch Company may correct the assignment contained in file no. 29-7578 by refiling an amended assignment naming the proper assignee and listing the proper water right number.

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JAN 22 1993

8. Marsh Valley Hydro Electric Co. may correct the spelling of the name listed on application no. 29-7772 by submitting a written request for correction to the Department.

Dated this 17TH day of October, 1989.

R. KEITH HIGGINSON
Director

MICROFILMED
JAN 2 2

CERTIFICATE OF MAILING

I hereby certify that on this 18th day of October, 1989, a true and correct copy of the Order Denying Petition for Rehearing and Amending Order Denying Petition, was mailed, postage prepaid, to the following individuals:

Ken Arment, Attorney at Law
P.O. Box 1398
Boise, ID 83701-1398

Randy Budge, Attorney at Law
P.O. Box 1391
Pocatello, ID 83204-1391

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P.O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Dr.
Idaho Falls, ID 83401

Jennifer Seifert
JENNIFER SEIFERT
Clerical Assistant

ARCHIVED
JAN 22 1993

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE

STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 29-7578 AND 29-7772 IN THE NAME OF MARSH VALLEY HYDRO ELECTRIC CO.	ORDER DENYING PETITIONS

This matter having come before the Department of Water Resources (Department) as a result of the filing of a petition for leave to intervene, the Department finds, concludes, and orders as follows:

FINDINGS OF FACT

1. McCammon Ditch Company filed application to appropriate water no. 29-7578 in 1981. Another application to appropriate water was filed in the name of Marsh Valley Hydro Electric Company in 1984, and was assigned water right no. 29-7772.

2. The applications were properly advertised as required by the Idaho Code. The name printed in the legal notice for application no. 29-7772 was Marsh Valley Hydro Electric Co.

3. Application no. 29-7578 was not protested. Idaho Department of Fish and Game filed a protest against application no. 29-7772, but the protest was withdrawn on September 24, 1984.

4. The files of the Department contain an assignment purporting to assign permit no. 29-7585 from the McCammon Ditch

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JAN 2 2 1993

Company to Marsh Valley Hydro Electric Company. McCammon Ditch Company has never owned permit no. 29-7585 and correspondence in Department files indicate that McCammon Ditch Company intended to assign permit no. 29-7578.

5. Department files contain an affidavit attesting to the authority of Marsh Valley Hydro Electric Co. to do business in the state of Idaho, signed by Lyndon Green, the president of Marsh Valley Hydro Electric Co.

6. The Water Appropriation Rules and Regulations were promulgated in October, 1986.

7. The Department and representatives of the applicant corresponded repeatedly about the progress of the proposal during 1986, 1987, and 1988.

8. On May 20, 1988, the Department requested that the applicant submit additional information as required by Rule 4,5. of the Water Appropriation Rules and Regulations. The letter requested a reply within sixty (60) days. The applicant responded to the Department's request for information on August 31, 1988.

9. On August 31, 1988, Lava Irrigation Company, Dempsey Irrigation Company, Fish Creek Irrigating Company, Jim Andrus, Ken Andrus and Max Hall (petitioners) petitioned the Director of the Department for leave to intervene, file protest, cancel applications, and for inquiry in the matter of applications for permit nos. 29-7578 and 29-7772.

CONCLUSIONS OF LAW

1. Rule 6,1. of the Practice and Procedure Rules and

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JAN 2 2 1993

Regulations states that the Department may grant leave to intervene when "[p]ersons, other than the original parties to the proceeding, who are directly and substantially affected by the proceeding, shall secure an order from the Director. . . granting leave to intervene before being allowed to participate. . .."

2. Rule 6 contemplates that an intervention will not be granted unless a formal dispute resulting from the filing of a protest is pending, and which may culminate in a hearing.

3. Unless notice of an application for permit is improperly advertised, readvertisement and making available another protest period is not appropriate.

4. Rule 4,5,1. of the Water Appropriation Rules and Regulations discusses the time frames within which an applicant must respond to a request for information.

> For unprotested applications and permits being reprocessed, the additional information required by Rule 4,5,3. shall be submitted within 30 days after the director notifies the applicant that the application or permit is being reviewed for decision. The director may extend the time within which to submit the information upon request by the applicant and upon a showing of good cause.
>
> Failure to submit the required information within the time period allowed will be cause for the director to void an application.

5. The Department granted sixty days for submittal of the information. It was not received within sixty days.

6. Rule 4,5,1. does not mandate that an application be voided for tardy submittal. The rule creates "cause" for action that may be taken by the director at his discretion.

7. Prior to voiding an application, the applicant is

MACDONALD
JAN 22 1993

entitled to notice of pending department action to void the application. The May 20, 1988 letter did not afford adequate notice of possible Department action.

8. Rule 4,1,4. of the Water Appropriation Rules and Regulations states that an "applicant may request in writing that commencement of processing . . . be delayed for a period not to exceed one (1) year or that processing be interrupted for a period not to exceed six (6) months."

9. Processing of applications nos. 29-7578 and 29-7772 had already begun prior to promulgation of the rules. Furthermore, the expiration of six months during processing does not result in an interruption of processing. Rule 4,1,4. creates a mechanism for requesting time for inaction; it is not a mandate that a filing be voided if action on the permit is not complete within the time frames set forth in the rule.

10. Permit No. 29-7578 has not been properly assigned to the Marsh Valley Hydro Electric Co.

11. Idaho Code § 42-206 through § 42-210 requires Department approval of assignments of hydropower permits. Failure to properly identify a water right is not grounds to void an application or permit, particularly where the Department acknowledged and recognized the assignment.

12. In this case, it appears that Marsh Valley Hydro Electric Co. substantially complied with the requirements for assigning a hydropower filing, presumably application no. 29-7578. Submittal of an amended assignment correcting the name and the number listed on the assignment will resolve the

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JAN 22 1993

inconsistencies in file 29-7578. Correction of the name on application no. 29-7772 will resolve the inconsistencies in file no. 29-7772.

13. When an application to appropriate water is filed with the Department, the Department is required to consider criteria set forth in Idaho Code, § 42-203A. These criteria must be considered regardless of whether an application is protested, and regardless of whether there is an ongoing protest proceeding.

14. In evaluating the criteria, the Department must gather and consider evidence relative to the criteria.

15. Any person substantially affected by a filing may submit information about the filing to the Department of Water Resources, even after the protest period has expired. The Department will forward the information submitted to the applicant, and inform the applicant that it will consider the information and determine whether the application should be rejected or approved.

16. An allegation of ultra vires activities by corporate entities is not a matter that the Department is authorized to resolve.

ORDER

IT IS HEREBY ORDERED as follows:

1. The petition, to the extent that it requests leave to intervene, file protest, and cancel applications is DENIED.

2. The portion of the petition which asks for inquiry, to the extent that it seeks the opportunity to submit facts that would assist the Department in reaching a decision regarding the

MICROFILMED
JAN 22 1993

applications is GRANTED.

3. Any technical data that would establish or discount injury to the petitioners must be submitted to the Department of Water Resources within thirty (30) days of the date of service of this order.

4. Any information submitted by the petitioners or the applicant to the Department must also be served upon the other interested entities through their attorneys. An additional period of fifteen (15) days shall also be granted from the date of service to rebut any evidence submitted.

5. McCammon Ditch Company shall correct the assignment contained in file no. 29-7578 by refiling an amended assignment naming the proper assignee and listing the proper water right number.

7. Marsh Valley Hydro Electric Co. shall correct the spelling of the name listed on application no. 29-7772 by submitting a written request for correction to the Department.

Dated this 11TH day of July, 1989.

R. KEITH HIGGINSON
Director

MICROFILMED
JAN 22 1993

CERTIFICATE OF MAILING

I hereby certify that on this 12th day of July, 1989, a true and correct copy of the Order Denying Petitions, was mailed to the following individuals, postage prepaid:

Ken Arment, Attorney at Law
P.O. Box 1398
Boise, ID 83701-1398

Randy Budge, Attorney at Law
P.O. Box 1391
Pocatello, ID 83204-1391

Kent Foster
Holden, Kidwell, Hahn & Crapo
Idaho First National Bank Bldg.
P.O. Box 51030
Idaho Falls, ID 83405

Ted Sorenson, P.E.
550 Linden Dr.
Idaho Falls, ID 83401

Jennifer Seifert
JENNIFER SEIFERT, Clerical Assistant

MICROFILMED

JAN 22 1993

29 7578

Form 202
3/78

Ident. No. _____

Assigned to:
Marsh Valley Hydro-
Electric Company
McCammon, ID 83250
6/23/1983

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant McCammon Ditch Company Phone 208-254-3494

   Post office address McCammon, Idaho 83250

2. Source of water supply Portneuf River which is a tributary of Snake River

3. Location of point of diversion is SE ¼ of NE ¼ of Section 21 Township 9S

   Range 37E B.M. Bannock County, additional points of diversion if any: ____

   none-existing diversion structure is rock filled wooden crib.

4. Water will be used for the following purposes:

   Amount 175 (cfs ~~or acre-feet per annum~~) for hydropower purposes from Jan. 1 to Dec. 31 (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

5. Total quantity to be appropriated:

   a. 175 cubic feet per second and/or b. ----- acre-feet per annum.

6. Proposed diverting works:

   a. Description of ditches, flumes, pumps, headgates, etc. concrete box to divert flow from existing canal thru penstock and hydroelectric plant to be located at edge of Portneuf River.

   b. Height of storage dam N/A feet, active reservoir capacity N/A acre-feet; total reservoir capacity N/A acre-feet, materials used in storage dam: _____

   Period of year when water will be diverted to storage none-run of the river (Month/Day) to (Month/Day) inclusive.

   c. Proposed well diameter is N/A inches; proposed depth of well is N/A feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 5 years *(minimum 1 year – maximum 5 years).*

8. Description of proposed uses:
   a. If water is not for irrigation:
      (1) Give the place of use of water: NE ¼ of NW ¼ of Section 21 Township 9S

      Range 37E B.M.

      (2) Amount of power to be generated: 340 horsepower under 52 feet of head.

      (3) List number of each kind of livestock to be watered N/A

      (4) Name of municipality to be served N/A or number of families to be supplied with domestic water N/A.

      JAN 22 1993

      (5) If water is to be used for other purposes describe: water to be diverted from Portneuf River conveyed thru existing canal to new spliter box, diverted thru penstock and hydro-generating plant, and returned to river. Total distance of conveyance thru canal 1/2 mile.

b. If water is for irrigation, indicate acreage in each subdivision in the tabulation below:

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

Total number of acres to be irrigated _____

c. Describe any other water rights used for the same purposes as described above. _____

N/A

9. a. Who owns the property at the point of diversion McCammon Ditch Company

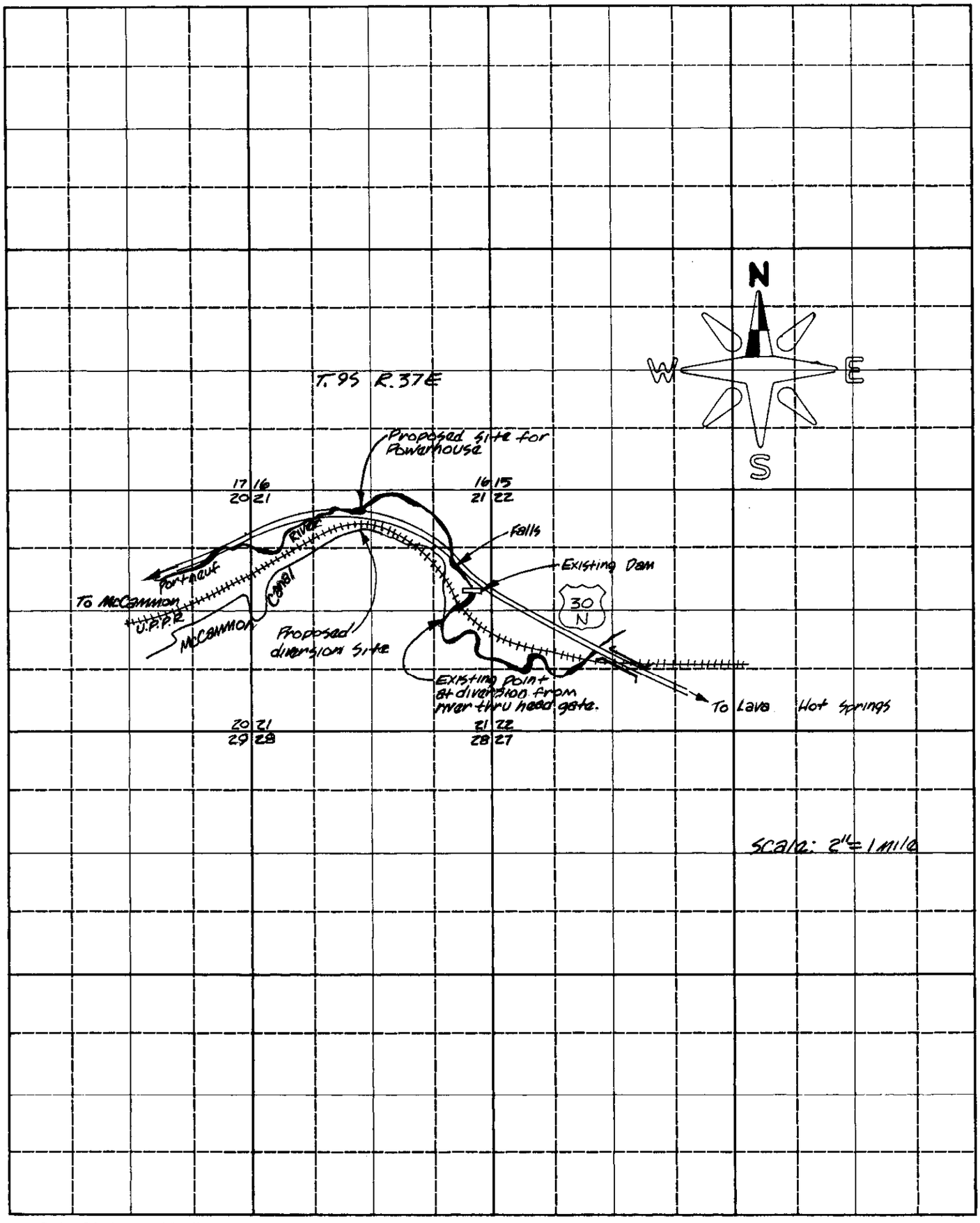
b. Who owns the land to be irrigated or place of use See below item 10

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing canal company is negotiating necessary agreements or options.

10. Remarks Item 9b. Mary S. Price, Oregon Short Line Railroad, and Constance J. Roberts The above owners hold title to the property between the existing McCammon canal along the proposed route of the penstocks and powerhouse sites.

JAN 2 2 1993

11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

JAN 2 2 1993

Lyndon Green President
(Applicant)

Received by EMC Date 2-2-81 Time 10:30.

Preliminary check by JK 2 FEB 81 Fee $ 1600.

Receipted by KW Date 2/2/1981 #17014

Publication prepared by KW Date 2/5/81

Published in Idaho State Journal

Publication dates 2/12 & 2/19/81

Publication approved KW Date 3/2/81

Protests filed by: None

Copies of protests forwarded by _____

Hearing held by _____ Date _____

Recommended for approval denial by EMC

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. _____, and said application is hereby _____.

1. Approval of said application is subject to the following limitations and conditions:

   a. SUBJECT TO ALL PRIOR WATER RIGHTS.

   b. Proof of construction of works and application of water to beneficial use shall be submitted on or before _____, 19____.

   c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

   d. Other: _____

Witness my hand this _____ day of _____, 19____.

_____
Director

MICROFILMED
JAN 22 1993

Form 205/206
7/81

RECEIVED
NOV 21 1983
Department of Water Resources
Eastern Field Office

Ident. No._____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
AFFIDAVIT FOR WATER RIGHTS TO BE USED
FOR POWER PURPOSES

A. Establishment of Residency: (Complete either 1, or 2).

1. Individual Applicant or Individual Members of a Partnership:

I, Lyndon Green (name) of McCammon (city),

county of Bannock, State of Idaho, being duly sworn, do hereby certify that I am a bona fide resident of the State of Idaho.

2. Corporation:

I, Lyndon Green (name) of McCammon (city),

County of Bannock, State of Idaho, being duly sworn, depose and say: That I am the designated registered agent of the MARSH VALLEY HYDRO ELECTRIC CO. (name of corporation): that as such I am in charge of the registered office of the said corporation as required by Section 30-1-12, Idaho Code, at McCammon (city) Idaho, wherein are kept the corporate records required by Section 30-1-52, Idaho Code: and that MARSH VALLEY HYDRO ELECTRIC CO. (name of corporation) is a corporation qualified to do business in the State of Idaho under the laws of the State of Idaho.

B. Ownership of Facilities: (To be completed for hydropower projects only)

The hydropower facility to be developed pursuant to the attached Application for Permit:

(check one)

- [ ] Will not utilize existing man-made irrigation facilities such as a dam or a canal.
- [ ] Will utilize existing man-made irrigation facilities such as a dam or a canal, and permission of the owner is documented in an affidavit attached hereto.
- [X] Will utilize existing man-made irrigation facilities such as a dam or a canal and the owner of the facilities is the signee of this affidavit.

NOTE: Applicant is wholey owned subsidiary corporation of McCammon Ditch Company and Portneuf Marsh Valley Canal Company which jointly own the irrigation facilities.

Lyndon Green
Applicant Pres MVHE Co

State of Idaho)
County of Bannock) ss.

On this 17 day of November, 1983, personally appeared before me the signer(s) of the above instrument, who duly acknowledged to me that he (she) (they) executed the same.

Randall C. Budge
Notary Public residing at

seal

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

My commission expires:
10/15/84

MICROFILMED
JAN 22 1993

Form 205/206
7/81

Ident. No._____

NOV 4 1983

Department of Water Resources

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
AFFIDAVIT FOR WATER RIGHTS TO BE USED
FOR POWER PURPOSES

OCT 27 1983

Department of Water Resources
Eastern District Office

A. Establishment of Residency: (Complete either 1, or 2).

1. Individual Applicant or Individual Members of a Partnership:

I,_____ of_____,
(name) (city)

county of_____, State of Idaho, being duly sworn, do hereby certify that I am a bona fide resident of the State of Idaho.

2. Corporation:

I, Lyndon Green of McCammon,
(name) (city)

County of Bannock, State of Idaho, being duly sworn, depose and say: That I am the designated registered agent of the MARSH VALLEY HYDRO ELECTRIC CO.: that as such I am in charge of the registered
(name of corporation)

office of the said corporation as required by Section 30-1-12, Idaho Code, at McCammon, Idaho, wherein are kept the corporate records required
(city)

by Section 30-1-52, Idaho Code: and that MARSH VALLEY HYDRO ELECTRIC CO.
(name of corporation)

is a corporation qualified to do business in the State of Idaho under the laws of the State of Idaho.

B. Ownership of Facilities: (To be completed for hydropower projects only)

The hydropower facility to be developed pursuant to the attached Application for Permit:

(check one)

[ ] Will not utilize existing man-made irrigation facilities such as a dam or a canal.

[ ] Will utilize existing man-made irrigation facilities such as a dam or a canal, and permission of the owner is documented in an affidavit attached hereto.

[x] Will utilize existing man-made irrigation facilities such as a dam or a canal and the owner of the facilities is the signee of this affidavit.

X Lyndon Green
Applicant

State of Idaho)
County of Bannock) ss.

On this 17th day of October, 19 83, personally appeared before me the signer(s) of the above instrument, who duly acknowledged to me that he (she) (they) executed the same.

Randall C. Budge
Notary Public residing at
Pocatello

seal

My commission expires: 10/15/84

_____

JAN 22 1993

RECEIVED
AUG 16 1983
Department of Water Resources
Eastern District Office

State of Idaho

Department of Water Resources

ASSIGNMENT OF PERMIT

McCAMMON DITCH COMPANY, an Idaho nonprofit corporation of McCammon, Idaho, 83250, hereby assigns to MARSH VALLEY HYDRO ELECTRIC COMPANY, an Idaho coporation with its principal place of business as McCammon, Idaho, 83250, all of its right, title and interest in and to Permit No. ~~29-7585~~ 29-7578 to appropriate the public waters of the State of Idaho filed with the Idaho Department of Water Resources on the 2nd day of February, 1983.

DATED this 23rd day of June, 1983.

McCAMMON DITCH COMPANY

By: Lyndon Green
LYNDON GREEN, President

ATTESTED:

By: Harold C. Raymond
HAROLD C. RAYMOND, Secretary

STATE OF IDAHO)
: ss
County of Bannock)

On this 23rd day of June, 1983, before me, the undersigned, a Notary Public in and for said State, personally appeared LYNDON GREEN and HAROLD C. RAYMOND, who, being first duly sworn, declared that they are the President and Secretary, respectively, of McCAMMON DITCH COMPANY, that they signed the foregoing document as offers of the corporation and that the statements therein contained are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

Randall C. Budge
NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 10/15/84

(SEAL)

Form 205
7/81

Ident. No. 29-7578

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
AFFIDAVIT FOR WATER RIGHTS TO BE USED
FOR POWER PURPOSES

RECEIVED
AUG 17 1981
Department of Water Resources

Ownership of Facilities: (To be completed for hydropower projects only)

The hydropower facility to be developed pursuant to the attached Application for Permit:

(check one)

☐ Will not utilize existing man-made irrigation facilities such as a dam or a canal.

☐ Will utilize existing man-made irrigation facilities such as a dam or a canal, and permission of the owner is documented in an affidavit attached hereto.

☒ Will utilize existing man-made irrigation facilities such as a dam or a canal and the owner of the facilities is the signee of this affidavit.

Harold C. Raymond
Applicant
Lee & Irene

State of Idaho)
County of Bannock) ss.

On this 13 day of August, 19 81, personally appeared before me the signer(~~s~~) of the above instrument, who duly acknowledged to me that he (~~she~~) ~~(they)~~ executed the same.

Gary N. Gunter
Notary Public residing at
McCammon, ID.

seal

My commission expires:
Feb 1, 1981

JAN 22 1990

Individual Owner

AFFIDAVIT TO ESTABLISH RESIDENCE

I, _____ of _____ County of _____

State of Idaho, being duly sworn, do hereby certify that I am a bona fide resident of the State of Idaho.

/s/ _____

Subscribed and sworn to before me this ____ day of _____, 19____

/s/ _____
Notary Public
Residence _____
My Commission expires _____

NOTE: This permit is issued subject to the provisions of S. L. 1937, Ch. 142; am. 1957, Ch. 66. (Idaho Code, Sections 42-205 to 42-210).

****

Corporation or Association

AFFIDAVIT TO ESTABLISH RESIDENCE
OR QUALIFICATIONS TO DO BUSINESS UNDER THE LAWS OF
IDAHO...

I, Lyndon Green of McCammon County of Bannock
State of Idaho, being first duly sworn, depose and say:

That I am the designated statutory agent of the McCammon Ditch Company, that as such I am in charge of the registered office of the said company, as provided by Section 30-143, Idaho Code, at McCammon, Idaho, wherein are kept the records provided by Section 30-144, Idaho Code, and that McCammon Ditch Company is a legal company qualified to do business in the State of Idaho under the laws of the State of Idaho.

/s/ Lyndon Green Pres.

Subscribed and sworn to before me this 2 day of February, 1981

/s/ Kathlyn A. Walker
Notary Public
Residence Idaho Falls
My commission expires 2/15/1983

JAN 9 1993

NOTE: This permit is issued subject to the provisions of S. L. 1937, Ch. 142; am. 1947, Ch. 66, (Idaho Code, Sections 42-205 to 42-210).

PROOF OF PUBLICATION

STATE OF IDAHO
County of Bannock } ss.

NOTICE OF APPLICATION FOR WATER RIGHT
Notice is hereby given that the following application(s) have been submitted for permit to appropriate the public water of the State of Idaho.
13-7295
U.S. DEPT. OF AGRI. FOREST SERVICE, FEDERAL BLDG., 324 25th ST., OGDEN, UT 84401
Source: SPRING tributary to MARSH CREEK
Date Filed: 01-29-1981
Amount: 0.02 CFS
Diversion Point: NESW Sec 36 T 12S R 37E, BANNOCK Co.
Use: STOCKWATER (0.02 CFS) from 01-01 to 12-31
Place of Use: NESW Sec 36 T 12S R 37E
Diversion Means: HEADBOX, PIPELINE & TROUGH.
29-7578
McCAMMON DITCH COMPANY McCAMMON, ID 83250
Source: PORTNEUF RIVER tributary to SNAKE RIVER
Date Filed: 02-02-1981
Amount: 175.00 CFS
Diversion Point: SENE Sec 21 T 09S 37E, BANNOCK Co.
Use: POWER (175.00 CFS) from 01-01 to 12-31
Place of Use: NENW Sec 21 T 09S R 37E
Diversion Means: PENSTOCK/& PLANT
29-7579
SCHILLER, WILLIAM J. &/or LORRAINE
P.O. BOX 8761, I.S.U., POCATELLO, ID 83209
Source: GROUNDWATER
Date Filed: 02-04-1981
Amount: 0.13 CFS
Diversion Point: SENW Sec 27 T 06S R 36E, BANNOCK Co.
Use: IRRIGATION (0.09 CFS) from 04-01 to 10-15
DOMESTIC: (0.04 CFS) from 01/01 to 12/31
Place of Use: SENW Sec 27 T 06S R 36E FOR 4 ACRES
Diversion Means: WELL & PUMP.
If issued, the permit(s) will be subject to all prior water rights. Protests against the granting of any permit must be filed with the Director of the Idaho Department of Water Resources, 150 Shoup Ave., Idaho Falls, Idaho 83401 on or before MARCH 2, 1981.
S/C. Stephen Allred
Director
Feb. 12, 19, 1981
No. 441

Rosalee Winstead

being first duly sworn on oath deposes and says: That she was at all times herein mentioned a citizen of the United States of America, more than 21 years of age, and the Principal Clerk of THE IDAHO STATE JOURNAL, a daily newspaper, printed and published at Pocatello, Bannock County, Idaho, and having a general circulation therein.

That the document or notice, a true copy of which is attached, was published in the said IDAHO STATE JOURNAL, on the following dates, to-wit:

Feb. 12	, 19 81		, 19
Feb. 19	, 19 81		, 19
	, 19		, 19
	, 19		, 19
	, 19		, 19

That said paper has been continuously and uninterruptedly published in said County for a period of seventy-eight weeks prior to the publication of said notice or advertisement and is a newspaper within the meaning of the laws of Idaho.

Rosalee Winstead

Subscribed and sworn to before me this 26th day of February, 19 81

Notary Public, State of Idaho
Residence: Pocatello, Idaho

RECEIVED
FEB 27 19
Department of Water Resources
Eastern District Office

MICROFILMED
JAN 22 1993

see Part 2
for later in
time correspondence.
Kay
9-4-90

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
FEDERAL ENERGY
REGULATORY COMMISSION
FERC-351

29-07578
29-07772

P -0010468000 101465
STATE OF IDAHO DIRECTOR
IDAHO DEPARTMENT OF WATER RESOURCES
STATEHOUSE

BOISE, ID 83720

MICROFILMED

JAN 2 2 1993

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Notice of Application Filed with the Commission
(July 20, 1988)

Take notice that the following hydroelectric application has been filed with the Federal Energy Regulatory Commission and is available for public inspection:

RECEIVED
AUG - 1 1988
Department of Water Resources

MICROFILMED
JAN 2 2 1993

a. Type of Application: Major License

b. Project No.: 10468-000

c. Date filed: September 4, 1987

d. Applicant: Marsh Valley Hydroelectric Company, an Idaho Corporation

e. Name of Project: Marsh Valley

f. Location: On the Portneuf River in Bannock County, Idaho near the town of McCammon.
T.9S., R.37E., Section 20, Boise Meridan

g. Filed Pursuant to: Federal Power Act 16 U.S.C. §§791 (a) - 825(r)

h. Applicant Contact: Ted S. Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID
83401
(208) 522-8069

Randall C. Budge
Attorney at Law
Center Plaza
Corner First & Center
Pocatello, ID
83204

i. FERC Contact: Ms. Deborah Frazier-Stutely

j. Comment Date: AUG 31 1988

k. Competing Application: Project No. 10242-000
Date Filed: January 12, 1987

l. Description of Project: The proposed run-of-river project would consist of: (1) an existing 10-foot-high diversion dam at elevation 4,921 feet, diverting water from the Portneuf River into; (2) the existing 11,670-foot-long Portneuf-Marsh Valley Irrigation Canal; (3) a 7-foot-high concrete diversion structure located on the existing Portneuf-Marsh Valley Canal at elevation 4,911 feet; (4) an intake structure; (5) a 500-foot-long, 60 or 72-inch-diameter penstock; (6) a powerhouse containing a single turbine-generator unit with a rated capacity of 1,700 kW operating under an average head of 96 feet; (7) a 50-foot-long tailrace discharging into the Portneuf River; (8) a 0.5-mile-long, 12.4-kV transmission line, tying into an existing Utah Power and Light Company's line; and (9) appurtenant facilities.

m. Purpose of Project: Project power will be sold to Utah Power & Light Company

n. This notice also consists of the following standard paragraphs: A3, A9, B, C, and D1.

A3. Development Application--Any qualified applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, the competing development application or a notice of intent to file such an application. Submitting a timely notice of intent allows an interested person to file the competing development application no later than 120 days after the specified comment date for the particular application. Applications for a preliminary permit will not be accepted in response to this notice.

A9. Notice of Intent--A notice of intent must specify the exact name, business address, and telephone number of the prospective applicant, and must include an unequivocal statement of intent to submit, if such an application may be filed, either a preliminary permit application or a development application (specify which type of application). A notice of intent must be served on the applicant(s) named in this public notice.

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JAN 2 2 1993

B. Comments, Protests, or Motions to Intervene--Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of the Rules of Practice and Procedure, 18 C.F.R. sections 385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application.

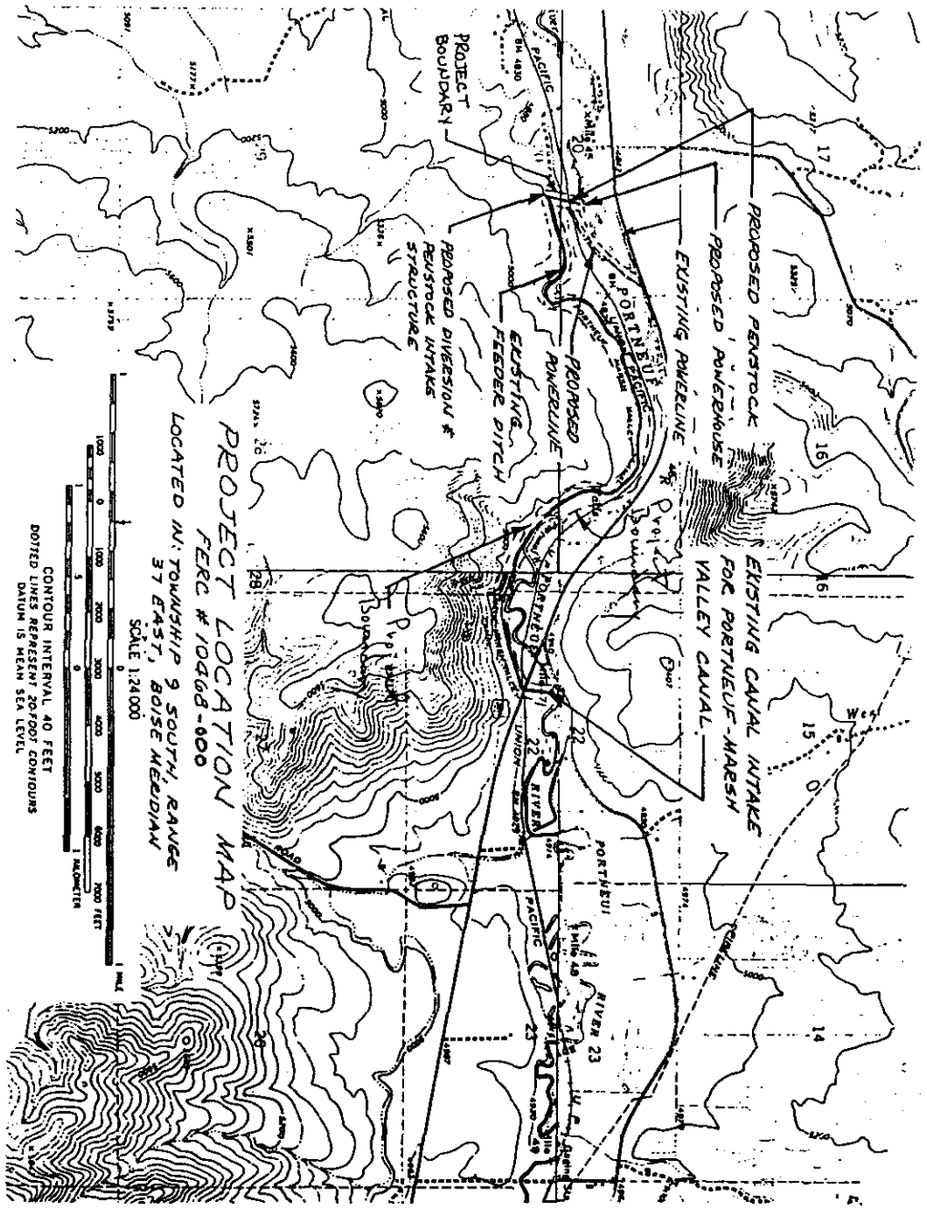
C. Filing and Service of Responsive Documents--Any filings must bear in all capital letters the title "COMMENTS," "RECOMMENDATIONS FOR TERMS AND CONDITIONS," "NOTICE OF INTENT TO FILE COMPETING APPLICATION," "COMPETING APPLICATIONS," "PROTEST" or "MOTION TO INTERVENE," as applicable, and the project number of the particular application to which the filing is in response. Any of these documents must be filed by providing the original and the number of copies required by the Commission's regulations to: the Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426. An additional copy must be sent to: the Director, Division of Project Review, Office of Hydropower Licensing, Federal Energy Regulatory Commission, Room 204-RB, at the above address. A copy of any notice of intent, competing application, or motion to intervene must also be served upon each representative of the applicant specified in the particular application.

JAN 2 2 1993

D1. Agency Comments-- Agencies established pursuant to federal law that have the authority to prepare a comprehensive plan for improving, developing, and conserving a waterway affected by the project, federal and state agencies exercising administration over fish and wildlife, flood control, navigation, irrigation, recreation, cultural and other relevant resources of the state in which the project is located, affected Indian tribes, and states are requested to provide comments and recommendations for terms and conditions pursuant to the Federal Power Act (Act), as amended by the Electric Consumers Protection Act of 1986, the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, the Historical and Archeological Preservation Act, the National Environmental Policy Act, Public Law No. 88-29, and other applicable statutes. Recommended terms and conditions must be based on supporting technical data filed with the Commission, along with the recommendations, to comply with the requirement in Section 313(b) of the Federal Power Act, 16 U.S.C. 825l(b), that the Commission findings as to facts must be supported by substantial evidence.

All other federal, state, and local agencies that receive this notice through direct mailing from the Commission are requested to provide comments pursuant to the statutes listed above. No other formal requests will be made. Responses should be confined to substantive issues relevant to the issuance of a license. A copy of the application may be obtained directly from the applicant. If an agency does not respond to the Commission within the time set for filing, the Commission will presume that the agency has none. One copy of an agency's response must also be sent to the applicant's representatives.

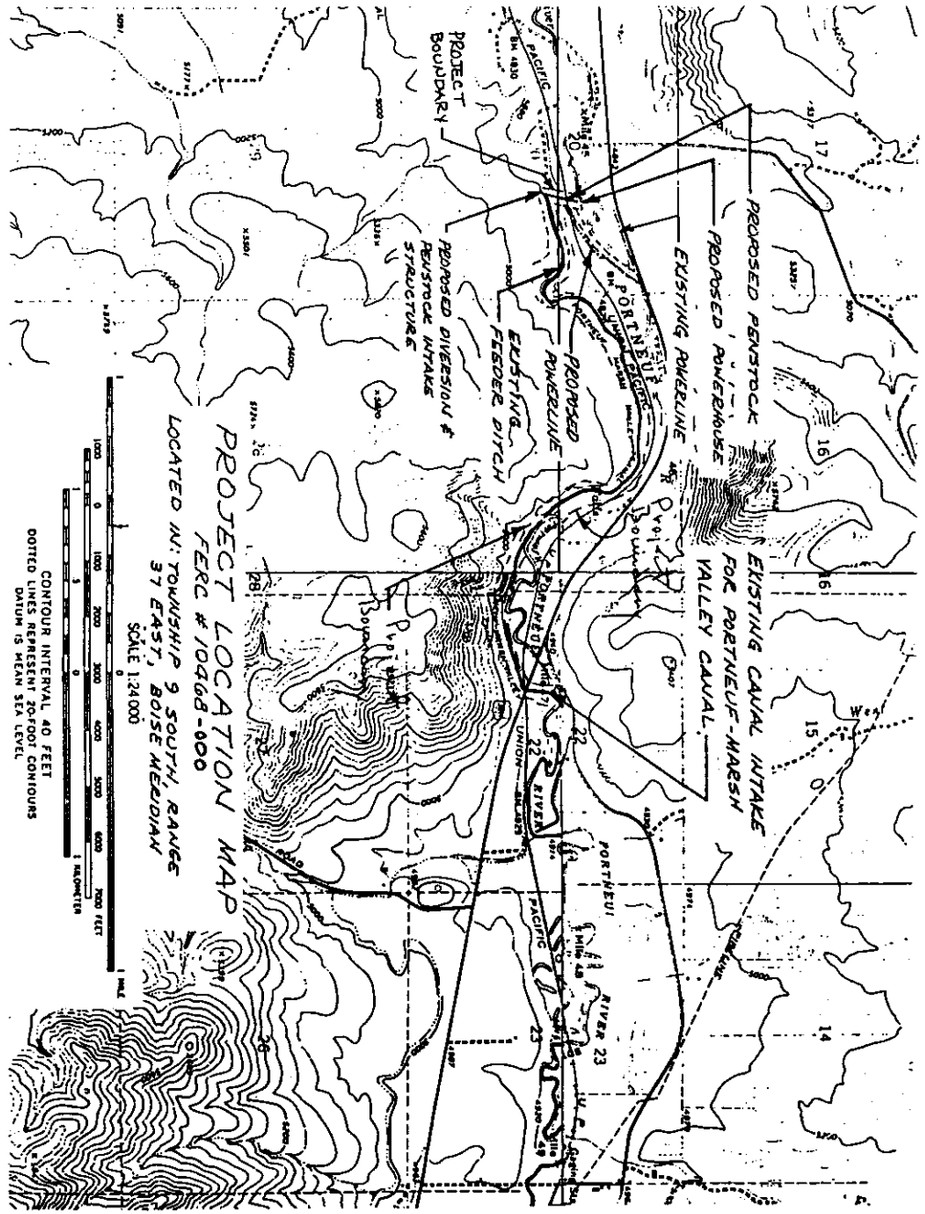
Lois D. Cashell
Acting Secretary



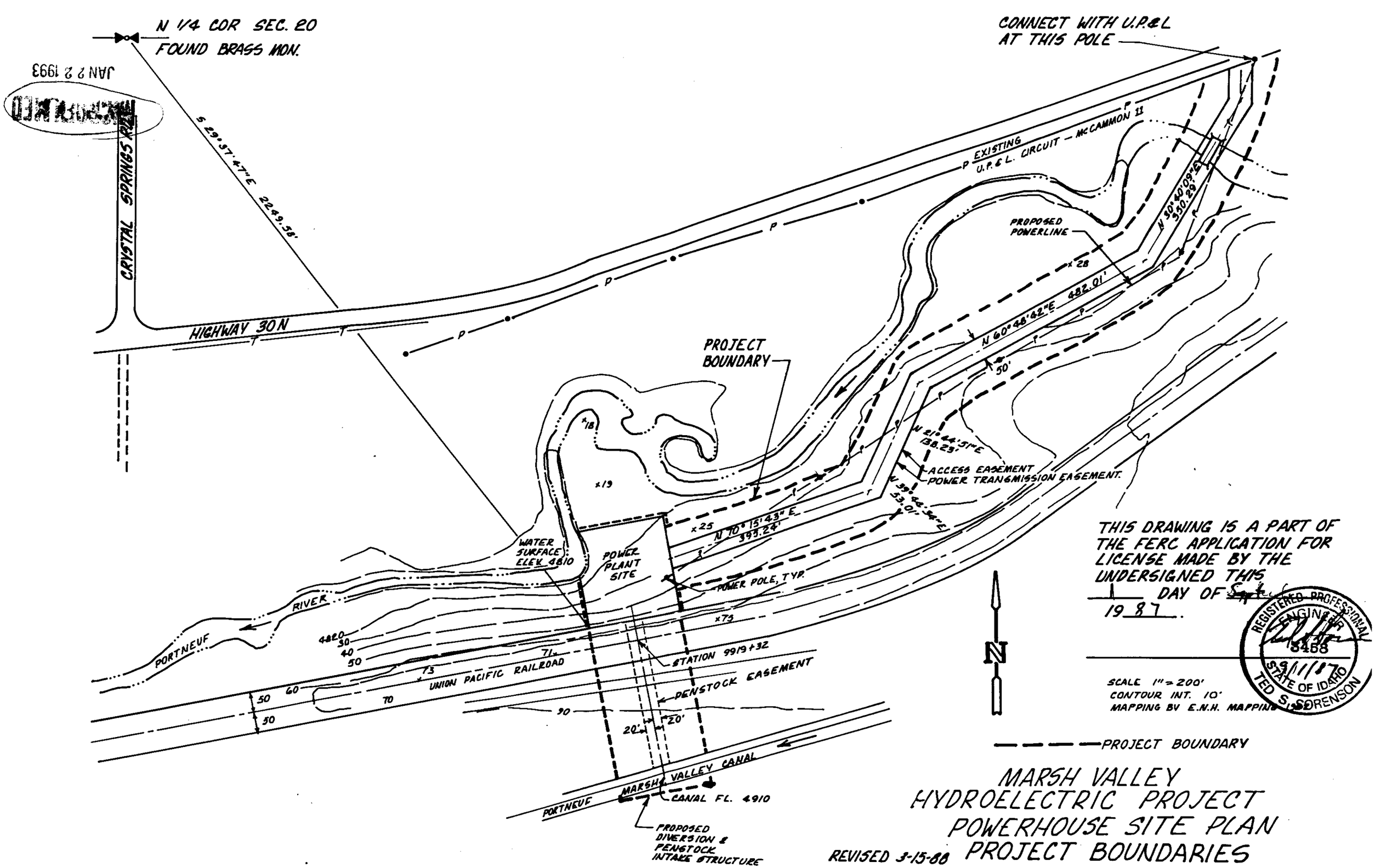
D1. Agency Comments-- Agencies established pursuant to federal law that have the authority to prepare a comprehensive plan for improving, developing, and conserving a waterway affected by the project, federal and state agencies exercising administration over fish and wildlife, flood control, navigation, irrigation, recreation, cultural and other relevant resources of the state in which the project is located, affected Indian tribes, and states are requested to provide comments and recommendations for terms and conditions pursuant to the Federal Power Act (Act), as amended by the Electric Consumers Protection Act of 1986, the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, the Historical and Archeological Preservation Act, the National Environmental Policy Act, Public Law No. 88-29, and other applicable statutes. Recommended terms and conditions must be based on supporting technical data filed with the Commission, along with the recommendations, to comply with the requirement in Section 313(b) of the Federal Power Act, 16 U.S.C. 8251(b), that the Commission findings as to facts must be supported by substantial evidence.

All other federal, state, and local agencies that receive this notice through direct mailing from the Commission are requested to provide comments pursuant to the statutes listed above. No other formal requests will be made. Responses should be confined to substantive issues relevant to the issuance of a license. A copy of the application may be obtained directly from the applicant. If an agency does not respond to the Commission within the time set for filing, the Commission will presume that the agency has none. One copy of an agency's response must also be sent to the applicant's representatives.

Lois D. Cashell
Acting Secretary



JAN 22 1993



MARSH VALLEY
HYDROELECTRIC PROJECT
POWERHOUSE SITE PLAN
PROJECT BOUNDARIES

REVISED 3-15-88

EXHIBIT G2 FERC NO. 0468

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 334-7900

CECIL D. ANDRUS
GOVENOR
R. KEITH HIGGINSON
DIRECTOR

May 20, 1988

Ted S. Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Re: Permits to Appropriate Water Nos. 29-7578 and 29-7772

Dear Mr. Sorenson:

Following our telephone conversation in which you requested processing of the applications to appropriate water Nos. 29-7578 and 29-7772, I have reviewed the files. This letter is a request for additional information which we must receive prior to approval. Please respond to the following:

1. Our records are unclear as to whether the option to purchase land with Roger S. & Kaye R. Johnson has been exercised.

2. The FERC report states that water will not be available for hydropower generation during the peak irrigation months. The application to appropriate water seeks a water right to divert water year around. Please justify why the period of use should not be shortened.

3. Will losses occur in the delivery system which will injure other water right holders?

4. State the total annual volume of water anticipated to be diverted during a peak and average year.

5. Our files lack a current certified statement of financial commitment. Correspondence from BayBank of Boston only states that BayBank "would readily consider a request for the financing of the site." Either a statement of commitment from BayBank of Boston, or a short statement of worth from Bonneville Pacific must be submitted.

6. Explain design construction and operation techniques to minimize the effects of a shutdown on the canal system and on uses of water both from the canal and also downstream from the hydropower plant.

7. Explain what engineering design features are planned to prevent water hammer or negative pressure in the penstock. IDWR will require the project design and construction to be certified

JAN 22 1993

EXHIBIT E

by a licensed Idaho engineer to insure the adequacy and safety of the construction.

8. You have previously explained that the present ditch diversions for the McCammon Ditch Company and the Portneuf-Marsh Valley Irrigation Company will not be changed. Please explain the design of the diversion that is proposed. Please also submit a copy of the latest plans. Our latest copy is contained in the FERC application file, and depicts the McCammon Ditch Company diversion combined with the Portneuf-Marsh Valley diversion.

9. In relationship to paragraph 8, the two permits list different tracts as the respective points of diversion. Please reconcile the discrepancy.

10. Provide a copy of the portion of the power sales contract which details the term of years of the contract.

11. Explain how the diversion bypass will work mechanically.

Please submit the above requested information within sixty (60) days of the date of this letter.

Sincerely,

Gary Spackman

GARY SPACKMAN, Supervisor
Allocation Section

GS:jf

CC: Randy Budge
Eastern

JAN 22 1993

PETE T. CENARRUSA
SECRETARY OF STATE
STATE CAPITOL
BOISE, IDAHO

State of Idaho

Department of State.

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that I am the custodian of the corporation and limited partnership records of this State.

I FURTHER CERTIFY That the annexed is a full, true and complete transcript of articles of incorporation, of PORTNEUF-MARSH VALLEY CANEL COMPANY, LIMITED, an Idaho corporation, received an filed in this office on the 21st day of September, 1908, as appears of record in this office as of this date.

Dated:

GREAT SEAL OF THE STATE OF IDAHO
ESTO PERPETUA

Pete T. Cenarrusa
SECRETARY OF STATE

by: Angie Hakes

DOCUMENTED
JAN 22 1993

CCC 583

EXHIBIT F

ARTICLES OF INCORPORATION

OF THE

PORTNEUF-MARSH VALLEY CANAL COMPANY, LIMITED.

KNOW ALL MEN BY THESE PRESENTS: That, whereas the Portneuf-Marsh Valley ~~Canal~~ Irrigation Company, Limited, a corporation organized and existing under and by virtue of the laws of the State of Idaho, under the provisions of an act of Congress, approved August 16, 1994, commonly known as the "Carey Act", as amended, and pursuant to the laws of the State of Idaho, and of the rules and regulations of the State Board of Land Commissioners of the State of Idaho, did enter into a contract with the State of Idaho bearing date of June 3, 1908, for the reclamation of certain lands in said contract described situated in the County of Bannock in said State;

AND WHEREAS, it is now proposed to organize a corporation for the operation and management of the irrigation system to be constructed under said contract of June 3, 1908;

WHEREFORE, the undersigned have voluntarily associated themselves together to form a corporation under the laws of the State of Idaho and do hereby certify:

-1-

That the name of the said corporation is the Portneuf-Marsh Valley Canal Company, Limited.

-2-

That the purpose for which said corporation is formed is the management and operation of the irrigation system, as such, to be constructed by the Portneuf-Marsh Valley ~~Canal~~ Irrigation Company, Limited, under said agreement of June 3, 1908, when and as the same may be turned over to it for operation by said Portneuf-Marsh Valley ~~Canal~~ Irrigation Company, Limited, and for that purpose and to the extent therefor required:

(a) To provide a convenient method of transferring the ownership and control of the dams, reservoir, canals, irrigation system and all rights, franchises and privileges pertaining thereto and appurtenant

JAN 22 1993

therewith, constructed or to be constructed by said Portneuf-Marsh Valley Irrigation Company, Limited, pursuant to said agreement of June 3, 1908, as the same shall be completed and turned over by said Portneuf-Marsh Valley Irrigation Company, Limited, to this corporation, representing and comprising the purchasers of shares and water rights in said irrigation system; to determine the rights of said purchasers of said shares and water rights as between themselves and between said purchasers and the said Portneuf-Marsh Valley Irrigation Company, Limited; to operate and maintain said irrigation system and works as the same shall be completed and turned over to it during the period of construction and subsequent thereto; to levy and collect tolls, charges and assessments for the carrying on and maintaining of said irrigation system and management and operation thereof.

(b) When and as the same may be completed and turned over to it by the said Portneuf-Marsh Valley Irrigation Company, Limited, to acquire the management, ownership and control, and to operate and maintain: (1) said irrigation and reservoir system;(2) those certain water rights and appropriations made and secured to said Portneuf-Marsh Valley Irrigation Company, Limited, under and by virtue of Permit number 3317, of record in the office of the State Engineer of the State of Idaho, appropriating water from Portneuf River in said State; and (3) rights of way for dams, reservoir, main and distributing laterals acquired, owned or held by said Portneuf-Marsh Valley Irrigation Company, Limited by virtue of said contract of June 3, 1908.

(c)When and as such irrigation system may be turned over to it by the Portneuf-Marsh Valley Irrigation Company, Limited, for operation, to distribute the waters diverted by and a part of the said irrigation system and to which this company may be entitled, among the stockholders thereof; to maintain, operate and keep in repair said irrigation system; to fix, charge and collect from its stockholders and

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JAN 22 1993

all users of water from its said irrigation system, tolls, rentals, assessments and maintenance charges based upon the number of shares of stock held by each person or proportioned to the amount of water used, or owned, or the number of acres irrigated by each person or by any one or more or by all of such methods, and to impose and collect fines and penalties for the failure of its stockholders or water users to pay the tolls, rentals, assessments or maintenance charges when the same become due.

(d) To take, purchase, lease, hire, or otherwise acquire, own and hold such real and personal property or any interests or rights therein as may be required in the business of this corporation, namely, the management and operation of said irrigation system when and as it is turned over to it; and, to enter into such contracts and agreements as the directors may deem necessary or proper in conducting the business for which this corporation is formed, as above set forth.

-3-

The place where the principal office of the company shall be located, and where its principal place of business shall be transacted is Downey, Bannock County, Idaho.

-4-

That the term for which it is to exist is fifty years from and after the date of incorporation.

-5-

That the number of directors of the company shall be five (5).

-6-

That the amount of the authorized capital stock of the corporation shall be twenty thousand dollars ($20,000.00) divided into twenty thousand shares of the par value of one dollar ($1.00) each.

-7-

That the amount of said capital stock actually subscribed, the names of the persons by whom the same has been subscribed, and their residences, are as follows:

JAN 22 1993

NAME	RESIDENCE	NUMBER OF SHARES.
E. C. Crocker	Downey, Idaho,	40
Edwin Snow	Boise, Idaho	40
T. M. Edwards	Downey, Idaho,	40
L. W. Johnson	Downey, Idaho,	40
George T. Hyde,	Downey, Idaho,	40.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 17th day of September, 1908.

E. C. Crocker (SEAL)

Edwin Snow (SEAL)

George T. Hyde (SEAL)

L. W. Johnson (SEAL)

T. M. Edwards (SEAL)

State of Idaho
County of Ada } ss.

On this 15th day of September, 1908, before me, J. H. Peterson a Notary Public in and for said County and State, personally appeared Edwin Snow to me known and known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

In witness whereof I have hereunto set my hand and affixed my notarial seal on the day and year in this certificate above written.

J. H. Peterson
Notary Public.

State of Idaho,
County of Bannock, } ss.

On this 17 day of September, 1908, before me William Lamoreaux a Notary Public in and for said county and State, personally appeared E. C. Crocker, George T. Hyde, L. W. Johnson and T. M. Edwards, to me known and known to me to be the persons whose names are subscribed to the within instrument, and they severally acknowledged to me that they executed the same.

In witness whereof I have hereunto set my hand and official seal the day and year in this certificate first above written.

Commission Expires October 10th, 1911.

William Lamoreaux Notary Public.

STATE OF IDAHO,
County of Bannock. } ss.

I, E. G. Gallet, Clerk of the District Court, Ex-Officio Auditor and Recorder of Bannock County, Idaho, do hereby certify that the within and foregoing is a full, true and correct copy of the original Articles of Incorporation of the Portneuf Marsh Valley Canal Company Limited as shown by the records of my office.

Witness my hand and official seal this 18th day of September, 1908.

E. G. Gallet
Clerk District Court, Ex-Officio Auditor and Recorder.

By N. A. Hyde, Deputy.

DOCUMENT MICROFILMED JAN 22 1993

Articles of Incorporation
of the
Portneuf-Marsh Valley
Canal Company, Ltd.

5879

DEPARTMENT OF STATE,
Secretary's Office,
Filed this 21st day of
Sept. 1908 at 10
o'clock A. M. and Recorded in Book
"N" of Corp. Papers
on page 504
Records of the State of Idaho
Lewis Rawlins
Secretary of State.

15.00

JAN 22 1993

PETE T. CENARRUSA
SECRETARY OF STATE
STATE CAPITAL
BOISE, IDAHO

State of Idaho

Department of State.

I, PETE T. CENARRUSA, Secretary of State of the State of Idaho, hereby certify that I am the custodian of the corporation and limited partnership records of this State.

I FURTHER CERTIFY That the annexed is a full, true and complete transcript of articles of amendment of articles of incorporation, of McCAMMON DITCH COMPANY, an Idaho corporation, received and filed in this office on the 25th day of March, 1954, as appears of record in this office as of this date.

Dated: August 18, 1988

Pete T. Cenarrusa

SECRETARY OF STATE

by: Angie Hatch

GREAT SEAL OF THE STATE OF IDAHO
ESTO PERPETUA

CCC 583

EXHIBIT E EXHIBIT G

JAN 22 199

State of Idaho

Department of State.

CERTIFICATE OF AMENDMENT OF ARTICLES OF INCORPORATION

I, IRA H. MASTERS ~~J. D. (CY) PRICE~~, Secretary of State of the State of Idaho, and legal custodian of the corporation records of the State of Idaho, do hereby certify that the

McCAMMON DITCH COMPANY

a corporation organized and existing under and by virtue of the laws of the State of Idaho, filed in this office on the 25th day of March, 1954,

original articles of amendment, as provided by Sections 30-146, 30-147 Idaho Code enlarging purposes and increasing number of shares of common stock from twelve of the par value of $400.00 each to four hundred eighty shares of the par value of $10.00 each.

and that the said articles of amendment contain the statement of facts required by law, and are recorded on Film No. 84 of Record of Domestic Corporations of the State of Idaho.

I THEREFORE FURTHER CERTIFY, That the Articles of Incorporation have been amended accordingly.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the Great Seal of the State. Done at Boise City, the Capital of Idaho, this 25th day of March, in the year of our Lord one thousand nine hundred fifty-four, and of the Independence of the United States of America the One Hundred Seventy-eighth.

Secretary of State.

EXHIBIT G

JAN 22 199

ARTICLES OF AMENDMENT TO ARTICLES OF INCORPORATION OF

THE McCAMMON DITCH COMPANY

WHEREAS, it is deemed advisable to amend Article II of the Articles of Incorporation of The McCammon Ditch Company so as to enlarge upon the purpose for which said corporation is organized, and Article V defining who may be elected to the Board of Directors of said corporation, and Article VI providing that the amount of capital stock of said corporation shall be $4,800.00 divided into 480 shares of common stock having a par value of $10.00 per share;

NOW, THEREFORE, BE IT RESOLVED that Article II of the Articles of Incorporation of The McCammon Ditch Company be, and the same is hereby, amended to read as follows:

ARTICLE II

The purposes for which this corporation is formed are as follows:

a. To operate, control or manage an irrigation project or canal system for the purpose of furnishing water to its shareholders, and not for profit or hire;

b. To purchase, lease, take, appropriate, hold, own or otherwise acquire and to maintain and operate water and irrigation rights and acquire, purchase, lease, take, appropriate, own, hold, build, maintain and operate for the stockholders of this corporation, dams, canals, ditches, laterals, flumes, pipelines, and all other works necessary or convenient for the appropriation, diversion, storage, transportation, and distribution or use of water for irrigation, manufacturing, industrial, and domestic uses, and for any other purpose for which water may be applied;

c. To borrow money, execute notes and mortgages therefor, and to lend money and to take notes and mortgages to secure the repayment of the same, to acquire real estate and personal property necessary in the operation of said corporation, and to manage, rent, control, or otherwise deal in real and personal property;

JAN 22 1993

d. To purchase, hold and use, from time to time, as it may see fit, any shares of its own stock, together with the water rights represented thereby, using for such purposes any part of its surplus, but while this corporation holds the same, it shall not be entitled to vote such stock, but shall be entitled to resell the same, together with the water right represented thereby.

e. To do everything that is necessary and convenient in conducting and operating the business for which this corporation is organized.

BE IT FURTHER RESOLVED That Article V of the Articles of Incorporation of The Mc Cammon Ditch Company be, and the same is hereby, amended to read as follows:

ARTICLE V

The business and prudential affairs of this corporation shall be managed by a Board of five (5) Directors, all of whom shall be stockholders of said corporation.

BE IT FURTHER RESOLVED That Article VI of the Articles of Incorporation of The McCammon Ditch Company be, and the same is hereby, amended to read as follows:

ARTICLE VI

That the amount of capital stock of this corporation shall be $4,800.00, divided in 480 shares of common stock of the par value of $10.00 each.

At the specialmeeting of the shareholders of The McCammon Ditch Company, a corporation, held on the 23rd day of February, 1954, at the hour of two o'clock p.m. of said day, thirty (30) days notice of the proposed business having been given by mail, all of the foregoing resolutions were adopted by the affirmative vote of more than two-thirds (2/3) of the total number of shares of stock outstanding.

JAN 22 1993

The undersigned hereby certify that this is a true and correct report of the number of days' notice given by mail of the meeting of the stockholders of the said The McCammon Ditch Company, a corporation, of the resolution adopted at said meeting; that the same was adopted by at least two-thirds (2/3) of the outstanding capital stock of said corporation.

Leo O. Hansen

Wm Leroy Orgill

Lyndon Green

Ned Allen

Henry A. Carmack

Constituting and being a majority of the Board of Directors of said corporation.

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JAN 22 1993

STATE OF IDAHO)
) ss.
County of Bannock)

LEO HANSON and ZINA G. ORGILL, each being separately sworn, upon his oath, deposes and says:

That on the 23rd day of February, 1954, at the hour of two o'clock p.m. of said day, a meeting of the stockholders of The McCammon Ditch Company, a corporation, was held at the office of said corporation, in McCammon, Bannock County, Idaho; that the said LEO HANSON is the President and acted as chairman of said meeting, and that Zina G. Orgill is the Secretary and acted as Secretary of said meeting;

That he has read the above and foregoing Articles of Amendment setting forth the proceedings of said meeting and the action taken at such meeting, and the facts as to the calling of said meeting, and giving notice thereof, and as to adjournment, and the facts stated in the foregoing certificate are true of his own knowledge.

Leo O. Hanson

Zina G. Orgill

SUBSCRIBED AND SWORN to before me this 23 day of ~~February~~ March, 1954.

Glenn E. Cook
NOTARY PUBLIC FOR IDAHO
Residing at McCammon, Idaho

(SEAL)

My commission expires:
January 1954

JAN 22 1955

Amendment enlarging purposes and increasing number of shares of common stock from twelve of the par value of $400.00 each to 480 shares of the par value of $10.00 each.

STATE OF IDAHO
DEPARTMENT OF STATE
Secretary's Office
Boise, Idaho

RECORDED

Approved, filed, and admitted to the records of Articles of Incorporation of the State of Idaho and certificate issued

INDEXED

PHOTOGRAPHED

this 25th day of March, 19 54

at 8:30 o'clock A. M.

FEES PAID

Filing $ 5.00

Recording 1.40

Certificate 3.00

~~License tax~~

TOTAL $ 9.40

IRA H. MASTERS
SECRETARY OF STATE

By Paula L. Fleenor
CORPORATION CLERK

Filed by Merrill & Merrill
Attorneys, Pocatello

JAN 22 1993

WE THE UNDERS ED HEREBY PETITION THE DEPARTMENT WATER RESOURCES TO NOT APPROVE MARCH VALLEY HYDROELECTRIC COMPANY APPLICATION #29-7578 FOR 175 cfs. AND #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APRIL 15 THROUGH NOVEMBER 15, EACH YEAR. ALSO FEDERAL ENERGY REGULATORY COMMISSION NOT APPROVE THEIR APPLICATION #10468-000 BECAUSE OF THE INTERFERENCE WITH OUR EXISTING WATER RIGHTS AND THE FACT THAT WE HAVE BEEN USING THIS WATER BEYOND THE WATERING SEASON SINCE THE BEGINNING OF THESE DECREED RIGHTS.

Topaz Irrigation Company

NAME	ADDRESS	AMOUNT WATER DECREE
William M. Casperson	Lava Hot Springs, Idaho	47 Shares in Topaz Irrig. Co.
Brett Casperson	Lava Hot Springs, Idaho	3.02 feet in Dempsey Ditch
Dean Day	Lava Hot Springs, Idaho	45 Shares in Topaz
Glenn Jaquant	Box 293 Lava Hot Springs, Id. 83246	75 Shares of Topaz
Neil Hill	Box 6 Lava Hot Spring, Id. 83246	12 shares Topaz Irrig.
Albert Roberts	Box 695 Lava Hot Springs, Ida.	15 Shares Topaz Irrig.
Gordon S. Hillman	12258 Lava Hot Springs Id.	66 Shares Topaz Irrig.
Kim J. Andrus	10222 So. Dempsey Rd. Lava Id	35 Shares Topaz
John J. Andrus Jr.	R+1. Lava Hot Spgs. Id.	68 Shares Topaz
Neil Hill Pres. Lava Cemetery	Lava Hot Springs, Idaho 83246	131 Shares Topaz
Harold C. Miller	376 So 19th Poc. Idaho	5 shares Topaz
Lynn Bowman	Rt 2 Box 67 Pocatello	102 Shares. Topaz-Dempsey
		Demp. & Topaz
		124 shares total

RECEIVED AUG 1 8 1993

JAN 2 8 1993

EXHIBIT H

WE THE UNDERS ED HEREBY PETITION THE DEPARTMEN WATER RESOURCES TO NOT APPROVE MARCH VALLEY HYDROELECTRIC COMPANY APPLICATION #29-7578 FOR 175 cfs. AND #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APRIL 15 THROUGH NOVEMBER 15, EACH YEAR. ALSO FEDERAL ENERGY REGULATORY COMMISSION NOT APPROVE THEIR APPLICATION #10468-000 BECAUSE OF THE INTERFERENCE WITH OUR EXISTING WATER RIGHTS AND THE FACT THAT WE HAVE BEEN USING THIS WATER BEYOND THE WATERING SEASON SINCE THE BEGINNING OF THESE DECREED RIGHTS.

NAME	ADDRESS	AMOUNT WATER DECREE
Stan Weishan (Mabey Place & Pebble Development Place)	Box 11C Bancroft Ida. 83217	3.5 + 3.2 Res.
Kenneth R Taylor Rt 1 Bancroft Id 83217		
Evelyn W. Ruger	Box 7 Bancroft Id 83217	3.5 SF Pebble Creek
Dan Mabey	Open Heart Ranch Bancroft 83217	3.5 SF "
Dona Rae Mabey	" " " "	" "
James B. Mabey	" " " "	

MICROFILMED
JAN 22 1993

WE THE UNDERSIGNED HEREBY PETITION THE DEPARTMENT OF WATER RESOURCES TO NOT APPROVE MARCH VALLEY HYDROELECTRIC COMPANY APPLICATION #29-7578 FOR 175 cfs. AND #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APRIL 15 THROUGH NOVEMBER 15, EACH YEAR. ALSO FEDERAL ENERGY REGULATORY COMMISSION NOT APPROVE THEIR APPLICATION #10468-000 BECAUSE OF THE INTERFERENCE WITH OUR EXISTING WATER RIGHTS AND THE FACT THAT we HAVE BEEN USING THIS WATER BEYOND THE WATERING SEASON SINCE THE BEGINNING OF THESE DECREED RIGHTS.

NAME	ADDRESS	AMOUNT WATER DECREE
Lava Irrigation Co.	Lava Hot Springs, Idaho 83246	22.76 cfs
President Shane Irick	Box 494 Lava Hot Springs, Ida 83246	
Golden Avery	Box 264 Lava Hot Spgs. Id. 83246	
L. H. Johnson	in Leola	
Anna Mae Stewart	Box 702 Lava Ht. Spgs. Id. 83246	
John E. Outteral	Box 713 Lava Hot Springs 83246	
Dana L. Kiding	8745 E. Rt. 1 Lava Hot Springs 83246	
Laverda Larsen	Lava Hot Springs Id.	
William Field	P.O. Box 134 Lava Hot Springs Idaho	
Ray Settles	Box 504 Lava Hot Spgs ID	
C. Stello Nelson	Box #612 Lava Hot Sps. Ida	
J. B. Irick	Box 636 Lava Hot Springs Ida.	
Calvin A. Rowell	Box 183 Lava Hot Springs, Idaho - 83246	
William J. Daybell	Box 154 Lava Hot Springs, Ida - 83246 - 5 1/2 shares	
Dan N. Dimick (Leaser Hoson Place)	Box 383 Lava	26 Shares
Gillian Potter	366 Adams American Falls Id.	Lava Irrigation
Ellis Christiansen	Box 48 Lava Hot Springs, Idaho 83246	Decreed 1.2 C.F.S. May 1, 1889 + 21 shares in Dempsey Irrigation canal company.
Lynda Simons	Box 604 Lava Hot Spring, Ida	
Harold Nichols	Box 515 Lava Hot Springs Id	Dempsey Irrigation 55 shares Lava Irrigation Co
Paul A Bock for Seth Bock	Lava Hot Springs, Idaho	

JAN 22 1993

WE THE UNDERSIGNED HEREBY PETITION THE DEPARTMENT OF WATER RESOURCES TO NOT APPROVE MARSH VALLEY HYDROELECTRIC CO. APPLICATION #29-7578 FOR 175cfs., and #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APR.15 THROUGH NOVEMBER 15, EACH YEAR.

NAME	ADDRESS	AMOUNT WATER DECREE
Jim Andrus	Rt. 1, Lava Hot Springs, Idaho	7.10 feet
Red Pulling	9252 Crystal Sp. Rd McCammon Id	70 inches
Donald Willmore	Box 81, Lava Hot Springs, Idaho 83246	
Arkansas Ranches by Darrell Christensen	8450 So Bob Smith Rd Lava Hot Springs, Id 83246	62. inches
[illegible] W. [illegible]	Lava Hot Springs Id.	177.1 inches
Grant N. Egley	Lava Hot Springs, Idaho	2 ft. Blue Spring Creek

JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 334-7900

CECIL D. ANDRUS
GOVENOR
R. KEITH HIGGINSON
DIRECTOR

September 1, 1988

Honorable Steven D. Symms
U.S. Senator (Idaho)
207 Federal Building
Pocatello, ID 83201

RE: Proposed Marsh Valley Hydroelectric Project - Applications for Permit Nos. 29-7578 and 29-7772

Dear Senator Symms:

The department has received your letter of inquiry dated August 26, 1988 in connection with the above referenced project.

Department files show that Application No. 29-7578 was filed with the department on February 2, 1981 and proposes the year around diversion of 175 cubic feet per second (cfs) from the Portneuf River for hydropower purposes. The application has been assigned to Marsh Valley Hydroelectric Company which also filed Application No. 29-7772 on June 5, 1984 proposing the additional year around diversion of 75 second from the Portneuf River for hydropower purposes. The applications were advertised upon receipt and were not protested during the period provided by statute.

Whether an application is protested or not, Idaho water right statutes provide for the department to evaluate, among other considerations, whether the proposed new use will adversely affect existing water rights. As a part of this evaluation, the department requested additional information from the applicant in connection with the proposed project. Among the questions asked by the department was evidence to show that injury will not occur to other users and justification of the period of use requested since water likely is not available at the rate requested during the peak irrigation months.

Department procedures allow the applicant to coordinate the submittal of information relative to the water right with the preparation and submittal of the FERC licensing information. When the information is available, final action can be taken on the applications. If approved, the applications would be conditioned as necessary to protect existing water rights.

JAN 22 1993

Please feel free to contact me if I can provide additional information.

Sincerely,

NORMAN C. YOUNG
Administrator
Resource Administration Division

NCY:alw
cc: Eastern Region

RECEIVED
JAN 22 1993

16 August 1988

Dear Senator:

Marsh Valley Hydroelectric Co. has an application in for a licence to generate 015589 [illegible] district 29.

88 AUG 22 AM 10: 56

The other people on this district who have water rights for irrigation are going to be hurt, burned up, if this is allowed to go through as applied for.

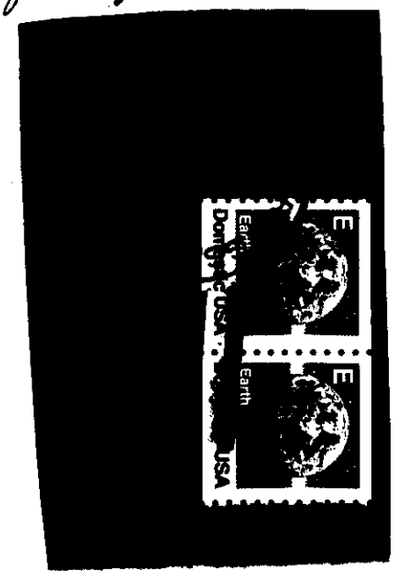
We have taken steps to have a motion to intervene sent in to F.E.R.C. I am enclosing a copy of the petitions so you can see how many people are opposed to this action.

If you can do anything to help us prevent the loss of our existing water rights we would be very grateful.

JAN 2 2 1993

Sincerely,

Vera Avery



STEVE SYMMS
IDAHO

RECEIVED
AUG 29 1988
Department of Water Resources

United States Senate

WASHINGTON, DC 20510

August 26, 1988

Keith Higginson, Director
Id. Dept of Water Resources
Statehouse
Boise, Idaho 83720

Dear Keith:

You will find enclosed a letter recently received in my Washington office regarding a Marsh Valley hydroelectric project. The letter was accompanied by several petitions, only one of which is enclosed.

In trying to be responsive to my constituents, I would appreciate it if you could provide information to my Pocatello office regarding the concerns expressed in the letter and petition and the process and procedures the Department follows before approving or denying a water right application.

Thank you very much for your assistance in this matter.

Yours for a free society,

Steve

STEVE SYMMS
United States Senator

SS/jh
Enclosure

JAN 22 1993

PLEASE REPLY TO:

☐ IDAHO FALLS OFFICE
482 C STREET, SUITE 305
IDAHO FALLS 83402
(208) 522-9779

☑ POCATELLO OFFICE
207 FEDERAL BUILDING
POCATELLO 83201
(208) 236-6775

☐ TWIN FALLS OFFICE
401 2D ST. N. #106
TWIN FALLS 83301
(208) 734-2515

☐ BOISE OFFICE
BOX 1190
BOISE 83701
(208) 334-1776

☐ LEWISTON OFFICE
301 D STREET #103
LEWISTON 83501
(208) 743-1492

☐ MOSCOW OFFICE
105 FEDERAL BUILDING
MOSCOW 83843
(208) 882-5560

☐ COEUR D'ALENE OFFICE
305 FEDERAL BUILDING
COEUR D'ALENE 83814
(208) 664-5490

WE THE UNDERSIGNED HEREBY PETITION THE DEPARTMENT OF WATER RESOURCES TO NOT APPROVE MARCH VALLEY HYDROELECTRIC COMPANY APPLICATION #29-7578 FOR 175 cfs. AND #29-7772 FOR 75cfs. DURING THE TIME OF YEAR WE ARE IRRIGATING, THAT BEING APRIL 15 THROUGH NOVEMBER 15, EACH YEAR. ALSO FEDERAL ENERGY REGULATORY COMMISSION NOT APPROVE THEIR APPLICATION #10468-000 BECAUSE OF THE INTERFERENCE WITH OUR EXISTING WATER RIGHTS AND THE FACT THAT WE HAVE BEEN USING THIS WATER BEYOND THE WATERING SEASON SINCE THE BEGINNING OF THESE DECREED RIGHTS.

NAME	ADDRESS	AMOUNT WATER DECREE
Topaz Irrigation Company		
Hartman M. Carlson	Lava Hot Springs Id.	47 Shares in the Topaz Irrigation
Brett Carlson	Lava Hot Springs, Idaho	2.62 feet in Portneuf Canal
		45 shares in Topaz
Dean Doty	Lava Hot Springs Idaho	75 shares of Topaz
Glenn Fagnant	Box 293 Lava Hot Springs, Id. 83246	12 shares Topaz Irrig.
Neil Hill	Box 6 Lava Hot Springs, Id. 83246	15 shares Topaz Irrig.
Albert Roberts	Box 695 Lava Hot Springs, Ida.	66 shares Topaz Irrig
Gordon S. Gilman	12258 Lava Hot Springs Id.	35 Shares Topaz
Kim J. Andrus	10222 So. Dempsey Rd. Lava Id	68 Shares Topaz
John J. Andrus Jr.	R+1. Lava Hot Spgs. Id.	131 Shares Topaz
Neil Hill Pres. Lava Cemetery	Lava Hot Springs Idaho 83246	5 shares Topaz
Harold C. Miller	376 So 19th Poc. Idaho	102 Shares. Topaz-Dempsey
Lynn Bowman	Rt 2 Box 67 Pocatello	Demp. & Topaz
		124 shares total

RECEIVED
AUG 29 1988
JAN 22 1993
Department of Water Resources

R RESOURCES

UNITED STATES
MENT OF THE INTERIOR
OLOGICAL SURVEY

SORENSON ENGINEERING
CONSULTING ENGINEER
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

RECEIVED
SEP 07 1988
Department of Water Resources

August 31, 1988

Mr. Gary Spackman
Supervisor, Allocation Section
State of Idaho
Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, ID 83720

SUBJECT: PERMITS TO APPROPRIATE WATER #29-7578 AND #29-7772

Dear Mr. Spackman:

Pursuant to your letter of May 20, 1988 and to our telephone conversation of this date, here are the responses to your letter.

1. The option to purchase the land with Roger and Kaye Johnson has been exercised. A copy of this is available from Randy Budge. By this same letter, I am asking Randy Budge to send a copy of the exercised option directly to you.

2. Our justification for seeking a year-round water right is based upon the fact that during the irrigation season if, due to a wet year and/or due to a rainfall, water is available from the irrigation companies that is not needed for irrigation it would be routed through the power plant. In that the irrigation company receives a royalty for any power generated, it would be in their common interest to do so, if the water were available. Therefore, we need a water right year-round to accomplish same.

3. No losses will occur in the delivery system which will injure other water right holders. It should be remembered that the primary period of operation is during the non-irrigation season.

4. The total annual volume of water diverted during a peak year would be approximately 70,000 acre feet. The total annual volume of water during an average year would be approximately 50,000 acre feet.

5. Attached in a sealed envelope is the current financial statement of myself, Ted S. Sorenson, and of Robert Snedigar. We will be the finance guarantors of the project and have sufficient finances available to accomplish the project. Upon your examination of these financial statements I would appreciate it if you would return them in the enclosed envelope. They are not to be copied.

RECEIVED
JAN 22 1993

6. The effects of a shut-down will be minimized on a canal system as follows:

   As shown on the attached plan sheets, a parallel penstock pipe will be laid from the canal intake to the powerhouse. This parallel penstock will serve to route any water from the canal to the river that does not go down the primary penstock. During normal operation of the plant all water will go down the primary penstock. A headlevel control system will be utilized to match the water through the turbine with the water available in the canal. Upon load rejection of the turbine the water must be shut off to the turbine as it is a Frances turbine. Water would then back up the primary penstock to the canal intake. The canal intake would raise slightly and spill over an overflow box into the secondary penstock and would drain through the secondary penstock to the Portneuf River. This process would take several minutes. Therefore, no significant downstream affect would be realized to water users. Also, no significant upstream affect would be realized on the operation of the canal.

7. The features anticipated for the prevention of water hammer and negative pressure in the penstock are as follows:

   a. The turbine shutdown period will be very slow to negate a pressure rise in the penstock. This will be achieved by use of a slow closure time and necessary flywheel inertia in the turbine.

   b. Chokeflow in the Frances turbine will be eliminated by the use of inertia built into either the generator and/or a separate flywheel to prevent runaway of the runner and, hence, chokeflow.

   The project design and construction will be certified by a licensed professional engineer in Idaho to insure the adequacy and safety of the construction.

8. The diversion as proposed would utilize only the Portneuf-Marsh Valley diversion. No revision of the McCammon Ditch diversion will occur. The Portneuf-Marsh Valley diversion will remain the same with the following exception:

   The existing radial gates will be replaced as they are deteriorated beyond repair. They may be replaced with a knife gate in lieu of a radial gate.

JAN 22 1993

9. The point of diversion will be the point of diversion for the Portneuf-Marsh Valley diversion.

10. A copy of the power sales agreement is enclosed.

11. I take the diversion bypass to be the diversion of the water from the canal to the penstock. This diversion bypass will have no mechanical parts. When the water raises, for any reason, to the spill point of the bypass, it will spill over into the spillbox and through the secondary penstock to the Portneuf River.

I trust this information to be of value and am happy to furnish additional information as needed.

Very truly yours,

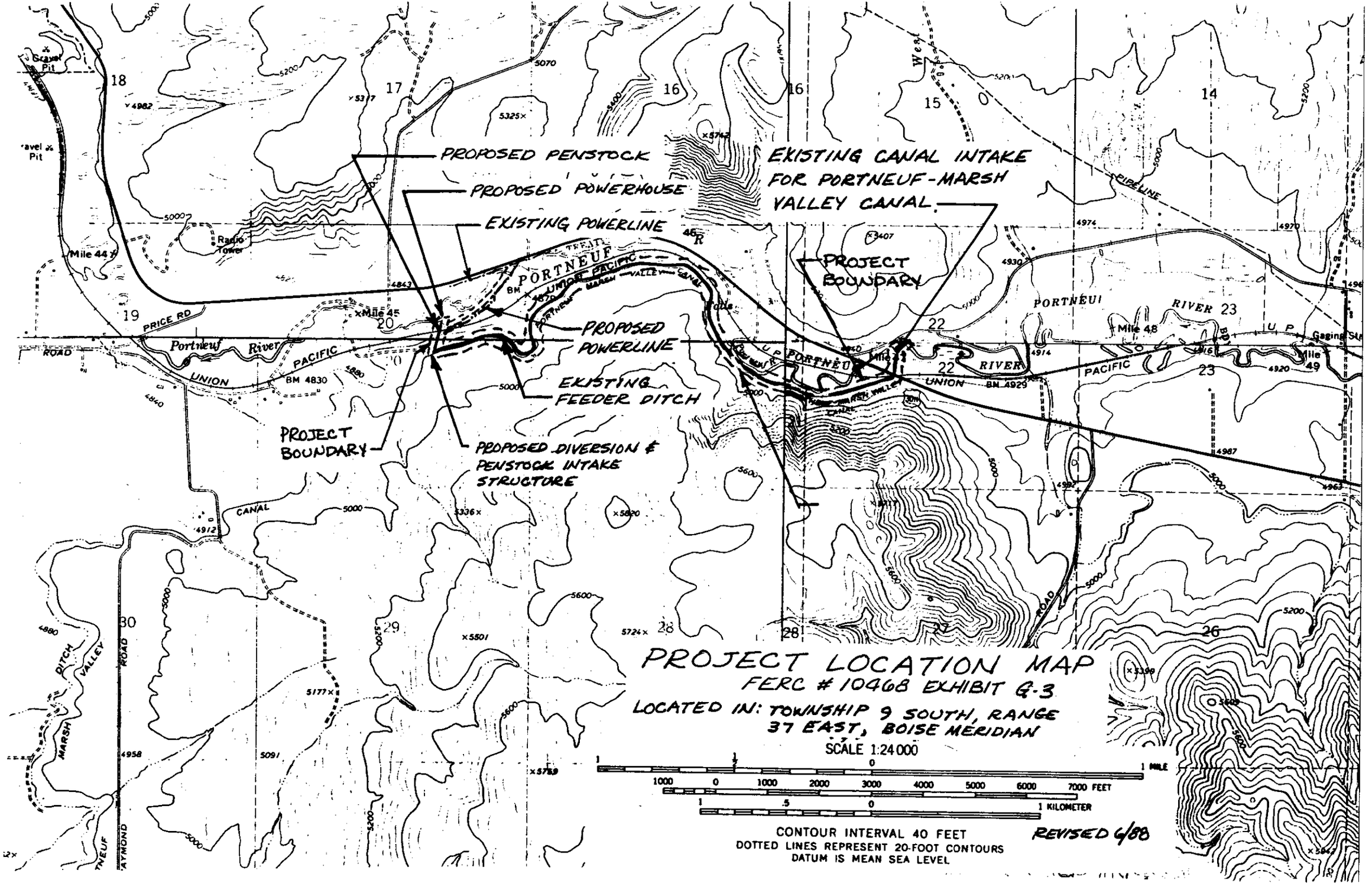
Ted S. Sorenson, P.E.
Project Engineer

TSS:mm

Enclosures

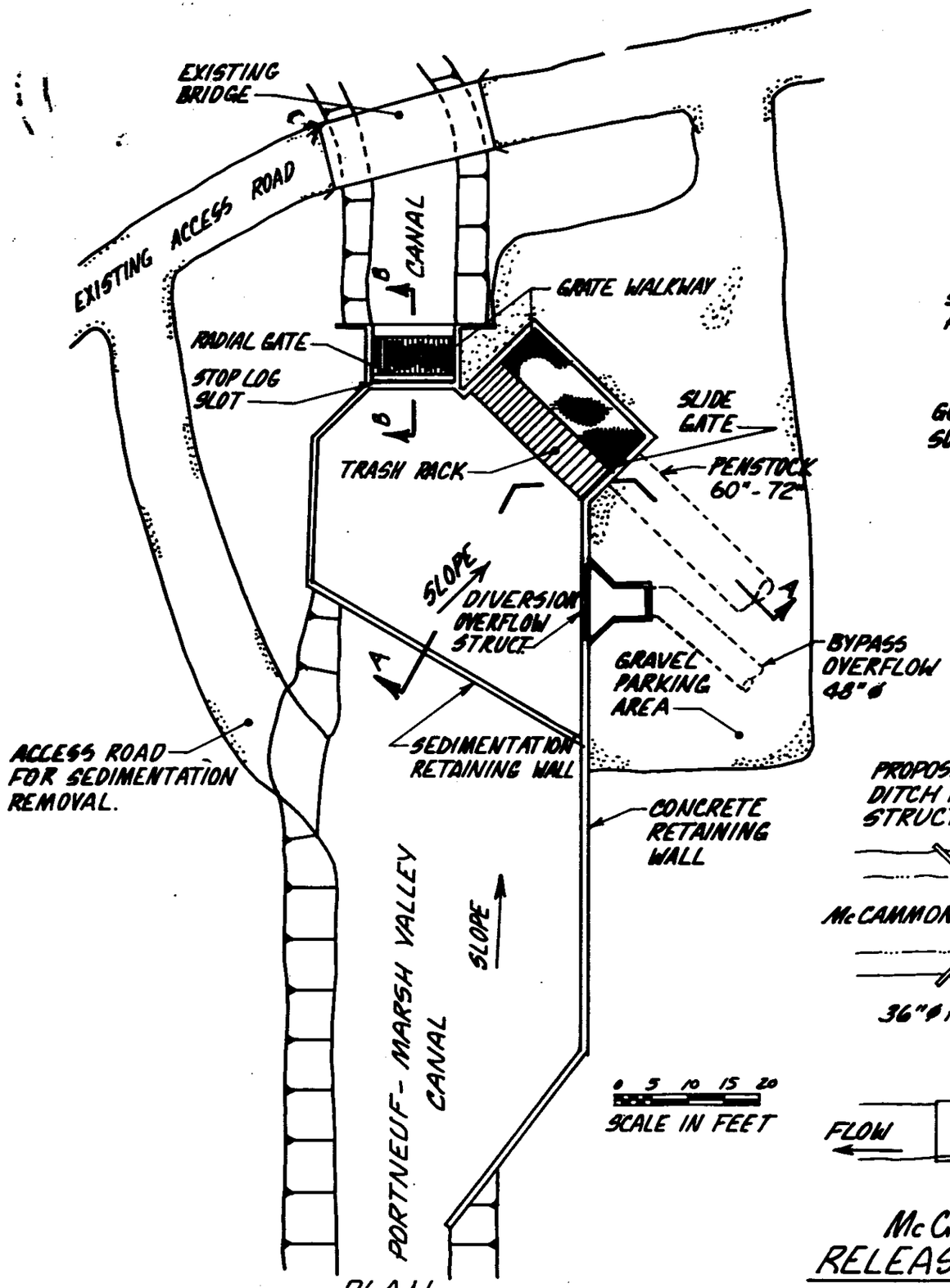
cc: Randy Budge
Lyndon Greene
Keith Bennett

JAN 2 2 1993

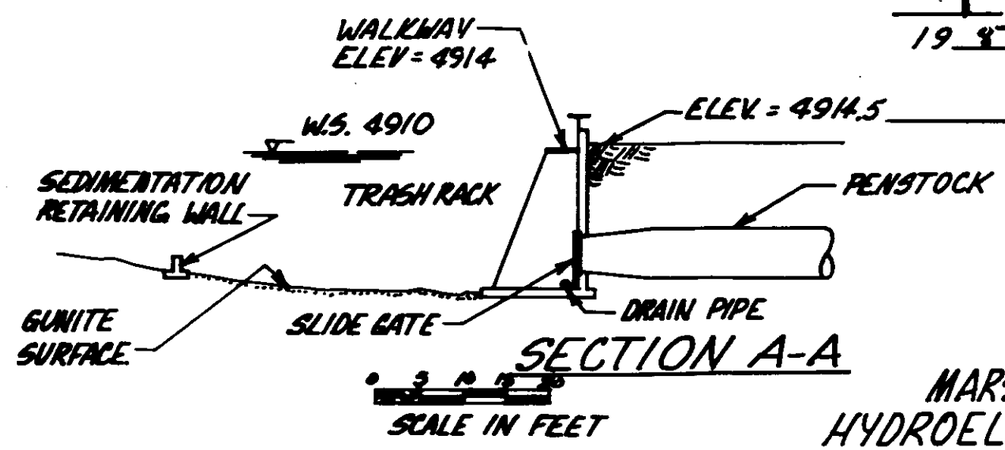

PROPOSED PENSTOCK
PROPOSED POWERHOUSE
EXISTING POWERLINE
EXISTING CANAL INTAKE FOR PORTNEUF-MARSH VALLEY CANAL
PROJECT BOUNDARY
PROPOSED POWERLINE
EXISTING FEEDER DITCH
PROJECT BOUNDARY
PROPOSED DIVERSION & PENSTOCK INTAKE STRUCTURE
PORTNEUF
UNION PACIFIC
MARSH VALLEY CANAL
Portneuf River
PRICE RD
ROAD
Mile 44
Mile 45
Mile 48
Mile 49
Radio Tower
Gravel Pit
BM 4830
BM 4929
PIPELINE
CANAL
DITCH
MARSH VALLEY
RAYMOND ROAD
PROJECT LOCATION MAP
FERC # 10468 EXHIBIT G-3
LOCATED IN: TOWNSHIP 9 SOUTH, RANGE 37 EAST, BOISE MERIDIAN
SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
REVISED 6/88

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF Sept 19 87.

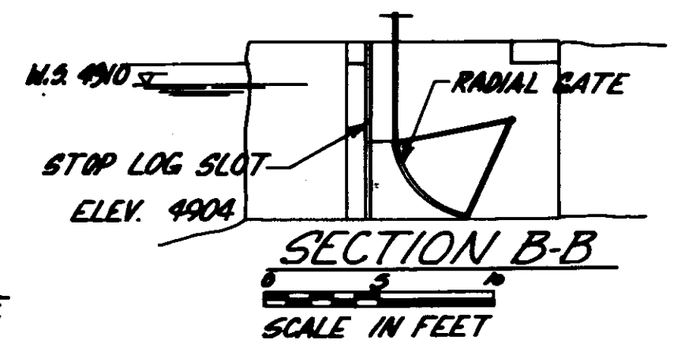
REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO TED S SORENSON



PLAN
DIVERSION & INTAKE

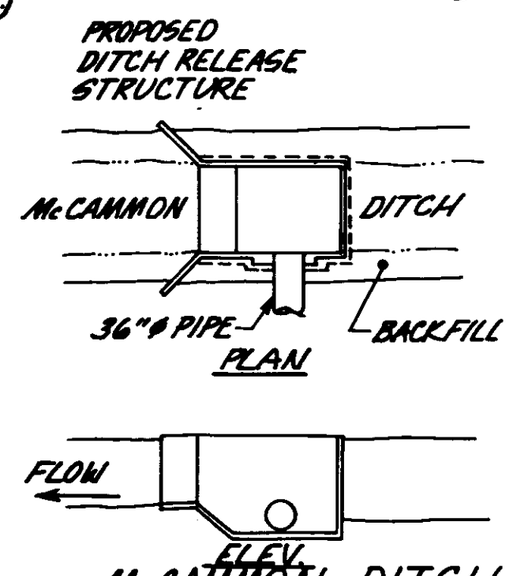


SECTION A-A



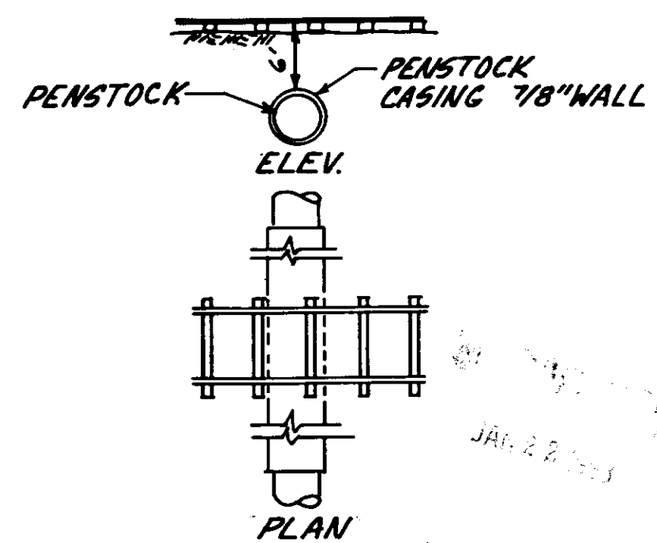
SECTION B-B

MARSH VALLEY
HYDROELECTRIC PROJECT
DIVERSION & DETAILS
EXHIBIT F-1
FERC NO.



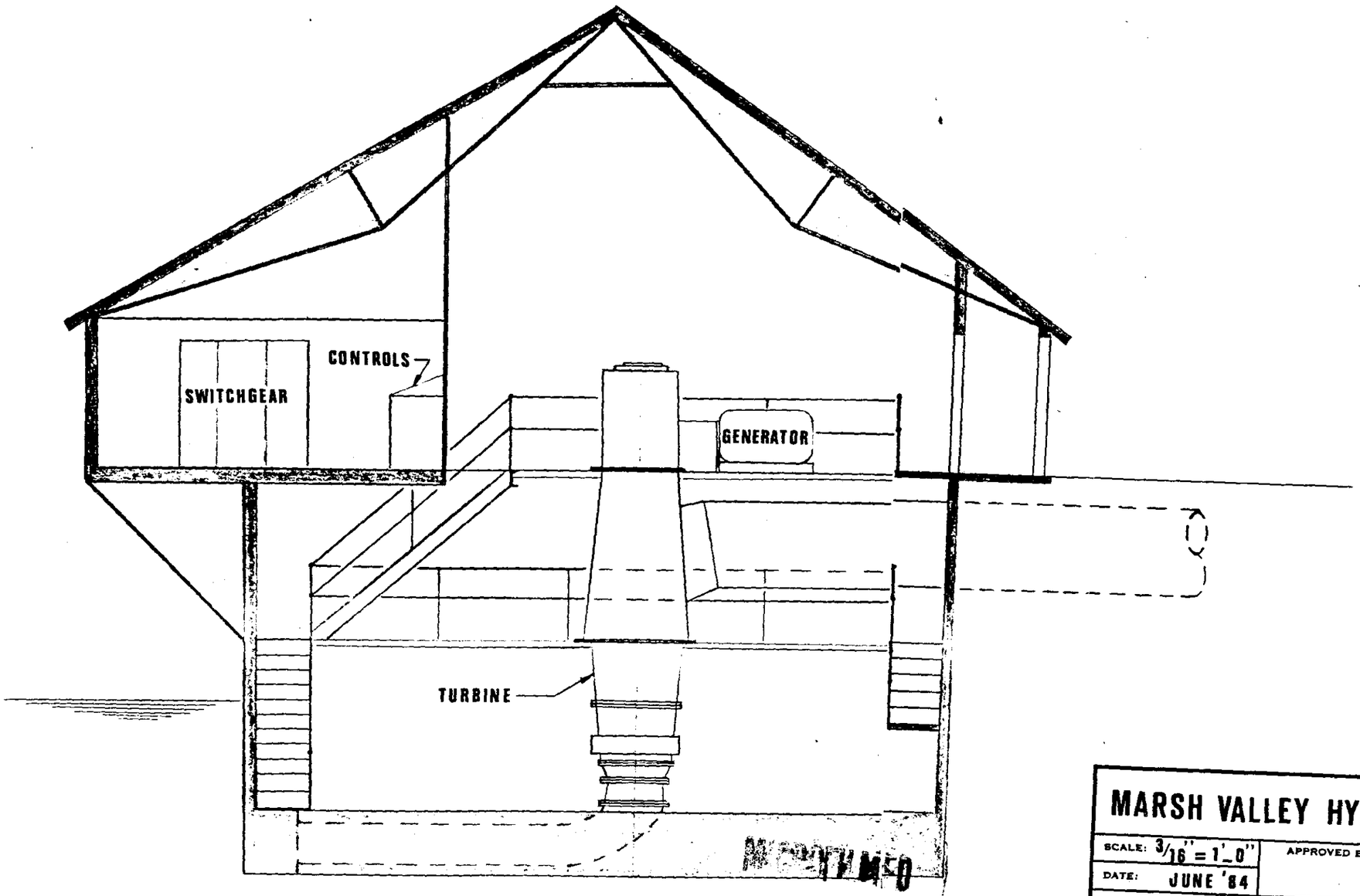
McCAMMON DITCH
RELEASE STRUCTURE

SCALE IN FEET



RAILROAD XING
NO SCALE

B 87-1712

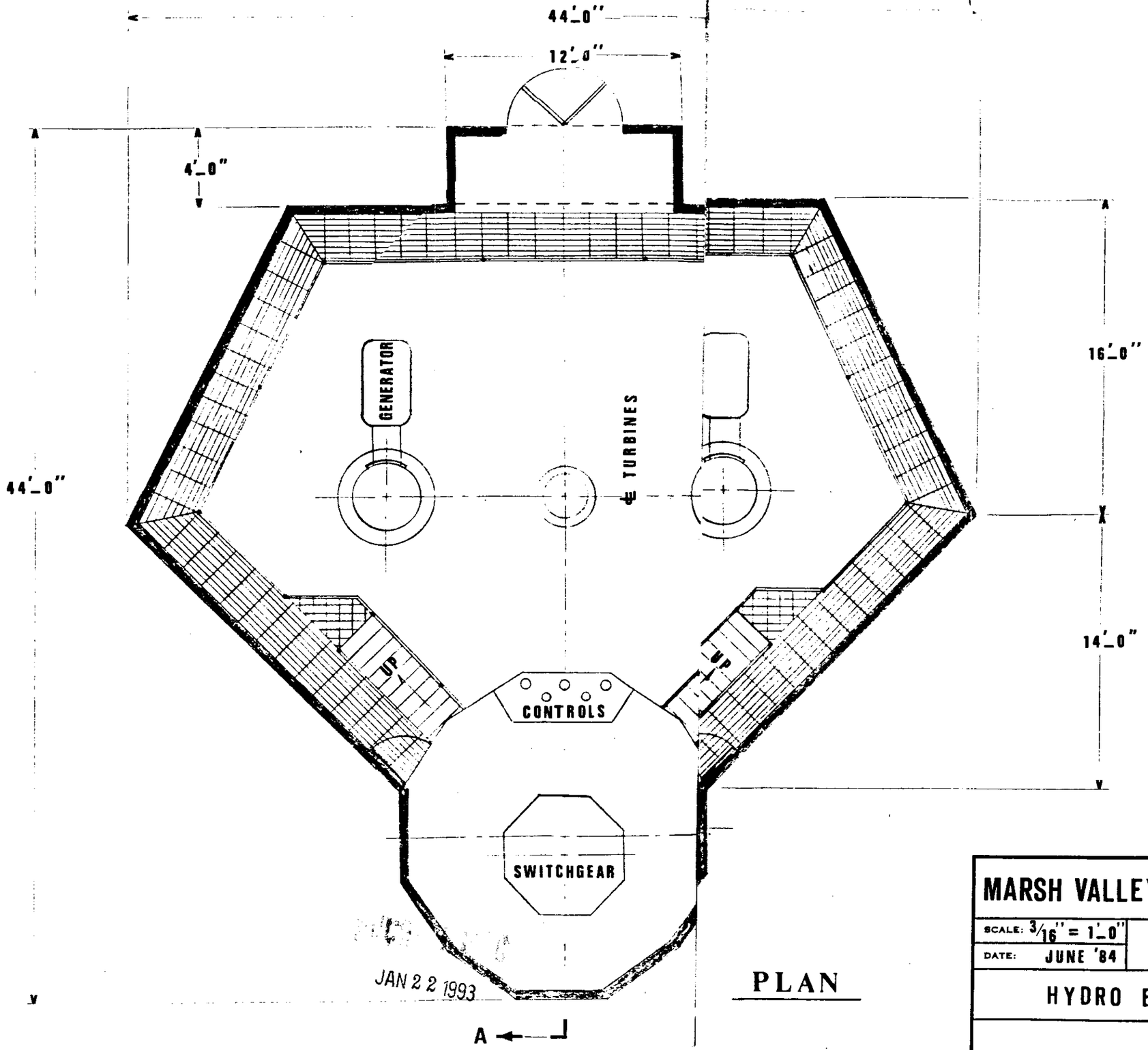


SECTION A-A

JAN 2 2 1993

JAN 2 2 1993

MARSH VALLEY HYDROELECTRIC PROJECT		
SCALE: 3/16" = 1'-0"	APPROVED BY:	DRAWN BY KENT
DATE: JUNE '84		REVISED
HYDRO ELECTRIC CONSTRUCTORS		
		DRAWING NUMBER MV_P_2



JAN 2 2 1993

PLAN

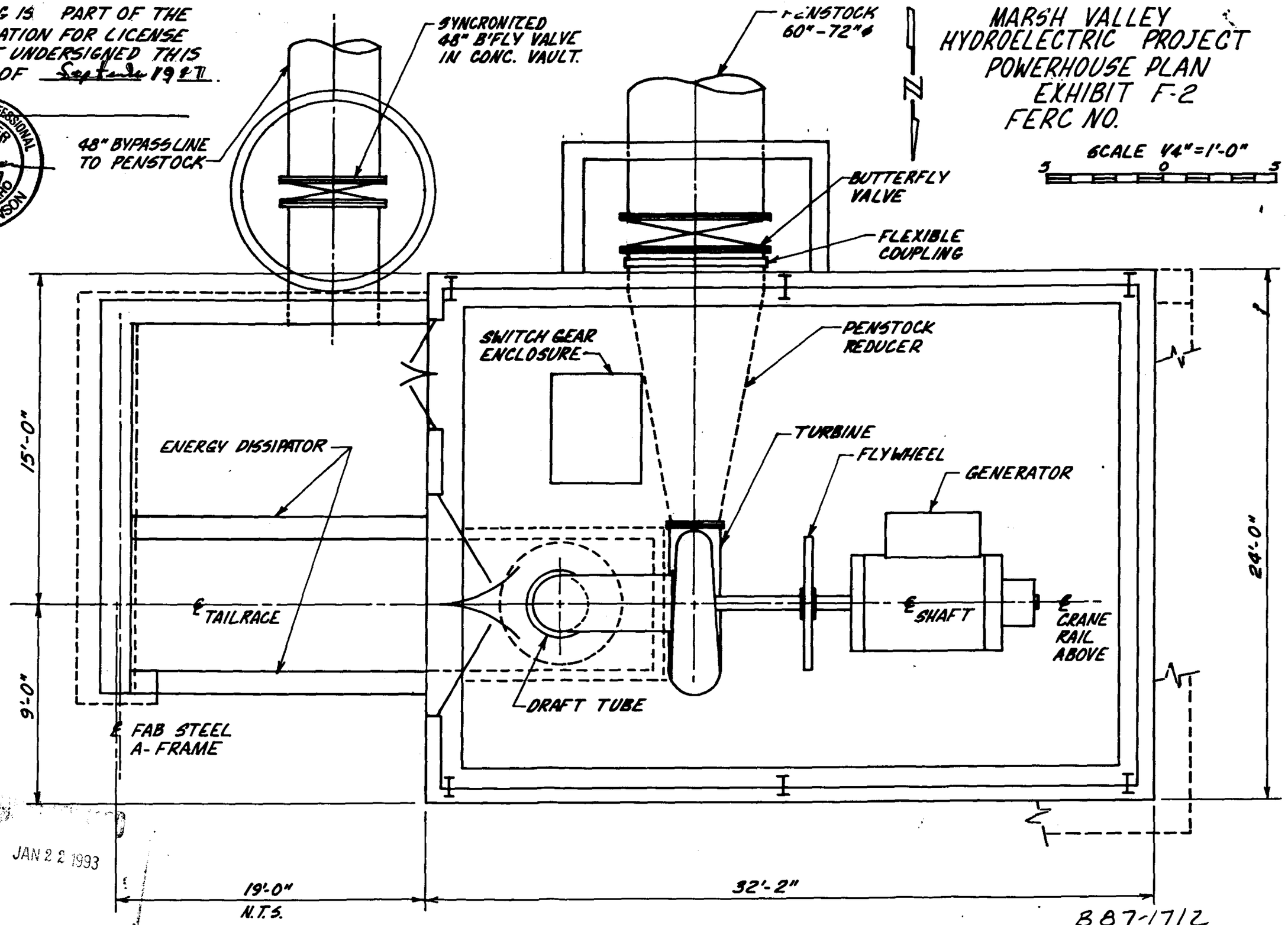
MARSH VALLEY HYDROELECTRIC PROJECT		
SCALE: 3/16" = 1'_0"	APPROVED BY:	DRAWN BY KENT
DATE: JUNE '84		REVISED
HYDRO ELECTRIC CONSTRUCTORS		
		DRAWING NUMBER MV_P_1

THIS DRAWING IS PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF September 1987.

REGISTERED PROFESSIONAL ENGINEER
9/1/87
STATE OF IDAHO
TED S SORENSON

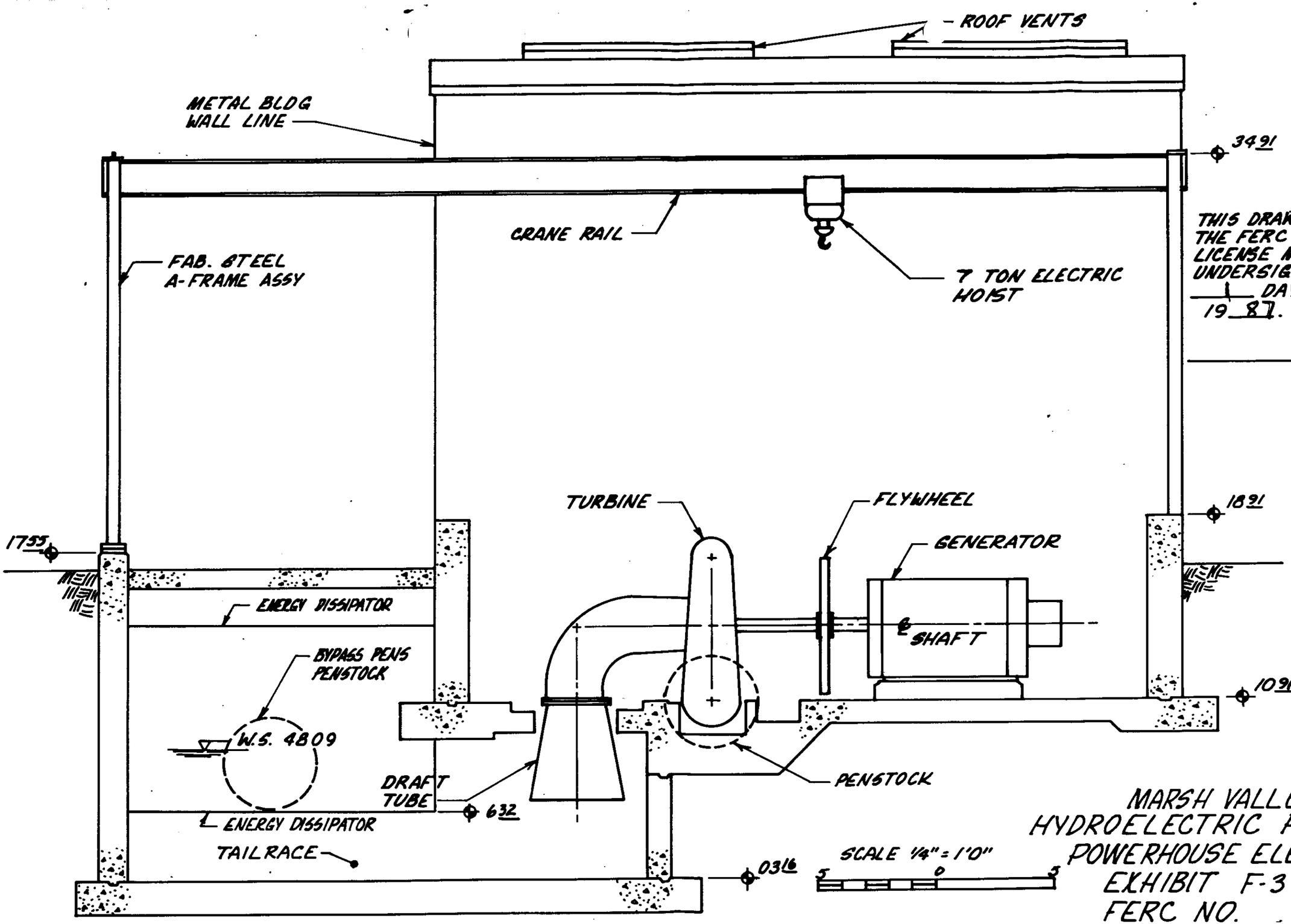
MARSH VALLEY HYDROELECTRIC PROJECT POWERHOUSE PLAN EXHIBIT F-2 FERC NO.

SCALE 1/4" = 1'-0"



JAN 22 1993

B87-1712



THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF September 1987.

REGISTERED PROFESSIONAL ENGINEER
STATE OF IDAHO
TED S SORENSON

MARSH VALLEY
HYDROELECTRIC PROJECT
POWERHOUSE ELEVATION
EXHIBIT F-3
FERC NO. . . JAN 22 1993

B 87-1712

Power Sales

Per Commission Order
No. 20979.
Myrna J. Walters
Myrna J. Walters
Commission Secretary

POWER PURCHASE AGREEMENT

BETWEEN

JAN - 8 1987

MARSH VALLEY HYDRO ELECTRIC COMPANY

AND

UTAH POWER & LIGHT COMPANY

THIS AGREEMENT is entered into this 21st day of November, 1986, by and between MARSH VALLEY HYDRO ELECTRIC COMPANY, a corporation organized and existing under the laws of the State of Idaho, and owners of a qualifying facility as defined in 18 CFR §292.101(b)(1) with the appropriate representation for qualification as specified in Appendix K, hereinafter referred to as "Seller," and UTAH POWER & LIGHT COMPANY, a corporation organized and existing under the laws of the State of Utah, hereinafter referred to as "Buyer." Seller and Buyer are sometimes referred to collectively as "Parties" and individually as "Party".

WITNESSETH:

WHEREAS, Seller intends to construct, own, operate and maintain a hydroelectric generating facility consisting of three (3) synchronous generators, each with a Name Plate Rating of six-hundred (600) kilowatts, for a total generating capacity of one-thousand, seven-hundred (1,700) kilowatts, hereinafter referred to as Facility*; and

*Initial capitalization of words and phrases other than proper names indicates that these terms are defined in Appendix A hereof.

JAN 22 1993

WHEREAS, Seller wishes to sell to Buyer and Buyer agrees to purchase all electric energy generated for sale by such Facility, but only in accordance with the terms of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

1. TERM OF AGREEMENT AND TERMINATION

1.1 Subject to the terms and conditions hereof, this Agreement shall become effective upon execution by the Parties and shall remain in full force and effect for a term of thirty-five (35) years from the Operation Date. It is anticipated that testing of the Facility pursuant to Appendix E and in-service generation will commence in March 1988.

1.2 This Agreement cannot be terminated by Seller except by subsequent mutual agreement of the Parties in writing or by abandonment of the Facility and payment by Seller to Buyer of the sums required by Appendix C.

1.3 This Agreement cannot be terminated by Buyer except by subsequent mutual agreement of the Parties in writing or in accordance with Appendix C. Also, in the event that Buyer's system which provides electrical service to Seller is acquired by another entity, to the extent that Seller's electrical service is to be supplied by said entity, this Agreement shall be deemed to be terminated by Buyer upon the date of acquisition. All future

JAN 2 2 1993

payment obligations of Buyer to Seller pursuant to this Agreement shall end upon the date of acquisition and the payment by Seller to Buyer of the sums required by Appendix C shall be due.

2. SALE OF POWER

2.1 Seller agrees to sell and deliver and Buyer agrees to purchase and accept all energy generated from the subject Facility in accordance with the terms and conditions of this Agreement.

2.2 Seller's proposed Facility is located in the Northeast 1/4 of the Northeast 1/4 of Section 20, Township 9 South, Range 37 East, Boise Meridian, approximately three miles east of McCammon, Bannock County, Idaho on the Portneuf-Marsh Valley Canal and shall provide energy as set forth herein.

2.3 If Seller intends to increase the generating capability of the generators beyond the stated Name Plate Rating, Seller shall notify Buyer. The Parties will enter into a mutually acceptable agreement to purchase any additional energy provided from such increase in accordance with the terms and at the rates then required by the appropriate regulatory authority. Such agreement will not become effective until it has been approved by the Idaho Public Utilities Commission. Seller shall be responsible for the costs that may be incurred by Buyer to accept the additional energy provided from such increase.

JAN 22 1993

3. PURCHASE PRICE AND METHOD OF PAYMENT

3.1 Buyer shall pay Seller, for the energy delivered to the Point of Delivery. The payment shall be the sum of the following:

(a) A fixed energy rate of 40.49 mills per kilowatt-hour for the energy delivered to the Point of Delivery. This portion of the payment will only be paid for the energy that is delivered after the Operation Date, but in no case will this portion of the payment be paid until after the Scheduled Operation Date. This rate reflects a 1988 scheduled in-service date and a thirty-five (35) year term as shown in Appendix B. This rate shall not change due to a delay in completion of construction nor shall it be subject to escalation or change except as stated in Appendix C, Section D.

(b) A variable energy rate of 14.00 mills per kilowatt-hour for all energy delivered to the Point of Delivery before and after the Operation Date. This rate will be updated annually by the Idaho Public Utilities Commission and applied to this Agreement as specified in Appendix B.

3.2 The kilowatt-hours for which Buyer shall be obligated to purchase shall be the kilowatt-hours measured on Buyer's metering equipment located at the Point of Delivery. Payment shall be based on total generation from the Facility less Station Use. In the event that during a month Station Use exceeds gross generation, then Seller

JAN 22 1993

shall pay Buyer for the excess energv at the then-current applicable rate(s).

3.3 Buyer's obligation to pay Seller the fixed energy rate for energy furnished to Buyer shall commence on the Operation Date of the Facility. Buyer shall pay Seller the variable energy rate for energy furnished to Buyer during the test period prior to the Operation Date and after the Operation Date for energy furnished to Buyer.

4. ENTIRE AGREEMENT

4.1 This Agreement shall supersede all prior contracts, proposals, representations, negotiations, discussions or letters between the Parties.

4.2 This Agreement cannot be amended by either Party except by subsequent mutual agreement of the Parties in writing.

4.3 This Agreement may be unilaterally terminated by Buyer twelve (12) months after the Scheduled Operation Date if Seller's Facility has not commenced delivery of energy pursuant to this Agreement, unless Seller can show just cause why the Facility is not complete and that it will be operational within a reasonable period of time.

4.4 This Agreement may be unilaterally terminated by Buyer twelve (12) months after the execution date, above, if Seller has failed to

JAN 2 2 1993

obtain all necessary licenses and permits, including qualifying facility representation, needed to construct and operate the Facility throughout the term of this Agreement.

4.5 This Agreement includes the following Appendices, all of which are attached hereto and incorporated herein by reference:

Appendix A:	Power Purchase General Terms and Conditions
Appendix B:	Schedules of Capacity and Energy Rates
Appendix C:	Adjustment of Payments
Appendix D:	Parallel Generation Interconnection Requirements
Appendix E:	Performance Test Criteria for Seller's Interconnection Facilities
Appendix F:	Metering Equipment, Communication Equipment and Communication Channels
Appendix G:	Seller's Interconnection Facilities
Appendix H:	Buyer's Interconnection Facilities
Appendix I:	Point of Delivery
Appendix J:	Description of Facility
Appendix K:	Qualifying Facility Representation

5. NOTICES

5.1 All written notices given pursuant to this Agreement shall be addressed as follows:

(a) To Buyer:

Corporate Secretary
UTAH POWER & LIGHT COMPANY
1407 West North Temple Street, Room 326
P.O. Box 899
Salt Lake City, UT 84110

JAN 2 2 1993

With a copy to: Manager, Resource Contracts
UTAH POWER & LIGHT COMPANY
1407 West North Temple Street, Room 3312
P.O. Box 899
Salt Lake City, UT 84110

(b) To Seller: MARSH VALLEY HYDRO ELECTRIC COMPANY
McCammon, ID 83250

With a copy to: McCammon Ditch Company
McCammon, ID 83250

And: Portneuf-Marsh Valley Canal Co., Ltd.
Downey, ID 83234

5.2 Inquiries concerning meter readings, billings, etc., should be addressed to:

(a) To Buyer: Customer Service Manager
UTAH POWER & LIGHT COMPANY
145 West Main Street
P.O. Box 130
Rexburg, ID 83440

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IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the first date hereinabove set forth.

SELLER:

MARSH VALLEY HYDRO ELECTRIC COMPANY

By Lyndon Green

Title PRESIDENT

BUYER:

UTAH POWER & LIGHT COMPANY

By _____

VERL R. TOPHAM
Senior Vice President

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JAN 22 1993

APPENDIX A

POWER PURCHASE GENERAL TERMS AND CONDITIONS

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

A. DEFINITIONS

Whenever used in this Agreement, the following terms shall have the respective meanings set forth below:

1. Buyer's Interconnection Facilities - The facilities and equipment, identified in Appendix H, which will be built and owned by Buyer to connect Buyer's system to Seller's Facility. Seller shall pay to Buyer the costs incurred by Buyer directly related to the installation and operation and maintenance of Buyer's Interconnection Facilities, including the costs of connection, switching, metering, transmission, distribution, safety provisions and administrative costs, to the extent such costs are in excess of the corresponding costs which Buyer would have incurred if it had not engaged in interconnected operations with Seller, but instead generated an equivalent amount of electric energy itself or purchased an equivalent amount of electric energy from other sources. Seller shall pay to Buyer the costs for the Buyer's Interconnection Facilities as specified in Appendix H, plus all annually incurred costs for Buyer's Interconnection Facilities as specified in Appendix H.

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2. Designated Dispatch Operator - Buyer's system or local dispatching operators, designated in writing to Seller by Buyer, with whom Seller shall make all operating communications and required reports concerning Seller's Facility pursuant to this Agreement.

3. Facility - The hydroelectric generation Facility and appurtenant facilities described in Appendix J, which will be designed and constructed by Seller.

4. Name Plate Rating - The full-load continuous rating of the Facility's generators as designated by the manufacturer on each of the generator name plates.

5. Operation Date - The day commencing at 12:01 a.m. following the day on which Seller's Licensed Architect/Engineer certifies to Buyer in writing that the Facility is fully operational and has successfully completed all Performance Tests as specified in Appendix E. This date shall not precede the Scheduled Operation Date.

6. Performance Tests - The tests of Seller's Interconnection Facility which are described in Appendix E, which tests will be performed jointly by Buyer and Seller.

7. Point of Delivery - The location where Buyer's and Seller's electrical facilities are interconnected, as specified in Appendix I.

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8. Prudent Electrical Practices - The practices and methods, as changed from time to time, that are commonly used in the electrical utility industry by companies similar to Buyer to operate electrical equipment lawfully and in a safe, dependable, efficient and economic manner, including the applicable provisions of the National Electric Safety Code and the National Electric Code.

9. Scheduled Operation Date - The Scheduled Operation Date of the Seller's Facility is March 1988.

10. Seller's Interconnection Facilities - The facilities and equipment identified in Appendix G, that are not owned by Buyer on Seller's side of the Point of Delivery. The facilities and equipment are for the purpose of connecting Seller's Facility to Buyer's system. Seller shall be responsible for the purchase and installation of all Seller's Interconnection Facilities.

11. System Emergency - A condition on Buyer's system or at Seller's Facility which is likely to result in an imminent disruption of service to Buyer's customers, or is imminently likely to endanger life or property, or threatens the integrity of Seller's Facility or Buyer's system.

12. Station Use - Incremental energy, used directly or indirectly, resulting from the generation of electricity by the Facility. Station Use includes, but is not limited to, lighting, heating, pumping, excitation energy, environmental controls, fuel feeding and other consumption of electricity in connection with small power production. Negative Station Use will

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not be recognized. Increased efficiency or conservation associated with the Facility that results in reduced energy consumption directly benefiting the Seller will not be further compensated as negative Station Use.

B. CONSTRUCTION

1. Land Rights

a. Seller hereby grants to Buyer, for the term of this Agreement, all necessary rights-of-way and easements to install, operate, maintain, replace, and remove Buyer's Interconnection Facilities, as specified in Appendix H, on Seller's property, and to do all other work required pursuant to this Agreement. Seller agrees to execute such other grants, deeds, or documents as Buyer may reasonably require to enable it to record such rights-of-way and easements. If any part of Buyer's Interconnection Facilities are to be installed on property not owned by Seller, Seller shall procure from the owners thereof all necessary rights-of-way and easements to install, operate, maintain, replace and remove Buyer's Interconnection Facilities upon such property in a form satisfactory to Buyer. If Seller is unable to procure from the above owners all said necessary rights-of-way and easements, Seller may request Buyer to procure said necessary rights-of-way and easements. Buyer will then attempt, in accordance with its usual procedures, to procure said necessary rights-of-way and easements.

b. Seller will pay Buyer for all reasonable costs incurred by Buyer in obtaining or attempting to obtain all such necessary rights-of-way

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and easements including Buyer's standard overhead costs. Seller will pay said costs pursuant to the repayment provisions of Section A.1.

2. Facility and Equipment Design and Construction

a. Except for the Buyer's Interconnection Facilities identified in Appendix H, Seller shall be responsible for the design, construction, installation, operation, and maintenance of all equipment at Seller's Facility which produces or transmits electrical power (including Seller's Interconnection Facilities) and any equipment at Seller's Facility which directly or indirectly affects Buyer's system in a manner which complies with the requirements established by Buyer in Appendix D. Metering equipment shall be owned and maintained by Buyer in accordance with Appendix D.

b. To aid in the determination of compliance with Buyer's interconnection requirements, Seller shall submit the Facility and equipment specifications and drawings to Buyer for review and comment and Buyer shall submit its comments to Seller within twenty-one (21) working days from receipt of those specifications and drawings. Any action taken by Seller as a result of Buyer's review and comments will remain within the sole discretion and judgment of Seller and shall be at Seller's sole risk. The acceptance of or incorporation of Buyer's comments shall not relieve Seller from the responsibility for the design, construction, operation and maintenance of the Facility and all Seller's Interconnection Facilities, nor obligate Buyer in any way. In the

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event that a claim or cause of action arises against Buyer which relates directly or indirectly to Buyer's review of the specifications and drawings furnished by Seller, or which relates directly or indirectly to suggestions or comments made by Buyer, Seller hereby agrees to indemnify and hold Buyer, its officers, directors, employees and representatives harmless from any such claims or causes of action.

c. Buyer's Interconnection Facility will be 12.47 kV. If Buyer's Interconnection Facility voltage is changed by Buyer to provide for more efficient operation of its system, then Buyer shall be solely responsible for the cost of the modifications to accomplish such voltage change to Buyer's Interconnection Facilities. Except as specified above, Seller, at its own expense, agrees to make modifications to its Facility and Seller's Interconnection Facilities so that Seller's Facility and Seller's Interconnection Facilities remain compatible with Buyer's Interconnection Facilities including, but not limited to, modifications to Seller's equipment to accommodate increased fault duty, additional protective relay equipment, relay setting modifications, etc., consistent with Prudent Electrical Practices. If Seller fails to make any modifications required by this Agreement within a reasonable time after being requested to do so by Buyer, Buyer will make the modifications and bill Seller actual costs plus Buyer's normal overheads. Failure of Seller to make said modifications or to allow Buyer to make said modifications, or failure of Seller to pay for such modifications, will, at Buyer's discretion, and with Commission approval, terminate this Agreement.

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C. OPERATION

1. Point of Delivery - Seller shall deliver the energy to the Point of Delivery described in Appendix I.

2. Operating Communications - Buyer and Seller shall maintain telephone communications for verbal contact between Buyer's Designated Dispatch Operator and Seller so that all relevant information about operating conditions of Seller's Facility or Buyer's system can be exchanged. Also, the telephone communications shall provide for verbal contact such that prior to initial interconnection, and at any time thereafter should Seller become disconnected from Buyer's system, Seller shall not synchronize, connect or reconnect the Facility to Buyer's system unless directly ordered to do so by Buyer's Designated Dispatch Operator. Also, Buyer shall, at Seller's expense, install communications equipment on the communication channels provided by Seller that will allow Buyer's Designated Dispatch Operator to monitor the output of Seller's Facility. Such equipment and channels shall be as specified in Appendices F and H.

3. Facility Operations and Maintenance and System Emergencies

   a. Seller shall operate and maintain its Facility according to Prudent Electrical Practices and conduct its operation to ensure that wave forms, voltage flicker, power factor, and inverter techniques comply with the requirements established by Buyer in Appendix D.

   b. Buyer may enter Seller's premises, at any reasonable time, to inspect Seller's protective relay equipment and read or test the

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metering equipment, and to disconnect, without notice, Seller's Facility from Buyer's system if, in Buyer's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, Buyer's system, or other customers' facilities from damage or interference caused by Seller's Facility, or because of a lack of properly operating protective relay equipment.

c. Buyer shall not be obligated to accept, and Buyer may require Seller to curtail, interrupt or reduce deliveries of energy if Buyer, in its reasonable sole discretion, determines that curtailment, interruption or reduction is necessary due to a System Emergency. Buyer's acceptance of and obligation to pay for energy shall be totally suspended for all periods of time during which there is a System Emergency caused or significantly contributed to by the operation of Seller's Facility.

During a System Emergency which is not caused by or significantly contributed to by the operation of Seller's Facility, Buyer shall continue to pay for only the energy it elects to receive; provided, however, that Seller's Facility was available and capable of deliverying energy in accordance with the terms of this Agreement.

d. Except in case of a System Emergency, Buyer shall give Seller reasonable prior verbal notice of any planned curtailment, interruption or reduction which Buyer shall require Seller to make, which notice shall include, the reason for its occurrence and its estimated duration.

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e. Seller shall, whenever possible, notify Buyer of any Facility outage prior to its occurrence, but in no event later than two (2) hours after the occurrence of an outage.

f. Seller's scheduled outage for maintenance shall be performed between March 1 and May 31, unless otherwise agreed to by Buyer.

4. Metering Equipment

a. The metering equipment which will be used to determine the billing hereunder shall be supplied by Buyer, at Seller's expense, as specified in Appendix F. Seller shall provide, at no added cost to Buyer, adequate space for Buyer's metering equipment. Each individual meter shall be sealed in accordance with Buyer's requirements and the seals shall be broken only when the meters are to be inspected and tested by Buyer. Seller shall be given reasonable notice of the time when any inspection and testing shall take place and Seller may have representatives present at the inspection and testing.

b. Buyer shall inspect and test the metering equipment upon its installation and at least once every two (2) years thereafter to maintain their accuracy of registration in accordance with generally accepted practices and the rules and standards established by the Idaho Public Utility Commission. If requested to do so by Seller, Buyer shall perform a special inspection and test of all metering equipment more frequently than every two (2) years. The expense of such special inspection and test shall be paid by Seller, unless

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upon being inspected and tested the metering equipment is found to register inaccurately by more than two percent (2%) fast or slow, in which case Buyer shall pay the expense of the special inspection and test. Seller's expense for the special inspection and testing of the metering equipment shall be paid as specified in Appendix H, Section B.3.

c. If the measurement made by a meter during a test is in error by more than two percent (2%) from the measurement made by the standard meter used in the test, the meter shall be adjusted and an adjustment factor based on the error shall be calculated. This adjustment factor will be applied to and correct all measurements made by the inaccurate meter and the associated billings based on such measurements for:

1) The actual period during which the meter rendered inaccurate measurements, if the period can be determined; or if not,

2) The period immediately preceding the test of the meter equal to one-half (1/2) the time from the date of the last previous test of the meter; provided, that the period covered by the correction shall not exceed six (6) months from the date of the test.

d. If a meter fails to register, the meter shall be adjusted or replaced. The energy measurements for billing purposes for the unrecorded

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period shall be based on a mutually agreed-upon period with similar waterflows.

e. Each Party, after giving reasonable notice to the other Party, shall have the right of access to all metering and related records during normal business hours.

D. BILLING

On or before the thirtieth (30th) day following the monthly billing period, Buyer will send a billing statement to Seller itemizing the kilowatt-hours and the applicable rates that are being paid for both fixed and variable energy received from Seller, together with the excess kilovar-hours received by Seller from Buyer and the applicable rate that is being charged, the monthly proportional share of all Buyer's annually incurred costs pursuant to Appendix H, and any other expenses incurred that month by Buyer pursuant to this Agreement, if any, and the payment owed to Seller.

E. PAYMENT

Buyer will include payment with the billing statement. If either Party objects to the billing statement, the Party objecting will, within six (6) months after receipt of the billing statement deliver to the other Party a written summary of its objections to the billing statement, which objections shall include the amount by which the Party believes the billing statement is incorrect. All other payments due will be paid pending the resolution of the billing objection. Upon determination by the Parties of the correct amount due from Buyer, or the refund due from Seller, the indebted Party shall promptly pay such amount with interest at the rate then established for late payments by the Idaho Public

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Utilities Commission. If either Party fails to notify the other Party of an objection within the six (6) month period, the billing statement and payment shall be deemed to be correct and neither Party shall be entitled to make any claim against the other Party arising from the billing statement.

F. FORCE MAJEURE

1. Neither Party shall be under any obligation or subject to any liability except as modified by this Agreement for failure to carry out the terms of this Agreement during the time and to the extent that a failure to do so shall be solely due to:

   a. The operation and/or effect on transactions or Facilities covered by this Agreement of rules, regulations, orders, ordinances or statutes issued or enacted by any regulatory Commission, municipality, governmental agency or any legislature of any State or the United States of America having jurisdiction over either or both of the Parties or the subject matters of this Agreement;
   b. A judgment, restraining order or injunction or similar decree or order of any court of competent jurisdiction;
   c. War or riots;
   d. Flood, fire, wind, hail or earthquake;
   e. Aircraft or vehicles;
   f. Act of God;
   g. Sabotage or vandalism;
   h. Strikes or boycotts;
   i. Civil disturbances;

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j. Or any other event beyond the reasonable control of, and without the fault or negligence of, the Party claiming force majeure.

Each Party expressly reserves, however, the right to appeal and pursue all other legal recourse to contest a governmental or judicial action creating a force majeure event as described in Section F.1(a) and F.1(b) above.

2. Buyer shall have no obligation to make energy payments during the time period Buyer is unable to accept and utilize energy from Seller's Facility due to a force majeure event. Buyer shall have no obligation to make energy payments during the time period Seller is unable to deliver energy to Buyer due to a force majeure event. Seller shall have no liability to Buyer for failure to deliver energy during the time period Seller is unable to deliver energy to Buyer due to a force majeure event, subject to the provisions of Section F.5, hereunder and Appendix C.

3. If either Party, because of a force majeure event, is rendered wholly or partly unable to perform its obligations under this Agreement, that Party shall be excused from whatever performance is affected by the force majeure event, to the extent so affected, provided that:

a. The affected Party, within two (2) weeks after the occurrence of the force majeure event, gives the other Party written notice

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describing the nature of the occurrence, the effect on its ability to perform its obligations under this Agreement and its probable duration; and

b. The suspension of performance is of no greater scope and of no longer duration than is required by the force majeure event; and

c. No obligations of either Party which arose before the force majeure event causing the suspension of performance shall be excused due to the force majeure event; and

d. The affected Party uses its best efforts to remedy its inability to perform as soon as possible.

4. This Section F shall not require the settlement of any strike, walkout, lockout or other labor dispute on terms which, in the sole judgement of the Party involved in the dispute, are contrary to its best interests. It is understood and agreed that the settlement of strikes, walkouts, lockouts or other labor disputes shall be entirely within the discretion of the Party involved.

5. Failure by Seller to remedy its inability to perform due to the force majeure event within two (2) years after the termination of the force majeure event shall constitute termination of this Agreement and the provisions of Appendix C shall apply, unless Seller has used reasonable efforts to remedy the force majeure event and such events continue to be the reason for Seller's inability to perform. The provisions of

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Appendix C shall not apply if Seller's inability to perform for two (2) years is due to a force majeure event on the Buyer's system.

6. Notwithstanding the foregoing of this Section F, conditions of System Emergency on Buyer's system shall be governed by the provisions of Section C.3(d).

G. LIABILITY AND INDEMNIFICATION

1. Each Party shall indemnify the other Party, its directors, its officers, agents, and employees against all loss, damage, expense and liability to third persons for injury to or death of any person or injury to property, proximately caused by the indemnifying Party's construction, ownership, operation, or maintenance of, or by failure of, any such Party's works or facilities used in connection with this Agreement. The indemnifying Party shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying Party shall pay all costs that may be incurred by the other Party in successfully enforcing this indemnity clause.

2. Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability to any person not a Party to it. Neither Party shall be liable to the other Party for consequential damages.

3. Each Party shall be responsible for protecting its facilities from possible damage by reason of the electrical disturbances or faults caused by the

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operation, faulty operation, or nonoperation of the other Party's facilities, and such other Party shall not be liable for any such damages so caused.

H. SEVERAL OBLIGATIONS

Except as otherwise provided in this Agreement, the duties, obligations and liabilities of the Seller and Buyer are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture between the Seller and Buyer.

I. WAIVER

It is expressly understood and agreed that the failure of either Party to insist upon strict performance of any of the terms and conditions hereof, or the failure of either Party to exercise or delay in the exercise of any rights or remedies provided herein or by law shall not release either Party from any or all of the responsibilities or obligations imposed by law or this Agreement and shall not be deemed to be a waiver of any right of either Party to insist upon strict performance hereof, and shall not be deemed as a waiver of any of the rights or remedies as to any performance of this Agreement regardless of which services are performed or received or as to any prior or subsequent default hereunder. The purported oral modification or rescission of this Agreement by either Party shall not operate as a waiver of any of the terms of this Agreement.

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J. ASSIGNMENT

Seller may assign its right to payment under this Agreement for the purpose of securing financing of the Seller's Facility and Buyer agrees to execute any consents or other documents reasonably necessary to effect such an assignment; provided that such assignment, in Buyer's sole discretion, does not adversely affect Buyer's interest. Either Party may assign all or a portion of its rights or delegate all or a portion of its duties under this Agreement in connection with the sale or merger of a substantial portion of its properties. Subject to the exceptions stated in this Section J, neither Party shall assign its rights nor delegate its duties under this Agreement or any part of such rights or duties without the prior written consent of the other Party, which consent shall not be unreasonably withheld, and any such assignment or delegation made without such written consent shall be null and void.

K. CHOICE OF LAWS

This Agreement shall be construed and interpreted in accordance with the substantive and procedural laws of the State of Idaho and the United States of America.

L. JURISDICTIONAL APPROVALS

This Agreement shall be subject to the approval of the Idaho Public Utilities Commission and to an express finding and supporting order by the Commission that (i) Seller is a qualifying facility as defined in 18 C.F.R. §292.101(b)(1), (ii) that the Commission has found that the price to be paid for energy by Buyer to be just and reasonable, and (iii) that the acquisition of the energy by Buyer from Seller at costs specified herein for the duration of this Agreement are reasonable, prudent and in the public interest.

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APPENDIX B

SCHEDULE OF ENERGY PURCHASED RATES

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

Fixed Energy Rates

Scheduled Commencement of Service	Term of Agreement (Years)							
	4	6	10	15	20	25	30	35
1986-$/kW-Yr	106	115	133	161	188	215	241	266
-Mills/kWh*	16.13	17.50	20.24	24.50	28.61	32.72	36.68	40.49

The fixed energy rate figure shall not be subject to escalation or change except as stated in Appendix C, Section D.

Variable Energy Rate

(Mills/kWh)

1986	14.00

The variable energy rate figure shall be updated annually commencing on January 1 of each year after the date energy is first delivered by Seller to Buyer to the variable energy rate figure that has been approved by the Idaho Public Utilities Commission for that year. The rate paid will be the average cost of fuel consumed in Buyer's coal fired generating stations determined pursuant to Buyer's normal accounting practices. The adjustment may be up or down and shall apply only to future payments.

*Based on a 75 percent capacity factor.

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APPENDIX C

ADJUSTMENT OF PAYMENTS

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

A. GENERAL PROVISIONS

1. This Appendix C shall apply in the event that a reduction of output is determined by Buyer, when the Facility is abandoned or this Agreement is terminated.

   a. The Facility shall be deemed to be abandoned and this Agreement to be terminated if, at any time after the Operation Date and before the expiration of the original Agreement, Seller ceases operation of the Facility with the intent that such cessation be permanent. Such intent shall be presumed by either (i) Seller's written notice to Buyer of such intent, receipt of which will immediately invoke the provisions of Section B applied to the abandonment of the total contracted capacity, or (ii) Seller's operation of the Facility such that no energy above that consumed by Seller on its premises is available at the Point of Delivery to Buyer for three-hundred and sixty (360) consecutive calendar days during any period after the Operation Date, unless Seller is diligently proceeding to remedy the

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problem causing such failure to generate energy above that consumed by Seller and does so within two (2) years. After the three-hundred and sixty (360) consecutive calendar days, determination of the abandonment shall be made by Buyer and written notice shall be delivered to Seller of such determination and the provisions of Section B shall apply to the abandonment of the total contracted capacity. Seller shall be considered to be diligently proceeding to remedy the problem causing such failure to generate energy only if Seller provides written notice to Buyer within fifteen (15) days after receipt of Buyer's written notice, stating the cause of such failure to generate energy and Seller's plan of action to remedy the problem. Seller shall be deemed to have remedied the problem if there is energy available at the Point of Delivery to Buyer during any of the next two (2) years. After the two (2) years, if the problem causing such failure to generate energy has not been resolved, the provisions of Section B shall apply to the abandonment of the total contracted capacity. In all cases above when provisions of Section B are applied, Buyer shall invoice Seller for the refund described below.

b. The output of the Facility shall be deemed to be reduced and the contracted capacity of this Agreement altered, if at any time after the fifth (5th) anniversary of the Operation Date and before the expiration of the original

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term of this Agreement, there is a permanent, material reduction in the current yearly kilowatt-hour output of the Facility with the intent that such reduction of output be permanent. Such intent shall be presumed by either (i) Seller's written notice to Buyer of such intent, receipt of which will immediately invoke the provisions of Section B applied to the reduction of output, or (ii) Seller's operation of the Facility such that the current yearly kilowatt-hour output is more than ten percent (10%) below the target kilowatt-hour output (defined as the average of the three (3) highest previous years) (or twenty-five percent (25%) below the target kilowatt-hour output if the problem causing the reduced current yearly kilowatt-hour output is a direct result of below average precipitation or changes in the normal precipitation patterns), unless Seller is diligently proceeding to remedy the problem causing the reduced current yearly kilowatt-hour output and does so within two (2) years. The determination of the reduction of output shall be made by Buyer and written notice shall be delivered to Seller of such determination and the provisions of Section B shall apply to that portion of the output that has been reduced. Seller shall be considered to be diligently proceeding to remedy the problem causing the reduction of output only if Seller provides written notice to Buyer within fifteen (15) days after receipt of Buyer's written notice, stating the cause of such reduction of output and Seller's plan of action to remedy the

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problem. Seller shall be deemed to have remedied the problem if the current yearly kilowatt-hour output during any of the next two (2) years is no more than ten percent (10%) below the target kilowatt-hour output. After the two (2) years, if the problem causing such reduction of output has not been resolved, the provisions of Section B shall apply to that portion of the output that has been reduced and the portion of the output shall be used to calculate the repayment obligation. In all cases above, when the provisions of Section B are applied, Buyer shall invoice Seller for the refund described below. All refunds to be paid by Seller, pursuant to this Appendix C, shall be retroactive from the date of written notice or final invoice to the Operation Date.

2. The Parties understand and agree that the payment Buyer makes to Seller for the energy generated is based on the value to Buyer of Seller's performance during the full term of this Agreement and that in the event Buyer does not receive full performance from Seller by reason of a reduction of output or an abandonment, then:

   a. Buyer shall be deemed damaged by reason thereof;

   b. It would be impracticable or extremely difficult to fix the actual damages to Buyer resulting therefrom;

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c. The refunds and payments as provided in this Appendix C are in the nature of adjustments in power purchase prices and liquidated damages, and not a penalty, and are fair and reasonable;

d. Such refunds and payments represent a reasonable endeavor by the Parties to estimate a fair compensation for the reasonable losses that result from such reduction of output or termination; and

e. Buyer shall be released from any obligation by this Agreement to enter into a subsequent Power Purchase Agreement with Seller or its successors or assigns to purchase energy from Seller's Facility, and shall be released from any obligation by this Agreement to wheel or otherwise distribute energy generated from Seller's Facility. Such release from Buyer's obligation as to the above shall remain in effect for the remainder of the original term of this Agreement.

3. In the event that there is a reduction of output, the amount by which the yearly average kilowatt-hour output is reduced shall be used to calculate the refund due Buyer as per Section B.

4. Seller shall be invoiced by Buyer for the repayment obligation due under this Appendix C plus any other monies due Buyer at

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the time of the invoicing and Seller shall pay such amounts to Buyer within thirty (30) days after receipt of said invoice. Such repayment obligation shall include interest, compounded monthly, on each monthly payment difference calculated below from the actual date of each payment difference through the date of final invoice at the then-effective statutory rate of interest, as adjusted from time to time, as such rate of interest is defined in Idaho Code §28-22-104(1) and shall constitute full compensation and satisfaction of all damages deemed to have been incurred by Buyer.

5. If Seller does not make payments pursuant to this Appendix C, Buyer shall have the right to offset any amounts due it against any present or future payments due Seller.

6. If, after the Operation Date, Seller fails to deliver any energy to Buyer for a two (2) year period for any reason whatsoever including a force majeure event, Buyer may, at its option, terminate this Agreement and Seller shall pay to Buyer the repayment obligation specified in Section B.

B. ADJUSTMENT OF PAYMENT UPON TERMINATION

In the event of a reduction of output, abandonment of the Facility, or termination of this Agreement, pursuant to the above, and prior to the expiration of the term of this Agreement, Seller shall pay to Buyer, as a refund for the excess paid on each kilowatt-hour purchased, a repayment obligation that includes

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applicable monthly interest. Said repayment obligation shall be calculated as follows:

$$RO = (PD_N*(1+i)) + (PD_{N-1}*(1+i)^2) + (PD_{N-2}*(1+i)^3) + \ldots + (PD_1*(1+i)^N)$$

and $$PD_x = MG_x*(CR-AR)*0.001*PR$$

where:

RO = Repayment Obligation - The repayment obligation due Buyer by Seller that includes interest.

PD_x = Payment Difference - The payment difference that was overpaid by Buyer to Seller for month X. Calculated using the difference between the Contract Rate and the Actual Rate applied to month X's kilowatt-hours generated (MG_x).

N = Number of Periods - The number of monthly periods for which the refund will be calculated.

i = Interest Rate - The interest rate, expressed as a monthly amount, as stated in Section A.4 of this Appendix.

MG_x = Monthly Generator - The actual kilowatt-hours generated during month X for which Buyer paid the Contract Rate.

CR = Contract Rate - The fixed energy rate, from Appendix B, corresponding to the term of the signed Agreement in mills/kWh.

AR = Actual Rate - The fixed energy rate, from Appendix B, corresponding to the actual period of performance in mills/kWh.

0.001 = Conversion factor to get from mills to dollars.

PR = Percentage of Reduction - The percentage of the contracted capacity that the output of the Facility has been reduced by.

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C. Termination Example

1. Total Abandonment

Assuming a thirty-five (35) year Agreement (CR = 40.49 mills/kWh) was terminated at the end of ten (10) years (N = 120 months and AR = 20.24 mills/kWh) due to total abandonment (PR = 100%), and assuming, for simplicity in this example, that the average monthly generation from the Facility had been 200,000 kWh for each month of the ten (10) year period (each actual month's kilowatt-hours that was generated will be used to calculate the correct repayment obligation), then the repayment obligation would be calculated using the above formula as follows:

$$PD_x = 200{,}000*(40.49-20.24)*0.001*100\% = \$4{,}050.00$$

then:

$$RO = \$940{,}973$$

2. Reduction of Output

Assume the same situation as in the previous example, except that instead of total abandonment (PR = 100%), the average 200,000 kWh monthly generation has been reduced to 140,000 kWh (PR = 30%), then the repayment obligation would be calculated using the above formula as follows:

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$$PD_x = 200{,}000*(40.49-20.24)*0.001*30\% = \$1{,}215.00$$

then:

$$RO = \$282{,}292$$

D. <u>ADJUSTMENT UPON FAILURE TO RECOVER COSTS AND EXPENSES IN CUSTOMER RATES</u>

It is the Parties' intention that the Buyer be able to recover, in Customer rates, all costs and expenses incurred in connection with the purchase of energy from Seller under this Agreement. In the event Buyer is not able to so recover, Seller agrees that the purchase price for the energy paid by Buyer to Seller shall be adjusted to a level which permits full recovery of costs and expenses by Buyer.

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APPENDIX D

PARALLEL GENERATION INTERCONNECTION REQUIREMENTS

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

A. GENERAL REQUIREMENTS

1. All installations made for the purpose of interconnection with Buyer's system shall comply with Buyer's requirements, the National Electrical Code, and the National Electrical Safety Code. Seller's Facility shall be interconnected only after all legal requirements have been met and necessary written approvals have been obtained.

2. Seller shall provide, at its expense, a single accessible, visible, lockable disconnect switch that will separate Seller's Facility from Buyer's system. This switch is to be identified and labelled by Seller as the "Generator Disconnect Switch." This switch may be locked in the open position by Buyer's personnel under the following conditions:

   a. For the protection of line crews while doing any work on Buyer's lines or equipment that can be affected by Seller's Facility.

   b. If inspection of Seller's Facility reveals hazardous conditions or a lack of proper maintenance.

   c. If Seller's Facility produces unacceptable voltage, sine waves, frequencies, or harmonic distortion which interfere with Buyer's

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customers, or with the operation or integrity of Buyer's system.

3. Seller shall provide a circuit breaker or other equipment, acceptable to Buyer, that will automatically disconnect Seller's Facility from Buyer's system in the event of a problem on either Seller's equipment or Buyer's system. The protective relay equipment, discussed in this Appendix, Section B.3, shall be engineered, designed, and installed such that they will automatically open this circuit breaker when there is a failure of or fault on Seller's equipment, the voltage on Buyer's system is lost, or a fault is occurring on Buyer's system.

4. Interconnection of Seller's Facility shall be made only after inspection and clearance by local authorities where an inspection authority has jurisdiction, and such interconnection shall not reduce the integrity of Buyer's system. In addition, the completed installation is subject to final inspection by Buyer and satisfactory completion of the Performance Tests described in Appendix E before parallel generation will be permitted. Whether related to start-up or steady-state operation, in no case shall Seller's Facility be allowed to produce abnormal voltages, voltage fluctuations, or harmonic distortion that would cause undue interference with Buyer's customer loads or Buyer's equipment. Total harmonic distortion introduced into Buyer's system from Seller's Facility shall not exceed five percent (5%) of the 60 Hertz fundamental. No single harmonic contribution shall exceed three percent (3%) of the 60 Hertz fundamental. These specifications shall apply to both voltage and current waveforms.

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5. Seller shall maintain its equipment (generator, protective relay equipment, and other associated equipment) in good working order. Seller will be fully responsible for the routine maintenance of the generator and protective relay equipment, and the keeping of records for such maintenance. Said equipment and maintenance records shall be available to Buyer for inspection at all times, upon reasonable advance notice to Seller.

6. The generator name plate voltage should be the same as the nominal voltage supplied by Buyer. If generation occurs at voltages other than the nominal voltages supplied by the Buyer, Seller must supply dedicated generator transformers to make the net capacity of the generator available to Buyer at the nominal voltage supplied by Buyer. The transformer configuration shall be subject to Buyer's review and acceptance. The recommended connection for synchronous generators is grounded Wye/Delta, with the generator connected to the Delta side. The grounded-Wye/grounded-Wye connection is also acceptable for non-synchronous generators provided that this configuration does not permit generator harmonic distortion to cause unacceptable interference with Buyer's customers and/or system. In any event, to eliminate the possibility of the grounded-Wye winding of the transformer from feeding a fault on Buyer's system, the circuit breaker required in Section A.2 shall be between the grounded-Wye winding of the transformer and Buyer's system.

7. Seller shall provide site location information so that all parallel generation sites may be mapped by Buyer on the appropriate

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distribution or transmission line maps with size and type of generator noted.

8. The alternating current output of Seller's generator must be compatible with Buyer's system voltage and frequency.

B. EQUIPMENT THAT IS REQUIRED FOR INTERCONNECTION

1. METERING EQUIPMENT

a. Seller shall provide adequate space for Buyer's metering equipment which is specified in Appendix F. The metering equipment will include, but not be limited to, billing meters, transducers, instrument transformers, test switches, and modems.

b. Seller shall pay all necessary costs of the metering equipment as specified in Appendix H; however, Seller shall have no ownership of said metering equipment.

c. Seller, at its expense, shall provide and install any meter base(s), that Buyer may require, in series with the metering equipment.

d. Buyer will install, at Seller's expense, any necessary metering equipment to measure the reactive power and energy flows related to the operation of Seller's Facility. When Seller's Facility is operating, Seller shall maintain at all times a power factor with a margin allowance of plus or minus two and one-half percent (±2½%) from a particular target level set between the limits of ninety percent (90%) lagging and ninety percent (90%) leading. Such

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target level shall be specified from time to time by written notice from Buyer to Seller. Any kilovar-hours supplied by Buyer to Seller outside of the margin allowance determined from said specified target level shall be deemed to be excess kilovar-hours and will be paid for by Seller at the rate of $0.30 per kilovar-month. This rate will be subject to annual adjustment as determined by Buyer and approved by the regulatory authorities having jurisdiction.

e. Buyer reserves the right and Seller grants permission for the possible future addition of a meter(s) by Buyer, at Buyer's expense, in the generator circuit for the measurement of the generator output for research studies, as may be deemed necessary by Buyer.

2. COMMUNICATIONS EQUIPMENT:

a. Buyer shall, at Seller's expense, provide and install the sending and receiving equipment at both Buyer's and Seller's ends of the dedicated communication channel(s) as specified in Appendix F. Said channel(s) shall be used for sending the telemetry data and provide for verbal communications between Buyer's Designated Dispatch Operator and Seller's Facility. In addition, protective relay equipment information from Seller's Facility to Buyer's remote substation(s) over a dedicated communication channel may be required by Buyer under certain system configurations.

b. Seller shall be solely responsible for the acquisition of the number of dedicated communication channel(s) as specified in Appendix F. Said channel(s) shall be to Buyer's specification. Seller shall pay

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all associated purchase and/or lease costs of said channel(s), and costs of maintenance of all necessary associated equipment both on Seller's and Buyer's end of said channel(s). Special consideration must be given for the possible effects of ground potential rise (GPR) on said channel(s) and Seller shall be fully responsible for the costs of any GPR tests and the required equipment to be installed based on the results of such tests.

c. For any Facility with installed generation capability of one-thousand (1,000) kilowatts or greater, any change in generation output of more than one-thousand (1,000) kilowatts, or any controllable shutdown of Seller's generator, must be coordinated in a timely manner through verbal communication with the Buyer's Designated Dispatch Operator in accordance with Prudent Electrical Practices.

d. Prior to initial interconnection, and at any time thereafter should Seller become disconnected from Buyer's system, Seller shall not synchronize, connect or reconnect the Facility to Buyer's system unless directly ordered to do so by Buyer's Designated Dispatch Operator.

3. PROTECTIVE RELAY EQUIPMENT

a. Seller shall be solely responsible for the protection of its generator and all of its associated equipment from transient surges initiated by lightning, switching, automatic reclosing of Buyer's equipment or other system disturbances. Buyer shall not be held responsible, and Seller shall protect itself against the effects on Seller's own equipment of failures and/or faults, phase unbalances, and for

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faults and/or other disturbances on Buyer's system. It is also the sole responsibility of Seller to provide for the safe and effective operation of its generator consistent with Prudent Electrical Practices.

b. As a minimum requirement, Seller's Interconnection Facility shall include protective relay equipment designed to automatically disconnect Seller's Facility from Buyer's system under abnormal voltage and/or frequency conditions, other system disturbances, or when Buyer's connection to Seller is interrupted. Buyer may delay automatic reclosing of its equipment for up to two (2) seconds so Seller will be able to get his generator disconnected from Buyer's system. However, additions to said minimum requirement may be necessary for certain system arrangements and installations. Buyer reserves the right to determine the adequacy of Seller's protective relay design, and the right to require additional protective relay equipment and control systems. Required protective relay equipment and recommended settings are as follows:

1) Over-frequency relay: 61 Hertz, 10 cycle time delay.
2) Under-frequency relay: 59.5 Hertz, 6 cycle time delay.
3) Over-voltage relay: 110% of nominal voltage, 0.5 to 5 second time delay.*
4) Under-voltage relay: 90% of nominal voltage, 0.5 to 5 second time delay.*

---

* Buyer will specify the recommended over- and under-voltage relay time delay settings within the range indicated.

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5) Ground fault relay: This relay is required for all generators and will be able to detect ground faults in Buyer's system. This relay shall be located either on the high-side of Seller's transformer or in the neutral of the grounded-Wye winding of the transformer.

6) Reverse current relay (or power relay): This relay is required for induction machines to prevent the generator from acting as a motor.

7) Phase fault relay(s): This relay(s) is required for synchronous machines to detect phase faults in Buyer's and Seller's systems.

c. Seller's Interconnection Facility protective relay design and drawings, or any future modifications to said protective relay design and drawings must be reviewed and accepted by Buyer's Relay Engineering Department prior to installation.

d. Sixty (60) days before the Performance Tests are to be performed, three sets of final drawings of Seller's Interconnection Facility protective relay design (including single lines, three lines and schematics) and instruction books for all the protective relay

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equipment used in the design shall be furnished to Buyer's Relay Engineering Department.

e. Buyer reserves the right to require Seller, at Seller's expense, to provide corrections, modifications, or additions to the existing protective relay design in the event of modifications to government or industry regulations and standards, National Electric Code, local codes, increase in fault duty on Buyer's system, or additional Buyer's requirements.

C. ADDITIONAL REQUIREMENTS

1. DC Machines with Synchronous Inverter

No additional requirements.

2. Induction Generators

The generator must be within plus or minus five percent (±5%) of synchronous speed before being connected onto Buyer's system.

3. Synchronous Generators

Synchronous generator installations will require special review by Buyer's Engineering Department(s) due to the complexity of designing appropriate protective relay schemes and controlling the circuit breaker that automatically disconnects the generator from Buyer's system under all necessary (abnormal) conditions. Seller shall provide either automatic synchronizing or manual synchronizing equipment, supervised by a synchronism check relay. Synchronous generators are generally not available with wind-powered machines.

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4. AC Generators with Static Frequency Changer

Static frequency changers shall be of the type that utilize Buyer's frequency to trigger the output frequency to insure frequency compatibility, and to insure no output when Buyer's system is out of service. The AC output of the static frequency changer must be compatible with Buyer's voltage and frequency.

D. BUYER'S RIGHT OF REVIEW AND COMMENT

Prior to the commencement of the Performance Test described in Appendix E and prior to implementation of any changes, modifications, or upgrades of Seller's Interconnection Facilities by Seller after the Operation Date, Buyer or its designated representative shall have the right, but not the duty, to review and comment, in accordance with Prudent Electrical Practices, on Seller's Interconnection Facilities and other electrical equipment to be installed by Seller at the Facility. Buyer's review and comment, or failure to review and comment on Seller's drawings and specifications for Seller's Interconnection Facilities shall not constitute nor be construed as approval or endorsement or as a warranty of safety, durability, strength, adequacy, or reliability thereof. Any action taken by Seller as a result of Buyer's review and comment will remain within the sole discretion and judgment of Seller and shall be at Seller's sole risk. The acceptance of or incorporation of Buyer's comments shall not relieve Seller from the responsibility for the design, construction, operation and maintenance of the Facility and all Seller's Interconnection Facilities, nor obligate Buyer in any way. In the event that a claim or cause of action arises against Buyer which relates directly or indirectly to Buyer's review of and comment on the drawings and specifications furnished by Seller,

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Seller hereby agrees to indemnify and hold Buyer, its officers, directors, employees and representatives harmless from any such claims or causes of action.

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APPENDIX E

PERFORMANCE TEST CRITERIA FOR SELLER'S INTERCONNECTION FACILITIES

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

Buyer's and Seller's qualified relay, communication and metering engineers and technicians will jointly review, perform and witness the following:

A. Prior to the start of construction, Seller's proposed protection arrangement of Seller's Interconnection Facility shall be submitted to Buyer for Buyer's review and/or comment pursuant to Appendix D.

B. Thirty (30) days prior to completion of Seller's Interconnection Facility, Buyer shall review the final protection arrangement, design drawings, and relay instruction books. The proposed protective relay settings and the transformer high side fuse size shall also be reviewed to insure proper coordination with Buyer's system.

C. The following is to be done prior to interconnection:

1. Seller shall perform and Buyer shall witness the testing and setting of the protective relays required in Appendix D.

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2. Buyer shall perform and Seller shall witness the testing and calibration of the meter(s) required in Appendix F. The meter(s) shall be in place and the test switch shall be used to input the necessary currents and voltages.

3. Seller shall perform and Buyer shall witness the necessary ratio and polarity tests on the current transformers (CT) and voltage transformers (VT) that will be used for the meter(s) and protective relays. Check that the wiring from the CT's and VT's to their appropriate meter(s) and protective relays is correct.

4. Buyer shall perform and Seller shall witness the operational end-to-end checks of all communication channels required in Appendix F.

5. Seller shall perform and Buyer shall witness individual operation of each of the protective relays and observe the resulting trip of the Seller's circuit breaker.

6. For synchronous machines, Seller shall perform and Buyer shall witness the operational tests on the synchronizing equipment between Buyer's system and Seller's Facility. Check that the wiring between the proper VT's and the synchronizing equipment is correct.

D. The following tests are to be done after the Buyer's Designated Dispatch Operator has been notified, the interconnection is complete, and generator is ready to test:

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1. For synchronous machines, Seller shall make and Buyer shall witness the in-service tests of the synchronizing equipment when generator is up-to-speed and prior to closing the circuit breaker. This will determine that the proper voltages have been wired correctly to the synchronizing equipment.

2. Seller shall make and Buyer shall witness the in-service tests of the protective relays with Seller's Facility generating electricity. This will determine that the proper currents and voltages have been wired correctly to the protective relays.

3. Buyer shall make and Seller shall witness the in-service tests of the meter(s) with Seller's Facility generating electricity. This will determine that the proper currents and voltages have been wired correctly to the meter(s).

4. Buyer shall make and Seller shall witness the in-service tests of all communication channels with Seller's Facility generating electricity. This will determine that the property telemetry and other transmitted quantities are being received properly.

Upon completion of items A, B, and C above, Buyer and Seller will sign the attached letter stating that the necessary equipment for interconnection is in place and is operational under test conditions. After the letter has been signed, Buyer's Designated Dispatch Operator will be notified and will give orders that Seller can begin full operation of its Facility under the Power Purchase Agreement.

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If Seller does not have the qualified engineers and technicians available to perform the above tests and requests Buyer to perform the tests, Buyer shall not be held liable for any damages caused to Seller's equipment.

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PERFORMANCE TEST ACCEPTANCE

FOR SELLER'S INTERCONNECTION FACILITIES

(Seller's Copy)

Buyer and Seller have reviewed, performed, and witnessed this ____ day of _____, 19___, the satisfactory completion of all of the Performance Test Criteria as stated in Appendix E. The necessary equipment for interconnection is in place and is operational under test conditions. Full operation of Seller's Facility under the Power Purchase Agreement will be permissible upon notification from Buyer's Designated Dispatch Operator.

SELLER:

MARSH VALLEY HYDRO ELECTRIC COMPANY

By_____

Title_____

BUYER:

UTAH POWER & LIGHT COMPANY

By_____

Title_____

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PERFORMANCE TEST ACCEPTANCE

FOR SELLER'S INTERCONNECTION FACILITIES

(Buyer's Copy)

Buyer and Seller have reviewed, performed, and witnessed this ____ day of _____, 19___, the satisfactory completion of all of the Performance Test Criteria as stated in Appendix E. The necessary equipment for interconnection is in place and is operational under test conditions. Full operation of Seller's Facility under the Power Purchase Agreement will be permissible upon notification from Buyer's Designated Dispatch Operator.

SELLER:

MARSH VALLEY HYDRO ELECTRIC COMPANY

By_____

Title_____

BUYER:

UTAH POWER & LIGHT COMPANY

By_____

Title_____

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APPENDIX F

METERING EQUIPMENT, COMMUNICATION EQUIPMENT, AND COMMUNICATION CHANNELS

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

The required metering equipment, communication equipment, and communication channels to be supplied by Buyer and Seller shall consist of the following:

1. Buyer - Electronic programmable multi-function meter (EMM)
2. Buyer - Modem for telephone dial-up of the EMM. This will provide for hourly interrogation of the EMM to obtain the hourly reading of actual energy delivered to Buyer's system on a fifteen (15) minute demand basis.
3. Seller - Communication channel, acceptable to Buyer, between Buyer's Designated Dispatch Operator and the above modem at Seller's Facility which will transmit the EMM data. Seller shall be responsible for the GPR tests and the necessary equipment required as a result of those tests, as specified in Appendix D.
4. Buyer - Watt and var transducers and a remote terminal unit (RTU). This will provide for continuous monitoring of actual power delivered to Buyer's system on a two (2) second interval.
5. Seller - Dedicated communication channel, acceptable to Buyer, between Buyer's Designated Dispatch Operator and the above RTU at Seller's

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Facility which will transmit the transducer data. Seller shall be responsible for the GPR tests and the necessary equipment required as a result of those tests, as specified in Appendix D.

6. Buyer - Telephone equipment for two-way verbal communication.
7. Seller - Communication channel, acceptable to Buyer, between Buyer's Designated Dispatch Operator and Seller's Facility which will transmit the verbal data. Seller shall be responsible for the GPR tests and the necessary equipment required as a result of those tests, as specified in Appendix D.
8. Buyer - All necessary current and potential transformers.
9. Buyer - Metering cabinet or panel to mount the above equipment along with miscellaneous parts, conduit, wiring, test switches, etc.
10. Buyer or Seller - Appurtenant facilities

The instantaneous and other telemetered information received by Buyer pursuant to this Appendix F shall be made available to Seller for its use, if requested.

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APPENDIX C

SELLER'S INTERCONNECTION FACILITIES

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

The Seller's Interconnection Facilities shall consist of the following:

1. Generator Disconnect Switch - A single, accessible, visible, lockable disconnect switch as described in Appendix D.

2. Step-up Transformer - A transformer for matching Seller's Facility voltage to Buyer's system voltage as described in Appendix D.

3. Protective Relays - A protective relay arrangement that works in conjunction with the circuit breaker, below, as described in Appendix D.

4. Circuit Breaker - A circuit breaker that works in conjunction with the protective relays, above, to isolate Seller's Facility from Buyer's system as described in Appendix D.

5. All other facilities owned by Seller, on Seller's side of the Point of Delivery, necessary to make the interconnection complete and functional.

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The attached single line, maps, sketches, and design drawings are provided only as a clarification, and are not intended to be comprehensive.

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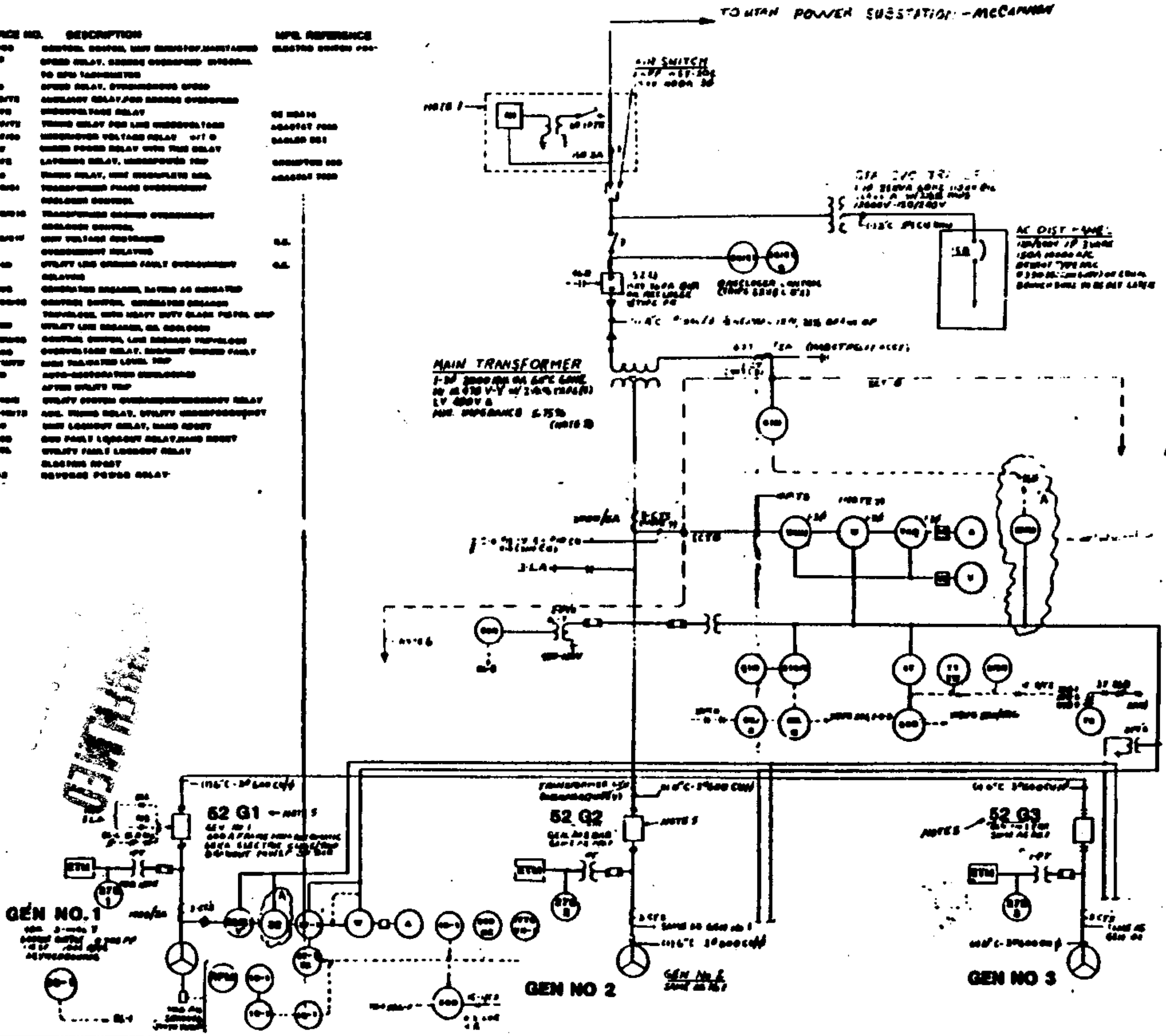
DEVICE LIST:

DEVICE NO. | DESCRIPTION | MFG. REFERENCE



NOTES

[redacted]

ABBREVIATIONS:

HYDRO ELECTRIC CONSTRUCTORS, INC.

FINANCING PLANNING CONSTRUCTION

ORANGE, CALIFORNIA

MARSH VALLEY
HYDROELECTRIC POWER PLANT
SINGLE LINE RELAY AND METER DIAGRAM

HYDRO GENERATION PROJECTS

STREAM FLOW--ENERGY--DEMAND

BY MONTHS

MARSH VALLEY

	CFS	MWH	KW
January	153	684.1	830.8
February	170	650.6	607.0
March	204	854.3	1051.8
April	268	966.3	1271.5
May	342	1080.3	1430.6
June	* 266	190.0	473.0
July	* 206	0	0
August	* 178	0	0
September	* 151	202.8	221.5
October	143	631.2	834.0
November	154	672.2	887.7
December	154	689.5	885.6

* Most of this flow will be diverted for irrigation.

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APPENDIX H

BUYER'S INTERCONNECTION FACILITY

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

A. BUYER'S INTERCONNECTION FACILITY

The Buyer's Interconnection Facility shall consist of the following:

1. Line Facilities

   a. Upgrade the existing McCammon No. 11, 12.47 kV distribution line to include the installation of 12,840 feet of four each - #2 ACSR conductor and miscellaneous cross arms, insulators, etc.

   Parts of the existing McCammon No. 11, 12.47 kV distribution line need to have the neutral conductor and the single-phase conductor replaced plus two additional conductors need to be added to upgrade the line to three-phase operation to handle the output of Seller's Facility. Upgrade of this line must be done "hot" (line must remain energized) to maintain service to existing customers. All costs for maintenance and replacement of existing equipment that show signs of damage are not included in the estimate. These costs will be borne by the Buyer.

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The cost to Seller of the above-mentioned upgrade, including installation, is estimated to be $53,800, based on installation of the upgrade to be completed on or before the Scheduled Operation Date. This estimated cost will be billed by Buyer and required as payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the upgrade, which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller.

b. Extension from the McCammon No. 11, 12.47 kV distribution line of a new three-phase, 12.47 kV distribution line to Seller's Facility consisting of the following:

1) 3 each - 40 foot poles
2) 300 feet of 4 each - #2 ACSR conductor
3) 2 each - down guys and anchors
4) 60 feet of three-phase, #1/0 underground cable
5) Miscellaneous cross arms, insulators, hardware, etc.

The extension will tap Buyer's existing McCammon No. 11, 12.47 kV distribution line and become part of said line. The extension will proceed approximately 300 feet overhead and 60 feet underground to Seller's Facility.

The cost to Seller of the above-mentioned extension, including installation, is estimated to be $7,000, based on installation of the extension to be completed on or before the Scheduled Operation Date. This estimated cost will be billed by Buyer and required as

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payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the extension which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller. The actual costs will become the basis for the annually incurred costs discussed hereunder.

c. Buyer's McCammon No. 11, 12.47 kV distribution line is capable of deliverying all of the Seller's output to Buyer's substation at the time of the signing of this contract with the above-mentioned upgrade and extension. If another generator site is developed and in operation, or another customer load is connected on this McCammon No. 11, 12.47 kV distribution line before Seller's Facility is operational, which, by putting Seller's Facility in operation will cause an additional upgrade of Buyer's McCammon No. 11, 12.47 kV distribution line, Seller shall also be responsible for the expense of the additional upgrade prior to Seller's interconnection.

If additional generator sites or customer loads are to be served from Buyer's McCammon No. 11, 12.47 kV distribution line within the initial five (5) year period of the Agreement, the actual upgrade and extension costs paid by Seller on said line, less accumulated depreciation, shall be redetermined by Buyer for the balance of the initial five (5) year period and divided among Seller and the additional generator sites or customer loads on the basis of Buyer's estimate of the proportion each site or load bears to the total line capability. Buyer shall refund to Seller an appropriate

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amount of the actual cost paid by Seller consistent with Buyer's then effective Electric Service Regulations.

2. Line Regulators

Three (3) pole-mounted line regulators will be added to Buyer's McCammon No. 12-12.47 kV distribution line.

The cost to Seller of the above-mentioned line regulators, including installation, is estimated to be $22,900 based on installation of the line regulators to be completed on or before the Scheduled Operation Date. This estimated cost will be billed by Buyer and required as payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the line regulators, which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller. The actual costs will become the basis for the annually incurred costs discussed hereunder.

3. Metering Equipment

The metering equipment shall consist of the following:

a. One (1) electronic programmable multifunction meter (EMM)
b. Two (2) transducers to continuously monitor the generation
c. Three (3) 480 volt current transformers
d. Three (3) 480 volt potential transformers
e. One (1) metering cabinet or panel with miscellaneous parts, conduit, wiring, test switches, etc.

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The cost to Seller of the above-mentioned metering equipment, including installation, is estimated to be $6,300, based on installation of the metering equipment to be completed on or before the Scheduled Operation Date. This estimated cost will be billed by Buyer and required as payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the metering equipment, which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller. The actual costs will become the basis for the annually incurred costs discussed hereunder.

4. Communication Equipment

The communication equipment to be used on the communication channels acquired by the Seller, pursuant to Appendix D, shall consist of the following:

a. Channel #1 - Modem for the EMM

b. Channel #2 - Remote terminal unit (RTU) for the transducers

c. Channel #3 - Telephone for verbal communication

The cost to Seller of the above-mentioned communication equipment, including installation, is estimated to be $5,900, based on installation of the communication equipment to be completed on or before the Scheduled Operation Date. This estimated cost will billed by Buyer and required as payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the communication equipment, which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller. The actual costs will become the basis for the annually incurred costs discussed hereunder.

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5. Sensing Device Additions at Buyer's Substation

Three (3) reverse power flow sensing devices will be installed on the regulators at Buyer's McCammon substation and will advance the regulators to the neutral position (no bucking or boosting) and keep them there as long as power is flowing into the regulators from the McCammon No. 11, 12.47 kV distribution line.

The cost to Seller of the above-mentioned sensing devices, including installation, is estimated to be $7,000, based on installation of the sensing devices to be completed on or before the Scheduled Operation Date. This estimated cost will be billed by Buyer and required as payment by Seller prior to the start of construction. Said estimated cost will be adjusted to reflect actual costs of the sensing devices, which adjustment will either be refunded to Seller by Buyer or paid to Buyer by Seller.

B. PAYMENT FOR BUYER'S INTERCONNECTION FACILITY

Buyer shall attempt to coordinate the construction of the Buyer's Interconnection Facilities with Seller. Seller shall pay Buyer the above-mentioned estimated costs within thirty (30) days of receipt of bill from Buyer and prior to the start of construction. Any payment for adjustments to actual costs will be made after all charges have been received, processed, and billed. Thereafter, Seller shall pay Buyer monthly, within fifteen (15) days of receipt of bill from Buyer, that month's proportional share of all annually incurred costs of the Buyer's Interconnection Facility, including but not limited to operation and

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maintenance expenses and Ad Valorem Taxes plus all other expenses incurred by Buyer for that month pursuant to this Agreement.

The annual incurred costs shall be the sum of:

1. Line Facilities

Seller shall be responsible for paying the annually incurred costs on the above-mentioned extension. The annually incurred costs shall be the basis, described in Section A.1.b, multiplied by the sum of the annual percentages for operation and maintenance and Ad Valorem Taxes. The annual percentages may vary from year to year, but at the time of the signing of this contract, the annual percentage for operation and maintenance is 7.28% and the annual percentage for Ad Valorem Taxes is 1.5% for a total annual percentage of 8.78%.

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2. Line Regulators

Seller shall be responsible for paying the annually incurred costs on the above-mentioned line regulators. The annually incurred costs shall be the basis, described in Section A.2, multiplied by the sum of the annual percentages for operation and maintenance and Ad Valorem Taxes. The annual percentage may vary from year to year, but at the time of the signing of this contract, the annual percentage for operation and maintenance is 7.28% and the annual percentage for Ad Valorem Taxes is 1.5% for a total annual percentage of 8.78%.

PLUS

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3. Metering Equipment

Seller shall be responsible for paying the annually incurred costs on the above-mentioned metering equipment. The annually incurred costs shall be the basis, described in Section A.3, multiplied by the sum of the annual percentages for operation and maintenance and Ad Valorem Taxes. The annual percentage may vary from year to year, but at the time of the signing of this contract, the annual percentage for operation and maintenance is 7.28% and the annual percentage for Ad Valorem Taxes is 1.5% for a total percentage of 8.78%.

PLUS

4. Communication Equipment

Seller shall be responsible for paying the annually incurred costs on the above-mentioned communication equipment. The annually incurred costs shall be the basis, described in Section A.4, multiplied by the sum of the annual percentages for operation and maintenance and Ad Valorem Taxes. The annual percentage may vary from year to year, but at the time of the signing of this contract, the annual percentage Ad Valorem Taxes is 1.5% for a total percentage of 8.78%.

C. REMOVAL OF BUYER'S INTERCONNECTION FACILITY

Within sixty (60) days of the termination of this Agreement, Buyer shall prepare and forward to Seller an estimate of the remaining value of the Buyer's Interconnection Facility described in this Appendix, less removal costs and costs involved in the transfer of the removed material to Buyer's nearest warehouse. Buyer shall then be invoiced by Seller for the net amount due as estimated by Buyer for the Buyer's Interconnection

JAN 2 2 1993

Facility and Buyer shall pay such amount to Seller within thirty (30) days after receipt of said invoice.

JAN 2 2 1993

APPENDIX I

POINT OF DELIVERY

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

The Point of Delivery is defined as that point where Buyer's 12.47 kV distribution line attaches to Seller's substation located in the Northeast 1/4 of the Northeast 1/4 of Section 20, Township 9 South, Range 37 East, Boise Meridian, Bannock County, Idaho.

JUL 2 2 1993

APPENDIX J

DESCRIPTION OF FACILITY

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

The Facility shall be the hydroelectric generation facility and appurtenant facilities constructed, owned, operated and maintained by Seller, more specifically described as follows: An existing dam on the Portneuf River diverts water into the existing Portneuf-Marsh Valley Canal. This project will install two 30 inch steel penstocks and appropriate headgates onto the canal. The water will enter the penstocks and travel 88 feet vertically and drop 460 feet horizontally to the powerhouse. The powerhouse will be located in the Northeast 1/4 of the Northeast 1/4 of Section 20, Township 9 South, Range 37 East, Boise Meridian approximately 3 miles east of McCammon, Bannock County, Idaho on the Portneuf-Marsh Valley Canal. It will contain the three (3) impulse turbines which will drive the three (3) six-hundred (600) kilowatt synchronous generators plus all required and necessary controls, relays, circuit breakers, etc. This will give the Seller's Facility a total capacity of one-thousand, seven hundred (1,700) kilowatts. The water will then be discharged back into the natural stream bed of the Portneuf River.

JAN 22 1993

APPENDIX K

QUALIFYING FACILITY REPRESENTATION

FOR

MARSH VALLEY HYDRO ELECTRIC COMPANY

The following is a list of the attached documents, which contain the license numbers and other appropriate information, that state that Seller's Facility is a qualifying facility under the Public Utilities Regulatory Policies Act of 1978 (PURPA):

1) Federal Energy Regulatory Commission License _____.

JAN 2 2 199

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

September 3, 1987

Mr. Kenneth F. Plumb
Federal Energy Regulatory Commission
825 N. Capital, N.E.
Washington, D.C. 20426

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT FILED BY MARSH VALLEY HYDROELECTRIC AN IDAHO CORPORATION

Dear Mr. Plumb,

Here is an original and 14 copies of this application. Please note that this application is filed as a competing minor license application to Preliminary Premit #P-10242. For your use and to avoid confusion a copy of the notice of intent to file competing license application is enclosed. Please note that Mr. Jordon Walker and Mike Graham, dba/Marsh Valley Hydroelectric, were using an assumed name which is lawfully registered to McCammon Ditch Company and Portuef-Marsh Valley Canal Company, Ltd. Your understanding in this matter is sincerely appreciated.

Very truly yours,

Ted S. Sorenson

Ted S. Sorenson, P.E.
Project Engineer

TSS:ll

Enclosure

cc: Randy Budge
Keith Bennett
Lyndon Green

JAN 22 1993

BOTANICAL RESOURCES
MARSH VALLEY HYDROELECTRIC FACILITY
BANNOCK COUNTY, IDAHO

CONDUCTED FOR:

SORENSON ENGINEERING, INC.
IDAHO FALLS, IDAHO

CONDUCTED BY:

SHERMAN JENSEN (SOIL SCIENTIST/PHYSICAL ECOLOGIST)
&
FRANK SMITH (BOTANIST)

WHITE HORSE ASSOCIATES
P.O. BOX 123
SMITHFIELD, UTAH 84335

FEBRUARY 1988

JAN 22 1993

1.0 INTRODUCTION

Botanical resources were inventoried along a segment of the Portneuf River where construction of a hydroelectric generating facility has been proposed. The survey area included about 12,000 feet of the valley-bottom. The survey area includes parts of sections 20 and 21, Township 9 south, Range 37 east, as illustrated in Figure 1-1. The survey area is located in the Snake River Plain Section of the Columbia Plateau Physiographic Province (Fenneman 1931). This segment of the Portneuf River flows in a V-shaped canyon incised in basalt. A floodplain ranging from 20 to 250 feet wide occurs along low gradient segments of the Portneuf River. Along steep gradient segments where the stream is incising, the channel is confined by steep alluvial/colluvial slopes and floodplains are absent or of minor extent.

Currently streamflow is controled by diversion structures located near the upstream end of the survey area. During the irrigation season, streamflow is diverted to the Portneuf-Marsh Valley canal. During winter, streamflow is allowed to flow along its normal course. The proposed hydroelectric development will divert flow to the Portneuf-Marsh Valley canal year-round, allowing about 10 cfs to flow down the Portneuf River channel. Effluent from the power generating station will be discharged back to the Portneuf River near the downstream end of the survey area.

JAN 2 2 1993

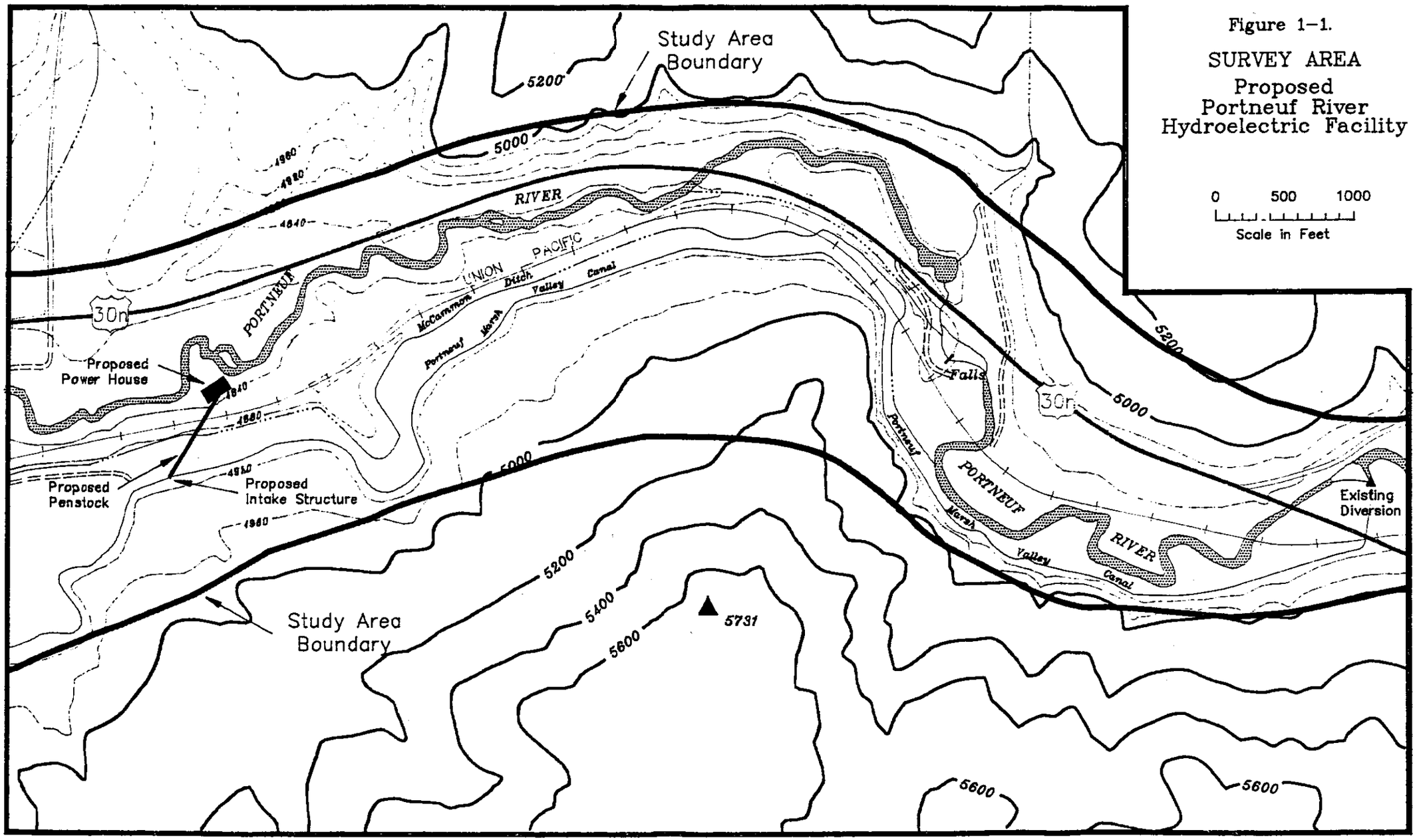

Figure 1–1.

SURVEY AREA
Proposed
Portneuf River
Hydroelectric Facility

The proposed facility will utilize existing structures for diversion of streamflow to the existing Portneuf-Marsh Valley canal. The proposed facility will require construction of a diversion and intake structure, about 500 feet of penstock, and a powerhouse.

2.0 OBJECTIVES

The purpose of the survey was to identify botanical resources in the area where construction of a hydroelectric facility is proposed. Information is to be used to identify potential impacts resulting from the proposed development. Specific objectives were:

1. To inventory vegetation types occurring in the study area.
2. To identify vegetation types that may be impacted by the proposed development.

3.0 METHODS

A field investigation was conducted on February 20, 1988. Sherman Jensen (Soil Scientist/Physical Ecologist) was responsible for preliminary identification of vegetation types, mapping of vegetation types, geomorphic descriptions and soil characterizations. Frank Smith (Botanist) was responsible for species identifications and floristic descriptions.

Vegetation types are areas of distinctive vegetation that recur on positions with similar slope, aspect and substrate. Dominant plant species were identified for each vegetation type. Mapping was conducted on a 1:8,000 scale base-map prepared from 7.5 minute USGS topographic maps.

1093

About a foot of snow covered the survey area at the time of the field investigation. Given this constraint, plants that were decumbant and/or of low stature were probably missed. Many plants were identifiable only to genus.

4.0 RESULTS

Vegetation types identified in the survey area are identified in Table 4-1.

Table 4-1. Vegetation types.

PHYSIOGNOMY	Vegetation Type (SYMBOL)
SHRUB	
	Riparian Shrub (RS)
	Big Sagebrush (ARTR)
HERBACEOUS	
	Hay Meadow (HAY)
	Disturbed (existing)
	Agricultural land (AG)

Plant species identified for each vegetation type and common names for species are listed in APPENDIX A. Descriptions of each vegetation type follow. Vegetation types are delineated in Figure 4-1. The projected area to be disturbed by construction activities is also illustrated.

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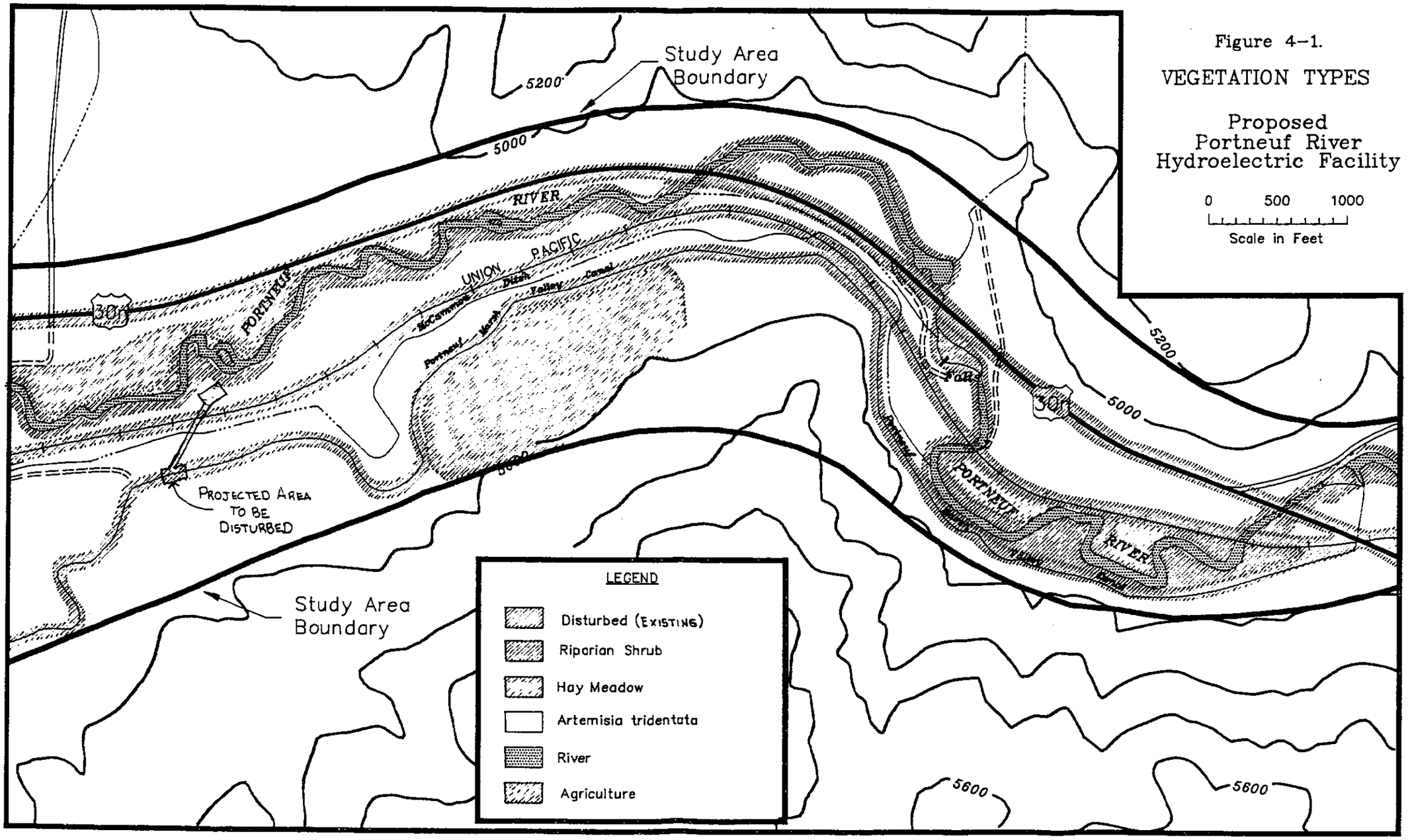

Figure 4-1.

VEGETATION TYPES

Proposed Portneuf River Hydroelectric Facility

4.1 Riparian Shrub (RS) Vegetation Type

This vegetation type occurs on the floodplain of the Portneuf River. Surfaces are less than 5 feet above the level of normal streamflow and are seasonally flooded.

The vegetation is a dense thicket of shrubs dominated by redosier dogwood (*Cornus sericea*), willows (*Salix* spp.) and woods rose (*Rosa woodsii*). Other shrubs included black birch (*Betula occidentalis*), alder (*Alnus* sp.) and sandbar willow (*Salix exigua*). Reed canarygrass (*Phalaris arundinacea*), bluegrass (*Poa* spp.), common yarrow (*Achillea millefolium*), thistle (*Cirsium* spp.), western virginsbower (*Clematis ligusticifolia*), curlycup gumweed (*Grindelia squarrosa*), and stinging nettle (*Urtica dioica*) were identified in the herbaceous stratum. Minor areas dominated by common cattail (*Typha latifolia*) and common reed (*Phragmites communis*) were also included.

4.2 Big Sagebrush (ARTR) Vegetation Type

This vegetation type occurs on alluvial positions and on floodplains where the stream channel is incised 5 to 10 feet. These communities are not influenced by flooding of the Portneuf River.

The dominant vegetation is big sagebrush (*Artemisia tridentata*). Other shrub species included rubber rabbitbrush (*Chrysothamnus nauseosus*), broom snakeweed (*Gutierrezia sarothrae*) and antelope bitterbrush (*Purshia tridentata*), and widely scattered Utah juniper (*Juniperus osteosperma*). The herbaceous stratum includes cheatgrass (*Bromus tectorum*), Indian ricegrass (*Oryzopsis hymenoides*), common yarrow (*Achillea*

millefolium), aster (*Aster* spp.), curlycup gumweed (*Grindelia squarrosa*), prickly lettuce (*Lactuca serriola*) and yellow salsify (*Tragopogan dubius*).

4.3. Hay Meadow (HAY) Vegetation Type

This vegetation type occurred on floodplains and on the toes of alluvial fans adjacent to the Portneuf River. These communities are seasonally flooded. They are used for pasture and are sometimes cut for hay.

These herbaceous communities are dominated by orchardgrass (*Dactylis glomeratus*), smooth brome (*Bromus inermis*), and bluegrass (*Poa* spp.). Basin wildrye (*Elymus cinereus*), common yarrow (*Achillea millefolium*), aster (*Aster* spp.), thistle (*Cirsium* spp.), and prickly lettuce (*Lactuca serriola*) were also noted.

4.4. Disturbed (DISTURBED) Vegetation Type

Areas contiguous to Highway 30, the railroad, and irrigation canals were identified as disturbed vegetation type. These areas were cut and filled by construction.

Disturbed areas are dominated by weedy herbaceous species. Species from adjacent vegetation types tend to colonize in these areas.

4.5 Agricultural Lands (AG)

Agricultural lands were identified on the southern flank of the survey area.

JAN 2 2 199

5.0 PROJECTED IMPACTS

Construction activities are expected to directly impact minor areas of DISTURBED and ARTR vegetation types. A total of about 0.8 acres will be disturbed by construction: about 0.1 acres for the diversion and intake structure; about 0.5 acres for the penstock; and about 0.2 acres for the powerhouse and outfall canal.

Areas disturbed by construction activities will be contoured and replanted with native and introduced grasses. A mixture of smooth brome, basin wildrye, Indian ricegrass, and orchardgrass will be broadcast at a rate of 10 to 12 pounds per acre and raked in.

6.0 LITERATURE CITED

Fenneman, N.M. 1931. Physiography of Western United States. Mcgraw-Hill Book Co., Inc. New York and London. 534 pp.

JAN 2 2 1993

APPENDIX A

ASSOCIATION TABLES

JAN 2 2 1993

PHYSIOGNOMIC CLASS Plant species	VEGETATION TYPE SHRUB RIPARIAN	 ARTR	 HAY	HERBACEOUS DISTURBED	COMMON NAME
TREES					
Acer negundo	X	X	X	X	boxelder
Juniperus osteosperma		X			Utah juniper
SHRUBS					
Alnus sp.	X				alder
Amelanchier sp.					serviceberry
Artemisia tridentata		X			Big sagebrush
Betula occidentalis	X				Water birch
Chrysothamnus nauseosus		X		X	Rubber rabbitbrush
Cornus sericea	X				Redosier dogwood
Elaeagnus angustifolia	X	X			Russian olive
Gutierrezia sarothrae		X			Broom snakeweed
Purshia tridentata		X			Antelope bitterbrush
Rosa woodsii	X			X	Woods rose
Salix exigua	X				Sandbar willow
Salix spp.	X				willow
GRASSES					
Agropyron cristatum				X	Crested wheatgrass
Agropyron repens				X	Quackgrass
Bromus inermis			X	X	Smooth brome
Bromus tectorum		X	X	X	Cheatgrass
Dactylis glomerata			X		Orchardgrass
Elymus cinereus		X	X		Basin wildrye
Oryzopsis hymenoides		X		X	Indian ricegrass
Phalaris arundinacea	X		X		Reed canarygrass
Poa spp.	X		X	X	bluegrass
Phragmites communis	X				Common reed
FORBS					
Achillea millefolium	X	X	X	X	Common yarrow
Aster spp.	X	X	X		aster
Cirsium spp.	X		X	X	thistle
Clematis ligusticifolia	X				Western virginsbower
Cynoglossum officinale				X	Houndstongue
Glycyrrhiza lepidota	X			X	American licorice
Grindelia squarrosa		X		X	Curlycup gumweed
Helianthus annuus				X	Common sunflower
Lacutuca serriola		X	X	X	Prickly lettuce
Sisymbrium altissimum				X	Tumblewustard
Marrubium vulgare				X	Horehound
Penstemon spp.		X			penstemon
Rumex crispus				X	Curly dock
Typha latifolia	X				Common catttail
Tragopogon dubius		X		X	Yellow salsify
Urtica dioica	X		X	X	Stinging nettle
Verbascum thapsus	X			X	Flannel mullein
Xanthium strumarium				X	Smooth cocklebur

JAN 2 2 1993

January 22, 1988

Mr. Ted Sorenson
Sorenson Engineering
550 Linden Drive
Idaho Falls, ID 83401

Mr. Ted Sorenson:

In answer to your phone call about the flow of water in the river below the Portneuf-Marsh Valley diversion, and the McCammon Ditch. I have been with the company since 1944 as Water Master of the Companies and very closely in touch with the river. The last nine years I have served as Portneuf River Water Master of River District #29 for the Water Resource of Idaho. The water flow in the reach below the diversion has been consistently between 8 to 10 cfs since I began on the river in 1944. This includes 1977 and 1987 two of the poorest water seasons.

Sincerely,

Thomas Bloxham

Thomas Bloxham
Portneuf River Water Master
River District #29

2 1993

_ ORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

January 25, 1988

Mr. Ernie Carlson
Idaho Department of Water Resources
150 Shoup Avenue
Idaho Falls, ID 83402

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Dear Mr. Carlson,

Attached is a copy of the Application for License to the Federal Energy Regulatory Commission FERC #9367-000. Specifically, I am being required by FERC to identify any comprehensive State and Regional Water Resource development plans or programs in the area where the project is to be constructed. I am to explain why the project would or would not comply with the relevant comprehensive State and Regional Water Resource development plans and programs. Also I am to identify if the project would or would not comply and if the project would not give explanation why the project should be allowed not to comply. I believe that the Portneuf River is included in the State water plan, but I do not believe that it is in any way in noncompliance with the plan. I would appreciate your review and concurrence as to the State water plan and to the compliance or noncompliance with same. This statement from you is being required by the Federal Energy Regulatory Commission. Your prompt review and response is sincerely appreciated. Please call to discuss this matter.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:ll

Enclosure

cc: Mr. Keith Bennett
Mr. Randall C. Budge, Esq.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BOISE FIELD OFFICE
4696 Overland Road, Room 576
Boise, Idaho 83705

February 4, 1988

Mr. Ted S. Sorenson, P.E.
Project Engineer
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

Re: FERC 10468
Marsh Valley Hydro Flows

Dear Mr. Sorenson:

This follows your meeting of January 29, 1988 with Roy Heberger concerning the above referenced project which involves an existing diversion and canal. You indicated that a license application has been filed with the Federal Energy Regulatory Commission and that there is an apparent concern over project flows.

After coordinating with the Idaho Department of Fish and Game, you indicate that they have apparently approved a year-round instream flow of 8-10 cfs. This is to inform you that the Service will not be recommending further studies under the Federal Power Act for this project. We suggest that you continue to work with the Idaho Department of Fish and Game to resolve any areas of concern they may have.

Sincerely yours,

John P. Wolflin
Field Supervisor

cc: IDFG, Hdqtrs., Boise
IDFG, Region 5, Pocatello

2 2 1993

CERTIFICATION OF DELIVERY

I hereby certify that I hand-delivered a copy of the Deficiencies letter dated December 18, 1987 to Mr. Roy Heberger of U. S. Fish & Wildlife Service at Mr. Hebergers Office in Boise. We discussed the content at length.

Ted S. Sorenson, P.E.
Project Engineer

1993

ORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

February 8, 1988

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Avenue
Pocatello, ID 83201

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT #10468

Dear John,

Pursuant to our recent telephone conversation here is a letter from the Water Master of Portneuf River District #29 documenting that the water flow below the diversion has been consistently between 8 to 10 cfs. On behalf of the Marsh Valley Hydroelectric Company we hereby agree to a minimum bypass flow of 10 cfs.

In addition, we specifically request your recommendation that further fishery, vegetative, and wildlife studies not be required. Specifically we are asking you to recommend that the studies listed under Items 1 through 8 of Schedule B of FERC's letter of December 18, 1987 require no further study.

Your prompt attention in this matter is sincerely appreciated. Please note that the U. S. Fish & Wildlife has agreed to this course of action. Enclosed is a copy of their letter for your review.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:ll

Enclosure

cc: Mr. Keith Bennett
Mr. Randall C. Budge, Attorney at Law

JUL 2 2 1993

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83204
Telephone: (208) 232-4703

February 12, 1988

Mr. Ted Sorenson, P.E.
Project Engineer
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

RE: FERC 10468, Marsh Valley Hydro Flows

Dear Mr. Sorenson:

In response to the question regarding minimum flows downstream from the above referenced project diversion we concur with the statement dated January 22, 1988 by Mr. Thomas Bloxham, Portneuf River Water Master for River District #29. Our recommendation for a minimum streamflow in this area is 10 cfs. Since you have agreed to this minimum flow in your letter dated February 8, 1988 we feel that the information developed on this matter is sufficient. Therefore we will not be recommending any additional studies.

Sincerely,

David Neider
Regional Supervisor

DN/ch

cc: Mr. Keith Bennett
Mr. Randall C. Budge
Fisheries Bureau

1993

EQUAL OPPORTUNITY EMPLOYER

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

March 4, 1988

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Avenue
Pocatello, ID 83201

SUBJECT: MARSH VALLEY HYDROELECTRIC COMPANY FERC #10468

Dear John,

Here is a copy of the recent deficiencies letter received on this project. Under Schedule B item 1 we are required to quantify and mitigate for vegetative impacts of the construction of the project. Attached is a study which was recently completed by Mr. Sherm Jensen. I would appreciate it if you would review this mini-study and indicate your concurrence or recommendations for modifications if any for this study. In general the construction impact will be minimal due to the small area involved. Your input with respect to this is sincerely appreciated. In that I must file a response to the deficiencies by March 11, 1988, I would appreciate receiving your response as soon as possible. I will be telephoning you to discuss the matter. Thanking you in advance.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:ll

Enclosures

cc: Mr. Randall C. Budge, Esq.
Mr. Keith Bennett
Mr. Lyndon Green

1993

CERTIFICATE OF MAILING

I hereby certify I mailed a true and correct copy of the foregoing by passing same in the United States Mail postage prepaid addressed to the following with a copy of the final application to:

Mr. Jordan Walker and Mr. Mike Graham
P. O. Box N
Manti, Utah

Mr. Merle Green
State Historical Preservation Office
Idaho State Historical Society
610 N. Julia Drive
Boise, ID 83702

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Street
Pocatello, ID 83201

Mr. Ron Wolfin
U. S. Fish & Wildlife Service
4696 Overland Road
Boise, ID 83705

Idaho Department of Parks & Recreation
Statehouse
Boise, ID 83702

Ted S. Sorenson, P.E.

JAN 8 2 1990

RENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

RECEIVED
MAR 28 1988
Department of Water Resources

March 8, 1988

Lois D. Cashell
Acting Secretary
Federal Energy Regulatory Commission
825 N. Capital, N.E.
Room 3110
Washington, D.C. 20426

SUBJECT: MARSH VALLEY HYDROELECTRIC COMPANY,
AN IDAHO CORPORATION, PROJECT FERC #10468

Dear Ms. Cashell,

This letter is written pursuant to Mr. Edward A. Abrams' letter of December 18, 1987. This letter contains responses to deficiencies as contained in Schedule A and responses to the additional information requested in Schedule B.

Deficiencies Schedule A

Item #1. (a) The following entities will have proprietary rights necessary to construct, operate or maintain the project:

(1) McCammon Ditch Company
c/o Mr. Lyndon Green, President
1791 East South
McCammon, ID 83250
(208) 254-3494

(2) Portneuf-Marsh Valley Canal Company
c/o Mr. Keith Bennett
Downey, ID 83234
(208) 897-5791

Please note that the above canal companies are the owners of the Marsh Valley Hydroelectric Company, an Idaho corporation.

The project will cross Union Pacific Railroad property and an easement has been granted for same.

Item #1. (b) No town of greater than 5,000 people is within 15 miles of the project. The project is located within Portneuf River Water District #29. The contact is Mr. Thomas Bloxham, Water Master, Route 1, Downey, Idaho 83234. The project is located within Bannock County, Bannock County Courthouse, P. O. Box 4777, Pocatello, Idaho 83205.

Item #2. Failure to document service of application to agencies consulted.

JAN 22 190

On September 3, 1987 a copy of the application for licenses was sent to each agency listed on the certification of Mailing (attached as last page of the application) along with the cover letter to Mr. Kenneth F. Plumb of FERC. A copy of the cover letter and certificate of mailing is attached. In order to insure compliance a new cover letter transmitting the original application and this response is attached.

Item #3. (a) The comprehensive state and regional water resource development plan in the area is governed by the Idaho Department of Water Resource Board which has published the Idaho State Water Plan dated December 12, 1986.

Item #3. (b) Explain how and why the project would or would not comply with the relevant comprehensive state and regional water resource plan. Attached is a letter of consultation from the Idaho State Department of Water Resources and a response letter dated March 8, 1988 from the Idaho Department of Water Resources.

"The Idaho Department of Water Resources is charged with the responsibility for planning for the optimum development of the water resources of the state through policies and water allocations which reflect the public interest." The Idaho Department of Water Resources accomplishes this through issuance of a water right permit.

The state water right filings have been made and approved pending issuance of the FERC license and therefore complies with the State Water Plan. Specific requirements that have been met are:

1. The project does not reduce the quantity of water to other existing water rights as the project is a non-consumptive use.

2. Have a sufficient water supply. The project does have a sufficient water supply as evidenced by USGS gauging station at Topaz.

3. Is pursued in good faith as has been evidenced by securing the power sales agreement and retention of an engineer to prepare the Federal Energy Regulatory Commission License.

4. Have sufficient financial backing. The project has sufficient financial backing as a function of the power sales agreement which has been executed.

5. Not conflict with the local public interest. This project does not conflict with the local public interest as evidenced by publication of the notice of appropriation of water in the local newspaper and receiving no protests.

JAN 22 1993

In addition, the Marsh Valley Hydroelectric Project would utilize the features of the Marsh Valley Canal Company which is an owner of the project. According to state law, any use of existing water feature must have permission from the owner. The applicant complies with same.

Item #3. (c) The project would comply with the state water plan.

Item #4. (a) Attached is a Project Location Map showing the location of all project facilities and their location in the relation to the stream where the water body on which the project is located and to the nearest town or any permanent monuments or objects.

Item #4. (b) The Project Location Map, Hydraulic Profile, and Exhibit G-2 show clearly existing and proposed project facilities. Please note that Exhibit G-2 is revised to show specifically the project boundaries.

Item #5. The length of the existing feeder ditch is 11,670 feet. The length of the proposed penstock is 500 feet.

Item #6. Refer to the attached Project Location Map. The project would utilize the existing canal intake for the Portneuf-Marsh Valley Canal to divert water from the Portneuf River and would construct a new proposed diversion and intake structure approximately 11,670 feet downstream in the Portneuf-Marsh Valley Canal.

Schedule B Additional Information

Item #1. Environmental impacts on vegetation and wildlife resources. Attached is a mini-study on the vegetative resources. Also attached is a letter of consultation and a letter of review from the Idaho Department of Fish & Game with respect to wildlife and vegetative resources. With respect to the wildlife resources, we will adhere to the Department of Fish & Game's letter of March 11, 1988 which refers to the Idaho Department of Fish & Game's letter of March 11, 1983. We will adhere to these guidelines. With respect to the vegetative resources, we will adhere to the report prepared by Whitehorse Associates of Smithfield, Utah. A copy is attached. This report and plan of action is approved by the Idaho Department of Fish & Game. Idaho Department of Fish & Game and the U. S. Fish & Wildlife Service are requesting no further studies, and we hereby petition FERC for the same.

Item #2 through #8. Please note that under the current situation with respect to the irrigation companies, the bypassed reach of the Portneuf River may be totally dewatered for a period

JAN 2 2 1993

of four to five months each year during the irrigation season. However, the bypass over the years has been maintained at between 8 to 10 cfs. As a function of Dr. Jack Griffith's study, a copy of which is included in the application as appendix E-3a, the Idaho Department of Fish & Game and with the concurrence of the U. S. Fish & Wildlife Service have concluded that if the canal companies, whom are the owners of Marsh Valley Hydroelectric, are willing to enter an agreement to maintain a 10 cfs bypass flow, not only during the irrigation season, but throughout the year, that no significant impact would be realized. On the other hand, without this agreement for the minimum bypass flow for a period of four to five months each year the irrigation companies would have the legal right to totally dewater the Portneuf River. Recognizing this situation, the Idaho Department of Fish & Game has felt that the 10 cfs would actually improve the situation over what could occur without an agreement for a minimum bypass flow. It should be noted that during the irrigation season the hydroelectric plant would not run. It would be shut down. Therefore, the Idaho Department of Fish & Game has concluded that a year-round bypass flow of 10 cfs would be in the best interest of the environment. This is consistent with recent consultation and correspondence, the letters of which are attached. Therefore, we respectfully petition the commission to waive any further studies as U. S. Fish & Wildlife Service and Idaho Department of Fish & Game do not feel that they are justified. It is their opinion that the trade-off with respect to minimum bypass flow during the irrigation season more than offsets any potential impacts of diversion during the non-irrigation season. Your concurrence in this matter is sincerely appreciated.

Item #8. The Utah Power & Light transmission line to which the project would connect is McCammon circuit #11.

Item #10. Pursuant to Section 10-I of the Federal Power Act, we do not wish to waive Sections 14 and 15. Accordingly, a revised map showing the project boundary is shown as Exhibit G-2.

We trust this information provides sufficient basis for acceptance of the application and will allow you to issue the license in the near future. Please feel free to call me if any questions arise.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

TSS:11

Enclosures

FILED
JAN 22 1993

RENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

29-7578
29-7772

RECEIVED
MAR 22 1988
Department of Water Resources

FERC 10468

March 8, 1988

Mr. Thomas Green
State Historical Preservation Office
Idaho State Historical Society
210 Main Street
Boise, ID 83702

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Avenue
Pocatello, ID 83201

Mr. John Wolfin
U. S. Fish & Wildlife Service
4696 Overland Road
Boise, ID 83705

29-7578
29-7772

Idaho Department of Parks & Recreation
Statehouse
Boise, ID 83720

Mr. Keith Higginson
Director
Idaho Department of Water Resources
Statehouse Mail
Boise, ID 83720

SUBJECT: MARSH VALLEY HYDROELECTRIC COMPANY, AN IDAHO CORPORATION, FERC #10468

Gentlemen:

Attached is a copy of the application for license. This application was submitted to all parties on September 3, 1987 with the exception of the Idaho Department of Water Resources for which the application was submitted to them on January 25, 1988. In order to more fully comply with FERC requirements I am formally submitting to you another application with this cover letter together with a copy of the deficiency response to FERC dated March 8, 1988. In that I have already consulted with you, this is submitted to you for your information.

Very truly yours,

Ted S. Sorenson, P.E.
Project Engineer

RECEIVED
MAR 22 1993

TSS:mm

Enclosure

cc: Federal Energy Regulatory Commission

CERTIFICATE OF MAILING

I hereby certify I mailed a true and correct copy of the foregoing by passing same in the United States Mail postage prepaid addressed to the following with a copy of the final application to:

Mr. Thomas Green
State Historical Preservation Office
Idaho State Historical Society
210 Main Street
Boise, ID 83702

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Avenue
Pocatello, ID 83201

Mr. John Wolfin
U. S. Fish & Wildlife Service
4696 Overland Road
Boise, ID 83705

Idaho Department of Parks & Recreation
Statehouse
Boise, ID 83720

Mr. Keith Higginson
Director
Idaho Department of Water Resources
Statehouse Mail
Bosie, ID 83720

Ted S. Sorenson, P.E.
Project Engineer

2 2 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 1301 North Orchard Street Boise, Idaho 83706-2237 • (208) 334-4440

CECIL D. ANDRUS
Governor

R. KEITH HIGGINSON
Director

March 8, 1988

Ted S. Sorenson
Sorenson Engineering
550 Linden Drive
Idaho Falls, ID 83401

RE: Proposed Marsh Valley Hydroelectric Project

Dear Ted:

Your letter of January 25, 1988, requests information on comprehensive water resource development plans or programs relevant to the above referenced project. The Department of Water Resources considers the adopted State Water Plan to be a "comprehensive water plan" which among other essential features and considerations is intended to provide a guide for the amount and general location of development. A copy of the plan is attached for your use in responding to the FERC deficiency request.

Applications for permit 29-7578 and 29-7772 have been filed with this department to appropriate water for the hydropower project. These are the only filings seeking to appropriate water for a hydropower project at this site, and there are no pending protests against approval of the applications. Compliance with the State Water Plan will be assured as the applications are processed. Approval of the permits will require that the project comply with the criteria specified in Section 42-203A, Idaho Code. The criteria require that the project:

1. Not reduce the quantity of water to other existing water rights,

2. Have a sufficient water supply,

3. Be pursued in good faith,

4. Have sufficient financial backing, and

5. Not conflict with the local public interest.

JAN 22 1993

Enclosed is a copy of the adopted rules which further define these requirements. If necessary, a permit may be issued with conditions to insure that the above requirements are met. Two conditions required by state law for hydropower permits (Section 42-203B, Idaho Code) are subordination to future upstream state authorized uses and re-evaluation after a specific term (usually coordinated to match the term of the FERC license). Section 42-205(3), Idaho Code, gives preference to the owner of existing water diversion and use facilities to develop hydropower on the facilities.

If I can provide more information, please feel free to contact me.

Sincerely,

Norman C. Young

NORMAN C. YOUNG
Administrator
Resource Administration Division

NCY:alw
Attachment
cc: Keith Bennett, Portneuf Marsh Valley Canal
Eastern Region, IDWR

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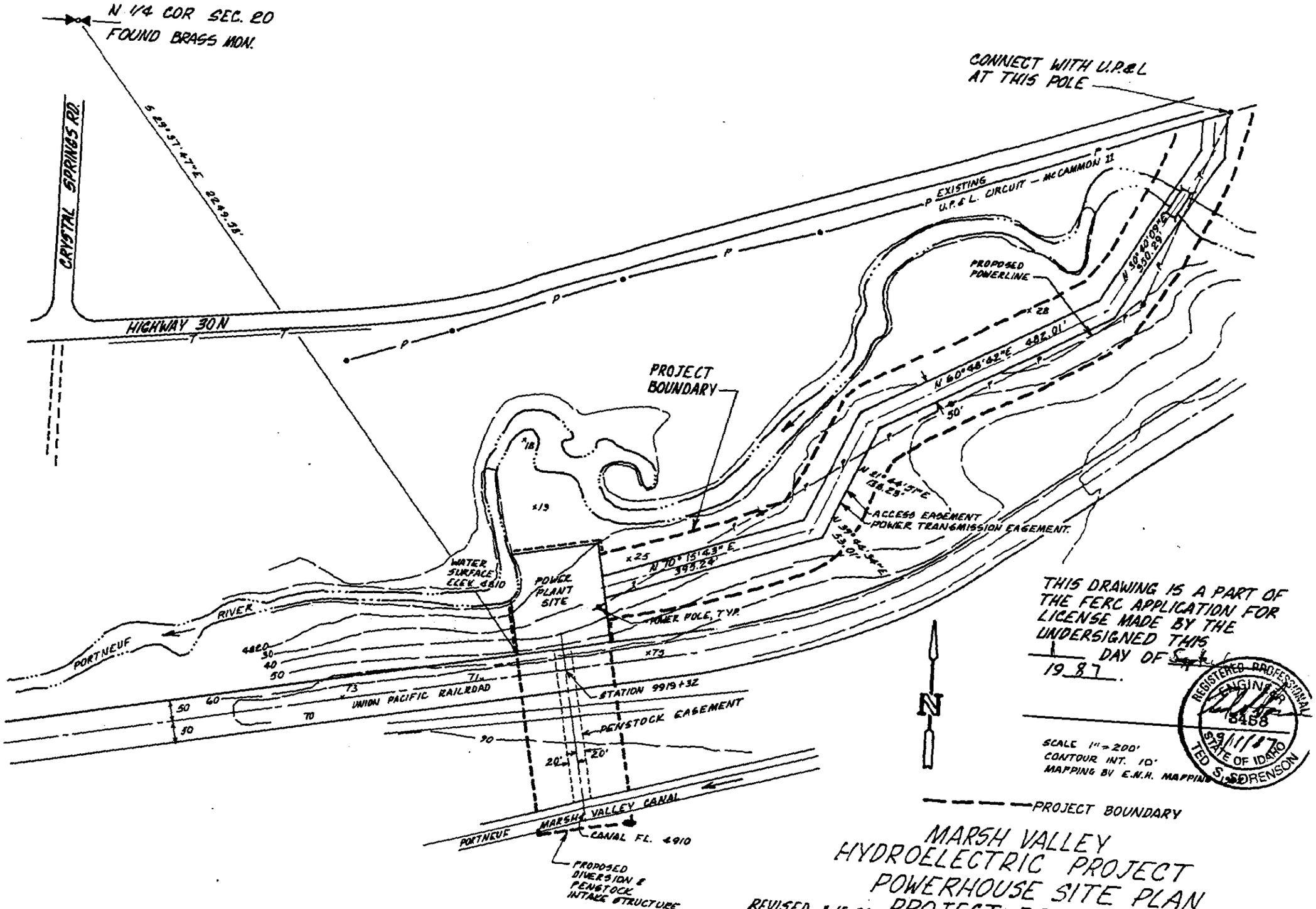
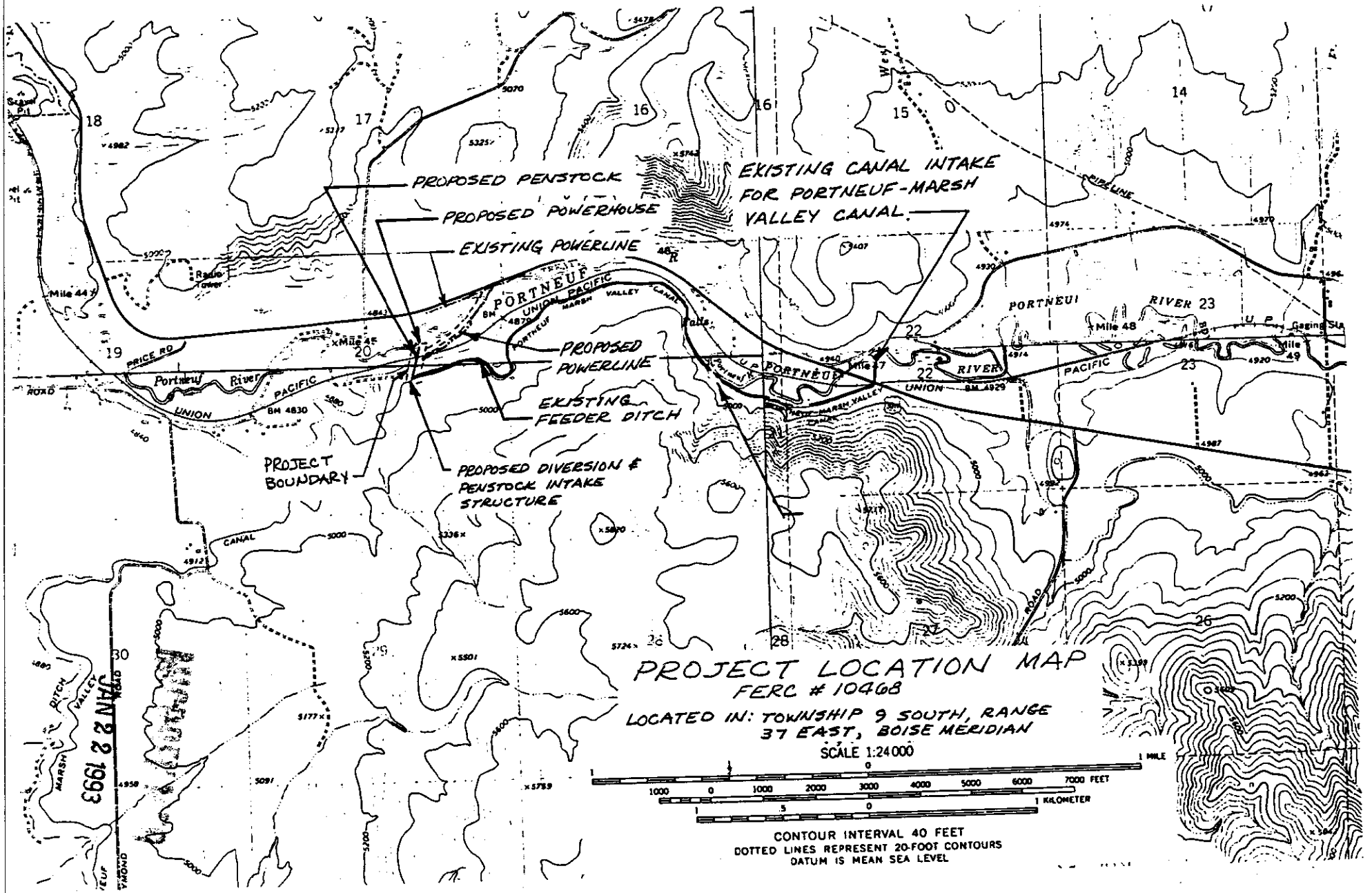
2 1993



MARSH VALLEY
HYDROELECTRIC PROJECT
POWERHOUSE SITE PLAN
PROJECT BOUNDARIES
FERC NO 10468

REVISED 3-15-88

EXHIBIT G2



PROJECT LOCATION MAP
FERC # 10468
LOCATED IN: TOWNSHIP 9 SOUTH, RANGE 37 EAST, BOISE MERIDIAN
SCALE 1:24000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83204
Telephone: (208) 232-4703

March 11, 1988

Ted S. Sorenson, P.E.
Project Engineer
550 Linden Drive
Idaho Falls, Idaho 83401

RE: Marsh Valley Hydro Elective Company FERC #10468

Dear Mr. Sorenson,

We have reviewed the mini-study for the above referenced project. The study accurately describes vegetative communities at the site and the reclamation program for project disturbed areas appears adequate.

Schedule B, item 1 also requires you to define and quantify the project impacts on wildlife. We do not find this information contained.

Department correspondence dated March 11, 1983 on this project carries recommendation for minimum flow, buried transmission lines and other recommendations.

If these recommendations are followed we do not believe this project will seriously impact wildlife resources in the area.

Sincerely,

for Bill Davidson
David Neider
Regional Supervisor

DN/ch

EQUAL OPPORTUNITY EMPLOYER

JAN 22

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720 - (208) 334-7900

CECIL D. ANDRUS
GOVENOR
R. KEITH HIGGINSON
DIRECTOR

May 20, 1988

Ted S. Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Re: Permits to Appropriate Water Nos. 29-7578 and 29-7772

Dear Mr. Sorenson:

Following our telephone conversation in which you requested processing of the applications to appropriate water Nos. 29-7578 and 29-7772, I have reviewed the files. This letter is a request for additional information which we must receive prior to approval. Please respond to the following:

1. Our records are unclear as to whether the option to purchase land with Roger S. & Kaye R. Johnson has been exercised.

2. The FERC report states that water will not be available for hydropower generation during the peak irrigation months. The application to appropriate water seeks a water right to divert water year around. Please justify why the period of use should not be shortened.

3. Will losses occur in the delivery system which will injure other water right holders?

4. State the total annual volume of water anticipated to be diverted during a peak and average year.

5. Our files lack a current certified statement of financial commitment. Correspondence from BayBank of Boston only states that BayBank "would readily consider a request for the financing of the site." Either a statement of commitment from BayBank of Boston, or a short statement of worth from Bonneville Pacific must be submitted.

6. Explain design construction and operation techniques to minimize the effects of a shutdown on the canal system and on uses of water both from the canal and also downstream from the hydropower plant.

7. Explain what engineering design features are planned to prevent water hammer or negative pressure in the penstock. IDWR will require the project design and construction to be certified

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JAN 22 1993

by a licensed Idaho engineer to insure the adequacy and safety of the construction.

8. You have previously explained that the present ditch diversions for the McCammon Ditch Company and the Portneuf-Marsh Valley Irrigation Company will not be changed. Please explain the design of the diversion that is proposed. Please also submit a copy of the latest plans. Our latest copy is contained in the FERC application file, and depicts the McCammon Ditch Company diversion combined with the Portneuf-Marsh Valley diversion.

9. In relationship to paragraph 8, the two permits list different tracts as the respective points of diversion. Please reconcile the discrepancy.

10. Provide a copy of the portion of the power sales contract which details the term of years of the contract.

11. Explain how the diversion bypass will work mechanically.

Please submit the above requested information within sixty (60) days of the date of this letter.

Sincerely,

Gary Spackman

GARY SPACKMAN, Supervisor
Allocation Section

GS:jf

CC: Randy Budge
Eastern

JAN 22 19

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204-0391

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE
JOHN A. BAILEY, JR.
JOHN R. GOODELL*

JOHN B. INGELSTROM
DANIEL C. GREEN
REED W. LARSEN
CARY B. COLAIANNI
DAVID E. RAYBORN

*ALSO MEMBER ILLINOIS BAR

TELEPHONE
AREA CODE 208
232-6101

TELEX
208-232-6109

March 25, 1988

RECEIVED
APR 28 1988
Department of Water Resources

Gary Spackman
Supervisor, Water Allocations Sections
Idaho Department of Water Resources
State House
Boise, Idaho 83720

Re: Applications for Permit No. 29-7772 and 29-7578

Dear Gary:

We represent Marsh Valley Hydro Electric Company with respect to the captioned applications and the development of their co-generation project on their canal system adjacent to the Portneuf River east of McCammon, Idaho. Ernest Carlsen, Water Rights Supervisor for the Eastern Division indicated that future correspondence pertaining to this matter should be directed to you.

I am enclosing a copy of the signed development contract entered into on February 23, 1988 between our client, Marsh Valley Hydroelectric Company and the developer, Marsh Valley Development, Inc. The principle owner, engineering and developer for the developing corporation is Ted Sorenson of Sorenson Engineering, 550 Linden Drive, Idaho Falls, Idaho 83401.

It is my understanding that Ted Sorenson has in the recent past been in communication with Norm Young of your department with regard to this matter and has provided him with a copy of the FERC application for minor license filed in September, 1987 together with other information as has been requested including information concerning the financing, engineering and design of the project.

I am also enclosing a copy of the February 19, 1988 letter from Bay Bank of Boston which has made a committment to finance the construction of the project. The developer plans on commencing construction as soon as FERC has issued the license which is expected within the next several weeks. Certain supplemental information required by FERC has recently been submitted by Sorenson Engineering via letter dated March 8, 1988, a copy of which is also enclosed.

JAN 22 1993

Based upon the foregoing, it is our understanding that you now have all information necessary and we know of no reason why the permit should not be issued. Accordingly, we would respectfully request that the Department act upon the pending applications and issue the permits without further delay.

The urgency in issuing the permits is two-fold. First, final approval of the FERC license may be prejudiced absent an approved application and permit; and second, we are advised that Senate Bill No. 1504 has passed the Idaho State Senate and, if it becomes law, might impede issuance of the permits at a later date.

If you have any questions or if anything further is needed to expedite this matter, please contact Ted Sorenson or me.

Very truly yours,

RANDALL C. BUDGE

RCB:gr

Enclosure

cc: ✓Ted Sorenson
Ernest Carlsen
Keith Bennett
Lyndon Greene

December 2, 1987

Michael J. Graham
Energy National Corporation
P.O. Box 1929
Lake Havasu City, Arizona 86403

RE: APPLICATION FOR PERMIT NOS. 29-7578 AND 29-7772

Dear Mr. Graham:

In response to your letter dated November 20, 1987, written on behalf of Marsh Valley Hydroelectric Company, a Utah partnership, I have reviewed the above referenced water right applications which are in the name of Marsh Valley Hydro Electric Co., an Idaho corporation.

Water right application 29-7578 filed with the department on February 2, 1981 proposes the diversion of 175 cubic feet per second of water from the Portneuf River for hydropower generation purposes. Water right application 29-7772 was filed on June 5, 1984 and proposes the diversion of 75 cubic feet per second of water from the Portneuf River for hydropower generation purposes. Both applications have been advertised and the time period in which to file a protest has passed.

Department action on the applications will be based on applicable provisions of the Idaho Code and the Water Appropriation Rules and Regulations of the department.

As you probably know, in Idaho, the general rule with respect to water rights is "first in time is first in right". An application in itself does not, however, represent a water right but is the document by which a water right and a priority can be established.

Please feel free to contact this office if you have additional questions.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

c: Randall C. Budge

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JAN 2 2 1993

April 3, 1987

Randall C. Budge
Attorney at Law
P.O. Box 1391
Pocatello, Idaho 83204

Ted S. Sorenson, P.E.
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

RE: Application for Permit 29-7772

Gentlemen:

Based on information furnished in response to the letter from this office dated March 12, 1987, I am forwarding the above captioned application to our state office. Future correspondence pertaining to the development contract, verification of financing and FERC rulings concerning this project and permit applications 29-7578 and 29-7772 should be addressed to:

Gary Spackman
Supervisor, Water Allocations Sections
Idaho Department of Water Resources
State House
Boise, Idaho 83720

Respectfully submitted,

Ernest Carlsen
Water Rights Supervisor

EC/md

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JAN 22 1993

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204-0391

LOUIS F. RACINE, JR.
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JOHN R. GOODELL *

JOHN B. INGELSTROM
DANIEL C. GREEN
BART D. BROWNING
REED W. LARSEN
CARY COLAIANNI

*ALSO MEMBER ILLINOIS BAR

TELEPHONE
AREA CODE 208
232-6101

TELEX
208-232-6109

March 26, 1987

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MAR 27 1987
Department of Water Resources

Mr. Ernest Carlsen
Water Rights Supervisor
Idaho Department of Water Resources
Eastern Region
150 Shoup
Idaho Falls, Idaho 83401

Mr. Gary Spackman
Supervisor, Water Allocation Section
Idaho Department of Water Resources
State Office
450 West State Street
Boise, Idaho 83720

Re: Application for Permit No. 29-7772
Marsh Valley Hydro Electric Company

Gentlemen:

I am writing as counsel for Marsh Valley Hydro Electric Company with regard to the captioned permit and to respond to Ernest Carlsen's letter dated March 12, 1987 entitled, "Notice of Pending Action to Reject Application". Mr. Carlsen's letter requested that Marsh Valley either withdraw their application or explain why the department should not reject it. Please be advised that Marsh Valley does not desire to withdraw its application as they are now moving forward with the development of the project, as discussed below, and hereby request that the application be retained and an extension of time be granted to permit the development to be completed.

As set forth in my September 3, 1986 letter to Water Rights Supervisor, Jim Johnson, a copy of which is enclosed, the original developer, Hydro Electric Constructors of Orange, California, encountered financial and other difficulties and did not perform its obligations under the contract to develop the project, by reason of which the contract was terminated. Consequently it became necessary for Marsh Valley to seek another developer to pursue a FERC exemption and/or license, as well as development of the project.

JAN 22 1993

Subsequently in my October 2, 1986 phone conversation with Gary Spackman, I advised that Marsh Valley was in the process of negotiations and reached a tentative agreement with Ted S. Sorenson and David Snedigar of New Energy, Inc. to pursue FERC approval and development of the project (see Mr. Spackman's 10/3/86 letter).

On September 30, 1986 Marsh Valley exercised its option to purchase a plant site and related easements pursuant to an "Option to Purchase Real Estate and Easements" Agreement entered into on 10/3/86 with Mr. and Mrs. Roger S. Johnson. The closing has been delayed due to minor difficulties the Johnsons have encountered in securing a partial release from one of their lien holders, First Bank and Trust, primarily because the bank failed and has been taken over by the FDIC. However, it is expected that this acquisition will close within the next few weeks.

A Power Purchase Agreement was entered into between Marsh Valley and Utah Power & Light Company on November 21, 1986 which was subsequently approved by the Idaho Public Utilities Commission in Case No. U-1009-172, Order No. 20979. A copy of the IPUC Order is enclosed, together with a copy of the Power Purchase Contract excepting only the appendixes which are too voluminous and not enclosed.

One of the developers, Ted S. Sorenson, P.E. - L.S. of Sorenson Engineering P.A., 550 Linden Drive, Idaho Falls, Idaho 83401, phone 522-8069, is acting as the Project Engineer, has completed preliminary engineering designs, and a new application to the FERC for a conduit exemption. From our discussions with Mr. Sorenson it is our understanding that the application is ready to file and is only awaiting an amendment of previous easements obtained from the Union Pacific Railroad which became necessary due to changes in the project design. I have requested that Mr. Sorenson send you a copy of the new FERC application which should be received shortly.

It is our understanding that the developers have received a commitment from Bay Bank of Boston for the financing of the project. Please feel free to contact Mr.

JAN 2 2 1993

Sorenson if you have any further questions concerning this financing. Drafts ofthe development contract between Marsh Valley and Sorenson - Snedigar are being circulated between counsel for final revisions and are expected to be signed by the parties in the near future.

I trust the foregoing sufficiently responds to your inquiry, documents the fact that Marsh Valley is vigorously pursuing the development of the project, and permits an extension of time on the captioned permit. Please advise if you have any questions or desire further information.

Very truly yours,

RANDALL C. BUDGE

RCB/dhn

Enclosures

cc: Ted Sorenson
Dave Snedigar
Lyndon Green
Keith Bennett

JAN 2 2 1993

RECEIVED
MAR 27 1987
Office of the Secretary
Service Date
JAN 7 - 1987
Department of Water Resources

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

JAN - 8 1987

IN THE MATTER OF THE APPLICATION OF UTAH POWER & LIGHT COMPANY FOR AN ORDER APPROVING A FIRM ENERGY SALES AGREEMENT.	CASE NO. U-1009-172 ORDER NO. 20979

On December 8, 1986, Utah Power & Light Company (UP&L) submitted an Application to the Idaho Public Utilities Commission (Commission) for an Order approving a Firm Energy Sales Agreement between UP&L and Marsh Valley Hydro Electric Company.

Marsh Valley Hydro Electric Company is the owner of a proposed 1.7 megawatt hydroelectric project to be located in the Northeast quarter of the Northeast quarter of Section 20, Township 9 South, Range 37 East, Boise Meridian, approximately 3 miles East of McCammon, Bannock County, Idaho on the Portneuf-Marsh Valley Canal. The project is a qualified small power production facility under the applicable provisions of the Public Utilities Regulatory Policies Act. The scheduled operation date of the facility is March 1988.

The Commission finds that the parties reach agreement as to all material contract terms on or about May 7, 1985. The Agreement as signed and submitted by the parties contains avoided cost rates in conformity with applicable Commission Orders. The terms of the contract are reasonable and we approve them. We also approve payments made under this Agreement as prudently incurred expenses for ratemaking purposes.

CONCLUSIONS OF LAW

I

The Idaho Public Utilities Commission has jurisdiction over Utah Power & Light Company, an electric utility, pursuant to the authority and power granted it under Title 61 of the Idaho Code.

JAN 22 1993

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DONE by Order of the Idaho Public Utilities Commission at Boise, Idaho, this 7th day of January, 1987.

PRESIDENT

COMMISSIONER

COMMISSIONER

ATTEST:

SECRETARY

SW:vs/305L

MICROFILMED
JAN 22 1993

Per Commission Order
No. 20079.

Myrna J. Walters
Commission Secretary

RECEIVED
MAR 27 1987
Department of Water Resources
JAN - 8 1987

POWER PURCHASE AGREEMENT

BETWEEN

MARSH VALLEY HYDRO ELECTRIC COMPANY

AND

UTAH POWER & LIGHT COMPANY

THIS AGREEMENT is entered into this 21st day of November, 1986, by and between MARSH VALLEY HYDRO ELECTRIC COMPANY, a corporation organized and existing under the laws of the State of Idaho, and owners of a qualifying facility as defined in 18 CFR §292.101(b)(1) with the appropriate representation for qualification as specified in Appendix K, hereinafter referred to as "Seller," and UTAH POWER & LIGHT COMPANY, a corporation organized and existing under the laws of the State of Utah, hereinafter referred to as "Buyer." Seller and Buyer are sometimes referred to collectively as "Parties" and individually as "Party".

WITNESSETH:

WHEREAS, Seller intends to construct, own, operate and maintain a hydroelectric generating facility consisting of three (3) synchronous generators, each with a Name Plate Rating of six-hundred (600) kilowatts, for a total generating capacity of one-thousand, seven-hundred (1,700) kilowatts, hereinafter referred to as Facility*; and

*Initial capitalization of words and phrases other than proper names indicates that these terms are defined in Appendix A hereof.

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JAN 22 1993

WHEREAS, Seller wishes to sell to Buyer and Buyer agrees to purchase all electric energy generated for sale by such Facility, but only in accordance with the terms of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

1. TERM OF AGREEMENT AND TERMINATION

1.1 Subject to the terms and conditions hereof, this Agreement shall become effective upon execution by the Parties and shall remain in full force and effect for a term of thirty-five (35) years from the Operation Date. It is anticipated that testing of the Facility pursuant to Appendix E and in-service generation will commence in March 1988.

1.2 This Agreement cannot be terminated by Seller except by subsequent mutual agreement of the Parties in writing or by abandonment of the Facility and payment by Seller to Buyer of the sums required by Appendix C.

1.3 This Agreement cannot be terminated by Buyer except by subsequent mutual agreement of the Parties in writing or in accordance with Appendix C. Also, in the event that Buyer's system which provides electrical service to Seller is acquired by another entity, to the extent that Seller's electrical service is to be supplied by said entity, this Agreement shall be deemed to be terminated by Buyer upon the date of acquisition. All future

JAN 2 2 1993

payment obligations of Buyer to Seller pursuant to this Agreement shall end upon the date of acquisition and the payment by Seller to Buyer of the sums required by Appendix C shall be due.

2. SALE OF POWER

2.1 Seller agrees to sell and deliver and Buyer agrees to purchase and accept all energy generated from the subject Facility in accordance with the terms and conditions of this Agreement.

2.2 Seller's proposed Facility is located in the Northeast 1/4 of the Northeast 1/4 of Section 20, Township 9 South, Range 37 East, Boise Meridian, approximately three miles east of McCammon, Bannock County, Idaho on the Portneuf-Marsh Valley Canal and shall provide energy as set forth herein.

2.3 If Seller intends to increase the generating capability of the generators beyond the stated Name Plate Rating, Seller shall notify Buyer. The Parties will enter into a mutually acceptable agreement to purchase any additional energy provided from such increase in accordance with the terms and at the rates then required by the appropriate regulatory authority. Such agreement will not become effective until it has been approved by the Idaho Public Utilities Commission. Seller shall be responsible for the costs that may be incurred by Buyer to accept the additional energy provided from such increase.

JAN 2 2 1993

3. PURCHASE PRICE AND METHOD OF PAYMENT

3.1 Buyer shall pay Seller, for the energy delivered to the Point of Delivery. The payment shall be the sum of the following:

(a) A fixed energy rate of 40.49 mills per kilowatt-hour for the energy delivered to the Point of Delivery. This portion of the payment will only be paid for the energy that is delivered after the Operation Date, but in no case will this portion of the payment be paid until after the Scheduled Operation Date. This rate reflects a 1988 scheduled in-service date and a thirty-five (35) year term as shown in Appendix B. This rate shall not change due to a delay in completion of construction nor shall it be subject to escalation or change except as stated in Appendix C, Section D.

(b) A variable energy rate of 14.00 mills per kilowatt-hour for all energy delivered to the Point of Delivery before and after the Operation Date. This rate will be updated annually by the Idaho Public Utilities Commission and applied to this Agreement as specified in Appendix B.

3.2 The kilowatt-hours for which Buyer shall be obligated to purchase shall be the kilowatt-hours measured on Buyer's metering equipment located at the Point of Delivery. Payment shall be based on total generation from the Facility less Station Use. In the event that during a month Station Use exceeds gross generation, then Seller

JAN 2 2 1993

shall pay Buyer for the excess energy at the then-current applicable rate(s).

3.3 Buyer's obligation to pay Seller the fixed energy rate for energy furnished to Buyer shall commence on the Operation Date of the Facility. Buyer shall pay Seller the variable energy rate for energy furnished to Buyer during the test period prior to the Operation Date and after the Operation Date for energy furnished to Buyer.

4. ENTIRE AGREEMENT

4.1 This Agreement shall supersede all prior contracts, proposals, representations, negotiations, discussions or letters between the Parties.

4.2 This Agreement cannot be amended by either Party except by subsequent mutual agreement of the Parties in writing.

4.3 This Agreement may be unilaterally terminated by Buyer twelve (12) months after the Scheduled Operation Date if Seller's Facility has not commenced delivery of energy pursuant to this Agreement, unless Seller can show just cause why the Facility is not complete and that it will be operational within a reasonable period of time.

4.4 This Agreement may be unilaterally terminated by Buyer twelve (12) months after the execution date, above, if Seller has failed to

JAN 2 2 1993

obtain all necessary licenses and permits, including qualifying facility representation, needed to construct and operate the Facility throughout the term of this Agreement.

4.5 This Agreement includes the following Appendices, all of which are attached hereto and incorporated herein by reference:

Appendix A:	Power Purchase General Terms and Conditions
Appendix B:	Schedules of Capacity and Energy Rates
Appendix C:	Adjustment of Payments
Appendix D:	Parallel Generation Interconnection Requirements
Appendix E:	Performance Test Criteria for Seller's Interconnection Facilities
Appendix F:	Metering Equipment, Communication Equipment and Communication Channels
Appendix G:	Seller's Interconnection Facilities
Appendix H:	Buyer's Interconnection Facilities
Appendix I:	Point of Delivery
Appendix J:	Description of Facility
Appendix K:	Qualifying Facility Representation

5. NOTICES

5.1 All written notices given pursuant to this Agreement shall be addressed as follows:

(a) To Buyer: Corporate Secretary
UTAH POWER & LIGHT COMPANY
1407 West North Temple Street, Room 326
P.O. Box 899
Salt Lake City, UT 84110

MICROFILMED
JAN 2 2 1993

With a copy to: Manager, Resource Contracts
UTAH POWER & LIGHT COMPANY
1407 West North Temple Street, Room 3312
P.O. Box 899
Salt Lake City, UT 84110

(b) To Seller: MARSH VALLEY HYDRO ELECTRIC COMPANY
McCammon, ID 83250

With a copy to: McCammon Ditch Company
McCammon, ID 83250

And: Portneuf-Marsh Valley Canal Co., Ltd.
Downey, ID 83234

5.2 Inquiries concerning meter readings, billings, etc., should be addressed to:

(a) To Buyer: Customer Service Manager
UTAH POWER & LIGHT COMPANY
145 West Main Street
P.O. Box 130
Rexburg, ID 83440

AUTHORIZED
JAN 22 1993

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the first date hereinabove set forth.

SELLER:

MARSH VALLEY HYDRO ELECTRIC COMPANY

By Lyndon Green

Title PRESIDENT

BUYER:

UTAH POWER & LIGHT COMPANY

By

VERL R. TOPHAM
Senior Vice President

RECEIVED
JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

October 3, 1986

Randall C. Budge
Attorney at Law
P.O. Box 1391
Pocatello, ID 83204

Re: Application for Permit No. 29-7578,
Marsh Valley Hydro-Electric Co.

Dear Randy:

Pursuant to our telephone conversation on October 2, 1986, it is my understanding that Marsh Valley Hydro-Electric Co. has reached a tentative agreement with New Energy Inc. for the development of the power facility proposed in the above application. You also represented that New Energy Inc. would diligently pursue FERC approval of the project. This letter is a request for a copy of the agreement as signed by the parties.

Based on your representations, the Department will defer any action on Application No. 29-7578 for one year provided that the copy of the agreement with the developer is submitted within sixty (60) days of the date of this letter.

Best wishes,

Gary Spackman

GARY SPACKMAN
Supervisor, Water Allocation Section

ls

JAN 22 1993

ıte of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

August 12, 1986

RE: Application for Permit No. 29-7578

Marsh Valley Hydro-Electric Co.
McCammon,
Idaho 83250

Gentlemen:

On 8/1/85 we received notice that an Application for a Case-Specific Exemption had been filed with the Federal Energy Regulatory Commission and since that time no additional information has been received.

In order to keep your application in good standing, please provide us with an update as to obtaining necessary approvals from FERC. Please provide this information on or before September 15, 1986.

If you have any questions on this matter, please let us know.

Sincerely,

JIM JOHNSON
Water Rights Supervisor

JJ:sc

JAN 22 1993

INTER-DEPARTMENT MEMO — 1

FROM Jim

DATE 8-27-85

TO File

SUBJECT Follow-up Review on Application 29-7578

Per correspondance received 8-1-85 no further action on follow-up required until 8-1-86 or until FERC approval is Rec'd.

JAN 22 1993

SIGNATURE

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE
JOHN A. BAILEY, JR.

JOHN R. GOODELL*
JOHN B. INGELSTROM
DANIEL C. GREEN
BART D. BROWNING
REED W. LARSEN

*ALSO MEMBER ILLINOIS BAR

TELEPHONE
AREA CODE 208
232-6101

September 3, 1986

RECEIVED
SEP 5 1986
Department of Water Resources

Jim Johnson
Water Rights Supervisor
Department of Water Resources
State Office
450 W. State Street
Boise, Idaho 83720

Re: Application for Permit No. 29-7578
Marsh Valley Hydro-Electric Co.

Dear Mr. Johnson:

This will respond to your August 12th leter regarding the captioned matter requesting an update.

The owner, Marsh Valley Hydro-Electric Co., originally contracted with Hydro-Electric Constructors, Inc. of Orange, California to develop a project including the processing of the FERC exemption and/or license. The developer was unsuccessful in obtaining a FERC exemption and due to financial and other difficulties did not perform its obligations under the contract and develop the project. Accordingly Marsh Valley has terminated the contract with HEC and is seeking another developer to pursue a FERC exemption and/or license as well as development of the project.

At this point information regarding the technical information pertaining to the project has been sent to three different developers. Thus far one of the developers has responded expressing interest and more information. At this point Marsh Valley's efforts are focusing upon securing another developer.

Very truly yours,

RANDALL C. BUDGE

RCB/dds

cc: Lyndon Green
Keith Bennett

JAN 22 1993

29-7772
-7576

RECEIVED
AUG 1 1985
Department of Water Resources

HYDROELECTRIC CONSTRUCTORS, INC
953 N. Elm St.
Orange, California 92667-5454
telephone (714) 639-6933

July 25, 1985

Enclosed for your information and use is a copy of the Application for a Case-Specific Exemption for the Marsh Valley Hydroelectric Project. This application has also been filed with The Federal Energy Regulatory Commission in Washington D.C. Thankyou for your assistance in this matter.

Sincerely,

Peter F. McAlpin
President

MICROFILMED
JAN 22 1993

D eT DNR

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

TELEPHONE
AREA CODE 208
232-6101

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE

JOHN A. BAILEY
WILLIAM F. BACON
JOHN R. GOODELL*
JOHN B. INGELSTROM
DANIEL C. GREEN

*ALSO MEMBER ILLINOIS BAR

December 12, 1984

RECEIVED
DEC 13 1984
Department of Water Resources

Mr. L. Glen Saxton
Chief, Operations Bureau
State of Idaho
DEPARTMENT OF WATER RESOURCES
450 West State Street
Boise, Idaho 83720

Re: Application for Permit No. 29-7578
Marsh Valley Hydro Electric Project

Dear Mr. Saxton:

In response to your letter of December 6, 1984, regarding the above matter, please be advised that an application has been recently filed with the Federal Energy Regulatory Commission seeking a small plant exemption from their licensing requirements. The application is being processed at this time. The application was submitted by our developer, Hydro Electric Constructors, Inc., from whom I am obtaining a copy of the application and will forward to you when received.

A contract has been signed with Hydro Electric Constructors, Inc., for the deveopment of the project. Preliminary engineering and survey work is being conducted at this time and we anticipate that construction will begin in the Spring of 1985. Also, we have negotiated a Power Purchase Contract with Utah Power & Light Company and are placing the Contract in final form anticipating that it will be executed by the parties in the near future.

If you have any questions or need further information, please advise.

Very truly yours,

RANDALL C. BUDGE

RCB:cwn

c: Lyndon Green
Keith Bennett
Peter McAlpine, HEC

MICROFILMED
JAN 22 1993

December 6, 1984

RE: Application for Permit No. 29-7578

Marsh Valley Hydro-Electric Company
McCammon,
Idaho 83250

Gentlemen:

On February 2, 1981, you submitted the above referenced application to appropriate the public waters of the State of Idaho for power generation purposes.

In our correspondence dated November 3, 1983, we advised that the continued validity of the application is contingent on your proceeding with due diligence in obtaining necessary approvals including authorizations which may be required from the Federal Energy Regulatory Commission (FERC) and/or the Idaho Public Utilities Commission (PUC).

Since our letter we have not received correspondence from you in this regard. Please advise this office of progress in this matter on or before January 31, 1985 in order to keep this application in good standing.

If you have any questions, please contact this office.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

LGS:sc

JAN 22 1993

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

LOUIS F. RACINE, JR.
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RANDALL C. BUDGE

JOHN A. BAILEY
WILLIAM F. BACON
JOHN R. GOODELL *
JOHN B. INGELSTROM
PATRICK J. OSHIE **

* ALSO MEMBER ILL. BAR
** ALSO MEMBER UT. BAR

Telephone
Area Code 208
232-6101

November 18, 1983

RECEIVED
NOV 21 1983
Department of Water Resources
Eastern District Office

Mr. Ernest Carlsen
DEPARTMENT OF WATER RESOURCES
150 Shoup, Suite 15
Idaho Falls, Idaho 83402

Re: Permit No. 29-7578

Dear Mr. Carlsen:

Pursuant to your request, enclosed please find the original signed and notarized residency affidavit for your records.

If additional information is needed, please do not hesitate to contact me.

Very truly yours,

Randall C. Budge

RCB:cw

enclosure

JAN 22 1993

November 3, 1983

RE: Application for Permit No. 29-7578

MarshaValley Hydro Electric Co.
McCammon,
Idaho 83250

Gentlemen:

We acknowledge receipt of the assignment of the above referenced application for permit to you. Enclosed for your records is a copy of the application.

Before our office can take any further action on this application we must have the enclosed affidavit form completed and returned to our office.

You should also be aware that Application No. 29-7578 is pending either an exemption or approval from the Federal Energy Regulatory Commission (FERC). We were advised by Randall C. Budge that J-U-B Engineers, Inc. has prepared an application but has not submitted it to FERC yet (see letter of 9/22/83, copy enclosed).

Please return the enclosed affidavit by December 1, 1983, so this application can remain in good standing. If you have any questions regarding this matter, please feel free to contact our office.

Sincerely,

KAY WALKER
Technical Records Specialist

KW:sc

Enclosures

JAN 2 2 1996

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

Telephone
Area Code 208
232-6101

LOUIS F. RACINE, JR.
WILLIAM D. OLSON
W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE

JOHN A. BAILEY
WILLIAM F. BACON
JOHN R. GOODELL *
JOHN B. INGELSTROM
PATRICK J. OSHIE **

* ALSO MEMBER ILL. BAR
** ALSO MEMBER UT. BAR

October 26, 1983

RECEIVED
OCT 27 1983
Department of Water Resources
Eastern District Office

Mr. Ernest Carlsen
DEPARTMENT OF WATER RESOURCES
150 Shoup, Suite 15
Idaho Falls, Idaho 83402

Re: Permit No. 29-7578

Dear Mr. Carlsen:

Pursuant to your letter under date of October 6, 1983, enclosed please find the original signed and notarized residency affidavit.

If additional information is needed, please do not hesitate to contact me.

Very truly yours,

Randall C. Budge

RCB:cw

enclosure

MICROFILMED
JAN 22 1993

October 6, 1983

RE: Permit No. 29-7578

Randall C. Budge
Attorney at Law
P.O. Box 1391
Pocatello, ID 83204

Dear Mr. Budge:

This past August our office received an assignment by McCammon Ditch Company to Marsh Valley Hydro Electric Company for the above captioned permit. Because it is a hydropower permit, pursuant to Section 42-206, Idaho Code the Department needs verification that Marsh Valley Hydro Electric Company is qualified to do business in Idaho. To satisfy this requirement, please return the enclosed residency affidavit after Sections A.2 and B are filled in and the document has been signed and notarized.

Respectfully submitted,

ERNEST CARLSEN
Assistant Regional Supervisor

EC:cw

Enclosure

JAN 22 1993

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

LOUIS F. RACINE, JR.
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GARY L. COOPER
RANDALL C. BUDGE

JOHN A. BAILEY
WILLIAM F. BACON
JOHN R. GOODELL *
JOHN B. INGELSTROM
PATRICK J. OSHIE **

* ALSO MEMBER ILL. BAR
** ALSO MEMBER UT. BAR

TELEPHONE
AREA CODE 208
232-6101

RECEIVED
SEP 29 1983
Department of Water Resources

September 28, 1983

Mr. Jim Johnson
DEPARTMENT OF WATER RESOURCES
State Office
450 West State Street
Boise, Idaho 83720

Re: Marsh Valley Hydro
Application for Permit No. 29-7578

Dear Jim:

In response to your September 22, 1983, letter, I am enclosing a copy of the Feasibility Report prepared by J-U-B Engineering, Inc. With regard to the FERC Application, please be advised that J-U-B has prepared the Application. However, it has not been filed at this time as it is necessary that we first either acquire the land for the plant site or acquire an option to purchase the same since all the land upon which the plant and related facilities will be located is not owned by Marsh Valley Hydro Electric Company. We are in the final stages of negotiation with the land owner, Mr. Roger Johnson and expect that an option to purchase will be finalized and executed in the near future at which point the FERC Application can be submitted.

Enclosed is a copy of the Assignment of Permit filed previously with Eastern Idaho Division of the Department in Idaho Falls.

Very truly yours,

Randall C. Budge

RCB:cw

enclosures

RECEIVED
JAN 22 1993

LAW OFFICES OF
RACINE, OLSON, NYE, COOPER & BUDGE
CHARTERED
CENTER PLAZA-CORNER FIRST & CENTER
POST OFFICE BOX 1391
POCATELLO, IDAHO 83204

LOUIS F. RACINE, JR.
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W. MARCUS W. NYE
GARY L. COOPER
RANDALL C. BUDGE

JOHN A. BAILEY
WILLIAM F. BACON
JOHN R. GOODELL *
JOHN B. INGELSTROM
PATRICK J. OSHIE **

* ALSO MEMBER ILL. BAR
** ALSO MEMBER UT. BAR

Telephone
Area Code 208
232-6101

August 11, 1983

RECEIVED
AUG 16 1983
Department of Water Resources
Eastern District Office

Idaho Department of Water Resources
1515 Lincoln Road
Idaho Falls, Idaho 83401

Re: McCammon Ditch Company
Permit No. 29-7578 -- Filed 2/2/81

Gentlement:

Enclosed please find an Assignment of Permit which we are filing for the purpose of assigning the captioned permit to Marsh Valley Hydro Electric Co. If there are any filing fees involved, please advise and we will promptly remit.

Very truly yours,

Randall C. Budge

RCB:cw

enclosure

JAN 22 1993

CONVERSATION MEMORANDUM

DATE 8-9-83

FILE 29-7578

NAME OF PARTY RANDY BUDGE

EMPLOYEE Jim Johnson

RE: Mr. BUDGE called in reference to my correspondance of 7-7-83 and stated that McCammon Ditch Co. had prepared an application to FERC.

He indicated that he would send us copies of their correspondance within the month.

MICROFILMED

JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

July 7, 1983

RE: Permit No. 29-7578

McCammon Ditch Company
McCammon, Id 83250

Gentlemen

On July 1, 1982, the Department received correspondance from Mr. Ron Underwood, Area Manager, for JUB Engineering informing us that McCammon Ditch company had retained them (JUB) to prepare a feasibility study and FERC Exemption Application for your Hydropower project.

Mr. Underwood expected to have the FERC Exemption Application prepared by mid August 1982.

To date we have received no further correspondance.

Please advise this office of progress in this matter on or before August 8, 1983 in order to keep your application No. 29-7578 for hydropower generation in good standing.

If you have any questions, please let us know.

Sincerely

JIM JOHNSON
Water Distribution Supervisor

JJ:jvv

MICROFILMED
JAN 22 1993

POWER CALCULATIONS FOR APPLICATION NO. 29-7578

P = Kilowatts .74 X hp 340

Q = cfs

H = feet

e = efficiency

proposed
251.6 KW
175 cfs
52 ft
?

$$e = \frac{P(11.8)}{QH} = \frac{251.6(11.8)}{175 \times 52} = \frac{2968.88}{9100} = .32$$

Based on the above calculations the proposed project must have an .32 % efficiency.

RC 10/7/82

assume 70%

$$P = \frac{QHe}{11.8} = \frac{175 \times 52 \times .7}{11.8} = \frac{6370}{11.8} = 539.8 \text{ KW}$$

539.8 = 729 hp

assume 80%

$$P = \frac{QHe}{11.8} = \frac{175 \times 52 \times .8}{11.8} = \frac{7280}{11.8} = 616.9 \text{ KW}$$

616.9 = 833.6 hp

JAN 2 2 1983

J-B ENGINEERS, Inc.

920 Deon Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 233-0306

RECEIVED
JUL 1 1982
Department of Water Resources

Dave T DRT

June 30, 1982

Mr. L. Glen Saxton
Chief, Operations Bureau
Department of Water Resources
450 W. State Street
Boise, Idaho 83720

Subject: Permit No. 29-7578 to Appropriate Public Waters, McCammon Ditch Co.

Reference: Your Letter Dated June 16, 1982

Dear Mr. Saxton:

We are pleased to report that the McCammon Ditch Company is proceeding diligently with their project. A contract was signed May 12, 1982 by the McCammon Ditch Company, retaining J-U-B ENGINEERS, Inc., to prepare a feasibility Study and FERC Exemption Application for their proposed project.

J-U-B is proceeding with the project by conducting field surveys and preliminary conceptual designs. We expect to have the FERC Exemption Application ready and prepared by mid-August, 1982.

Please advise us if you require additional information or have any other questions.

Sincerely,
J-U-B ENGINEERS, Inc.

R.R. Underwood

R.R. (Ron) Underwood
Area Manager

RRU/km
Copy to Lindon Green

JAN 22 1993

June 16, 1982

RE: Application for Permit No. 29-7578

McCammon Ditch Company
McCammon, ID 83250

Gentlemen:

On February 2, 1981 you submitted the above referenced application to appropriate the public waters of the State of Idaho for power generation purposes.

In our correspondence dated March 24, 1981 we advised that the continued validity of the application is contingent on your proceeding with due diligence in obtaining necessary approvals including authorizations which may be required from the Federal Energy Regulatory Commission (FERC) and/or the Idaho Public Utilities Commission (PUC).

Since our letter we have not received correspondence from you in this regard. Please advise this office of progress in this matter on or before July 16, 1982 in order to keep this application in good standing.

If you have any questions, please contact this office.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

LGS:kw

JAN 22

Copy

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

29-7578

July 24, 1981

RE: Application for Permit No.

Dear Applicant:

The 1981 Idaho Legislature made a change in Section 42-205, Idaho Code, that may affect the above referenced application. The change requires that if a proposed hydropower project will use existing irrigation facilities, the approval of the owner of the facilities must be obtained before an application for permit to develop a water right can be approved.

Please find enclosed an affidavit which we must receive before we can complete the review of your application. Please complete the affidavit, sign it before a notary, and return it to this office at your earliest convenience, no later than August 15, 1981.

Sincerely,

David R. Tuthill Jr.

DAVID R. TUTHILL JR., P. E.
Supervisor, Water Allocation Section

DRT:jg

Enclosure

RECEIVED
JAN 22 1993

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

C. STEPHEN ALLRED
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

March 24, 1981

McCammon Ditch Company
McCammon,
Idaho 83250

Dear Sirs,

RE: Permit No. 29-7578

We have completed a preliminary review of the above referenced application. This review has included advertising by the regional office and a verification that all required preliminary information has been provided.

At this time we see no reason that the application will not be approved with certain conditions of approval. However, for power projects that are under the jurisdiction of the Federal Energy Regulatory Commission (FERC), we withhold final action on the application pending (1) approval of a preliminary permit by FERC, or (2) FERC granting of an exemption. If you have not yet contacted FERC, the address below is a good starting point:

Federal Energy Regulatory Commission
Regional Engineer's Office
Attn: Mr. Jerry Leach
6th Floor, 333 Market Street
San Francisco, CA 94105
(Tel. No. (415) 764-7150)

The continued validity of this application is contingent on your proceeding with due diligence toward obtaining an approval or an exemption from FERC. Please keep this office informed of progress in this regard.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

RECEIVED
JAN 22 1993

Power Calculations for 29-7578

Key
P = kw
Q = cfs
H = ft
e = efficiency

	proposed
340 hp x .74 =	251.6 kw
	175 cfs
	52
	70% & 80%

Based on 70%

$$P = \frac{QHe}{11.8} = \frac{175 \times 52 \times .7}{11.8} = \frac{6370}{11.8} = 539.8 \text{ kw}$$

$$Q = \frac{P(11.8)}{He} = \frac{251.6 \times 11.8}{52 \times .7} = \frac{2968.88}{36.4} = 81.56 \text{ cfs}$$

Based on 80%

$$P = \frac{QHe}{11.8} = \frac{175 \times 52 \times .8}{11.8} = \frac{7280}{11.8} = 616.9 \text{ kw}$$

$$Q = \frac{P(11.8)}{He} = \frac{251.6 \times 11.8}{52 \times .8} = \frac{2968.88}{41.6} \quad 71.37 \text{ cfs}$$

RH 3/24/81

MICROFILMED
JAN 22 1993

STATE OF IDAHO

DEPARTMENT OF FISH AND GAME

REGION 5
636 PERSHING, SUITE B
POCATELLO, IDAHO 83201

March 2, 1981

RECEIVED
MAR 9 1981
Department of Water Resources
Eastern District Office

Mr. Ernest Carlsen, Senior Resource Analyst
Idaho Department of Water Resources
150 Shoup
Idaho Falls, Idaho 83401

Dear Mr. Carlsen:

Re: Application for Permit #29-7578 by the McCammon Ditch Company

We have reviewed the application by the McCammon Ditch Company for 175 cfs of water for a hydro plant on the Portneuf River and have the following comments:

We have been informed that the Portneuf-Marsh Valley Irrigation Company, who's diversion is just upstream from the McCammon Ditch Company, would also like to be involved in this project. With their involvement, this project would be bigger and probably more water would be diverted. At this time our comments will cover the application from the McCammon Ditch Company.

The stream length between McCammon Ditch Company's diversion and the site of the hydro plant would be 1/2 to one mile, depending on its location. This section of the Portneuf River is virtually de-watered every year during the irrigation season. Consequently, its game fish populations are low. Therefore, the project as proposed would probably not have a significant impact on fish and wildlife populations; however, if this becomes a joint project with the Portneuf-Marsh Valley Canal Company, affects might be different as a longer stretch of the Portneuf River would be affected.

Although we have no major concerns at this time regarding this project, we will be working closely on its design to identify and remedy possible problems.

Thank you for the opportunity for this review.

Sincerely,

Bill Davidson

Bill Davidson, Supervisor
Region 5

MICROFICHED
JAN 22 1993

150 Shoup Ave. ----------

525-7161

February 17, 1981

RE: Application for Permit No. 29-7578

McCammon Ditch Company
McCammon,
Idaho 83250

Gentlemen:

The Department has initiated processing of the application for permit recently submitted by McCammon Ditch Company for power generation. However, it appears the Federal Energy Regulatory Commission may have jurisdiction over the project and prior to recommending final action on the application the Department will need a copy of any correspondence you may have with them regarding their jurisdiction over the intended project. Realizing project development approval from F.E.R.C. can take several months, the Ditch Company's application will be forwarded to our State Office once standard processing is completed and retained there until the Ditch Company notifies us concerning the preliminary ruling by F.E.R.C.

If you have any questions concerning the above matter, please feel free to call or contact this office.

Respectfully submitted,

ERNEST CARLSEN
Sr. Resource Analyst

EC:kw

JAN 22 1993

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
EASTERN REGION

John V. Evans
Governor

C. Stephen Allred
Director

1515 Lincoln Road
Idaho Falls, Idaho 83401
(208) 523-7186

February 17, 1981

RE: Application for Permit No. 29-7578 McCAMMON DITCH CO.

Mr. Bill Davidson
Regional Supervisor
Department of Fish & Game
1515 Lincoln Road
Idaho Falls, Idaho 83401

Dear Mr. Davidson:

We are enclosing a copy of an application that may be of interest to your agency. Please review the application and submit any comments you may have to our Department as soon as possible. The last date of protest is March 2, 1981, and we are required to take final action shortly thereafter.

If we may be of further assistance, please feel free to contact us.

Respectfully submitted,

ERNEST CARLSEN
Sr. Resource Analyst

EC:cw:kw

Enclosure

MICROFILMED

JAN 22 1993

February 17, 1981

RE: Application for Permit No. 29-7578 McCAMMON DITCH CO.

Mr. Thomas Bloxham, Watermaster
Water District No. 29
Downey, Idaho 83234

Dear Mr. Bloxham:

We are enclosing a copy of an application that may be of interest to your water district. Please review the application and submit any comments you may have to our Department as soon as possible. The last date of protest is March 2, 1981,, and we are required to take final action shortly thereafter.

If we may be of further assistance, please feel free to contact us.

Respectfully submitted,

ERNEST CARLSEN
Sr. Resource Analyst

EC:cw:kw

Enclosure

MICROFILMED
JAN 22 1993

29-7578

MC CAMMON DITCH COMPANY

MC CAMMON, ID 83250

Source: PORTNEUF RIVER tributary to SNAKE RIVER

Date Filed: 02/02/1981

Amount: 175.00 CFS

Diversion Point: SENE Sec 21 T 09S R 37E, BANNOCK Co.

Use: POWER (175.00 CFS) from 01/01 to 12/31

Place of Use: NENW Sec 21 T 09S R 37E

Diversion Means: PENSTOCK & PLANT.

JAN 22 1998

3/79

IDENT. NO. 29 7578

IDAHO DEPARTMENT OF WATER RESOURCES

WATER RIGHT DATA ENTRY LOG

Initials	Date	Item
KW	2/5/81	Original form entered
		Edit Report Correct
		Date Protested
		Date of Hearing
		Date Approved/Denied (Proof due date, stage and/or status, conditions of approval, water district)
		Record Verified
		Amendment Approved
		Extension Approved
		Partial Proof
		Proof Complete
		Field Exam Received
		Field Exam Accepted and changes entered
		License Signed
		Transfer Approved
		Keypunched by State Office

State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

September 22, 1983

RE: Application for Permit No. 29-7578

Randall C. Budge
Attorney at Law
240 S. Main
Soda Springs, ID 83276

Dear Mr. Budge:

On August 9, 1983, we discussed on the telephone McCammon Ditch Company's progress toward submitting necessary applications to the Federal Energy Regulatory Commission (FERC). You indicated that you would provide us copies of both the FERC correspondence and JUB's feasibility report within the month.

To date we have not received the said information.

To keep the McCammon Ditch Company's application for water right in good standing please provide us the information on or before October 10, 1983. If you have any questions on this matter, please let me know.

Sincerely,

JIM JOHNSON
Water Distribution Supervisor

JJ:kw

MICROFILMED
JAN 22 1993

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR LICENSE

FOR THE

MARSH VALLEY HYDROELECTRIC PROJECT

A MINOR WATER POWER PROJECT

(5 MEGAWATTS OR LESS)

BANNOCK COUNTY

IDAHO

Prepared by:

Sorenson Engineering
Consulting Engineer
550 Linden Drive
Idaho Falls, ID 83401

June 1987
Revised September 1, 1987

FOR

MARSH VALLEY HYDROELECTRIC COMPANY

AN IDAHO CORPORATION

JAN 22 1993

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR LICENSE FOR A MINOR WATER POWER PROJECT

5 MEGAWATTS OR LESS

1. MARSH VALLEY HYDROELECTRIC COMPANY, an Idaho corporation owned by McCammon Ditch Company & Portneuf-Marsh Valley Canal Co., Ltd., applies to the Federal Energy Regulatory Commission for a minor license for a water power project as described hereinafter.

2. Location of the facility is:

State or Territory: State of Idaho

County: Bannock

Township or nearby Town: McCammon

Stream or body of water: Portneuf River

3. The exact name and business address of the applicant :

Marsh Valley Hydroelectric Company
& McCammon Ditch Company
c/o Mr. Lyndon Green, President
McCammon, Idaho 83250

Portneuf-Marsh Valley Canal Co. Ltd.
c/o Mr. Keith Bennett, President
Downey, Idaho 83234

4. The exact name and business address of each person authorized to act as agent for the applicant in this application are:

Ted S. Sorenson, P.E.
550 Linden Drive
Idaho Falls, ID 83401

Randall C. Budge
Attorney at Law
Center Plaza
Corner First & Center
Pocatello, ID 83204

JAN 22 1993

5. The MARSH VALLEY HYDROELECTRIC COMPANY, is a corporation under the laws of the State of Idaho.

6. (i) The statutory or regulatory requirements of the State of Idaho that affect the project as proposed with respect to bed and banks and the appropriation, diversion and use of water for power purposes, with respect to the right to engage in the business of

developing, transmitting and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act are:

A. Article XV of the Idaho Constitution, in chapter 1 and 2, Title 42, Idaho Code, addresses the appropriation of water for beneficial use with the State of Idaho. The right to use such water is gained by application for permit and license to the Idaho Department of Water Resources. An application for hydro power development has been filed and memorandum of decision rendered. A final permit will be granted, contingent upon issuance of license, that is herein applied for from the Federal Energy Regulatory Commission.

B. Chapter 38, Title 42, Idaho Code, the Stream Channel Protection Act, was an act to regulate the alteration of the beds and banks of Idaho Streams. This act is also administered by the Idaho Department of Water Resources. A separate application for a Stream Channel Alteration Permit is necessary, however, when the alteration is intended to divert appropriated waters from a stream, an application to appropriate water is sufficient and a separate application for a Stream Channel Alteration Permit is not necessary. A permit to appropriate water from the stream carries with it the right to alter the stream bed and bank to accomplish the diversion.

C. Chapter 9, Title 36, Idaho Code, deals with the protection of fish in Idaho Waters. Section 36-906 requires suitable fish screening devices and fish ways to be constructed at all power sites to the specifications of the Idaho Department of Fish and Game.

D. Chapter 11, Title 50, Idaho Code, grants to Idaho Counties, the right to establish planning and zoning commissions and grants regulatory authority to the counties to govern building standards and local use classification. A zoning concurrence must be obtained from Bannock County before this hydro project can be constructed.

(ii) The steps which the applicant has taken or plans to take to comply with the statutory or regulatory requirements cited above are:

A. Regarding appropriation for water benefits for use with the State of Idaho, the applicant has made a water right filing (#29-7578) for the purpose of

hydro power development. The Idaho Department of Water Resources has issued the water right. Copy is attached following this Section.

B. Regarding the Stream Channel Protection Act, no separate action by the applicant is required. The diversion is existing and the tailrace will require minor disturbance to the banks.

C. Regarding the protection of fish in Idaho Waters, the requirements of the Idaho Department of Fish & Game will be concurred with.

D. Regarding planning and zoning commission regulatory authority; when FERC license is in hand, the applicant will submit the documents and final design of this project to the Bannock County Planning and Zoning Commission. This is the final prerequisite before any construction can take place.

No more specific approvals or actions are required apart from licensing of the project by the Federal Energy Regulatory Commission. Advisory copies of the Power Sales Contract and Interconnection Contract with applicable public utilities will be filed with the Idaho Public Utilities Commission.

7. The project proposes to develop the hydroelectric potential of Portneuf-Marsh Valley Canal Co. Ltd., via diversion of water utilizing existing structures to the existing canal for a distance of 12,710 feet. The water would be routed to a penstock 500 feet to the powerhouse and thence returned to the Portneuf River.

(i) Proposed installed generating capacity is 1.7 megawatts.

(ii) The project would utilize an unconstructed dam.

8. No lands of the United States are affected. Lands are surveyed lands. Public lands of the United States affected are:

(i)	National Forest	None
(ii)	Indian Reservation	None
(iii)	Public Lands under the jurisdiction of the Bureau of Land Management	0 acres
(iv)	Other: U.S. Department of Energy	0 acres
(v)	Total U.S. Lands	0 acres

9. Construction of the project is planned to start within 12 months and is planned to be completed within 36 months from the date of issuance of the license.

01 Water Right Number - 29-7578 02 Old (D) Number - Adj. Flag Translation: STANDARD WATER RIGHT NUMBER

LAST NAME	FIRST NAME	ORIG. OWNER
03001 - MARSH VALLEY HYDRO ELECTRIC CO.	04001 -	05001 - C
03002 - MC CAMMON DITCH CO.	04002 -	05002 - O

06 Add Line 1 - 07 Add Line 2 -

08 Add Line 3 - 09 City - MC CAMMON 10 State - ID 11 ZIP - 83250

12 Stage - A APPLICATION 13 Status -

SOURCE	TRIBUTARY OF
14001 - PORTNEUF RIVER	15001 - SNAKE RIVER

16 Diversion Means - PENSTOCK & PLANT. 17 County - 05 BANNOCK

18 Diversion Capacity - .000 19 Total Diversion Rate - 175.000 20 Total Diversion Volume - .00

21 Water District -

DIVERSION POINTS

Tract	Sec	Twn	Rng	Lot	Rflg	STREAM INDEX FIELDS							
22001 - SENE	23001 - 21	24001 - 095	25001 - 37E	26001 -	27001 -								
	28001 - 0	272.0	452.0	0.0	0.0	0.0	0.0	0.0	0	0	0	45.9	

29 Non-Irrigation Use -

PLACE OF USE

Use Code / Use	Twn	Rng	Sec	Tract	Acres	Lot
30001 - 28 POWER	31001 - 095	32001 - 37E	33001 - 21	34001 - NENW	35001 -	36001 -

Total Acres: 0

WATER USE

Period From	Period To	Use Code / Use	Diversion Rate	Diversion Volume
37001 - 0101	38001 - 1231	39001 - 28 POWER	40001 - 175.000	41001 - 0.00

42 Decree Plaintiff Name - 43 Decree Defendant Name -

REMARKS
44001 -

Approval Conditions: 45001 -

46 Other Rights for Same Use -

DATES		DATES		FLAGS	
47 Priority	- 2-Feb-1981	55 License	-	63 Transfer/Amended	-
48 Proof Due	-	56 Appl Received	-	64 DLE/Carey Act	-
49 Proof Made	-	57 Field Exam Made	-	65 Flag_1	-
50 Approve/Denied	-	58 Decree	-	66 Flag_2	- 1
51 Protested	-	59 Start Work	-	67 Flag_3	-

VERIFICATION

State of Idaho)
)ss
Bannock County)

Keith Bennett, being first duly sworn, deposes and says that: He is the President of PORTNEUF-MARSH VALLEY CANAL CO., LTD., the applicant, that he has read the foregoing application and knows the contents thereof: and that the same are true to the best of his knowledge and belief.

Keith Bennett
President
Portneuf-Marsh Valley Canal Co., Ltd.

Subscribed and sworn to before me, a Notary Public of the State of Idaho this 14th day of July, 1987.

Randall C. Budge
Notary Public

(seal)

VERIFICATION

State of Idaho)
)ss
Bannock County)

Lyndon Green, being first duly sworn, deposes and says that: He is the President of MCCAMMON DITCH COMPANY, the applicant, that he has read the foregoing application and knows the contents thereof: and that the same are true to the best of his knowledge and belief.

Lyndon Green
President
McCammon Ditch Company

Subscribed and sworn to before me, a Notary Public of the State of Idaho this 14 day of July, 1987.

Randall C. Budge
Notary Public

(seal)

VERIFICATION

State of Idaho)
) ss
Bannock County)

Lyndon Green being first duly sworn, deposes and say that: He is the President of the MARSH VALLEY HYDRO ELECTRIC COMPANY, the applicant, that he has read the foregoing application and knows the contents thereof: and that the same are true to the best of his knowledge and belief.

Lyndon Green
President
MARSH VALLEY HYDRO ELECTRIC COMPANY

Subscribed and sworn to before me, a Notary Public of the State of Idaho, this 14 day of July, 1987

(Seal)

Randall C. Budge
NOTARY PUBLIC

EXHIBIT A

The APPLICANT proposes to divert water from the Portnuef River through an existing diversion structure to 12,170 L.F. of existing earthen feeder ditch and 500 L.F. of 60" or 72" diameter steel penstock to a power plant. Approximately 0.5 miles of new three phase electrical transmission line will be required.

The water would then be returned to the Portneuf River through approximately a 50 foot tailrace.

All of the proceeding would be existing except the penstock, powerhouse and tailrace. The mode of operation would be run of the river.

1.	(i)	Existing and future generating Units	None
		Proposed Generating Unit	One
		Proposed Generating Output Capacity	1,700 KW
	(ii)	Type of Hydraulic Turbine	Reaction Type (Frances)
	(iii)	Power Plant Operation	Manual Start, Auto-Shutdown, Run of the River
	(iv)	Average Annual Generation	7,600,000 KW-HRS
	(v)	Power Plant Design Head	101 feet
		Power Plant Average Head	96 feet
	(vi)	Area of Pipeline Intake Forebay at Canal	1,200 feet
		Surface Elevation	4,910 feet
		Net Storage	0.2 Acre-Ft.
		Gross Storage	0.4 Acre-Ft.
	(vii)	Plant Hydraulic Capacity	250 cfs

The hydrology for this project was derived from U.S.G.S. gaging records for gage number 13073000, for the Portneuf River at Topaz, Idaho. This gage is located approximately 1.5 miles upstream of the PMV Canal inlet and was therefore considered as representative of the flows available to the canal for generation. The drainage area at the gaging station is 570 square miles and is at a mean altitude of 6,080 feet (datum of gage is 4,918 feet). The period of record is January, 1913 to September, 1915, and July, 1919 to current year. Because of missing or extra data, only the 64-year period of October, 1919 through September, 1983 was utilized for generation studies.

Average discharge for the period of record is 141,900 acre-feet a year or a mean annual flow of 196 cfs. Normal monthly means, in cfs, are provided below:

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
143	154	154	153	170	204	268	342	266	206	178	151

The hydrologic records including flow duration without irrigational withdrawal is attached.

Irrigation demands were derived from the Idaho Water User Daily Record Books for Water District 29. These logs are maintained by the ditch tender and provided to the State as a log of the diverted flows down the Portneuf River. Average monthly diversions were derived from these records to indicate those quantities of water that would not be available for generation. The following flows, in cfs, are current average diversions for irrigation by the canal companies and would continue down the canal to respective canal users:

JUNE	JULY	AUGUST	SEPTEMBER 1-15
230	230	230	220

The net water available for power generation is the total flow less cfs more flow less the irrigation withdrawal as follows:

	OCT	NOV	DEC	JAN	FEB	MAR
Total Flow	143	154	154	153	170	204
Minimum Flow	10	10	10	10	10	10
Irrigation	0	0	0	0	0	0
Power Flow	133	144	144	143	160	194

	APR	MAY	JUNE	JULY	AUG	SEPT
Total Flow	268	342	266	206	178	151
Minimum Flow	10	10	10	10	10	10
Irrigation	0	0	230	230	230	110
Power Flow	258	332	26	0	0	31

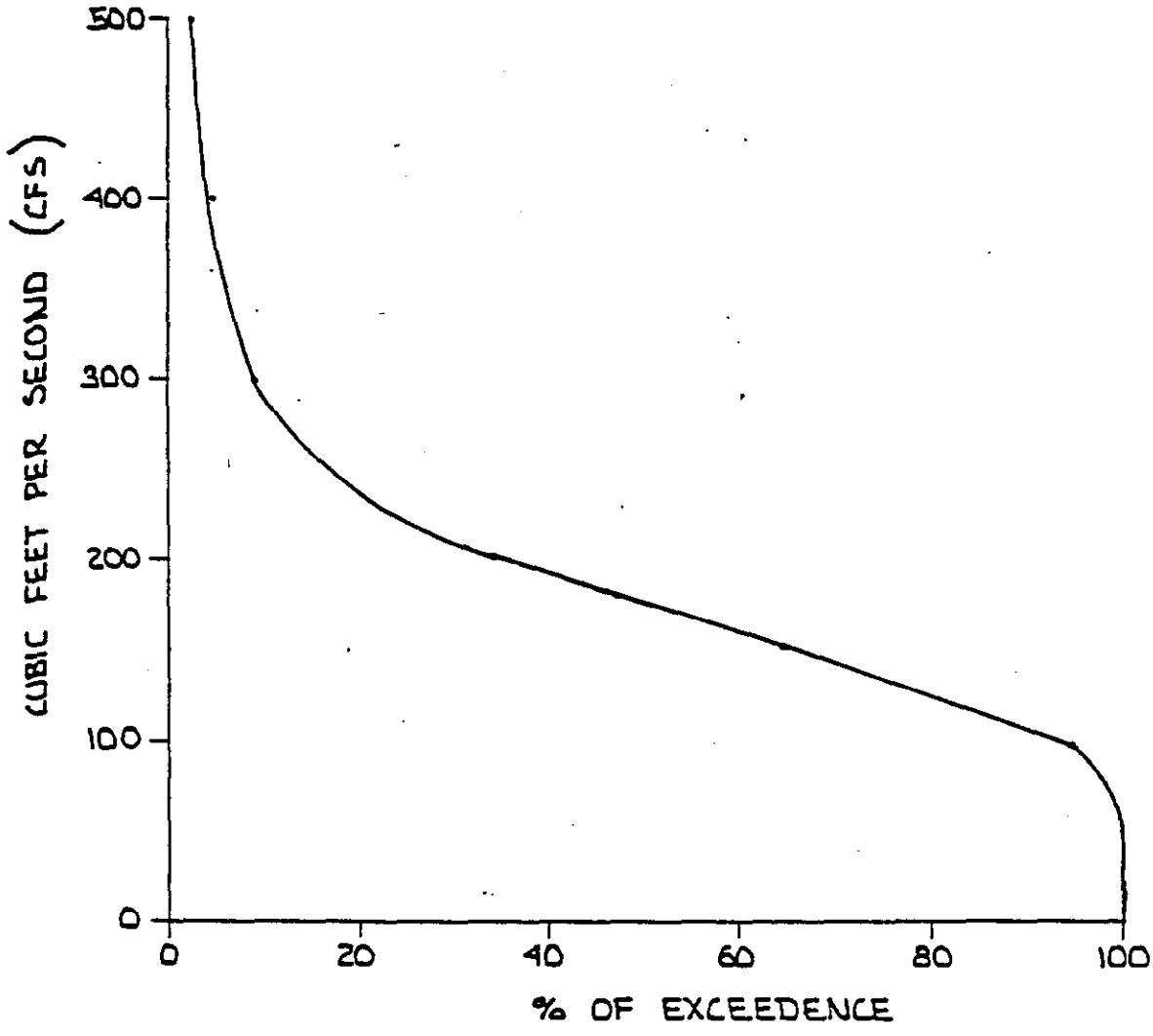
(viii)	Existing Diversion	10' high compacted native soils
	Feeder Ditch	34,900 L.F. open channel trapezoidal earthen - 300 cfs capacity
	Pipeline Intake Facility	concrete w/steel bar screen
	Penstock	600 L.F. 60" and/or 72" diameter steel pipe
	Powerhouse	concrete base, prefabricated steel building

Transmission Line	0.5 miles new 3 phase, 12.4 KVA to existing Utah Power & Light Transmission Line.
Generator Voltage	2,400 Volt
Transformer	One (1) 2,000 KVA, 7,200/12470Y 2,400 volt, pad mounted transformer

(ix) Estimated Project Capital Cost $1,500,000

2. The purpose of the project is to produce a clean, renewable resource as electrical power (which will reduce the dependency on foreign imports of oil) for sale to Utah Power & Light Company.

ANNUAL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO

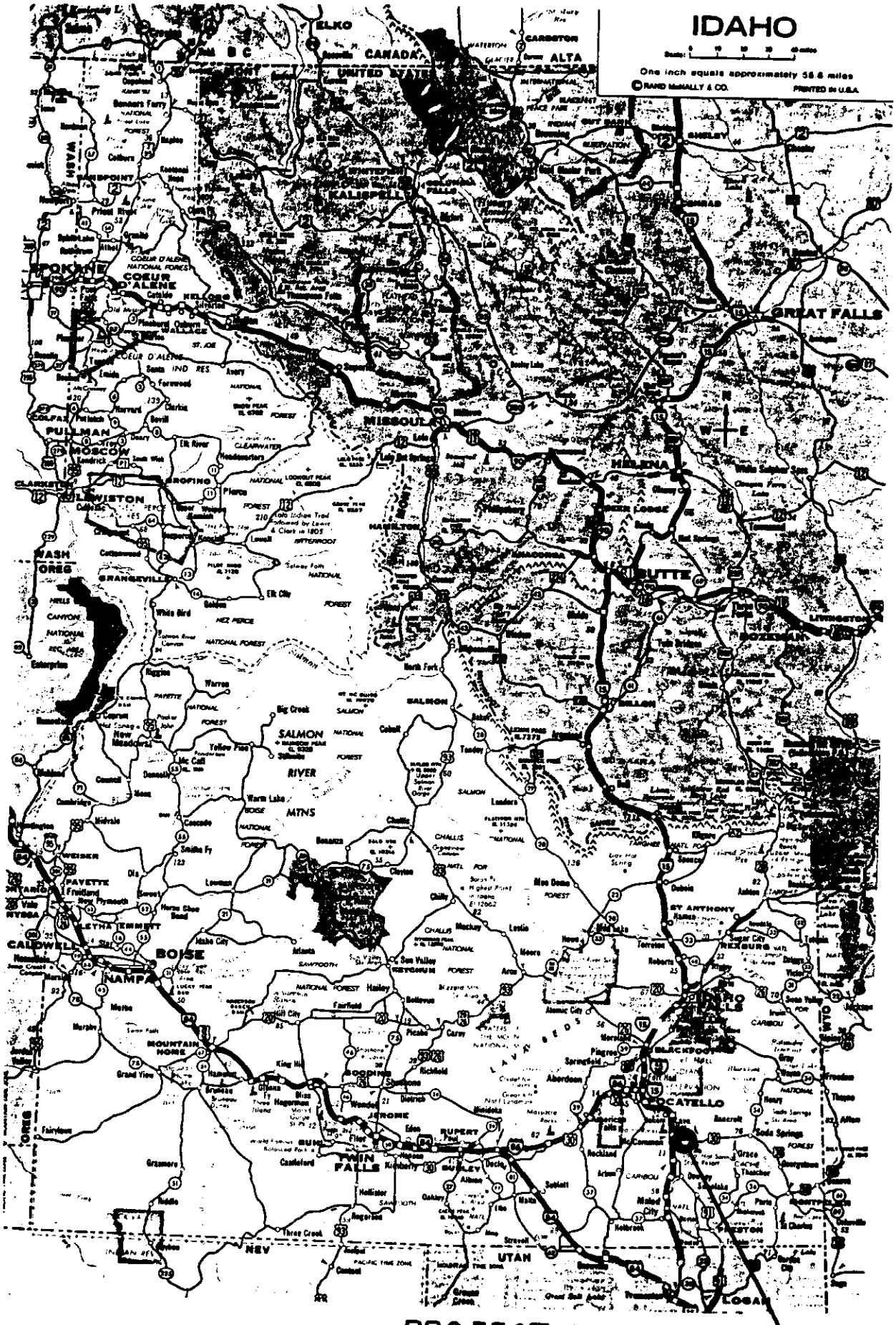


For monthly flow duration curve refer to Appendix E-2a.

EXHIBIT E

ENVIRONMENTAL REPORT

1) GENERAL DESCRIPTION OF THE LOCALE



MARSH VALLEY
HYDROELECTRIC PROJECT

EXHIBIT E

ENVIRONMENTAL REPORT

1) GENERAL DESCRIPTION OF THE LOCALE:

The project is located on the Portneuf-Marsh Valley (PVM) Canal. This canal is in the region south of U. S. Highway 30 between McCammon and Lava Springs, Bannock County, Idaho. The canal originates by taking water from the Portneuf River just upstream (easterly) from where the U. S. Highway 30 bridge crosses the Portneuf River and then it proceeds in a westerly direction roughly paralleling the Portneuf River.

The area of the project is rural with no major population centers in the vicinity. Lands in the vicinity are used for livestock grazing and agriculture. The crop land in the area is mainly used to grow hay and small grains and much of it receives water through irrigation via means of the Portneuf River and the canals branching from it.

The Portneuf Valley is fairly narrow with hills on each side. The vegetation of the hills is mainly dryland vegetation, or in other words, such things as sagebrush, wheatgrass, rabbitbrush, and cheatgrass. The vegetation growth becomes heavier as one gets closer to the river and the draws of the hillside. Along the Portneuf River and the Portneuf-Marsh Valley Canal a variety of grasses, current, wild rose, and other types of brush are present. Tree growth such as willows and cottonwood are occasionally found, and they are normally seen in groups.

The weather conditions in the area have a large variation during the different seasons. High temperatures reach into the upper 90 degrees Fahrenheit range during the summer months and go into sub-zero levels during the winter. The annual precipitation is generally around 15 inches. The approximate elevation of the projects is approximately 4900 feet.

2) REPORT ON WATER USE AND QUALITY

2) REPORT ON WATER USE AND QUALITY

GENERAL

The project is in general compliance with Idaho State Water plan because it would strengthen the financial base of the agricultural water users (i.e., PVM Companies). No known conflict exists with respect to other regional plans (i.e., Columbia Basin Fish & Wildlife Program and the Northwest Power Planning Council).

2) (i) The existing stream flow and other hydrology data for the project was derived from U.S.G.S. gaging records for the Portneuf River at Topaz, Idaho (gage number 13073000). This gage is located approximately 1.5 miles upstream of the PMV Canal inlet and is, therefore, considered as a good representation of the flows that are available to the canal company for electrical generation. The drainage area of the river at the gaging station is 570 square miles with a mean elevation of 6,080 feet (datum of gage is 4,918 feet). The period of record is January, 1913 to September, 1915, and July, 1919 to the current year. Because of missing or extra data, only the 64-year period of October, 1919 through September, 1983 was utilized for generation studies.

The average discharge for the period of record is 141,900 acre-feet a year or a mean annual flow of 196 cfs. Normal monthly means, in cfs, are provided below:

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The hydrologic records including flow duration without irrigational withdrawal is attached in Appendix E-2a.

Irrigation demands were derived from the Idaho Water User Daily Record Books for Water District 29. These logs are maintained by the ditch tender and are provided to the State as a log of the diverted flows down the Portneuf River. Average monthly diversions were derived from these records to indicate those quantities of water that would not be available for generation. The following flows, in cfs, are current average diversions for irrigation by the canal companies and would continue down the canal to respective canal users:

JUNE	JULY	AUGUST	SEPTEMBER 1-15
230	230	230	220

The net water available for power generation is the total flow less the minimum flow that is allowed to continue down the existing river channel less the irrigation withdrawal as follows:

	OCT	NOV	DEC	JAN	FEB	MAR
Total Flow	143	154	154	153	170	204
Minimum Flow	10	10	10	10	10	10
Irrigation	0	0	0	0	0	0
Power Flow	133	144	144	143	160	194

	APR	MAY	JUNE	JULY	AUG	SEPT
Total Flow	268	342	266	206	178	151
Minimum Flow	10	10	10	10	10	10
Irrigation	0	0	230	230	230	110
Power Flow	258	332	26	0	0	31

2) (ii) The only water quality measurements made on the Portneuf River are below Pocatello, over 30 miles away. These were made by the Idaho Department of Health and Welfare. The measurements indicated the water quality to be poor. Industrial, urban and agriculture use that occur between the proposed project and Pocatello are suspected sources of some of the pollution. The water quality above the project is also suspected to be some of the pollution source. This is due to urban, municipal, and agricultural waste. It may also be noted that during some periods of irrigation the water of the Portneuf River is, for all significant purposes, diverted in to irrigation systems. Reduction of water quality during such times can be attributed to increases in the water temperature as low flow and high atmospheric temperatures combine.

The proposed project would have no significant impact upon nutrients, ph, total dissolved solids, alkalinity, hardness, dissolved oxygen, bacteria or temperature. There would be a minor impact upon suspended sediments and turbidity in that the new feeder canal will be at a much lower velocity. Any sediment loads which would come down the Portneuf River would have a tendency to settle out in the feeder canal thus having a positive effect upon water quality downstream.

The project should not have any major effects upon the water quality of the river. Since existing structures will be used for the majority of the project, only minor changes will be made to obtain the goals.

2) (iii) There are no existing lakes or reservoirs on the Portneuf River that will be effected by the proposed

project. The existing diversion structure will be used to divert the water so the surface area and volume will not change.

2) (iv) No impacts would be realized with respect to the proposed construction/operation of the project facility on water quality parameters such as nutrients, temperature, ph. A minor impact would be realized upon turbidity in that water flowing into the canal would have an opportunity to settle out the existing sediments that occur during spring runoffs. Turbidity that would cause sediment to be put into the river at the tailrace, where water is discharged back into the Portneuf River, will be eliminated by the dissipation of energy through the electrical generation and other energy losses before it enters back into the river.

Dissolved oxygen should not be a problem. There are water falls and areas that put oxygen into the water before it enters the project. The water will only go through the penstock for a short distance and thus it should retain the quality of the water. No impact will be realized with respect to pH nutrients, temperature, etc.

2) (vi) The Portneuf River is contained in a narrow valley, thus the ground water is found close to the surface. There are no apparent springs in the vicinity of the project. There are springs upstream of the project, such as those at Lava Hot Springs, but there should not be any effect upon them. The impact of the groundwater in the vicinity of the project would not be significant. Since the project will use an existing canal that is operated to divert the majority of the water from the river for several months of the year, and because of the small additional diversion utilized by the project no repercussions should be felt.

2) (vii) A copy of a dated letter to the State of Idaho Department of Health and Welfare, Division of Environment, requesting water quality certification is included in Appendix E-2b. Exhibit F-2 illustrates the Energy dissipator structure as requested. Provision for operation and maintenance procedures of the sediment trap will be submitted for approval during design.

3) REPORT ON FISH, WILDLIFE, AND BOTANICAL RESOURCES

3) REPORT ON FISH, WILDLIFE, AND BOTANICAL RESOURCES

3) (i) The Portneuf River is known to have various fish, wildlife, and plant communities along its bank. The number of these vary according to the position that is examined.

The fish community in the vicinity of the project was surveyed by J. S. Griffith, Ph.D., during January and February of 1983. The survey reached from the diversion area to a position near where the proposed powerhouse will sit. The sampling method used a combination of electroshocking and gillnetting with a few seine hauls made. These were made at various points along the proposed area. More information can be seen in the report attached in Appendix E-3a. A total of 139 fish of 8 different species were collected excluding mottled sculpin which were abundant in some areas of substrate but were not collected. The eight species found were: brown trout, rainbow trout, Utah sucker, bluehead sucker, Utah chub, speckled dace, redside shiner, and mottled sculpin. All of these are common to southeast Idaho with the exception of bluehead sucker, but this species is not considered to be a species of special concern at the current time. Of the 139 fish collected only seven (or in other words, 5%) were trout. An estimate was given that less than 200 trout would be present in the project length. This is not an abundant number. The browns were found to be in poor condition due to lack of forage fish. No spring areas nor areas offering spawning habitat for trout were found.

Other studies have been done on the Portneuf River by the Idaho Department of Fish and Game, but none were in the area of this project. Surveys were conducted from Lava Hot Springs downstream for a distance of two miles (still several miles from the project area). Trout population estimates based on the 1979 through 1981 surveys are as follows:

TROUT POPULATION ESTIMATES
PORTNEUF RIVER FROM LAVA HOT SPRINGS DOWNSTREAM TWO MILES

Year	Wild Rainbows	Hatchery Rainbows	Brown	Cutthroat	Total*
1979	1,290	-	128	-	1,418
1980	872	-	28	18	918
1981	2,369	50	112	5	2,536

*The 95 percent confidence interval of the population estimate was ±904 in 1979, ±884 in 1980 and ±1,061 in 1981.

It may also be noted that the 1978 State of Idaho stream evaluation map classifies the Portneuf River as a Value Class II Stream from Lava Hot Springs down to the Portneuf-Marsh Valley Canal diversion and from the diversion downstream as a Value Class III Stream.

Wildlife is found along the watercourse and the adjacent dry lands. Waterfowl, such as ducks, geese, and gulls, are commonly found along the riparian. Other wild fowl inhabit the dryland surrounding the riparian. Game birds such as the mourning dove, valley quail, Hungarian partridge, and occasionally, the sage grouse and ring-necked pheasant are found. The red-tailed hawk, goshawk, sharpshinned hawk, Cooper's hawk, golden eagle, and several species of owl are raptors seen in the area. Songbirds and other nongame raptors are likewise found.

Mammals also inhabit the watercourse and surrounding areas. Aquatic furbearing animals such as beaver and muskrat are present in the river and canals. Dryland animals in the general vicinity are the ground squirrel, badger, skunk, and mule deer.

The vegetation of the dryland surrounding the riparian area is made up of sagebrush, wheatgrass, rabbitbrush and cheatgrass. The vegetation becomes heavier as the river and draws leading to the river are closed in on. Along the Portneuf River and the Portneuf-Marsh Valley canal a variety of grasses, current, wild rose, and other types of brush are found. Tree growth such as willows and cottonwood is found and they are often grouped together.

It is noted that there is no listed or proposed threatened and endangered species of wildlife or vegetation that is known to occur within the project area.

3) (ii) Impacts on the environment of the proposed area should be minimal since the proposed diversion of water for electrical generation is already being done several months a year for irrigation and since the existing irrigation structures will be used for the electrical generation diversion. It may also be noted that a U. S. Highway and a railway are in the immediate vicinity, thus wildlife is not likely to be disturbed to any great extent by construction and operation activity.

Any impact on fish, wildlife and botanical resources during the construction and operation of the project

should be eliminated through appropriate design. The following measures are proposed to eliminate adverse environmental effects:

A. Bid documents will establish construction standards and procedures that will minimize detrimental influences to the environment. Time constraints on construction will also be made to ensure that disturbances to the area are not extended beyond a reasonable period.

B. A design will be used to keep oxygen, nitrogen, and turbulence with in proper limits.

C. A minimum flow of 10 cfs will be allowed to pass downstream to maintain the environment along the diverted portion of the river.

D. Raptor safe Transmission lines will be constructed to protect the raptors against injury through electrocution (See Exhibit F Section for plans).

E. Repair of vegetation will take place upon completion of construction.

F. Appropriate color for the powerhouse will be used and the penstock will be buried to minimize any potential adverse visual and aesthetic impact.

3) (iii) Appropriate state and federal agencies have been contacted about the purposed project. A description of their concerns, suggestions and measures pertaining to impacts on fish, wildlife, and botanical resources have been taken from their letters and are as follows (see Appendix E-3b for complete letters):

A. U. S. Fish and Wildlife

1. Concerns:

a. Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife population.

b. The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

c. Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage, and nitrogen supersaturation resulting from air entrainment in the penstocks.

2. Mitigation measures: Defer to Idaho Department of Fish & Game.

a. Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG). Survey completed and approved by IDFG.

b. Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG. Reviewed and approved by IDFG.

c. Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage. Plan to be approved by IDFG in the design phase.

d. Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. Reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

B. Idaho Department of Fish and Game

1. Mitigation measures:

a. Recommended a minimum stream flow in the Portneuf River past the check structures of not less than what presently occurs during irrigation season. Ten (10) cfs was indicated by the agency as appropriate. The 10 cfs is acceptable to the applicant and will be adhered to.

b. Transmission lines buried or designed to preclude raptor mortalities.

c. Avoid short-term and long-term erosion due to construction practices.

d. Avoid undue disturbance of riparian habitat; replacement of vegetation may be required. Plan to be approved during design phase by IDFG.

C. National Marine Fisheries Service
They had no comments to offer since there are no anadromus fish in the area.

The mitigations and concerns of the stated agencies are appropriate and are those that have been addressed previously in Section 3(ii). Measures to resolve these concerns have also been addressed in 3(ii).

3) (iv) Mitigation Measures:

A. For functional design drawings see Exhibit F.

B. Survey of projected area has been completed [see 3) (i)]. Construction and operation of power poles for raptor protection will be done as suggested by U. S. Fish and Wildlife Service. (See Exhibit F). A minimum flow of 10 cfs will continue to flow down the Portneuf River during and after construction. Erosion measures will be taken throughout the construction, ie., avoidance of excessive stripping of vegetation and holding slopes to a minimal degree.

C. The raptor safe transmission line will be installed and operational before any power is generated. Erosion measures will be taken during construction and vegetation will be repaired at completion of project.

D. The estimated costs of the proposed facilities and procedures are anticipated to be less than $10,000.

E. Financing for the mitigation measures of the facility will be provided with the project financing for the hydro facility.

F. The map of Exhibit G shows the placement of Raptor Transmission lines. Exhibit F shows plans for such lines.

4) REPORT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES

4) REPORT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES

There are no recorded historical or archaeological sites within the project area. The proposed project would utilize existing facilities and will not involve construction that would damage any historical or archaeological resources. According to the State Historic Preservation Officer, the project will have no effect on any archaeological or historical resources (See letter from the State Historic Preservation Officer - Appendix E-4). In the event historical sites are uncovered during construction, all construction would be stopped until authorization to proceed is given by the State Historical Preservation Officer.

5) REPORT ON THE SOCIAL ECONOMIC IMPACTS

5) REPORT ON THE SOCIAL ECONOMIC IMPACTS

5) (i) Description of the Social Economic Impact Area: The project is located in rural Bannock County. The economic base of the project region is agriculture consisting of hay, grain and cattle operations.

5) (ii) The employment in the area is primarily agriculture. However, the implementation of this project would require the inflow of construction personnel. The construction personnel are readily available in the Pocatello, Idaho area approximately 50 miles to the northwest. Therefore, no adverse impact would be imposed upon Bannock County with respect to the influx of workers. In other words, the workers would commute from the Pocatello area which has a population base of approximately 50,000 people with a well developed construction support base due to construction of the various industries in the area.

5) (iii) No significant impact would be realized by various governmental facilities and services such as police, fire, health and educational facilities. The project would be built using the existing construction base in the Pocatello area.

5) (iv) On site manpower requirements - During the construction there will be approximately ten full time jobs for a period of eight months. The average payroll per month would be on the order of $40,000 for a period of ten months.

5) (v) Project personnel who

a) currently within the project area	0%
b) would commute daily to construction site from places situated outside the impact areas	95% to 100%
c) would locate on a temporary basis within the project area	0%

5) (vi) No significant impact would be realized on the existing supply in available housing within the impact area.

5) (vii) No business or residences would be displaced by the proposed project during or after construction. Minor inconvenience to the flow of water to the downstream irrigators would be realized during the filling and testing of the penstock. However, this is scheduled to take place during the fall of the year when there is no significant irrigational demand.

5) (viii) No significant fiscal impact would be realized on an incremental governmental increments in relation to the proposed project. At the conclusion of the project a current employee of the irrigation company will operate and oversee the project. This would have an insignificant impact on school operating costs, road maintenance and repair, public safety and public utilities cost.

For a detailed analysis of the Social Economic Impacts of the Bannock County area we sought information from the Division of Economic & Community Affairs on statistical indicators of change in Idaho and have included this information in Appendix E-5.

6) REPORT ON GEOLOGICAL AND SOIL RESOURCES

6) REPORT ON GEOLOGICAL AND SOIL RESOURCES

6) (i) The examination of existing geological mapping of the general project region has indicated that both sedimentary and igneous rocks occur. The majority of the actual project area is seen to be an alluvium deposit. Areas of basalt are also found within the project boundaries and are suspected to be of the Gem Valley Lava and to vary in thickness. Deposits in the surrounding areas of the project, besides those already stated, include travertine, Salt Lake Formation, Swan Peak Formation, and Garden City Formation. These deposits are found to be of the time periods that follow:

Quaternary Period - Alluvium and Travertine
Tertiary Period - Salt Lake Formation
Ordovician Period - Swan Peak and Garden City Formation

6) (ii) Description of the types of soil found in the project vicinity can be seen in the report furnished by the U. S. Soil Conservation Service. (See attached report and mapping in Appendix E-6).

6) (iii) The irrigation canal that the project will utilize has been in existence for many years without any extensive geological or soil hazard problems. The canal is currently in a stable condition and no problems can be foreseen in the near future. Because of the past performance of the canal and diversion structure, no potential instability of soil masses in its area can be envisioned. For the new portions of the project that are to be constructed (ie., penstock, powerhouse, etc.) a minimal amount of disturbance to the area will take place. Heavier loaded structures, such as the powerhouse, will be placed on the flat area of the river plane with no significant sloping below it thus negating any possibility of sliding. No reservoir will be created by the project, thus effects aggravated by such are non-existent.

No active or abandoned mines and solution cavities are known to be in the project area. Also, no major active earthquake faults are known to be within the project boundaries. However, the project is located in a Zone 3 earthquake area. All structures will be designed for a Zone 4 earthquake.

6) (iv) Erosion and mass soil movement in the area should be minimal since the majority of the system (ie., the canal and diversion structure) are already in place. Thus, disturbance of the area for the project will be slight.

6) (v) Measures will be taken to prevent erosion during and after construction. These will include the avoidance of excessive stripping of vegetation, the replacement of vegetation upon completion, and the slopes will be held to a minimal degree.

7) REPORT ON RECREATIONAL RESOURCES

7) REPORT ON RECREATIONAL RESOURCES

7) (i) No lands within the vicinity of the project have been designated for study for inclusion in:

A. National Wild & Scenic Rivers Systems

B. The National Trails Systems

C. Wilderness Area

7) (ii) The recreational facilities within the project vicinity are non-existent except for limited hunting and fishing. The description of fish and wildlife populations can be seen in Section 3. The quality of these recreational activities will not be decreased due to the construction of the project. Since current diversion of water for irrigation purposes is already taking place and because the same procedures will be followed and the existing structure and canal will be used, no changes can be foreseen in the quality of recreational facilities. Public access should only be limited a minimal amount more than it currently is.

7) (iii) An existing diversion structure is being used, thus the shoreline buffer zone is set as is.

7) (iv) There is currently no existing overnight visitation and no recreational activities that would use such facilities. There are no daytime facilities except the river and general environment as is, and they are used in a minimal amount in the project area. No change should be felt in the use of the river since it is not known for its fishing and since existing irrigation facilities will be used for the majority of the projects.

7) (v) There should be no additional costs associated with recreational developments.

7) (vi) There have been no measures or facilities recommended by agencies consulted for the purpose of creating, preserving or enhancing recreational opportunities at the proposed project. Through the development of the project the public should not lose any of its existing rights to recreation and their safety should not be in question.

7) (vii) For drawings see Exhibit F. A copy of the License Application was sent to Idaho State Department of Parks & Recreation on June 16, 1987. No reply has been received as of September 1, 1987.

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

State of Idaho
Department of Parks and Recreation
Statehouse
Boise, ID 83702

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R. Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

8) REPORT ON AESTHETIC RESOURCES

8) REPORT ON AESTHETIC RESOURCES

8) (i) The proposed project is located in the vicinity near a U. S. Highway, a railway, and an irrigation canal. The area is not known for its aesthetic beauty, and the project will blend well with the existing facilities in the area.

8) (ii) No significant impacts will be realized on the aesthetic resources from the implementation of the proposed project. Minor disruptions will be realized during construction due to the operation of machinery in the area. These disturbances will be small since the feeder canal and diversion structure are already in existence. In the long term, the project will be landscaped well with the existing environment and will blend nicely.

8) (iii) Description of Mitigative Measures Proposed by the Applicant Including Architectural Design and Landscaping. As previously mentioned, the existing feeder ditch will be used with its native variety of vegetations. The penstock will be buried and the powerhouse will be set at a low profile with generous utilization of earthtone colors to blend into the surrounding environment. Vegetation growth along the diverted portion of the riparian will continue due to the minimum discharge of 10 cfs that is allowed to bypass. The maps, drawings and photographs are provided in Exhibits F and G.

9) REPORT ON LAND USE

9) REPORT ON LAND USE

9) (i) The land in the vicinity of the project is known as grazing land for livestock. There are no wetlands, floodlands, and prime or unique farmlands in the project area. The majority of the land for the actual project is currently used for an irrigation canal. This is the same canal that will be used for the transmission of water to the generating facility. The powerhouse will sit on a small section of land that is currently used for grazing. No major changes will be seen on a great portion of the land. No distinctive lands are found within the project. The Portneuf-Marsh Valley Canal Co., and McCammon Ditch Company either hold title or have secured property interests and easements for the lands the project will use.

9) (ii) The land adjacent to the proposed project is primarily grazing land. No adverse effects or devaluation can be seen on the neighboring land by the construction of the project.

9) (iii) The project will utilize the existing diversion and canal facilities presently owned by the PMV Canal Companies. Attached are copies of right-of-ways from Union Pacific Railroad for the railroad crossing and a copy of the option for purchase of the powerhouse site parcel.

Underground Pipeline Crossing
Topaz, Idaho (MP 187.81)

LD No. 25939
Audit No. _____

THIS AGREEMENT, made and entered into as of the 22nd day of February, 1984, by and between OREGON SHORT LINE RAILROAD COMPANY and its lessee, UNION PACIFIC RAILROAD COMPANY, corporations of the State of Utah (hereinafter collectively the Licensor), and MARSH VALLEY HYDROELECTRIC COMPANY, a corporation of the State of Idaho (hereinafter the Licensee), WITNESSETH:

NOW THEREFORE, it is mutually agreed by and between the parties hereto as follows:

1. Upon the execution and delivery of this Agreement, the Licensee shall pay to the Licensor the sum of one hundred dollars ($100.00) to cover the cost of preparation hereof. In consideration of the sum of one hundred fifty dollars ($150.00) to be paid by the Licensee to the Licensor upon the execution and delivery of this Agreement and in further consideration of the covenants and agreements herein contained to be by the Licensee kept, observed and performed, the Licensor hereby grants to the Licensee, subject to the terms and conditions herein stated, the right to construct and thereafter, during the term hereof, to maintain and operate the underground water pipeline (hereinafter the Pipe Line) across the property and under the track of the Licensor in the location identified by yellow line, and in conformity with the dimensions and specifications indicated, on the print dated October 21, 1983, marked Exhibit A, hereto attached.

2. The grant herein made is subject to each and all of the terms, provisions, conditions, limitations and covenants set forth herein and in Exhibit B hereto attached and by this reference incorporated herein.

3. This Agreement shall take effect as of the date first herein written and shall continue in full force and effect until terminated as herein provided.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in duplicate as of the date first herein written.

Witness:

_____

Attest:

_____
Secretary

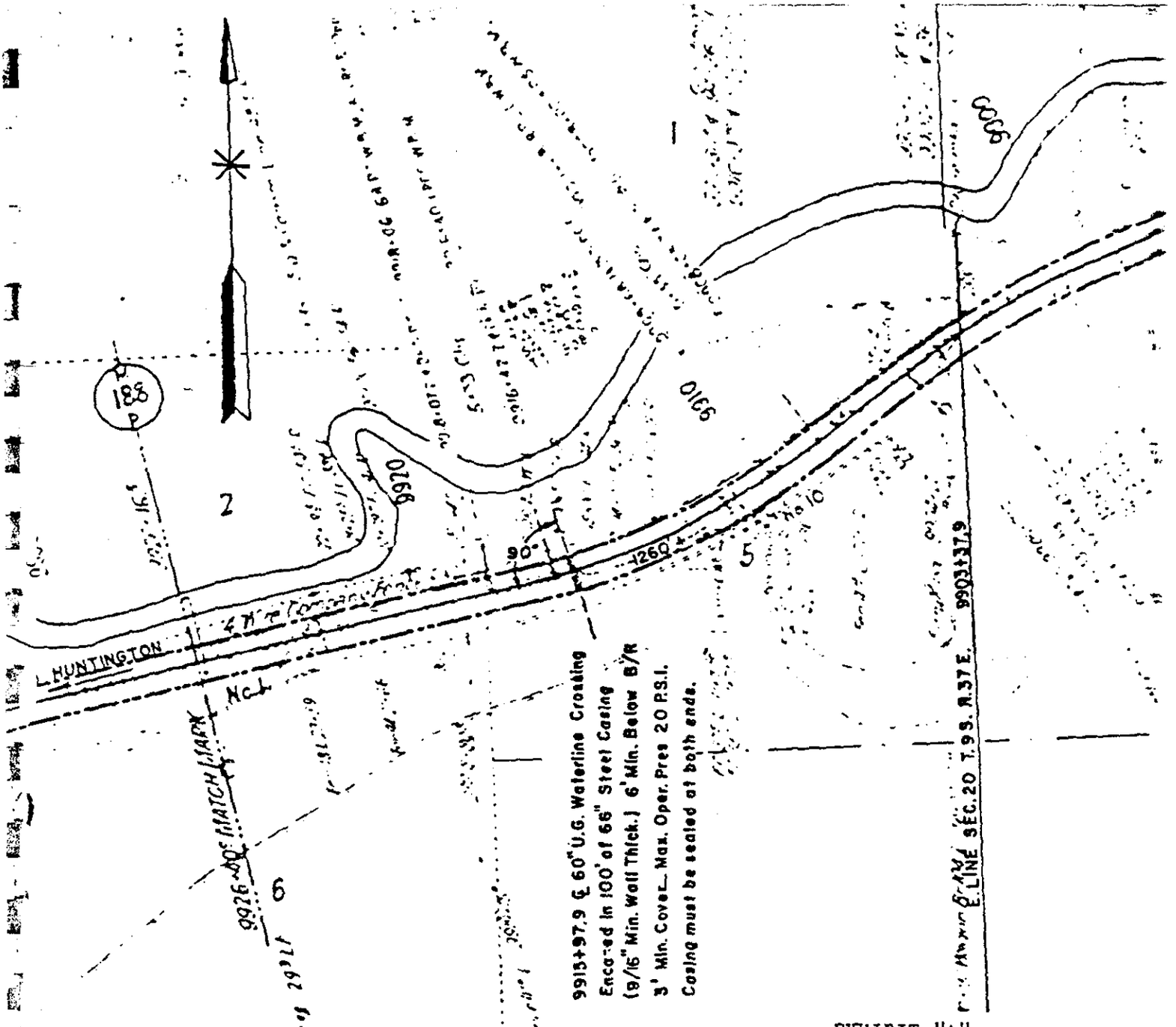
OREGON SHORT LINE RAILROAD COMPANY
UNION PACIFIC RAILROAD COMPANY

By _____
General Manager

MARSH VALLEY HYDROELECTRIC COMPANY

By _____
President

DUPLICATE ORIGINAL - LICENSEE'S COPY



Note: Must be jacked or bored under track.

EXHIBIT "A"
OREGON SHORT LINE RAILROAD CO.
UNION PACIFIC RAILROAD COMPANY (LESSEE)
Topaz ~~Boise~~, Bannock County, Idaho
M.P. 187.81 - Main Line

To accompany agreement with Marsh Valley HydroElectric Company covering an underground water pipeline crossing

Scale 1" = 400'

Office of Director - Real Estate
Omaha, Nebraska October 21, 1983

* L E G E N D *

U.G. water line shown.....YELLOW
R/W outlined.....

9-1

718016

OPTION TO PURCHASE REAL PROPERTY AND EASEMENT

THIS AGREEMENT made and entered into this 3 day of October, 1983, by and between ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, of 305 West Main Street, Lava Hot Springs, Bannock County, Idaho, hereinafter called "SELLER" and MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation with its principal place of business being in the City of McCammon, Bannock County, Idaho, hereinafter called "BUYER".

RECITALS

WHEREAS, Seller is the owner of certain real property located in Bannock County, Idaho, which is described as Lot 5, Section 20, Township 9 South, Range 37 East of the Boise Meridian; and

WHEREAS, Buyer desires to construct, own and operate a hydro electric generation plant, together with penstocks, diversion structures and related equipment and facilities on the real property of Seller described above; and

WHEREAS, Seller is willing to grant to Buyer and Buyer desires to purchase from Seller an Option to Purchase certain real property for a plant site together with a permanent right-of-way and easement to permit construction and operation of the plant and related facilities, together with a right of ingress and egress thereto upon the terms and conditions set forth below;

NOW, THEREFORE, for the reasons set forth and in consideration of the mutual covenents and promises of the parties hereto, Buyer and Seller agree as follows:

1. GRANT OF OPTION: For and in consideration of the sum of $500 to be paid by Buyer to Seller upon execution of this Agreement, receipt of which is hereby acknowledged, Seller grants to Buyer the exclusive and irrevocable option and right to purchase, under the conditions hereinafter provided:

(a) a parcel of land sufficient in size and nature to permit Buyer to locate and construct a hydro electric generation plant. Said plant site shall be approximately one acre in size and located within the parcel of land owned by Buyer as described in Exhibit "A" attached and incorporated by reference. The exact location of said plant site within

the property described in Exhibit "A" may be selected by Buyer.

(b) A permanent right-of-way and easement on, over, under and through the remaining lands owned by Seller and described in Exhibit "A" and adjacent thereto not selected as a plant site as described in paragraph 1(a) above, on which to construct, maintain, operate and repair diversion structures, penstocks, forebays and other equipment, fixtures and structures related to the hydro electric generation plant, together with a roadway to provide a right of ingress and egress to the plant site.

(c) The right to the temporary use of such additional land on each side of the plant site and permanent right-of-way and easement as is reasonably required during the construction of the facilities.

(d) All other rights and benefits necessary for the full enjoyment or use of the plant site and right-of-way and easement including the right of ingress and egress over and across said lands as well as the adjacent lands of Seller and the use thereof reasonably necessary in connection with the construction, maintenance, operation and repair of the hydro electric generation plant, related equipment and facilities and access road.

(e) It is understood and agreed that to gain access to the property, Buyer will construct a roadway to connect to the existing railroad service road on the South or in a Northerly direction to connect to U. S. Highway 30 North which will require the construction of a bridge across the Portneuf River which transverses Sellers adjacent property in Section 20, Township 9 South, Range 37 East of the Boise Meridian, Bannock County, Idaho, or both. Buyer may select the exact location of the roadways and bridge which must be approved and accepted by Seller in advance to construction.

Buyer shall be soley responsible for the construction, maintenance and repair of all roadways and bridges and, further, shall be responsible to keep all railroad gates closed. Seller shall have the right to use all roadways constructed by Buyer to gain access to his property for all personal uses. Should Seller desire to develop his property and expand his personal use of the roadways to include their use for residential, commercial or other purposes, Seller may do so provided that he shall then be responsible for one-half of the costs of maintenance and repair.

(f) Buyer shall prevent any contamination of Sellers land and is required to restore any land used temporarily during construction to its previous condition.

2. PRICE AND TERMS OF PAYMENT: The price for the plant site and permanent right-of-way and easement shall be $7,500. Said amount shall be paid in full by Buyer at the time of closing.

3. PERIOD OF OPTION AND EXTENTIONS: The option may be exercised by Buyer, at any time while the offer herein shall remain in force, by mailing, telegraphing or delivering in person a written notice of acceptance of the offer herein to the undersigned Seller at the address provided above.

This offer shall remain irrevocable for a period of three years, and may be extended for an additional period of time upon written agreement by Seller.

If the option is exercised, the consideration paid for this Agreement by Buyer shall be applied to the purchase price. If the option is not exercised, the sum paid by Buyer shall be retained by Seller in consideration for this Agreement.

4. TITLE: Upon exercise of this option by Buyer as provided herein, the Seller shall secure and submit to Buyer for examination by it or its attorney a preliminary title report of a qualified title insurance company doing buisness in the State of Idaho. Thereafter, Buyer shall give notice in writing to Seller of any defect in or objections to the title as so evidenced, and the Seller shall clear the title of the defects and objections so specified.

If Seller fails to clear the title to the extent herein required or to submit evidence of their ability to do so prior to closing, and such failure continues for 30 days after the date of the exercise of the option, Buyer may clear title to the extent so required and charge the cost of clearing to Seller or, at its option, may terminate this contract by giving five days written notice to Seller.

Title conveyed as herein provided shall be merchantable title, free and clear from all liens, encumbrances, restrictions and easements. Seller shall provide Buyer with a standard form Owners Title Insurance Policy for the amount of the purchase price.

5. CLOSING: A closing agent shall be designated by the parties after exercise of the option. All necessary documents shall be delivered to the closing agent and all pay-

ments required hereunder, including payment of the balance of the purchase price, shall be made to the closing agent. Seller and Buyer shall execute such closing instructions and other documents, not inconsistent with the terms of the option, as may be required by the closing agent from time to time.

Taxes, water assessments and other general and special assessments of whatsoever nature for the year in which the closing of the transaction takes place shall be prorated as of the date of closing of the transaction. If the closing of the transaction shall occur before the tax rate is fixed, the apportionment of taxes shall be on the basis of the rate for the next preceding year applied to the latest assessed valuation.

The sale transaction shall close when the closing agent is able to comply with the provisions hereof, and within a reasonable time.

6. POSSESSION AND RISK OF LOSS: Seller shall continue in possession of the property until the time of closing and shall maintain the same in its present condition, reasonable wear from ordinary use expected. Possession shall be transferred to Buyer on closing.

Risk of loss from fire or other casualty to the property shall be Sellers until transfer of possession as herein provided.

7. NOTICES: Any notice hreunder shall be given in writing to the party for whom it is intended in person or by registered mail at the following addresses:

MARSH VALLEY HYDRO ELECTRIC CO.
c/o Lyndon Green, President
Star Route, Box 37
McCammon, Idaho 83250

Randall C. Budge, Esq.
RACINE, OLSON, NYE, COOPER & BUDGE, CHRTD.
P. O. Box 1391
Pocatello, Idaho 83204

Mr. and Mrs. Roger S. Johnson
305 West Main Street
Lava Hot Springs, Idaho 83246

Notice shall be given in writing to any successor or assignee of either party at the address stated in the Notice of Succession or Assignment.

8. ASSIGNMENT: This option and the contract resulting from the exercise thereof shall bind and inure to the benefit of the heirs, administrators, executors, successors and assigns of the respective parties. All rights of the Buyer hereunder may be assigned without restrictions, but notice of each Assignment shall be given in writing to Seller.

9-5 718016

IN WITNESS WHEREOF, the Seller and Buyer have set their hands and seals this 3rd day of October, 1983.

SELLERS:

ROGER S. JOHNSON

KAYE R. JOHNSON

MARSH VALLEY HYDRO ELECTRIC CO.

By: _____
TITLE: President

ATTESTED:

By: _____
TITLE: Sec

STATE OF IDAHO)
: ss
County of Bannock)

On this 3rd day of October, 1983, before me, the undersigned, a Notary Public in and for said State, personally appeared ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, known to me to be the persons whose names are subscribed to the foregoing and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

NOTARY

(SEAL)

NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 10/15/84

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

9-6

718016

J-U-B ENGINEERS, Inc. 920 Dyon Drive, Suite D Pocatello, Idaho 83201 Telephone: (208) 232-0205

Description For
Portnuef Marsh Valley Hydroelectric Co.
Parcel of Land From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M., Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

Thence South 39°28'06" East 2157.12 feet to an iron pin set on the southerly bank of the Portneuf River. Said point being the REAL POINT OF BEGINNING;

Thence South 3°21'41" West 679.60 feet to an iron pin set on the northerly bank of the Prtneuf Marsh Valley Canal;

Thence North 70°38'31" East 509.96 feet to an iron pin set on the northerly bank of the Portneuf Marsh Valley Canal;

Thence North 12°10'46" West 689.25 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 44°47'44" West 123.91 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 69°17'04" West 222.16 feet to the point of beginning, comprising 6.09 acres more or less.

Excluding the parcel of land contained in this description which is owned by the Union Pacific Railroad Company and comprising 1.00 acres more or less.

Considering the excluded acreages, total needed acreage for this parcel will be 5.09 acres more or less.

REGISTERED LAND SURVEYOR 1049 STATE OF IDAHO ALLEN R. JOHNSON

Prepared by;
J-U-B Enginners, Inc

Allen R. Johnson, L.S.
Area Surveyor

EXHIBIT "A" -- Page 1 of 3

9-7 718016

J-U-B ENGINEERS, Inc. 920 Deon Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 233-0326

Description For
Portneuf Marsh Valley Hydroelectric Co.
Easement From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M. Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

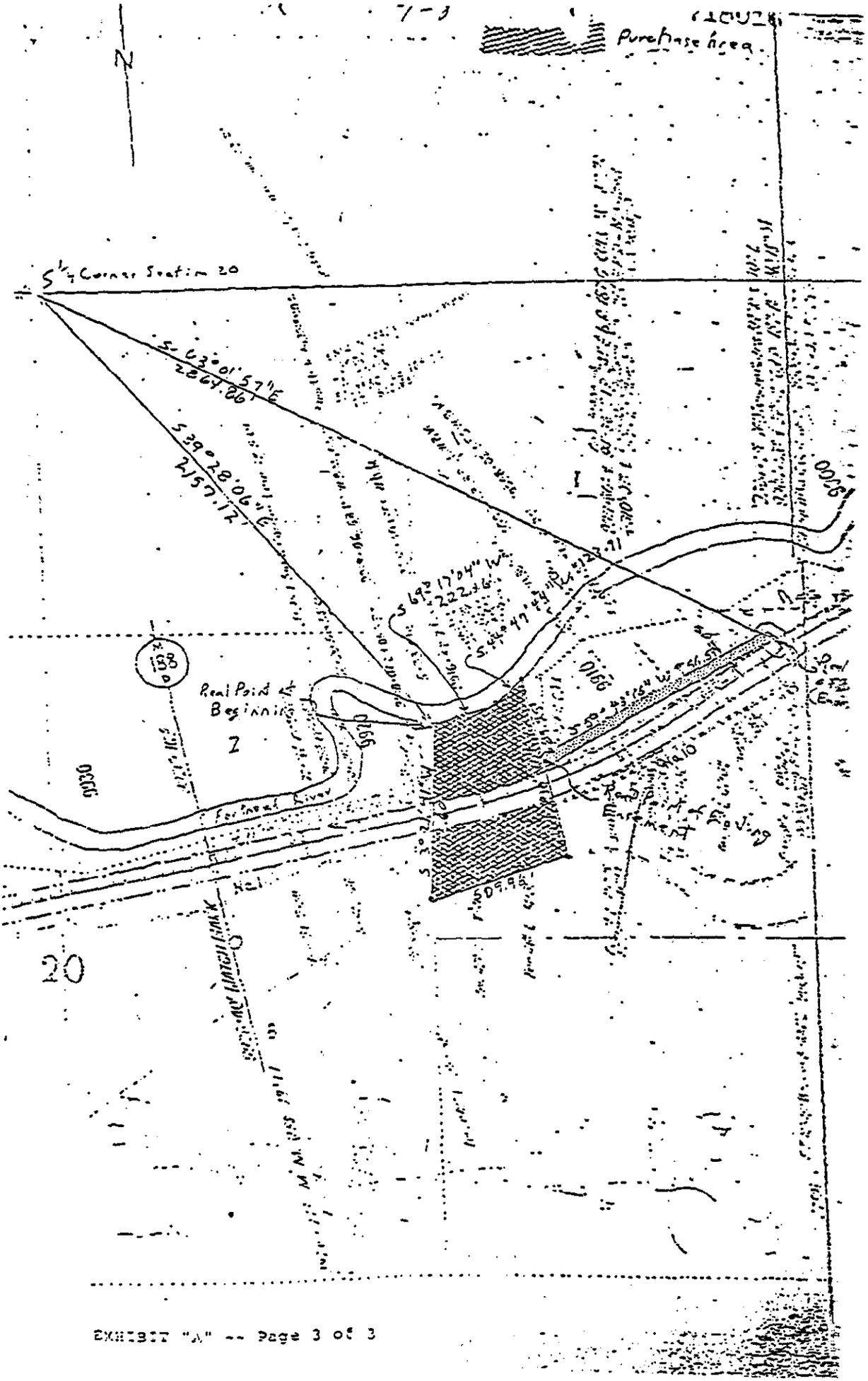
Thence South 63°01'57" East 2864.86 feet to a point on the northerly Right-of-Way Ownership line of the Union Pacific Railroad property, said point being at an existing gate in the railroad fence line, said point being the REAL POINT OF BEGINNING of a 50 foot wide road way easement.

Thence South 59°43'15" West 956.54 feet along the centerline of the Right- of-Way easement to a point on the easterly ownership line of the property purchased by the Portnuef Marsh Valley Hydroelectric Company. Said point being the REAL POINT OF ENDING of the said Right-of-Way comprising 1.10 acres more or less.

Prepared by:
J-U-B Engineers, Inc

Allen R. Johnson, L.S.
Area Surveyor

REGISTERED LAND SURVEYOR 1029 STATE OF IDAHO ALLEN R. JOHNSON


Purchase Area
N
S 1/4 Corner Section 20
S 63°01'57"E
2264.86'
S 39°28'06"E
2157.12'
S 69°17'04"W
222.16'
S 44°47'44"W
Real Point of Beginning
Z
Fox River
20

10) ALTERNATIVE LOCATIONS, DESIGNS AND ENERGY SOURCES

10) ALTERNATIVE LOCATIONS, DESIGNS AND ENERGY SOURCES

10) (i) Alternative sites were considered in arriving at the selection of the proposed site for the project. Examination was made up and downstream of the Portneuf-Marsh Valley Canal. The current site was selected because of its close vicinity to the river and the large difference in elevation between the river and canal. Examination upstream of the proposed site did not give the elevation difference sought after. Examination downstream of the proposed site showed that the canal and river became a great distance apart and the river began to level off, thus giving little change in elevation for a great horizontal length between the two channels.

10) (iii) Energy conservation has been the prime concern of land management agencies, realizing that alternative sources are long range in their ability to produce on-line power economically. Small hydro production appears to be the most feasible source of power production at this time. The attached pages tabulate the energy source potential studied and examined by various agencies and organizations in Idaho (See Appendix E-10). It will quite clearly show that small hydro production is the most feasible means of energy production.

10) (iv) <u>Alternative Means of Obtaining An Amount Of Power Equal To That Provided by the Project If Project Not Authorized</u>

Energy conservation has been the prime concern of land management agencies realizing that alternative sources of energy production are long ranged in ability to produce on-line, reliable power economically. Small hydro production appears to be the most feasible source of power production at this time.

The pages of Appendix E-10 will tabulate the energy source potential studied and examined by various agencies and organizations in Idaho. It will quite clearly show that small hydro production is the most feasible means of energy production.

11) LIST OF LITERATURE

11) LIST OF LITERATURE

J. S. Griffith, Ph.D.
"Fish Populations in the Vincinity of the Proposed Marsh Valley Hydro Project" Feb.1983"

"Bannock County - County Economic Profile", by Idaho Department of Commerce

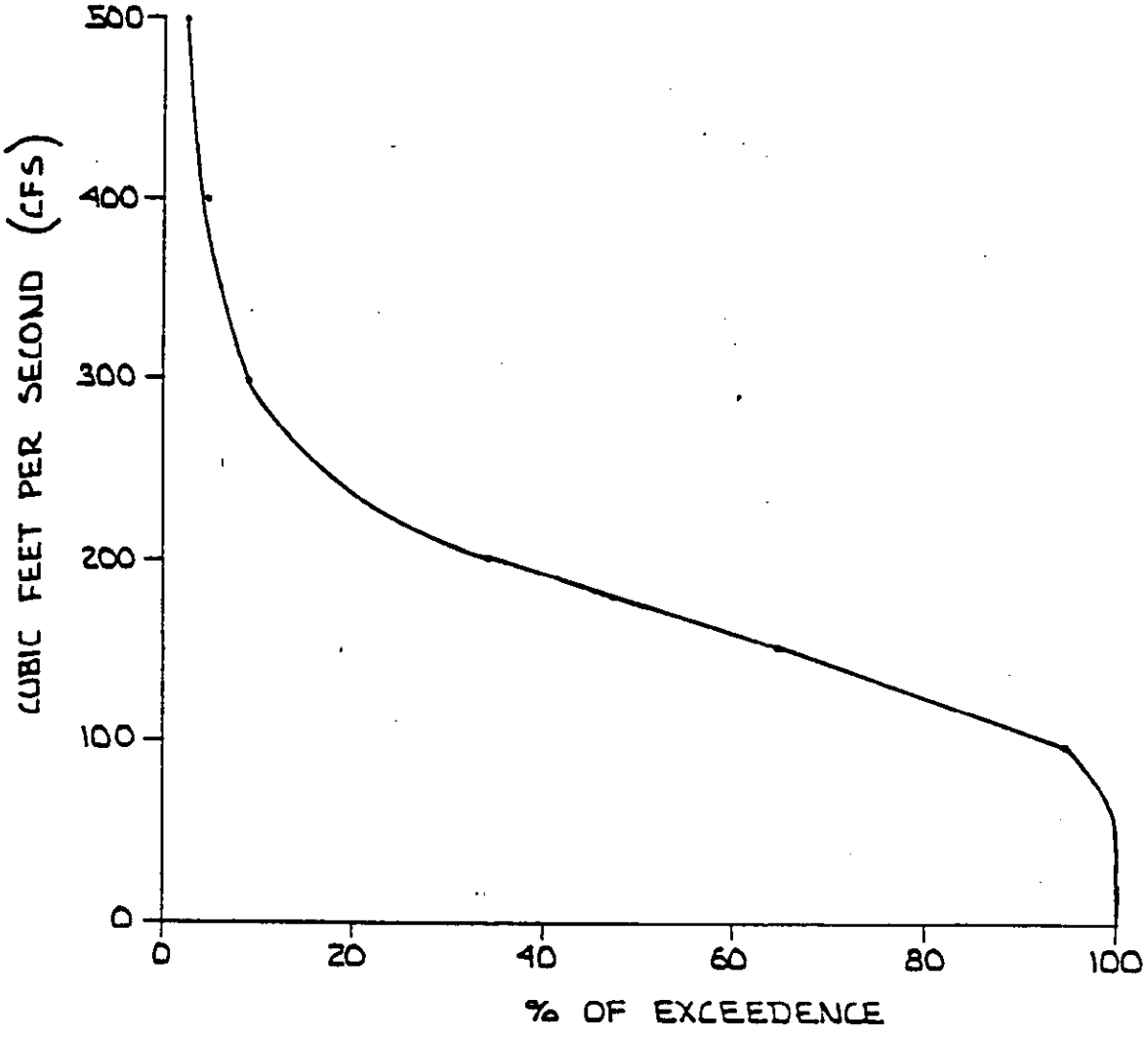
"Bannock County Soil Survey, Idaho", U.S. Soil Conservation Service

D.M. Schwarze
Geology of the Lava Hot Springs Area, Idaho, 1960

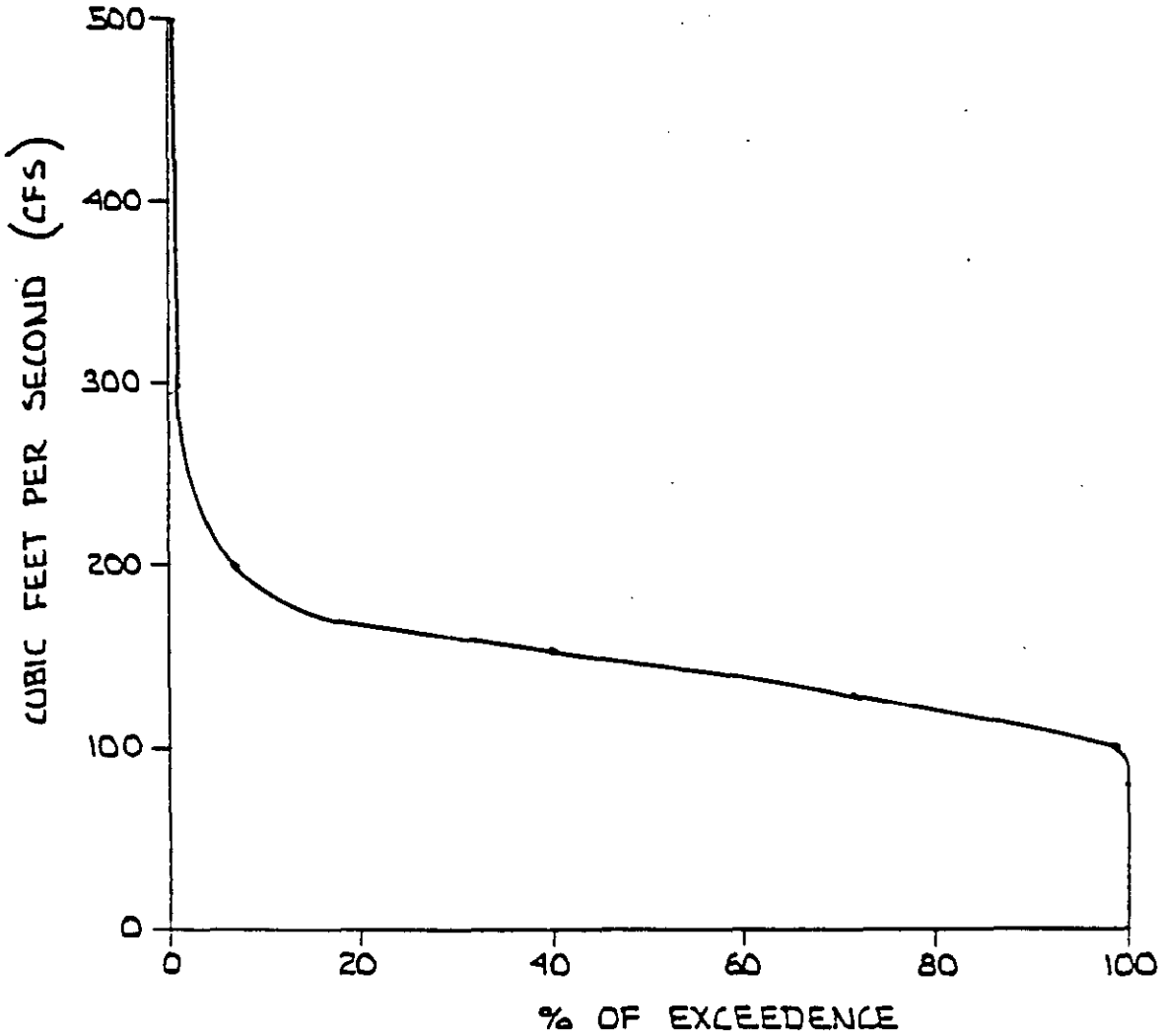
APPENDIX E-2a

HYDROLOGIC RECORDS AND FLOW DURATION CURVES

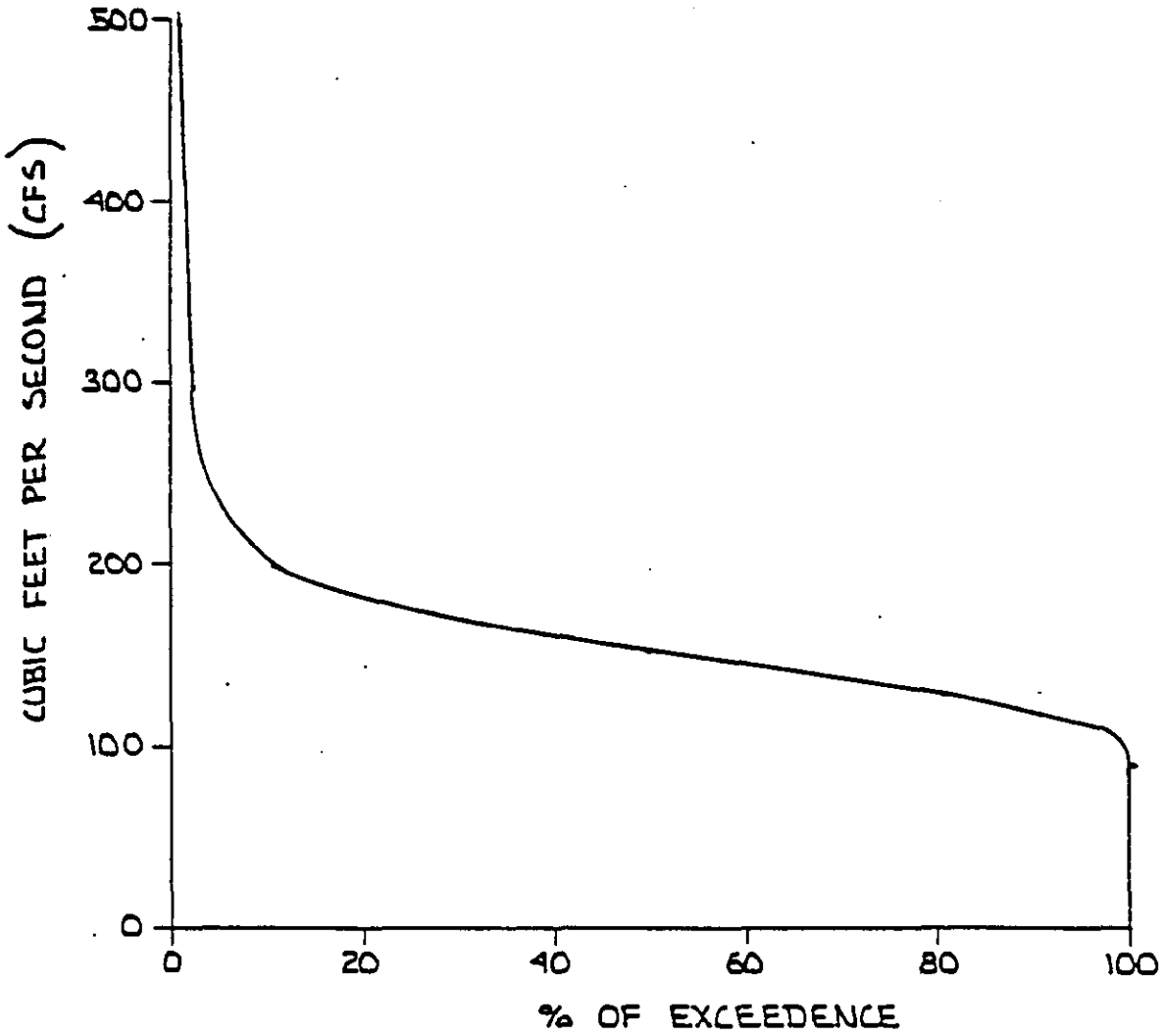
ANNUAL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



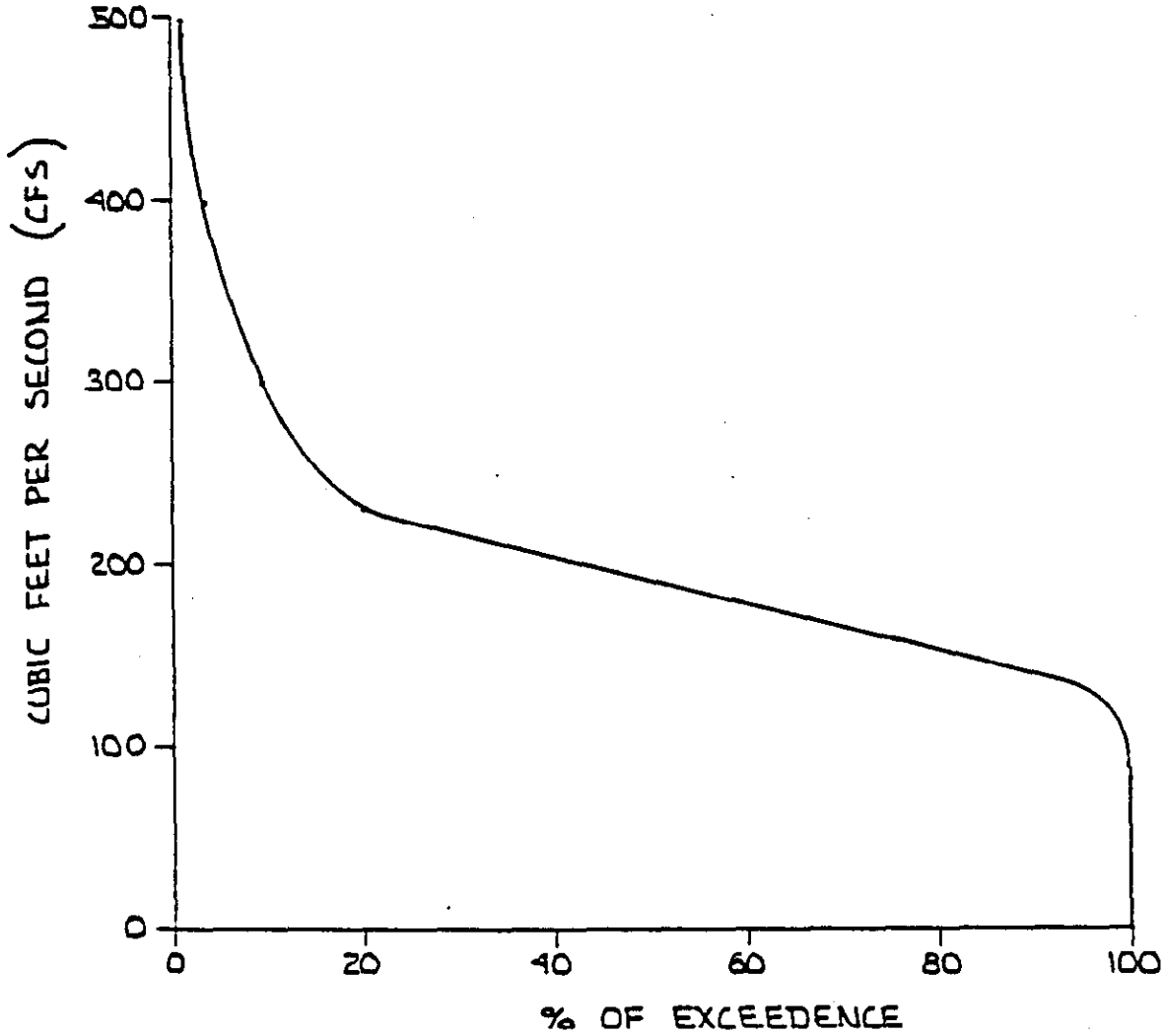
JANUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



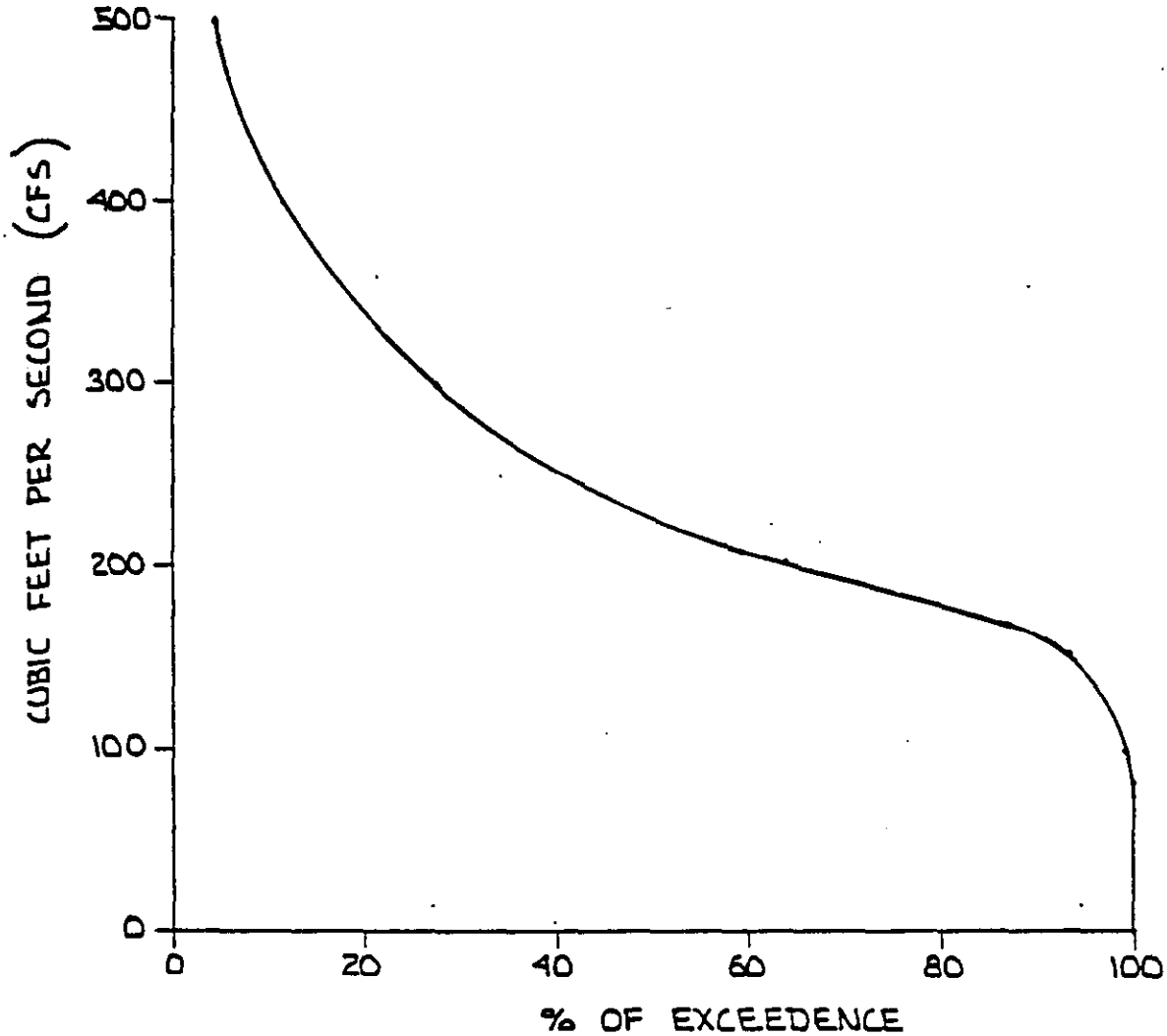
FEBRUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



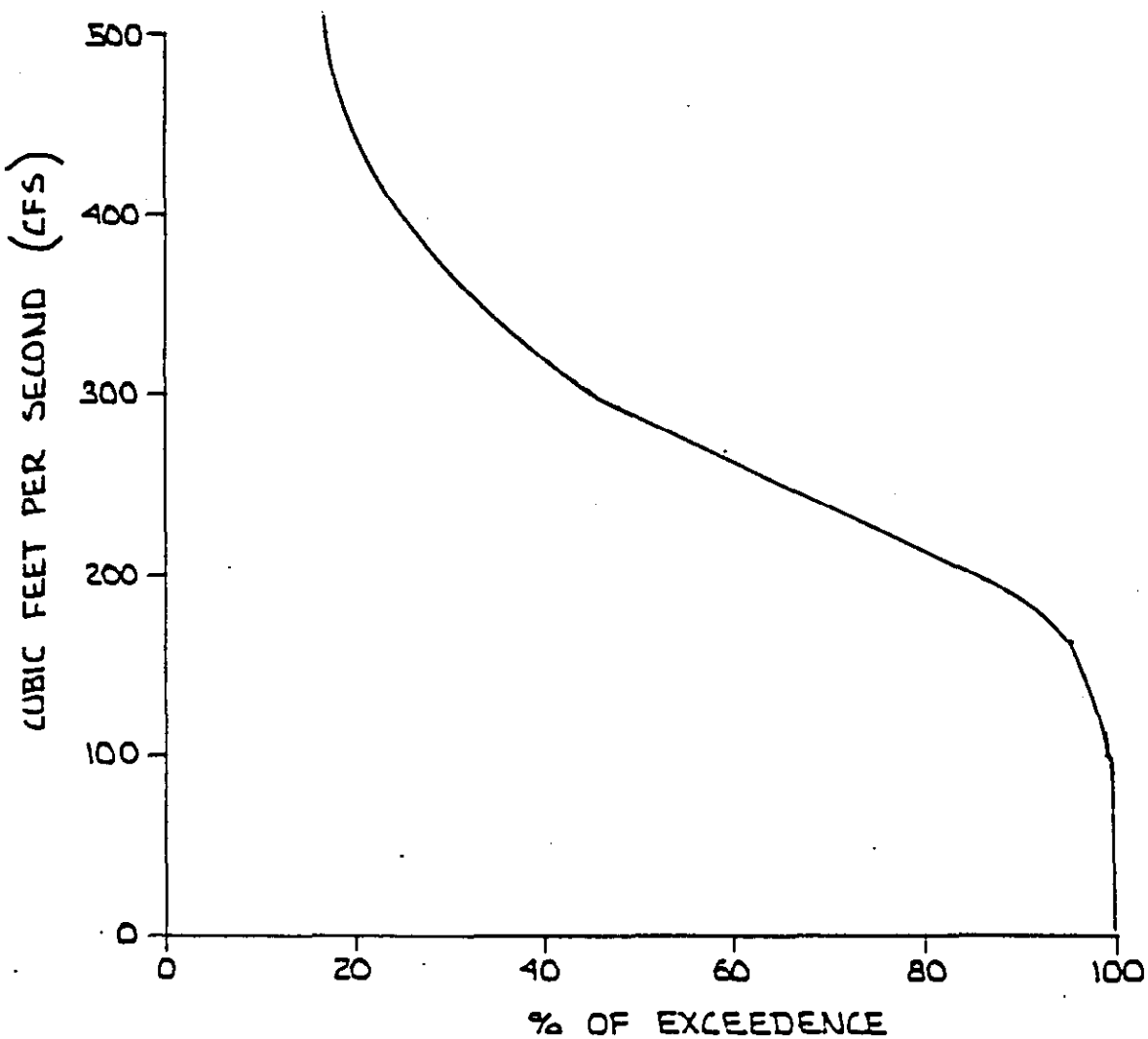
MARCH FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



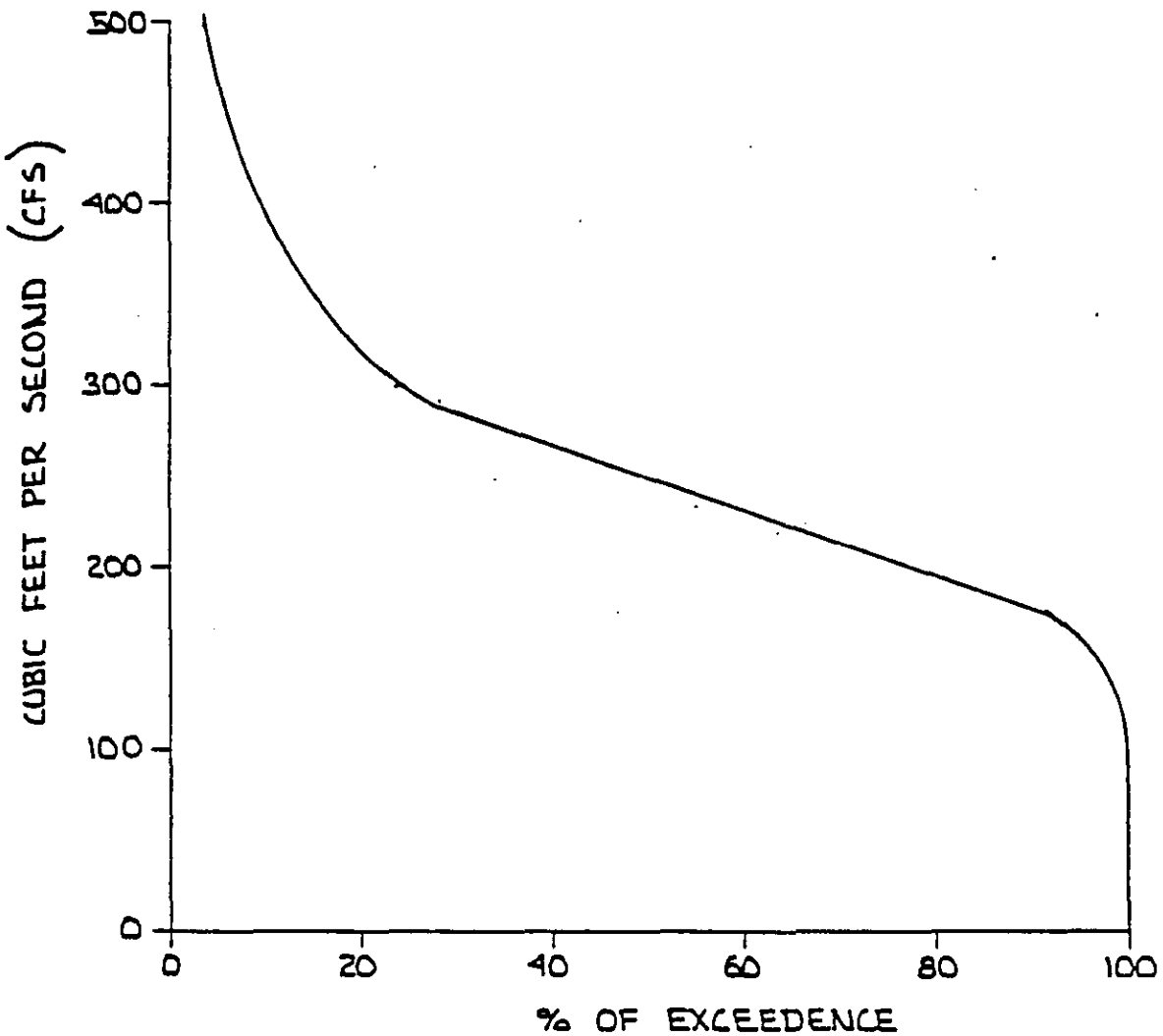
APRIL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



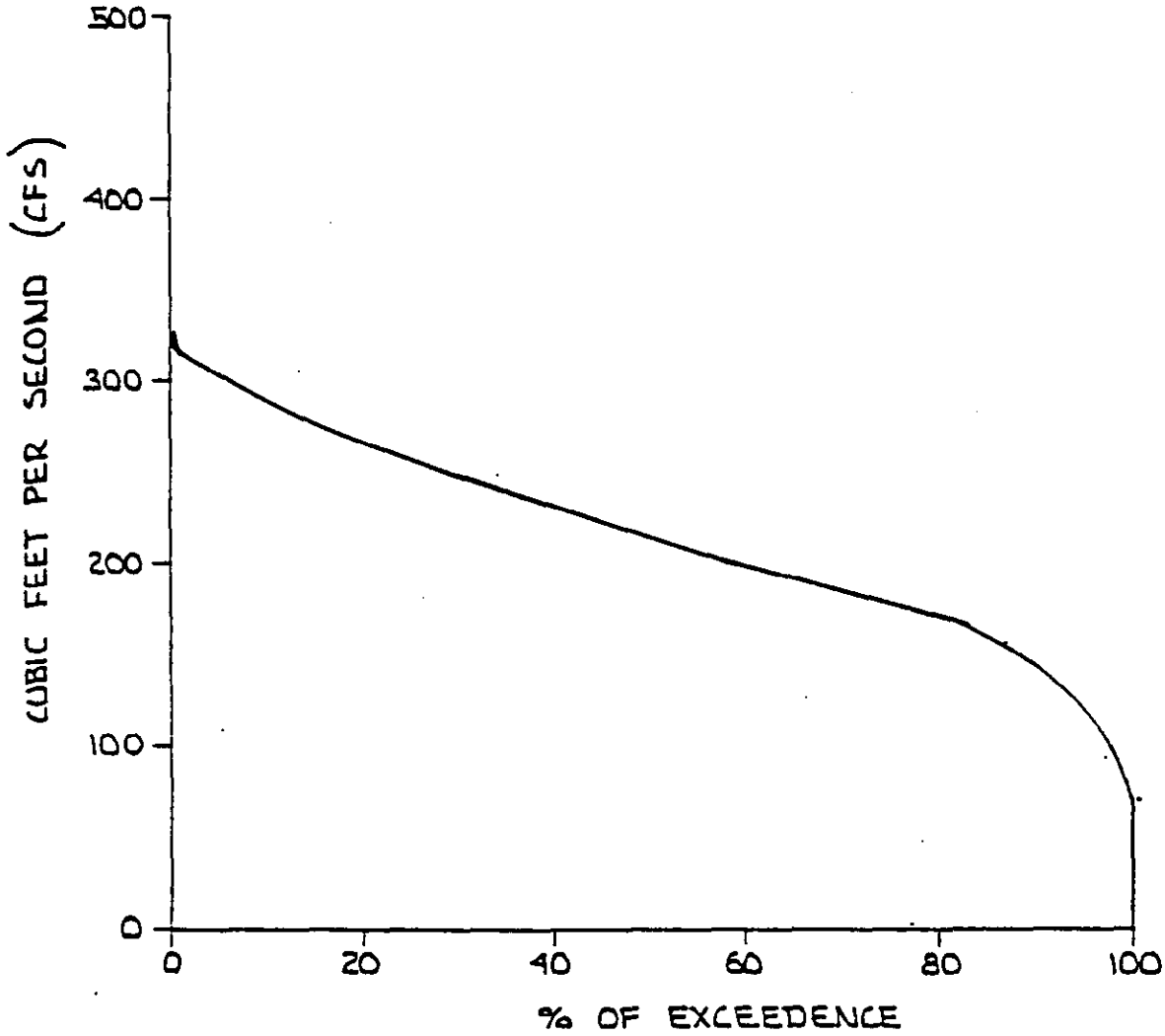
MAY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



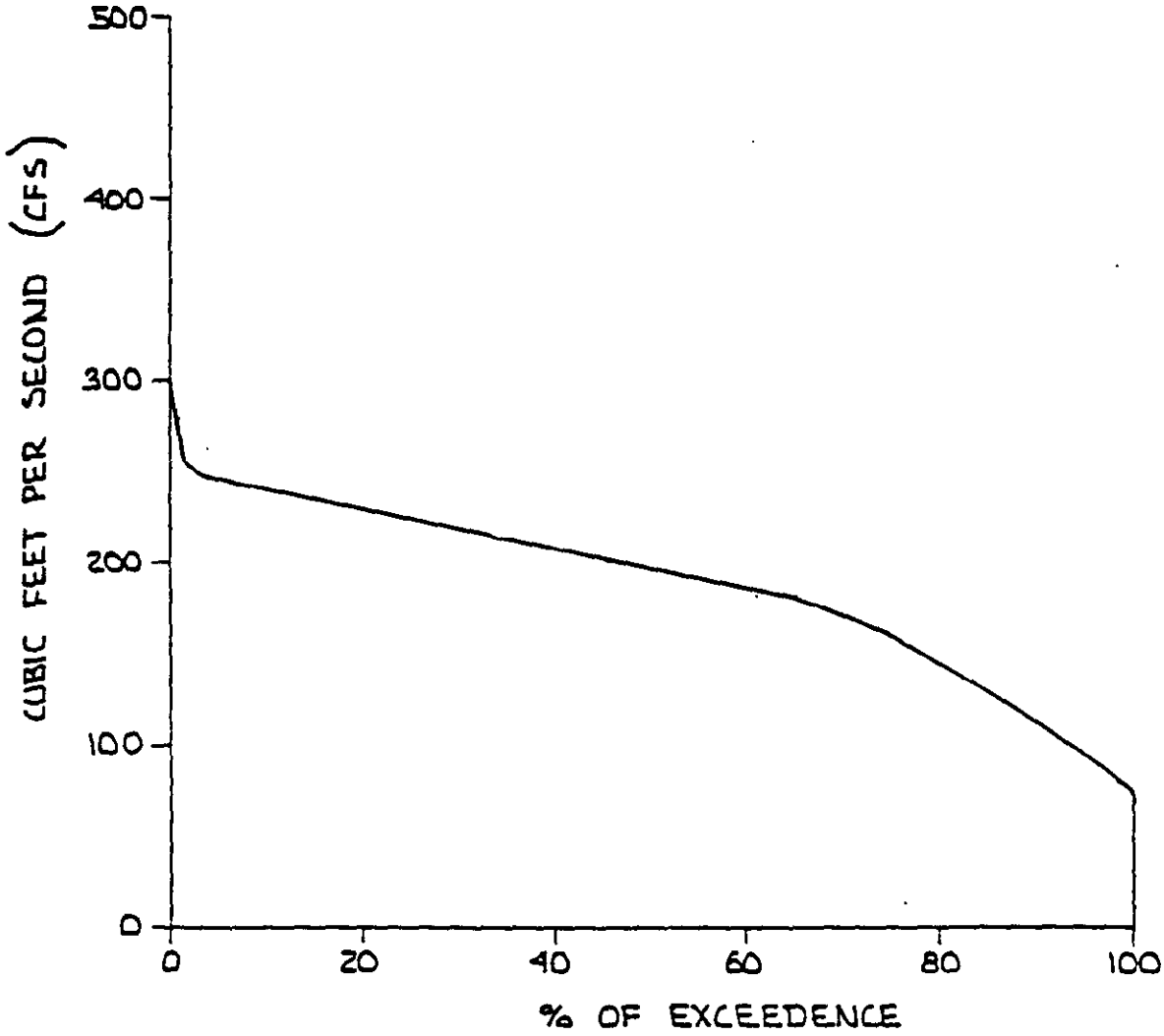
JUNE FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



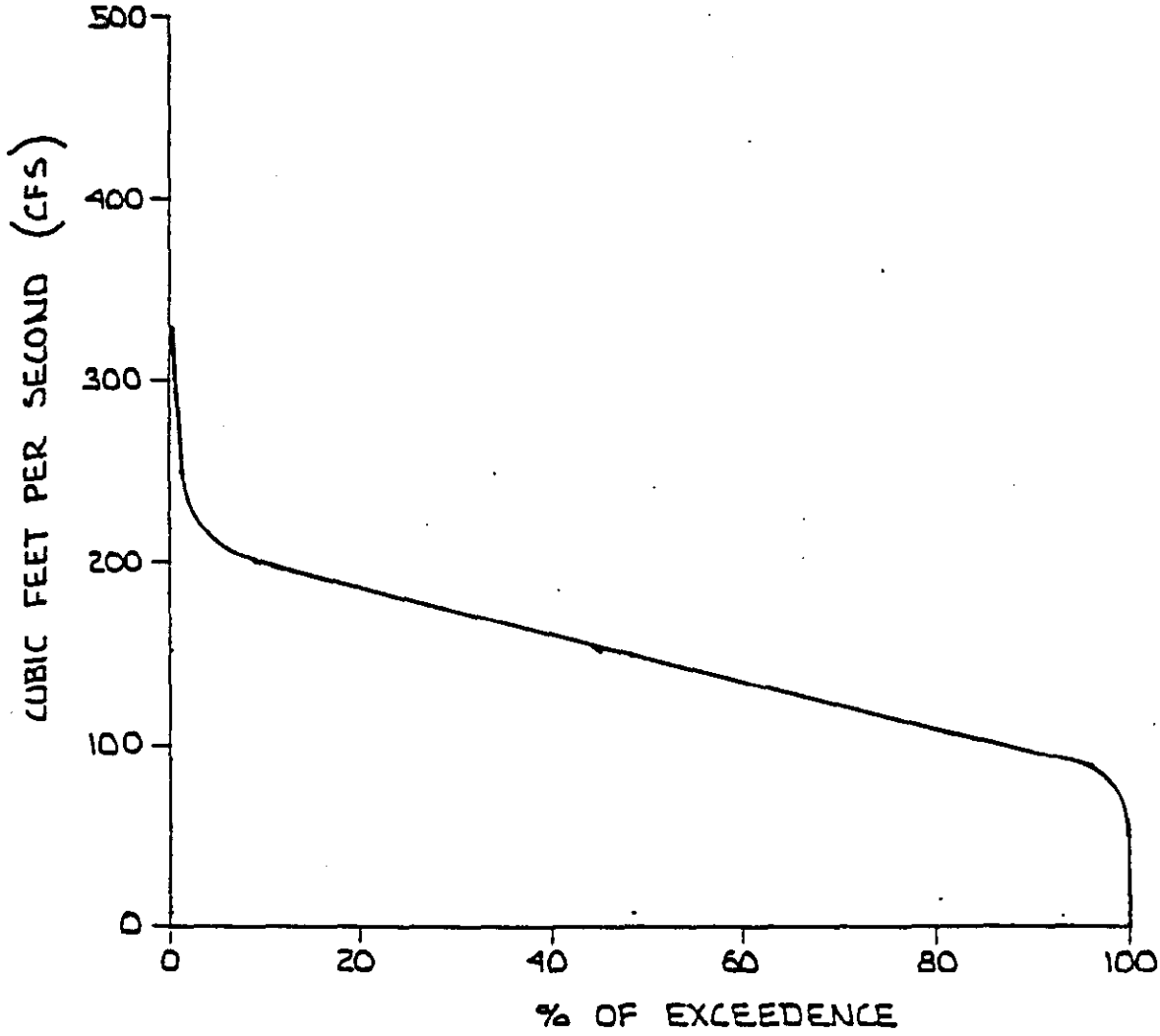
JULY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



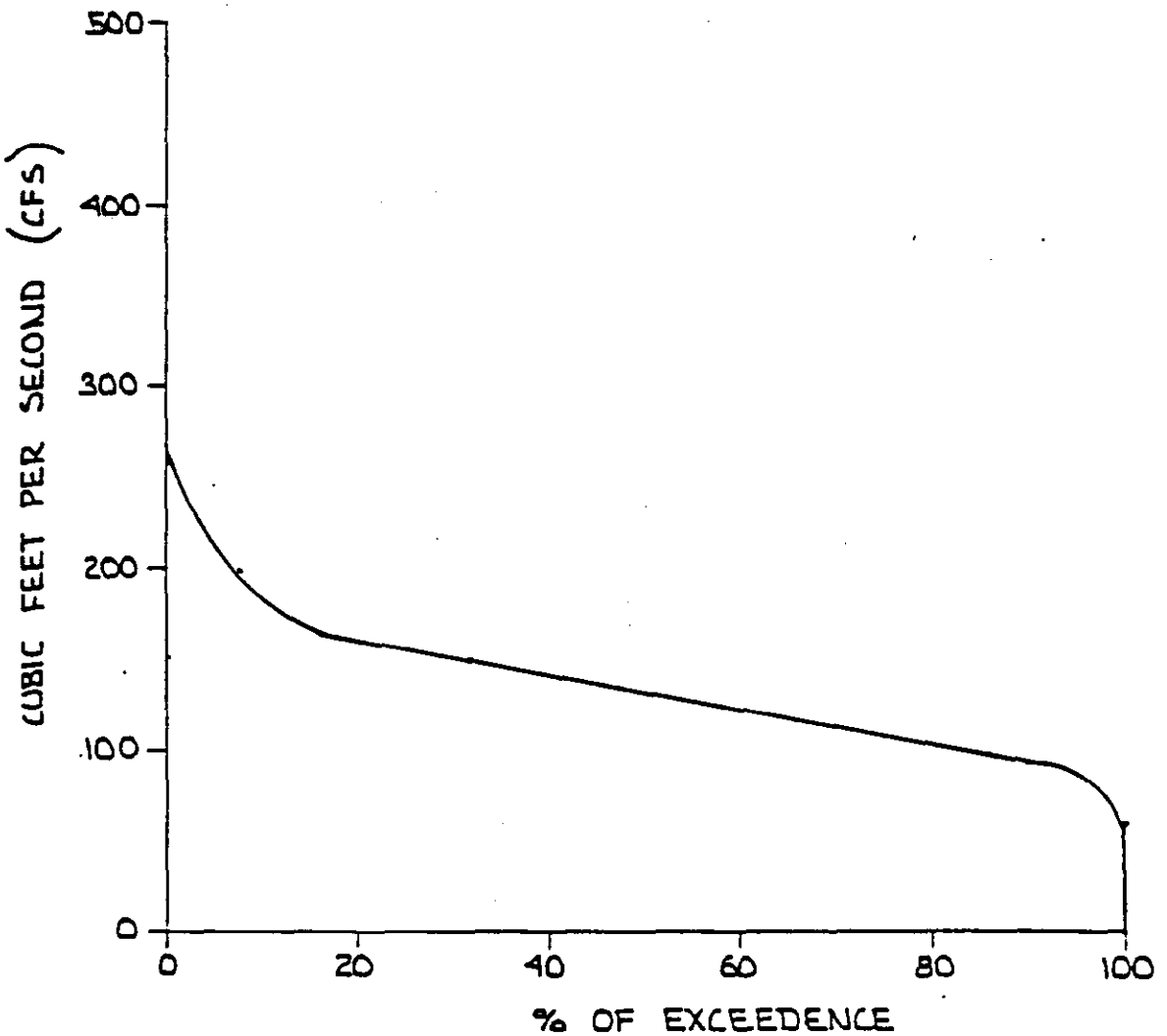
AUGUST FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



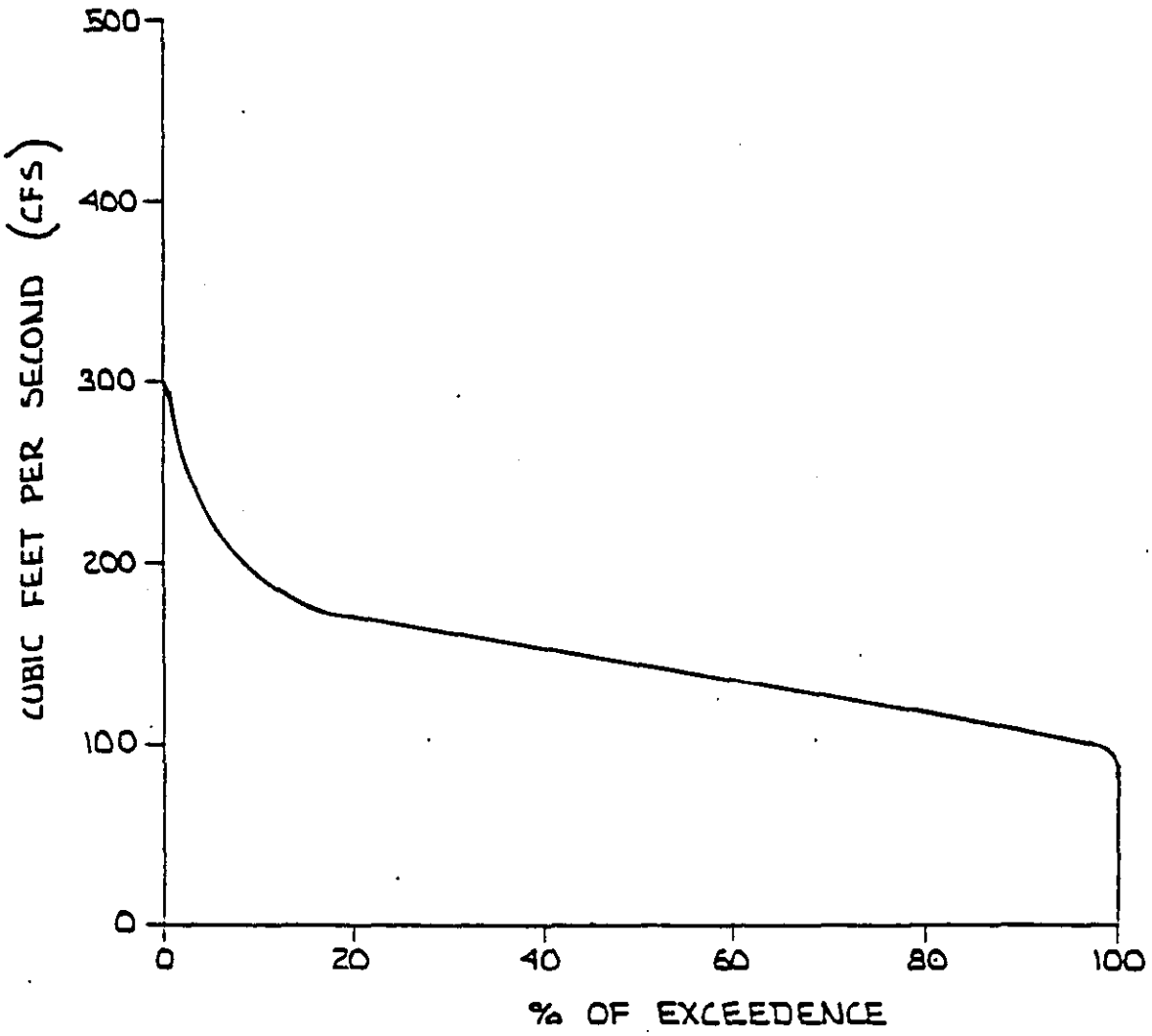
SEPTEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



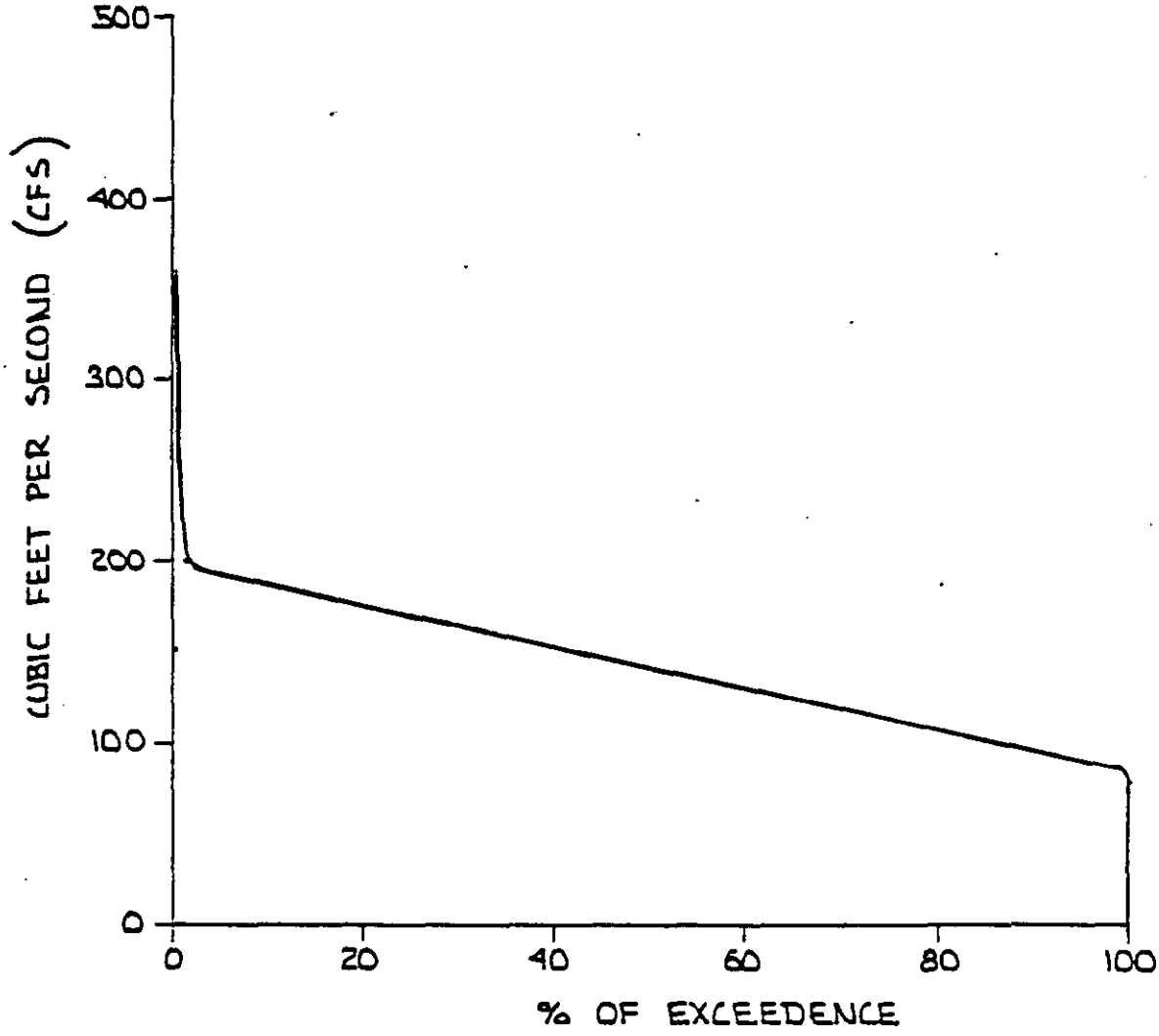
OCTOBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



NOVEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DECEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DAILY DATA FOR YEAR ENDING SEPT. 1920

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	162.0	162.0	152.0	190.0	180.0	190.0	323.0	425.0	209.0	209.0	200.0
2	171.0	171.0	162.0	152.0	190.0	190.0	190.0	303.0	404.0	209.0	218.0	200.0
3	162.0	200.0	162.0	152.0	200.0	190.0	180.0	283.0	363.0	209.0	218.0	200.0
4	162.0	209.0	162.0	152.0	190.0	190.0	180.0	303.0	343.0	228.0	218.0	200.0
5	162.0	190.0	162.0	152.0	190.0	190.0	190.0	323.0	343.0	228.0	218.0	209.0
6	162.0	180.0	171.0	152.0	190.0	190.0	209.0	343.0	304.0	228.0	218.0	218.0
7	162.0	180.0	162.0	152.0	190.0	190.0	228.0	390.0	285.0	228.0	218.0	218.0
8	162.0	190.0	152.0	152.0	180.0	180.0	247.0	418.0	285.0	228.0	209.0	218.0
9	180.0	171.0	162.0	152.0	171.0	180.0	247.0	472.0	266.0	228.0	200.0	218.0
10	162.0	171.0	171.0	152.0	171.0	190.0	228.0	472.0	247.0	228.0	190.0	218.0
11	162.0	171.0	171.0	152.0	171.0	190.0	228.0	490.0	266.0	228.0	200.0	209.0
12	162.0	171.0	162.0	152.0	171.0	180.0	228.0	526.0	266.0	228.0	200.0	209.0
13	162.0	171.0	162.0	152.0	171.0	190.0	228.0	561.0	247.0	218.0	209.0	209.0
14	162.0	171.0	162.0	152.0	171.0	190.0	285.0	595.0	247.0	228.0	200.0	209.0
15	162.0	171.0	162.0	152.0	171.0	190.0	304.0	595.0	247.0	218.0	190.0	209.0
16	162.0	171.0	162.0	171.0	171.0	180.0	304.0	595.0	247.0	218.0	190.0	209.0
17	162.0	171.0	152.0	209.0	171.0	180.0	285.0	595.0	228.0	218.0	190.0	209.0
18	162.0	171.0	152.0	200.0	171.0	171.0	228.0	629.0	228.0	218.0	190.0	209.0
19	162.0	171.0	152.0	190.0	171.0	171.0	228.0	629.0	228.0	209.0	190.0	190.0
20	162.0	171.0	152.0	180.0	171.0	180.0	218.0	595.0	218.0	209.0	190.0	180.0
21	162.0	171.0	152.0	171.0	171.0	200.0	218.0	612.0	209.0	209.0	190.0	171.0
22	162.0	171.0	152.0	171.0	171.0	218.0	209.0	645.0	218.0	209.0	190.0	162.0
23	162.0	171.0	152.0	162.0	171.0	209.0	209.0	677.0	209.0	209.0	190.0	190.0
24	162.0	171.0	152.0	162.0	171.0	209.0	209.0	709.0	209.0	209.0	190.0	200.0
25	162.0	171.0	152.0	190.0	162.0	190.0	209.0	709.0	209.0	209.0	190.0	247.0
26	162.0	171.0	152.0	200.0	162.0	190.0	209.0	693.0	209.0	209.0	190.0	228.0
27	162.0	162.0	162.0	247.0	171.0	180.0	218.0	661.0	209.0	209.0	200.0	228.0
28	162.0	162.0	162.0	228.0	171.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
29	162.0	162.0	152.0	209.0	180.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
30	162.0	162.0	152.0	200.0	0.0	190.0	247.0	526.0	209.0	209.0	200.0	218.0
31	162.0	0.0	152.0	190.0	0.0	190.0	0.0	472.0	0.0	209.0	200.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1921

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	190.0	168.0	168.0	168.0	192.0	266.0	454.0	677.0	213.0	244.0	223.0
2	218.0	190.0	168.0	168.0	168.0	192.0	266.0	472.0	645.0	213.0	254.0	223.0
3	218.0	190.0	168.0	168.0	168.0	200.0	300.0	508.0	612.0	213.0	244.0	233.0
4	209.0	190.0	168.0	168.0	168.0	208.0	319.0	595.0	595.0	233.0	244.0	213.0
5	209.0	190.0	168.0	168.0	168.0	232.0	354.0	612.0	595.0	233.0	244.0	213.0
6	218.0	190.0	168.0	160.0	168.0	283.0	318.0	629.0	561.0	254.0	233.0	203.0
7	209.0	190.0	168.0	160.0	168.0	266.0	318.0	709.0	561.0	254.0	233.0	203.0
8	209.0	180.0	168.0	160.0	168.0	266.0	319.0	725.0	526.0	244.0	233.0	203.0
9	209.0	180.0	168.0	160.0	168.0	249.0	336.0	757.0	526.0	233.0	233.0	203.0
10	209.0	180.0	168.0	160.0	168.0	232.0	318.0	725.0	472.0	244.0	233.0	203.0
11	209.0	180.0	176.0	160.0	168.0	266.0	300.0	709.0	454.0	244.0	244.0	203.0
12	209.0	180.0	168.0	168.0	176.0	318.0	266.0	709.0	454.0	254.0	233.0	193.0
13	190.0	180.0	168.0	168.0	176.0	354.0	318.0	693.0	418.0	254.0	233.0	193.0
14	200.0	180.0	168.0	168.0	176.0	373.0	354.0	709.0	400.0	264.0	233.0	193.0
15	190.0	180.0	168.0	168.0	176.0	411.0	392.0	725.0	372.0	254.0	233.0	193.0
16	190.0	190.0	168.0	168.0	184.0	430.0	373.0	741.0	362.0	254.0	233.0	193.0
17	190.0	190.0	168.0	168.0	176.0	449.0	336.0	741.0	343.0	254.0	233.0	193.0
18	200.0	190.0	160.0	176.0	176.0	449.0	336.0	741.0	333.0	254.0	223.0	193.0
19	209.0	190.0	168.0	176.0	176.0	487.0	354.0	725.0	343.0	254.0	213.0	193.0
20	209.0	190.0	168.0	176.0	176.0	373.0	392.0	693.0	352.0	254.0	213.0	193.0
21	209.0	190.0	168.0	176.0	176.0	336.0	392.0	661.0	323.0	254.0	213.0	184.0
22	209.0	185.0	168.0	176.0	176.0	336.0	449.0	629.0	323.0	244.0	203.0	174.0
23	209.0	181.0	160.0	168.0	176.0	336.0	468.0	578.0	303.0	244.0	213.0	174.0
24	200.0	177.0	168.0	168.0	176.0	318.0	449.0	629.0	273.0	244.0	203.0	174.0
25	190.0	177.0	168.0	168.0	176.0	336.0	449.0	645.0	273.0	244.0	213.0	174.0
26	190.0	180.0	166.0	168.0	176.0	336.0	430.0	677.0	263.0	244.0	213.0	174.0
27	190.0	189.0	168.0	168.0	184.0	318.0	411.0	677.0	252.0	244.0	213.0	174.0
28	190.0	182.0	168.0	168.0	184.0	283.0	411.0	677.0	233.0	244.0	213.0	174.0
29	190.0	179.0	168.0	168.0	0.0	266.0	392.0	693.0	224.0	244.0	223.0	174.0
30	190.0	168.0	168.0	168.0	0.0	266.0	411.0	661.0	224.0	244.0	223.0	174.0
31	190.0	0.0	168.0	168.0	0.0	249.0	0.0	677.0	0.0	244.0	223.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1972

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174.0	184.0	197.0	192.0	176.0	176.0	283.0	400.0	538.0	275.0	275.0	244.0
2	174.0	184.0	197.0	208.0	176.0	176.0	300.0	333.0	515.0	275.0	297.0	244.0
3	174.0	184.0	178.0	200.0	184.0	176.0	334.0	372.0	469.0	275.0	297.0	264.0
4	174.0	184.0	177.0	192.0	176.0	176.0	373.0	427.0	323.0	264.0	275.0	264.0
5	174.0	184.0	186.0	192.0	176.0	176.0	392.0	561.0	404.0	254.0	264.0	275.0
6	174.0	184.0	186.0	184.0	176.0	176.0	392.0	629.0	343.0	254.0	264.0	254.0
7	174.0	184.0	177.0	176.0	176.0	176.0	392.0	629.0	404.0	254.0	264.0	254.0
8	174.0	184.0	177.0	176.0	184.0	176.0	430.0	725.0	393.0	254.0	264.0	254.0
9	174.0	184.0	176.0	184.0	192.0	176.0	373.0	661.0	365.0	264.0	254.0	254.0
10	174.0	184.0	176.0	184.0	192.0	176.0	283.0	595.0	366.0	264.0	244.0	254.0
11	174.0	184.0	176.0	184.0	184.0	176.0	318.0	508.0	349.0	264.0	244.0	254.0
12	184.0	184.0	176.0	176.0	184.0	176.0	300.0	418.0	315.0	254.0	244.0	233.0
13	184.0	184.0	176.0	176.0	176.0	176.0	300.0	436.0	314.0	254.0	244.0	193.0
14	184.0	184.0	184.0	176.0	176.0	184.0	300.0	436.0	353.0	244.0	244.0	193.0
15	184.0	184.0	184.0	168.0	184.0	184.0	283.0	472.0	343.0	244.0	233.0	193.0
16	184.0	184.0	176.0	168.0	184.0	184.0	283.0	490.0	345.0	244.0	233.0	193.0
17	184.0	184.0	176.0	184.0	184.0	192.0	266.0	561.0	348.0	244.0	233.0	193.0
18	184.0	174.0	184.0	176.0	184.0	192.0	266.0	612.0	359.0	244.0	233.0	184.0
19	184.0	184.0	184.0	176.0	176.0	192.0	266.0	661.0	336.0	244.0	244.0	193.0
20	184.0	184.0	184.0	184.0	176.0	200.0	283.0	725.0	296.0	319.0	244.0	193.0
21	174.0	193.0	184.0	184.0	184.0	208.0	283.0	757.0	286.0	275.0	244.0	193.0
22	174.0	212.0	184.0	176.0	176.0	216.0	283.0	741.0	275.0	297.0	244.0	184.0
23	193.0	211.0	184.0	176.0	176.0	232.0	300.0	677.0	244.0	297.0	264.0	193.0
24	193.0	210.0	184.0	176.0	176.0	266.0	300.0	709.0	254.0	297.0	254.0	174.0
25	193.0	200.0	184.0	176.0	176.0	283.0	318.0	709.0	264.0	275.0	254.0	174.0
26	193.0	200.0	184.0	176.0	176.0	283.0	318.0	693.0	275.0	275.0	254.0	174.0
27	193.0	190.0	184.0	176.0	176.0	283.0	336.0	693.0	297.0	275.0	254.0	174.0
28	193.0	189.0	184.0	176.0	176.0	283.0	392.0	629.0	254.0	264.0	254.0	174.0
29	184.0	189.0	184.0	176.0	0.0	249.0	392.0	578.0	286.0	264.0	254.0	174.0
30	184.0	198.0	192.0	176.0	0.0	266.0	392.0	561.0	275.0	264.0	254.0	174.0
31	184.0	0.0	192.0	176.0	0.0	266.0	0.0	576.0	0.0	264.0	244.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1973

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	220.0	220.0	230.0	150.0	210.0	538.0	323.0	363.0	247.0	247.0	247.0
2	170.0	220.0	220.0	230.0	150.0	200.0	562.0	323.0	343.0	247.0	247.0	247.0
3	170.0	220.0	220.0	230.0	150.0	180.0	562.0	323.0	304.0	209.0	266.0	247.0
4	170.0	220.0	220.0	230.0	150.0	180.0	447.0	363.0	285.0	218.0	266.0	247.0
5	170.0	220.0	200.0	230.0	150.0	200.0	383.0	383.0	285.0	266.0	266.0	228.0
6	170.0	250.0	200.0	230.0	150.0	210.0	562.0	425.0	266.0	266.0	266.0	228.0
7	170.0	250.0	200.0	230.0	150.0	210.0	538.0	469.0	266.0	209.0	247.0	247.0
8	170.0	250.0	200.0	230.0	150.0	210.0	492.0	492.0	266.0	190.0	247.0	247.0
9	170.0	250.0	200.0	230.0	150.0	210.0	425.0	492.0	266.0	190.0	247.0	247.0
10	200.0	250.0	200.0	230.0	150.0	210.0	404.0	538.0	323.0	247.0	247.0	247.0
11	200.0	250.0	180.0	230.0	150.0	210.0	383.0	538.0	304.0	266.0	247.0	247.0
12	200.0	250.0	180.0	230.0	150.0	210.0	363.0	515.0	304.0	266.0	247.0	228.0
13	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	285.0	266.0	266.0	228.0
14	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	266.0	266.0	285.0	228.0
15	200.0	250.0	180.0	230.0	150.0	210.0	323.0	469.0	247.0	247.0	266.0	228.0
16	200.0	250.0	180.0	230.0	170.0	220.0	323.0	447.0	266.0	247.0	266.0	228.0
17	200.0	250.0	180.0	230.0	170.0	220.0	343.0	469.0	247.0	247.0	247.0	228.0
18	200.0	250.0	180.0	230.0	170.0	210.0	383.0	492.0	247.0	247.0	190.0	228.0
19	200.0	250.0	180.0	230.0	170.0	230.0	404.0	515.0	266.0	247.0	190.0	228.0
20	200.0	250.0	180.0	230.0	170.0	250.0	363.0	492.0	285.0	247.0	266.0	247.0
21	200.0	220.0	200.0	230.0	200.0	250.0	363.0	492.0	323.0	228.0	247.0	228.0
22	200.0	220.0	200.0	230.0	210.0	260.0	323.0	492.0	363.0	247.0	247.0	228.0
23	200.0	220.0	200.0	230.0	210.0	270.0	304.0	469.0	363.0	447.0	247.0	209.0
24	200.0	220.0	200.0	230.0	210.0	280.0	285.0	425.0	323.0	285.0	266.0	209.0
25	200.0	220.0	200.0	230.0	210.0	300.0	285.0	425.0	304.0	285.0	266.0	209.0
26	200.0	220.0	200.0	200.0	210.0	320.0	304.0	425.0	285.0	285.0	266.0	218.0
27	200.0	220.0	200.0	200.0	210.0	340.0	323.0	404.0	266.0	285.0	247.0	228.0
28	200.0	220.0	200.0	200.0	210.0	370.0	343.0	383.0	247.0	266.0	247.0	228.0
29	200.0	220.0	200.0	200.0	0.0	400.0	343.0	363.0	247.0	266.0	247.0	247.0
30	200.0	220.0	200.0	200.0	0.0	450.0	343.0	343.0	247.0	266.0	247.0	218.0
31	200.0	0.0	200.0	200.0	0.0	500.0	0.0	383.0	0.0	247.0	266.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1924

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	207.0	197.0	200.0	186.0	213.0	213.0	234.0	234.0	192.0	202.0	141.0
2	228.0	207.0	204.0	200.0	196.0	224.0	224.0	244.0	224.0	192.0	192.0	131.0
3	200.0	207.0	203.0	199.0	196.0	234.0	244.0	266.0	213.0	213.0	192.0	131.0
4	218.0	207.0	203.0	190.0	194.0	234.0	255.0	276.0	213.0	213.0	192.0	131.0
5	218.0	207.0	197.0	179.0	185.0	224.0	255.0	297.0	234.0	213.0	192.0	141.0
6	218.0	207.0	194.0	179.0	193.0	224.0	266.0	276.0	234.0	224.0	192.0	131.0
7	218.0	207.0	194.0	179.0	195.0	213.0	276.0	276.0	234.0	234.0	202.0	131.0
8	218.0	207.0	193.0	179.0	205.0	202.0	276.0	276.0	234.0	605.0	192.0	131.0
9	228.0	206.0	193.0	179.0	214.0	202.0	255.0	266.0	234.0	319.0	182.0	141.0
10	247.0	206.0	193.0	178.0	215.0	202.0	244.0	266.0	234.0	255.0	192.0	131.0
11	228.0	208.0	193.0	178.0	215.0	202.0	234.0	234.0	224.0	213.0	182.0	131.0
12	228.0	206.0	193.0	178.0	215.0	202.0	234.0	213.0	213.0	234.0	182.0	131.0
13	218.0	206.0	193.0	178.0	225.0	202.0	255.0	202.0	234.0	224.0	192.0	121.0
14	218.0	206.0	193.0	178.0	236.0	202.0	297.0	192.0	224.0	213.0	171.0	121.0
15	218.0	206.0	192.0	185.0	236.0	202.0	266.0	202.0	213.0	202.0	161.0	121.0
16	218.0	206.0	192.0	185.0	244.0	202.0	255.0	213.0	213.0	213.0	171.0	121.0
17	218.0	205.0	192.0	185.0	244.0	202.0	244.0	224.0	224.0	213.0	171.0	121.0
18	209.0	205.0	192.0	185.0	256.0	202.0	234.0	224.0	213.0	213.0	171.0	121.0
19	209.0	205.0	192.0	185.0	256.0	202.0	224.0	234.0	213.0	192.0	171.0	131.0
20	209.0	205.0	192.0	185.0	266.0	202.0	224.0	234.0	213.0	202.0	151.0	131.0
21	209.0	205.0	192.0	184.0	244.0	202.0	224.0	276.0	213.0	192.0	151.0	121.0
22	218.0	205.0	192.0	184.0	235.0	202.0	234.0	286.0	213.0	192.0	151.0	121.0
23	228.0	205.0	191.0	184.0	214.0	202.0	255.0	276.0	213.0	202.0	161.0	121.0
24	218.0	205.0	191.0	184.0	202.0	234.0	255.0	266.0	213.0	202.0	151.0	121.0
25	209.0	204.0	191.0	184.0	203.0	234.0	244.0	244.0	202.0	202.0	151.0	121.0
26	209.0	204.0	191.0	184.0	203.0	224.0	234.0	234.0	213.0	192.0	151.0	121.0
27	209.0	198.0	191.0	184.0	213.0	224.0	234.0	234.0	213.0	202.0	151.0	121.0
28	208.0	204.0	196.0	176.0	213.0	224.0	234.0	213.0	202.0	202.0	151.0	121.0
29	208.0	204.0	200.0	176.0	213.0	213.0	234.0	213.0	202.0	192.0	151.0	121.0
30	208.0	204.0	200.0	184.0	0.0	224.0	234.0	234.0	202.0	202.0	151.0	121.0
31	208.0	0.0	200.0	184.0	0.0	213.0	0.0	234.0	0.0	192.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1925

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	161.0	161.0	161.0	161.0	171.0	234.0	255.0	255.0	202.0	131.0	286.0
2	131.0	161.0	161.0	151.0	171.0	171.0	224.0	266.0	276.0	213.0	131.0	330.0
3	131.0	161.0	161.0	151.0	171.0	182.0	224.0	266.0	286.0	213.0	141.0	297.0
4	141.0	161.0	161.0	161.0	286.0	224.0	224.0	276.0	276.0	213.0	131.0	286.0
5	141.0	161.0	171.0	161.0	276.0	234.0	234.0	297.0	255.0	680.0	131.0	255.0
6	141.0	161.0	171.0	151.0	481.0	286.0	234.0	319.0	255.0	341.0	131.0	244.0
7	141.0	161.0	171.0	151.0	276.0	330.0	224.0	341.0	244.0	266.0	131.0	244.0
8	141.0	161.0	171.0	161.0	255.0	364.0	234.0	387.0	244.0	266.0	131.0	234.0
9	141.0	161.0	161.0	161.0	224.0	297.0	224.0	433.0	234.0	234.0	131.0	213.0
10	151.0	161.0	161.0	161.0	192.0	244.0	234.0	410.0	234.0	244.0	131.0	234.0
11	141.0	161.0	161.0	151.0	192.0	213.0	244.0	410.0	234.0	213.0	131.0	224.0
12	141.0	161.0	161.0	161.0	192.0	213.0	266.0	410.0	234.0	202.0	151.0	213.0
13	141.0	161.0	161.0	161.0	192.0	202.0	266.0	410.0	213.0	192.0	171.0	213.0
14	141.0	161.0	171.0	161.0	182.0	202.0	276.0	387.0	224.0	182.0	213.0	213.0
15	141.0	161.0	171.0	161.0	182.0	202.0	276.0	410.0	244.0	182.0	224.0	171.0
16	141.0	161.0	192.0	161.0	182.0	202.0	276.0	457.0	234.0	202.0	234.0	161.0
17	141.0	161.0	171.0	151.0	182.0	213.0	341.0	457.0	255.0	213.0	234.0	161.0
18	141.0	161.0	150.0	151.0	182.0	202.0	433.0	410.0	255.0	213.0	244.0	182.0
19	141.0	161.0	150.0	151.0	182.0	224.0	387.0	387.0	244.0	213.0	255.0	171.0
20	141.0	171.0	150.0	151.0	182.0	276.0	341.0	387.0	234.0	224.0	266.0	171.0
21	141.0	171.0	150.0	151.0	182.0	330.0	319.0	387.0	234.0	234.0	266.0	176.0
22	141.0	171.0	150.0	151.0	182.0	330.0	286.0	341.0	308.0	234.0	266.0	182.0
23	141.0	171.0	150.0	151.0	182.0	308.0	286.0	319.0	286.0	255.0	255.0	182.0
24	141.0	161.0	150.0	161.0	171.0	276.0	297.0	330.0	266.0	244.0	244.0	171.0
25	141.0	161.0	150.0	161.0	171.0	255.0	286.0	319.0	234.0	244.0	244.0	171.0
26	141.0	161.0	151.0	161.0	171.0	234.0	276.0	297.0	224.0	244.0	244.0	171.0
27	141.0	161.0	151.0	161.0	171.0	224.0	276.0	286.0	213.0	244.0	234.0	171.0
28	141.0	161.0	161.0	161.0	161.0	224.0	244.0	276.0	213.0	161.0	244.0	171.0
29	171.0	161.0	151.0	161.0	0.0	224.0	244.0	266.0	202.0	151.0	255.0	171.0
30	161.0	161.0	161.0	161.0	0.0	255.0	244.0	255.0	202.0	141.0	266.0	161.0
31	161.0	0.0	161.0	161.0	0.0	244.0	0.0	276.0	0.0	141.0	286.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	180.0	190.0	170.0	170.0	210.0	220.0	270.0	260.0	220.0	170.0	124.0
2	160.0	210.0	210.0	170.0	170.0	210.0	220.0	280.0	240.0	230.0	170.0	124.0
3	160.0	200.0	190.0	170.0	170.0	230.0	210.0	270.0	240.0	220.0	170.0	122.0
4	160.0	190.0	190.0	170.0	170.0	270.0	210.0	270.0	260.0	220.0	170.0	122.0
5	160.0	190.0	190.0	170.0	180.0	302.0	270.0	312.0	270.0	220.0	151.0	122.0
6	170.0	180.0	180.0	170.0	180.0	230.0	280.0	322.0	270.0	230.0	151.0	124.0
7	170.0	180.0	190.0	170.0	190.0	210.0	280.0	312.0	260.0	230.0	170.0	124.0
8	170.0	180.0	180.0	170.0	190.0	230.0	280.0	312.0	260.0	230.0	180.0	124.0
9	170.0	180.0	180.0	160.0	210.0	240.0	260.0	260.0	260.0	230.0	190.0	124.0
10	170.0	190.0	180.0	160.0	200.0	250.0	250.0	250.0	270.0	230.0	240.0	124.0
11	190.0	190.0	180.0	160.0	190.0	250.0	230.0	240.0	280.0	220.0	210.0	121.0
12	200.0	190.0	180.0	160.0	190.0	250.0	230.0	230.0	270.0	230.0	170.0	122.0
13	200.0	190.0	180.0	160.0	180.0	312.0	230.0	220.0	270.0	240.0	170.0	121.0
14	190.0	190.0	170.0	170.0	180.0	312.0	220.0	210.0	280.0	230.0	170.0	124.0
15	190.0	180.0	180.0	170.0	180.0	302.0	230.0	210.0	260.0	230.0	160.0	124.0
16	180.0	180.0	180.0	170.0	170.0	291.0	240.0	250.0	250.0	220.0	151.0	124.0
17	180.0	180.0	180.0	170.0	170.0	270.0	250.0	240.0	240.0	230.0	151.0	124.0
18	180.0	180.0	180.0	170.0	190.0	250.0	250.0	230.0	260.0	220.0	142.0	124.0
19	180.0	180.0	180.0	170.0	220.0	230.0	260.0	230.0	240.0	220.0	151.0	124.0
20	180.0	180.0	180.0	170.0	200.0	230.0	291.0	240.0	240.0	220.0	142.0	124.0
21	180.0	180.0	180.0	170.0	180.0	230.0	270.0	230.0	250.0	210.0	142.0	124.0
22	180.0	180.0	180.0	170.0	180.0	220.0	312.0	230.0	250.0	210.0	142.0	124.0
23	180.0	180.0	180.0	170.0	170.0	220.0	302.0	240.0	230.0	210.0	132.0	121.0
24	180.0	180.0	180.0	170.0	180.0	210.0	291.0	250.0	230.0	210.0	128.0	121.0
25	180.0	180.0	180.0	170.0	170.0	210.0	291.0	250.0	230.0	210.0	124.0	121.0
26	180.0	180.0	180.0	170.0	180.0	200.0	280.0	250.0	230.0	200.0	124.0	121.0
27	180.0	190.0	180.0	170.0	190.0	200.0	270.0	260.0	220.0	220.0	132.0	121.0
28	180.0	190.0	170.0	170.0	200.0	200.0	270.0	280.0	220.0	210.0	124.0	121.0
29	180.0	180.0	170.0	170.0	0.0	210.0	270.0	280.0	220.0	200.0	128.0	142.0
30	180.0	180.0	160.0	170.0	0.0	220.0	270.0	280.0	220.0	180.0	124.0	151.0
31	180.0	0.0	160.0	170.0	0.0	230.0	0.0	270.0	0.0	170.0	124.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1927

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	151.0	174.0	155.0	155.0	174.0	302.0	492.0	334.0	258.0	265.0	192.0
2	143.0	151.0	170.0	157.0	155.0	170.0	314.0	460.0	326.0	267.0	276.0	192.0
3	143.0	151.0	166.0	157.0	155.0	170.0	294.0	412.0	318.0	294.0	267.0	192.0
4	140.0	151.0	162.0	157.0	155.0	174.0	285.0	396.0	334.0	326.0	267.0	190.0
5	140.0	151.0	162.0	157.0	157.0	174.0	276.0	396.0	334.0	310.0	267.0	190.0
6	140.0	155.0	162.0	157.0	155.0	174.0	267.0	396.0	358.0	294.0	267.0	188.0
7	140.0	155.0	162.0	157.0	155.0	178.0	249.0	396.0	368.0	276.0	267.0	186.0
8	140.0	155.0	162.0	157.0	155.0	182.0	258.0	372.0	380.0	267.0	267.0	186.0
9	140.0	153.0	162.0	157.0	155.0	180.0	258.0	334.0	428.0	258.0	258.0	178.0
10	140.0	153.0	160.0	157.0	155.0	178.0	258.0	326.0	412.0	267.0	258.0	170.0
11	140.0	153.0	159.0	155.0	155.0	178.0	258.0	318.0	412.0	258.0	258.0	170.0
12	138.0	155.0	157.0	155.0	155.0	174.0	267.0	310.0	412.0	258.0	249.0	170.0
13	140.0	157.0	157.0	155.0	155.0	178.0	258.0	310.0	412.0	258.0	258.0	170.0
14	142.0	157.0	157.0	155.0	157.0	178.0	258.0	310.0	412.0	267.0	258.0	168.0
15	143.0	157.0	157.0	155.0	159.0	182.0	230.0	350.0	396.0	267.0	267.0	168.0
16	147.0	159.0	157.0	155.0	162.0	178.0	230.0	412.0	380.0	258.0	267.0	168.0
17	147.0	157.0	157.0	155.0	166.0	176.0	226.0	476.0	365.0	258.0	267.0	166.0
18	151.0	155.0	157.0	155.0	168.0	176.0	222.0	460.0	350.0	249.0	249.0	166.0
19	147.0	155.0	155.0	155.0	170.0	176.0	214.0	476.0	334.0	249.0	210.0	164.0
20	147.0	155.0	155.0	155.0	170.0	172.0	210.0	428.0	334.0	249.0	192.0	162.0
21	147.0	162.0	155.0	155.0	186.0	176.0	208.0	380.0	310.0	267.0	194.0	162.0
22	147.0	166.0	155.0	157.0	208.0	176.0	202.0	365.0	294.0	267.0	190.0	155.0
23	147.0	170.0	155.0	159.0	190.0	176.0	200.0	334.0	276.0	267.0	188.0	162.0
24	147.0	174.0	155.0	157.0	182.0	182.0	222.0	318.0	249.0	276.0	186.0	162.0
25	147.0	178.0	155.0	157.0	178.0	186.0	240.0	294.0	249.0	276.0	188.0	162.0
26	147.0	182.0	155.0	155.0	174.0	194.0	276.0	302.0	249.0	276.0	190.0	160.0
27	145.0	186.0	155.0	155.0	174.0	214.0	334.0	302.0	220.0	276.0	190.0	159.0
28	151.0	186.0	155.0	155.0	174.0	240.0	412.0	334.0	230.0	294.0	194.0	162.0
29	151.0	182.0	155.0	155.0	0.0	258.0	428.0	326.0	249.0	294.0	206.0	162.0
30	151.0	178.0	155.0	155.0	0.0	267.0	460.0	318.0	267.0	294.0	198.0	162.0
31	151.0	0.0	155.0	155.0	0.0	285.0	0.0	350.0	0.0	285.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1928

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	196.0	194.0	170.0	170.0	162.0	230.0	380.0	267.0	226.0	276.0	192.0
2	162.0	190.0	194.0	172.0	170.0	162.0	228.0	365.0	258.0	230.0	267.0	196.0
3	162.0	190.0	198.0	174.0	170.0	162.0	226.0	350.0	240.0	240.0	258.0	188.0
4	164.0	182.0	200.0	176.0	170.0	164.0	222.0	334.0	240.0	240.0	258.0	180.0
5	164.0	174.0	200.0	178.0	170.0	166.0	214.0	342.0	240.0	258.0	249.0	174.0
6	166.0	178.0	198.0	180.0	170.0	174.0	212.0	350.0	249.0	276.0	240.0	174.0
7	170.0	182.0	196.0	180.0	170.0	182.0	208.0	365.0	249.0	294.0	230.0	172.0
8	170.0	182.0	200.0	180.0	166.0	190.0	204.0	380.0	267.0	285.0	214.0	170.0
9	170.0	186.0	204.0	180.0	164.0	230.0	200.0	412.0	285.0	267.0	218.0	170.0
10	170.0	190.0	204.0	178.0	162.0	285.0	198.0	412.0	318.0	258.0	210.0	164.0
11	170.0	198.0	204.0	178.0	159.0	412.0	198.0	412.0	334.0	249.0	206.0	159.0
12	170.0	202.0	200.0	178.0	159.0	388.0	202.0	444.0	350.0	258.0	188.0	157.0
13	172.0	206.0	196.0	178.0	159.0	334.0	208.0	492.0	365.0	267.0	200.0	157.0
14	172.0	210.0	188.0	178.0	162.0	294.0	208.0	444.0	342.0	276.0	188.0	159.0
15	176.0	214.0	188.0	174.0	162.0	265.0	208.0	428.0	334.0	267.0	188.0	155.0
16	176.0	216.0	184.0	172.0	162.0	228.0	210.0	412.0	318.0	267.0	186.0	155.0
17	176.0	220.0	186.0	172.0	162.0	230.0	210.0	412.0	302.0	258.0	186.0	153.0
18	176.0	226.0	188.0	176.0	162.0	230.0	218.0	396.0	265.0	258.0	186.0	149.0
19	178.0	230.0	184.0	172.0	162.0	230.0	214.0	396.0	276.0	258.0	186.0	138.0
20	178.0	222.0	180.0	164.0	162.0	230.0	204.0	388.0	267.0	258.0	188.0	138.0
21	182.0	210.0	176.0	164.0	162.0	230.0	202.0	388.0	258.0	258.0	184.0	136.0
22	186.0	204.0	172.0	168.0	162.0	230.0	202.0	358.0	249.0	249.0	180.0	132.0
23	188.0	190.0	168.0	172.0	162.0	249.0	206.0	350.0	249.0	258.0	180.0	132.0
24	188.0	182.0	168.0	172.0	162.0	258.0	222.0	342.0	240.0	258.0	182.0	130.0
25	190.0	186.0	168.0	172.0	162.0	334.0	249.0	334.0	228.0	258.0	184.0	132.0
26	186.0	188.0	168.0	172.0	162.0	318.0	276.0	342.0	222.0	258.0	190.0	132.0
27	186.0	186.0	168.0	172.0	162.0	294.0	326.0	342.0	240.0	258.0	196.0	132.0
28	190.0	190.0	168.0	172.0	162.0	276.0	350.0	318.0	230.0	258.0	200.0	134.0
29	194.0	194.0	168.0	172.0	162.0	249.0	380.0	310.0	226.0	262.0	198.0	138.0
30	194.0	194.0	172.0	172.0	0.0	240.0	372.0	302.0	220.0	267.0	194.0	138.0
31	196.0	0.0	168.0	172.0	0.0	230.0	0.0	285.0	0.0	272.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1979

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	162.0	160.0	153.0	142.0	142.0	222.0	240.0	240.0	240.0	218.0	166.0
2	140.0	162.0	145.0	153.0	149.0	142.0	222.0	240.0	240.0	230.0	222.0	166.0
3	142.0	164.0	145.0	157.0	143.0	140.0	240.0	216.0	230.0	240.0	218.0	162.0
4	142.0	160.0	149.0	149.0	143.0	140.0	222.0	220.0	240.0	240.0	218.0	162.0
5	140.0	160.0	153.0	145.0	145.0	143.0	222.0	222.0	249.0	240.0	212.0	155.0
6	140.0	162.0	151.0	145.0	143.0	160.0	222.0	230.0	249.0	240.0	206.0	145.0
7	140.0	155.0	151.0	140.0	145.0	166.0	222.0	240.0	267.0	249.0	208.0	147.0
8	142.0	155.0	151.0	136.0	151.0	164.0	214.0	240.0	258.0	249.0	212.0	151.0
9	142.0	153.0	151.0	149.0	142.0	178.0	206.0	240.0	267.0	249.0	212.0	155.0
10	143.0	153.0	151.0	145.0	142.0	194.0	202.0	240.0	267.0	249.0	208.0	159.0
11	145.0	153.0	157.0	143.0	143.0	206.0	202.0	258.0	276.0	249.0	218.0	162.0
12	147.0	155.0	155.0	145.0	143.0	196.0	210.0	276.0	276.0	230.0	208.0	162.0
13	145.0	155.0	153.0	143.0	145.0	186.0	218.0	276.0	267.0	230.0	202.0	162.0
14	145.0	155.0	153.0	145.0	143.0	180.0	206.0	285.0	285.0	230.0	200.0	162.0
15	143.0	155.0	155.0	145.0	142.0	190.0	214.0	294.0	285.0	230.0	194.0	182.0
16	147.0	157.0	153.0	147.0	140.0	186.0	214.0	294.0	310.0	240.0	194.0	190.0
17	145.0	157.0	151.0	147.0	142.0	186.0	210.0	294.0	334.0	230.0	198.0	186.0
18	145.0	153.0	151.0	149.0	143.0	202.0	214.0	285.0	372.0	249.0	194.0	182.0
19	145.0	153.0	153.0	147.0	143.0	210.0	214.0	258.0	276.0	267.0	194.0	186.0
20	145.0	153.0	153.0	147.0	142.0	218.0	214.0	276.0	258.0	230.0	198.0	170.0
21	147.0	153.0	153.0	149.0	140.0	294.0	214.0	285.0	249.0	230.0	194.0	218.0
22	147.0	155.0	157.0	153.0	134.0	342.0	218.0	302.0	258.0	230.0	192.0	178.0
23	147.0	155.0	153.0	153.0	138.0	310.0	218.0	310.0	258.0	230.0	194.0	178.0
24	147.0	153.0	149.0	151.0	140.0	294.0	218.0	310.0	258.0	230.0	198.0	174.0
25	147.0	151.0	149.0	147.0	138.0	267.0	212.0	310.0	258.0	230.0	194.0	170.0
26	151.0	151.0	149.0	153.0	142.0	258.0	210.0	310.0	258.0	222.0	196.0	170.0
27	157.0	155.0	151.0	151.0	145.0	249.0	218.0	318.0	258.0	214.0	194.0	170.0
28	157.0	157.0	153.0	149.0	142.0	240.0	222.0	294.0	258.0	218.0	194.0	170.0
29	157.0	153.0	153.0	147.0	0.0	258.0	230.0	258.0	258.0	218.0	178.0	170.0
30	159.0	153.0	149.0	147.0	0.0	276.0	230.0	258.0	249.0	220.0	170.0	170.0
31	160.0	0.0	157.0	142.0	0.0	222.0	0.0	249.0	0.0	222.0	166.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	151.0	151.0	145.0	142.0	157.0	174.0	190.0	166.0	220.0	132.0	130.0
2	162.0	155.0	151.0	147.0	142.0	157.0	176.0	178.0	174.0	212.0	132.0	130.0
3	159.0	155.0	155.0	145.0	142.0	157.0	172.0	174.0	186.0	204.0	140.0	130.0
4	155.0	155.0	155.0	147.0	142.0	157.0	174.0	190.0	186.0	204.0	140.0	130.0
5	151.0	151.0	155.0	147.0	142.0	157.0	172.0	194.0	194.0	208.0	140.0	134.0
6	151.0	153.0	155.0	147.0	142.0	157.0	172.0	192.0	190.0	204.0	132.0	134.0
7	151.0	155.0	155.0	147.0	142.0	160.0	172.0	196.0	198.0	200.0	140.0	130.0
8	151.0	155.0	151.0	147.0	142.0	160.0	178.0	212.0	198.0	204.0	140.0	130.0
9	155.0	155.0	155.0	147.0	145.0	160.0	180.0	230.0	166.0	164.0	151.0	130.0
10	155.0	153.0	159.0	147.0	149.0	160.0	176.0	212.0	155.0	164.0	140.0	130.0
11	155.0	155.0	159.0	147.0	153.0	157.0	176.0	202.0	159.0	164.0	140.0	130.0
12	157.0	155.0	159.0	147.0	153.0	160.0	180.0	190.0	174.0	153.0	182.0	130.0
13	159.0	155.0	159.0	151.0	160.0	176.0	184.0	178.0	170.0	157.0	194.0	130.0
14	160.0	153.0	159.0	147.0	168.0	180.0	200.0	182.0	186.0	157.0	182.0	134.0
15	160.0	157.0	155.0	147.0	168.0	208.0	192.0	186.0	190.0	153.0	174.0	130.0
16	168.0	155.0	155.0	147.0	172.0	200.0	192.0	198.0	198.0	145.0	170.0	126.0
17	176.0	155.0	155.0	147.0	180.0	200.0	192.0	222.0	206.0	142.0	174.0	130.0
18	178.0	155.0	151.0	147.0	188.0	204.0	194.0	202.0	214.0	142.0	174.0	126.0
19	176.0	147.0	151.0	147.0	200.0	200.0	194.0	186.0	230.0	160.0	155.0	119.0
20	176.0	147.0	151.0	143.0	208.0	192.0	194.0	182.0	226.0	153.0	151.0	119.0
21	168.0	147.0	151.0	143.0	196.0	192.0	194.0	190.0	230.0	153.0	151.0	126.0
22	157.0	151.0	151.0	147.0	192.0	196.0	178.0	190.0	230.0	142.0	140.0	124.0
23	149.0	151.0	151.0	147.0	184.0	180.0	170.0	182.0	249.0	145.0	140.0	130.0
24	149.0	151.0	151.0	147.0	176.0	176.0	170.0	178.0	267.0	149.0	147.0	130.0
25	149.0	151.0	151.0	143.0	164.0	176.0	196.0	178.0	230.0	149.0	151.0	130.0
26	147.0	151.0	151.0	143.0	164.0	180.0	192.0	166.0	226.0	147.0	142.0	126.0
27	151.0	155.0	151.0	143.0	160.0	176.0	196.0	159.0	230.0	143.0	138.0	130.0
28	147.0	155.0	147.0	147.0	160.0	176.0	196.0	155.0	230.0	147.0	138.0	134.0
29	147.0	155.0	147.0	143.0	0.0	172.0	196.0	147.0	230.0	147.0	142.0	134.0
30	147.0	155.0	147.0	143.0	0.0	184.0	200.0	140.0	226.0	155.0	130.0	130.0
31	149.0	0.0	147.0	143.0	0.0	180.0	0.0	162.0	0.0	140.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1981

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	147.0	142.0	136.0	134.0	134.0	164.0	143.0	230.0	106.0	100.0	93.0
2	130.0	147.0	142.0	136.0	134.0	134.0	192.0	149.0	240.0	100.0	95.0	90.0
3	142.0	147.0	142.0	136.0	134.0	138.0	160.0	149.0	238.0	100.0	93.0	93.0
4	142.0	147.0	145.0	136.0	134.0	138.0	153.0	153.0	216.0	93.0	99.0	93.0
5	138.0	151.0	145.0	136.0	134.0	134.0	149.0	157.0	212.0	97.0	100.0	93.0
6	142.0	151.0	145.0	136.0	134.0	134.0	149.0	164.0	212.0	93.0	100.0	92.0
7	145.0	151.0	145.0	140.0	134.0	138.0	149.0	168.0	214.0	93.0	99.0	90.0
8	157.0	151.0	145.0	140.0	134.0	134.0	153.0	176.0	214.0	97.0	93.0	87.0
9	172.0	147.0	145.0	140.0	138.0	134.0	153.0	164.0	222.0	99.0	93.0	90.0
10	176.0	147.0	145.0	136.0	138.0	138.0	145.0	168.0	224.0	100.0	92.0	90.0
11	176.0	147.0	145.0	136.0	138.0	142.0	149.0	168.0	214.0	102.0	93.0	93.0
12	172.0	147.0	145.0	140.0	138.0	149.0	153.0	164.0	202.0	93.0	97.0	95.0
13	172.0	155.0	145.0	140.0	138.0	149.0	157.0	149.0	194.0	99.0	97.0	93.0
14	168.0	159.0	145.0	140.0	138.0	157.0	157.0	142.0	194.0	93.0	99.0	95.0
15	172.0	147.0	145.0	136.0	138.0	149.0	157.0	140.0	200.0	93.0	99.0	93.0
16	164.0	155.0	145.0	136.0	138.0	153.0	153.0	136.0	188.0	97.0	115.0	93.0
17	153.0	155.0	149.0	140.0	138.0	160.0	153.0	136.0	138.0	100.0	97.0	90.0
18	153.0	155.0	149.0	140.0	138.0	174.0	151.0	157.0	138.0	97.0	97.0	97.0
19	153.0	143.0	149.0	136.0	138.0	168.0	153.0	147.0	134.0	92.0	100.0	99.0
20	153.0	143.0	149.0	140.0	138.0	208.0	147.0	197.0	130.0	93.0	95.0	100.0
21	153.0	147.0	149.0	140.0	138.0	258.0	145.0	168.0	122.0	93.0	93.0	99.0
22	153.0	147.0	149.0	136.0	138.0	258.0	143.0	170.0	119.0	97.0	97.0	99.0
23	153.0	147.0	149.0	140.0	138.0	258.0	151.0	168.0	119.0	95.0	93.0	108.0
24	153.0	143.0	149.0	136.0	138.0	188.0	153.0	184.0	119.0	95.0	93.0	108.0
25	149.0	147.0	145.0	136.0	134.0	180.0	153.0	192.0	108.0	97.0	93.0	111.0
26	149.0	143.0	145.0	140.0	134.0	164.0	149.0	216.0	111.0	97.0	90.0	111.0
27	149.0	143.0	145.0	136.0	134.0	153.0	147.0	240.0	134.0	100.0	90.0	119.0
28	149.0	143.0	145.0	140.0	134.0	157.0	145.0	258.0	104.0	100.0	92.0	115.0
29	149.0	147.0	142.0	136.0	0.0	157.0	145.0	249.0	108.0	102.0	93.0	115.0
30	149.0	143.0	142.0	140.0	0.0	153.0	149.0	230.0	111.0	99.0	90.0	115.0
31	149.0	0.0	142.0	140.0	0.0	160.0	0.0	230.0	0.0	102.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1932

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	128.0	132.0	126.0	126.0	218.0	216.0	216.0	180.0	176.0	151.0
2	113.0	134.0	128.0	132.0	126.0	124.0	265.0	267.0	230.0	176.0	176.0	153.0
3	113.0	126.0	134.0	128.0	126.0	121.0	285.0	285.0	222.0	176.0	174.0	151.0
4	109.0	128.0	134.0	128.0	121.0	124.0	276.0	318.0	230.0	196.0	170.0	151.0
5	111.0	121.0	130.0	128.0	122.0	124.0	258.0	310.0	226.0	212.0	174.0	157.0
6	115.0	122.0	128.0	128.0	122.0	128.0	258.0	302.0	230.0	216.0	184.0	157.0
7	119.0	130.0	126.0	126.0	122.0	128.0	258.0	302.0	249.0	212.0	160.0	159.0
8	111.0	126.0	130.0	126.0	122.0	124.0	258.0	302.0	240.0	208.0	160.0	155.0
9	108.0	128.0	134.0	128.0	124.0	121.0	204.0	310.0	258.0	204.0	160.0	153.0
10	113.0	126.0	130.0	126.0	126.0	124.0	202.0	326.0	249.0	208.0	160.0	151.0
11	117.0	128.0	130.0	128.0	128.0	121.0	200.0	318.0	249.0	204.0	160.0	153.0
12	119.0	126.0	132.0	128.0	124.0	121.0	200.0	365.0	240.0	208.0	160.0	151.0
13	121.0	124.0	128.0	128.0	126.0	117.0	204.0	365.0	249.0	212.0	151.0	151.0
14	117.0	126.0	128.0	128.0	128.0	124.0	222.0	358.0	249.0	212.0	145.0	153.0
15	115.0	128.0	122.0	128.0	124.0	124.0	222.0	380.0	249.0	208.0	149.0	140.0
16	113.0	130.0	126.0	128.0	121.0	126.0	218.0	365.0	267.0	208.0	149.0	121.0
17	113.0	140.0	126.0	128.0	119.0	138.0	222.0	334.0	267.0	202.0	149.0	121.0
18	113.0	138.0	126.0	128.0	111.0	153.0	226.0	318.0	258.0	196.0	145.0	121.0
19	113.0	128.0	124.0	126.0	102.0	166.0	240.0	318.0	240.0	192.0	142.0	121.0
20	113.0	138.0	124.0	124.0	106.0	186.0	258.0	326.0	230.0	200.0	138.0	119.0
21	109.0	132.0	134.0	124.0	113.0	166.0	249.0	318.0	208.0	198.0	138.0	119.0
22	115.0	130.0	134.0	124.0	119.0	166.0	234.0	326.0	202.0	188.0	136.0	121.0
23	119.0	132.0	134.0	121.0	117.0	166.0	220.0	310.0	190.0	188.0	136.0	119.0
24	122.0	128.0	134.0	119.0	121.0	178.0	212.0	294.0	182.0	188.0	136.0	121.0
25	117.0	130.0	134.0	119.0	121.0	174.0	202.0	267.0	170.0	186.0	136.0	119.0
26	126.0	128.0	140.0	124.0	124.0	172.0	206.0	230.0	170.0	198.0	140.0	119.0
27	122.0	132.0	140.0	126.0	124.0	176.0	218.0	220.0	160.0	182.0	147.0	117.0
28	121.0	132.0	136.0	124.0	126.0	226.0	226.0	200.0	151.0	180.0	147.0	122.0
29	119.0	132.0	138.0	122.0	128.0	214.0	222.0	210.0	180.0	178.0	162.0	117.0
30	121.0	132.0	115.0	122.0	0.0	210.0	219.0	206.0	176.0	172.0	151.0	117.0
31	124.0	0.0	119.0	122.0	0.0	218.0	0.0	214.0	0.0	178.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1955

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	140.0	138.0	132.0	124.0	178.0	230.0	285.0	206.0	176.0	134.0
2	111.0	145.0	142.0	138.0	130.0	124.0	190.0	214.0	294.0	200.0	178.0	111.0
3	113.0	147.0	142.0	138.0	132.0	124.0	206.0	204.0	294.0	188.0	172.0	104.0
4	111.0	147.0	142.0	136.0	136.0	126.0	226.0	200.0	285.0	175.0	170.0	104.0
5	113.0	145.0	140.0	136.0	136.0	121.0	249.0	212.0	267.0	162.0	170.0	104.0
6	109.0	143.0	130.0	134.0	136.0	124.0	240.0	216.0	249.0	162.0	172.0	104.0
7	111.0	143.0	130.0	134.0	134.0	124.0	230.0	194.0	249.0	166.0	174.0	104.0
8	113.0	143.0	132.0	134.0	130.0	128.0	230.0	194.0	230.0	204.0	178.0	142.0
9	113.0	145.0	138.0	132.0	124.0	132.0	214.0	190.0	226.0	204.0	170.0	140.0
10	115.0	145.0	136.0	134.0	121.0	132.0	196.0	184.0	222.0	200.0	164.0	130.0
11	115.0	143.0	132.0	136.0	117.0	132.0	188.0	182.0	222.0	204.0	160.0	130.0
12	113.0	142.0	130.0	130.0	124.0	140.0	186.0	174.0	222.0	192.0	164.0	130.0
13	115.0	142.0	134.0	132.0	130.0	140.0	184.0	168.0	220.0	194.0	166.0	130.0
14	113.0	142.0	132.0	132.0	130.0	134.0	184.0	170.0	220.0	184.0	166.0	130.0
15	113.0	142.0	130.0	136.0	126.0	132.0	180.0	170.0	212.0	180.0	168.0	104.0
16	117.0	145.0	130.0	136.0	130.0	130.0	186.0	194.0	212.0	180.0	164.0	100.0
17	117.0	143.0	128.0	138.0	128.0	124.0	212.0	240.0	216.0	186.0	157.0	100.0
18	117.0	142.0	128.0	136.0	126.0	132.0	216.0	285.0	224.0	182.0	166.0	100.0
19	128.0	140.0	130.0	136.0	122.0	126.0	218.0	285.0	240.0	174.0	170.0	100.0
20	128.0	142.0	132.0	134.0	122.0	130.0	200.0	285.0	240.0	178.0	170.0	100.0
21	128.0	145.0	132.0	134.0	124.0	132.0	190.0	310.0	230.0	174.0	151.0	97.0
22	132.0	143.0	132.0	134.0	124.0	136.0	190.0	342.0	224.0	166.0	147.0	93.0
23	132.0	146.0	130.0	134.0	124.0	136.0	172.0	358.0	218.0	170.0	147.0	99.0
24	132.0	145.0	132.0	132.0	124.0	136.0	186.0	334.0	222.0	170.0	147.0	102.0
25	132.0	138.0	132.0	132.0	124.0	136.0	188.0	318.0	224.0	170.0	147.0	102.0
26	138.0	140.0	136.0	134.0	124.0	132.0	190.0	318.0	230.0	168.0	145.0	106.0
27	136.0	140.0	134.0	132.0	128.0	140.0	194.0	326.0	226.0	170.0	149.0	104.0
28	138.0	140.0	136.0	132.0	124.0	147.0	210.0	302.0	218.0	168.0	149.0	106.0
29	134.0	140.0	136.0	132.0	0.0	157.0	230.0	285.0	228.0	170.0	153.0	117.0
30	136.0	140.0	136.0	134.0	0.0	159.0	240.0	294.0	240.0	170.0	149.0	122.0
31	126.0	0.0	138.0	132.0	0.0	166.0	0.0	285.0	0.0	170.0	149.0	0.0

. DAILY DATA FOR YEAR ENDING SEPT. 1934

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	128.0	124.0	145.0	132.0	136.0	121.0	113.0	119.0	93.0	85.0	79.0
2	113.0	130.0	124.0	147.0	132.0	136.0	126.0	111.0	117.0	90.0	89.0	79.0
3	106.0	126.0	126.0	145.0	134.0	136.0	121.0	184.0	102.0	106.0	90.0	79.0
4	106.0	126.0	126.0	134.0	136.0	136.0	121.0	190.0	102.0	92.0	92.0	79.0
5	106.0	128.0	126.0	132.0	138.0	136.0	108.0	186.0	102.0	87.0	89.0	84.0
6	106.0	128.0	128.0	132.0	140.0	132.0	111.0	186.0	97.0	95.0	90.0	81.0
7	106.0	128.0	132.0	128.0	138.0	132.0	106.0	206.0	93.0	99.0	87.0	81.0
8	106.0	128.0	128.0	128.0	136.0	132.0	93.0	208.0	95.0	100.0	87.0	81.0
9	106.0	128.0	128.0	128.0	134.0	130.0	93.0	226.0	99.0	99.0	90.0	79.0
10	104.0	128.0	130.0	124.0	134.0	128.0	87.0	240.0	93.0	93.0	89.0	78.0
11	106.0	128.0	130.0	126.0	132.0	124.0	87.0	240.0	97.0	93.0	85.0	84.0
12	104.0	128.0	130.0	128.0	132.0	124.0	97.0	240.0	92.0	93.0	79.0	85.0
13	106.0	128.0	132.0	128.0	134.0	126.0	99.0	240.0	95.0	93.0	82.0	82.0
14	106.0	126.0	132.0	128.0	132.0	124.0	100.0	240.0	97.0	90.0	79.0	79.0
15	102.0	126.0	136.0	128.0	132.0	121.0	109.0	240.0	97.0	92.0	81.0	81.0
16	102.0	128.0	134.0	128.0	132.0	122.0	111.0	240.0	90.0	92.0	81.0	81.0
17	102.0	128.0	132.0	128.0	132.0	122.0	111.0	218.0	90.0	97.0	81.0	81.0
18	102.0	128.0	130.0	126.0	130.0	121.0	113.0	214.0	85.0	90.0	79.0	81.0
19	102.0	126.0	132.0	126.0	132.0	119.0	104.0	210.0	85.0	90.0	79.0	81.0
20	104.0	128.0	132.0	128.0	136.0	117.0	102.0	194.0	99.0	92.0	79.0	79.0
21	102.0	128.0	132.0	134.0	134.0	119.0	102.0	190.0	100.0	92.0	79.0	82.0
22	102.0	128.0	134.0	138.0	136.0	121.0	111.0	184.0	100.0	92.0	79.0	85.0
23	102.0	130.0	136.0	138.0	140.0	121.0	108.0	200.0	99.0	87.0	78.0	109.0
24	104.0	128.0	136.0	160.0	142.0	121.0	109.0	200.0	99.0	90.0	81.0	102.0
25	104.0	128.0	136.0	145.0	140.0	113.0	111.0	204.0	99.0	90.0	81.0	87.0
26	102.0	128.0	142.0	143.0	142.0	113.0	108.0	208.0	99.0	89.0	81.0	76.0
27	102.0	126.0	142.0	147.0	136.0	113.0	102.0	202.0	102.0	85.0	81.0	76.0
28	102.0	128.0	142.0	136.0	136.0	113.0	104.0	210.0	93.0	85.0	78.0	75.0
29	104.0	132.0	142.0	140.0	0.0	121.0	104.0	214.0	92.0	84.0	82.0	75.0
30	109.0	128.0	143.0	136.0	0.0	121.0	104.0	200.0	92.0	82.0	81.0	69.0
31	121.0	0.0	145.0	136.0	0.0	121.0	0.0	168.0	0.0	84.0	79.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1985

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.0	99.0	117.0	113.0	100.0	106.0	214.0	202.0	302.0	186.0	111.0	100.0
2	72.0	106.0	117.0	115.0	99.0	106.0	174.0	186.0	285.0	180.0	104.0	100.0
3	73.0	113.0	117.0	117.0	100.0	113.0	166.0	174.0	267.0	180.0	109.0	99.0
4	78.0	115.0	115.0	115.0	100.0	117.0	170.0	172.0	258.0	198.0	106.0	97.0
5	72.0	115.0	119.0	115.0	108.0	111.0	168.0	172.0	230.0	198.0	108.0	97.0
6	69.0	113.0	117.0	108.0	108.0	100.0	168.0	174.0	230.0	196.0	106.0	93.0
7	69.0	115.0	117.0	111.0	108.0	104.0	162.0	202.0	230.0	186.0	106.0	99.0
8	69.0	113.0	111.0	111.0	113.0	104.0	184.0	188.0	228.0	178.0	108.0	95.0
9	65.0	113.0	111.0	113.0	109.0	104.0	188.0	196.0	216.0	186.0	104.0	97.0
10	68.0	113.0	113.0	115.0	106.0	104.0	186.0	174.0	214.0	192.0	102.0	97.0
11	68.0	113.0	113.0	111.0	102.0	102.0	164.0	214.0	190.0	194.0	102.0	104.0
12	68.0	109.0	113.0	111.0	102.0	102.0	162.0	230.0	186.0	196.0	104.0	102.0
13	68.0	106.0	113.0	113.0	102.0	104.0	157.0	240.0	168.0	196.0	113.0	104.0
14	71.0	108.0	117.0	115.0	99.0	138.0	153.0	240.0	198.0	194.0	100.0	108.0
15	75.0	109.0	117.0	113.0	95.0	372.0	153.0	226.0	210.0	188.0	100.0	108.0
16	76.0	109.0	117.0	113.0	99.0	310.0	240.0	222.0	214.0	182.0	109.0	106.0
17	76.0	109.0	117.0	108.0	99.0	160.0	176.0	258.0	228.0	186.0	109.0	104.0
18	76.0	117.0	117.0	111.0	102.0	153.0	172.0	276.0	218.0	180.0	108.0	100.0
19	79.0	117.0	119.0	115.0	106.0	145.0	192.0	276.0	214.0	182.0	108.0	104.0
20	79.0	117.0	122.0	102.0	106.0	142.0	200.0	258.0	216.0	182.0	106.0	104.0
21	78.0	119.0	124.0	104.0	106.0	140.0	198.0	249.0	216.0	180.0	121.0	104.0
22	81.0	119.0	132.0	104.0	106.0	138.0	190.0	224.0	210.0	184.0	124.0	102.0
23	84.0	119.0	134.0	104.0	106.0	134.0	222.0	230.0	210.0	182.0	124.0	102.0
24	84.0	119.0	132.0	104.0	102.0	134.0	212.0	249.0	216.0	186.0	102.0	100.0
25	82.0	121.0	130.0	104.0	93.0	140.0	186.0	258.0	210.0	188.0	102.0	100.0
26	85.0	119.0	126.0	104.0	95.0	228.0	194.0	249.0	200.0	188.0	106.0	100.0
27	89.0	121.0	119.0	104.0	95.0	220.0	198.0	258.0	190.0	188.0	95.0	97.0
28	95.0	119.0	122.0	102.0	102.0	208.0	200.0	294.0	194.0	172.0	104.0	97.0
29	95.0	121.0	117.0	100.0	0.0	202.0	194.0	318.0	192.0	159.0	106.0	95.0
30	95.0	117.0	117.0	100.0	0.0	226.0	200.0	302.0	194.0	115.0	104.0	89.0
31	97.0	0.0	115.0	100.0	0.0	258.0	0.0	302.0	0.0	113.0	102.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1946

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	117.0	132.0	132.0	102.0	130.0	126.0	412.0	302.0	222.0	240.0	214.0
2	90.0	117.0	134.0	134.0	136.0	130.0	128.0	428.0	294.0	214.0	212.0	190.0
3	87.0	124.0	130.0	138.0	143.0	128.0	128.0	444.0	267.0	222.0	214.0	186.0
4	85.0	121.0	126.0	138.0	145.0	128.0	128.0	476.0	258.0	222.0	218.0	186.0
5	84.0	124.0	130.0	140.0	134.0	128.0	132.0	524.0	267.0	222.0	218.0	180.0
6	89.0	126.0	132.0	109.0	134.0	128.0	130.0	524.0	267.0	222.0	208.0	176.0
7	84.0	130.0	134.0	102.0	130.0	128.0	130.0	444.0	267.0	222.0	198.0	176.0
8	81.0	130.0	132.0	128.0	132.0	130.0	151.0	412.0	258.0	228.0	198.0	178.0
9	81.0	130.0	132.0	140.0	132.0	132.0	162.0	396.0	249.0	228.0	198.0	170.0
10	81.0	132.0	136.0	140.0	128.0	132.0	164.0	396.0	240.0	224.0	200.0	168.0
11	82.0	128.0	142.0	142.0	128.0	130.0	192.0	412.0	240.0	220.0	198.0	174.0
12	84.0	132.0	145.0	145.0	136.0	126.0	249.0	428.0	240.0	228.0	200.0	170.0
13	81.0	132.0	142.0	145.0	136.0	121.0	396.0	428.0	208.0	220.0	216.0	166.0
14	84.0	128.0	138.0	145.0	140.0	128.0	444.0	428.0	206.0	226.0	228.0	174.0
15	89.0	124.0	134.0	143.0	138.0	126.0	444.0	444.0	196.0	226.0	204.0	162.0
16	85.0	136.0	130.0	142.0	142.0	126.0	508.0	444.0	210.0	230.0	196.0	140.0
17	87.0	143.0	108.0	140.0	128.0	124.0	492.0	444.0	216.0	240.0	170.0	136.0
18	87.0	145.0	90.0	134.0	128.0	132.0	476.0	428.0	194.0	240.0	164.0	136.0
19	85.0	142.0	119.0	136.0	128.0	126.0	460.0	302.0	208.0	210.0	164.0	130.0
20	89.0	138.0	130.0	136.0	126.0	130.0	428.0	302.0	202.0	202.0	164.0	128.0
21	89.0	138.0	130.0	132.0	128.0	128.0	412.0	285.0	214.0	222.0	160.0	126.0
22	89.0	138.0	130.0	122.0	162.0	130.0	444.0	267.0	210.0	230.0	162.0	124.0
23	90.0	138.0	134.0	124.0	166.0	128.0	460.0	267.0	214.0	230.0	174.0	122.0
24	93.0	138.0	136.0	124.0	153.0	128.0	508.0	249.0	206.0	230.0	178.0	121.0
25	92.0	134.0	132.0	117.0	142.0	130.0	492.0	240.0	206.0	230.0	170.0	122.0
26	92.0	136.0	128.0	130.0	143.0	130.0	460.0	249.0	240.0	230.0	159.0	124.0
27	89.0	138.0	129.0	136.0	140.0	136.0	412.0	294.0	240.0	230.0	151.0	124.0
28	95.0	134.0	130.0	143.0	134.0	132.0	429.0	294.0	240.0	230.0	155.0	121.0
29	97.0	134.0	132.0	130.0	134.0	126.0	412.0	302.0	230.0	230.0	180.0	122.0
30	102.0	134.0	134.0	128.0	0.0	124.0	428.0	276.0	230.0	230.0	222.0	122.0
31	102.0	0.0	134.0	108.0	0.0	134.0	0.0	258.0	0.0	228.0	218.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1937

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	121.0	126.0	130.0	119.0	128.0	192.0	206.0	249.0	210.0	196.0	108.0
2	121.0	121.0	122.0	119.0	119.0	130.0	192.0	214.0	240.0	214.0	192.0	104.0
3	119.0	121.0	119.0	121.0	122.0	132.0	198.0	258.0	202.0	216.0	192.0	109.0
4	117.0	121.0	126.0	122.0	122.0	132.0	206.0	249.0	208.0	202.0	188.0	109.0
5	117.0	128.0	128.0	122.0	134.0	132.0	218.0	258.0	212.0	200.0	182.0	111.0
6	117.0	130.0	130.0	122.0	126.0	134.0	222.0	302.0	214.0	214.0	182.0	109.0
7	121.0	134.0	130.0	122.0	126.0	136.0	200.0	294.0	222.0	214.0	182.0	109.0
8	121.0	134.0	128.0	122.0	124.0	132.0	182.0	310.0	222.0	230.0	182.0	119.0
9	115.0	134.0	126.0	122.0	124.0	134.0	186.0	326.0	230.0	230.0	182.0	111.0
10	115.0	132.0	130.0	122.0	122.0	134.0	198.0	334.0	230.0	216.0	176.0	108.0
11	119.0	138.0	130.0	122.0	121.0	140.0	222.0	310.0	230.0	210.0	176.0	104.0
12	117.0	136.0	119.0	121.0	121.0	145.0	226.0	294.0	228.0	210.0	180.0	104.0
13	117.0	134.0	122.0	121.0	121.0	145.0	258.0	285.0	226.0	214.0	176.0	104.0
14	113.0	136.0	126.0	122.0	126.0	142.0	326.0	294.0	216.0	228.0	176.0	106.0
15	117.0	134.0	126.0	122.0	128.0	142.0	358.0	285.0	210.0	240.0	180.0	106.0
16	113.0	130.0	130.0	124.0	124.0	153.0	326.0	285.0	206.0	228.0	172.0	108.0
17	113.0	130.0	126.0	124.0	124.0	157.0	310.0	276.0	202.0	208.0	164.0	109.0
18	113.0	138.0	122.0	122.0	132.0	151.0	249.0	267.0	206.0	208.0	160.0	108.0
19	117.0	130.0	122.0	122.0	136.0	155.0	240.0	276.0	212.0	206.0	151.0	109.0
20	124.0	130.0	124.0	122.0	122.0	155.0	222.0	267.0	210.0	206.0	117.0	109.0
21	132.0	130.0	122.0	122.0	126.0	149.0	226.0	258.0	208.0	198.0	113.0	111.0
22	132.0	130.0	122.0	122.0	126.0	155.0	214.0	240.0	208.0	192.0	113.0	111.0
23	132.0	130.0	124.0	122.0	124.0	162.0	206.0	240.0	198.0	202.0	113.0	111.0
24	132.0	130.0	126.0	122.0	126.0	151.0	206.0	240.0	202.0	196.0	102.0	111.0
25	126.0	130.0	126.0	122.0	126.0	143.0	194.0	240.0	210.0	188.0	106.0	113.0
26	121.0	128.0	124.0	122.0	126.0	157.0	206.0	258.0	204.0	192.0	106.0	113.0
27	121.0	124.0	128.0	122.0	126.0	155.0	214.0	249.0	210.0	196.0	109.0	113.0
28	117.0	124.0	132.0	122.0	130.0	155.0	218.0	249.0	214.0	192.0	109.0	113.0
29	117.0	126.0	130.0	122.0	0.0	159.0	214.0	249.0	220.0	192.0	109.0	113.0
30	119.0	126.0	128.0	122.0	0.0	162.0	202.0	249.0	214.0	188.0	111.0	119.0
31	119.0	0.0	128.0	121.0	0.0	170.0	0.0	258.0	0.0	192.0	108.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1958

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	126.0	145.0	126.0	130.0	267.0	166.0	380.0	294.0	249.0	230.0	214.0
2	113.0	126.0	143.0	128.0	134.0	249.0	168.0	372.0	302.0	267.0	230.0	216.0
3	115.0	128.0	142.0	134.0	134.0	258.0	164.0	365.0	302.0	267.0	230.0	214.0
4	115.0	124.0	140.0	130.0	132.0	285.0	168.0	326.0	294.0	285.0	230.0	214.0
5	111.0	124.0	140.0	134.0	132.0	214.0	186.0	310.0	285.0	258.0	228.0	214.0
6	115.0	124.0	140.0	134.0	130.0	192.0	194.0	294.0	285.0	249.0	224.0	210.0
7	119.0	124.0	140.0	130.0	134.0	192.0	168.0	267.0	249.0	240.0	220.0	198.0
8	115.0	122.0	140.0	130.0	134.0	172.0	176.0	267.0	249.0	220.0	220.0	190.0
9	115.0	126.0	142.0	130.0	138.0	172.0	180.0	258.0	258.0	216.0	218.0	198.0
10	117.0	124.0	160.0	130.0	168.0	170.0	186.0	258.0	249.0	226.0	218.0	202.0
11	124.0	124.0	208.0	134.0	214.0	180.0	182.0	249.0	249.0	176.0	218.0	202.0
12	124.0	124.0	249.0	134.0	310.0	176.0	178.0	249.0	267.0	176.0	218.0	202.0
13	126.0	124.0	180.0	134.0	194.0	190.0	182.0	258.0	276.0	176.0	222.0	202.0
14	134.0	126.0	174.0	132.0	186.0	196.0	186.0	267.0	276.0	222.0	212.0	202.0
15	134.0	128.0	162.0	132.0	159.0	194.0	192.0	258.0	276.0	228.0	210.0	200.0
16	134.0	132.0	157.0	151.0	160.0	212.0	194.0	318.0	276.0	230.0	220.0	194.0
17	136.0	140.0	157.0	145.0	145.0	220.0	216.0	334.0	267.0	226.0	220.0	190.0
18	136.0	145.0	157.0	143.0	142.0	208.0	249.0	358.0	267.0	218.0	220.0	186.0
19	132.0	143.0	149.0	140.0	145.0	212.0	326.0	358.0	267.0	220.0	220.0	147.0
20	132.0	145.0	149.0	126.0	145.0	206.0	342.0	294.0	276.0	216.0	212.0	143.0
21	132.0	182.0	147.0	130.0	142.0	190.0	334.0	302.0	267.0	216.0	210.0	128.0
22	130.0	166.0	147.0	134.0	142.0	166.0	326.0	267.0	258.0	212.0	210.0	122.0
23	130.0	155.0	143.0	134.0	142.0	184.0	358.0	258.0	249.0	218.0	210.0	121.0
24	130.0	147.0	143.0	130.0	142.0	180.0	358.0	249.0	249.0	224.0	210.0	121.0
25	130.0	147.0	143.0	126.0	138.0	176.0	372.0	249.0	249.0	224.0	194.0	121.0
26	128.0	143.0	143.0	126.0	138.0	178.0	396.0	276.0	249.0	230.0	212.0	119.0
27	128.0	145.0	143.0	122.0	149.0	180.0	372.0	285.0	249.0	230.0	214.0	121.0
28	124.0	145.0	140.0	124.0	155.0	178.0	372.0	302.0	240.0	222.0	214.0	119.0
29	124.0	145.0	138.0	124.0	0.0	180.0	372.0	294.0	240.0	218.0	214.0	121.0
30	128.0	145.0	134.0	124.0	0.0	174.0	372.0	302.0	240.0	212.0	216.0	121.0
31	126.0	0.0	134.0	130.0	0.0	162.0	0.0	302.0	0.0	230.0	214.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	151.0	147.0	151.0	145.0	143.0	249.0	210.0	224.0	192.0	100.0	102.0
2	121.0	151.0	147.0	149.0	138.0	143.0	249.0	210.0	220.0	192.0	102.0	102.0
3	121.0	147.0	153.0	147.0	140.0	142.0	216.0	202.0	222.0	188.0	100.0	104.0
4	121.0	151.0	151.0	147.0	143.0	143.0	224.0	202.0	224.0	206.0	100.0	102.0
5	121.0	164.0	151.0	151.0	145.0	145.0	220.0	198.0	224.0	206.0	100.0	106.0
6	115.0	160.0	151.0	151.0	145.0	145.0	204.0	194.0	230.0	210.0	100.0	106.0
7	121.0	159.0	151.0	151.0	145.0	145.0	196.0	190.0	228.0	196.0	100.0	106.0
8	121.0	140.0	155.0	147.0	143.0	147.0	190.0	182.0	224.0	188.0	100.0	95.0
9	124.0	160.0	159.0	143.0	143.0	147.0	190.0	194.0	220.0	180.0	99.0	92.0
10	124.0	160.0	155.0	145.0	143.0	149.0	190.0	202.0	216.0	196.0	93.0	92.0
11	124.0	160.0	155.0	145.0	143.0	153.0	190.0	204.0	212.0	190.0	99.0	93.0
12	124.0	160.0	151.0	145.0	143.0	160.0	188.0	240.0	214.0	194.0	93.0	117.0
13	124.0	151.0	149.0	145.0	145.0	160.0	188.0	222.0	210.0	192.0	100.0	113.0
14	124.0	149.0	147.0	145.0	147.0	157.0	194.0	222.0	210.0	196.0	102.0	87.0
15	126.0	149.0	143.0	145.0	151.0	160.0	226.0	226.0	206.0	196.0	102.0	87.0
16	124.0	153.0	145.0	145.0	151.0	164.0	194.0	230.0	218.0	184.0	99.0	104.0
17	132.0	151.0	145.0	145.0	147.0	204.0	196.0	226.0	220.0	184.0	99.0	104.0
18	136.0	153.0	147.0	145.0	143.0	310.0	196.0	226.0	222.0	184.0	95.0	104.0
19	136.0	151.0	147.0	145.0	143.0	460.0	196.0	224.0	210.0	159.0	97.0	106.0
20	136.0	149.0	147.0	145.0	145.0	388.0	196.0	224.0	198.0	124.0	99.0	102.0
21	136.0	147.0	145.0	145.0	143.0	240.0	196.0	224.0	198.0	115.0	99.0	102.0
22	134.0	145.0	147.0	145.0	140.0	258.0	196.0	224.0	176.0	111.0	97.0	102.0
23	134.0	142.0	147.0	147.0	140.0	276.0	198.0	230.0	170.0	106.0	99.0	102.0
24	134.0	147.0	147.0	145.0	142.0	294.0	200.0	228.0	170.0	108.0	102.0	106.0
25	136.0	147.0	147.0	145.0	143.0	285.0	192.0	230.0	170.0	108.0	102.0	109.0
26	136.0	147.0	147.0	143.0	143.0	285.0	196.0	230.0	168.0	100.0	102.0	117.0
27	136.0	143.0	147.0	143.0	145.0	258.0	192.0	230.0	170.0	104.0	102.0	119.0
28	134.0	140.0	147.0	145.0	145.0	249.0	192.0	228.0	188.0	106.0	102.0	115.0
29	134.0	140.0	147.0	147.0	0.0	240.0	192.0	226.0	188.0	108.0	102.0	106.0
30	136.0	140.0	147.0	147.0	0.0	230.0	214.0	222.0	188.0	108.0	102.0	106.0
31	151.0	0.0	147.0	145.0	0.0	258.0	0.0	224.0	0.0	108.0	104.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1940

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	119.0	128.0	130.0	136.0	202.0	155.0	160.0	210.0	128.0	104.0	99.0
2	109.0	122.0	130.0	132.0	136.0	196.0	153.0	159.0	210.0	124.0	109.0	90.0
3	113.0	124.0	126.0	134.0	138.0	182.0	149.0	143.0	210.0	121.0	106.0	102.0
4	113.0	122.0	126.0	138.0	140.0	182.0	147.0	142.0	210.0	113.0	106.0	102.0
5	113.0	122.0	126.0	136.0	138.0	178.0	151.0	142.0	216.0	109.0	102.0	97.0
6	117.0	122.0	128.0	134.0	138.0	180.0	151.0	142.0	230.0	95.0	106.0	97.0
7	121.0	122.0	128.0	134.0	134.0	159.0	149.0	142.0	214.0	93.0	99.0	97.0
8	121.0	122.0	128.0	134.0	134.0	162.0	151.0	129.0	214.0	90.0	102.0	95.0
9	121.0	122.0	130.0	136.0	134.0	162.0	155.0	124.0	210.0	95.0	106.0	84.0
10	121.0	122.0	130.0	140.0	132.0	164.0	170.0	119.0	206.0	99.0	104.0	84.0
11	121.0	122.0	128.0	136.0	132.0	153.0	162.0	124.0	202.0	108.0	106.0	82.0
12	121.0	122.0	130.0	134.0	132.0	153.0	149.0	147.0	194.0	100.0	102.0	84.0
13	121.0	122.0	130.0	128.0	132.0	155.0	151.0	159.0	178.0	100.0	100.0	81.0
14	122.0	124.0	130.0	128.0	130.0	153.0	162.0	186.0	172.0	100.0	99.0	82.0
15	122.0	126.0	130.0	124.0	130.0	151.0	166.0	180.0	182.0	99.0	100.0	82.0
16	124.0	126.0	130.0	128.0	132.0	151.0	166.0	176.0	190.0	100.0	99.0	82.0
17	124.0	126.0	130.0	130.0	132.0	151.0	162.0	168.0	194.0	100.0	99.0	81.0
18	128.0	126.0	122.0	130.0	132.0	151.0	164.0	151.0	192.0	100.0	95.0	87.0
19	128.0	126.0	126.0	115.0	132.0	151.0	166.0	145.0	198.0	108.0	100.0	108.0
20	126.0	126.0	126.0	126.0	132.0	147.0	182.0	145.0	200.0	104.0	97.0	106.0
21	126.0	126.0	126.0	122.0	132.0	145.0	174.0	145.0	204.0	106.0	100.0	99.0
22	126.0	126.0	126.0	124.0	132.0	143.0	174.0	147.0	198.0	108.0	100.0	99.0
23	126.0	126.0	122.0	126.0	132.0	143.0	174.0	155.0	194.0	104.0	99.0	97.0
24	126.0	126.0	126.0	130.0	132.0	151.0	180.0	136.0	194.0	104.0	97.0	95.0
25	126.0	126.0	126.0	128.0	136.0	168.0	190.0	129.0	190.0	104.0	99.0	95.0
26	126.0	130.0	122.0	132.0	143.0	174.0	182.0	159.0	182.0	104.0	102.0	95.0
27	128.0	128.0	130.0	134.0	186.0	180.0	180.0	180.0	162.0	102.0	102.0	106.0
28	124.0	126.0	130.0	134.0	222.0	172.0	176.0	174.0	151.0	104.0	100.0	111.0
29	124.0	126.0	130.0	132.0	214.0	153.0	178.0	174.0	130.0	102.0	99.0	111.0
30	124.0	128.0	130.0	136.0	0.0	153.0	172.0	180.0	109.0	99.0	99.0	111.0
31	119.0	0.0	130.0	138.0	0.0	155.0	0.0	208.0	0.0	106.0	97.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1941

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	115.0	126.0	121.0	117.0	140.0	168.0	204.0	159.0	210.0	168.0	89.0
2	102.0	115.0	126.0	115.0	130.0	166.0	168.0	222.0	159.0	206.0	155.0	89.0
3	102.0	115.0	124.0	106.0	115.0	166.0	170.0	226.0	145.0	202.0	147.0	89.0
4	102.0	115.0	122.0	102.0	113.0	176.0	164.0	226.0	147.0	198.0	128.0	85.0
5	104.0	113.0	124.0	122.0	113.0	166.0	168.0	228.0	145.0	206.0	121.0	92.0
6	104.0	115.0	124.0	122.0	115.0	160.0	172.0	228.0	143.0	194.0	99.0	85.0
7	104.0	113.0	124.0	119.0	117.0	157.0	160.0	228.0	149.0	196.0	102.0	89.0
8	104.0	115.0	122.0	121.0	119.0	153.0	151.0	208.0	145.0	180.0	95.0	89.0
9	104.0	113.0	121.0	121.0	119.0	164.0	147.0	208.0	147.0	176.0	99.0	89.0
10	102.0	115.0	121.0	117.0	119.0	149.0	157.0	214.0	147.0	172.0	95.0	92.0
11	102.0	115.0	117.0	117.0	128.0	151.0	159.0	216.0	151.0	174.0	99.0	95.0
12	100.0	115.0	117.0	109.0	157.0	119.0	159.0	230.0	147.0	178.0	99.0	99.0
13	102.0	115.0	113.0	113.0	136.0	149.0	160.0	240.0	124.0	196.0	97.0	100.0
14	102.0	113.0	113.0	117.0	126.0	130.0	168.0	249.0	117.0	196.0	95.0	99.0
15	100.0	115.0	111.0	122.0	126.0	128.0	162.0	249.0	130.0	200.0	89.0	99.0
16	102.0	115.0	109.0	121.0	128.0	134.0	162.0	249.0	149.0	198.0	89.0	102.0
17	100.0	115.0	117.0	119.0	122.0	155.0	157.0	240.0	172.0	198.0	89.0	97.0
18	99.0	124.0	117.0	115.0	117.0	186.0	160.0	222.0	172.0	198.0	89.0	95.0
19	99.0	117.0	117.0	115.0	119.0	202.0	160.0	220.0	182.0	200.0	89.0	97.0
20	99.0	117.0	119.0	115.0	122.0	218.0	147.0	204.0	190.0	196.0	89.0	99.0
21	99.0	117.0	119.0	117.0	124.0	214.0	147.0	160.0	200.0	190.0	89.0	99.0
22	99.0	117.0	119.0	119.0	124.0	202.0	145.0	159.0	194.0	192.0	89.0	99.0
23	100.0	119.0	122.0	119.0	134.0	188.0	149.0	166.0	186.0	188.0	89.0	99.0
24	102.0	117.0	140.0	119.0	142.0	184.0	151.0	166.0	188.0	188.0	89.0	100.0
25	102.0	117.0	130.0	119.0	151.0	172.0	151.0	166.0	192.0	188.0	89.0	99.0
26	104.0	117.0	124.0	119.0	134.0	162.0	153.0	166.0	190.0	184.0	92.0	99.0
27	106.0	121.0	157.0	117.0	134.0	166.0	180.0	176.0	190.0	184.0	92.0	100.0
28	111.0	122.0	128.0	119.0	132.0	170.0	178.0	176.0	194.0	186.0	89.0	99.0
29	108.0	124.0	128.0	119.0	0.0	174.0	186.0	176.0	198.0	182.0	89.0	97.0
30	108.0	130.0	124.0	117.0	0.0	182.0	196.0	176.0	202.0	178.0	89.0	100.0
31	111.0	0.0	124.0	115.0	0.0	176.0	0.0	160.0	0.0	174.0	89.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1942

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	117.0	126.0	121.0	122.0	117.0	224.0	196.0	216.0	226.0	174.0	166.0
2	106.0	117.0	126.0	121.0	121.0	119.0	228.0	192.0	212.0	230.0	174.0	157.0
3	109.0	121.0	130.0	121.0	121.0	117.0	258.0	186.0	186.0	226.0	176.0	153.0
4	108.0	122.0	145.0	121.0	124.0	117.0	365.0	186.0	190.0	222.0	178.0	149.0
5	109.0	126.0	149.0	121.0	126.0	119.0	444.0	190.0	194.0	220.0	178.0	145.0
6	109.0	126.0	130.0	121.0	128.0	124.0	396.0	194.0	182.0	220.0	176.0	138.0
7	111.0	126.0	128.0	122.0	130.0	124.0	294.0	184.0	176.0	216.0	178.0	134.0
8	113.0	126.0	128.0	122.0	126.0	117.0	230.0	192.0	176.0	214.0	180.0	134.0
9	117.0	126.0	128.0	121.0	126.0	128.0	249.0	192.0	174.0	204.0	180.0	134.0
10	117.0	124.0	126.0	119.0	126.0	140.0	249.0	204.0	170.0	204.0	178.0	134.0
11	117.0	122.0	130.0	119.0	126.0	155.0	249.0	206.0	172.0	194.0	176.0	130.0
12	111.0	124.0	128.0	119.0	119.0	156.0	230.0	218.0	168.0	194.0	188.0	126.0
13	109.0	126.0	126.0	115.0	117.0	157.0	228.0	218.0	159.0	200.0	180.0	119.0
14	109.0	130.0	130.0	111.0	113.0	153.0	240.0	212.0	198.0	188.0	190.0	108.0
15	111.0	132.0	132.0	90.0	121.0	138.0	230.0	208.0	210.0	184.0	188.0	104.0
16	115.0	132.0	128.0	108.0	124.0	138.0	228.0	212.0	208.0	188.0	184.0	100.0
17	115.0	132.0	140.0	119.0	124.0	138.0	212.0	212.0	210.0	190.0	180.0	100.0
18	115.0	134.0	136.0	119.0	117.0	138.0	204.0	210.0	212.0	190.0	176.0	100.0
19	115.0	130.0	128.0	115.0	128.0	138.0	204.0	210.0	208.0	190.0	180.0	100.0
20	115.0	121.0	132.0	113.0	121.0	130.0	224.0	204.0	208.0	190.0	172.0	100.0
21	115.0	122.0	132.0	89.0	121.0	134.0	240.0	210.0	212.0	192.0	172.0	97.0
22	115.0	122.0	130.0	97.0	121.0	142.0	240.0	240.0	212.0	190.0	172.0	97.0
23	115.0	121.0	130.0	122.0	115.0	147.0	240.0	240.0	220.0	190.0	168.0	97.0
24	113.0	121.0	130.0	119.0	115.0	149.0	222.0	249.0	224.0	188.0	168.0	97.0
25	111.0	121.0	128.0	121.0	115.0	142.0	218.0	240.0	228.0	184.0	180.0	97.0
26	115.0	121.0	119.0	124.0	117.0	142.0	216.0	240.0	224.0	184.0	170.0	97.0
27	115.0	122.0	119.0	124.0	117.0	142.0	216.0	249.0	224.0	184.0	170.0	97.0
28	115.0	122.0	119.0	132.0	117.0	145.0	212.0	249.0	224.0	184.0	168.0	97.0
29	119.0	124.0	122.0	134.0	0.0	149.0	200.0	230.0	226.0	180.0	168.0	97.0
30	117.0	126.0	128.0	134.0	0.0	159.0	196.0	224.0	226.0	174.0	168.0	97.0
31	117.0	0.0	124.0	121.0	0.0	188.0	0.0	220.0	0.0	174.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1945

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99.0	116.0	163.0	167.0	151.0	159.0	439.0	377.0	307.0	233.0	216.0	208.0
2	99.0	116.0	163.0	169.0	147.0	163.0	448.0	380.0	354.0	244.0	208.0	208.0
3	97.0	116.0	163.0	171.0	151.0	163.0	430.0	392.0	374.0	233.0	203.0	205.0
4	97.0	120.0	155.0	159.0	151.0	155.0	396.0	392.0	365.0	230.0	233.0	205.0
5	97.0	120.0	143.0	155.0	149.0	147.0	374.0	389.0	360.0	230.0	226.0	205.0
6	97.0	120.0	143.0	151.0	147.0	145.0	365.0	386.0	334.0	230.0	218.0	205.0
7	99.0	120.0	143.0	147.0	147.0	147.0	347.0	377.0	319.0	230.0	218.0	208.0
8	97.0	120.0	145.0	147.0	145.0	179.0	353.0	368.0	304.0	230.0	222.0	208.0
9	97.0	120.0	149.0	145.0	147.0	179.0	340.0	362.0	301.0	230.0	226.0	205.0
10	97.0	122.0	153.0	147.0	147.0	171.0	374.0	344.0	298.0	230.0	229.0	205.0
11	97.0	124.0	149.0	143.0	147.0	167.0	334.0	334.0	304.0	233.0	233.0	205.0
12	99.0	126.0	143.0	141.0	145.0	171.0	339.0	334.0	319.0	229.0	237.0	201.0
13	106.0	126.0	143.0	143.0	147.0	171.0	339.0	319.0	334.0	229.0	233.0	199.0
14	107.0	128.0	143.0	143.0	147.0	248.0	362.0	306.0	337.0	222.0	233.0	201.0
15	106.0	124.0	143.0	143.0	143.0	237.0	380.0	301.0	319.0	233.0	233.0	201.0
16	106.0	124.0	147.0	139.0	143.0	214.0	392.0	294.0	316.0	229.0	231.0	199.0
17	106.0	126.0	143.0	135.0	145.0	179.0	395.0	294.0	319.0	222.0	226.0	177.0
18	107.0	124.0	139.0	133.0	147.0	175.0	421.0	288.0	307.0	222.0	220.0	155.0
19	107.0	163.0	137.0	135.0	147.0	167.0	445.0	288.0	301.0	222.0	214.0	143.0
20	111.0	145.0	143.0	135.0	155.0	159.0	457.0	285.0	278.0	229.0	214.0	139.0
21	109.0	137.0	143.0	147.0	183.0	159.0	451.0	272.0	269.0	233.0	208.0	137.0
22	113.0	133.0	143.0	203.0	191.0	167.0	416.0	269.0	255.0	248.0	214.0	135.0
23	116.0	133.0	143.0	222.0	179.0	169.0	410.0	275.0	226.0	255.0	214.0	135.0
24	113.0	137.0	143.0	175.0	171.0	189.0	413.0	291.0	226.0	233.0	214.0	131.0
25	109.0	137.0	151.0	159.0	167.0	288.0	407.0	285.0	214.0	237.0	216.0	130.0
26	109.0	145.0	149.0	155.0	159.0	233.0	401.0	278.0	203.0	237.0	210.0	131.0
27	109.0	157.0	147.0	155.0	155.0	404.0	398.0	270.0	203.0	229.0	214.0	135.0
28	106.0	149.0	143.0	155.0	155.0	404.0	385.0	272.0	203.0	214.0	210.0	139.0
29	106.0	149.0	143.0	155.0	0.0	445.0	374.0	272.0	203.0	216.0	210.0	137.0
30	111.0	153.0	147.0	153.0	0.0	489.0	374.0	278.0	199.0	214.0	210.0	135.0
31	109.0	0.0	167.0	147.0	0.0	445.0	0.0	294.0	0.0	210.0	207.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1944

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	149.0	161.0	143.0	133.0	143.0	246.0	208.0	214.0	199.0	205.0	185.0
2	133.0	149.0	159.0	141.0	133.0	147.0	313.0	203.0	222.0	226.0	212.0	189.0
3	133.0	149.0	161.0	141.0	133.0	151.0	316.0	207.0	237.0	224.0	210.0	189.0
4	133.0	161.0	161.0	141.0	133.0	149.0	310.0	203.0	233.0	224.0	210.0	193.0
5	137.0	173.0	161.0	141.0	137.0	143.0	262.0	205.0	229.0	218.0	199.0	193.0
6	141.0	161.0	157.0	141.0	141.0	137.0	244.0	210.0	226.0	218.0	199.0	193.0
7	137.0	157.0	153.0	143.0	145.0	137.0	237.0	218.0	251.0	212.0	203.0	189.0
8	141.0	157.0	153.0	137.0	145.0	139.0	214.0	214.0	258.0	216.0	203.0	185.0
9	137.0	153.0	149.0	137.0	145.0	159.0	214.0	203.0	275.0	218.0	203.0	185.0
10	137.0	153.0	149.0	137.0	145.0	167.0	207.0	222.0	372.0	218.0	203.0	193.0
11	139.0	151.0	145.0	137.0	141.0	171.0	195.0	233.0	360.0	222.0	203.0	179.0
12	149.0	149.0	141.0	137.0	141.0	191.0	191.0	244.0	344.0	220.0	197.0	177.0
13	141.0	149.0	141.0	137.0	135.0	167.0	191.0	244.0	337.0	220.0	197.0	175.0
14	151.0	149.0	139.0	137.0	137.0	159.0	195.0	241.0	318.0	216.0	199.0	169.0
15	151.0	149.0	141.0	137.0	137.0	145.0	187.0	241.0	293.0	212.0	197.0	153.0
16	145.0	153.0	141.0	141.0	137.0	145.0	187.0	241.0	272.0	216.0	197.0	130.0
17	143.0	153.0	141.0	139.0	137.0	153.0	187.0	241.0	248.0	218.0	197.0	128.0
18	143.0	151.0	139.0	137.0	137.0	159.0	191.0	251.0	237.0	218.0	197.0	131.0
19	143.0	153.0	141.0	137.0	137.0	163.0	191.0	237.0	226.0	218.0	197.0	124.0
20	157.0	155.0	137.0	135.0	137.0	174.0	187.0	222.0	212.0	214.0	195.0	124.0
21	155.0	153.0	141.0	133.0	135.0	185.0	187.0	218.0	207.0	214.0	195.0	122.0
22	157.0	155.0	141.0	135.0	137.0	193.0	183.0	214.0	201.0	214.0	195.0	120.0
23	153.0	157.0	141.0	139.0	135.0	189.0	183.0	214.0	203.0	212.0	195.0	120.0
24	149.0	155.0	137.0	137.0	135.0	183.0	183.0	214.0	197.0	210.0	195.0	120.0
25	149.0	155.0	137.0	133.0	137.0	179.0	183.0	195.0	187.0	205.0	193.0	120.0
26	149.0	159.0	137.0	133.0	137.0	175.0	191.0	187.0	199.0	199.0	193.0	120.0
27	145.0	161.0	137.0	135.0	137.0	155.0	199.0	187.0	210.0	212.0	185.0	120.0
28	151.0	159.0	141.0	131.0	137.0	155.0	210.0	191.0	205.0	210.0	181.0	124.0
29	153.0	161.0	141.0	130.0	141.0	155.0	214.0	187.0	201.0	205.0	187.0	116.0
30	153.0	161.0	141.0	135.0	0.0	169.0	214.0	183.0	199.0	201.0	189.0	120.0
31	151.0	0.0	141.0	135.0	0.0	195.0	0.0	203.0	0.0	197.0	189.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1945

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	124.0	141.0	135.0	137.0	139.0	220.0	248.0	347.0	203.0	257.0	228.0
2	122.0	124.0	141.0	133.0	167.0	139.0	224.0	267.0	344.0	208.0	258.0	231.0
3	126.0	124.0	141.0	133.0	207.0	139.0	231.0	294.0	350.0	203.0	253.0	231.0
4	122.0	124.0	141.0	137.0	199.0	135.0	235.0	301.0	380.0	203.0	246.0	228.0
5	118.0	143.0	141.0	137.0	183.0	135.0	246.0	331.0	410.0	203.0	242.0	242.0
6	122.0	139.0	141.0	139.0	149.0	131.0	257.0	337.0	410.0	205.0	246.0	253.0
7	122.0	139.0	141.0	143.0	151.0	131.0	237.0	350.0	424.0	228.0	253.0	244.0
8	124.0	143.0	137.0	159.0	151.0	135.0	226.0	350.0	432.0	228.0	250.0	242.0
9	124.0	139.0	133.0	147.0	151.0	135.0	222.0	350.0	439.0	226.0	246.0	242.0
10	124.0	135.0	130.0	143.0	151.0	135.0	207.0	347.0	451.0	220.0	246.0	239.0
11	120.0	155.0	126.0	143.0	151.0	147.0	205.0	353.0	439.0	218.0	251.0	231.0
12	120.0	155.0	118.0	143.0	155.0	207.0	189.0	359.0	410.0	226.0	257.0	228.0
13	124.0	151.0	118.0	145.0	226.0	218.0	189.0	365.0	394.0	226.0	253.0	224.0
14	124.0	147.0	120.0	155.0	454.0	210.0	189.0	395.0	380.0	226.0	250.0	212.0
15	120.0	147.0	120.0	167.0	244.0	199.0	189.0	401.0	313.0	224.0	257.0	189.0
16	122.0	143.0	120.0	159.0	195.0	179.0	191.0	344.0	314.0	220.0	253.0	165.0
17	124.0	143.0	120.0	155.0	187.0	171.0	187.0	350.0	318.0	231.0	242.0	157.0
18	122.0	143.0	120.0	143.0	171.0	163.0	187.0	365.0	286.0	216.0	242.0	157.0
19	122.0	143.0	120.0	139.0	167.0	155.0	187.0	371.0	286.0	224.0	242.0	157.0
20	122.0	143.0	133.0	139.0	155.0	147.0	179.0	371.0	280.0	224.0	242.0	161.0
21	122.0	147.0	137.0	139.0	147.0	151.0	201.0	371.0	269.0	224.0	242.0	205.0
22	122.0	143.0	145.0	139.0	147.0	191.0	228.0	371.0	255.0	224.0	239.0	205.0
23	122.0	147.0	133.0	135.0	143.0	210.0	235.0	356.0	233.0	224.0	240.0	185.0
24	122.0	147.0	133.0	135.0	139.0	199.0	212.0	319.0	222.0	233.0	242.0	177.0
25	122.0	143.0	133.0	135.0	147.0	181.0	212.0	316.0	222.0	250.0	242.0	177.0
26	122.0	143.0	135.0	135.0	147.0	191.0	214.0	313.0	239.0	253.0	239.0	177.0
27	122.0	147.0	135.0	131.0	139.0	191.0	222.0	312.0	231.0	246.0	235.0	177.0
28	122.0	143.0	135.0	131.0	139.0	187.0	219.0	304.0	231.0	250.0	235.0	173.0
29	122.0	139.0	135.0	131.0	0.0	187.0	214.0	319.0	231.0	253.0	231.0	169.0
30	122.0	139.0	135.0	131.0	0.0	187.0	222.0	331.0	231.0	250.0	231.0	165.0
31	122.0	0.0	135.0	131.0	0.0	187.0	0.0	334.0	0.0	253.0	224.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1946

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166.0	170.0	160.0	206.0	160.0	162.0	468.0	649.0	371.0	229.0	225.0	218.0
2	162.0	174.0	160.0	202.0	159.0	162.0	436.0	623.0	368.0	229.0	223.0	214.0
3	159.0	174.0	160.0	194.0	160.0	162.0	436.0	607.0	364.0	227.0	223.0	218.0
4	159.0	170.0	157.0	190.0	160.0	162.0	346.0	539.0	346.0	227.0	218.0	218.0
5	159.0	170.0	157.0	182.0	159.0	159.0	364.0	539.0	309.0	255.0	218.0	223.0
6	160.0	168.0	160.0	166.0	157.0	162.0	374.0	539.0	271.0	255.0	214.0	223.0
7	160.0	166.0	160.0	166.0	160.0	160.0	364.0	539.0	251.0	253.0	210.0	227.0
8	160.0	166.0	157.0	174.0	153.0	155.0	357.0	522.0	251.0	253.0	208.0	227.0
9	160.0	162.0	153.0	170.0	149.0	162.0	357.0	522.0	227.0	253.0	208.0	227.0
10	160.0	162.0	153.0	162.0	153.0	168.0	364.0	505.0	223.0	251.0	208.0	227.0
11	160.0	164.0	153.0	160.0	153.0	214.0	324.0	488.0	223.0	247.0	210.0	206.0
12	162.0	164.0	149.0	157.0	149.0	239.0	346.0	471.0	223.0	247.0	210.0	196.0
13	162.0	164.0	149.0	157.0	157.0	309.0	364.0	418.0	227.0	247.0	210.0	196.0
14	162.0	153.0	151.0	157.0	155.0	301.0	373.0	418.0	229.0	249.0	208.0	196.0
15	162.0	168.0	151.0	160.0	155.0	267.0	418.0	400.0	229.0	255.0	208.0	196.0
16	160.0	168.0	155.0	160.0	155.0	267.0	478.0	382.0	229.0	261.0	208.0	196.0
17	164.0	172.0	155.0	157.0	155.0	227.0	478.0	364.0	229.0	257.0	206.0	176.0
18	160.0	172.0	153.0	157.0	155.0	227.0	505.0	364.0	227.0	257.0	206.0	164.0
19	160.0	172.0	155.0	157.0	159.0	328.0	505.0	346.0	241.0	251.0	192.0	149.0
20	160.0	172.0	155.0	153.0	159.0	346.0	607.0	364.0	241.0	249.0	190.0	145.0
21	162.0	164.0	155.0	155.0	155.0	353.0	623.0	364.0	223.0	245.0	184.0	147.0
22	162.0	153.0	159.0	155.0	159.0	350.0	590.0	368.0	202.0	243.0	192.0	147.0
23	162.0	153.0	155.0	155.0	160.0	357.0	585.0	371.0	194.0	233.0	200.0	143.0
24	164.0	160.0	155.0	162.0	159.0	357.0	513.0	371.0	206.0	212.0	212.0	143.0
25	159.0	164.0	153.0	159.0	162.0	407.0	583.0	371.0	218.0	210.0	210.0	140.0
26	160.0	157.0	162.0	159.0	166.0	407.0	660.0	355.0	220.0	216.0	210.0	142.0
27	160.0	153.0	170.0	155.0	166.0	400.0	661.0	364.0	220.0	218.0	210.0	138.0
28	160.0	157.0	307.0	151.0	166.0	436.0	661.0	364.0	225.0	218.0	210.0	138.0
29	164.0	164.0	360.0	159.0	0.0	468.0	661.0	375.0	220.0	218.0	204.0	138.0
30	168.0	164.0	239.0	157.0	0.0	488.0	655.0	382.0	220.0	223.0	216.0	138.0
31	168.0	0.0	223.0	157.0	0.0	471.0	0.0	375.0	0.0	225.0	220.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1947

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	194.0	188.0	151.0	151.0	168.0	198.0	253.0	174.0	225.0	198.0	182.0
2	140.0	196.0	188.0	151.0	149.0	170.0	192.0	253.0	178.0	231.0	198.0	178.0
3	130.0	196.0	184.0	140.0	149.0	170.0	192.0	257.0	178.0	233.0	198.0	178.0
4	149.0	188.0	184.0	140.0	149.0	170.0	196.0	267.0	206.0	237.0	198.0	147.0
5	155.0	184.0	182.0	140.0	149.0	170.0	200.0	275.0	198.0	239.0	206.0	142.0
6	155.0	180.0	200.0	140.0	155.0	172.0	200.0	271.0	204.0	239.0	194.0	143.0
7	160.0	180.0	200.0	143.0	155.0	172.0	196.0	271.0	204.0	229.0	190.0	159.0
8	164.0	180.0	204.0	147.0	155.0	172.0	192.0	279.0	208.0	212.0	182.0	166.0
9	162.0	176.0	200.0	149.0	151.0	176.0	188.0	290.0	212.0	214.0	200.0	166.0
10	162.0	176.0	196.0	153.0	151.0	200.0	186.0	294.0	220.0	214.0	204.0	166.0
11	163.0	176.0	192.0	153.0	153.0	220.0	184.0	298.0	220.0	212.0	212.0	166.0
12	164.0	172.0	188.0	153.0	153.0	220.0	182.0	307.0	216.0	212.0	216.0	166.0
13	166.0	176.0	192.0	149.0	155.0	204.0	178.0	288.0	214.0	202.0	216.0	162.0
14	166.0	186.0	204.0	145.0	245.0	196.0	176.0	284.0	214.0	198.0	212.0	155.0
15	168.0	174.0	200.0	138.0	237.0	200.0	176.0	280.0	212.0	204.0	208.0	155.0
16	168.0	174.0	178.0	142.0	220.0	204.0	176.0	273.0	192.0	208.0	204.0	147.0
17	174.0	174.0	170.0	145.0	216.0	204.0	176.0	269.0	182.0	206.0	200.0	147.0
18	174.0	174.0	174.0	147.0	190.0	196.0	178.0	245.0	182.0	202.0	200.0	159.0
19	174.0	174.0	174.0	147.0	186.0	192.0	186.0	214.0	170.0	202.0	196.0	166.0
20	174.0	174.0	174.0	147.0	174.0	192.0	210.0	223.0	170.0	200.0	192.0	155.0
21	174.0	174.0	174.0	147.0	170.0	182.0	223.0	216.0	174.0	200.0	192.0	155.0
22	178.0	178.0	174.0	147.0	166.0	182.0	223.0	214.0	174.0	200.0	190.0	147.0
23	182.0	194.0	172.0	147.0	174.0	190.0	223.0	198.0	174.0	200.0	194.0	143.0
24	182.0	198.0	172.0	145.0	176.0	190.0	210.0	186.0	174.0	198.0	190.0	143.0
25	182.0	202.0	172.0	147.0	176.0	190.0	206.0	184.0	174.0	198.0	188.0	143.0
26	178.0	206.0	172.0	149.0	172.0	194.0	216.0	182.0	178.0	198.0	194.0	138.0
27	180.0	210.0	172.0	149.0	168.0	194.0	225.0	180.0	180.0	190.0	194.0	140.0
28	198.0	200.0	172.0	147.0	164.0	194.0	229.0	180.0	198.0	192.0	198.0	142.0
29	206.0	194.0	164.0	149.0	0.0	190.0	233.0	178.0	204.0	202.0	198.0	142.0
30	198.0	192.0	164.0	149.0	0.0	190.0	245.0	170.0	220.0	206.0	198.0	143.0
31	194.0	0.0	157.0	147.0	0.0	190.0	0.0	166.0	0.0	202.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1948

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142.0	138.0	153.0	134.0	140.0	172.0	208.0	280.0	301.0	220.0	233.0	198.0
2	142.0	140.0	149.0	134.0	142.0	159.0	220.0	273.0	288.0	223.0	233.0	196.0
3	142.0	143.0	151.0	138.0	142.0	155.0	257.0	253.0	280.0	223.0	235.0	196.0
4	142.0	145.0	151.0	143.0	142.0	149.0	280.0	253.0	269.0	210.0	235.0	192.0
5	138.0	149.0	147.0	147.0	142.0	149.0	249.0	257.0	257.0	206.0	231.0	192.0
6	138.0	142.0	147.0	147.0	142.0	149.0	239.0	257.0	241.0	204.0	233.0	196.0
7	140.0	145.0	147.0	147.0	142.0	153.0	216.0	257.0	229.0	204.0	235.0	196.0
8	142.0	147.0	147.0	202.0	143.0	153.0	216.0	269.0	216.0	204.0	233.0	194.0
9	142.0	147.0	145.0	190.0	140.0	153.0	257.0	311.0	212.0	214.0	233.0	196.0
10	142.0	151.0	145.0	166.0	140.0	153.0	237.0	311.0	208.0	214.0	235.0	196.0
11	142.0	151.0	142.0	159.0	138.0	153.0	220.0	298.0	196.0	218.0	233.0	196.0
12	142.0	151.0	142.0	149.0	136.0	153.0	198.0	294.0	196.0	220.0	214.0	196.0
13	142.0	151.0	138.0	149.0	136.0	153.0	196.0	303.0	196.0	223.0	214.0	200.0
14	138.0	149.0	138.0	145.0	145.0	153.0	194.0	303.0	196.0	218.0	214.0	204.0
15	138.0	149.0	143.0	145.0	145.0	153.0	196.0	303.0	198.0	218.0	214.0	212.0
16	144.0	149.0	143.0	145.0	145.0	157.0	200.0	318.0	206.0	218.0	214.0	212.0
17	149.0	149.0	143.0	142.0	237.0	157.0	241.0	318.0	210.0	218.0	214.0	216.0
18	145.0	149.0	143.0	142.0	333.0	159.0	261.0	405.0	208.0	214.0	214.0	220.0
19	140.0	149.0	140.0	142.0	333.0	160.0	261.0	413.0	214.0	210.0	212.0	218.0
20	140.0	149.0	143.0	143.0	273.0	188.0	269.0	466.0	296.0	214.0	212.0	225.0
21	140.0	143.0	143.0	143.0	273.0	196.0	277.0	445.0	307.0	214.0	214.0	225.0
22	140.0	140.0	143.0	143.0	443.0	192.0	277.0	434.0	386.0	214.0	216.0	218.0
23	138.0	140.0	140.0	143.0	298.0	296.0	261.0	434.0	400.0	214.0	216.0	218.0
24	138.0	143.0	132.0	143.0	279.0	318.0	249.0	398.0	387.0	210.0	216.0	218.0
25	138.0	143.0	132.0	147.0	214.0	318.0	253.0	380.0	326.0	218.0	214.0	225.0
26	143.0	147.0	132.0	132.0	202.0	337.0	237.0	359.0	303.0	214.0	210.0	218.0
27	142.0	151.0	134.0	128.0	198.0	330.0	237.0	341.0	263.0	227.0	210.0	178.0
28	136.0	147.0	134.0	132.0	196.0	333.0	249.0	341.0	247.0	231.0	206.0	180.0
29	140.0	147.0	134.0	132.0	196.0	300.0	257.0	333.0	235.0	233.0	202.0	159.0
30	140.0	149.0	134.0	132.0	0.0	261.0	273.0	326.0	220.0	233.0	202.0	155.0
31	138.0	0.0	134.0	140.0	0.0	212.0	0.0	318.0	0.0	233.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1949

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.0	149.0	147.0	149.0	138.0	140.0	251.0	294.0	263.0	214.0	223.0	192.0
2	147.0	155.0	147.0	145.0	140.0	140.0	271.0	290.0	271.0	210.0	223.0	192.0
3	143.0	174.0	147.0	149.0	140.0	138.0	290.0	286.0	255.0	218.0	223.0	192.0
4	147.0	159.0	143.0	142.0	136.0	138.0	328.0	282.0	251.0	220.0	223.0	202.0
5	143.0	160.0	147.0	142.0	140.0	138.0	360.0	275.0	247.0	220.0	216.0	202.0
6	151.0	157.0	145.0	145.0	135.0	142.0	378.0	275.0	237.0	225.0	216.0	206.0
7	151.0	153.0	143.0	145.0	135.0	140.0	346.0	267.0	233.0	245.0	216.0	202.0
8	151.0	149.0	143.0	142.0	135.0	143.0	360.0	255.0	225.0	206.0	210.0	202.0
9	147.0	153.0	147.0	145.0	135.0	143.0	371.0	259.0	220.0	206.0	210.0	214.0
10	143.0	157.0	143.0	149.0	135.0	147.0	371.0	267.0	208.0	235.0	210.0	210.0
11	140.0	159.0	149.0	147.0	135.0	155.0	313.0	259.0	202.0	227.0	210.0	214.0
12	142.0	162.0	145.0	143.0	135.0	159.0	309.0	255.0	182.0	223.0	212.0	190.0
13	142.0	159.0	145.0	140.0	135.0	160.0	290.0	267.0	182.0	218.0	212.0	180.0
14	145.0	155.0	142.0	147.0	135.0	168.0	279.0	271.0	178.0	216.0	216.0	164.0
15	147.0	162.0	145.0	147.0	135.0	172.0	259.0	275.0	178.0	216.0	204.0	153.0
16	149.0	159.0	145.0	143.0	140.0	180.0	251.0	279.0	172.0	212.0	220.0	149.0
17	142.0	164.0	149.0	136.0	140.0	188.0	267.0	286.0	168.0	220.0	220.0	132.0
18	143.0	160.0	149.0	136.0	143.0	196.0	271.0	324.0	196.0	223.0	216.0	132.0
19	147.0	160.0	153.0	140.0	140.0	206.0	271.0	353.0	212.0	223.0	212.0	128.0
20	143.0	160.0	153.0	140.0	136.0	235.0	298.0	360.0	216.0	218.0	212.0	128.0
21	147.0	157.0	151.0	132.0	138.0	251.0	290.0	371.0	210.0	218.0	208.0	126.0
22	143.0	149.0	147.0	128.0	136.0	290.0	286.0	328.0	194.0	220.0	202.0	126.0
23	143.0	153.0	143.0	128.0	138.0	290.0	324.0	320.0	210.0	220.0	223.0	126.0
24	149.0	153.0	128.0	124.0	136.0	271.0	328.0	313.0	231.0	225.0	214.0	126.0
25	149.0	153.0	132.0	124.0	136.0	267.0	371.0	294.0	239.0	220.0	210.0	124.0
26	145.0	153.0	151.0	143.0	136.0	255.0	339.0	286.0	229.0	214.0	210.0	121.0
27	149.0	149.0	151.0	147.0	138.0	251.0	328.0	279.0	220.0	206.0	206.0	121.0
28	145.0	149.0	147.0	136.0	136.0	247.0	346.0	269.0	220.0	206.0	204.0	117.0
29	149.0	149.0	143.0	136.0	0.0	239.0	360.0	277.0	225.0	216.0	200.0	130.0
30	151.0	145.0	147.0	132.0	0.0	231.0	364.0	273.0	214.0	225.0	196.0	130.0
31	151.0	0.0	147.0	138.0	0.0	235.0	0.0	277.0	0.0	229.0	196.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1950

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178.0	170.0	162.0	151.0	162.0	294.0	275.0	350.0	573.0	317.0	255.0	239.0
2	178.0	170.0	159.0	147.0	147.0	255.0	364.0	346.0	566.0	298.0	255.0	237.0
3	132.0	166.0	155.0	147.0	147.0	267.0	409.0	342.0	558.0	294.0	251.0	206.0
4	134.0	166.0	151.0	151.0	155.0	275.0	350.0	342.0	556.0	286.0	247.0	202.0
5	138.0	164.0	151.0	147.0	166.0	342.0	332.0	350.0	554.0	286.0	247.0	202.0
6	142.0	162.0	147.0	151.0	170.0	357.0	313.0	313.0	546.0	282.0	243.0	198.0
7	142.0	166.0	147.0	147.0	174.0	294.0	360.0	332.0	534.0	294.0	239.0	196.0
8	147.0	166.0	151.0	147.0	190.0	267.0	382.0	326.0	514.0	298.0	239.0	286.0
9	143.0	170.0	155.0	147.0	186.0	251.0	378.0	330.0	496.0	305.0	243.0	305.0
10	143.0	166.0	155.0	147.0	166.0	235.0	371.0	341.0	490.0	324.0	243.0	298.0
11	143.0	166.0	155.0	147.0	162.0	231.0	350.0	317.0	406.0	317.0	247.0	305.0
12	145.0	162.0	159.0	147.0	155.0	227.0	301.0	328.0	386.0	309.0	247.0	303.0
13	149.0	166.0	162.0	143.0	159.0	223.0	320.0	342.0	382.0	305.0	247.0	305.0
14	145.0	166.0	155.0	143.0	166.0	206.0	328.0	411.0	378.0	305.0	255.0	309.0
15	142.0	166.0	155.0	143.0	174.0	202.0	313.0	488.0	373.0	294.0	255.0	305.0
16	147.0	166.0	151.0	147.0	162.0	218.0	357.0	539.0	368.0	286.0	251.0	305.0
17	151.0	166.0	147.0	151.0	170.0	251.0	364.0	582.0	364.0	282.0	251.0	313.0
18	155.0	166.0	155.0	151.0	174.0	382.0	393.0	634.0	364.0	279.0	247.0	317.0
19	159.0	162.0	151.0	151.0	182.0	371.0	389.0	647.0	360.0	267.0	243.0	317.0
20	164.0	162.0	147.0	151.0	190.0	332.0	382.0	626.0	357.0	263.0	247.0	318.0
21	180.0	159.0	151.0	155.0	182.0	294.0	427.0	628.0	350.0	255.0	247.0	320.0
22	176.0	159.0	151.0	190.0	170.0	286.0	456.0	625.0	346.0	247.0	245.0	320.0
23	176.0	159.0	151.0	251.0	162.0	243.0	450.0	631.0	324.0	243.0	245.0	324.0
24	178.0	155.0	151.0	210.0	214.0	271.0	389.0	657.0	339.0	251.0	247.0	320.0
25	174.0	155.0	147.0	178.0	271.0	267.0	386.0	650.0	342.0	247.0	245.0	317.0
26	182.0	159.0	151.0	178.0	440.0	263.0	382.0	645.0	339.0	255.0	267.0	317.0
27	182.0	162.0	147.0	178.0	414.0	255.0	393.0	639.0	335.0	255.0	263.0	317.0
28	184.0	166.0	151.0	174.0	350.0	243.0	389.0	607.0	324.0	259.0	255.0	260.0
29	176.0	170.0	151.0	174.0	0.0	231.0	375.0	607.0	320.0	255.0	251.0	230.0
30	172.0	162.0	155.0	170.0	0.0	206.0	357.0	607.0	318.0	251.0	247.0	241.0
31	176.0	0.0	155.0	166.0	0.0	239.0	0.0	607.0	0.0	251.0	243.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1951

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247.0	223.0	195.0	184.0	172.0	218.0	241.0	309.0	251.0	229.0	243.0	202.0
2	239.0	223.0	192.0	182.0	180.0	214.0	245.0	313.0	251.0	216.0	239.0	172.0
3	223.0	214.0	196.0	180.0	176.0	210.0	245.0	298.0	247.0	223.0	247.0	168.0
4	227.0	210.0	196.0	180.0	172.0	206.0	245.0	301.0	243.0	231.0	243.0	168.0
5	223.0	210.0	192.0	180.0	176.0	194.0	249.0	309.0	223.0	233.0	235.0	160.0
6	218.0	208.0	192.0	176.0	182.0	194.0	253.0	286.0	210.0	233.0	223.0	157.0
7	218.0	206.0	200.0	176.0	284.0	198.0	261.0	301.0	227.0	235.0	216.0	155.0
8	210.0	202.0	196.0	176.0	359.0	194.0	269.0	305.0	229.0	239.0	216.0	155.0
9	202.0	198.0	192.0	176.0	414.0	198.0	253.0	305.0	251.0	237.0	212.0	151.0
10	202.0	198.0	192.0	176.0	434.0	196.0	249.0	298.0	261.0	241.0	216.0	151.0
11	218.0	202.0	192.0	174.0	333.0	198.0	265.0	309.0	271.0	231.0	220.0	149.0
12	223.0	202.0	192.0	176.0	364.0	194.0	249.0	309.0	275.0	223.0	208.0	147.0
13	220.0	202.0	192.0	176.0	231.0	194.0	288.0	309.0	275.0	210.0	202.0	145.0
14	218.0	202.0	192.0	176.0	227.0	202.0	292.0	298.0	263.0	241.0	194.0	143.0
15	216.0	202.0	192.0	174.0	214.0	210.0	288.0	305.0	263.0	245.0	194.0	143.0
16	218.0	214.0	192.0	172.0	210.0	227.0	300.0	301.0	251.0	237.0	202.0	143.0
17	220.0	218.0	192.0	176.0	210.0	223.0	300.0	298.0	251.0	243.0	194.0	140.0
18	220.0	223.0	190.0	176.0	235.0	235.0	303.0	286.0	247.0	243.0	192.0	140.0
19	216.0	227.0	188.0	176.0	223.0	251.0	315.0	296.0	241.0	239.0	192.0	136.0
20	208.0	231.0	188.0	176.0	231.0	255.0	303.0	301.0	229.0	239.0	196.0	140.0
21	204.0	223.0	190.0	176.0	235.0	267.0	296.0	279.0	227.0	243.0	196.0	149.0
22	208.0	218.0	192.0	176.0	239.0	282.0	288.0	275.0	259.0	282.0	192.0	157.0
23	208.0	214.0	192.0	176.0	227.0	290.0	284.0	275.0	261.0	275.0	192.0	153.0
24	212.0	210.0	190.0	180.0	223.0	290.0	280.0	286.0	269.0	271.0	202.0	153.0
25	216.0	218.0	188.0	180.0	210.0	267.0	280.0	294.0	271.0	259.0	198.0	153.0
26	216.0	210.0	180.0	176.0	206.0	263.0	277.0	290.0	267.0	241.0	200.0	149.0
27	220.0	205.0	182.0	174.0	214.0	259.0	273.0	271.0	261.0	241.0	200.0	149.0
28	216.0	205.0	184.0	176.0	223.0	243.0	280.0	267.0	257.0	237.0	212.0	149.0
29	216.0	200.0	184.0	172.0	0.0	249.0	330.0	263.0	247.0	241.0	208.0	149.0
30	214.0	200.0	184.0	180.0	0.0	265.0	318.0	257.0	239.0	233.0	209.0	149.0
31	218.0	0.0	180.0	176.0	0.0	253.0	0.0	259.0	0.0	241.0	204.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1952

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153.0	164.0	168.0	176.0	182.0	198.0	200.0	642.0	373.0	301.0	212.0	153.0
2	153.0	164.0	168.0	178.0	184.0	202.0	202.0	650.0	369.0	280.0	216.0	151.0
3	151.0	164.0	166.0	176.0	192.0	200.0	210.0	653.0	366.0	271.0	206.0	159.0
4	151.0	166.0	164.0	180.0	184.0	202.0	218.0	665.0	357.0	263.0	210.0	170.0
5	149.0	172.0	159.0	180.0	182.0	198.0	223.0	668.0	346.0	257.0	212.0	178.0
6	149.0	176.0	162.0	176.0	180.0	200.0	286.0	663.0	317.0	253.0	214.0	192.0
7	151.0	180.0	162.0	180.0	176.0	202.0	298.0	657.0	313.0	247.0	218.0	196.0
8	149.0	180.0	162.0	180.0	174.0	202.0	322.0	655.0	307.0	235.0	220.0	204.0
9	147.0	186.0	162.0	178.0	166.0	202.0	341.0	623.0	303.0	229.0	225.0	208.0
10	149.0	186.0	160.0	166.0	174.0	198.0	353.0	595.0	298.0	212.0	225.0	212.0
11	153.0	182.0	159.0	168.0	178.0	196.0	364.0	578.0	294.0	253.0	229.0	214.0
12	153.0	184.0	166.0	172.0	178.0	190.0	400.0	563.0	290.0	280.0	227.0	212.0
13	153.0	188.0	168.0	176.0	180.0	186.0	400.0	546.0	284.0	280.0	231.0	198.0
14	170.0	188.0	170.0	172.0	184.0	182.0	410.0	480.0	273.0	280.0	233.0	194.0
15	166.0	190.0	170.0	172.0	188.0	178.0	471.0	476.0	267.0	260.0	235.0	188.0
16	168.0	188.0	174.0	170.0	190.0	178.0	432.0	468.0	259.0	250.0	235.0	180.0
17	168.0	180.0	178.0	174.0	192.0	178.0	464.0	464.0	251.0	240.0	237.0	178.0
18	164.0	190.0	182.0	178.0	192.0	170.0	486.0	462.0	247.0	230.0	225.0	170.0
19	164.0	192.0	186.0	174.0	194.0	166.0	500.0	452.0	245.0	225.0	220.0	170.0
20	170.0	188.0	188.0	174.0	198.0	162.0	490.0	450.0	239.0	225.0	212.0	168.0
21	166.0	186.0	190.0	170.0	198.0	162.0	476.0	432.0	235.0	218.0	204.0	166.0
22	170.0	188.0	186.0	180.0	196.0	162.0	476.0	418.0	245.0	214.0	198.0	164.0
23	166.0	188.0	180.0	185.0	198.0	166.0	478.0	409.0	249.0	208.0	198.0	164.0
24	166.0	188.0	184.0	192.0	198.0	178.0	480.0	407.0	288.0	204.0	186.0	160.0
25	168.0	180.0	176.0	180.0	200.0	186.0	473.0	404.0	313.0	198.0	182.0	160.0
26	166.0	178.0	186.0	170.0	202.0	186.0	491.0	395.0	318.0	200.0	178.0	159.0
27	166.0	176.0	172.0	168.0	194.0	184.0	515.0	393.0	322.0	196.0	174.0	160.0
28	166.0	172.0	176.0	174.0	194.0	190.0	568.0	391.0	320.0	196.0	172.0	157.0
29	162.0	172.0	184.0	174.0	190.0	194.0	612.0	386.0	309.0	190.0	170.0	151.0
30	162.0	170.0	180.0	178.0	0.0	198.0	620.0	384.0	305.0	202.0	160.0	147.0
31	160.0	0.0	180.0	182.0	0.0	198.0	0.0	382.0	0.0	210.0	157.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1953

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145.0	145.0	170.0	174.0	198.0	186.0	194.0	208.0	279.0	261.0	216.0	194.0
2	142.0	143.0	170.0	174.0	194.0	198.0	190.0	196.0	438.0	263.0	220.0	198.0
3	138.0	145.0	168.0	176.0	206.0	194.0	194.0	182.0	450.0	263.0	223.0	202.0
4	138.0	147.0	166.0	178.0	210.0	194.0	194.0	174.0	450.0	267.0	214.0	206.0
5	136.0	147.0	170.0	180.0	214.0	190.0	194.0	164.0	459.0	269.0	218.0	194.0
6	138.0	143.0	170.0	182.0	218.0	190.0	194.0	172.0	469.0	267.0	216.0	194.0
7	138.0	143.0	170.0	182.0	218.0	192.0	194.0	174.0	436.0	269.0	225.0	194.0
8	142.0	143.0	170.0	190.0	218.0	194.0	194.0	178.0	443.0	267.0	233.0	194.0
9	140.0	151.0	168.0	206.0	214.0	198.0	194.0	160.0	445.0	259.0	192.0	186.0
10	140.0	155.0	166.0	214.0	206.0	202.0	194.0	159.0	452.0	257.0	194.0	190.0
11	142.0	160.0	174.0	206.0	198.0	202.0	190.0	151.0	447.0	253.0	194.0	186.0
12	143.0	162.0	174.0	210.0	190.0	206.0	194.0	147.0	431.0	255.0	194.0	186.0
13	147.0	164.0	176.0	235.0	190.0	210.0	188.0	145.0	423.0	259.0	200.0	194.0
14	149.0	164.0	178.0	231.0	186.0	210.0	180.0	145.0	404.0	253.0	200.0	190.0
15	142.0	166.0	178.0	206.0	198.0	206.0	170.0	145.0	362.0	257.0	212.0	190.0
16	147.0	168.0	176.0	198.0	194.0	202.0	166.0	145.0	326.0	259.0	202.0	186.0
17	147.0	166.0	182.0	210.0	190.0	202.0	172.0	200.0	290.0	259.0	198.0	186.0
18	149.0	168.0	184.0	313.0	186.0	198.0	174.0	216.0	273.0	269.0	202.0	186.0
19	153.0	170.0	186.0	368.0	186.0	194.0	174.0	231.0	263.0	257.0	200.0	186.0
20	157.0	172.0	186.0	305.0	182.0	196.0	180.0	315.0	309.0	212.0	202.0	184.0
21	153.0	176.0	186.0	271.0	182.0	188.0	186.0	300.0	300.0	204.0	204.0	182.0
22	151.0	176.0	184.0	251.0	182.0	188.0	186.0	294.0	301.0	202.0	198.0	178.0
23	151.0	176.0	182.0	235.0	178.0	192.0	196.0	313.0	307.0	206.0	194.0	178.0
24	151.0	172.0	178.0	227.0	178.0	196.0	218.0	341.0	317.0	210.0	190.0	174.0
25	147.0	170.0	178.0	210.0	174.0	200.0	218.0	322.0	326.0	204.0	194.0	166.0
26	147.0	168.0	178.0	206.0	182.0	200.0	220.0	328.0	317.0	204.0	190.0	166.0
27	145.0	168.0	174.0	202.0	186.0	192.0	223.0	320.0	311.0	249.0	186.0	162.0
28	147.0	172.0	174.0	200.0	186.0	196.0	284.0	247.0	282.0	235.0	190.0	159.0
29	147.0	170.0	174.0	202.0	0.0	196.0	263.0	245.0	277.0	227.0	194.0	147.0
30	143.0	172.0	176.0	202.0	0.0	200.0	223.0	251.0	269.0	223.0	198.0	145.0
31	145.0	0.0	178.0	198.0	0.0	196.0	0.0	279.0	0.0	220.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1954

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	166.0	170.0	157.0	153.0	192.0	204.0	190.0	220.0	190.0	162.0	93.0
2	149.0	166.0	178.0	160.0	151.0	188.0	200.0	186.0	218.0	186.0	162.0	102.0
3	147.0	162.0	174.0	168.0	151.0	192.0	208.0	180.0	218.0	186.0	162.0	97.0
4	149.0	166.0	170.0	172.0	147.0	196.0	170.0	172.0	223.0	188.0	162.0	95.0
5	155.0	170.0	170.0	168.0	143.0	200.0	180.0	170.0	216.0	186.0	164.0	95.0
6	151.0	166.0	159.0	164.0	143.0	204.0	190.0	186.0	265.0	184.0	164.0	90.0
7	149.0	166.0	155.0	168.0	143.0	212.0	195.0	192.0	253.0	182.0	160.0	93.0
8	149.0	166.0	162.0	172.0	151.0	233.0	193.0	196.0	251.0	182.0	158.0	93.0
9	149.0	162.0	170.0	172.0	151.0	249.0	190.0	210.0	263.0	180.0	160.0	91.0
10	149.0	164.0	166.0	168.0	151.0	294.0	190.0	214.0	263.0	172.0	159.0	93.0
11	147.0	170.0	174.0	168.0	166.0	305.0	190.0	216.0	269.0	184.0	158.0	95.0
12	147.0	166.0	162.0	164.0	194.0	286.0	186.0	218.0	208.0	192.0	158.0	95.0
13	143.0	166.0	166.0	168.0	198.0	251.0	180.0	218.0	196.0	192.0	158.0	93.0
14	145.0	166.0	170.0	172.0	186.0	235.0	196.0	223.0	190.0	196.0	152.0	95.0
15	142.0	166.0	166.0	159.0	182.0	231.0	184.0	220.0	186.0	190.0	150.0	93.0
16	142.0	166.0	164.0	160.0	170.0	231.0	202.0	225.0	184.0	196.0	150.0	93.0
17	143.0	166.0	162.0	168.0	162.0	227.0	206.0	227.0	180.0	206.0	148.0	93.0
18	143.0	166.0	162.0	164.0	166.0	210.0	218.0	202.0	168.0	210.0	140.0	91.0
19	143.0	164.0	166.0	162.0	143.0	206.0	220.0	188.0	166.0	208.0	138.0	93.0
20	145.0	166.0	162.0	159.0	151.0	206.0	229.0	180.0	162.0	198.0	136.0	93.0
21	149.0	166.0	162.0	159.0	159.0	204.0	233.0	227.0	157.0	188.0	135.0	95.0
22	153.0	166.0	160.0	157.0	170.0	200.0	235.0	259.0	153.0	186.0	135.0	95.0
23	159.0	170.0	159.0	157.0	182.0	208.0	210.0	204.0	196.0	184.0	115.0	99.0
24	162.0	170.0	159.0	159.0	190.0	212.0	215.0	196.0	196.0	180.0	110.0	106.0
25	162.0	166.0	162.0	157.0	198.0	208.0	225.0	180.0	200.0	178.0	106.0	100.0
26	160.0	170.0	159.0	155.0	186.0	202.0	227.0	178.0	192.0	188.0	104.0	102.0
27	164.0	170.0	159.0	153.0	192.0	204.0	231.0	170.0	196.0	186.0	102.0	102.0
28	162.0	174.0	160.0	157.0	192.0	204.0	290.0	184.0	202.0	176.0	100.0	102.0
29	162.0	170.0	165.0	160.0	0.0	198.0	301.0	233.0	200.0	170.0	99.0	102.0
30	162.0	174.0	164.0	160.0	0.0	210.0	223.0	257.0	198.0	166.0	95.0	106.0
31	164.0	0.0	160.0	157.0	0.0	206.0	0.0	237.0	0.0	164.0	95.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1955

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	131.0	131.0	133.0	133.0	127.0	172.0	154.0	228.0	190.0	102.0	108.0
2	108.0	127.0	133.0	133.0	133.0	125.0	198.0	158.0	262.0	176.0	102.0	106.0
3	108.0	135.0	135.0	131.0	133.0	125.0	172.0	160.0	254.0	176.0	102.0	106.0
4	112.0	135.0	139.0	133.0	130.0	123.0	162.0	156.0	241.0	152.0	100.0	100.0
5	114.0	135.0	137.0	133.0	130.0	123.0	151.0	156.0	220.0	151.0	100.0	99.0
6	112.0	137.0	137.0	130.0	130.0	123.0	151.0	162.0	200.0	149.0	100.0	95.0
7	112.0	137.0	143.0	128.0	131.0	125.0	156.0	172.0	190.0	168.0	100.0	91.0
8	110.0	137.0	139.0	125.0	131.0	123.0	162.0	184.0	182.0	170.0	99.0	91.0
9	110.0	133.0	131.0	130.0	131.0	125.0	166.0	190.0	178.0	170.0	100.0	93.0
10	110.0	133.0	135.0	133.0	131.0	129.0	172.0	184.0	170.0	166.0	99.0	93.0
11	112.0	133.0	137.0	133.0	130.0	133.0	170.0	186.0	162.0	160.0	99.0	93.0
12	112.0	139.0	135.0	131.0	129.0	137.0	164.0	186.0	162.0	141.0	99.0	93.0
13	117.0	137.0	139.0	130.0	129.0	139.0	160.0	188.0	182.0	123.0	108.0	93.0
14	115.0	133.0	135.0	130.0	130.0	135.0	162.0	192.0	198.0	110.0	104.0	93.0
15	114.0	135.0	135.0	130.0	131.0	129.0	160.0	194.0	204.0	106.0	104.0	93.0
16	115.0	151.0	133.0	133.0	131.0	127.0	156.0	192.0	206.0	112.0	104.0	91.0
17	114.0	141.0	131.0	132.0	132.0	129.0	158.0	182.0	200.0	114.0	104.0	93.0
18	114.0	139.0	127.0	132.0	128.0	129.0	156.0	166.0	198.0	110.0	108.0	99.0
19	117.0	137.0	129.0	132.0	128.0	131.0	152.0	158.0	196.0	108.0	110.0	93.0
20	119.0	137.0	133.0	132.0	128.0	127.0	152.0	158.0	194.0	110.0	106.0	93.0
21	121.0	137.0	133.0	132.0	129.0	125.0	152.0	166.0	188.0	110.0	106.0	93.0
22	115.0	133.0	131.0	132.0	129.0	129.0	154.0	204.0	188.0	108.0	110.0	91.0
23	119.0	133.0	131.0	133.0	129.0	125.0	154.0	216.0	194.0	110.0	108.0	93.0
24	123.0	133.0	129.0	133.0	129.0	129.0	154.0	218.0	194.0	114.0	102.0	95.0
25	125.0	131.0	131.0	133.0	131.0	129.0	158.0	220.0	192.0	115.0	106.0	100.0
26	125.0	131.0	130.0	133.0	131.0	127.0	156.0	208.0	190.0	119.0	114.0	102.0
27	123.0	129.0	128.0	133.0	129.0	129.0	154.0	200.0	188.0	115.0	115.0	100.0
28	124.0	129.0	125.0	132.0	127.0	137.0	151.0	202.0	188.0	108.0	119.0	100.0
29	125.0	129.0	128.0	130.0	0.0	147.0	149.0	208.0	194.0	104.0	115.0	100.0
30	125.0	133.0	131.0	131.0	0.0	152.0	151.0	214.0	190.0	104.0	114.0	100.0
31	129.0	0.0	133.0	133.0	0.0	147.0	0.0	220.0	0.0	104.0	110.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1956

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	110.0	140.0	146.0	130.0	131.0	375.0	258.0	232.0	214.0	196.0	146.0
2	100.0	108.0	138.0	150.0	125.0	135.0	323.0	255.0	222.0	212.0	172.0	142.0
3	100.0	110.0	135.0	142.0	130.0	138.0	281.0	251.0	214.0	206.0	154.0	138.0
4	106.0	114.0	131.0	144.0	133.0	138.0	258.0	253.0	212.0	204.0	184.0	136.0
5	114.0	116.0	129.0	144.0	136.0	140.0	251.0	258.0	206.0	220.0	180.0	136.0
6	114.0	116.0	133.0	142.0	136.0	135.0	243.0	258.0	200.0	224.0	178.0	135.0
7	108.0	118.0	129.0	138.0	136.0	136.0	236.0	255.0	194.0	210.0	174.0	140.0
8	104.0	118.0	129.0	142.0	135.0	135.0	241.0	253.0	190.0	196.0	170.0	140.0
9	100.0	119.0	133.0	138.0	133.0	140.0	230.0	247.0	184.0	196.0	172.0	136.0
10	100.0	121.0	129.0	138.0	133.0	140.0	230.0	245.0	188.0	204.0	174.0	136.0
11	102.0	123.0	127.0	138.0	136.0	135.0	239.0	255.0	204.0	196.0	174.0	135.0
12	102.0	123.0	129.0	138.0	138.0	135.0	232.0	251.0	204.0	188.0	176.0	116.0
13	104.0	119.0	129.0	144.0	135.0	142.0	241.0	234.0	204.0	184.0	178.0	104.0
14	102.0	129.0	125.0	144.0	133.0	140.0	243.0	224.0	210.0	174.0	178.0	100.0
15	104.0	125.0	123.0	154.0	135.0	136.0	241.0	206.0	220.0	182.0	174.0	100.0
16	104.0	116.0	129.0	190.0	131.0	140.0	251.0	192.0	228.0	184.0	172.0	102.0
17	104.0	133.0	129.0	164.0	135.0	144.0	255.0	188.0	230.0	190.0	174.0	98.0
18	106.0	131.0	127.0	156.0	135.0	146.0	264.0	194.0	228.0	190.0	174.0	97.0
19	106.0	133.0	125.0	160.0	135.0	152.0	272.0	206.0	226.0	188.0	172.0	91.0
20	110.0	136.0	125.0	156.0	136.0	164.0	281.0	220.0	224.0	192.0	172.0	98.0
21	110.0	138.0	131.0	154.0	136.0	170.0	291.0	224.0	230.0	198.0	170.0	97.0
22	114.0	135.0	164.0	154.0	136.0	176.0	302.0	222.0	212.0	200.0	170.0	97.0
23	112.0	135.0	200.0	158.0	136.0	192.0	304.0	220.0	200.0	200.0	168.0	98.0
24	108.0	133.0	222.0	150.0	136.0	245.0	302.0	228.0	198.0	198.0	166.0	98.0
25	108.0	129.0	190.0	148.0	136.0	329.0	293.0	251.0	198.0	200.0	162.0	98.0
26	110.0	131.0	182.0	148.0	136.0	373.0	295.0	245.0	196.0	202.0	158.0	97.0
27	110.0	136.0	188.0	154.0	135.0	304.0	304.0	247.0	194.0	198.0	148.0	98.0
28	110.0	136.0	178.0	140.0	133.0	333.0	297.0	247.0	208.0	198.0	125.0	98.0
29	112.0	136.0	158.0	142.0	131.0	342.0	283.0	268.0	224.0	198.0	142.0	98.0
30	112.0	138.0	156.0	144.0	0.0	369.0	270.0	253.0	222.0	198.0	142.0	100.0
31	112.0	0.0	154.0	138.0	0.0	414.0	0.0	241.0	0.0	202.0	140.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1957

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	135.0	135.0	129.0	129.0	293.0	162.0	194.0	310.0	234.0	218.0	204.0
2	100.0	131.0	135.0	129.0	123.0	226.0	156.0	208.0	312.0	230.0	216.0	206.0
3	102.0	129.0	135.0	127.0	121.0	204.0	156.0	216.0	323.0	220.0	216.0	202.0
4	104.0	136.0	136.0	129.0	121.0	176.0	156.0	204.0	314.0	208.0	214.0	198.0
5	102.0	138.0	142.0	125.0	119.0	180.0	158.0	210.0	304.0	184.0	214.0	188.0
6	102.0	136.0	138.0	125.0	119.0	172.0	188.0	216.0	297.0	144.0	210.0	178.0
7	102.0	138.0	131.0	125.0	119.0	172.0	174.0	224.0	285.0	138.0	204.0	170.0
8	104.0	138.0	129.0	127.0	121.0	206.0	166.0	230.0	272.0	176.0	198.0	168.0
9	104.0	138.0	129.0	127.0	119.0	202.0	162.0	234.0	260.0	192.0	200.0	166.0
10	106.0	136.0	135.0	127.0	118.0	188.0	162.0	236.0	262.0	194.0	194.0	164.0
11	110.0	136.0	146.0	127.0	119.0	168.0	164.0	239.0	247.0	198.0	208.0	158.0
12	119.0	135.0	156.0	125.0	119.0	180.0	168.0	253.0	239.0	210.0	208.0	156.0
13	121.0	136.0	216.0	129.0	118.0	160.0	168.0	304.0	236.0	220.0	206.0	156.0
14	108.0	133.0	204.0	138.0	121.0	160.0	168.0	394.0	230.0	222.0	202.0	156.0
15	106.0	129.0	168.0	131.0	144.0	162.0	168.0	377.0	228.0	198.0	200.0	154.0
16	106.0	136.0	158.0	125.0	140.0	164.0	168.0	346.0	226.0	196.0	198.0	152.0
17	106.0	140.0	148.0	125.0	133.0	166.0	168.0	314.0	232.0	210.0	172.0	150.0
18	108.0	138.0	142.0	121.0	129.0	162.0	166.0	302.0	228.0	210.0	144.0	152.0
19	106.0	131.0	140.0	125.0	133.0	162.0	164.0	407.0	224.0	210.0	168.0	144.0
20	104.0	133.0	138.0	133.0	140.0	164.0	162.0	522.0	216.0	214.0	170.0	144.0
21	104.0	133.0	138.0	129.0	140.0	166.0	168.0	480.0	212.0	222.0	164.0	142.0
22	106.0	133.0	135.0	129.0	180.0	158.0	170.0	458.0	212.0	222.0	162.0	138.0
23	110.0	133.0	136.0	127.0	283.0	150.0	192.0	407.0	210.0	220.0	202.0	135.0
24	116.0	133.0	136.0	125.0	633.0	150.0	194.0	360.0	200.0	218.0	208.0	135.0
25	116.0	133.0	135.0	127.0	922.0	154.0	178.0	348.0	192.0	218.0	206.0	129.0
26	127.0	133.0	131.0	125.0	956.0	152.0	172.0	329.0	182.0	216.0	206.0	118.0
27	142.0	133.0	131.0	125.0	823.0	150.0	168.0	318.0	172.0	214.0	208.0	114.0
28	138.0	135.0	131.0	127.0	509.0	152.0	168.0	316.0	164.0	214.0	216.0	112.0
29	135.0	133.0	131.0	121.0	0.0	154.0	174.0	314.0	190.0	216.0	196.0	112.0
30	135.0	133.0	131.0	121.0	0.0	160.0	188.0	310.0	243.0	218.0	200.0	110.0
31	136.0	0.0	131.0	127.0	0.0	164.0	0.0	312.0	0.0	218.0	202.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1958

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	142.0	140.0	140.0	140.0	180.0	245.0	226.0	224.0	220.0	202.0	174.0
2	114.0	138.0	140.0	142.0	140.0	178.0	247.0	234.0	214.0	220.0	200.0	172.0
3	118.0	138.0	140.0	144.0	144.0	174.0	245.0	249.0	202.0	220.0	198.0	168.0
4	121.0	140.0	142.0	142.0	144.0	170.0	243.0	266.0	230.0	226.0	200.0	168.0
5	121.0	138.0	144.0	140.0	150.0	168.0	232.0	289.0	234.0	222.0	200.0	168.0
6	121.0	135.0	146.0	138.0	142.0	172.0	226.0	316.0	226.0	218.0	194.0	166.0
7	121.0	133.0	150.0	138.0	144.0	172.0	224.0	327.0	241.0	216.0	190.0	172.0
8	114.0	135.0	150.0	138.0	144.0	174.0	226.0	310.0	247.0	218.0	190.0	172.0
9	114.0	135.0	150.0	138.0	146.0	168.0	228.0	300.0	251.0	220.0	184.0	168.0
10	116.0	133.0	144.0	138.0	148.0	166.0	226.0	308.0	241.0	218.0	180.0	170.0
11	118.0	135.0	142.0	140.0	146.0	166.0	222.0	316.0	239.0	230.0	180.0	166.0
12	121.0	136.0	142.0	140.0	146.0	168.0	218.0	331.0	243.0	236.0	186.0	172.0
13	121.0	140.0	142.0	140.0	152.0	166.0	214.0	318.0	262.0	222.0	190.0	174.0
14	121.0	154.0	142.0	142.0	150.0	166.0	214.0	293.0	245.0	220.0	190.0	150.0
15	121.0	152.0	146.0	142.0	154.0	170.0	216.0	291.0	230.0	218.0	190.0	123.0
16	125.0	146.0	166.0	142.0	170.0	168.0	222.0	274.0	222.0	224.0	190.0	121.0
17	125.0	144.0	174.0	140.0	192.0	168.0	232.0	274.0	220.0	230.0	192.0	112.0
18	123.0	142.0	166.0	142.0	208.0	166.0	266.0	283.0	212.0	230.0	182.0	110.0
19	121.0	152.0	156.0	140.0	226.0	166.0	264.0	287.0	208.0	222.0	180.0	108.0
20	121.0	144.0	158.0	138.0	214.0	170.0	253.0	291.0	204.0	224.0	182.0	104.0
21	123.0	136.0	156.0	140.0	206.0	200.0	268.0	291.0	206.0	222.0	180.0	106.0
22	125.0	138.0	154.0	140.0	196.0	234.0	285.0	287.0	212.0	218.0	184.0	104.0
23	123.0	142.0	144.0	140.0	214.0	239.0	266.0	285.0	212.0	218.0	190.0	102.0
24	123.0	140.0	146.0	146.0	239.0	249.0	247.0	272.0	208.0	220.0	172.0	102.0
25	125.0	140.0	150.0	142.0	276.0	262.0	236.0	260.0	206.0	222.0	168.0	102.0
26	123.0	140.0	150.0	140.0	241.0	251.0	230.0	253.0	208.0	218.0	172.0	104.0
27	127.0	140.0	146.0	140.0	200.0	234.0	222.0	243.0	194.0	216.0	174.0	104.0
28	133.0	140.0	148.0	140.0	186.0	230.0	216.0	239.0	196.0	214.0	176.0	106.0
29	129.0	138.0	146.0	144.0	0.0	236.0	212.0	239.0	206.0	214.0	174.0	106.0
30	133.0	138.0	146.0	154.0	0.0	249.0	216.0	239.0	220.0	214.0	176.0	106.0
31	138.0	0.0	140.0	144.0	0.0	251.0	0.0	230.0	0.0	210.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

SERFAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106.0	114.0	140.0	144.0	138.0	154.0	204.0	202.0	164.0	206.0	97.0	93.0
2	106.0	114.0	142.0	140.0	133.0	162.0	214.0	208.0	150.0	198.0	100.0	95.0
3	104.0	114.0	142.0	133.0	138.0	162.0	212.0	206.0	148.0	200.0	97.0	95.0
4	104.0	116.0	144.0	131.0	142.0	154.0	208.0	198.0	156.0	194.0	93.0	91.0
5	108.0	123.0	142.0	140.0	135.0	156.0	210.0	194.0	158.0	190.0	91.0	89.0
6	110.0	127.0	146.0	144.0	138.0	152.0	214.0	194.0	152.0	188.0	89.0	89.0
7	112.0	129.0	146.0	142.0	140.0	158.0	206.0	188.0	210.0	188.0	89.0	89.0
8	112.0	133.0	150.0	138.0	140.0	156.0	198.0	184.0	222.0	192.0	91.0	89.0
9	112.0	131.0	150.0	138.0	138.0	154.0	192.0	184.0	218.0	196.0	89.0	89.0
10	106.0	135.0	152.0	142.0	140.0	156.0	188.0	186.0	212.0	198.0	87.0	89.0
11	106.0	133.0	174.0	142.0	140.0	156.0	186.0	184.0	210.0	196.0	89.0	91.0
12	102.0	129.0	206.0	142.0	140.0	156.0	186.0	174.0	206.0	194.0	89.0	89.0
13	102.0	129.0	176.0	146.0	138.0	162.0	188.0	182.0	202.0	194.0	87.0	93.0
14	104.0	144.0	158.0	142.0	133.0	160.0	190.0	245.0	210.0	198.0	85.0	93.0
15	104.0	142.0	154.0	140.0	140.0	160.0	192.0	251.0	224.0	190.0	85.0	102.0
16	106.0	140.0	154.0	146.0	144.0	160.0	190.0	258.0	228.0	206.0	85.0	97.0
17	104.0	138.0	150.0	144.0	164.0	168.0	186.0	245.0	224.0	196.0	85.0	97.0
18	102.0	138.0	148.0	144.0	166.0	202.0	184.0	241.0	216.0	176.0	89.0	95.0
19	102.0	142.0	148.0	144.0	158.0	214.0	180.0	216.0	210.0	156.0	97.0	98.0
20	108.0	146.0	146.0	142.0	156.0	198.0	176.0	220.0	210.0	135.0	100.0	97.0
21	110.0	146.0	146.0	136.0	156.0	204.0	174.0	208.0	208.0	108.0	100.0	97.0
22	110.0	146.0	148.0	140.0	156.0	222.0	172.0	218.0	204.0	100.0	95.0	95.0
23	112.0	146.0	148.0	140.0	154.0	253.0	172.0	222.0	200.0	100.0	97.0	95.0
24	112.0	150.0	148.0	142.0	152.0	247.0	178.0	220.0	196.0	108.0	95.0	97.0
25	112.0	146.0	148.0	152.0	146.0	239.0	184.0	218.0	194.0	100.0	93.0	114.0
26	112.0	144.0	142.0	150.0	150.0	234.0	210.0	222.0	206.0	98.0	95.0	131.0
27	110.0	144.0	146.0	146.0	148.0	226.0	222.0	222.0	218.0	100.0	97.0	133.0
28	110.0	138.0	146.0	150.0	150.0	214.0	202.0	200.0	208.0	100.0	97.0	127.0
29	110.0	140.0	140.0	144.0	0.0	210.0	194.0	186.0	204.0	92.0	95.0	119.0
30	110.0	140.0	142.0	138.0	0.0	206.0	194.0	180.0	208.0	98.0	93.0	116.0
31	110.0	0.0	144.0	138.0	0.0	204.0	0.0	172.0	0.0	95.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1960

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.0	119.0	123.0	125.0	125.0	125.0	258.0	184.0	222.0	200.0	85.0	81.0
2	114.0	121.0	121.0	123.0	131.0	127.0	245.0	188.0	222.0	194.0	78.0	87.0
3	116.0	121.0	123.0	121.0	127.0	129.0	255.0	194.0	218.0	194.0	80.0	85.0
4	116.0	123.0	121.0	121.0	123.0	131.0	262.0	200.0	220.0	194.0	78.0	85.0
5	110.0	118.0	118.0	121.0	125.0	135.0	276.0	202.0	216.0	192.0	78.0	81.0
6	112.0	118.0	119.0	121.0	125.0	154.0	283.0	202.0	214.0	198.0	78.0	80.0
7	118.0	121.0	119.0	125.0	127.0	168.0	262.0	206.0	214.0	186.0	76.0	80.0
8	118.0	121.0	119.0	125.0	142.0	200.0	247.0	214.0	216.0	166.0	76.0	80.0
9	121.0	121.0	119.0	125.0	154.0	192.0	247.0	216.0	220.0	160.0	76.0	81.0
10	121.0	123.0	119.0	125.0	138.0	160.0	260.0	216.0	222.0	142.0	78.0	81.0
11	118.0	121.0	121.0	129.0	131.0	150.0	247.0	226.0	218.0	116.0	78.0	78.0
12	119.0	119.0	121.0	129.0	125.0	148.0	236.0	241.0	210.0	106.0	80.0	78.0
13	119.0	119.0	121.0	127.0	127.0	156.0	218.0	249.0	204.0	100.0	78.0	78.0
14	116.0	118.0	119.0	125.0	127.0	160.0	214.0	245.0	204.0	100.0	80.0	78.0
15	118.0	119.0	119.0	127.0	129.0	150.0	204.0	232.0	204.0	102.0	83.0	80.0
16	116.0	119.0	119.0	121.0	129.0	146.0	198.0	224.0	210.0	93.0	85.0	80.0
17	116.0	119.0	119.0	116.0	129.0	144.0	192.0	212.0	212.0	95.0	87.0	81.0
18	118.0	119.0	121.0	118.0	129.0	146.0	192.0	206.0	208.0	89.0	85.0	80.0
19	118.0	123.0	121.0	119.0	131.0	156.0	200.0	194.0	210.0	95.0	85.0	80.0
20	119.0	123.0	119.0	120.0	129.0	168.0	200.0	178.0	210.0	97.0	85.0	80.0
21	119.0	125.0	121.0	121.0	133.0	186.0	204.0	168.0	206.0	93.0	85.0	81.0
22	121.0	125.0	121.0	123.0	131.0	204.0	212.0	164.0	202.0	91.0	87.0	81.0
23	121.0	125.0	121.0	123.0	127.0	228.0	220.0	160.0	198.0	93.0	89.0	81.0
24	119.0	127.0	123.0	121.0	127.0	260.0	218.0	148.0	196.0	91.0	85.0	78.0
25	119.0	125.0	133.0	121.0	127.0	291.0	216.0	180.0	192.0	87.0	83.0	78.0
26	121.0	121.0	127.0	123.0	127.0	337.0	212.0	222.0	204.0	87.0	81.0	78.0
27	119.0	121.0	119.0	123.0	127.0	388.0	206.0	212.0	206.0	85.0	80.0	80.0
28	119.0	121.0	119.0	123.0	129.0	348.0	210.0	208.0	194.0	85.0	80.0	78.0
29	119.0	121.0	119.0	121.0	125.0	270.0	202.0	194.0	188.0	85.0	78.0	78.0
30	118.0	121.0	119.0	123.0	0.0	281.0	188.0	196.0	194.0	83.0	78.0	76.0
31	121.0	0.0	123.0	123.0	0.0	291.0	0.0	220.0	0.0	89.0	80.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1961

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	95.0	119.0	118.0	119.0	123.0	142.0	119.0	166.0	91.0	87.0	87.0
2	76.0	93.0	125.0	116.0	116.0	123.0	142.0	121.0	160.0	80.0	83.0	87.0
3	76.0	95.0	125.0	112.0	119.0	121.0	144.0	127.0	154.0	76.0	81.0	85.0
4	76.0	95.0	121.0	108.0	116.0	121.0	144.0	125.0	156.0	85.0	78.0	83.0
5	76.0	91.0	118.0	106.0	114.0	123.0	142.0	118.0	158.0	98.0	78.0	83.0
6	78.0	93.0	112.0	110.0	116.0	123.0	140.0	118.0	162.0	91.0	80.0	83.0
7	78.0	97.0	106.0	112.0	118.0	121.0	138.0	108.0	160.0	91.0	81.0	83.0
8	85.0	100.0	112.0	114.0	125.0	119.0	136.0	104.0	156.0	85.0	81.0	83.0
9	87.0	98.0	114.0	116.0	136.0	123.0	138.0	100.0	156.0	81.0	81.0	87.0
10	87.0	98.0	114.0	114.0	243.0	123.0	133.0	108.0	158.0	78.0	81.0	89.0
11	87.0	104.0	114.0	114.0	230.0	125.0	129.0	114.0	162.0	83.0	80.0	93.0
12	87.0	108.0	114.0	112.0	202.0	123.0	129.0	112.0	164.0	95.0	83.0	91.0
13	87.0	114.0	112.0	114.0	170.0	133.0	133.0	112.0	162.0	93.0	85.0	89.0
14	85.0	114.0	112.0	114.0	162.0	154.0	131.0	106.0	160.0	93.0	83.0	87.0
15	83.0	110.0	112.0	114.0	142.0	182.0	127.0	110.0	156.0	95.0	83.0	87.0
16	83.0	110.0	114.0	116.0	135.0	272.0	125.0	119.0	154.0	95.0	85.0	87.0
17	85.0	110.0	116.0	118.0	131.0	194.0	121.0	121.0	156.0	93.0	87.0	81.0
18	85.0	119.0	118.0	118.0	129.0	178.0	125.0	116.0	166.0	89.0	83.0	91.0
19	85.0	121.0	118.0	116.0	125.0	162.0	138.0	119.0	148.0	93.0	81.0	102.0
20	87.0	118.0	116.0	116.0	125.0	156.0	136.0	136.0	138.0	91.0	81.0	97.0
21	89.0	114.0	116.0	114.0	127.0	144.0	131.0	123.0	136.0	93.0	81.0	98.0
22	89.0	116.0	116.0	114.0	156.0	148.0	127.0	125.0	142.0	91.0	81.0	93.0
23	89.0	119.0	116.0	114.0	133.0	154.0	125.0	131.0	144.0	91.0	81.0	91.0
24	91.0	125.0	114.0	112.0	131.0	168.0	127.0	133.0	144.0	91.0	85.0	89.0
25	89.0	123.0	116.0	114.0	131.0	164.0	125.0	142.0	144.0	91.0	85.0	87.0
26	91.0	123.0	118.0	114.0	123.0	168.0	121.0	142.0	144.0	91.0	100.0	87.0
27	89.0	123.0	116.0	110.0	123.0	164.0	118.0	150.0	148.0	91.0	83.0	85.0
28	91.0	118.0	114.0	108.0	127.0	154.0	110.0	168.0	142.0	89.0	81.0	87.0
29	95.0	116.0	108.0	112.0	0.0	148.0	112.0	174.0	127.0	89.0	81.0	89.0
30	93.0	118.0	112.0	112.0	0.0	146.0	114.0	172.0	108.0	87.0	83.0	89.0
31	91.0	0.0	116.0	114.0	0.0	144.0	0.0	174.0	0.0	87.0	85.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1962

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	111.0	127.0	120.0	108.0	129.0	290.0	236.0	213.0	198.0	188.0	188.0
2	90.0	122.0	127.0	120.0	110.0	129.0	277.0	226.0	211.0	194.0	182.0	182.0
3	90.0	120.0	139.0	120.0	108.0	126.0	255.0	217.0	211.0	186.0	176.0	180.0
4	90.0	120.0	129.0	122.0	108.0	124.0	242.0	219.0	226.0	174.0	176.0	182.0
5	85.0	117.0	129.0	118.0	108.0	124.0	234.0	228.0	217.0	172.0	182.0	180.0
6	80.0	113.0	126.0	120.0	108.0	126.0	228.0	232.0	209.0	174.0	184.0	178.0
7	82.0	113.0	122.0	135.0	110.0	129.0	232.0	236.0	213.0	178.0	186.0	176.0
8	86.0	117.0	122.0	376.0	113.0	129.0	228.0	232.0	200.0	176.0	194.0	172.0
9	86.0	118.0	118.0	352.0	118.0	131.0	215.0	232.0	192.0	164.0	186.0	168.0
10	86.0	118.0	117.0	188.0	647.0	124.0	207.0	228.0	188.0	174.0	192.0	166.0
11	86.0	120.0	106.0	156.0	1810.0	124.0	203.0	219.0	205.0	180.0	196.0	158.0
12	86.0	118.0	111.0	137.0	3250.0	120.0	203.0	213.0	209.0	174.0	194.0	158.0
13	88.0	115.0	118.0	126.0	1860.0	118.0	209.0	211.0	205.0	184.0	192.0	156.0
14	86.0	115.0	118.0	120.0	1330.0	120.0	222.0	205.0	200.0	200.0	190.0	148.0
15	86.0	117.0	117.0	120.0	740.0	120.0	242.0	203.0	200.0	203.0	198.0	144.0
16	90.0	117.0	110.0	118.0	568.0	120.0	264.0	196.0	196.0	198.0	207.0	140.0
17	85.0	115.0	122.0	117.0	462.0	131.0	273.0	190.0	194.0	194.0	198.0	129.0
18	85.0	113.0	117.0	117.0	326.0	142.0	286.0	180.0	192.0	172.0	203.0	120.0
19	85.0	113.0	126.0	118.0	230.0	144.0	297.0	164.0	196.0	186.0	200.0	120.0
20	85.0	117.0	129.0	122.0	207.0	162.0	330.0	156.0	200.0	188.0	196.0	117.0
21	88.0	118.0	133.0	108.0	178.0	230.0	301.0	160.0	215.0	194.0	196.0	118.0
22	91.0	117.0	126.0	126.0	150.0	228.0	275.0	160.0	215.0	190.0	194.0	117.0
23	88.0	120.0	126.0	122.0	144.0	176.0	275.0	162.0	213.0	152.0	192.0	111.0
24	93.0	120.0	126.0	113.0	139.0	184.0	286.0	182.0	196.0	174.0	192.0	104.0
25	91.0	118.0	126.0	113.0	139.0	174.0	297.0	180.0	190.0	182.0	190.0	101.0
26	91.0	126.0	126.0	113.0	133.0	245.0	295.0	184.0	186.0	178.0	192.0	98.0
27	96.0	127.0	126.0	110.0	126.0	540.0	279.0	190.0	178.0	160.0	190.0	96.0
28	110.0	126.0	124.0	110.0	126.0	828.0	290.0	203.0	176.0	127.0	190.0	94.0
29	101.0	124.0	124.0	108.0	0.0	698.0	271.0	213.0	180.0	172.0	192.0	96.0
30	108.0	126.0	124.0	108.0	0.0	436.0	245.0	213.0	188.0	190.0	190.0	91.0
31	110.0	0.0	122.0	108.0	0.0	319.0	0.0	215.0	0.0	194.0	188.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1965

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.0	104.0	133.0	117.0	2590.0	133.0	144.0	205.0	200.0	160.0	151.0	172.0
2	91.0	104.0	137.0	117.0	1590.0	131.0	142.0	203.0	198.0	156.0	170.0	168.0
3	91.0	104.0	139.0	118.0	665.0	127.0	139.0	203.0	205.0	152.0	178.0	160.0
4	91.0	104.0	122.0	118.0	346.0	127.0	139.0	203.0	207.0	144.0	182.0	156.0
5	93.0	108.0	122.0	117.0	230.0	126.0	135.0	203.0	219.0	150.0	186.0	154.0
6	96.0	108.0	120.0	117.0	186.0	129.0	158.0	211.0	228.0	190.0	188.0	154.0
7	94.0	106.0	120.0	118.0	162.0	127.0	188.0	222.0	209.0	196.0	188.0	154.0
8	93.0	106.0	118.0	118.0	152.0	127.0	215.0	224.0	207.0	188.0	190.0	146.0
9	93.0	106.0	120.0	120.0	146.0	129.0	192.0	271.0	205.0	182.0	190.0	140.0
10	94.0	108.0	118.0	120.0	140.0	131.0	182.0	262.0	232.0	184.0	188.0	137.0
11	96.0	106.0	118.0	110.0	135.0	133.0	172.0	249.0	232.0	182.0	190.0	137.0
12	96.0	108.0	117.0	129.0	131.0	131.0	164.0	249.0	224.0	182.0	188.0	137.0
13	93.0	110.0	115.0	122.0	131.0	127.0	158.0	234.0	213.0	182.0	194.0	139.0
14	99.0	110.0	117.0	111.0	133.0	129.0	162.0	226.0	209.0	182.0	190.0	140.0
15	101.0	113.0	122.0	115.0	131.0	133.0	178.0	226.0	209.0	184.0	180.0	135.0
16	98.0	117.0	120.0	117.0	129.0	127.0	170.0	226.0	228.0	184.0	176.0	135.0
17	96.0	117.0	120.0	117.0	133.0	129.0	164.0	224.0	236.0	180.0	176.0	127.0
18	98.0	118.0	120.0	117.0	133.0	131.0	168.0	224.0	234.0	184.0	178.0	120.0
19	99.0	117.0	122.0	108.0	133.0	131.0	168.0	224.0	219.0	188.0	176.0	118.0
20	99.0	122.0	122.0	111.0	186.0	137.0	170.0	222.0	209.0	184.0	176.0	117.0
21	99.0	127.0	120.0	111.0	160.0	144.0	174.0	219.0	211.0	184.0	174.0	124.0
22	99.0	129.0	122.0	110.0	144.0	150.0	172.0	219.0	207.0	186.0	170.0	118.0
23	101.0	131.0	118.0	108.0	139.0	154.0	172.0	222.0	203.0	186.0	168.0	115.0
24	99.0	127.0	117.0	108.0	137.0	144.0	172.0	224.0	200.0	182.0	170.0	110.0
25	99.0	127.0	110.0	108.0	135.0	135.0	172.0	232.0	200.0	184.0	168.0	108.0
26	103.0	127.0	110.0	106.0	139.0	137.0	174.0	230.0	190.0	180.0	162.0	106.0
27	103.0	129.0	113.0	106.0	137.0	137.0	203.0	224.0	182.0	178.0	168.0	104.0
28	101.0	127.0	113.0	104.0	131.0	172.0	200.0	217.0	176.0	180.0	166.0	104.0
29	99.0	129.0	113.0	106.0	0.0	158.0	198.0	203.0	170.0	176.0	164.0	104.0
30	99.0	131.0	115.0	108.0	0.0	146.0	196.0	198.0	168.0	174.0	164.0	104.0
31	104.0	0.0	115.0	442.0	0.0	144.0	0.0	196.0	0.0	170.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1964

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103.0	118.0	129.0	127.0	124.0	120.0	139.0	260.0	260.0	232.0	204.0	168.0
2	104.0	118.0	126.0	131.0	122.0	120.0	142.0	262.0	260.0	222.0	202.0	162.0
3	106.0	122.0	124.0	129.0	118.0	117.0	140.0	243.0	258.0	218.0	200.0	158.0
4	108.0	126.0	124.0	127.0	120.0	117.0	148.0	234.0	253.0	208.0	182.0	152.0
5	108.0	129.0	124.0	127.0	122.0	117.0	154.0	245.0	260.0	206.0	154.0	148.0
6	103.0	140.0	127.0	131.0	122.0	117.0	152.0	241.0	255.0	200.0	125.0	146.0
7	98.0	140.0	127.0	129.0	122.0	113.0	146.0	232.0	306.0	198.0	168.0	146.0
8	98.0	137.0	129.0	122.0	120.0	113.0	168.0	232.0	320.0	226.0	192.0	144.0
9	98.0	142.0	133.0	126.0	120.0	113.0	253.0	236.0	300.0	224.0	188.0	144.0
10	99.0	144.0	131.0	129.0	122.0	113.0	364.0	247.0	278.0	216.0	190.0	142.0
11	96.0	139.0	127.0	127.0	122.0	113.0	373.0	262.0	268.0	210.0	194.0	146.0
12	99.0	135.0	127.0	124.0	120.0	115.0	337.0	264.0	260.0	222.0	192.0	140.0
13	104.0	135.0	131.0	120.0	120.0	113.0	276.0	274.0	258.0	224.0	196.0	137.0
14	101.0	135.0	131.0	122.0	118.0	111.0	276.0	295.0	251.0	222.0	194.0	142.0
15	99.0	139.0	133.0	124.0	122.0	113.0	310.0	316.0	251.0	212.0	194.0	142.0
16	98.0	142.0	133.0	124.0	124.0	111.0	320.0	323.0	260.0	206.0	194.0	140.0
17	98.0	140.0	135.0	127.0	124.0	111.0	285.0	329.0	325.0	210.0	192.0	126.0
18	98.0	137.0	133.0	129.0	120.0	113.0	255.0	329.0	405.0	210.0	192.0	111.0
19	98.0	140.0	133.0	129.0	122.0	111.0	243.0	331.0	438.0	212.0	190.0	108.0
20	99.0	140.0	133.0	129.0	118.0	110.0	239.0	335.0	394.0	212.0	192.0	104.0
21	101.0	144.0	135.0	127.0	120.0	115.0	236.0	352.0	358.0	212.0	198.0	108.0
22	104.0	139.0	129.0	127.0	120.0	117.0	228.0	352.0	350.0	206.0	194.0	106.0
23	108.0	139.0	127.0	126.0	118.0	117.0	228.0	337.0	331.0	208.0	192.0	108.0
24	113.0	142.0	127.0	124.0	122.0	117.0	224.0	314.0	308.0	214.0	188.0	104.0
25	110.0	139.0	127.0	126.0	120.0	117.0	220.0	300.0	289.0	212.0	184.0	104.0
26	110.0	139.0	127.0	126.0	120.0	120.0	222.0	293.0	278.0	210.0	184.0	106.0
27	111.0	139.0	127.0	122.0	120.0	117.0	216.0	300.0	266.0	208.0	184.0	106.0
28	113.0	135.0	127.0	122.0	118.0	117.0	214.0	302.0	260.0	226.0	184.0	101.0
29	113.0	131.0	126.0	122.0	120.0	120.0	222.0	291.0	255.0	222.0	184.0	101.0
30	120.0	131.0	126.0	124.0	0.0	122.0	236.0	278.0	243.0	212.0	184.0	101.0
31	122.0	0.0	127.0	122.0	0.0	129.0	0.0	266.0	0.0	208.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1965

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101.0	129.0	154.0	176.0	434.0	176.0	194.0	432.0	426.0	250.0	221.0	154.0
2	99.0	135.0	156.0	170.0	264.0	172.0	210.0	444.0	399.0	242.0	217.0	150.0
3	98.0	133.0	154.0	172.0	228.0	170.0	209.0	412.0	389.0	238.0	216.0	146.0
4	98.0	131.0	148.0	174.0	207.0	168.0	200.0	402.0	370.0	231.0	218.0	139.0
5	101.0	131.0	144.0	172.0	198.0	168.0	199.0	390.0	349.0	224.0	216.0	138.0
6	101.0	131.0	140.0	172.0	198.0	170.0	200.0	367.0	327.0	218.0	212.0	140.0
7	99.0	131.0	133.0	180.0	190.0	170.0	208.0	365.0	330.0	217.0	211.0	139.0
8	99.0	131.0	133.0	168.0	182.0	174.0	206.0	380.0	323.0	231.0	207.0	142.0
9	98.0	129.0	137.0	170.0	182.0	178.0	210.0	370.0	316.0	235.0	208.0	150.0
10	103.0	135.0	139.0	168.0	172.0	176.0	211.0	367.0	306.0	236.0	210.0	142.0
11	103.0	140.0	137.0	168.0	166.0	182.0	207.0	365.0	293.0	229.0	206.0	143.0
12	103.0	140.0	127.0	166.0	170.0	182.0	202.0	383.0	282.0	221.0	207.0	142.0
13	103.0	137.0	127.0	162.0	166.0	182.0	203.0	407.0	269.0	215.0	208.0	143.0
14	106.0	133.0	127.0	162.0	168.0	182.0	205.0	429.0	258.0	209.0	205.0	144.0
15	104.0	131.0	131.0	158.0	164.0	182.0	201.0	460.0	247.0	207.0	206.0	146.0
16	106.0	131.0	122.0	158.0	166.0	182.0	204.0	479.0	246.0	206.0	205.0	153.0
17	106.0	137.0	118.0	152.0	164.0	178.0	209.0	493.0	263.0	213.0	199.0	156.0
18	108.0	135.0	122.0	152.0	162.0	166.0	211.0	487.0	278.0	220.0	197.0	154.0
19	108.0	139.0	126.0	154.0	164.0	166.0	235.0	476.0	260.0	230.0	200.0	155.0
20	108.0	137.0	131.0	150.0	170.0	170.0	297.0	481.0	249.0	247.0	204.0	154.0
21	108.0	137.0	152.0	146.0	180.0	176.0	325.0	492.0	249.0	249.0	206.0	152.0
22	110.0	139.0	421.0	146.0	198.0	174.0	353.0	489.0	251.0	236.0	195.0	153.0
23	110.0	139.0	1330.0	150.0	178.0	168.0	398.0	485.0	250.0	231.0	192.0	150.0
24	113.0	139.0	1080.0	154.0	176.0	166.0	375.0	498.0	248.0	229.0	181.0	149.0
25	113.0	150.0	606.0	146.0	174.0	164.0	381.0	480.0	287.0	226.0	173.0	150.0
26	113.0	154.0	326.0	146.0	174.0	172.0	381.0	455.0	310.0	229.0	169.0	151.0
27	120.0	144.0	260.0	150.0	184.0	176.0	369.0	432.0	313.0	227.0	166.0	150.0
28	118.0	144.0	230.0	150.0	186.0	174.0	369.0	417.0	294.0	226.0	165.0	151.0
29	120.0	142.0	211.0	190.0	0.0	178.0	379.0	414.0	273.0	246.0	162.0	153.0
30	126.0	144.0	192.0	552.0	0.0	186.0	406.0	415.0	242.0	238.0	157.0	149.0
31	129.0	0.0	190.0	810.0	0.0	186.0	0.0	425.0	0.0	238.0	153.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1966

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.0	133.0	150.0	146.0	142.0	147.0	360.0	176.0	212.0	165.0	154.0	148.0
2	151.0	133.0	149.0	140.0	142.0	145.0	339.0	177.0	209.0	166.0	151.0	153.0
3	148.0	144.0	150.0	144.0	139.0	140.0	301.0	183.0	209.0	165.0	164.0	152.0
4	145.0	145.0	148.0	144.0	140.0	136.0	268.0	192.0	209.0	183.0	156.0	131.0
5	145.0	147.0	148.0	145.0	142.0	138.0	245.0	200.0	215.0	187.0	137.0	111.0
6	145.0	147.0	146.0	144.0	147.0	144.0	238.0	203.0	212.0	187.0	122.0	108.0
7	144.0	148.0	144.0	158.0	147.0	143.0	236.0	206.0	218.0	188.0	110.0	104.0
8	143.0	149.0	144.0	155.0	144.0	148.0	232.0	206.0	218.0	185.0	106.0	100.0
9	143.0	148.0	143.0	153.0	147.0	150.0	234.0	209.0	221.0	185.0	113.0	97.0
10	144.0	146.0	146.0	153.0	145.0	158.0	239.0	252.0	229.0	178.0	130.0	94.0
11	143.0	148.0	147.0	154.0	143.0	159.0	236.0	273.0	241.0	176.0	139.0	95.0
12	142.0	149.0	146.0	152.0	147.0	158.0	228.0	247.0	224.0	175.0	132.0	95.0
13	143.0	156.0	149.0	154.0	142.0	165.0	218.0	232.0	215.0	178.0	133.0	95.0
14	142.0	163.0	149.0	156.0	148.0	175.0	208.0	212.0	209.0	170.0	133.0	97.0
15	144.0	169.0	138.0	152.0	144.0	181.0	201.0	194.0	203.0	166.0	126.0	102.0
16	143.0	161.0	141.0	147.0	142.0	182.0	205.0	186.0	200.0	164.0	125.0	99.0
17	142.0	163.0	142.0	142.0	143.0	163.0	208.0	171.0	197.0	165.0	124.0	91.0
18	141.0	163.0	134.0	142.0	144.0	162.0	211.0	160.0	192.0	159.0	129.0	78.0
19	143.0	177.0	134.0	145.0	144.0	166.0	203.0	154.0	192.0	159.0	139.0	75.0
20	142.0	169.0	138.0	144.0	146.0	166.0	195.0	148.0	194.0	157.0	135.0	75.0
21	141.0	166.0	136.0	139.0	146.0	174.0	194.0	177.0	197.0	154.0	137.0	76.0
22	140.0	165.0	143.0	142.0	145.0	161.0	186.0	194.0	203.0	152.0	139.0	68.0
23	140.0	169.0	141.0	145.0	145.0	165.0	183.0	238.0	218.0	152.0	140.0	68.0
24	142.0	187.0	139.0	147.0	146.0	163.0	181.0	238.0	209.0	152.0	138.0	70.0
25	141.0	185.0	142.0	142.0	146.0	175.0	179.0	238.0	180.0	151.0	140.0	92.0
26	138.0	174.0	141.0	142.0	148.0	193.0	186.0	226.0	177.0	148.0	144.0	105.0
27	136.0	170.0	139.0	141.0	146.0	228.0	186.0	218.0	180.0	146.0	147.0	108.0
28	134.0	158.0	140.0	141.0	144.0	296.0	182.0	218.0	177.0	145.0	147.0	105.0
29	133.0	154.0	143.0	139.0	0.0	336.0	177.0	212.0	173.0	149.0	145.0	103.0
30	132.0	151.0	151.0	142.0	0.0	353.0	174.0	209.0	170.0	149.0	144.0	96.0
31	132.0	0.0	146.0	142.0	0.0	361.0	0.0	215.0	0.0	150.0	146.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1967

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94.0	92.0	138.0	121.0	128.0	125.0	205.0	146.0	249.0	211.0	170.0	185.0
2	96.0	92.0	148.0	120.0	125.0	126.0	194.0	146.0	251.0	200.0	168.0	186.0
3	99.0	94.0	163.0	117.0	124.0	125.0	188.0	148.0	237.0	190.0	165.0	177.0
4	97.0	95.0	152.0	120.0	124.0	123.0	194.0	152.0	239.0	188.0	196.0	172.0
5	97.0	95.0	156.0	125.0	124.0	122.0	207.0	155.0	246.0	172.0	211.0	173.0
6	96.0	98.0	149.0	120.0	121.0	123.0	204.0	155.0	250.0	163.0	198.0	171.0
7	94.0	104.0	148.0	116.0	122.0	122.0	195.0	165.0	259.0	160.0	194.0	164.0
8	92.0	116.0	142.0	117.0	115.0	123.0	193.0	200.0	275.0	176.0	185.0	165.0
9	91.0	104.0	128.0	117.0	120.0	128.0	187.0	232.0	276.0	175.0	175.0	164.0
10	91.0	109.0	132.0	114.0	120.0	142.0	183.0	276.0	273.0	156.0	173.0	162.0
11	94.0	114.0	133.0	113.0	118.0	174.0	181.0	262.0	285.0	147.0	172.0	164.0
12	98.0	117.0	132.0	116.0	119.0	204.0	180.0	230.0	283.0	138.0	180.0	165.0
13	101.0	117.0	131.0	119.0	122.0	177.0	174.0	214.0	287.0	130.0	182.0	164.0
14	99.0	115.0	136.0	126.0	135.0	161.0	175.0	204.0	306.0	124.0	181.0	126.0
15	92.0	115.0	131.0	127.0	123.0	152.0	176.0	201.0	339.0	118.0	182.0	118.0
16	90.0	118.0	124.0	127.0	126.0	153.0	176.0	213.0	328.0	110.0	183.0	109.0
17	85.0	117.0	125.0	123.0	123.0	165.0	167.0	239.0	308.0	140.0	183.0	105.0
18	85.0	116.0	121.0	123.0	131.0	175.0	165.0	277.0	292.0	156.0	180.0	110.0
19	84.0	115.0	122.0	121.0	117.0	185.0	171.0	312.0	270.0	150.0	180.0	109.0
20	87.0	116.0	122.0	122.0	111.0	183.0	168.0	328.0	288.0	153.0	182.0	109.0
21	87.0	130.0	123.0	131.0	113.0	189.0	163.0	320.0	315.0	146.0	183.0	107.0
22	89.0	129.0	120.0	136.0	114.0	201.0	161.0	322.0	315.0	144.0	183.0	104.0
23	94.0	123.0	116.0	131.0	117.0	220.0	163.0	340.0	314.0	170.0	186.0	104.0
24	92.0	119.0	116.0	123.0	116.0	225.0	163.0	348.0	280.0	180.0	185.0	104.0
25	91.0	123.0	120.0	130.0	124.0	224.0	158.0	344.0	254.0	182.0	177.0	104.0
26	90.0	130.0	120.0	124.0	126.0	223.0	157.0	314.0	239.0	179.0	165.0	103.0
27	93.0	125.0	118.0	125.0	122.0	213.0	156.0	287.0	238.0	168.0	166.0	101.0
28	94.0	130.0	116.0	122.0	122.0	217.0	159.0	281.0	261.0	165.0	174.0	101.0
29	94.0	137.0	117.0	124.0	0.0	238.0	159.0	301.0	241.0	164.0	175.0	102.0
30	94.0	135.0	118.0	129.0	0.0	218.0	155.0	297.0	223.0	162.0	178.0	106.0
31	93.0	0.0	118.0	132.0	0.0	211.0	0.0	273.0	0.0	167.0	178.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1968

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	134.0	126.0	138.0	138.0	219.0	183.0	173.0	228.0	203.0	190.0	128.0
2	122.0	135.0	124.0	137.0	137.0	209.0	186.0	182.0	221.0	196.0	181.0	128.0
3	128.0	131.0	125.0	133.0	141.0	206.0	177.0	186.0	229.0	202.0	178.0	131.0
4	122.0	132.0	130.0	128.0	135.0	205.0	174.0	195.0	244.0	211.0	175.0	130.0
5	131.0	131.0	130.0	137.0	135.0	211.0	181.0	212.0	258.0	206.0	171.0	130.0
6	139.0	129.0	126.0	131.0	133.0	222.0	180.0	216.0	296.0	204.0	172.0	128.0
7	110.0	132.0	132.0	127.0	133.0	241.0	176.0	201.0	303.0	208.0	133.0	118.0
8	108.0	130.0	133.0	133.0	130.0	234.0	173.0	186.0	317.0	223.0	121.0	118.0
9	105.0	133.0	120.0	137.0	129.0	220.0	168.0	183.0	330.0	219.0	173.0	116.0
10	119.0	137.0	131.0	137.0	129.0	207.0	166.0	177.0	347.0	220.0	172.0	114.0
11	128.0	132.0	131.0	136.0	129.0	197.0	170.0	182.0	342.0	226.0	170.0	110.0
12	131.0	127.0	120.0	127.0	130.0	196.0	173.0	195.0	301.0	225.0	167.0	107.0
13	133.0	125.0	116.0	130.0	129.0	197.0	169.0	203.0	291.0	231.0	173.0	105.0
14	132.0	127.0	119.0	136.0	125.0	198.0	165.0	225.0	271.0	218.0	178.0	108.0
15	130.0	127.0	125.0	134.0	124.0	199.0	167.0	220.0	248.0	195.0	177.0	110.0
16	129.0	128.0	126.0	134.0	128.0	199.0	169.0	205.0	225.0	192.0	164.0	117.0
17	132.0	127.0	130.0	137.0	124.0	205.0	163.0	188.0	210.0	195.0	165.0	114.0
18	131.0	126.0	129.0	131.0	128.0	198.0	161.0	179.0	193.0	194.0	192.0	118.0
19	131.0	130.0	129.0	133.0	150.0	188.0	160.0	169.0	184.0	175.0	178.0	120.0
20	130.0	131.0	128.0	132.0	192.0	181.0	155.0	169.0	184.0	182.0	173.0	121.0
21	133.0	131.0	130.0	132.0	207.0	180.0	155.0	181.0	181.0	183.0	185.0	125.0
22	136.0	124.0	128.0	133.0	220.0	178.0	153.0	204.0	216.0	180.0	212.0	127.0
23	137.0	134.0	127.0	131.0	225.0	178.0	151.0	208.0	228.0	177.0	181.0	128.0
24	136.0	134.0	128.0	131.0	235.0	181.0	150.0	200.0	231.0	177.0	161.0	127.0
25	134.0	132.0	130.0	133.0	237.0	183.0	151.0	211.0	230.0	182.0	148.0	125.0
26	133.0	130.0	136.0	136.0	221.0	178.0	151.0	225.0	240.0	182.0	141.0	124.0
27	132.0	118.0	136.0	142.0	209.0	180.0	151.0	227.0	231.0	180.0	137.0	124.0
28	145.0	127.0	136.0	141.0	213.0	182.0	145.0	211.0	228.0	175.0	133.0	126.0
29	143.0	130.0	132.0	134.0	225.0	184.0	149.0	221.0	226.0	171.0	133.0	127.0
30	135.0	137.0	133.0	140.0	0.0	186.0	158.0	240.0	224.0	172.0	132.0	126.0
31	131.0	0.0	129.0	140.0	0.0	181.0	0.0	241.0	0.0	172.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1969

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	134.0	143.0	128.0	187.0	158.0	670.0	537.0	272.0	241.0	213.0	199.0
2	126.0	133.0	142.0	129.0	180.0	157.0	711.0	537.0	261.0	228.0	214.0	194.0
3	120.0	136.0	140.0	122.0	175.0	150.0	778.0	546.0	283.0	217.0	222.0	193.0
4	121.0	143.0	142.0	122.0	172.0	152.0	609.0	554.0	277.0	200.0	216.0	189.0
5	120.0	137.0	141.0	125.0	173.0	151.0	543.0	560.0	274.0	185.0	217.0	185.0
6	120.0	134.0	141.0	136.0	173.0	156.0	539.0	576.0	277.0	184.0	213.0	180.0
7	123.0	132.0	140.0	140.0	169.0	153.0	478.0	592.0	275.0	183.0	206.0	174.0
8	123.0	134.0	146.0	136.0	166.0	149.0	380.0	598.0	269.0	180.0	201.0	175.0
9	123.0	151.0	142.0	133.0	165.0	146.0	337.0	603.0	268.0	172.0	200.0	174.0
10	122.0	146.0	142.0	130.0	163.0	145.0	329.0	602.0	277.0	163.0	200.0	178.0
11	124.0	143.0	145.0	132.0	161.0	147.0	331.0	590.0	284.0	207.0	204.0	176.0
12	125.0	146.0	141.0	137.0	163.0	148.0	313.0	590.0	253.0	205.0	220.0	169.0
13	125.0	143.0	138.0	137.0	165.0	147.0	326.0	591.0	266.0	200.0	215.0	169.0
14	139.0	136.0	139.0	176.0	155.0	145.0	342.0	608.0	248.0	199.0	206.0	168.0
15	143.0	142.0	141.0	177.0	157.0	147.0	350.0	599.0	236.0	198.0	201.0	162.0
16	144.0	138.0	142.0	169.0	155.0	146.0	346.0	578.0	243.0	177.0	201.0	154.0
17	141.0	139.0	140.0	161.0	151.0	151.0	362.0	539.0	238.0	207.0	201.0	154.0
18	142.0	139.0	139.0	152.0	148.0	173.0	400.0	511.0	232.0	208.0	202.0	156.0
19	140.0	145.0	141.0	185.0	151.0	166.0	412.0	506.0	229.0	203.0	202.0	162.0
20	140.0	145.0	137.0	465.0	154.0	160.0	427.0	484.0	242.0	207.0	205.0	148.0
21	139.0	145.0	129.0	750.0	153.0	160.0	435.0	455.0	263.0	224.0	188.0	139.0
22	137.0	145.0	130.0	887.0	153.0	163.0	419.0	422.0	259.0	208.0	181.0	134.0
23	137.0	148.0	134.0	482.0	154.0	161.0	598.0	404.0	240.0	202.0	179.0	133.0
24	132.0	149.0	139.0	316.0	158.0	160.0	647.0	392.0	268.0	202.0	179.0	129.0
25	130.0	154.0	138.0	255.0	175.0	161.0	628.0	388.0	288.0	211.0	181.0	109.0
26	129.0	140.0	141.0	241.0	160.0	176.0	606.0	384.0	289.0	211.0	183.0	108.0
27	126.0	147.0	137.0	222.0	154.0	198.0	556.0	362.0	278.0	211.0	186.0	107.0
28	128.0	144.0	138.0	210.0	153.0	223.0	533.0	370.0	270.0	216.0	185.0	106.0
29	133.0	136.0	128.0	199.0	0.0	251.0	538.0	343.0	266.0	218.0	187.0	108.0
30	136.0	142.0	108.0	194.0	0.0	392.0	542.0	330.0	257.0	222.0	185.0	113.0
31	137.0	0.0	120.0	189.0	0.0	580.0	0.0	296.0	0.0	213.0	184.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1970

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104.0	136.0	139.0	138.0	171.0	187.0	157.0	171.0	487.0	220.0	200.0	179.0
2	109.0	140.0	138.0	136.0	166.0	218.0	160.0	169.0	470.0	199.0	183.0	180.0
3	114.0	139.0	139.0	139.0	163.0	203.0	159.0	169.0	425.0	186.0	174.0	179.0
4	114.0	139.0	141.0	141.0	160.0	190.0	157.0	176.0	420.0	206.0	168.0	175.0
5	113.0	139.0	139.0	135.0	159.0	179.0	159.0	198.0	464.0	207.0	170.0	202.0
6	111.0	138.0	134.0	127.0	161.0	172.0	164.0	211.0	469.0	206.0	173.0	199.0
7	110.0	144.0	139.0	126.0	159.0	174.0	166.0	242.0	457.0	203.0	172.0	204.0
8	109.0	144.0	137.0	130.0	159.0	180.0	161.0	224.0	446.0	205.0	170.0	196.0
9	111.0	142.0	140.0	136.0	157.0	179.0	158.0	225.0	468.0	209.0	169.0	191.0
10	116.0	145.0	138.0	144.0	158.0	172.0	162.0	248.0	473.0	217.0	170.0	182.0
11	115.0	141.0	138.0	137.0	157.0	169.0	171.0	233.0	425.0	229.0	175.0	151.0
12	115.0	139.0	138.0	137.0	165.0	170.0	165.0	226.0	390.0	213.0	186.0	140.0
13	120.0	137.0	139.0	140.0	175.0	169.0	162.0	222.0	399.0	203.0	182.0	140.0
14	126.0	136.0	139.0	145.0	169.0	171.0	164.0	215.0	409.0	206.0	180.0	139.0
15	136.0	135.0	141.0	152.0	168.0	184.0	160.0	209.0	378.0	202.0	179.0	141.0
16	138.0	140.0	141.0	155.0	170.0	182.0	157.0	221.0	365.0	201.0	182.0	141.0
17	145.0	137.0	141.0	197.0	178.0	186.0	158.0	247.0	352.0	202.0	182.0	140.0
18	147.0	132.0	141.0	211.0	167.0	163.0	155.0	282.0	311.0	197.0	187.0	128.0
19	143.0	131.0	142.0	217.0	164.0	167.0	159.0	338.0	297.0	193.0	187.0	126.0
20	138.0	134.0	155.0	237.0	160.0	168.0	163.0	330.0	231.0	189.0	190.0	131.0
21	137.0	142.0	160.0	229.0	159.0	174.0	160.0	430.0	212.0	155.0	190.0	131.0
22	138.0	143.0	173.0	306.0	159.0	174.0	163.0	478.0	204.0	205.0	186.0	134.0
23	138.0	140.0	162.0	331.0	160.0	170.0	163.0	524.0	187.0	200.0	191.0	133.0
24	135.0	142.0	154.0	297.0	159.0	171.0	161.0	521.0	180.0	202.0	192.0	132.0
25	134.0	140.0	148.0	249.0	160.0	168.0	160.0	488.0	169.0	198.0	210.0	127.0
26	134.0	141.0	151.0	223.0	162.0	172.0	167.0	487.0	162.0	195.0	223.0	129.0
27	134.0	138.0	148.0	266.0	164.0	165.0	176.0	505.0	162.0	203.0	209.0	127.0
28	143.0	138.0	136.0	216.0	172.0	168.0	175.0	538.0	220.0	206.0	201.0	125.0
29	143.0	138.0	133.0	196.0	0.0	168.0	175.0	545.0	225.0	215.0	184.0	125.0
30	138.0	139.0	137.0	181.0	0.0	168.0	174.0	529.0	222.0	215.0	179.0	124.0
31	136.0	0.0	139.0	168.0	0.0	163.0	0.0	508.0	0.0	207.0	177.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1971

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	138.0	165.0	141.0	210.0	166.0	420.0	554.0	777.0	260.0	227.0	244.0
2	122.0	136.0	158.0	134.0	207.0	161.0	375.0	600.0	780.0	255.0	226.0	249.0
3	121.0	135.0	157.0	127.0	202.0	164.0	367.0	663.0	778.0	255.0	231.0	266.0
4	119.0	134.0	153.0	125.0	185.0	165.0	372.0	739.0	736.0	255.0	234.0	266.0
5	123.0	138.0	152.0	114.0	185.0	165.0	375.0	785.0	651.0	250.0	237.0	253.0
6	133.0	143.0	152.0	120.0	179.0	162.0	379.0	794.0	633.0	250.0	236.0	241.0
7	142.0	142.0	152.0	132.0	179.0	163.0	389.0	827.0	602.0	255.0	238.0	247.0
8	136.0	141.0	162.0	134.0	177.0	166.0	390.0	845.0	583.0	265.0	237.0	247.0
9	140.0	141.0	172.0	146.0	169.0	164.0	390.0	862.0	570.0	265.0	233.0	244.0
10	152.0	144.0	174.0	148.0	175.0	160.0	399.0	891.0	530.0	257.0	231.0	241.0
11	142.0	140.0	162.0	145.0	178.0	160.0	404.0	899.0	500.0	250.0	233.0	238.0
12	139.0	143.0	146.0	138.0	178.0	190.0	389.0	900.0	470.0	245.0	233.0	238.0
13	142.0	142.0	144.0	137.0	181.0	309.0	375.0	940.0	445.0	236.0	234.0	236.0
14	138.0	135.0	140.0	137.0	185.0	266.0	381.0	964.0	410.0	244.0	234.0	234.0
15	136.0	134.0	144.0	135.0	196.0	242.0	400.0	953.0	395.0	244.0	241.0	234.0
16	142.0	135.0	146.0	137.0	196.0	230.0	404.0	932.0	390.0	244.0	240.0	235.0
17	136.0	135.0	147.0	155.0	194.0	232.0	430.0	905.0	375.0	250.0	247.0	237.0
18	133.0	140.0	147.0	176.0	192.0	219.0	439.0	867.0	360.0	260.0	255.0	237.0
19	133.0	139.0	143.0	174.0	192.0	214.0	443.0	822.0	350.0	256.0	251.0	233.0
20	132.0	137.0	136.0	220.0	179.0	221.0	436.0	776.0	330.0	251.0	244.0	235.0
21	134.0	136.0	146.0	199.0	174.0	231.0	431.0	741.0	320.0	255.0	241.0	234.0
22	138.0	134.0	146.0	189.0	166.0	252.0	454.0	720.0	305.0	254.0	237.0	233.0
23	140.0	147.0	133.0	198.0	181.0	307.0	463.0	725.0	300.0	235.0	235.0	234.0
24	152.0	166.0	139.0	191.0	184.0	442.0	464.0	711.0	290.0	219.0	231.0	237.0
25	150.0	184.0	138.0	183.0	176.0	529.0	481.0	695.0	285.0	233.0	233.0	209.0
26	148.0	185.0	134.0	186.0	163.0	527.0	567.0	697.0	275.0	237.0	234.0	187.0
27	140.0	171.0	136.0	184.0	163.0	576.0	595.0	707.0	265.0	227.0	234.0	182.0
28	136.0	161.0	142.0	176.0	167.0	551.0	561.0	719.0	265.0	189.0	234.0	186.0
29	140.0	156.0	143.0	170.0	0.0	516.0	521.0	731.0	270.0	212.0	249.0	195.0
30	141.0	171.0	144.0	182.0	0.0	548.0	522.0	746.0	270.0	223.0	254.0	211.0
31	140.0	0.0	141.0	202.0	0.0	528.0	0.0	764.0	0.0	228.0	247.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1972

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224.0	201.0	189.0	229.0	201.0	322.0	412.0	552.0	498.0	279.0	235.0	230.0
2	224.0	198.0	182.0	224.0	193.0	353.0	423.0	546.0	513.0	273.0	235.0	228.0
3	221.0	198.0	190.0	193.0	191.0	408.0	427.0	549.0	526.0	267.0	232.0	227.0
4	215.0	200.0	189.0	195.0	190.0	424.0	431.0	569.0	519.0	262.0	227.0	227.0
5	212.0	202.0	193.0	203.0	188.0	438.0	440.0	600.0	500.0	263.0	224.0	236.0
6	211.0	194.0	198.0	205.0	186.0	521.0	488.0	638.0	488.0	260.0	222.0	249.0
7	210.0	194.0	183.0	205.0	186.0	560.0	521.0	690.0	479.0	248.0	221.0	237.0
8	209.0	197.0	171.0	204.0	185.0	587.0	515.0	754.0	492.0	231.0	233.0	232.0
9	203.0	195.0	181.0	203.0	186.0	546.0	513.0	753.0	510.0	254.0	232.0	237.0
10	197.0	197.0	182.0	178.0	183.0	531.0	514.0	733.0	493.0	255.0	231.0	247.0
11	196.0	199.0	181.0	169.0	183.0	528.0	522.0	693.0	463.0	252.0	227.0	243.0
12	197.0	203.0	181.0	173.0	185.0	510.0	621.0	679.0	442.0	250.0	226.0	239.0
13	196.0	214.0	181.0	169.0	188.0	519.0	629.0	663.0	418.0	245.0	232.0	237.0
14	202.0	214.0	180.0	167.0	190.0	528.0	561.0	659.0	400.0	242.0	240.0	236.0
15	203.0	209.0	182.0	167.0	192.0	500.0	575.0	673.0	384.0	242.0	226.0	214.0
16	211.0	198.0	179.0	165.0	198.0	479.0	511.0	690.0	380.0	237.0	223.0	199.0
17	226.0	197.0	178.0	170.0	205.0	481.0	510.0	695.0	383.0	236.0	219.0	191.0
18	230.0	195.0	179.0	179.0	209.0	489.0	498.0	704.0	379.0	240.0	217.0	189.0
19	225.0	192.0	180.0	193.0	220.0	518.0	486.0	706.0	367.0	242.0	216.0	207.0
20	225.0	195.0	182.0	192.0	225.0	506.0	472.0	692.0	347.0	246.0	216.0	202.0
21	221.0	198.0	181.0	217.0	228.0	486.0	470.0	663.0	352.0	256.0	217.0	200.0
22	216.0	199.0	183.0	226.0	232.0	484.0	474.0	643.0	352.0	249.0	218.0	202.0
23	214.0	196.0	198.0	231.0	233.0	504.0	469.0	622.0	342.0	246.0	225.0	200.0
24	213.0	201.0	198.0	189.0	235.0	491.0	453.0	580.0	341.0	244.0	223.0	198.0
25	210.0	205.0	227.0	218.0	234.0	466.0	482.0	524.0	357.0	263.0	221.0	197.0
26	209.0	199.0	259.0	206.0	233.0	452.0	520.0	519.0	349.0	249.0	221.0	198.0
27	215.0	209.0	236.0	205.0	245.0	432.0	520.0	493.0	327.0	251.0	220.0	202.0
28	212.0	199.0	231.0	205.0	277.0	428.0	527.0	483.0	310.0	240.0	220.0	203.0
29	199.0	201.0	234.0	199.0	309.0	421.0	551.0	488.0	295.0	237.0	228.0	204.0
30	202.0	198.0	233.0	200.0	0.0	414.0	558.0	488.0	284.0	235.0	231.0	200.0
31	204.0	0.0	229.0	200.0	0.0	408.0	0.0	489.0	0.0	236.0	238.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1973

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198.0	205.0	275.0	201.0	200.0	224.0	229.0	370.0	296.0	270.0	180.0	192.0
2	198.0	213.0	280.0	207.0	196.0	232.0	222.0	355.0	299.0	234.0	173.0	208.0
3	196.0	215.0	280.0	212.0	196.0	219.0	225.0	371.0	293.0	151.0	176.0	193.0
4	196.0	217.0	265.0	199.0	202.0	216.0	234.0	411.0	288.0	174.0	178.0	184.0
5	203.0	219.0	250.0	202.0	202.0	219.0	249.0	449.0	279.0	192.0	180.0	183.0
6	199.0	212.0	250.0	208.0	204.0	217.0	304.0	456.0	275.0	192.0	174.0	181.0
7	199.0	209.0	250.0	202.0	208.0	216.0	327.0	469.0	267.0	190.0	174.0	181.0
8	200.0	209.0	245.0	201.0	200.0	215.0	300.0	495.0	260.0	202.0	171.0	211.0
9	199.0	208.0	240.0	202.0	198.0	204.0	280.0	501.0	247.0	215.0	174.0	224.0
10	234.0	205.0	220.0	201.0	212.0	202.0	307.0	492.0	243.0	217.0	175.0	198.0
11	220.0	205.0	210.0	199.0	208.0	209.0	372.0	489.0	240.0	214.0	175.0	188.0
12	211.0	205.0	208.0	206.0	216.0	201.0	428.0	484.0	234.0	207.0	174.0	162.0
13	209.0	202.0	206.0	222.0	211.0	200.0	501.0	482.0	225.0	209.0	174.0	154.0
14	205.0	202.0	203.0	243.0	210.0	194.0	545.0	484.0	269.0	217.0	175.0	151.0
15	207.0	202.0	196.0	236.0	201.0	190.0	515.0	486.0	312.0	211.0	175.0	151.0
16	209.0	204.0	198.0	221.0	201.0	193.0	443.0	486.0	288.0	208.0	178.0	150.0
17	207.0	205.0	200.0	246.0	208.0	201.0	415.0	492.0	267.0	209.0	178.0	154.0
18	205.0	205.0	202.0	227.0	208.0	202.0	395.0	498.0	255.0	202.0	177.0	151.0
19	205.0	215.0	207.0	226.0	202.0	197.0	360.0	510.0	248.0	213.0	175.0	145.0
20	218.0	240.0	214.0	206.0	197.0	201.0	328.0	526.0	241.0	255.0	176.0	150.0
21	226.0	270.0	218.0	213.0	202.0	206.0	306.0	526.0	221.0	247.0	182.0	149.0
22	222.0	270.0	240.0	203.0	201.0	205.0	297.0	500.0	213.0	234.0	198.0	150.0
23	219.0	265.0	248.0	209.0	203.0	205.0	303.0	471.0	210.0	236.0	210.0	161.0
24	222.0	260.0	239.0	207.0	204.0	206.0	319.0	448.0	210.0	234.0	200.0	167.0
25	220.0	280.0	221.0	210.0	207.0	212.0	324.0	465.0	208.0	223.0	187.0	171.0
26	217.0	300.0	221.0	211.0	207.0	218.0	323.0	466.0	226.0	211.0	183.0	168.0
27	214.0	300.0	219.0	205.0	210.0	228.0	334.0	438.0	229.0	183.0	180.0	165.0
28	215.0	285.0	221.0	198.0	213.0	227.0	372.0	416.0	242.0	184.0	169.0	162.0
29	214.0	275.0	212.0	203.0	0.0	218.0	401.0	385.0	243.0	187.0	168.0	160.0
30	198.0	270.0	200.0	203.0	0.0	220.0	384.0	361.0	250.0	185.0	180.0	159.0
31	199.0	0.0	213.0	202.0	0.0	228.0	0.0	295.0	0.0	192.0	182.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1974

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156.0	155.0	185.0	163.0	194.0	184.0	474.0	560.0	494.0	212.0	208.0	207.0
2	153.0	155.0	190.0	160.0	181.0	236.0	489.0	587.0	476.0	216.0	213.0	209.0
3	149.0	160.0	190.0	160.0	180.0	236.0	388.0	600.0	463.0	212.0	219.0	212.0
4	150.0	165.0	180.0	168.0	180.0	208.0	371.0	609.0	448.0	211.0	230.0	207.0
5	150.0	175.0	172.0	177.0	186.0	194.0	356.0	618.0	401.0	235.0	229.0	201.0
6	153.0	180.0	173.0	176.0	178.0	205.0	353.0	636.0	366.0	218.0	228.0	200.0
7	152.0	185.0	176.0	175.0	178.0	211.0	343.0	653.0	336.0	221.0	230.0	198.0
8	165.0	195.0	177.0	173.0	174.0	272.0	337.0	680.0	316.0	215.0	236.0	195.0
9	169.0	190.0	170.0	174.0	178.0	287.0	344.0	720.0	297.0	213.0	231.0	192.0
10	163.0	185.0	172.0	171.0	173.0	332.0	370.0	744.0	280.0	226.0	219.0	191.0
11	159.0	185.0	177.0	172.0	173.0	333.0	393.0	714.0	272.0	239.0	214.0	191.0
12	162.0	195.0	178.0	171.0	176.0	310.0	392.0	674.0	278.0	243.0	205.0	190.0
13	161.0	210.0	178.0	173.0	177.0	377.0	384.0	633.0	278.0	246.0	201.0	186.0
14	157.0	208.0	179.0	172.0	171.0	354.0	370.0	598.0	277.0	226.0	202.0	185.0
15	156.0	195.0	177.0	177.0	172.0	323.0	371.0	563.0	272.0	220.0	202.0	182.0
16	157.0	190.0	177.0	187.0	173.0	374.0	383.0	533.0	269.0	228.0	202.0	172.0
17	160.0	195.0	179.0	197.0	176.0	454.0	402.0	507.0	264.0	224.0	202.0	173.0
18	158.0	205.0	183.0	196.0	170.0	450.0	428.0	486.0	256.0	219.0	200.0	170.0
19	156.0	220.0	168.0	204.0	175.0	454.0	458.0	477.0	246.0	210.0	207.0	169.0
20	156.0	205.0	170.0	196.0	171.0	389.0	463.0	489.0	234.0	211.0	209.0	159.0
21	160.0	190.0	178.0	188.0	161.0	363.0	450.0	525.0	226.0	219.0	215.0	153.0
22	163.0	185.0	183.0	182.0	169.0	350.0	449.0	507.0	222.0	219.0	216.0	156.0
23	165.0	185.0	182.0	185.0	159.0	330.0	482.0	479.0	208.0	216.0	216.0	155.0
24	175.0	185.0	178.0	183.0	156.0	320.0	521.0	459.0	203.0	219.0	216.0	154.0
25	172.0	180.0	177.0	186.0	157.0	328.0	569.0	452.0	218.0	212.0	215.0	153.0
26	170.0	175.0	168.0	188.0	160.0	367.0	625.0	467.0	215.0	197.0	222.0	154.0
27	169.0	170.0	177.0	186.0	160.0	429.0	611.0	496.0	218.0	202.0	214.0	156.0
28	169.0	170.0	183.0	186.0	171.0	487.0	579.0	521.0	217.0	203.0	208.0	156.0
29	165.0	170.0	182.0	185.0	0.0	495.0	548.0	534.0	214.0	202.0	207.0	142.0
30	160.0	175.0	178.0	183.0	0.0	474.0	542.0	538.0	213.0	203.0	213.0	138.0
31	160.0	0.0	166.0	190.0	0.0	465.0	0.0	517.0	0.0	199.0	211.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1975

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	196.0	175.0	166.0	170.0	185.0	200.0	248.0	624.0	314.0	283.0	190.0
2	131.0	190.0	174.0	169.0	170.0	194.0	198.0	247.0	653.0	291.0	248.0	189.0
3	130.0	185.0	174.0	172.0	180.0	217.0	198.0	254.0	684.0	275.0	242.0	190.0
4	132.0	184.0	179.0	172.0	178.0	209.0	204.0	272.0	717.0	267.0	232.0	189.0
5	133.0	187.0	182.0	175.0	176.0	205.0	208.0	275.0	721.0	261.0	220.0	186.0
6	124.0	182.0	179.0	171.0	170.0	224.0	225.0	275.0	696.0	258.0	209.0	189.0
7	125.0	181.0	183.0	166.0	176.0	238.0	245.0	289.0	710.0	248.0	201.0	189.0
8	130.0	180.0	175.0	173.0	171.0	232.0	244.0	299.0	700.0	239.0	198.0	189.0
9	136.0	176.0	170.0	179.0	176.0	228.0	227.0	310.0	662.0	234.0	203.0	190.0
10	138.0	176.0	168.0	170.0	182.0	227.0	221.0	314.0	611.0	229.0	203.0	197.0
11	143.0	178.0	171.0	160.0	173.0	232.0	223.0	343.0	560.0	240.0	202.0	203.0
12	146.0	181.0	175.0	155.0	175.0	228.0	240.0	378.0	527.0	236.0	204.0	200.0
13	145.0	179.0	184.0	160.0	195.0	226.0	260.0	405.0	515.0	230.0	201.0	192.0
14	146.0	179.0	178.0	165.0	191.0	224.0	281.0	464.0	528.0	224.0	201.0	194.0
15	148.0	178.0	177.0	168.0	181.0	225.0	288.0	513.0	522.0	218.0	209.0	194.0
16	145.0	175.0	175.0	168.0	176.0	234.0	307.0	568.0	513.0	216.0	187.0	201.0
17	146.0	173.0	178.0	168.0	173.0	223.0	316.0	609.0	505.0	213.0	182.0	201.0
18	146.0	184.0	172.0	168.0	175.0	223.0	312.0	650.0	510.0	232.0	204.0	205.0
19	149.0	173.0	175.0	168.0	175.0	226.0	289.0	692.0	494.0	219.0	204.0	205.0
20	151.0	170.0	183.0	170.0	179.0	276.0	261.0	688.0	467.0	219.0	202.0	208.0
21	163.0	176.0	181.0	170.0	166.0	296.0	273.0	601.0	459.0	228.0	203.0	207.0
22	159.0	184.0	167.0	170.0	160.0	286.0	268.0	539.0	451.0	199.0	202.0	207.0
23	162.0	178.0	158.0	170.0	164.0	256.0	272.0	537.0	448.0	187.0	203.0	207.0
24	163.0	175.0	155.0	175.0	163.0	246.0	256.0	528.0	435.0	185.0	202.0	207.0
25	160.0	178.0	165.0	230.0	163.0	259.0	270.0	531.0	422.0	187.0	192.0	207.0
26	163.0	181.0	167.0	225.0	162.0	250.0	268.0	531.0	407.0	190.0	187.0	209.0
27	164.0	182.0	159.0	220.0	165.0	206.0	253.0	533.0	390.0	190.0	189.0	208.0
28	164.0	185.0	162.0	200.0	176.0	208.0	240.0	543.0	362.0	188.0	190.0	212.0
29	165.0	174.0	160.0	190.0	0.0	209.0	237.0	555.0	345.0	206.0	189.0	211.0
30	182.0	174.0	165.0	180.0	0.0	211.0	243.0	573.0	334.0	281.0	190.0	211.0
31	191.0	0.0	166.0	170.0	0.0	208.0	0.0	598.0	0.0	317.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210.0	207.0	178.0	156.0	149.0	210.0	282.0	451.0	483.0	271.0	229.0	190.0
2	210.0	201.0	185.0	148.0	151.0	187.0	332.0	481.0	446.0	268.0	224.0	189.0
3	210.0	201.0	185.0	138.0	155.0	184.0	322.0	507.0	424.0	228.0	226.0	181.0
4	207.0	197.0	186.0	144.0	156.0	180.0	390.0	559.0	414.0	229.0	232.0	168.0
5	204.0	197.0	194.0	150.0	149.0	177.0	537.0	599.0	399.0	238.0	205.0	167.0
6	204.0	194.0	212.0	147.0	143.0	177.0	687.0	616.0	387.0	230.0	218.0	169.0
7	207.0	197.0	226.0	138.0	148.0	177.0	612.0	668.0	376.0	223.0	216.0	166.0
8	224.0	201.0	230.0	138.0	150.0	177.0	740.0	684.0	368.0	218.0	219.0	160.0
9	224.0	194.0	220.0	142.0	161.0	184.0	910.0	686.0	358.0	213.0	219.0	158.0
10	224.0	197.0	205.0	154.0	157.0	191.0	930.0	716.0	334.0	211.0	215.0	162.0
11	224.0	181.0	198.0	156.0	151.0	193.0	804.0	777.0	356.0	205.0	213.0	162.0
12	236.0	188.0	190.0	156.0	155.0	182.0	722.0	787.0	366.0	199.0	213.0	167.0
13	239.0	185.0	184.0	138.0	156.0	189.0	590.0	753.0	392.0	204.0	205.0	163.0
14	253.0	185.0	178.0	132.0	154.0	197.0	510.0	749.0	377.0	220.0	206.0	160.0
15	242.0	188.0	174.0	142.0	155.0	194.0	482.0	772.0	357.0	222.0	211.0	161.0
16	236.0	188.0	173.0	150.0	157.0	192.0	459.0	766.0	345.0	228.0	214.0	161.0
17	216.0	186.0	172.0	160.0	155.0	198.0	433.0	737.0	343.0	227.0	218.0	166.0
18	201.0	181.0	170.0	162.0	153.0	210.0	418.0	730.0	345.0	230.0	220.0	179.0
19	197.0	175.0	169.0	160.0	152.0	216.0	411.0	734.0	338.0	226.0	221.0	179.0
20	197.0	169.0	167.0	159.0	150.0	197.0	407.0	726.0	323.0	213.0	214.0	174.0
21	194.0	175.0	164.0	156.0	143.0	210.0	411.0	698.0	314.0	212.0	206.0	163.0
22	201.0	162.0	162.0	152.0	143.0	207.0	415.0	697.0	305.0	221.0	215.0	164.0
23	201.0	172.0	162.0	152.0	150.0	219.0	425.0	711.0	296.0	228.0	235.0	165.0
24	201.0	175.0	168.0	154.0	152.0	213.0	438.0	683.0	290.0	222.0	224.0	167.0
25	204.0	172.0	170.0	155.0	152.0	219.0	480.0	650.0	287.0	220.0	211.0	165.0
26	242.0	172.0	173.0	154.0	156.0	219.0	496.0	617.0	282.0	220.0	205.0	166.0
27	242.0	175.0	178.0	155.0	162.0	224.0	482.0	587.0	281.0	219.0	206.0	166.0
28	229.0	178.0	170.0	156.0	167.0	219.0	452.0	569.0	278.0	212.0	205.0	166.0
29	216.0	165.0	168.0	153.0	185.0	221.0	435.0	559.0	276.0	210.0	205.0	169.0
30	210.0	169.0	160.0	154.0	0.0	221.0	436.0	528.0	272.0	214.0	198.0	168.0
31	210.0	0.0	165.0	153.0	0.0	236.0	0.0	505.0	0.0	237.0	191.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1977

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165.0	175.0	164.0	175.0	166.0	166.0	175.0	219.0	185.0	187.0	170.0	118.0
2	167.0	175.0	162.0	180.0	162.0	169.0	173.0	221.0	173.0	187.0	171.0	118.0
3	186.0	173.0	163.0	180.0	159.0	169.0	167.0	211.0	160.0	192.0	166.0	118.0
4	182.0	172.0	165.0	185.0	162.0	166.0	170.0	213.0	160.0	196.0	162.0	115.0
5	178.0	171.0	169.0	180.0	156.0	166.0	173.0	215.0	177.0	205.0	160.0	118.0
6	177.0	168.0	166.0	175.0	156.0	166.0	170.0	227.0	179.0	197.0	167.0	118.0
7	174.0	166.0	168.0	175.0	156.0	167.0	170.0	223.0	191.0	190.0	168.0	120.0
8	174.0	164.0	169.0	175.0	156.0	173.0	167.0	213.0	190.0	183.0	171.0	120.0
9	176.0	164.0	171.0	170.0	156.0	173.0	167.0	211.0	209.0	185.0	166.0	120.0
10	179.0	168.0	166.0	170.0	156.0	170.0	162.0	209.0	211.0	187.0	164.0	120.0
11	179.0	169.0	166.0	165.0	156.0	165.0	157.0	208.0	201.0	185.0	166.0	120.0
12	183.0	167.0	163.0	165.0	153.0	167.0	153.0	201.0	202.0	186.0	164.0	120.0
13	179.0	163.0	165.0	165.0	156.0	173.0	152.0	197.0	195.0	183.0	162.0	118.0
14	177.0	164.0	165.0	165.0	159.0	165.0	152.0	193.0	186.0	180.0	158.0	120.0
15	177.0	167.0	170.0	165.0	159.0	162.0	148.0	200.0	195.0	180.0	156.0	118.0
16	178.0	166.0	170.0	165.0	162.0	170.0	148.0	209.0	201.0	177.0	152.0	113.0
17	177.0	166.0	170.0	169.0	159.0	170.0	145.0	212.0	195.0	177.0	147.0	110.0
18	178.0	169.0	170.0	169.0	166.0	170.0	140.0	195.0	186.0	178.0	152.0	105.0
19	178.0	169.0	170.0	172.0	166.0	170.0	137.0	203.0	188.0	175.0	139.0	105.0
20	176.0	168.0	165.0	169.0	169.0	165.0	137.0	211.0	193.0	172.0	115.0	105.0
21	176.0	162.0	165.0	172.0	175.0	167.0	138.0	202.0	192.0	175.0	107.0	107.0
22	177.0	165.0	165.0	172.0	178.0	173.0	157.0	195.0	176.0	157.0	115.0	107.0
23	174.0	162.0	165.0	172.0	169.0	178.0	185.0	193.0	174.0	171.0	120.0	113.0
24	180.0	162.0	170.0	166.0	172.0	183.0	186.0	191.0	173.0	178.0	115.0	107.0
25	187.0	167.0	175.0	166.0	169.0	175.0	184.0	204.0	177.0	184.0	125.0	105.0
26	186.0	164.0	175.0	166.0	172.0	173.0	189.0	195.0	178.0	181.0	125.0	107.0
27	181.0	149.0	180.0	166.0	162.0	173.0	186.0	190.0	186.0	177.0	123.0	105.0
28	176.0	149.0	175.0	166.0	172.0	170.0	190.0	193.0	192.0	178.0	120.0	102.0
29	175.0	154.0	175.0	166.0	0.0	170.0	194.0	187.0	190.0	175.0	118.0	100.0
30	174.0	160.0	170.0	162.0	0.0	167.0	205.0	183.0	187.0	172.0	118.0	107.0
31	172.0	0.0	170.0	162.0	0.0	170.0	0.0	181.0	0.0	170.0	118.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1978

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	128.0	141.0	120.0	128.0	146.0	450.0	358.0	397.0	189.0	201.0	169.0
2	106.0	126.0	198.0	100.0	131.0	146.0	465.0	373.0	380.0	186.0	204.0	169.0
3	106.0	123.0	270.0	103.0	136.0	144.0	373.0	390.0	369.0	192.0	204.0	166.0
4	104.0	123.0	198.0	112.0	138.0	146.0	320.0	394.0	369.0	201.0	198.0	166.0
5	104.0	126.0	152.0	118.0	138.0	161.0	309.0	380.0	380.0	213.0	201.0	172.0
6	106.0	133.0	152.0	128.0	152.0	175.0	284.0	358.0	387.0	201.0	198.0	178.0
7	106.0	128.0	146.0	138.0	149.0	172.0	313.0	328.0	390.0	192.0	192.0	172.0
8	104.0	128.0	131.0	150.0	146.0	178.0	428.0	305.0	394.0	189.0	192.0	169.0
9	106.0	121.0	133.0	152.0	141.0	178.0	404.0	291.0	390.0	195.0	192.0	152.0
10	106.0	121.0	133.0	138.0	141.0	189.0	362.0	309.0	390.0	198.0	195.0	149.0
11	104.0	121.0	137.0	135.0	146.0	192.0	358.0	362.0	387.0	204.0	195.0	141.0
12	104.0	123.0	142.0	133.0	141.0	198.0	339.0	425.0	350.0	192.0	192.0	138.0
13	106.0	121.0	158.0	130.0	138.0	184.0	328.0	448.0	281.0	169.0	207.0	131.0
14	113.0	123.0	175.0	130.0	138.0	175.0	320.0	465.0	277.0	161.0	216.0	129.0
15	113.0	131.0	193.0	130.0	141.0	169.0	313.0	502.0	257.0	152.0	192.0	129.0
16	113.0	128.0	180.0	130.0	133.0	169.0	387.0	536.0	240.0	161.0	184.0	130.0
17	116.0	131.0	150.0	130.0	128.0	172.0	373.0	552.0	229.0	186.0	181.0	133.0
18	118.0	128.0	143.0	130.0	133.0	178.0	313.0	548.0	213.0	181.0	175.0	134.0
19	109.0	128.0	136.0	130.0	136.0	186.0	291.0	533.0	210.0	184.0	175.0	132.0
20	111.0	126.0	131.0	128.0	136.0	201.0	288.0	506.0	207.0	186.0	164.0	138.0
21	111.0	128.0	126.0	131.0	136.0	219.0	295.0	487.0	201.0	189.0	152.0	142.0
22	111.0	138.0	128.0	131.0	136.0	246.0	281.0	483.0	195.0	189.0	152.0	139.0
23	113.0	136.0	131.0	128.0	136.0	288.0	270.0	480.0	192.0	166.0	152.0	138.0
24	116.0	141.0	133.0	121.0	138.0	354.0	270.0	470.0	184.0	186.0	149.0	137.0
25	113.0	149.0	132.0	131.0	141.0	354.0	263.0	465.0	184.0	189.0	152.0	137.0
26	116.0	201.0	131.0	133.0	144.0	350.0	313.0	450.0	181.0	189.0	152.0	136.0
27	121.0	181.0	131.0	131.0	152.0	350.0	350.0	434.0	184.0	186.0	152.0	133.0
28	123.0	169.0	132.0	128.0	144.0	331.0	347.0	417.0	189.0	192.0	152.0	131.0
29	128.0	155.0	135.0	131.0	0.0	320.0	350.0	414.0	192.0	198.0	155.0	130.0
30	131.0	141.0	139.0	126.0	0.0	316.0	358.0	422.0	189.0	201.0	158.0	130.0
31	128.0	0.0	134.0	128.0	0.0	335.0	0.0	419.0	0.0	201.0	169.0	0.0

DAILY DATA FOR YEAR ENDING SEPT.-1979

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133.0	121.0	166.0	130.0	144.0	145.0	195.0	222.0	243.0	195.0	184.0	121.0
2	133.0	123.0	155.0	135.0	141.0	145.0	198.0	222.0	229.0	195.0	181.0	113.0
3	131.0	128.0	149.0	141.0	138.0	140.0	198.0	226.0	210.0	195.0	184.0	113.0
4	133.0	128.0	155.0	141.0	138.0	140.0	199.0	235.0	229.0	192.0	158.0	118.0
5	143.0	133.0	141.0	144.0	138.0	138.0	184.0	246.0	246.0	198.0	175.0	118.0
6	142.0	133.0	144.0	136.0	138.0	144.0	210.0	267.0	253.0	192.0	178.0	118.0
7	133.0	136.0	136.0	128.0	138.0	169.0	257.0	257.0	253.0	184.0	178.0	118.0
8	133.0	136.0	136.0	125.0	136.0	172.0	270.0	247.0	250.0	181.0	186.0	121.0
9	135.0	138.0	138.0	135.0	133.0	155.0	302.0	226.0	236.0	175.0	192.0	121.0
10	133.0	138.0	144.0	141.0	133.0	149.0	260.0	207.0	226.0	172.0	190.0	111.0
11	133.0	149.0	141.0	144.0	131.0	149.0	240.0	195.0	219.0	172.0	182.0	106.0
12	130.0	161.0	144.0	149.0	133.0	149.0	233.0	186.0	213.0	155.0	171.0	109.0
13	129.0	155.0	141.0	138.0	166.0	155.0	229.0	181.0	213.0	146.0	167.0	109.0
14	128.0	146.0	141.0	138.0	146.0	155.0	226.0	178.0	216.0	158.0	166.0	106.0
15	127.0	141.0	141.0	141.0	141.0	158.0	233.0	184.0	216.0	166.0	161.0	116.0
16	128.0	141.0	141.0	141.0	136.0	158.0	222.0	204.0	210.0	164.0	159.0	111.0
17	129.0	144.0	144.0	138.0	138.0	158.0	222.0	229.0	210.0	164.0	153.0	104.0
18	128.0	149.0	152.0	138.0	136.0	155.0	222.0	240.0	213.0	164.0	152.0	100.0
19	128.0	149.0	149.0	141.0	141.0	158.0	207.0	246.0	226.0	178.0	154.0	97.0
20	128.0	155.0	146.0	138.0	138.0	158.0	192.0	246.0	226.0	181.0	155.0	92.0
21	128.0	155.0	144.0	138.0	138.0	161.0	189.0	246.0	226.0	184.0	144.0	92.0
22	118.0	158.0	149.0	141.0	136.0	164.0	192.0	253.0	226.0	207.0	141.0	92.0
23	116.0	158.0	149.0	136.0	138.0	164.0	201.0	260.0	213.0	201.0	136.0	95.0
24	121.0	149.0	146.0	138.0	138.0	169.0	201.0	270.0	204.0	195.0	126.0	95.0
25	126.0	146.0	146.0	141.0	136.0	175.0	198.0	281.0	201.0	192.0	128.0	92.0
26	128.0	149.0	141.0	138.0	136.0	181.0	195.0	270.0	198.0	184.0	128.0	100.0
27	111.0	146.0	144.0	136.0	138.0	186.0	198.0	253.0	201.0	181.0	128.0	100.0
28	111.0	149.0	141.0	136.0	139.0	204.0	204.0	250.0	201.0	184.0	131.0	95.0
29	116.0	149.0	144.0	133.0	0.0	195.0	214.0	253.0	195.0	186.0	128.0	97.0
30	116.0	158.0	136.0	130.0	0.0	195.0	222.0	257.0	195.0	186.0	126.0	97.0
31	121.0	0.0	158.0	135.0	0.0	195.0	0.0	246.0	0.0	186.0	123.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORINEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	125.0	125.0	110.0	105.0	210.0	165.0	357.0	466.0	171.0	174.0	143.0
2	104.0	129.0	128.0	111.0	104.0	192.0	165.0	338.0	468.0	176.0	172.0	139.0
3	105.0	132.0	128.0	111.0	105.0	178.0	165.0	318.0	474.0	176.0	172.0	140.0
4	105.0	137.0	127.0	112.0	107.0	178.0	165.0	305.0	426.0	179.0	170.0	139.0
5	106.0	138.0	128.0	109.0	105.0	201.0	175.0	290.0	416.0	181.0	172.0	138.0
6	108.0	139.0	129.0	109.0	106.0	195.0	175.0	300.0	417.0	184.0	174.0	139.0
7	108.0	138.0	130.0	109.0	106.0	184.0	165.0	305.0	396.0	184.0	174.0	142.0
8	108.0	137.0	131.0	111.0	103.0	172.0	160.0	315.0	361.0	186.0	171.0	146.0
9	107.0	137.0	130.0	111.0	102.0	164.0	155.0	330.0	337.0	186.0	168.0	141.0
10	108.0	135.0	131.0	110.0	103.0	175.0	155.0	350.0	317.0	186.0	168.0	133.0
11	108.0	139.0	124.0	95.0	103.0	222.0	155.0	370.0	304.0	185.0	167.0	138.0
12	100.0	133.0	122.0	201.0	103.0	213.0	160.0	400.0	307.0	185.0	167.0	147.0
13	102.0	133.0	124.0	515.0	103.0	178.0	160.0	440.0	297.0	186.0	166.0	148.0
14	101.0	132.0	122.0	509.0	107.0	175.0	160.0	447.0	286.0	192.0	166.0	135.0
15	100.0	132.0	119.0	426.0	109.0	210.0	160.0	410.0	283.0	192.0	175.0	137.0
16	103.0	131.0	121.0	250.0	110.0	175.0	161.0	420.0	269.0	192.0	182.0	132.0
17	103.0	136.0	120.0	183.0	116.0	172.0	164.0	425.0	259.0	193.0	180.0	117.0
18	106.0	142.0	119.0	155.0	336.0	175.0	170.0	425.0	244.0	191.0	179.0	113.0
19	128.0	140.0	120.0	131.0	818.0	178.0	185.0	428.0	242.0	195.0	176.0	115.0
20	131.0	130.0	120.0	123.0	1030.0	175.0	213.0	428.0	239.0	193.0	169.0	114.0
21	125.0	128.0	121.0	123.0	922.0	189.0	255.0	428.0	229.0	187.0	166.0	120.0
22	123.0	126.0	121.0	117.0	525.0	184.0	294.0	431.0	217.0	186.0	163.0	121.0
23	121.0	129.0	118.0	116.0	320.0	186.0	298.0	431.0	211.0	187.0	162.0	121.0
24	119.0	132.0	118.0	115.0	213.0	184.0	336.0	431.0	204.0	192.0	162.0	122.0
25	119.0	132.0	118.0	115.0	172.0	180.0	334.0	434.0	191.0	190.0	161.0	117.0
26	120.0	134.0	115.0	113.0	164.0	180.0	333.0	434.0	183.0	185.0	149.0	120.0
27	120.0	129.0	111.0	112.0	169.0	175.0	312.0	436.0	174.0	186.0	133.0	120.0
28	122.0	120.0	109.0	107.0	184.0	160.0	304.0	436.0	173.0	186.0	133.0	117.0
29	124.0	116.0	106.0	109.0	219.0	165.0	330.0	436.0	174.0	184.0	133.0	115.0
30	125.0	123.0	108.0	108.0	0.0	170.0	385.0	447.0	173.0	180.0	137.0	113.0
31	125.0	0.0	108.0	105.0	0.0	165.0	0.0	457.0	0.0	178.0	142.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1981

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	145.0	141.0	131.0	128.0	138.0	144.0	151.0	347.0	200.0	138.0	159.0
2	112.0	147.0	141.0	131.0	123.0	138.0	146.0	162.0	317.0	202.0	140.0	159.0
3	111.0	150.0	141.0	131.0	122.0	138.0	149.0	163.0	358.0	205.0	149.0	154.0
4	112.0	150.0	141.0	133.0	123.0	137.0	148.0	153.0	312.0	205.0	146.0	150.0
5	110.0	150.0	141.0	131.0	123.0	136.0	143.0	145.0	265.0	206.0	141.0	154.0
6	108.0	145.0	141.0	131.0	123.0	136.0	140.0	144.0	243.0	209.0	140.0	155.0
7	109.0	147.0	140.0	128.0	123.0	135.0	140.0	144.0	236.0	179.0	148.0	151.0
8	109.0	149.0	134.0	126.0	120.0	134.0	139.0	141.0	227.0	202.0	151.0	151.0
9	106.0	148.0	128.0	129.0	115.0	135.0	140.0	133.0	218.0	205.0	149.0	146.0
10	110.0	145.0	126.0	122.0	110.0	135.0	141.0	128.0	211.0	209.0	150.0	143.0
11	112.0	144.0	128.0	121.0	120.0	135.0	141.0	138.0	201.0	211.0	161.0	136.0
12	113.0	144.0	128.0	120.0	125.0	135.0	144.0	137.0	195.0	204.0	158.0	133.0
13	115.0	144.0	126.0	120.0	128.0	136.0	143.0	127.0	193.0	201.0	149.0	133.0
14	120.0	144.0	126.0	120.0	130.0	136.0	140.0	126.0	190.0	204.0	149.0	136.0
15	125.0	143.0	126.0	120.0	140.0	135.0	142.0	140.0	186.0	204.0	151.0	136.0
16	142.0	143.0	128.0	119.0	150.0	135.0	145.0	160.0	184.0	203.0	149.0	128.0
17	160.0	139.0	128.0	121.0	165.0	135.0	148.0	182.0	185.0	201.0	144.0	108.0
18	175.0	140.0	128.0	121.0	185.0	135.0	143.0	202.0	185.0	198.0	143.0	96.0
19	183.0	140.0	128.0	121.0	175.0	136.0	148.0	192.0	185.0	194.0	148.0	91.0
20	179.0	140.0	128.0	120.0	170.0	140.0	165.0	187.0	185.0	189.0	149.0	90.0
21	175.0	140.0	128.0	120.0	160.0	150.0	230.0	204.0	187.0	187.0	153.0	90.0
22	165.0	141.0	136.0	121.0	150.0	150.0	220.0	391.0	189.0	186.0	156.0	94.0
23	160.0	141.0	136.0	120.0	145.0	145.0	205.0	553.0	190.0	189.0	152.0	93.0
24	160.0	141.0	133.0	122.0	143.0	138.0	190.0	531.0	192.0	186.0	157.0	93.0
25	165.0	138.0	136.0	125.0	145.0	140.0	180.0	508.0	192.0	180.0	156.0	97.0
26	170.0	141.0	136.0	124.0	150.0	145.0	180.0	551.0	193.0	169.0	155.0	96.0
27	170.0	140.0	136.0	127.0	145.0	150.0	170.0	561.0	194.0	170.0	157.0	97.0
28	170.0	141.0	136.0	129.0	142.0	151.0	165.0	504.0	198.0	170.0	158.0	83.0
29	160.0	141.0	136.0	130.0	0.0	150.0	155.0	445.0	199.0	159.0	158.0	81.0
30	150.0	141.0	131.0	131.0	0.0	149.0	154.0	401.0	200.0	149.0	164.0	80.0
31	145.0	0.0	131.0	128.0	0.0	146.0	0.0	389.0	0.0	138.0	160.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1982

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	102.0	121.0	121.0	123.0	178.0	213.0	551.0	542.0	240.0	226.0	213.0
2	76.0	104.0	118.0	113.0	131.0	189.0	210.0	626.0	511.0	240.0	213.0	204.0
3	80.0	104.0	118.0	116.0	131.0	198.0	207.0	740.0	500.0	240.0	201.0	201.0
4	80.0	104.0	118.0	111.0	118.0	198.0	213.0	803.0	489.0	250.0	198.0	201.0
5	78.0	104.0	116.0	121.0	110.0	189.0	201.0	733.0	465.0	250.0	198.0	198.0
6	78.0	104.0	118.0	116.0	115.0	181.0	201.0	690.0	448.0	240.0	195.0	192.0
7	80.0	104.0	121.0	106.0	123.0	178.0	198.0	663.0	425.0	226.0	181.0	186.0
8	86.0	102.0	121.0	113.0	118.0	181.0	198.0	658.0	414.0	240.0	189.0	180.0
9	84.0	102.0	121.0	113.0	123.0	186.0	198.0	722.0	404.0	267.0	210.0	177.0
10	86.0	102.0	121.0	113.0	123.0	204.0	195.0	733.0	373.0	250.0	210.0	179.0
11	106.0	102.0	121.0	116.0	128.0	226.0	210.0	658.0	347.0	236.0	201.0	179.0
12	113.0	102.0	116.0	121.0	121.0	229.0	320.0	608.0	339.0	229.0	192.0	182.0
13	104.0	104.0	121.0	118.0	123.0	226.0	298.0	577.0	350.0	213.0	189.0	189.0
14	102.0	111.0	121.0	118.0	128.0	226.0	268.0	569.0	390.0	204.0	189.0	175.0
15	100.0	111.0	133.0	121.0	138.0	246.0	281.0	583.0	362.0	198.0	189.0	193.0
16	97.0	111.0	126.0	126.0	181.0	243.0	260.0	610.0	350.0	181.0	189.0	211.0
17	97.0	109.0	121.0	123.0	186.0	229.0	246.0	658.0	358.0	178.0	186.0	213.0
18	100.0	113.0	118.0	123.0	181.0	226.0	243.0	703.0	347.0	213.0	192.0	197.0
19	100.0	106.0	126.0	121.0	184.0	222.0	229.0	744.0	331.0	226.0	189.0	188.0
20	100.0	111.0	189.0	112.0	184.0	210.0	219.0	722.0	320.0	226.0	204.0	186.0
21	100.0	118.0	181.0	109.0	189.0	204.0	219.0	693.0	309.0	233.0	204.0	182.0
22	97.0	133.0	141.0	117.0	213.0	198.0	226.0	678.0	302.0	229.0	207.0	182.0
23	97.0	128.0	126.0	121.0	207.0	195.0	250.0	675.0	298.0	233.0	210.0	179.0
24	100.0	138.0	121.0	126.0	181.0	195.0	281.0	678.0	284.0	240.0	204.0	181.0
25	102.0	138.0	123.0	126.0	181.0	195.0	313.0	678.0	284.0	267.0	201.0	189.0
26	102.0	128.0	121.0	123.0	178.0	204.0	343.0	680.0	277.0	263.0	192.0	230.0
27	102.0	123.0	116.0	128.0	178.0	213.0	358.0	698.0	267.0	250.0	186.0	246.0
28	102.0	123.0	113.0	126.0	178.0	229.0	417.0	733.0	257.0	260.0	192.0	244.0
29	111.0	116.0	118.0	123.0	0.0	246.0	502.0	718.0	246.0	270.0	195.0	234.0
30	109.0	121.0	123.0	126.0	0.0	229.0	521.0	645.0	240.0	288.0	207.0	231.0
31	104.0	0.0	109.0	126.0	0.0	216.0	0.0	590.0	0.0	246.0	216.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1983

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227.0	209.0	182.0	151.0	173.0	230.0	385.0	576.0	985.0	321.0	254.0	236.0
2	227.0	200.0	176.0	151.0	170.0	300.0	376.0	589.0	935.0	348.0	257.0	230.0
3	218.0	191.0	173.0	157.0	157.0	400.0	369.0	595.0	881.0	340.0	248.0	239.0
4	209.0	191.0	173.0	164.0	160.0	380.0	356.0	612.0	845.0	320.0	242.0	236.0
5	206.0	188.0	176.0	164.0	164.0	360.0	352.0	645.0	817.0	320.0	239.0	236.0
6	200.0	188.0	179.0	170.0	160.0	340.0	352.0	687.0	787.0	311.0	236.0	236.0
7	200.0	188.0	179.0	200.0	176.0	320.0	349.0	664.0	752.0	306.0	203.0	236.0
8	200.0	188.0	160.0	218.0	170.0	300.0	352.0	663.0	711.0	298.0	227.0	251.0
9	197.0	191.0	167.0	197.0	173.0	290.0	349.0	691.0	711.0	303.0	233.0	281.0
10	194.0	191.0	167.0	188.0	170.0	330.0	352.0	679.0	682.0	337.0	233.0	259.0
11	191.0	191.0	160.0	182.0	167.0	370.0	352.0	677.0	661.0	325.0	259.0	251.0
12	191.0	185.0	164.0	176.0	167.0	363.0	349.0	675.0	676.0	306.0	265.0	248.0
13	191.0	179.0	167.0	176.0	176.0	377.0	343.0	653.0	618.0	293.0	245.0	245.0
14	188.0	167.0	167.0	170.0	182.0	435.0	340.0	621.0	559.0	283.0	239.0	248.0
15	188.0	167.0	170.0	167.0	173.0	398.0	340.0	600.0	520.0	276.0	236.0	245.0
16	185.0	176.0	173.0	167.0	173.0	364.0	344.0	600.0	515.0	278.0	233.0	245.0
17	185.0	179.0	170.0	170.0	176.0	345.0	347.0	577.0	516.0	276.0	230.0	245.0
18	185.0	179.0	164.0	167.0	176.0	333.0	357.0	585.0	502.0	265.0	230.0	242.0
19	185.0	212.0	170.0	167.0	179.0	321.0	368.0	645.0	487.0	251.0	230.0	242.0
20	185.0	206.0	167.0	167.0	173.0	306.0	381.0	643.0	472.0	242.0	242.0	245.0
21	185.0	191.0	173.0	170.0	176.0	301.0	399.0	652.0	457.0	245.0	268.0	254.0
22	185.0	182.0	182.0	170.0	176.0	300.0	407.0	683.0	431.0	239.0	270.0	251.0
23	185.0	164.0	185.0	176.0	176.0	307.0	419.0	728.0	395.0	257.0	265.0	251.0
24	185.0	167.0	170.0	173.0	179.0	308.0	458.0	782.0	379.0	262.0	265.0	248.0
25	185.0	167.0	157.0	176.0	185.0	305.0	483.0	797.0	368.0	265.0	259.0	245.0
26	194.0	164.0	156.0	173.0	194.0	297.0	462.0	818.0	361.0	291.0	254.0	230.0
27	200.0	164.0	155.0	173.0	191.0	294.0	452.0	904.0	356.0	283.0	251.0	227.0
28	194.0	170.0	154.0	179.0	197.0	295.0	456.0	944.0	347.0	265.0	242.0	242.0
29	194.0	176.0	154.0	173.0	0.0	293.0	492.0	981.0	334.0	262.0	245.0	239.0
30	212.0	179.0	154.0	176.0	0.0	344.0	535.0	1020.0	329.0	257.0	239.0	259.0
31	221.0	0.0	154.0	173.0	0.0	384.0	0.0	1030.0	0.0	248.0	236.0	0.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1920	162.9	173.6	158.4	172.9	175.9	188.0	227.0	524.7	259.5	217.2	200.7	208.0	222.7	152.0	709.0
1921	202.5	184.3	167.7	167.7	173.7	310.0	359.8	663.7	410.1	244.1	227.1	193.7	276.1	160.0	757.0
1922	181.5	188.7	192.8	180.6	179.7	208.1	324.4	578.2	339.9	265.6	253.8	212.4	258.5	168.0	757.0
1923	191.3	235.0	196.1	224.2	170.4	256.1	390.0	442.0	288.4	256.2	251.9	232.4	261.6	150.0	562.0
1924	216.6	205.5	194.5	183.6	217.7	212.5	245.2	243.8	218.6	224.2	171.7	126.7	205.1	121.0	605.0
1925	142.3	162.3	160.5	157.1	204.8	243.7	271.8	346.0	243.7	232.3	201.5	207.7	214.5	121.0	680.0
1926	177.7	184.7	180.3	168.4	183.9	239.6	257.9	257.4	249.3	217.7	154.9	124.4	199.8	121.0	322.0
1927	144.7	161.7	158.5	155.9	165.5	189.5	270.7	369.5	333.7	272.9	234.5	171.5	219.3	138.0	492.0
1928	176.9	197.3	185.5	173.9	163.8	246.6	233.6	373.7	271.6	259.5	206.6	154.5	220.7	130.0	492.0
1929	146.4	155.6	157.1	147.5	142.5	210.9	216.7	268.6	266.9	234.7	200.1	169.3	192.9	134.0	372.0
1930	157.4	153.1	152.9	146.0	163.4	175.7	184.5	185.3	203.8	165.4	149.4	129.2	163.8	119.0	267.0
1931	153.6	148.1	145.5	137.9	136.3	162.9	152.6	173.9	169.6	97.2	95.8	98.6	139.3	87.0	258.0
1932	115.9	129.2	129.9	125.9	121.3	151.2	230.7	296.1	221.2	195.7	153.6	136.0	167.4	102.0	380.0
1933	121.4	142.0	133.9	134.3	127.2	134.1	203.8	247.2	236.3	180.9	161.5	111.6	161.3	93.0	358.0
1934	105.5	128.1	133.0	134.5	135.1	124.2	106.1	203.4	97.4	91.5	83.0	81.7	118.7	69.0	240.0
1935	77.7	114.1	118.9	108.9	102.4	155.6	184.8	232.7	217.8	181.1	106.9	100.1	141.9	65.0	372.0
1936	88.2	132.0	130.5	132.4	136.1	128.7	331.5	370.9	234.1	225.4	191.5	152.3	187.8	81.0	524.0
1937	119.8	129.7	125.8	122.2	125.1	146.0	227.4	268.4	215.4	207.5	151.8	109.7	162.6	102.0	358.0
1938	125.0	136.6	152.5	131.6	154.1	197.2	255.2	294.4	265.1	225.8	217.4	171.7	194.1	111.0	396.0
1939	129.9	150.9	148.7	146.1	143.9	214.1	202.0	216.9	204.7	159.3	99.7	103.6	160.0	87.0	460.0
1940	121.6	124.6	127.7	131.1	141.6	161.9	164.4	153.8	191.6	104.2	101.1	94.7	134.7	81.0	230.0
1941	103.0	116.9	122.5	117.0	126.2	167.7	161.8	205.1	165.1	190.6	100.6	95.4	139.5	85.0	249.0
1942	112.9	124.5	129.3	118.0	121.4	138.8	246.2	213.5	201.6	197.2	176.1	116.7	158.2	89.0	444.0
1943	104.5	131.0	147.4	154.0	153.9	222.2	391.2	318.2	289.0	229.5	219.4	174.2	211.3	97.0	489.0
1944	144.9	155.0	145.3	137.2	137.8	162.3	213.7	215.5	245.8	213.7	197.4	152.9	176.8	116.0	372.0
1945	122.2	141.4	132.0	140.9	175.0	168.1	212.5	338.5	325.7	226.5	244.7	202.4	202.5	118.0	454.0
1946	161.5	164.7	172.3	164.9	157.7	284.9	482.5	440.6	247.6	239.1	208.7	181.9	242.6	138.0	661.0
1947	169.7	185.2	181.8	146.5	171.8	188.8	199.5	240.2	193.6	209.8	198.5	154.7	186.8	130.0	307.0
1948	140.7	146.4	141.6	145.9	197.8	200.8	239.5	330.7	256.4	217.2	219.2	201.5	203.1	128.0	466.0
1949	146.3	155.9	145.6	140.0	137.0	195.3	315.7	289.2	216.3	219.2	212.0	161.0	194.7	117.0	378.0
1950	155.9	164.0	152.6	160.6	198.6	267.0	367.8	490.0	415.2	279.4	248.6	281.1	265.2	128.0	657.0
1951	217.2	210.6	190.3	176.8	243.0	230.3	278.0	291.7	250.6	239.7	209.6	152.5	224.0	136.0	434.0
1952	159.6	180.2	173.2	175.9	187.5	186.9	408.6	510.0	296.7	235.7	207.1	176.1	241.5	147.0	668.0
1953	145.2	161.4	175.6	217.5	194.4	197.0	198.0	220.9	361.9	243.8	202.9	182.8	208.4	136.0	469.0
1954	151.4	167.1	164.5	162.7	166.8	219.5	210.8	204.5	206.3	186.3	138.6	96.1	173.0	90.0	305.0
1955	116.4	134.7	133.0	131.6	130.1	130.3	159.5	185.6	197.8	131.4	105.5	96.3	137.6	91.0	262.0
1956	106.7	125.5	145.7	148.3	134.2	195.1	270.9	237.1	210.1	198.3	167.4	113.5	171.2	91.0	414.0
1957	112.4	134.5	142.8	126.8	248.3	173.5	169.2	309.1	240.7	206.6	197.7	153.7	184.2	100.0	956.0
1958	122.2	140.1	148.6	141.1	177.1	194.5	235.4	278.1	222.1	220.6	185.2	136.0	183.5	102.0	331.0
1959	107.7	135.2	150.5	141.9	145.5	185.8	193.6	207.4	199.2	157.9	92.4	99.5	151.4	85.0	258.0
1960	117.9	121.2	120.8	122.8	129.5	197.7	226.1	203.3	208.5	122.2	81.1	80.1	144.2	76.0	388.0
1961	85.4	109.2	115.3	113.4	140.4	146.8	130.1	127.3	151.0	89.3	82.8	88.3	114.7	76.0	243.0
1962	90.1	118.4	123.0	137.5	484.1	213.9	258.4	202.7	200.5	180.1	191.2	139.6	192.7	80.0	3250.0
1963	96.9	116.1	119.6	124.3	310.9	136.0	171.4	222.4	207.7	177.9	176.0	131.4	164.8	88.0	2590.0
1964	104.5	135.9	128.9	125.8	120.7	115.8	232.9	286.3	293.3	213.8	186.7	128.4	172.7	96.0	438.0
1965	107.5	136.9	248.5	195.0	191.6	174.6	265.2	432.0	297.2	228.8	196.5	147.9	218.8	98.0	1330.0
1966	141.7	158.0	143.5	146.2	144.4	184.9	221.1	205.3	203.4	164.7	136.3	99.7	162.5	68.0	361.0
1967	92.7	114.7	130.2	122.9	121.5	173.1	175.9	247.8	274.0	160.8	180.3	134.5	160.9	84.0	348.0
1968	129.2	130.0	128.2	134.2	161.8	197.8	164.3	200.5	248.6	196.0	164.4	121.0	164.7	105.0	347.0
1969	130.7	141.5	137.5	230.2	162.3	183.0	485.2	498.2	262.7	203.3	199.3	154.8	232.7	106.0	887.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1970	127.2	139.0	143.2	185.2	163.6	175.6	163.0	326.1	336.0	203.1	184.5	151.7	191.7	104.0	545.0
1971	136.8	146.1	148.2	159.2	182.6	287.9	433.9	789.5	450.3	243.8	237.8	232.1	287.9	114.0	964.0
1972	211.4	199.9	195.8	196.1	210.7	475.3	501.4	620.3	410.3	249.4	225.7	217.0	309.7	165.0	754.0
1973	209.2	232.4	227.5	210.7	204.5	210.5	344.8	454.1	252.6	209.6	179.1	170.8	242.4	145.0	545.0
1974	160.3	184.3	177.5	180.1	172.5	341.6	437.1	567.0	289.2	217.3	214.2	176.9	260.4	138.0	744.0
1975	148.9	179.8	172.1	176.2	173.6	229.4	251.6	456.8	532.1	232.9	205.6	199.6	246.7	124.0	721.0
1976	216.2	184.3	181.8	150.5	154.0	200.6	514.9	654.6	347.1	223.2	214.2	168.0	267.7	132.0	930.0
1977	177.4	165.3	168.5	170.0	162.8	169.7	166.0	203.4	186.7	181.3	144.5	112.6	167.5	100.0	227.0
1978	112.1	135.2	150.0	128.5	139.2	223.3	336.8	429.2	279.6	187.7	179.1	145.0	204.1	100.0	552.0
1979	127.4	144.0	145.9	137.5	138.6	162.5	216.8	234.9	219.9	181.1	156.9	105.9	164.4	92.0	302.0
1980	112.4	132.1	121.0	159.1	236.9	182.6	217.1	393.6	291.6	185.6	164.0	129.4	193.6	95.0	1030.0
1981	139.1	143.4	133.0	124.9	138.5	139.8	157.9	261.1	218.6	190.8	150.9	120.4	160.0	80.0	561.0
1982	95.1	117.7	125.1	119.1	152.6	209.3	268.6	671.5	361.0	236.3	198.5	198.1	229.6	76.0	803.0
1983	196.5	183.0	167.7	173.6	174.6	331.9	389.2	710.2	579.6	286.4	244.4	244.7	307.4	151.0	1030.0
AVE	139.5	152.7	152.9	152.4	169.4	200.5	261.3	338.0	265.3	204.2	178.8	150.3	197.2		

APPENDIX E-2b

REQUEST FOR WATER QUALITY CERTIFICATION

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

May 12, 1987

Mr. Kenneth Brooks
Administrator
State of Idaho Department of Health & Welfare
Division of Environment
450 W. State Street
Boise, ID 83720

RE: MARSH VALLEY HYDROELECTRIC: WATER QUALITY CERTIFICATION

Dear Mr. Kenneth Brooks,

At the current time we are preparing an Application for Licensing the Marsh Valley Hydroelectric project that is to go before the Federal Energy Regulatory Commission (FERC). In accordance with the Code of Federal Regulations, the Exhibit "E" Section (2)(vii)(A) of the application must contain, from your office, a copy of the water quality certificate as described in Section 401 of the Federal Water Pollution Control Act.

This project is located on the Portneuf River between Lava Hot Springs and McCammon. The project will begin at the diversion structure of the existing Portneuf-Marsh Valley Canal Company and will extend some 1,200 feet down stream before the water is returned to the Portneuf. The existing diversion structure and canal will be used to divert the flow.

Your assistance in this matter is sincerely appreciated.

Sincerely,

Craig R Schwabedissen

Craig R. Schwabedissen
Sorenson Engineering

CRS:ll

cc: Mr. Randy Budge
Mr. Keith Bennett

STATE OF IDAHO
DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENT, STATEHOUSE, BOISE, IDAHO 83720-9990

June 9, 1987

Craig R. Schwabedissen
Sorenson Engineering
550 Linden Drive
Idaho Falls, ID 83401

Dear Mr. Schwabedissen:

Re: FERC No Number, Marsh Valley Hydroelectric, Portneuf River
Bannock County, Idaho

We have received your request for water quality certification for the above-referenced proposed hydroelectric project on the Portneuf River.

Since your request does not contain enough information for us to make a Section 401 water quality certification, we cannot do so at this time. In order for us to properly consider water quality certification, we must receive the environmental assessment portion of the final license application. Due to various time constraints placed on us by FERC regulations, we must receive by November 15, 1987, the environmental assessment portion of the final permit application and other supporting documents which explain water quality impacts of the proposed project. If we have not received those documents by that time, we will have to deny water quality certification of the project.

Sincerely,

Larry L. Koenig

Larry L. Koenig
Manager
Source Control Section

LLK/JLY/sb/M2

cc: Al Murrey
Gordon Hopson, IDHW-Pocatello
Kenneth F. Plumb, FERC
Fred E. Springer, FERC

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

Idaho Department of Health & Welfare
Division of Environment
450 West State Street
Boise, ID 83720

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

Please Call - Marsha Sorenson Engr 525-7099 Will pick up

STATE OF IDAHO

DEPARTMENT OF HEALTH AND WELFARE

DIVISION OF ENVIRONMENT
Statehouse
Boise, Idaho 83720

September 3, 1987

Mr. Ted Sorenson
Sorenson Engineering
509 Linden Drive
Idaho Falls, Idaho 83401

Dear Mr. Sorenson:

We have reviewed the Marsh Valley Hydroelectric Project Ferc #10242 and can certify the project with the following conditions:

1. An energy dissipator needs to be installed at the by-pass. This condition can be satisfied by submitting plans and specifications for review to our Pocatello Field Office for review prior to construction.

2. An operation and maintenence plan for cleaning of the sediment trap must be developed and implemented upon construction of the facility. The plan should address disposal of the removed sediment and method of cleaning of the sediment trap. This provision can be satisfied by gaining the Pocatello Field Office's approval prior to construction of the facility.

If the above conditions are met and construction is completed in accordance with the described work plan, we certify under Section 401 that this construction will comply with applicable requirements of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended, and will not violate Idaho Water Quality Standards and Wastewater Treatment Requirements.

If you have any questions concerning this certification, please contact Walt Poole of the Pocatello Field Office (236-6160).

Sincerely,

Kenneth D. Brooks
Administrator

cc Walt Poole
Jerry Yoder

APPENDIX E-3a

REPORT ON FISH POPULATIONS

FISH POPULATIONS IN THE VICINITY OF

THE

PROPOSED MARSH VALLEY HYDRO PROJECT

Report To:

J-U-B Engineers, Inc.
and
The Marsh Valley Hydro Electric Company

22 February 1983

By:

J. S. Griffith, Ph.D.
2055 Kenneth Place
Pocatello, ID 83201

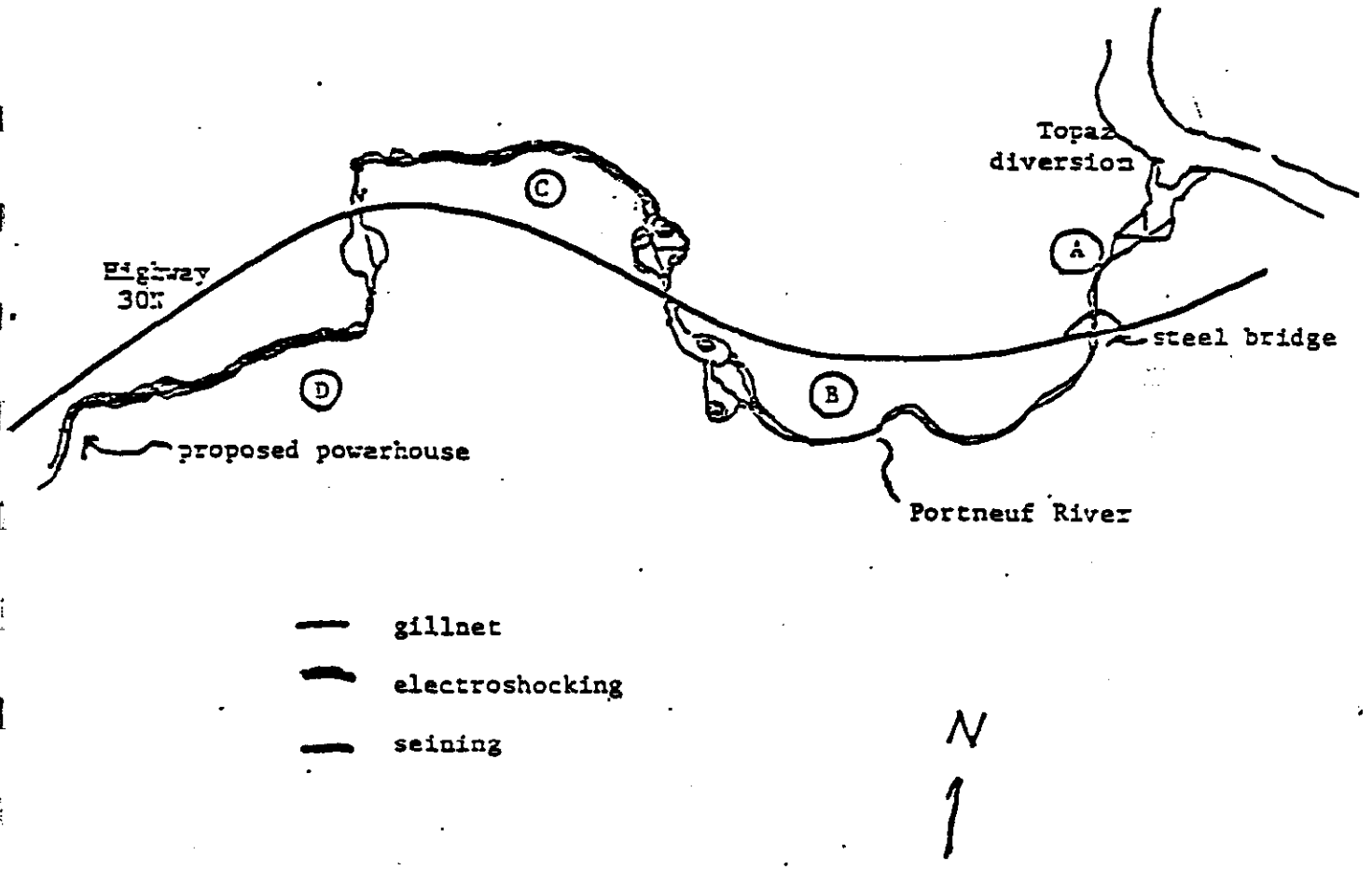
Introduction

Field data were gathered in January and February 1983 to characterize fish populations in a portion of the Portneuf River between McCammon and Lava Hot Springs (Bannock County, Idaho) that would be impacted by the proposed hydro project. The project would divert approximately 250 cfs at the existing Topaz Diversion during the non-irrigation season and return that flow through a powerhouse to the river at a point adjacent to Highway 30N approximately 1.3 road miles west of the highway bridge at Topaz (Figure 1). Flows in approximately 15,000 feet of the river would thus be substantially reduced, in a manner similar to that in which it (and a longer reach downriver) is presently dewatered during the irrigation season. During peak runoff (typically at 500 - 700 cfs in April), flow would resume in the natural channel.

Site Description

From the Topaz Diversion to the site of the proposed powerhouse, the river is dissected into four segments as it is passed in culverts under Highway 30N (Figure 1). It is impossible to drift a boat equipped with sampling gear from one segment to the next. River segment A, at the head of the section studied, extends approximately 500 feet and is characterized by a steep cascade over a lava sill, a deep plunge pool, and a short run. Segment B, approximately 8,700 feet long, is low-velocity water (possibly channelized along the Union Pacific rail line) followed by two waterfalls and plunge pools. Segment C, approximately 3,500 feet in length, consists of a large pool (the largest in the area studied)

Figure 1. Sampling locations and gear types used to sample fish populations in the Portneuf River below Topaz Diversion.



and a low-velocity run, with the lower quarter being a series of short drops over lava sills, and small pools. Segment D is 2,300 feet in length, with a pool at its head and then a series of drops (some to 3 feet) and pools. In all, there were five major pools in the 15,000-foot section, all deeper than 10 feet.

During our sampling in January an February of 1983, flows were estimated at approximately 150 cfs. Water levels, as shown on a gage near the powerhouse site, were 1 foot, 1 inch on 29 January and 1 foot, 2 inches on 20 February. Water clarity was about 12-16 inches at the end of January and improved to approximately twice that by mid-February. Water temperature was 39°F on 29 January and 45°F on 20 February.

Sampling Methods

The area was difficult to sample because of physical conditions (depth, velocity, turbidity) and lack of boat access. A combination of electroshocking and gillnetting was utilized and a few seine hauls were made.

A portion of each of the four river segments was sampled. An effort was made to concentrate on the areas of habitat that appeared most likely to hold game fish. Nearly all of Segments C and D were sampled. About half of Segment A was sampled, and Segment B received the least effort.

Electroshocking was done from a 16-foot aluminum drift boat with a 2,500-watt generator producing 300 volts D.C. and using the boat hull as the negative electrode. Two sizes of bottom-set gillnets were used. One was 1½ inch square mesh X 4-feet high X 60 -feet long, and the other was graded in mesh size from 3/4 inch to 1-3/4in five increments, 4-feet

high and 125-feet long. Nets were set for 1-2 hours during the day, or, in one case, overnight. The seine utilized was a 50-foot bag seine.

The only pool that would be sampled by electroshocking was that in Segment C. The rest of that segment was also electroshocked to the beginning of the lava falls at the downstream end. The pool in Segment D was inaccessible to the electroshocking boat, but the portion of the segment beginning approximately 250 feet below the tail of the pool was shocked. The pools in Segments A and B were inaccessible to the shocker.

Gillnetting was feasible only in the pools and was used in Segments A, C and D. The pools in Segment B were too small and water was too swiftly-flowing to enable the nets to be effectively used. The bag seine could only be used where water was shallow and free of submerged obstructions.

Fish Populations

Eight species of fish were collected, probably all of those that are present in the section of river. They were:

brown trout ... *Salmo trutta*
rainbow trout...*Salmo gairdneri*
Utah sucker ... *Catostomus ardens*
bluehead sucker... *Catostomus discobolus*
Utah chub.....*Gila atraria*
speckled dace...*Rhinichthys osculus*
redside shiner..*Richardsonius balteatus*
mottled sculpin.*Cottus bairdi*

All are common in southeast Idaho with the exception of the bluehead sucker, which is relatively uncommon but is not considered to be a species of special concern at this time.

A total of 139 fish were collected (Table 1), excluding mottled sculpin which were abundant in some areas of rocky substrate but were not collected. The bulk of the fish collected, both by weight and by numbers, were suckers. Most suckers were 10-14 inches in length, with none smaller than 8 inches taken.

Minnows (shiners, dace and chub) were relatively uncommon. Therefore the forage base of small fish available as food for predatory brown trout was very limited.

Only seven trout (5% of all fish collected) were captured. Brown trout were more numerous than rainbow trout. Sizes of the trout were:

	total length, cm	weight, grams
Browns:	48.3	822
	38.7	482
	29.9	229
	33.1	325
	29.5	226
Rainbows:	25.8	255
	19.8	162

All were wild trout. Scales were analyzed, and the oldest rainbow was in its third year of life. The two largest browns, both captured in the pool in Segment D, were both aged seven years. The smaller browns were ages 4 and 5. All browns were in noticeably poor condition (see photos), probably due to a lack of forage fish.

Due to the small sample size, it was not possible to obtain a quantative estimate of trout abundance. Trout are certainly not abundant in the area examined, and I would estimate the total population to be

Table 1. Numbers of fish collected in the vicinity of the proposed Marsh Valley Hydro Project on the Portneuf River below the Topaz Diversion, 1983.

Stream segment	Date	Gear	Effort, hours	trout		suckers		Utah chub	speckled dace	redside shiner	mottled sculpin
				brown	rainbow	Utah	bluehead				
A - pool	19 Feb	1½" gillnet	2.0	no fish collected							
		graded "	2.0	no fish collected							
B - pool	19 Feb	bag seine	0.5							26	
C - pool	29 Jan	shocker	0.7	2	2	3	0	0	4	4	2
"	" "	1½ gillnet	1.0	0	0	15	0	1	0	0	0
"	" "	graded "	1.0	0	0	18	1	0	0	0	0
"	" "	bag seine	1.0	no fish collected							
C - middle	29 Jan	shocker	0.6	no fish collected							
"	" "	1½ gillnet	1.0	no fish collected							
D - all except pool	29 Jan	shocker	1.2	1	0	23	4	0	0	0	common
D - pool	20-21 Feb	graded gill.	16.0	2	0	28	5	0	0	0	0
TOTAL				5	2	87	10	1	4	30	

less than 200 trout, mostly inhabiting the pools.

No anglers were observed in the area examined on any of the occasions we sampled. One local resident reported taking a few trout from the pool in Segment C over the last few years.

Physically, the section of river appears to provide fair habitat for trout. There is good water depth and bank cover. The substrate was very heavily sedimented. No spring areas nor areas offering spawning habitat for trout were observed.

APPENDIX E-3b

LETTERS FROM VARIOUS AGENCIES ASSOCIATED WITH FISH AND WILDLIFE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
4620 Overland Road, Room 209
Boise, Idaho 83705

February 11, 1983

Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Avenue
Suite 1
Boise, Idaho 83709

Dear Mr. Auth:

Thank you for your letter of January 11 regarding the proposed hydroelectric project. In accordance with 18 CFR consultation requirements, we have reviewed your license exemption project on Portneuf River in Bannock County, Idaho.

We understand that the proposed project would consist of the following: (1) an automatically controlled diversion in the Portneuf-Marsh Valley Canal, (2) two steel penstocks, 400 feet long and 125 feet long, (3) a powerhouse with an estimated installed capacity of 1,200 kW, and (4) a three-phase transmission line about 2 miles long.

Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage, and nitrogen supersaturation resulting from air entrainment in the penstocks.

No listed or proposed threatened or endangered species are known to occur within the project area.

Based on the present information, we have determined that the following study and preliminary terms and conditions are appropriate. We encourage the applicant to perform the needed study prior to submitting an application to the FERC since a design change may be required.

Needed Study:

Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

Preliminary terms and conditions:

1. Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

2. Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

3. Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

When you file the application with FERC, please provide complete copies to us and IDFG for our review. If deemed necessary after further analysis of the project, we shall stipulate new or revised terms and conditions in our response to FERC's public notice of the proposed exemption. Please let us know if we can be of further assistance.

Sincerely yours,

Walter D. Ray

for John P. Wolflin
Acting Field Supervisor

cc: IDFG, Hdqtrs, Boise
IDFG, Region 5, Pocatello
BIA, Portland
FWS, AE-LWD, Portland
FWS, SE, Boise
Sho-Ban Tribes, Ft. Hall (Christoferson)

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

U.S. Department of the Interior
Fish & Wildlife Service
4694 Overland Road
Room 576
Boise, ID 83705

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R. Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BOISE FIELD OFFICE
4696 Overland Road, Room 576
Boise, Idaho 83705

September 3, 1987

Mr. Craig R. Schwabedissen
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

Re: Marsh Valley Hydro License Application

Dear Mr. Schwabedissen:

Consultation that occurred in 1983 for an exemption application is not appropriate for use in this license application. Due to time and manpower constraints, the Service will take no further action on this license application. However, you should consult with the Idaho Department of Fish and Game.

The Service has determined, to the best of its present knowledge, that there are no federally listed or proposed threatened or endangered species in the project area.

If you have any questions concerning our comments please contact Signe Sather-Blair of this office (208) 334-1931.

Sincerely yours,

John P. Wolflin
Field Supervisor

cc: IDFG, Hdqtrs., Boise
IDFG, Region 5, Pocatello
FERC, Washington, D.C.
FERC, Portland

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

January 19, 1983 F/NWR5:CRB

Mr. Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Ave., Suite 1
Boise, Idaho 83709

Re: Portneuf - Marsh Valley Hydroelectric Project - Application for Exemption from Licensing

Dear Mr. Auth:

The National Marine Fisheries Service has received your letter requesting our views and recommendations concerning the development of the subject project.

Since there are no anadromous fish in the area, we have no comments to offer.

Sincerely,

Dale R. Evans
Division Chief

cc: Federal Energy Regulatory Commission, Washington, D.C.

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

National Marine Fishery Service
Department of Commerce
Northwest Region
7600 Sandpoint Way N.W.
Bin C-15700
Building #1
Seattle, WA 98115

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R. Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE SUITE 350
PORTLAND OREGON 97232-2279
(503) 230-5400

F/NWR5:466

JUN 29 1987

Mr. Craig R. Schwabedissen, E.I.T.
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

Re: Marsh Valley Hydroelectric Project, FERC #10242

Dear Mr. Schwabedissen:

The National Marine Fisheries Service has received your letter requesting our views and recommendations concerning the development of the subject project.

Since there are no anadromous fish in the area, we have no comments to offer.

Sincerely,

for Dale R. Evans
Division Chief

cc: Federal Energy Regulatory Commission, Washington, D.C.
Federal Energy Regulatory Commission, Portland, OR
NW Power Planning Council

IDAHO DEPARTMENT OF FISH AND GAME
REGION 5 Phone 232-4703
South Fifth Avenue • P.O. Box 4229
Pocatello, Idaho 83201

March 11, 1983

Mr. Marc A. Auth
Project Engineer
J-U-B Engineers, Inc.
250 So. Beechwood Ave.
Suite One
Boise, ID 83709

Re: Portneuf/Marsh Valley Hydroelectric Project. Early consultation. Application for exemption from FERC licensing. Marsh Valley Hydroelectric Company.

Dear Mr. Auth:

This letter is based on your request for early consultation on the above named project. We recently acquired J. S. Griffith's study entitled "Fish Populations In The Vicinity Of The Proposed Marsh Valley Hydro Project," and have reviewed his findings.

We recommend that minimum flows in the area from the diversion to the powerplant be not less than those that currently occur during the irrigation season. On August 26, 1977 we measured 10 cfs of water in this area and feel this is indicative of irrigation season flows.

Other requirements of this project include the following: (1) transmission lines buried or designed to prevent raptor mortalities; (2) project construction to avoid creating short-term and long-term erosion and undue disturbance of riparian habitat; and (3) replacement of vegetation may be required.

These conditions do not constitute submission of terms and conditions under Section 408 of the Energy Security Act of 1980. Terms and conditions will be submitted after notice of application from the Federal Energy Regulatory Commission (FERC).

As required by Section 4.107 (a), (2) of the FERC Order No. 106, please forward a copy of the exemption application to the Idaho Department of Fish and Game, P. O. Box 25, Boise, Idaho 83707, at the time it is submitted to the Federal Energy Regulatory Commission.

Sincerely,

John T. Heimer
for Jerry Mallet
Region 5 Supervisor

cc: USFWS (Wolflin)
Program Coordination

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83201
Telephone: (208) 232-4703

September 20, 1984

Mr. Ronald D. Carlson
Eastern Regional Supervisor
Idaho Department of Water Resources
150 Shoup
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Re: Application for Water Rights, #29-7578 and #29-7772, Portneuf River Hydroelectric Projects

We would like to withdraw our protests against the above referenced applications as we have now been furnished with information regarding them as requested. We understand that a minimum of 10 cfs is to be left in the stream and all other conditions requested by the Department agreed to.

Sincerely,

David Neider
Supervisor, Region 5

DN:JH:sc

cc: Randall C. Budge

EQUAL OPPORTUNITY EMPLOYER

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

Idaho Department of Fish & Game
600 S. Walnut Street
P. O. Box 25
Boise, ID 83707

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R. Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83204
Telephone: (208) 232-4703

August 31, 1987

Mr. Ted Sorenson
Sorenson Engineering
550 Linden Drive
Idaho Falls, ID 83401

RE: Marsh Valley Hydro, Old FERC No. 10242

Dear Mr. Sorenson:

Thank you for providing a copy of your application for license on the above project.

The document contains a letter of consultation from our Department dated March 11, 1983 which was in response to an earlier application under a different FERC number (10242). We feel that earlier consultation is still relevant and can be considered as satisfying stage one consultation requirements.

We consider the document submitted to us a draft application as required for stage two consultation.

Following are our comments on the draft application:

1. Our letter dated March 11, 1983 covers our major concerns regarding this project. As stated in paragraph 2, we recommend that minimum flows during the irrigation season be not less than what currently occurs. Therefore the applicant should do some flow studies to assess current conditions.

2. Other concerns and comments listed in our letter of March 11, 1983 are the same now as was stated then.

Sincerely,

John T. Heemer for

David Nelder
Regional Supervisor

DN/mt

EQUAL OPPORTUNITY EMPLOYER

APPENDIX E-4

LETTER FORM STATE HISTORIC PRESERVATION OFFICER

IDAHO STATE HISTORICAL SOCIETY
610 NORTH JULIA DAVIS DRIVE BOISE, 83702

J-U-B Engineers
RECEIVED
JAN 2 1 1983
BOISE, IDAHO

January 25, 1983

Mr. Marc A. Auth
J-U-B Engineers, Inc.
250 S. Beechwood Avenue
Suite 1
Boise, ID 83709

Dear Mr. Auth:

Thank you for informing us of the proposed Portneuf - Marsh Valley hydroelectric project. This project will have no effect on any archaeological or historic properties.

Sincerely,

Thomas J. Green
State Archaeologist
State Historic Preservation Office

TG/kh

SORENSON ENGINEERING
CONSULTING ENGINEERS
550 LINDEN DRIVE
IDAHO FALLS, IDAHO 83401
208-522-8069

June 16, 1987

Idaho State Historical Society
610 N. Julia Davis Drive
Boise, ID 83702

SUBJECT: MARSH VALLEY HYDROELECTRIC PROJECT

Gentlemen,

Enclosed is a copy of the Application for License for the Marsh Valley Hydroelectric project. Within the environmental portion of the report is a letter from your Agency which contains the initial comments concerning the project. You may recall that this project is located near McCammon, Idaho. It would divert water through the existing diversion and canal system of the Portneuf Marsh Valley Canal and the water would then be returned to the Portneuf River.

We would appreciate you consultation in this matter as your office reviews the application.

Sincerely,

Craig R. Schwabedissen

Craig R. Schwabedissen, E.I.T.
Sorenson Engineering

CRS:ll

Enclosures

cc: Mr. Randall Budge

Dr. David L. Crowder
Director and
State Historic Preservation Officer
210 Main St.
Boise, Idaho 83702
208-334-3890

IDAHO STATE HISTORICAL SOCIETY

CECIL D. ANDRUS, Governor

Archaeology/Oral History
210 Main St.
Boise, Idaho 83702
208-334-3847, 3863

Museum
610 N. Julia Davis Dr.
Boise, Idaho 83702
208-334-2120

Library and Archives
610 N. Julia Davis Dr.
Boise, Idaho 83702
208-334-3356

Old Idaho Penitentiary
2445 Old Penitentiary Rd.
Boise, Idaho 83712
208-334-2844

June 24, 1987

Mr. Craig R. Schwabedissen, E.I.T.
Sorenson Engineering
550 Linden Drive
Idaho Falls, Idaho 83401

Dear Mr. Schwabedissen:

Thank you for forwarding a more recent copy of the license application for the Marsh Valley Hydroelectric project (FERC No. 10242).

As we previously stated to Mr. Marc Auth (J-U-B Engineers, Inc.) in our letter dated January 25, 1983, the project will have no effect on cultural resources. With regard to your recent inquiry, our position remains unchanged.

Sincerely,

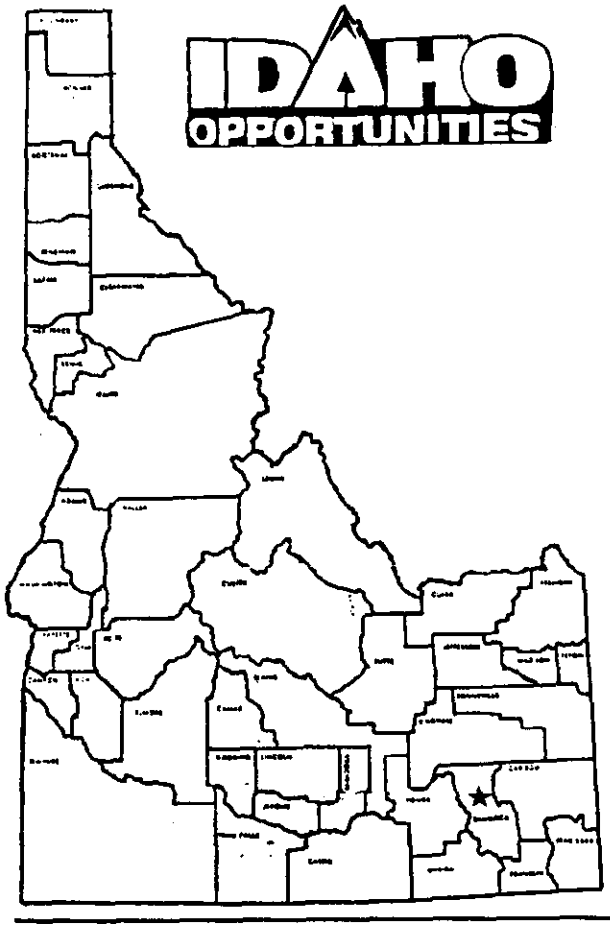
Thomas J. Green
Deputy State Historic
Preservation Officer

TJG/bhd

Celebrate IDAHO
1890 · CENTENNIAL · 1990

APPENDIX E-5

BANNOCK COUNTY - COUNTY ECONOMIC PROFILES



IDAHO OPPORTUNITIES

COUNTY ECONOMIC PROFILES

BANNOCK COUNTY

DIVISION OF ECONOMIC AND COMMUNITY AFFAIRS
(208) 334-3416

John V. Evans, Governor

I. POPULATION

A. Population Change (Census):

1970	1980	1970-80 % Change
52,200	65,421	25.3

B. Persons by Race (1980 Census):

White	Black	Indian
61,643	486	1,225

Asian & Pacific Islands	Other	Spanish Origin[1]
557	1,510	2,254

C. Population Density (1980 Census):

Persons per Square Mile 58.8

D. Persons by Age and Sex (1980 Census):

	Numbers		Percent	
Age Group	Male	Female	Male	Female
Under 5	3,775	3,455	5.8	5.3
5-9	2,960	2,896	4.5	4.4
10-14	2,662	2,547	4.1	3.9
15-19	2,911	3,016	4.4	4.6
20-24	3,654	3,914	5.6	6.0
25-34	6,139	5,699	9.3	8.7
35-44	3,413	3,338	5.2	5.1
45-54	2,618	2,528	4.0	3.9
55-64	2,261	2,414	3.5	3.7
65 & Over	2,222	2,999	3.4	4.6

[1] Persons of Spanish Origin may be of any Race.

COUNTY: Bannock

II. LABOR FORCE DATA

	1981 Year Average
A. Total Civilian Work Force	30,399
B. Total Unemployed	1,877
Percent of Work Force	6.2
C. Agricultural Employment (Est.)	530

D.	
Total Nonag. Covered Employment	25,050
Food Processing	834
Lumber	152
Chemicals	0
Metals	151
Machinery	911
Other Manufacturing	1,051
Construction	835
Mining	0
Transp., Comm. & Utilities	3,462
Wholesale & Retail Trade	6,257
Finance, Insurance, Real Estate	2,213
Service & Miscellaneous	3,544
Government	5,643

(Zeroes indicate no employment or suppressed data.)

III. ECONOMIC ACTIVITY

Economic Activity, Showing Changes, 1970, 1975, 1980

Year Shown Unless Otherwise Indicated	1970	1975	1980
Average Monthly Nonagricultural Wage *	$ 501	$ 713	$ 1,057
Annual Nonagricultural Payroll *	$ 67,799,000	$ 145,353,000	$275,187,000
Personal Income Total	$ 166,825,000	$ 305,302,000	$547,913,000
Housing Total	16,516	NA	24,819
Number of Retail Establishments	311	349	381
Number of Wholesale Establishments	87	113	137
Retail Sales (Fiscal Year)	$ NA	$ 133,262,812	$250,321,596
Wholesale Sales (Fiscal Year)	$ NA	$ 66,957,468	$148,764,519
Gross Sales (Fiscal Year)	$ NA	$ 268,116,975	$482,640,362
Number of Farms	556[1]	547[2]	540[3]
Total Land in Farms (Acres)	392,167[1]	386,819[2]	377,380[3]
Value of All Farm Products Sold	$ 10,273,000[1]	$ 14,240,000[2]	$ 18,602,000[3]

* Covered employment wage and payroll.
[1] 1969
[2] 1974
[3] 1978

COUNTY: Bannock

IV. HOUSEHOLD INCOME (1980 Census - 1979)

	Households
Under $2,500	789
$2,500 - $4,999	1,708
$5,000 - $7,499	1,718
$7,500 - $9,999	1,702
$10,000 - $14,999	3,377
$15,000 - $24,999	7,002
$25,000 - $49,999	5,450
$50,000 - Over	649

V. COUNTY GOVERNMENT

County Commissioners as of 1/1/83

Tom Katsilometes

George Shiozawa

Carolyn Meline

VI. GOVERNMENT SERVICES

County Has:

Zoning Ordinance	Yes
Full-time Fire Department	1
Volunteer Fire Department	6
Full-time Law Officers	125
Planning Commission	Yes

Public Libraries (Locations) Downey, Lava Hot Springs, Pocatello

VII. PROPERTY TAXES 1980

A. Property Tax as % of Market Value 1.479%

B. Market Value of all Property $1,074,991,295

C. Property Tax Collected $ 15,903,024

VIII. LAND, GEOGRAPHY AND CLIMATE

A. Land Area (Square Miles) 1,112

B. Land Ownership

Federal	State	Cities & Counties	Private
31.7 %	7.3 %	1.7 %	59.3 %

C. Distance (in Miles) from:

County Seat Pocatello

Boise	234	Phoenix	830
San Francisco	789	Seattle	735
Los Angeles	848	Denver	635
Salt Lake City	157	Portland	661

D. Average Annual Precipitation 14.10

E. Average Temperature*

Winter, High	33.8	Low	14.8
Summer, High	89.3	Low	48.9

* January and July

COUNTY: Bannock

IX. FINANCIAL SERVICES AND MEDIA

A. Commercial - Financial

Banks/Bank & Trust Companies 11
Savings & Loan Associations 4

B. Communications in County:

1. Newspapers Published:

Daily	City
Idaho State Journal	Pocatello

Weekly	City
None	

2. Television Stations: KBGL(10), KPVI(6), Pocatello

3. Radio Stations: KBGL-FM, KKLB-FM, KRBU-FM, KSEI, KSIH-FM, KSNN, KWIK

4. Telephone Systems: Mountain Bell

X. OUTDOOR RECREATION AREAS

A. Public Recreation Areas in County:

Major Community Parks: Alameda, Hawthorne, Scardino and Ross Parks

Idaho State Parks: Indian Rocks, Lava Hot Springs

National Monuments, Recreation, Wilderness and Primitive Areas: None

National Forest(s): Caribou National Forest

Other Recreation Areas: Caribou Alpine Ski Area, Pebble Creek, Alpine Ski Area, American Falls Res.

B. Nearest Public Recreation Areas Outside of the County: Bear Lake, Craters of the Moon, Grand Teton National Park

XI. EDUCATION (1981 - 1982 School Year)

A. School District(s) in County (Names):

Marsh Valley Joint District

Pocatello Joint District

B. Public Schools:

	Number	Enrollment
Elementary	19	6,832
Junior High	5	3,055
Senior High	3	2,806

C. Private Schools in County:

Grace Lutheran (K-6), St. Anthony's (K-6), Jesse Clark Christian Academy (1-8), Sunkiss School (K)

D. Nearest Colleges or Vo-Tech Schools:

Junior College

Ricks College

City	County	Enrollment
Rexburg	Madison	6,748

4-Year College or University

Idaho State University

City	County	Enrollment
Pocatello	Bannock	5,810

City	County	Enrollment

Vocational-Technical School

Idaho State University

City	County	Enrollment
Pocatello	Bannock	1,398

COUNTY: Bannock

XII. HEALTH FACILITIES

A. Hospitals

Name	No. of Beds
Bannock Reg. Med. Ctr.	137
Marsh Valley Hospital	17
Pocatello Reg. Med. Ctr.	110

XIII. CONVENTION AND MEETING FACILITIES

A. Largest Auditorium:

ISU Reed Gym — 4,000 Seating Capacity

B. Largest Banquet Room:

Quality Royale — 1,000 Seating Capacity

C. Travel Accommodations:

Motel Rooms — 1,430 Number

XIV. ECONOMIC DEVELOPMENT PROGRAMS & PLANS

A. Development Agencies:

Economic Development Corporation of Bannock County

B. County or Multi-County Planning Agency:

Southeast Idaho Council of Governments

XV. TRANSPORTATION

A. Major Highways in County:

	Designation	Direction
Fed. Interstate	15	N-S
Fed. Interstate	84	E-W
Federal	30	E-W
Federal	91	N-S
State		
State		
State		

B. Air Services

Municipal Airports in County:

Hyde Memorial

Pocatello Municipal

Private Airports in County:

Nearest Scheduled Airline Service If None in County:

C. Rail Service:

Railroads Serving County: Union Pacific

Names and Types of Service:

Freight Service

Passenger Service (AMTRAK)

APPENDIX E-6

SOIL TYPE AND MAPPING

Soils Along Portneuf-Marsh Valley Canal

23 BLF--Camelback-Cedarhill, high precipitation-Lanoak complex, 20 to 50 percent slopes. This map unit is on mountain slopes. The native vegetation is mainly shrubs and grasses. Elevation is about 5,500 to 6,500 feet. The average annual precipitation is about 17 inches, the average annual air temperature is about 42 degrees F, and the average frost-free period is about 80 days.

This unit is about 30 percent Camelback very cobbly silt loam, about 30 percent Cedarhill very cobbly silt loam, high precipitation, and about 20 percent Lanoak silt loam. The Camelback soil is on dominantly north and east-facing convex slopes, the Cedarhill soil is on south and west-facing slopes, and the Lanoak soil is on concave north and east-facing slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included areas make up about 20 percent of the total acreage of this unit. Of this, about 5 percent is Valmar very cobbly silt loam on the upper part of slopes and on ridgetops, about 5 percent is Hades gravelly silt loam on concave north and east-facing slopes, and about 5 percent is Wursten gravelly silt loam on south and west-facing foot slopes. The remaining 5 percent is small areas of Pavohroo silt loam, Rock outcrop, Yago extremely stony silty clay loam, Ireland extremely stony silt loam, Moonlight silt loam, and a very deep soil similar to Hades that occurs along drainageways.

The Camelback soil is deep and well drained. It formed in alluvium and colluvium derived dominantly from sedimentary and metasedimentary rocks. Typically, the surface layer is dark brown very cobbly silt loam 21 inches

thick. The subsoil is dark brown and yellowish brown extremely cobbly silt loam 21 inches thick. Bedrock is at a depth of 42 inches. Depth to bedrock ranges from 40 to 60 inches.

Permeability of the Camelback soil is moderate. Available water capacity is low. Effective rooting depth is 40 to 60 inches. Runoff is very rapid, and the hazard of water erosion is very high.

The Cedarhill soil is very deep and well drained. It formed in alluvium and colluvium derived dominantly from sedimentary and metasedimentary rocks. Typically, the surface layer is brown calcareous very cobbly silt loam 9 inches thick. The upper 19 inches of the underlying material is very pale brown and light yellowish brown calcareous very cobbly silt loam, and the lower part to a depth of 60 inches or more is light yellowish brown calcareous very cobbly loam.

Permeability of the Cedarhill soil is moderate. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is very high.

The Lanoak soil is very deep and well drained. It formed in loess and silty alluvium derived from loess. Typically, the surface layer is dark grayish brown silt loam 22 inches thick. The subsoil is grayish brown and pale brown silt loam 22 inches thick. The substratum to a depth of 60 inches or more is light gray calcareous silt loam.

Permeability of the Lanoak soil is moderate. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is very high.

This unit is used as rangeland.

This unit is suited to use as rangeland. The potential natural plant community on this unit is mainly mountain big sagebrush and bluebunch wheatgrass. Use of forage by livestock on parts of this unit is limited by the steep slopes. This may result in overuse of the less sloping areas adjacent to the steep areas. Use of mechanical equipment such as rangeland plows and drills is not practical on this unit because of the steep slopes and the very cobbly surface of the Camelback and Cedarhill soils.

This map unit is in capability subclass VIIe.

58 LwA--Inkom silt loam, drained, 0 to 1 percent slopes. This very deep, moderately well drained soil is on stream terraces and flood plains. It formed in silty alluvium derived from mixed sources. The drainage of this unit has been altered either by natural down-cutting of streams or by dredging and straightening of stream channels. Elevation is about 4,500 to 5,400 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 44 degrees F, and the average frost-free period is about 90 days.

Typically, the surface layer is grayish brown calcareous silt loam 7 inches thick. The subsoil to a depth of 60 inches or more is gray, grayish brown, and light gray calcareous silt loam.

Included areas make up about 20 percent of the total acreage of this unit. Of this, about 5 percent is Joevar silt loam on well drained areas along the edges of this unit and about 5 percent is Arbone gravelly silt loam and about 5 percent is Wursten gravelly silt loam both of which are at the mouths of lateral drainages. The remaining 5 percent is small areas of Hondoho cobbly silt loam, Bear Lake silt loam, Downata silt loam, soils that are similar to Inkom that are underlain with sand and gravel at depths of 15 to 40 inches, and soils that are similar to Inkom that are not calcareous.

Permeability of this Inkom soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. It has a seasonal high water table at a depth of 2 to 4 feet from February through June. Runoff is slow, and the hazard of water erosion is slight for both irrigated and nonirrigated areas. Flooding is occasional for brief periods from January through June.

Most areas of this unit are used as irrigated and nonirrigated cropland. A few areas are used for homesite and urban development.

This unit is well suited to irrigated crops. It is used for the production of wheat, barley, and alfalfa hay. The main limitation is occasional flooding during spring runoff or summer storms. Sprinkler irrigation is the most suitable method of applying water. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

This unit is well suited to nonirrigated crops. It is used for the production of wheat, barley, and alfalfa hay. The main limitations are low precipitation and occasional flooding during spring runoff or summer storms. Because precipitation is marginal for annual cropping, the cropping system usually includes small grain and summer fallow. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

This unit is poorly suited to homesite and urban development. The main limitations are a seasonal high water table and occasional flooding. The seasonal high water table may cause failure of septic tank absorption fields. Specially designed waste disposal systems are recommended. Roads and streets should be located above the expected flood level. Dikes and channels that have outlets for floodwater can be used to protect buildings and on-site sewage disposal systems from flooding.

This map unit is in capability subclasses IIIw, irrigated, and IIIw, nonirrigated.

erosion. Irrigation water needs to be applied at a rate that insures optimum production without increasing deep percolation, runoff, and erosion. Erosion can be reduced and fertility maintained by using a suitable cropping system, crop residue management, minimum tillage, and proper fertilization.

This soil is very susceptible to the formation of tillage pans and compaction layers. These tillage pans and compaction layers reduce the permeability of the soil and restrict root penetration. Deep subsoiling in fall will aid in breaking these pans and layers and will help prevent them from forming.

This soil is well suited to use as rangeland. The potential natural plant community on this Ririe soil is mainly mountain big sagebrush and bluebunch wheatgrass. This soil has few limitations. It is well suited to the use of mechanical equipment such as rangeland plows and drills.

This map unit is in capability subclasses IIIe, irrigated, and IIIc, nonirrigated.

98 ReD--Ririe silt loam, 4 to 12 percent slopes. This very deep, well drained soil is on foothills and fan terraces. It formed in loess and silty alluvium derived from loess. The vegetation in areas not cultivated is mainly shrubs and grasses. Elevation is about 4,800 to 6,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is about 90 days.

Typically, the surface layer is brown silt loam 12 inches thick. The underlying material to a depth of 60 inches or more is pale brown and very pale brown calcareous silt loam.

Included areas make up about 15 percent of the total acreage of this unit. Of this, about 5 percent is Watercanyon silt loam on south and west-facing slopes and about 5 percent is Hondoho gravelly silt loam on convex slopes along drainageways. The remaining 5 percent is small areas of Joevar silt loam and Ririe soils that have slopes of less than 4 percent and more than 12 percent.

Permeability of this Ririe soil is moderate. Available water capacity is very high. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. When irrigated, runoff is very rapid and the hazard of water erosion is very high.

Most areas of this unit are used as nonirrigated cropland. A few areas are used as irrigated cropland and rangeland.

The Ririe soil is well suited to nonirrigated crops. It is used for the production of wheat, barley, and a small amount of alfalfa hay. It is limited mainly by low precipitation and the high hazard of water erosion. Because precipitation is marginal for annual cropping, the cropping system usually includes small grain and summer fallow. Terraces reduce runoff and the risk of erosion and help to conserve moisture. Special designs for terraces and diversions are needed because of the shallow depth to moderately and strongly alkaline soil material. Bringing this material to the surface

reduces the production of crops. Erosion can be reduced if fall grain is seeded early, stubble-mulch tillage is used, and tillage and seeding are on the contour or across the slope. Also, waterways should be shaped and seeded to perennial grass. On long slopes, chiseling the stubble in fall slows runoff and reduces soil loss in years when the snow melts rapidly while the soil is still frozen. Chiseling also promotes better aeration. Maintaining 1,500 pounds or more of straw on the surface at planting time reduces runoff, conserves moisture, and helps to maintain soil tilth and organic matter content.

The Ririe soil is suited to irrigated crops. It is used for the production of wheat, barley, and small amounts of alfalfa hay and potatoes. It is limited mainly by the very high hazard of erosion. Sprinkler irrigation is the most suitable method of applying water. Use of this method permits the even, controlled application of water, reduces runoff, and minimizes the risk of erosion. Irrigation water needs to be applied at a rate that insures optimum production without increasing deep percolation, runoff, and erosion. Erosion can be reduced and fertility maintained by using a suitable cropping system, crop residue management, minimum tillage, and proper fertilization. All tillage should be on the contour or across the slope.

This soil is very susceptible to the formation of tillage pans and compaction layers. These tillage pans and compaction layers reduce the permeability of the soil and restrict root penetration. Deep subsoiling in fall will aid in breaking these pans and layers and will help prevent them from forming.

This soil is well suited to use as rangeland. The potential natural plant community on this Ririe soil is mainly mountain big sagebrush and bluebunch wheatgrass. This soil has few limitations. It is suited to the use of mechanical equipment such as rangeland plows and drills.

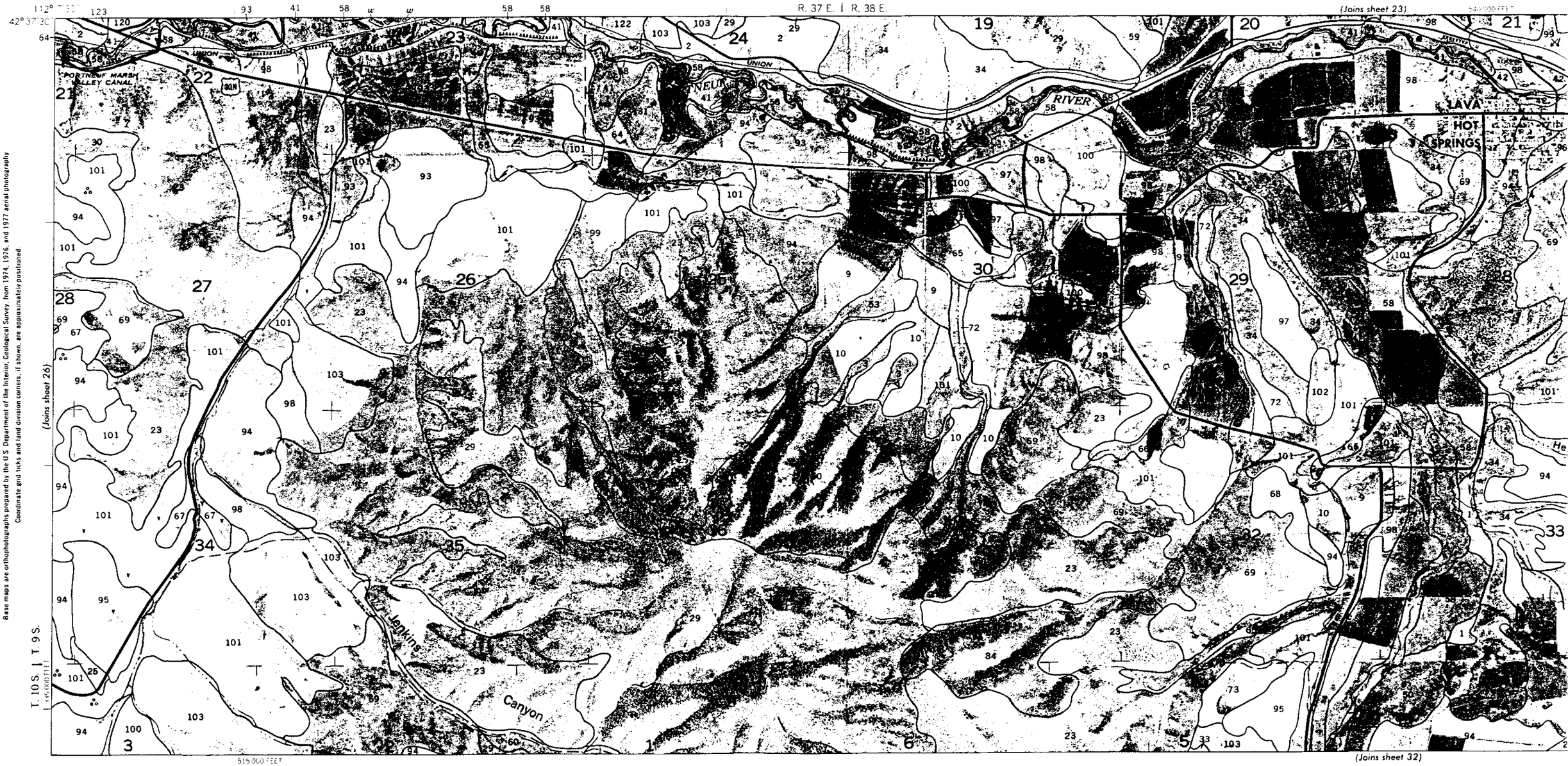
This map unit is in capability subclasses IVe, irrigated, and IIIe, nonirrigated.

99 ReE--Ririe silt loam, 12 to 20 percent slopes. This very deep, well drained soil is on foothills and fan terraces. It formed in loess and silty alluvium derived from loess. The vegetation in areas not cultivated is mainly shrubs and grasses. Elevation is about 4,800 to 6,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is about 90 days.

Typically, the surface layer is brown silt loam 12 inches thick. The underlying material to a depth of 60 inches or more is pale brown and very pale brown calcareous silt loam.

Included areas make up about 15 percent of the total acreage of this unit. Of this, about 5 percent is Watercanyon silt loam on south and west-facing slopes and about 5 percent is Hondoho gravelly silt loam on convex slopes along drainageways. The remaining 5 percent is small areas of Joevar silt loam and Ririe soils that have slopes of less than 12 percent and more than 20 percent.

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974, 1976, and 1977 aerial photography.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



1 3/4 1/2 1/4 0 1 2 MILES

1 0.5 0 1 2 KILOMETERS

SCALE 1:24 000

APPENDIX E-10

POTENTIAL ENERGY PRODUCTION - SOUTHERN IDAHO

POTENTIAL ENERGY PRODUCTION

SOUTHERN IDAHO

Commodity	Likelihood	Reason
Oil & Gas	Low	Limited exploration; reserves presently unknown.
Wood biomass	Fairly good	Co-generation power production at operating mills looks good, however mills in southern Idaho are not as prevelent as in central and northern Idaho. Wood by-product used for gasahol proved economically unfeasible.
Uranium	Low	Environmental problems
Geothermal	Limited	Hot holes abound in Idaho, but most are dry holes. Future may hold some promise for geothermal development with proper exploration and use of the heat exchange concept developed and used on the North Slope in Alaska. Financing for speculation purposes in well exploration remains a serious problem.
Solar	Moderate	Not feasible on a large scale. Being used in some home construction.

Commodity	Likelihood	Reason (cont.)
Wind	Moderate	Idaho Power Company has had six applications for contract negotiations for facilities involving wind power. The south/central Idaho area has moderate amounts of wind, however, this source of power is not reliable
Pumped Storage	Unlikely	Idaho Power Company has evaluated this possibility, however, nothing has developed.
Coal	Moderate	Major source of power for major utilities. Construction of new coal fired plants is very costly and transportation of coal poses problems. Coal slurry pipeline is unlikely in the near future.

EXHIBIT F

PRELIMINARY PROJECT STRUCTURES AND EQUIPMENT

F-1 INLET STRUCTURE

F-2 POWERHOUSE PLAN

F-3 POWERHOUSE ELEVATION

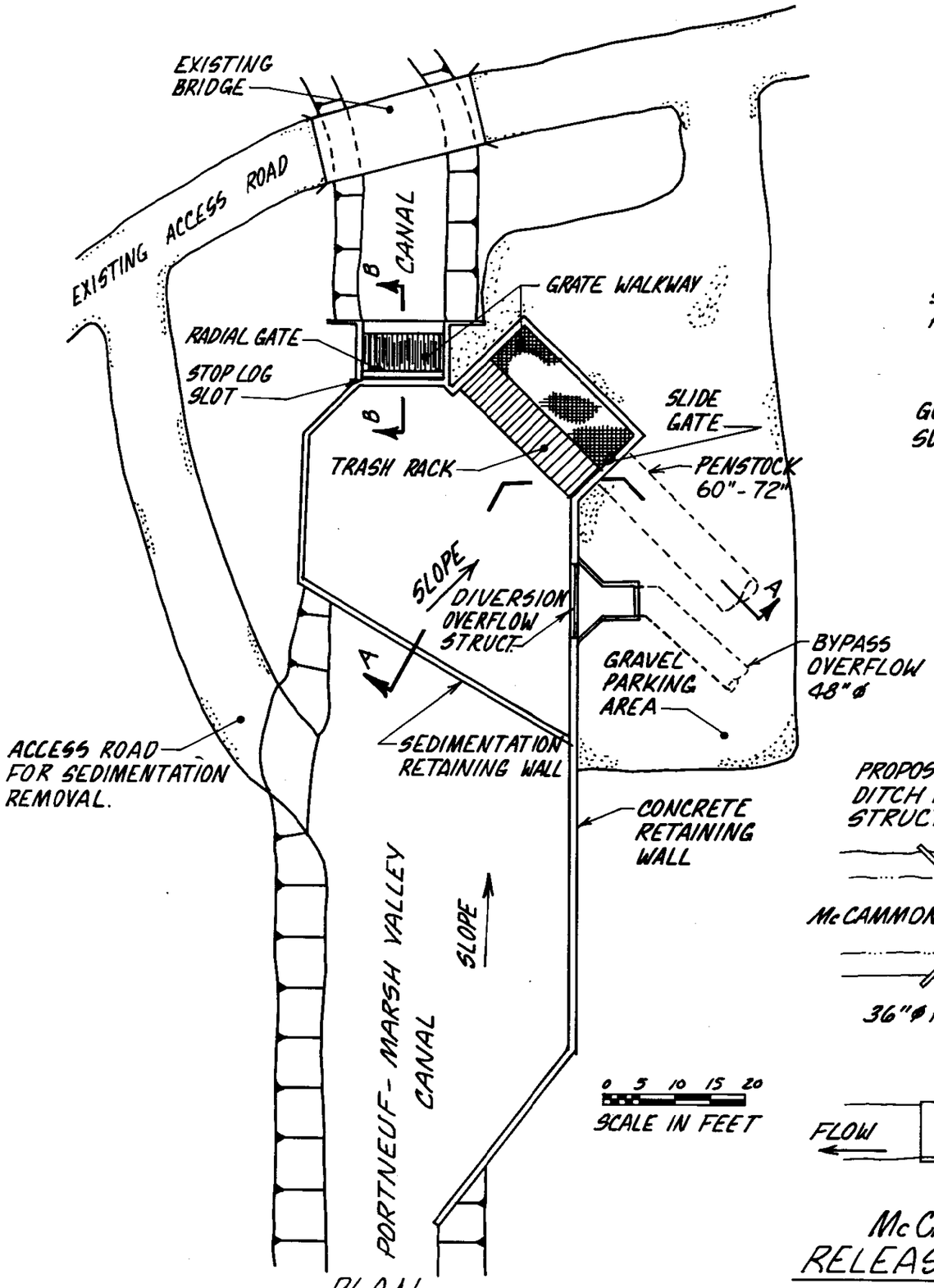
F-4 RAPTORS SAFE TRANSMISSION LINE

F-5 DIVERSION BYPASS STRUCTURE

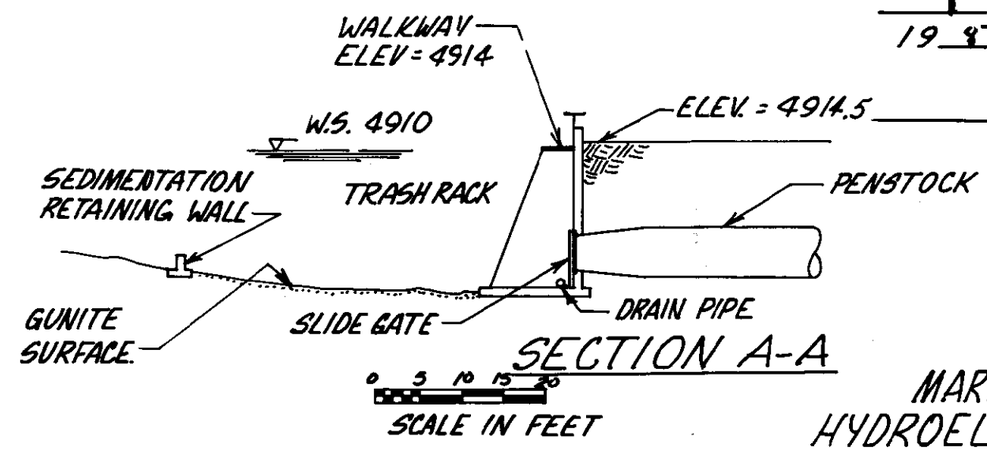
*NOTE: Large drawings can be found in back pocket.

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF Sept 19 87.

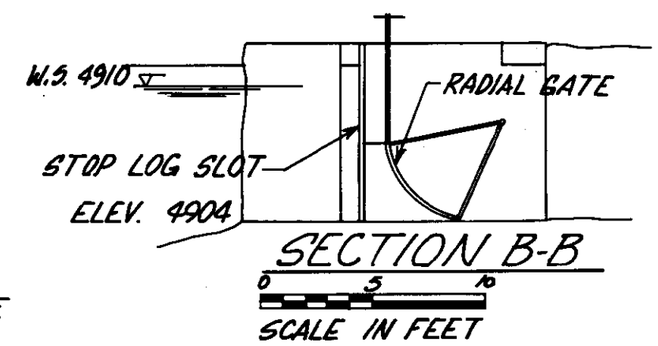
REGISTERED PROFESSIONAL ENGINEER TED S SORENSON STATE OF IDAHO 9/1/87



PLAN
DIVERSION & INTAKE

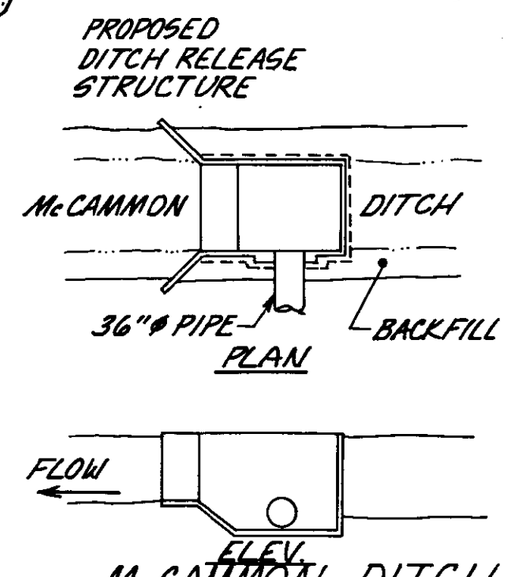


SECTION A-A



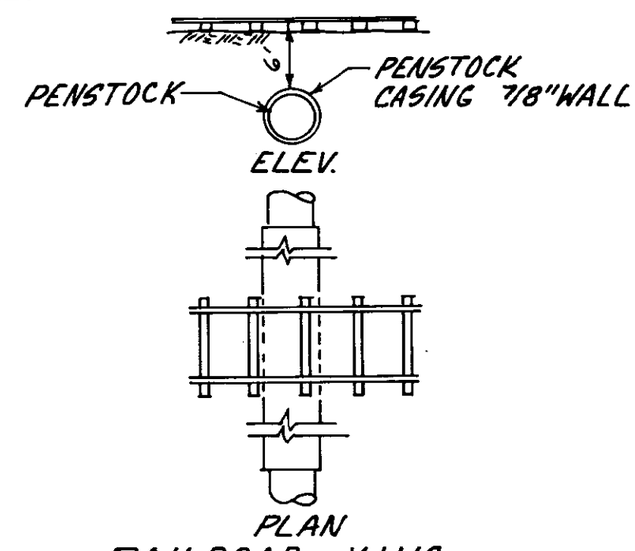
SECTION B-B

MARSH VALLEY
HYDROELECTRIC PROJECT
DIVERSION & DETAILS
EXHIBIT F-1
FERC NO.



McCAMMON DITCH
RELEASE STRUCTURE

SCALE IN FEET
8 4 0 8



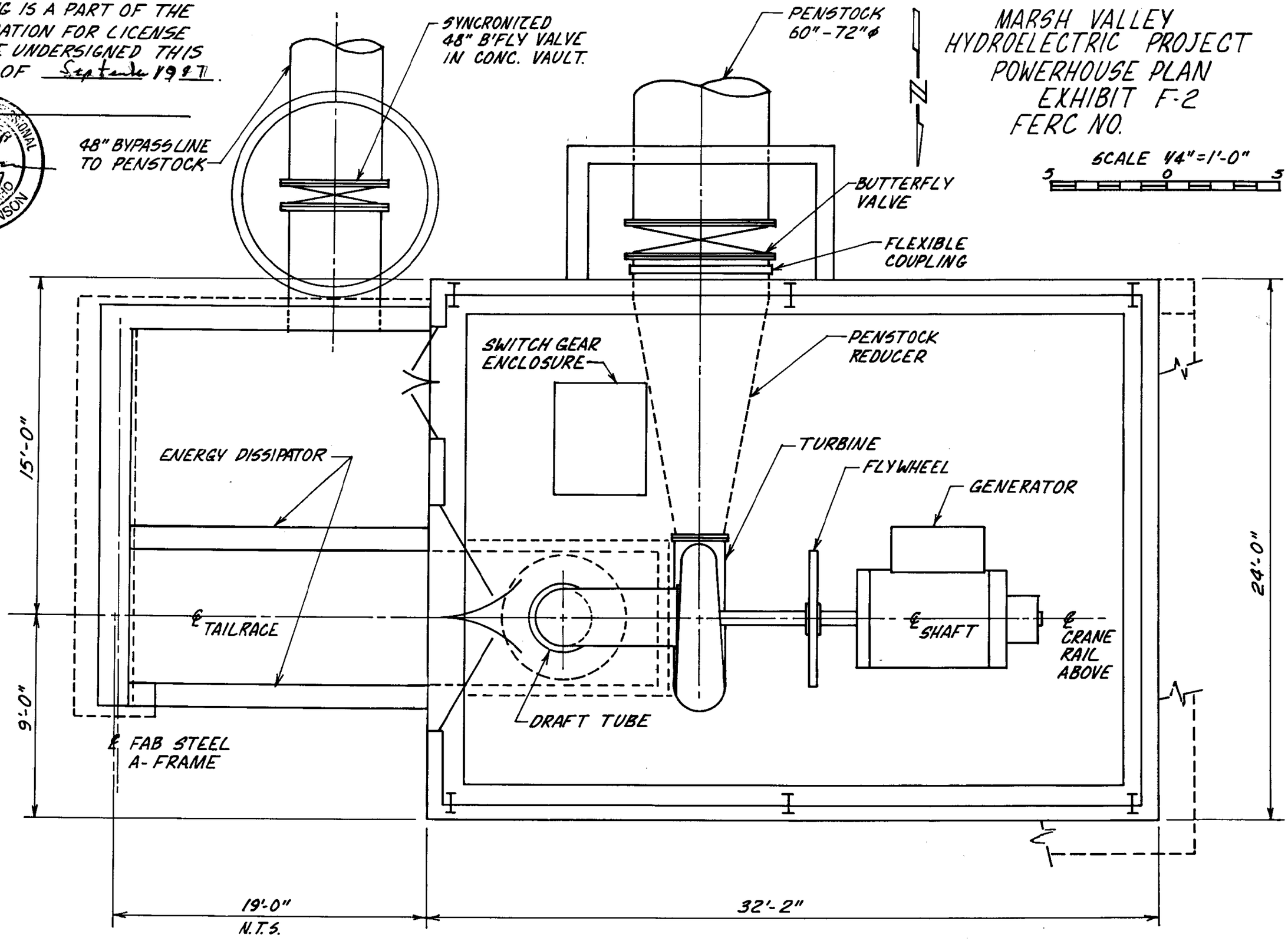
RAILROAD XING
NO SCALE

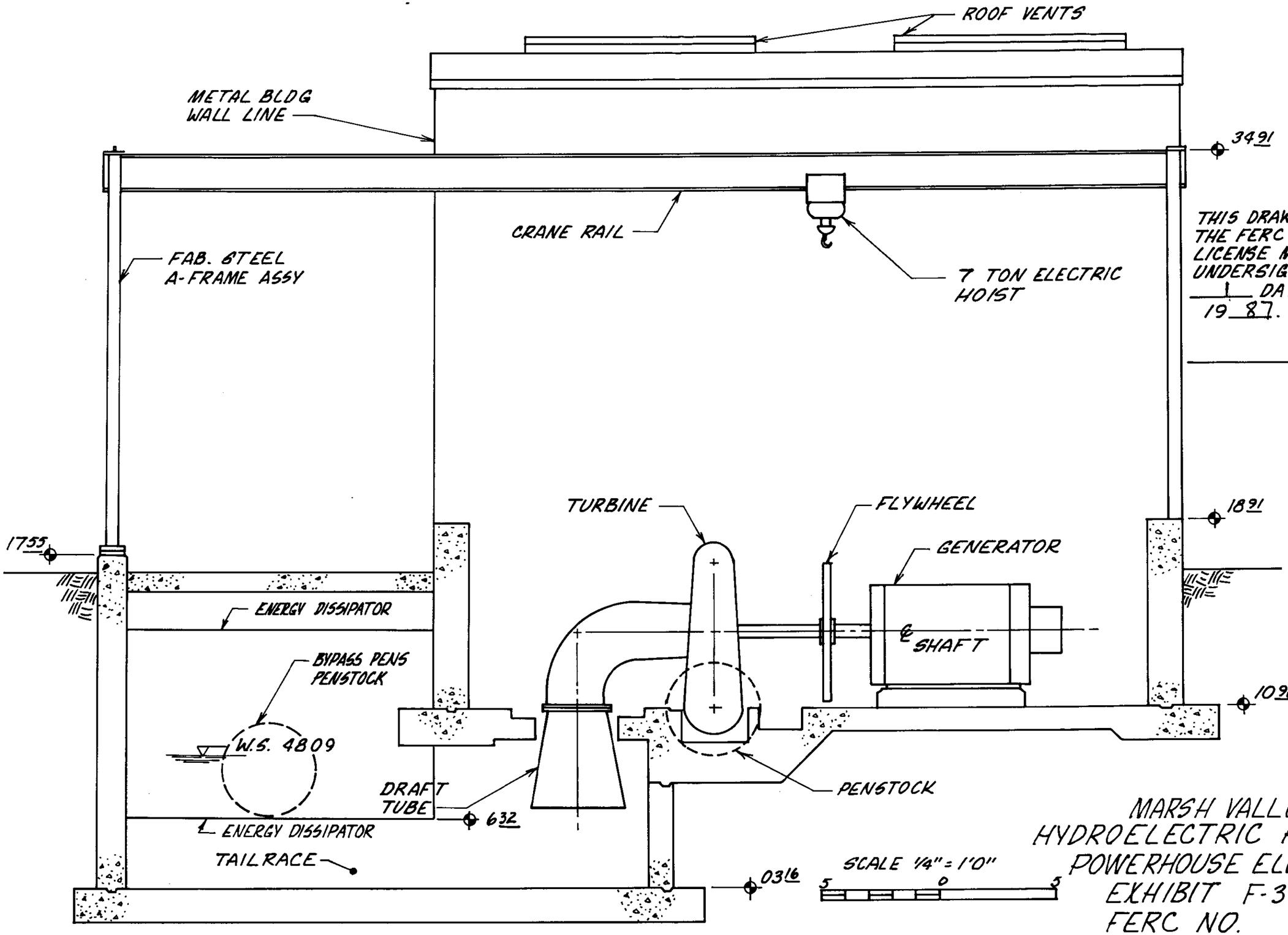
THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF September 1987.

REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO TED S SORENSON 9/1/87

MARSH VALLEY HYDROELECTRIC PROJECT POWERHOUSE PLAN EXHIBIT F-2 FERC NO.

SCALE 1/4" = 1'-0"



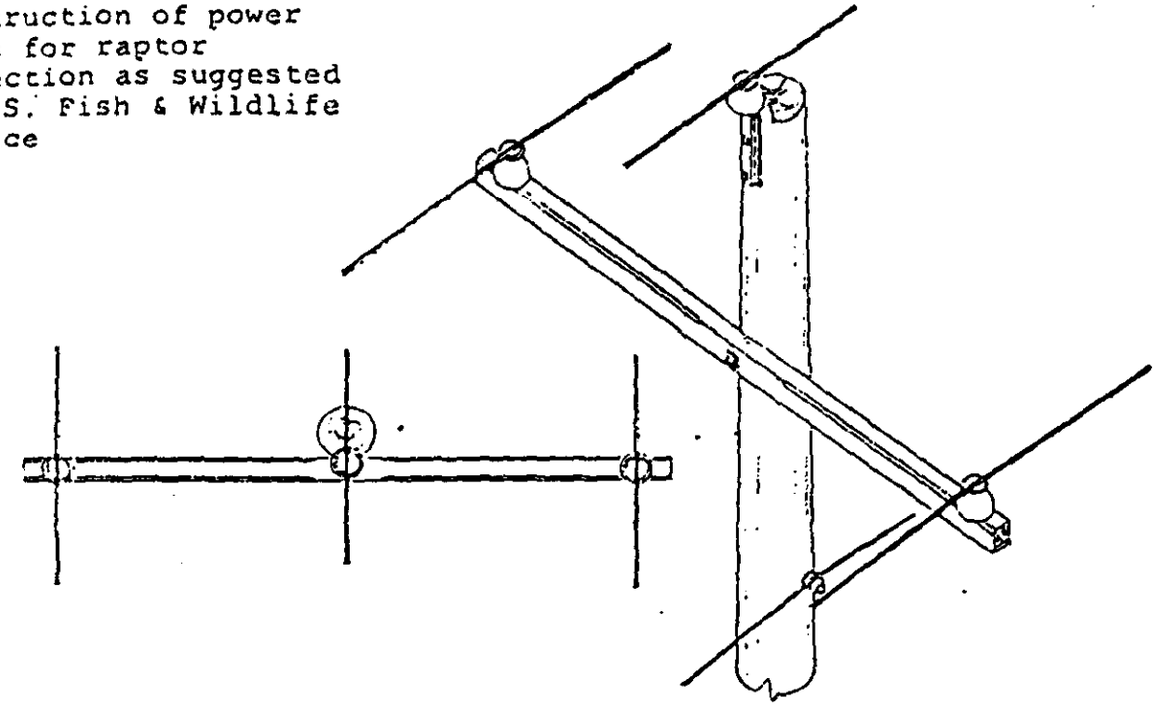


THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF September 19 87.

REGISTERED PROFESSIONAL ENGINEER STATE OF IDAHO TED S SORENSON

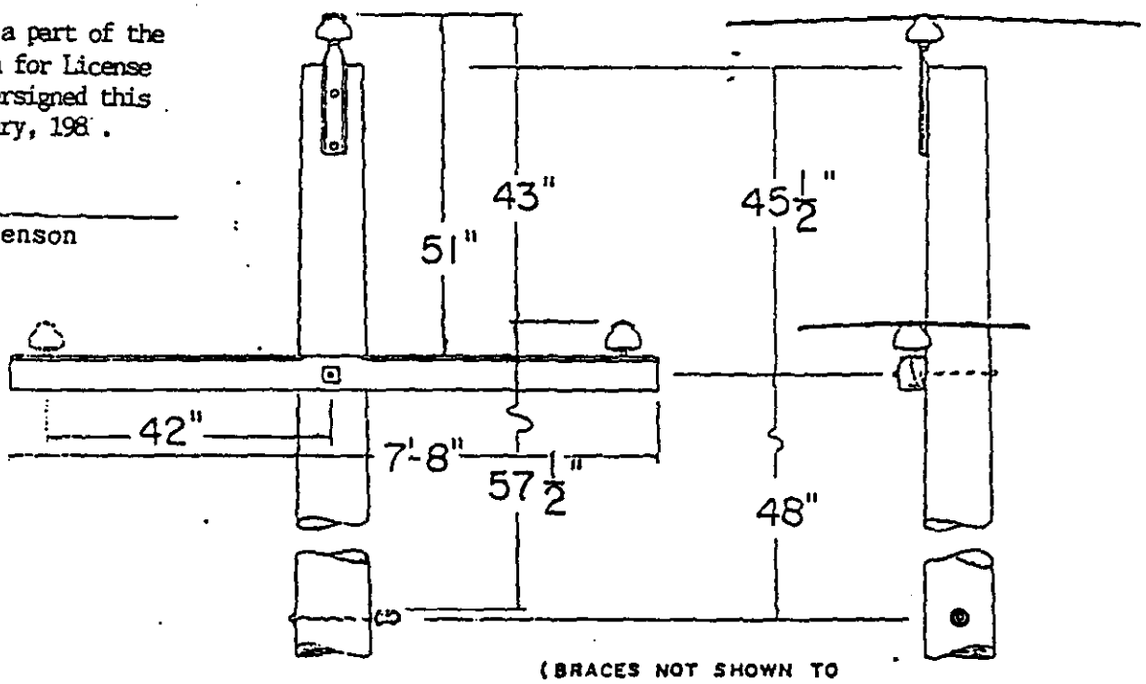
MARSH VALLEY
HYDROELECTRIC PROJECT
POWERHOUSE ELEVATION
EXHIBIT F-3
FERC NO.

Construction of power poles for raptor protection as suggested by U.S. Fish & Wildlife Service



This drawing is a part of the FERC Application for License made by the undersigned this ___ day of January, 198 .

Ted S. Sorenson



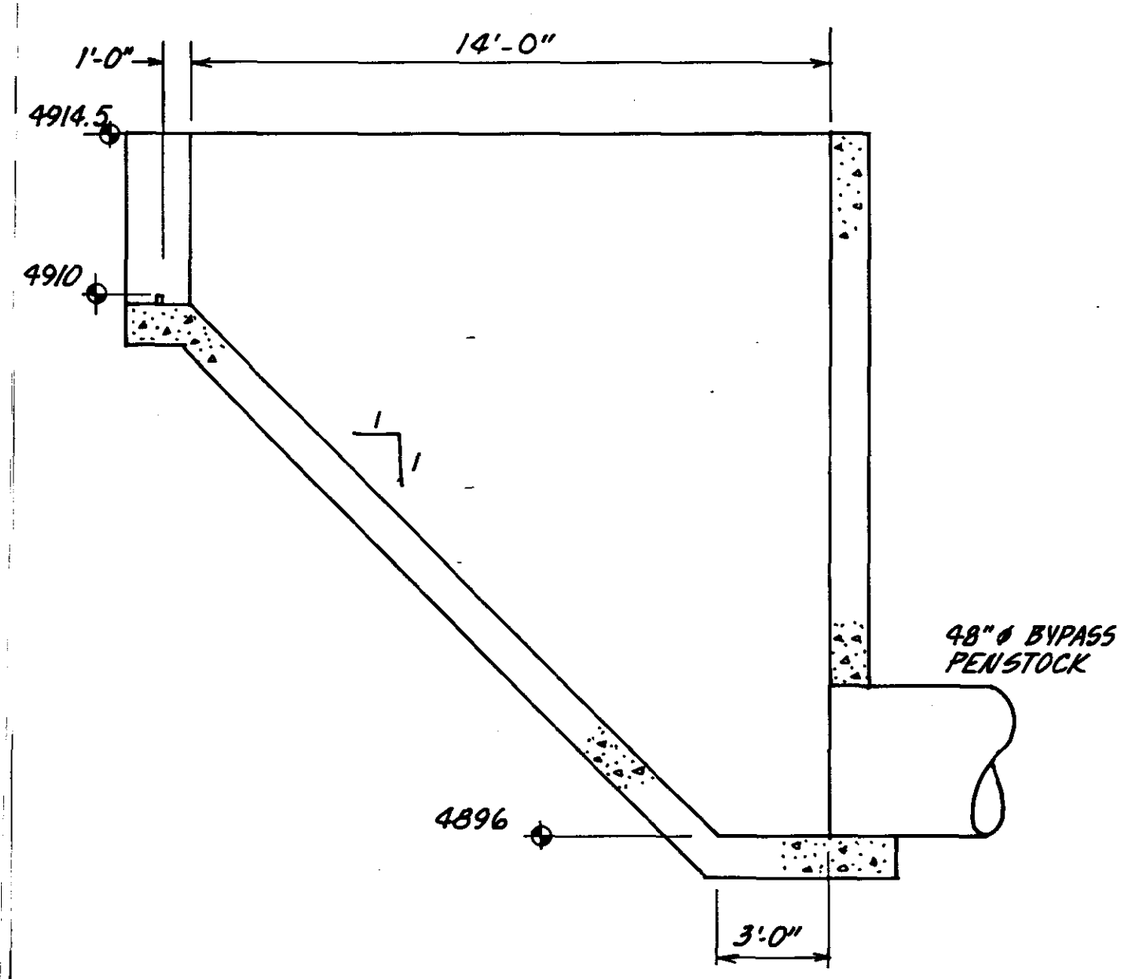
(BRACES NOT SHOWN TO IMPROVE CLARITY OF DRAWING.)

REFERENCE:

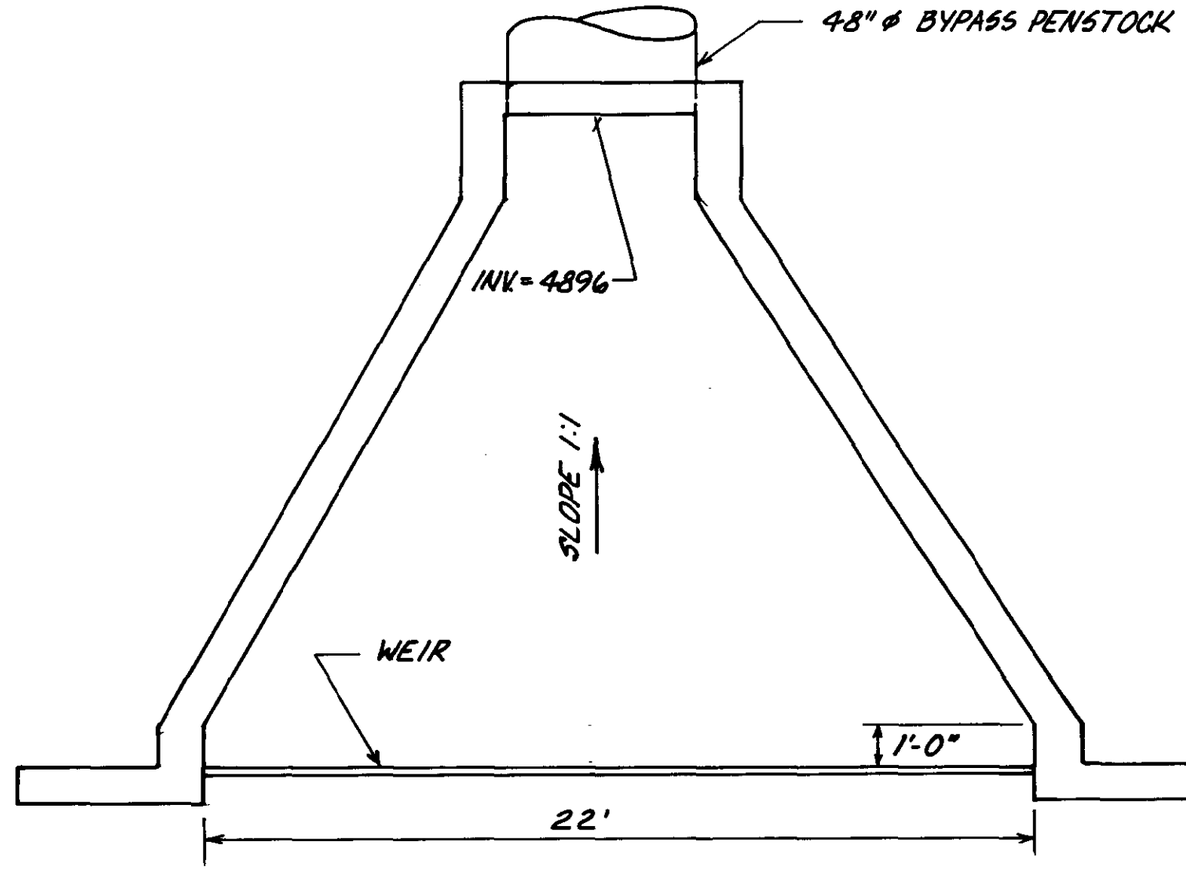
IDAHO POWER COMPANY
APPROVED FOR CORRECTIONS ON
PREFERRED POLES IN EXISTING LINES
BY: MORLAN W. NELSON
BIRDS-OF-PREY CONSULTANT

EXHIBIT F-4

RAPTORS SAFE TRANSMISSION LINE



ELEVATION



PLAN
DIVERSION BYPASS STRUCTURE

THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF September 1997

REGISTERED PROFESSIONAL ENGINEER
STATE OF IDAHO
TED S SORENSON
9/1/97

MARSH VALLEY
HYDROELECTRIC PROJECT
DIVERSION BYPASS STRUCTURE
EXHIBIT F-5
FERC NO

5 0 5
SCALE 1/4"=1'-0"

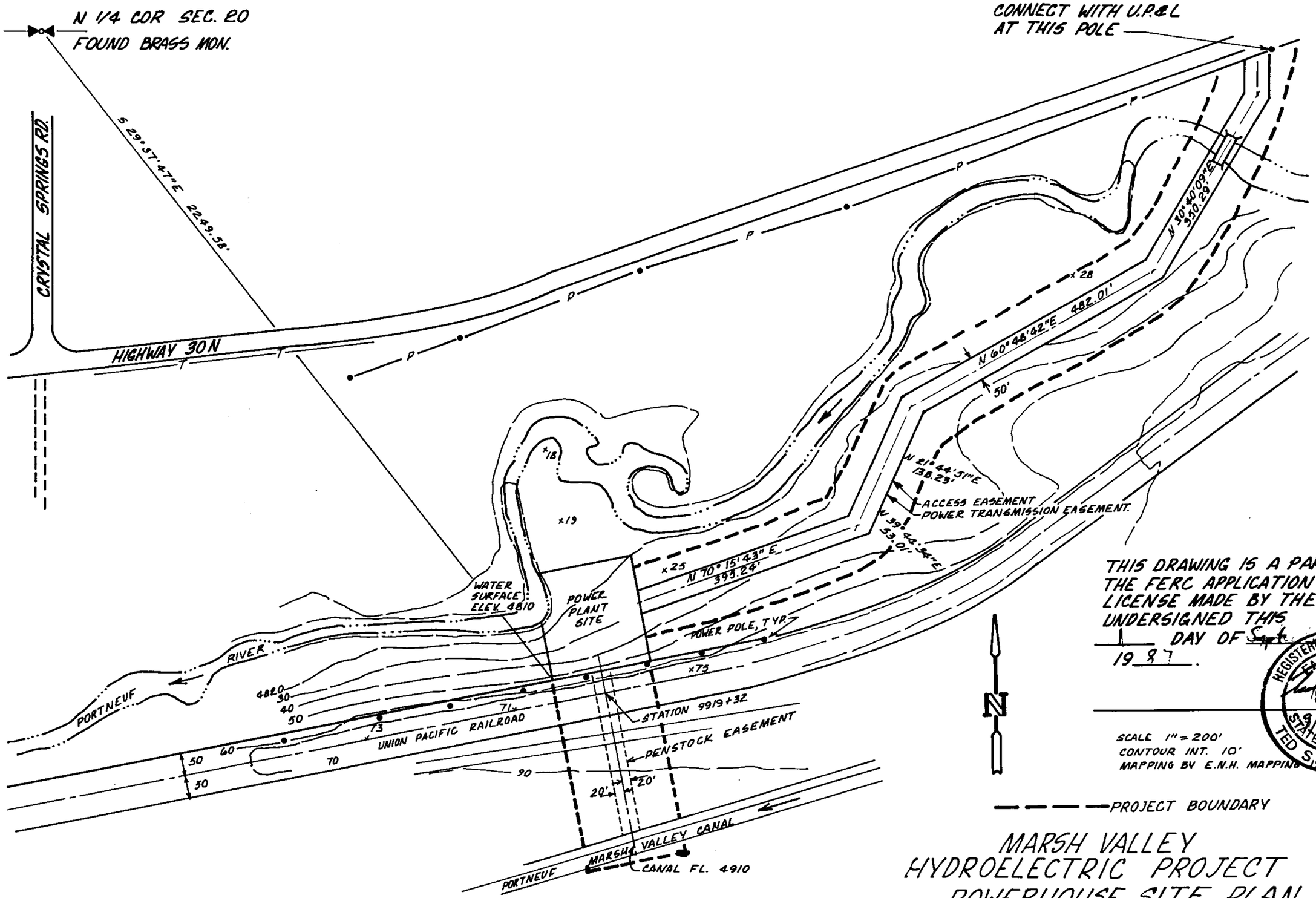
EXHIBIT G

PROJECT LANDS AND BOUNDARIES

G-1 PLAN AND PROFILE

G-2 PROJECT LANDS AND BOUNDARIES

*NOTE: Large drawing can be found in back pocket.



THIS DRAWING IS A PART OF THE FERC APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 1 DAY OF Sept 1987.

REGISTERED PROFESSIONAL ENGINEER 5488 STATE OF IDAHO TED S. SORENSON 9/1/87

SCALE 1" = 200'
CONTOUR INT. 10'
MAPPING BY E.N.H. MAPPING

MARSH VALLEY HYDROELECTRIC PROJECT POWERHOUSE SITE PLAN

EXHIBIT G-2

FERC NO.

CERTIFICATE OF MAILING

I hereby certify I mailed a true and correct copy of the foregoing by passing same in the United States Mail postage prepaid addressed to the following with a copy of the final application to:

Mr. Jordan Walker and Mr. Mike Graham
P. O. Box N
Manti, Utah

Mr. Merle Green
State Historical Preservation Office
Idaho State Historical Society
610 N. Julia Drive
Boise, ID 83702

Mr. John Heimer
Idaho Department of Fish & Game
5205 South 5th Street
Pocatello, ID 83201

Mr. Ron Wolfin
U. S. Fish & Wildlife Service
4696 Overland Road
Boise, ID 83705

Idaho Department of Parks & Recreation
Statehouse
Boise, ID 83702

Ted S. Sorenson

Ted S. Sorenson, P.E.

APPLICATION FOR EXEMPTION OF
SMALL HYDROELECTRIC POWER PROJECT
5 MEGAWATTS OR LESS

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

MARSH VALLEY
HYDROELECTRIC PROJECT

PREPARED FOR:

PORTNEUF-MARSH VALLEY CANAL CO.LTD.
AND McCAMMON DITCH CO.
Bannock County, Idaho

PREPARED BY:

HYDRO ELECTRIC CONSTRUCTORS

JUNE 1985

JAN 22 1993

HYDRO ELECTRIC
CONSTRUCTORS INC.

RECEIVED
AUG 1 1985
Department of Water Resources

July 23, 1985

Mr. Kenneth W. Plumb, Secretary
Federal Energy Regulatory Commission
825 W. Capitol Street, N.E.
Washington, D.C. 20426

Subject: The Marsh Valley Hydroelectric Project
McCammon Ditch Co.-Portneuf-Marsh Valley
Canal Co., LTD.
Successor Application to FERC NO. 8871-000

Dear Mr. Plumb:

APPLICATION FOR CASE-SPECIFIC EXEMPTION FROM LICENSING FOR THE MARSH VALLEY PROJECT, A SMALL HYDROELECTRIC PROJECT, 5 MEGAWATTS OR LESS

The applicant hereby requests the Commission to convert the application for a small conduit exemption (FERC NO. 8871) submitted on January 9, 1985, to a case-specific exemption. The Commission's staff had determined that the prior application was deficient. However, the Applicant has corrected the noted deficiencies in this amended application. Also, as a result of conversations with FERC staff and legal counsel, the Applicant has discovered that the subject project qualifies for a case-specific exemption. The attached applications for exemption are included in a more presentable format for Commission review as a case-specific exemption application.

Because a timely review is necessary for the success of the venture created in anticipation of Application No. 8871, the Applicant will assist the Commission's staff by supplying any additional information the staff so desires. The staff is encouraged to telephone the Applicant's attorney, Randall Budge, at (209) 232-6101, or Hydro Electric Constructors, Inc., who prepared the application, at (714) 639-6933.

Hydro Electric Constructors, Inc.

Kay Naeve

Kay Naeve
Projects Administrator

JAN 22 1993

McCammon Ditch Company
McCammon, Idaho 83250

Portneuf-Marsh Valley Canal Co., Ltd.
Downey, Idaho 83234

September 26, 1984

Mr. Kenneth F. Plumb, Secretary
Federal Energy Regulatory Commission
825 W. Capitol Street, N. E.
Washington, D. C. 20426

Dear Mr. Plumb:

APPLICATION FOR CASE-SPECIFIC EXEMPTION FOR THE MARSH VALLEY HYDRO ELECTRIC PROJECT, IN BANNOCK COUNTY, IDAHO.

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd., Applicants, hereby apply for an exemption on the case-specific basis from all or part of Part I of the Federal Power Act. This application is for the Marsh Valley Hydro Electric Project, a small hydro electric project with a generating capacity of 5 megawatts or less. This project utilizes an existing private dam and canal and would have an installed capacity of 1700 KW and generate an average of 7,120,000 KWH/year.

The Applicants are submitting the original and fourteen copies of the Exemption Application to FERC in accordance with Sections 4.101 - 4.108 of the Federal Energy Guidelines.

Sincerely,

McCAMMON DITCH COMPANY

By: Lyndon Green
LYNDON GREEN, President

PORTNEUF-MARSH VALLEY CANAL CO., LTD.

By: Keith Bennett
KEITH BENNETT, President

cc: Mr. Arthur C. Martin, Jr., Regional Engineer
Federal Energy Regulatory Commission
819 Taylor Street
Fort Worth, Texas 76102

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR EXEMPTION OF SMALL HYDROELECTRIC

POWER PROJECT FROM LICENSING

THE

PROPOSED MARSH VALLEY HYDROELECTRIC PROJECT

IN

BANNOCK COUNTY, IDAHO

SUBMITTED BY:

THE MCCAMMON DITCH COMPANY

AND

THE PORTNEUF-MARSH VALLEY CANAL CO. LTD.

APPLICANTS

PREPARED BY:

HYDRO ELECTRIC CONSTRUCTORS, INC.

953 N. ELM STREET

ORANGE, CALIFORNIA 92667-5454

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR EXEMPTION OF SMALL HYDROELECTRIC

POWER PROJECT FROM LICENSING

1. The McCammon Ditch Co. and the Portneuf-Marsh Valley Canal Co. Ltd. applies to the Federal Energy Regulatory Commission for an exemption for the Marsh Valley Hydroelectric Project, a small hydroelectric power project that is proposed to have an installed capacity of 5 megawatts or less, from licensing under the Federal Power Act.

2. The location of the project is:

   State: Idaho

   County: Bannock

   Nearby Town: McCammon

   Body of Water: Portneuf River

3. The exact name and business address of the Applicants are:

   McCammon Ditch Company
   c/o Mr. Lyndon Green, President
   McCammon, Idaho 83250

   Telephone: (208)254-3494

   Portneuf-Marsh Valley
   Canal Co. Ltd.
   c/o Mr. Keith Bennett
   President
   Downey, Idaho 83234

   Telephone: (208)897-5791

4. The exact name and business address of each person authorized to act as agent for the Applicants in this application are:

   Mr. Randall C. Budge
   Racine, Olson, Nye, Cooper & Budge
   P.O. Box 1391
   A-2 Center Plaza
   First and Center Street
   Pocatello, Idaho 83201

   Telephone: (209)232-6101

5. The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co. Ltd. are corporations formed under the laws of the State of Idaho.

6. The following Exhibits are filed with and hereby made a part of this Application:

   Exhibit A - Project Description and Mode of Operation

   Exhibit B - General Location of the Project

   Exhibit E - Environmental Report

   Exhibit G - Project Drawings

Exemption is requested from all provisions of Part I of the Federal Power Act.

VERIFICATION

STATE OF IDAHO)
ss
County of Bannock)

Randall C. Budge, being first duly sworn, deposes and says that he is the authorized agent for the Applicant in this Application for the Exemption from Licensing; that he has read the contents herein; that the same are true to the best of his knowledge and belief.

Randall C. Budge
Randall C. Budge
Agent for the Applicant

SUBSCRIBED AND SWORN TO before me this 26th day of September 1984, by Randall C. Budge.

Christine Woodward Pace
Notary Public
Residing at Pocatello, Idaho

/SEAL/

PROPOSED MARSH VALLEY HYDROELECTRIC PROJECT

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EXHIBIT A

DESCRIPTION OF PROJECT

AND

MODE OF OPERATION

FOR THE

MARSH VALLEY PROJECT

EXHIBIT A

DESCRIPTION OF PROJECT AND MODE OF OPERATION

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EXHIBIT A

DESCRIPTION OF PROJECT AND MODE OF OPERATION

1. EXISTING FACILITIES

1.1 Diversion Structures and Impoundment

Diversion Pond

Gross Surface Area	=	0.2 acres
Total Storage	=	2.0 acre-feet
Usable Storage	=	2.0 acre-feet

Structure #1 (Emergency Spillway #1)

Height (Toe to Spillcrest)	=	14 feet
Spill Width	=	40 feet
Spill Capacity	=	1,500 cfs
Construction	=	reinforced concrete

Structure #2 (Emergency Spillway #2)

Height	=	14 feet
Spill Width	=	25 feet
Spill Capacity (Full Pool)	=	900 cfs
Combined Spill Capacity (#1 plus #2)	=	2400 cfs
Construction	=	reinforced concrete

Structure #3 (Bypass Works)

Height	=	14 feet
Width	=	15 feet
Number of Gates	=	2
Gate Width (Each)	=	7 feet
Gate Capacity (Full Pool)	=	500 cfs
Construction	=	reinforced concrete with steel gates
Other Features	=	12 inch steel pipe for fish releases

Structure #4 (Canal Intake)

Height	=	14 feet
Width	=	19 feet
Number of Gates	=	2
Gate Dimension - each	=	9'w x 10'h
Design Gate Capacity (Full Pool)	=	300 cfs max.
Construction	=	reinforced

1.2 Portneuf-Marsh Valley (PMV) Canal

Width (invert)	=	18 feet
Length (to proposed forebay)	=	12,000 feet
Capacity	=	300 cfs max.
Lining	=	Gunite and/or earthen
Side Slopes	=	1-1/2 : 1
Width (normal water surface)	=	33 feet
Freeboard	=	2 feet

The Portneuf River in the project area presently passes through, and is regulated by two check dams and an overflow spillway (See Exhibit G-1 and G-6). It is not intended to make physical modifications to these structures in any way. The structures are already scheduled for major maintenance in 1984 and will require little modification because of the proposed hydroelectric facility. Because of the hydroelectric facility, automatic gates are being proposed for use during power outages, emergency plant shutdowns, canal outages, etc. This is the only modification being considered at this time for the existing canal headworks on the PMV.

1.3 McCammon Ditch

Additional irrigation flows are presently conveyed through the McCammon Ditch, the inlet of which is located on the Portneuf River (See Exhibit G-2) downstream of the PMV Canal. The ditch closely parallels the PMV Canal in the project area. The ditch will not be an integral part of the proposed hydroelectric project other than abandonment for reasons described below.

2. PROPOSED FACILITIES

2.1 Forebay Pool

Normal Water Surface Elevation	=	4,910.0 feet
Gross Surface Area	=	0.11 acres
Total Storage	=	1.5 acre-feet
Usable Storage	=	1.2 acre-feet
Structure		
Height	=	7 feet
Width	=	15 feet
Canal Release Gate Dimensions	=	12'w x 8' h
Intake Works		
Height	=	17 feet
Length	=	22 feet
Intake Opening	=	7'w x 4'h
Shutoff Gate Size	=	8'w x 5'h
Trashrack Size	=	20'w x 14'h

Rock Trap		
Length	=	85 feet
Width	=	40 feet
Other Features	=	sediment containment wall and access road

A forebay structure would be constructed in the PMV Canal, approximately 12,000 feet from the PMV diversion on the Portneuf River. This forebay structure would be a new modification to the existing canal that would 1) control down-canal passage of irrigation flows; 2) create a relatively constant forebay pool for the power penstock; and 3) allow for sediment deposition into a rock trap at the head of forebay. The forebay section in the PMV Canal would contain a single radial gate (See Exhibit G-6).

The intake works of the penstock would contain a submerged trashrack and a slide gate. Downstream of the slide gate, an air vent pipe would release trapped air and at the same time allow air to enter the penstock during penstock drainage. A sluice gate would not be necessary for the forebay since a rock trap area would be provided to collect sediments. These sediments would be removed periodically by a loader or similiar device as necessary. A road into the rock trap would be provided for equipment access.

2.2 Penstock

Diameter	=	72"
Length	=	448 feet
Design Flow	=	250 cfs
Material	=	Welded steel
Other Features	=	Carrier pipe (at UPRR undercrossing); Trifurcation at powerhouse; turnout at McCammon Ditch.

Approximately 448 feet of 72-inch welded steel pipeline would convey the canal flows from the forebay to the powerhouse turbines. The penstock would be preferably buried, however soil conditions may prevent easy burial. If the penstock is an above ground feature, an aesthetic color

would be used to blend the facility into its environment. A single Union Pacific Railroad (UPRR) track is located between the proposed PMV Canal forebay and the powerhouse. The penstock would have to penetrate the fill material under the track. The proposed design of the undercrossing would be presented to the UPRR for review.

2.3 Powerhouse

Generating Units	=	Hydraulic power recovery turbines with adjustable or fixed wicket gates.
Gross Head	=	100 feet
Design Flow	=	250 cfs
Net Head at Design Q	=	97 feet
Rated Capacity	=	1700 KW
Average Expected Generation	=	7.12 Gwh/yr

The proposed plant capacity of 1700 KW would be developed with approximately two or three (depending upon final selection) hydraulic power recovery turbines. The turbines would utilize a draft tube with a normal water surface elevation of 4809.0 feet. During irrigation releases to McCammon Ditch, a small turbine would utilize the 25 feet of drop to develop 85 KW of energy. This would be done either directly with a separate turbine/generating unit or as a part of the main powerhouse with a tailwater back pressure of 75 feet to get the water into the McCammon Ditch. The selection would be dependent upon final cost estimates and engineering.

The powerhouse would consist of a reinforced concrete foundation with an enclosed draft tube. Concrete foundation walls would extend up to the generator floor level at elevation 4,819 feet. The powerhouse generating and control room walls would be reinforced concrete block. See Exhibit Drawings G-5 for conceptual drawings of the proposed powerhouse structure.

The switchyard is proposed as an exterior transformer, completely enclosed and protected from unauthorized entry. The first primary transmission pole would be located at a sufficient distance from the powerhouse to preclude hazards of overhead crane contact.

During those periods of non-irrigation flows, the proposed powerhouse would operate as a run-of-the-river plant, with peak generation occuring during non-summer months.

2.4 Transmission Line

A new three-phase 12KV transmission line would paralel the Portneuf River and extend approximately 1.95 miles north to the proposed intertie. According to Utah Power and Light Company, the intended purchasers, the primary line would intertie with an existing UP & L 12KV distribution feeder. See Exhibits B-1 and B-2 for location of the proposed transmission line.

3. CONSTRUCTION

Estimated construction time of the proposed facilities is 9 months, beginning on Feb. 15, 1986 and ending on October 15, 1986. Preliminary cost estimates are $2,500,000.

4. HYDROLOGY

4.1 Gage Data

The hydrology for this project was derived from USGS gaging records for gage number 13073000, for the Portneuf River at Topaz, Idaho. This gage is located approximately 1.5 miles upstream of the PMV Canal inlet and was therefore considered as representative of the flows available to the canal for generation. The drainage area at the gaging station is 570 square miles and is at a mean altitude of 6,080 feet (datum of gage is 4,918 feet). The period of record is January, 1913 to September, 1915, and July, 1919 to current year. Because of missing or extra data, only the 64-year period of October, 1919 through September, 1983 was utilized for generation studies. Average discharge for the period of record is 141,900 acre-feet a year or a mean annual flow of 196 cfs. Normal monthly means, in cfs, are provided below:

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
143	154	154	153	170	204	268	342	266	206	178	151

The hydrologic records including flow duration curves and mean data is provided in Exhibit A - Appendix A.

4.2 Irrigation Demands

Irrigation demands were derived from the Idaho Water User Daily Record Books for Water District 29. These logs are maintained by the ditch tender and provided to the State as a log of the diverted flows down the Portneuf River. Average monthly diversions were derived from these records to indicate those quantities of water that would not be available for generation. The following flows, in cfs, are current average diversions for irrigation by the canal companies and would continue down the canal to respective canal users:

JUNE	JULY	AUGUST	SEPTEMBER 1-15
230	230	230	220

4.3 Flood Statistics

An annual peak flow frequency analysis was computed by the USGS for the gaging station records of the Portneuf River. The "expected probability" estimate was 2,462 cfs for the 100 year flood. Preliminary studies indicate that a flood flow of 4,100 cfs would have an elevation of 4,814 feet at the proposed powerhouse site. Further studies during the final engineering will determine the 100 year flood elevation to protect the generators and control switchgear.

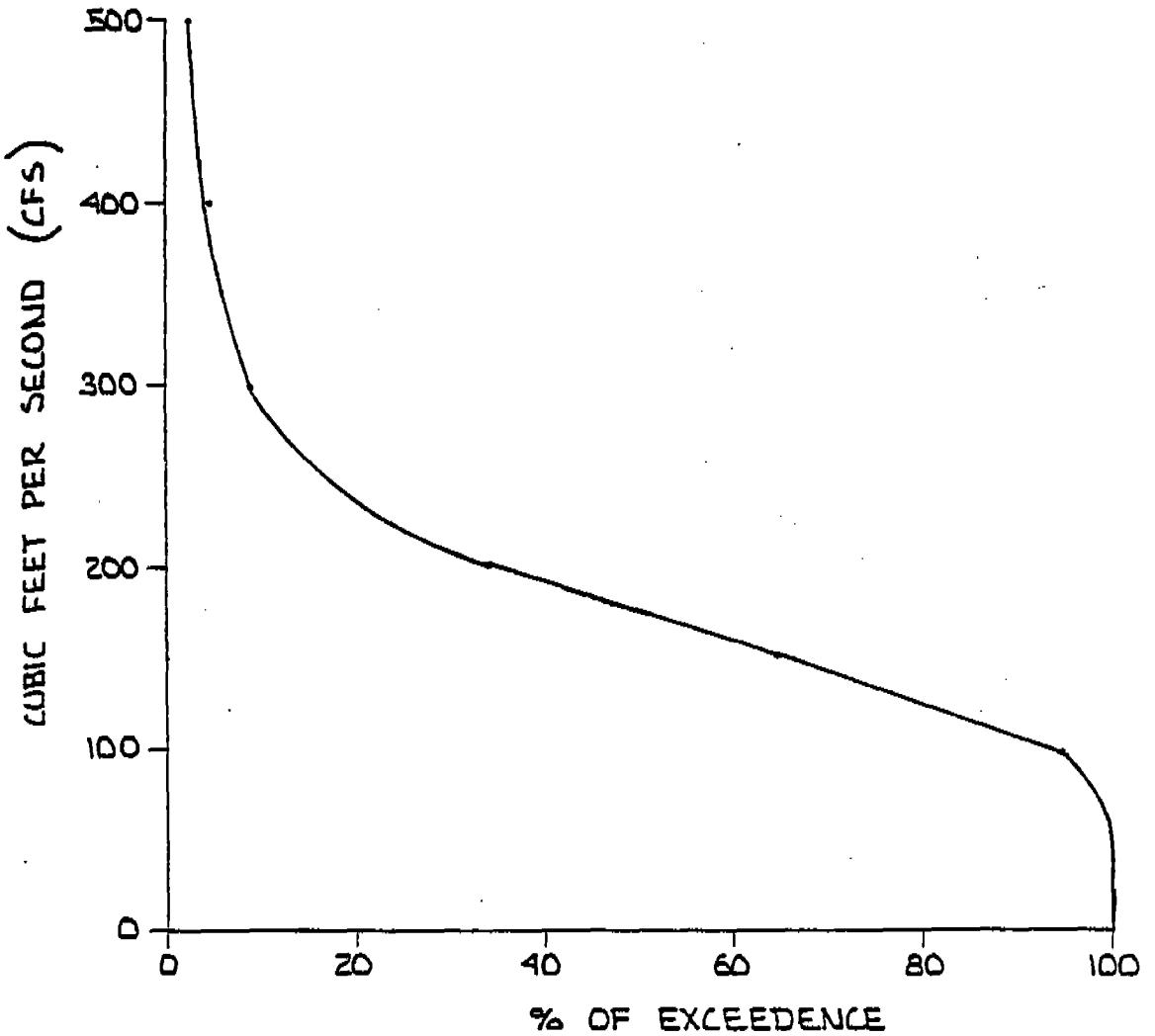
EXHIBIT A - APPENDIX A

HYDROLOGIC RECORDS

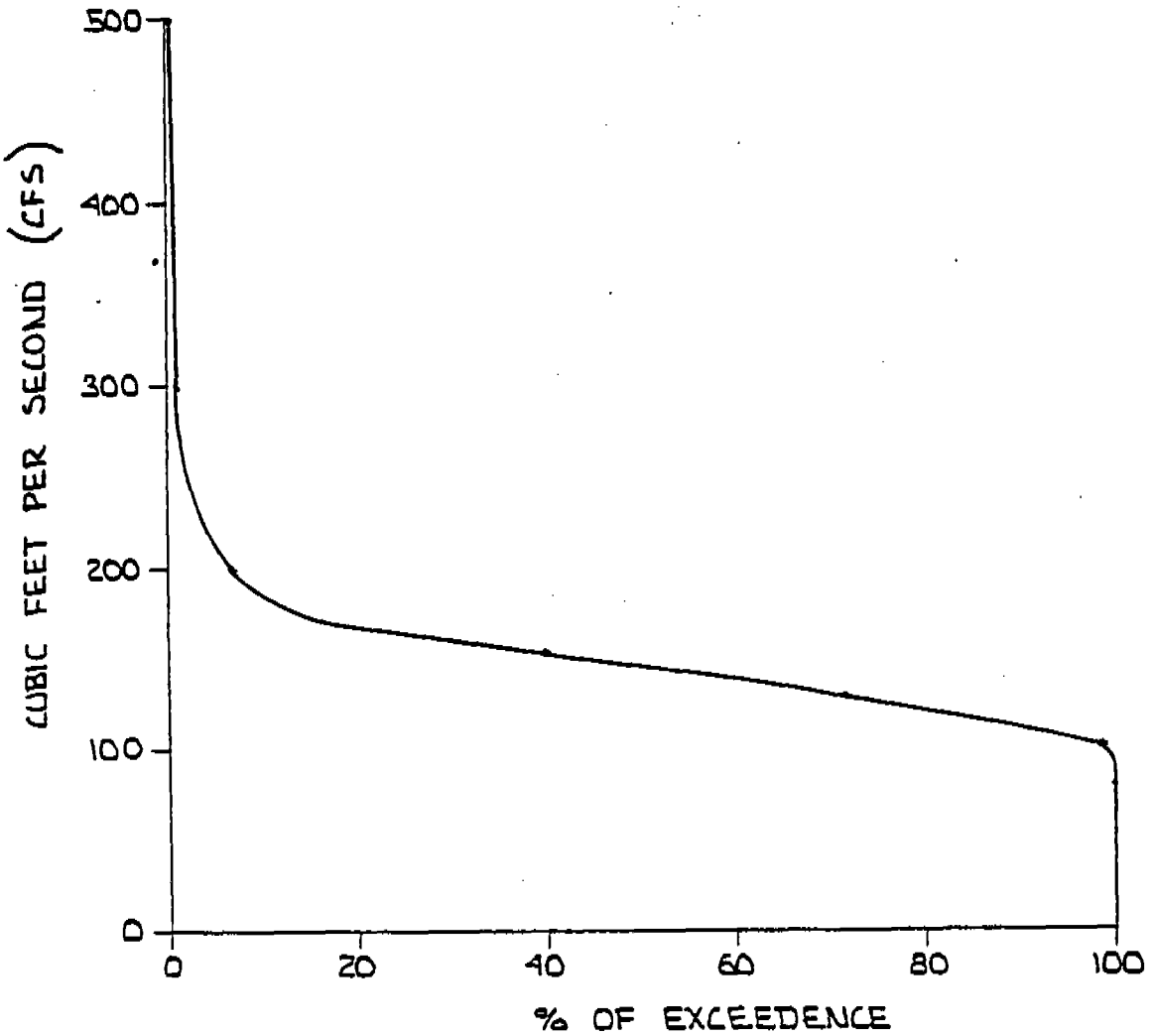
PORTNEUF RIVER AT TOPAZ, IDAHO

1919 - 1983

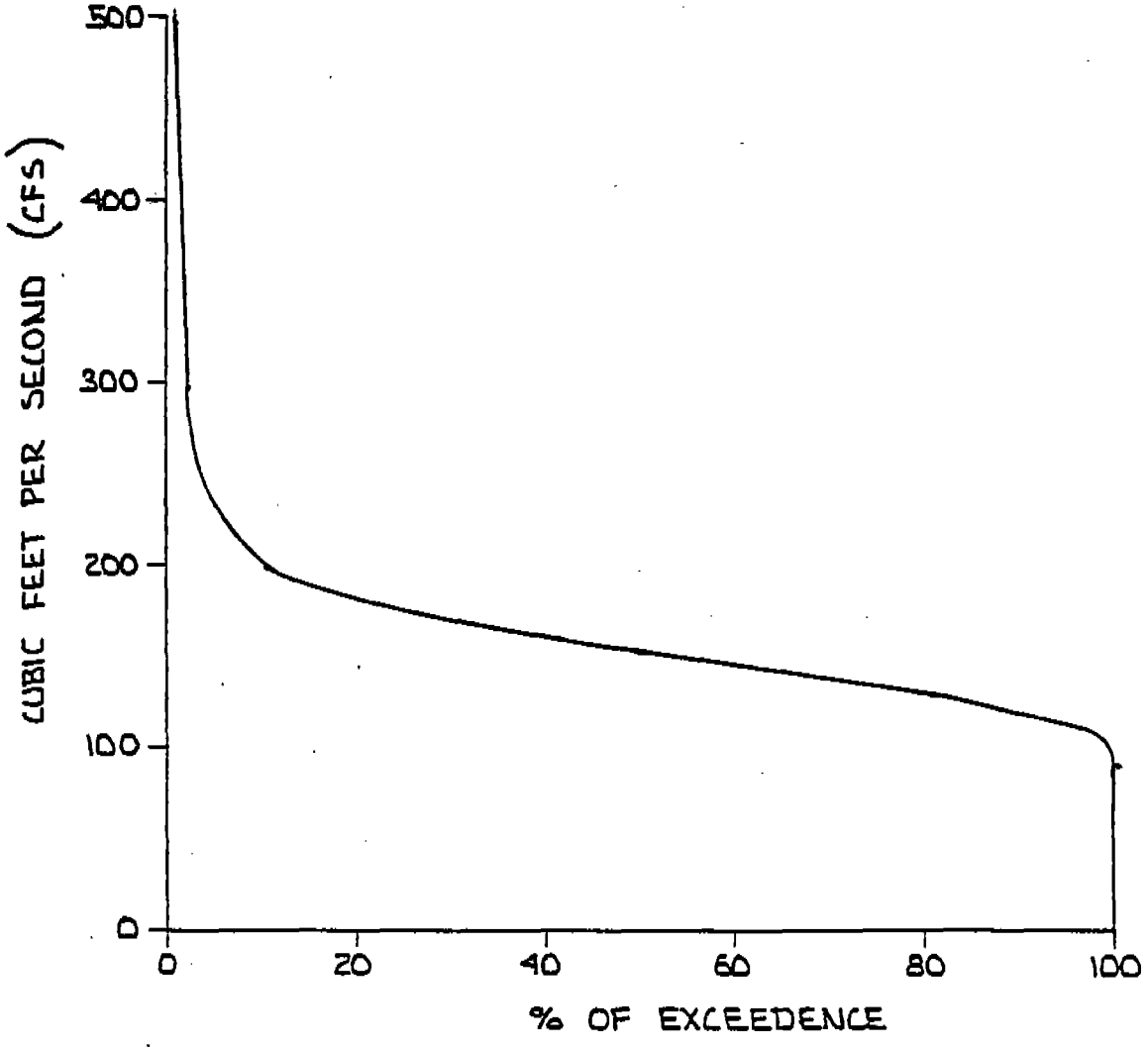
ANNUAL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



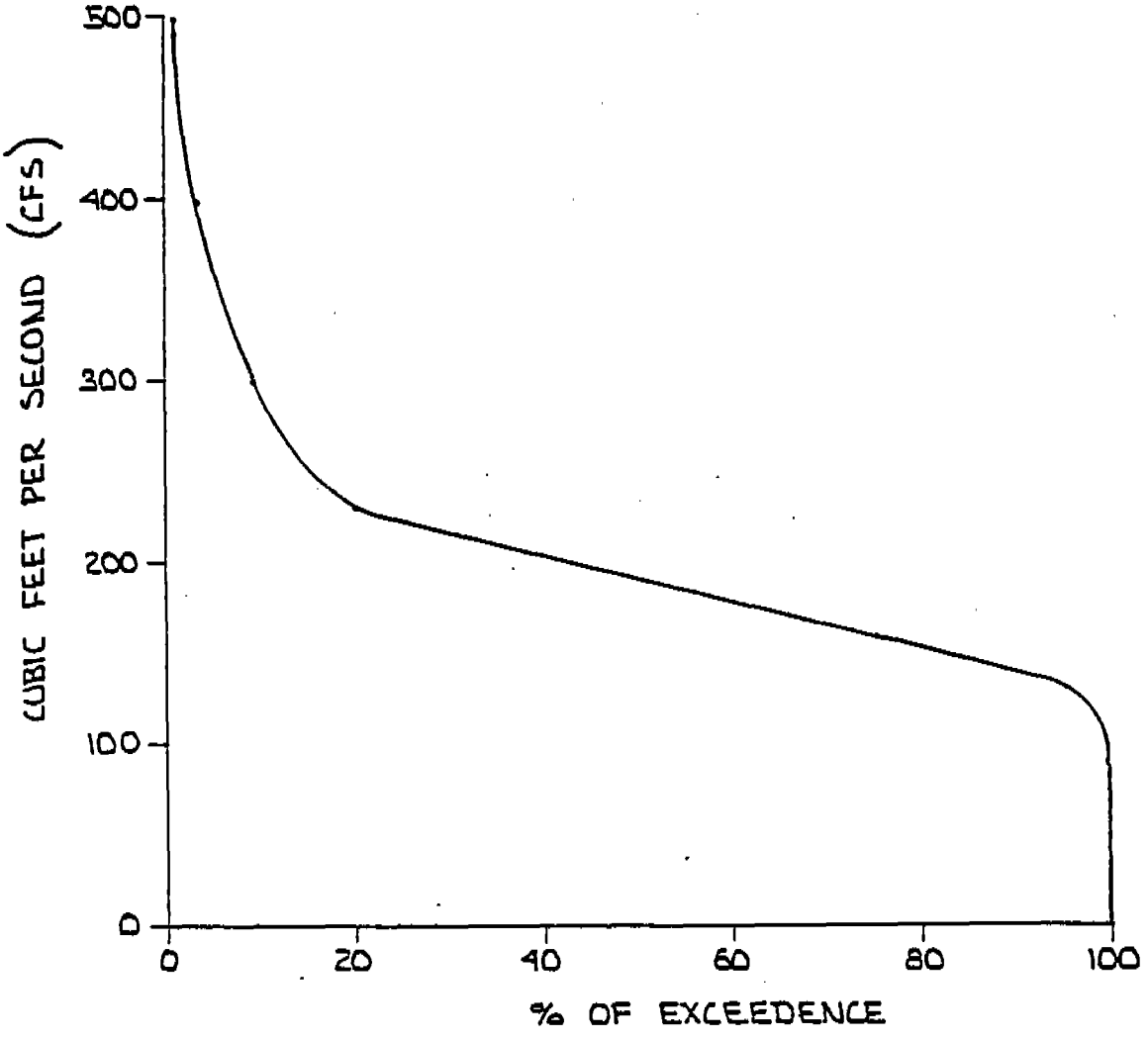
JANUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



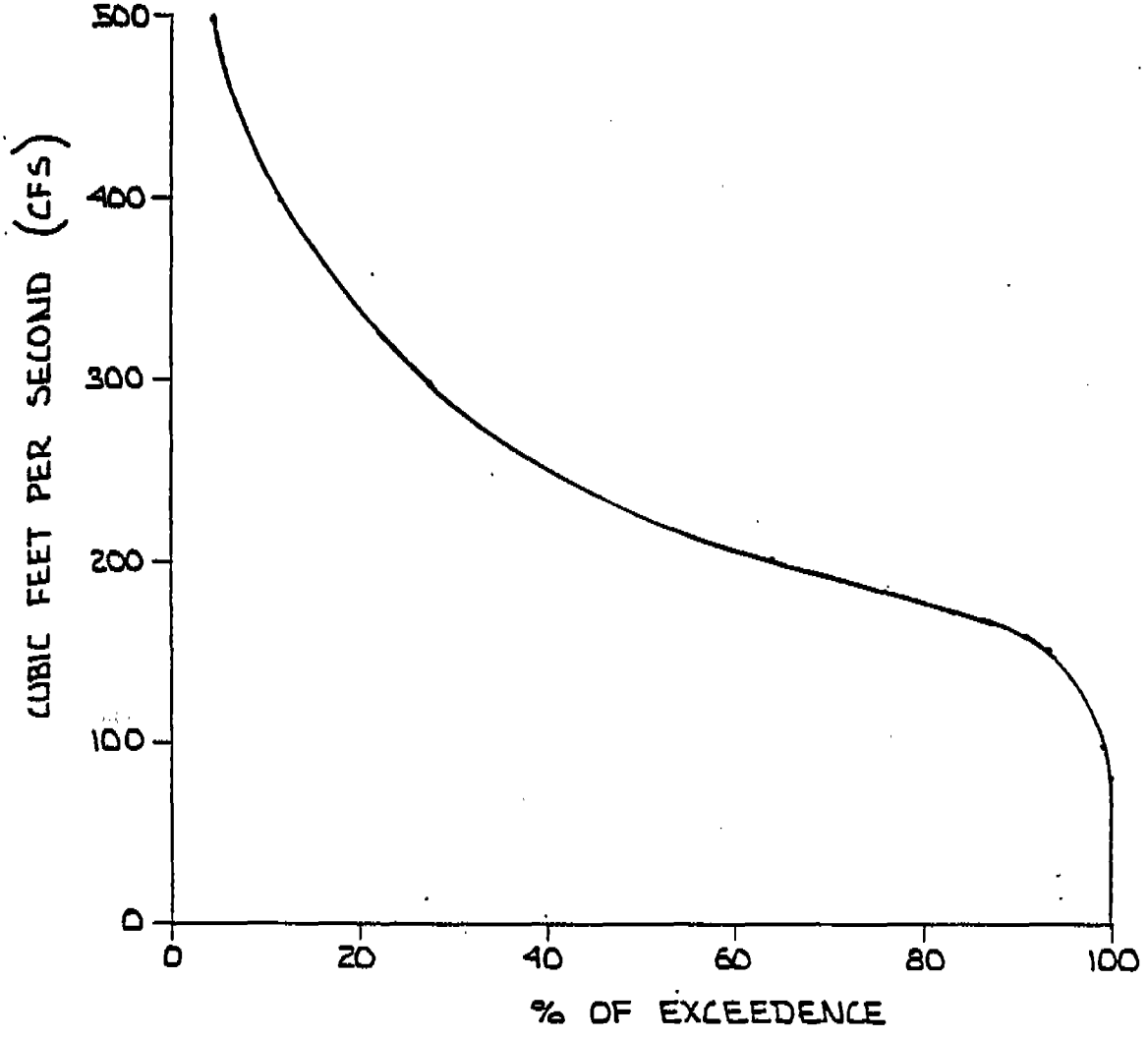
FEBRUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



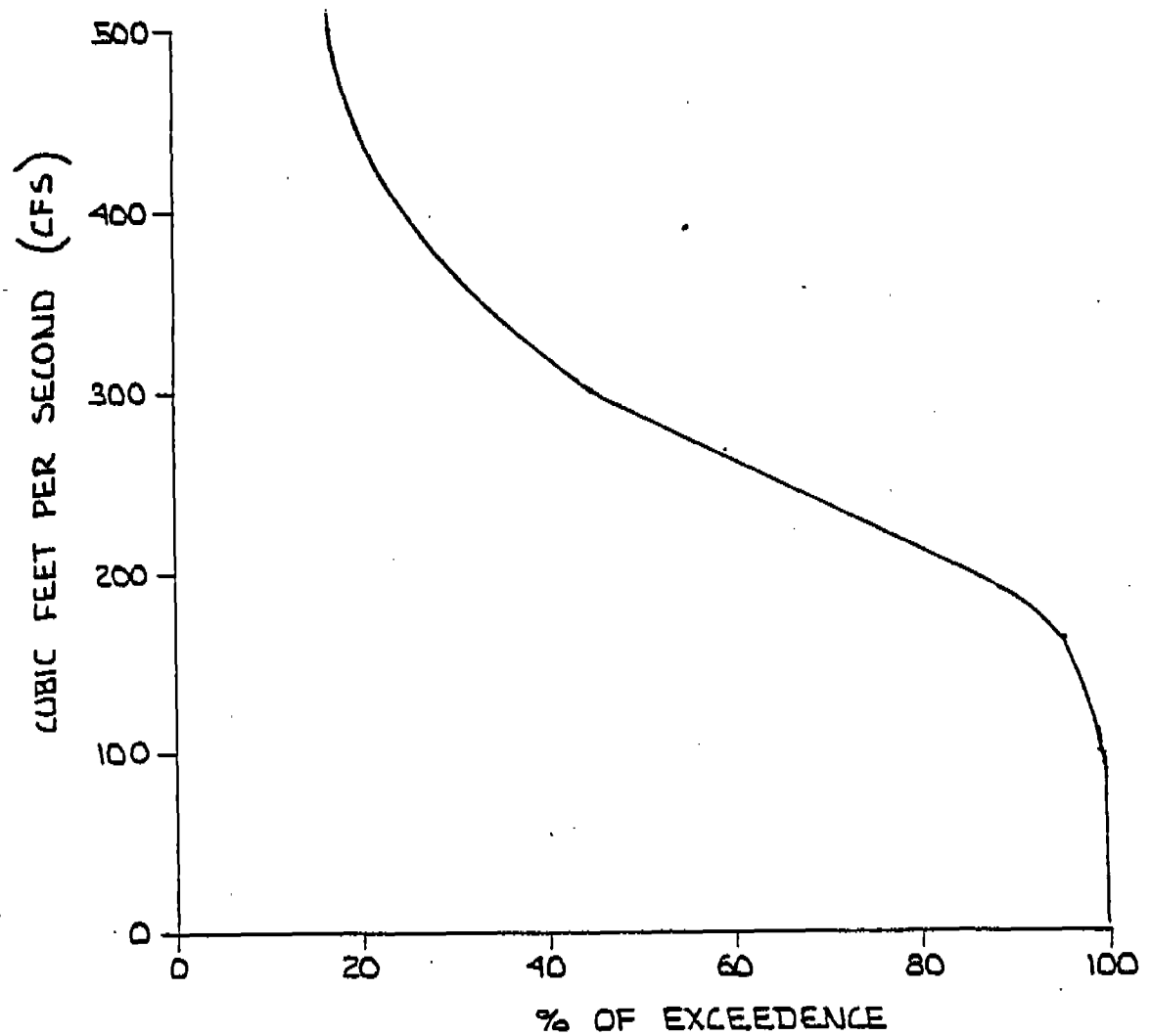
MARCH FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



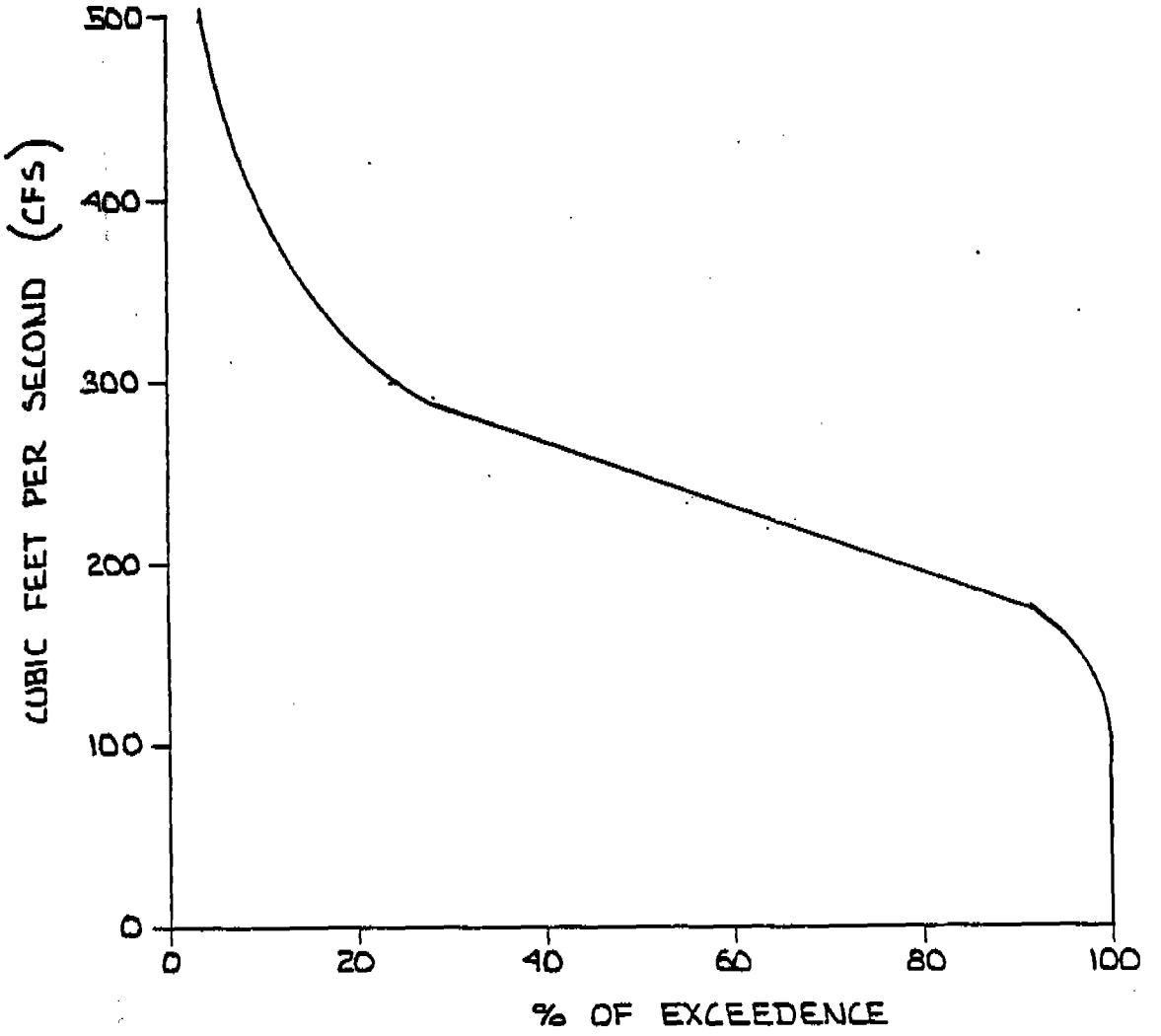
APRIL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



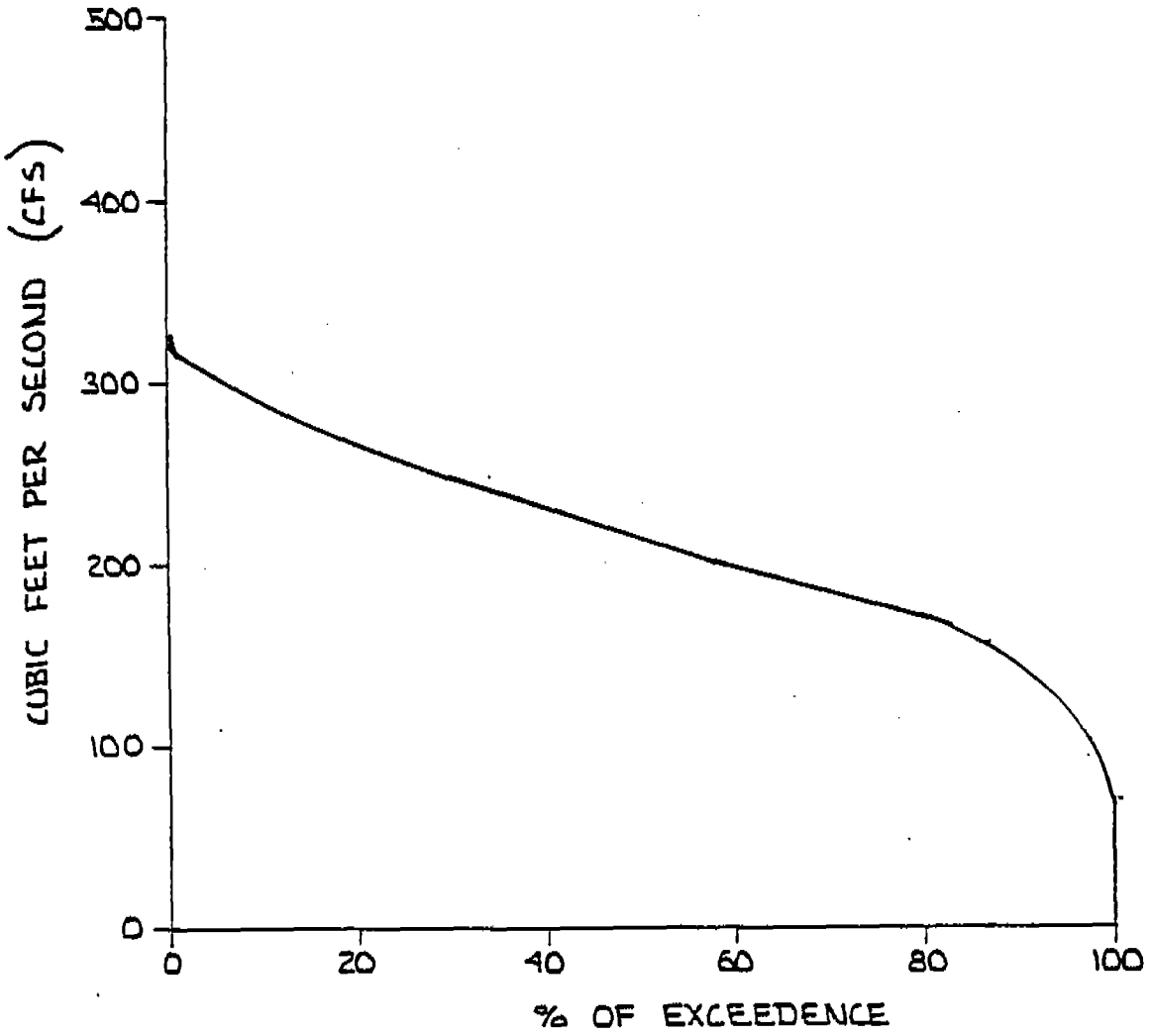
MAY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



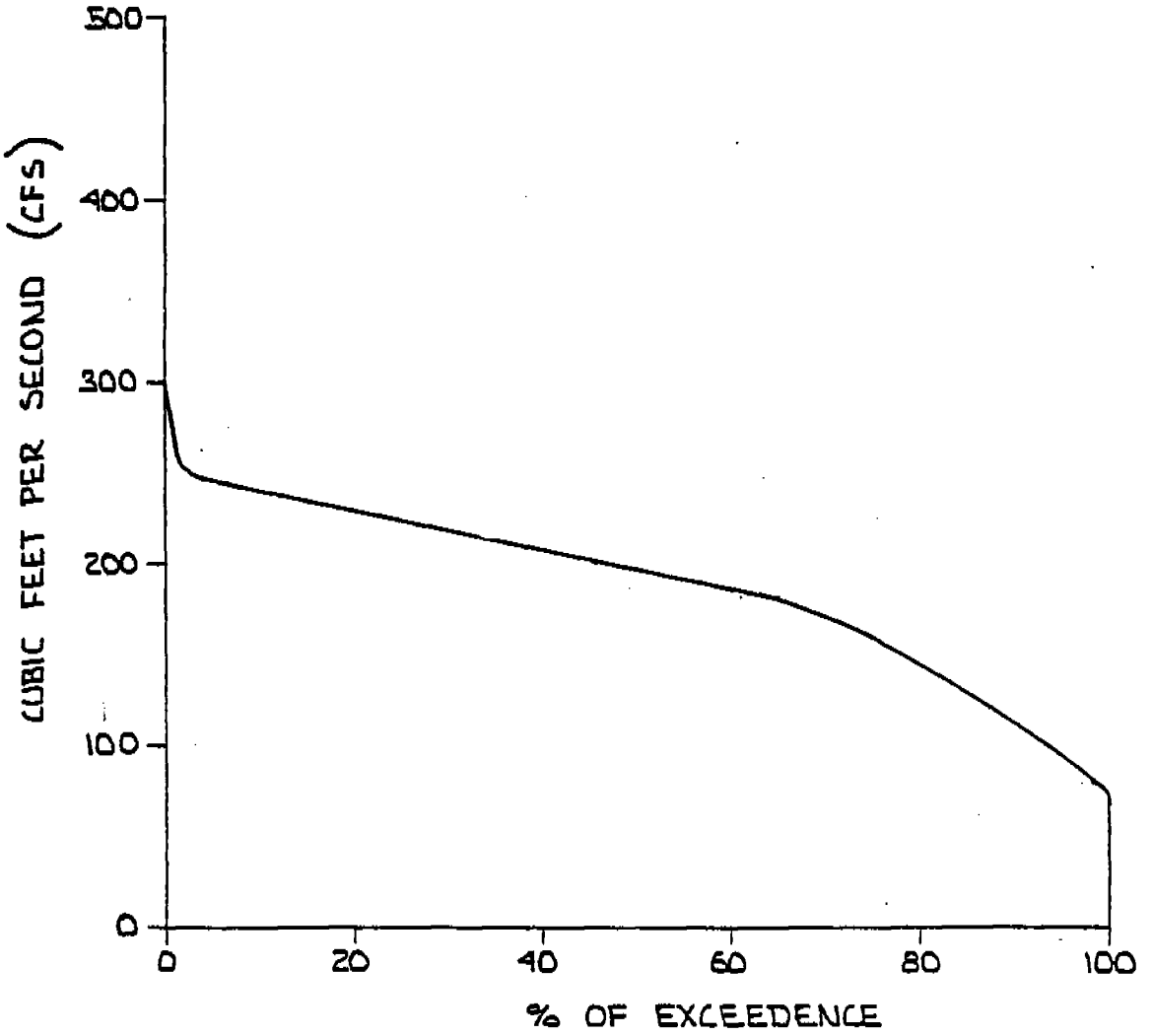
JUNE FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



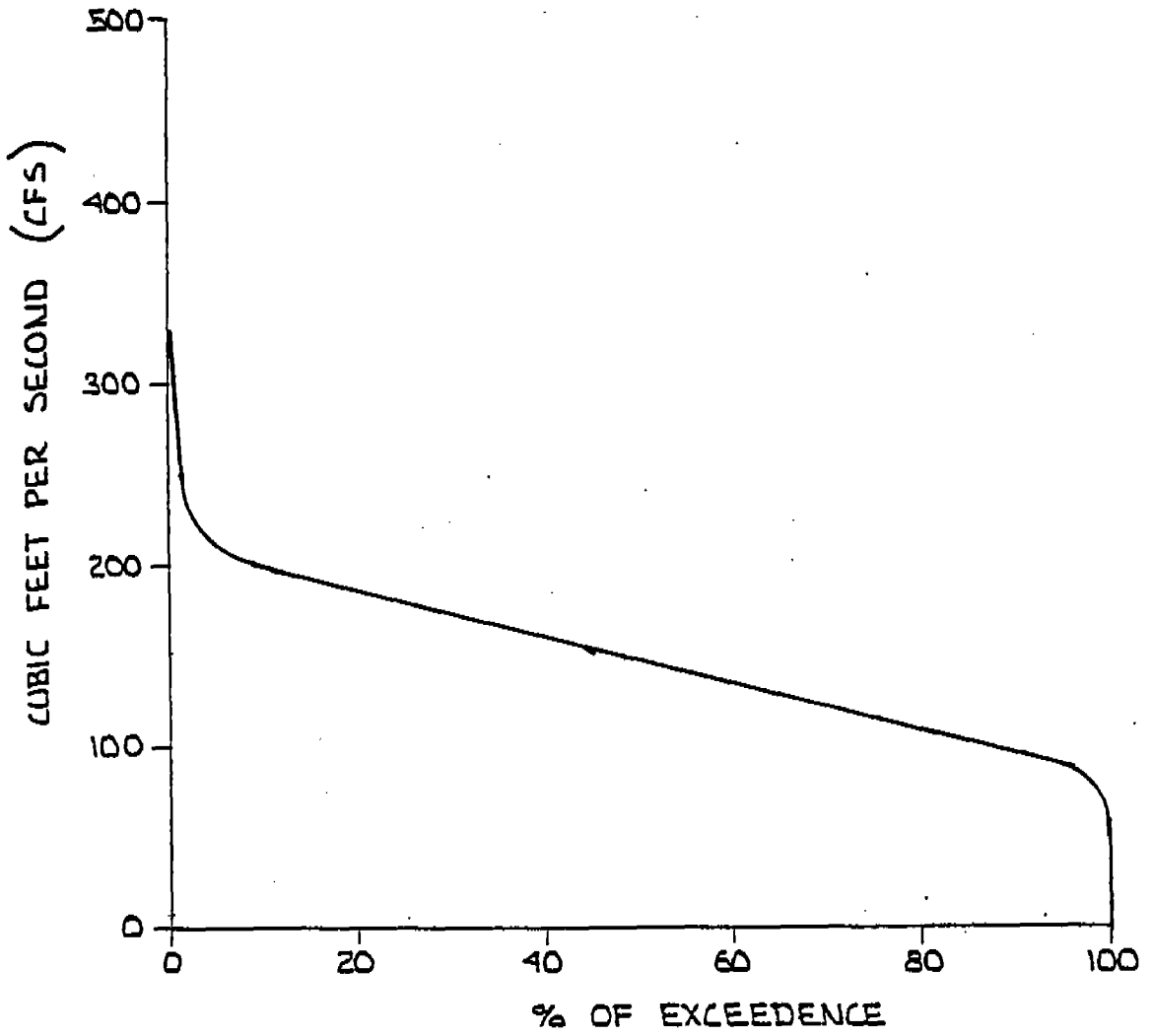
JULY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



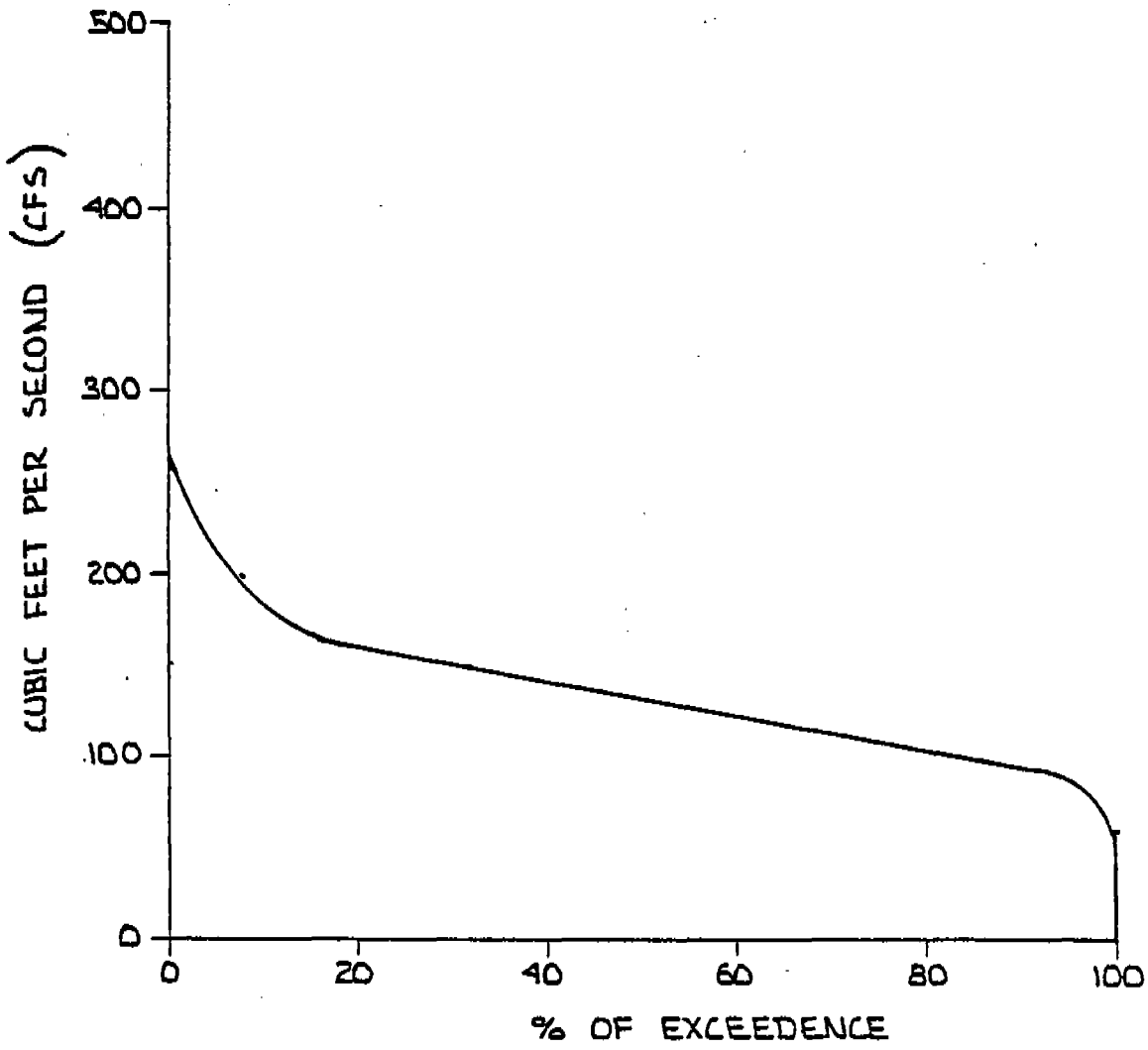
AUGUST FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



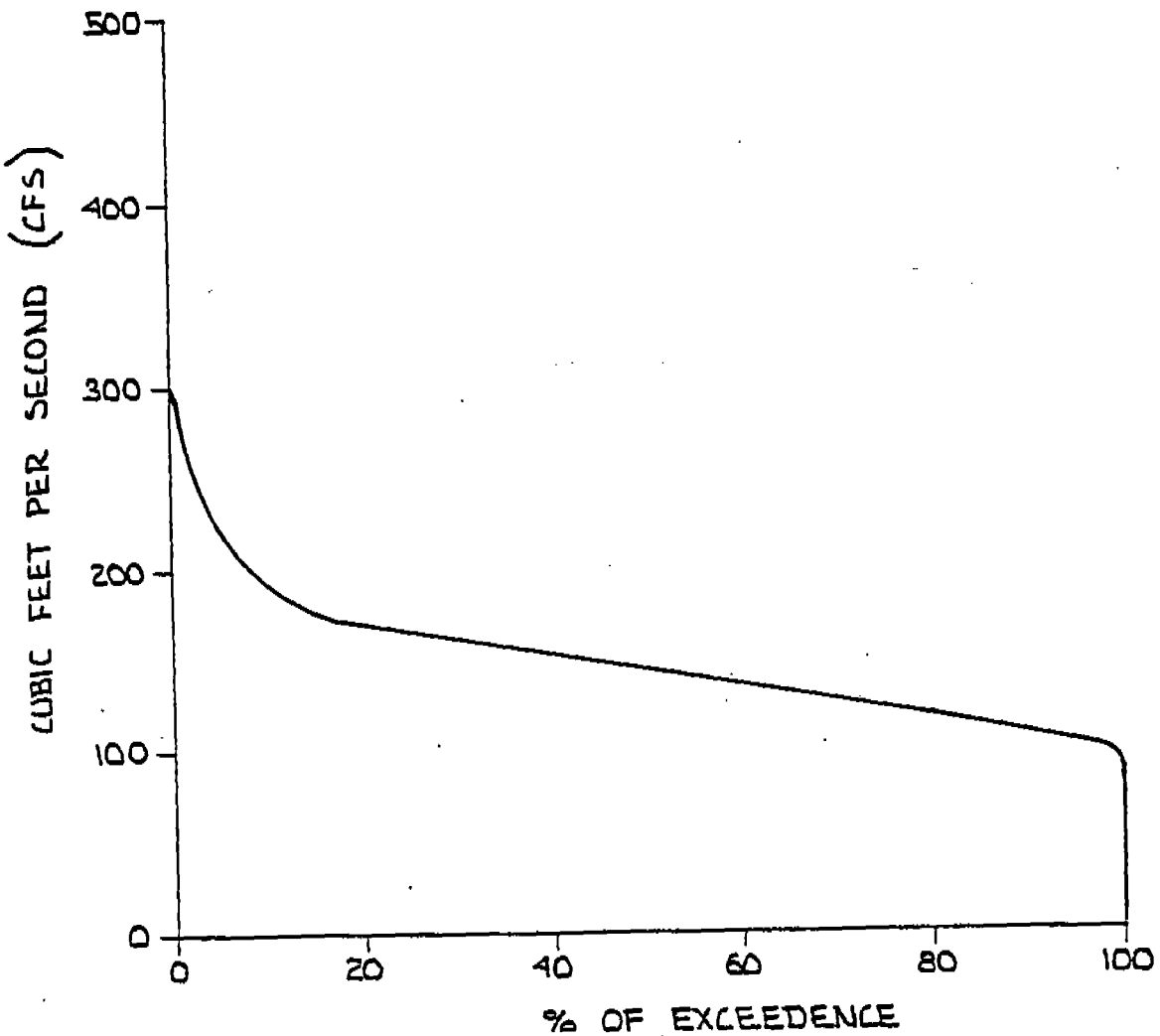
SEPTEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



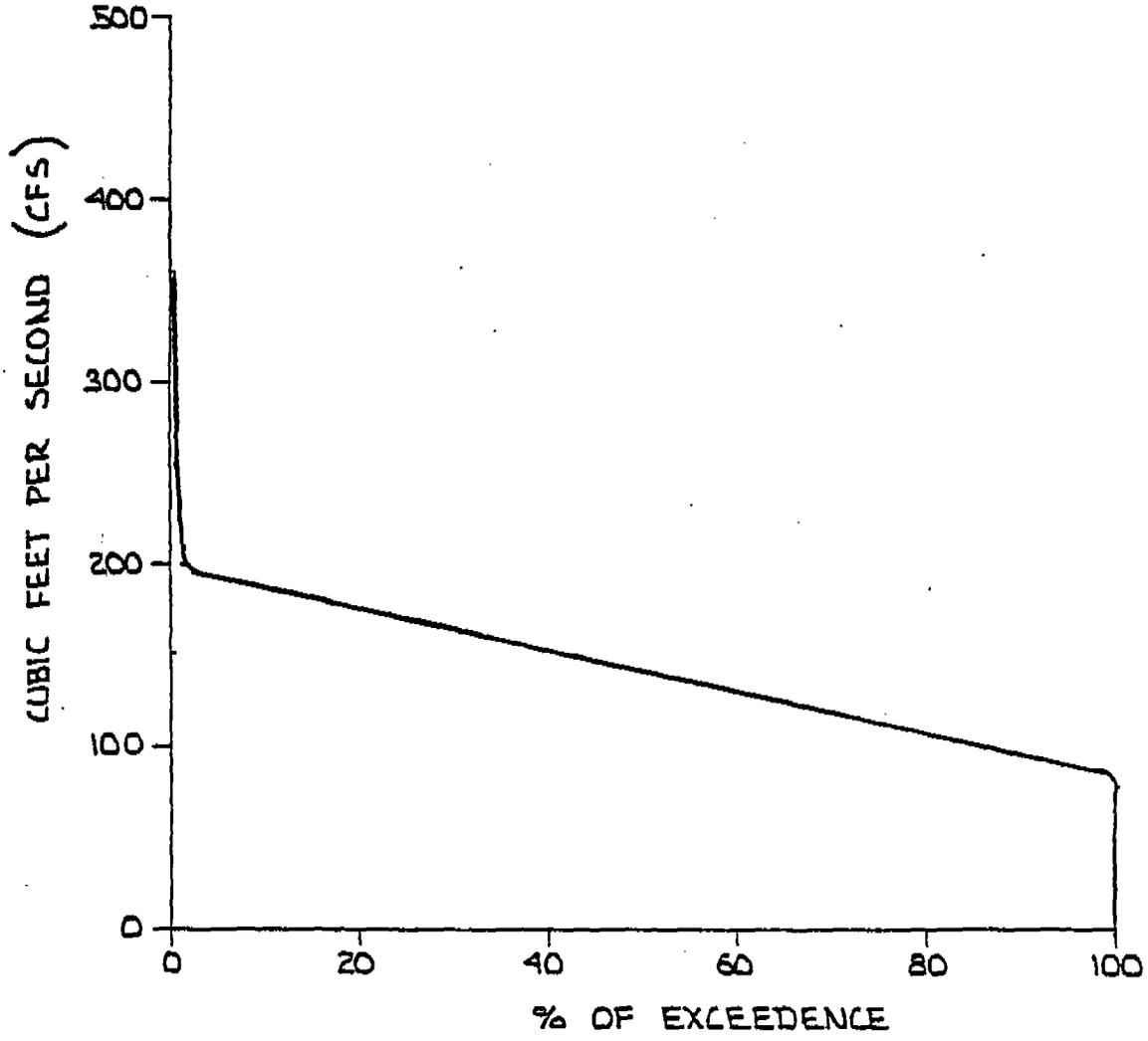
OCTOBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



NOVEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DECEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	162.0	162.0	152.0	190.0	180.0	190.0	323.0	425.0	209.0	209.0	200.0
2	171.0	171.0	162.0	152.0	190.0	190.0	190.0	303.0	404.0	209.0	218.0	200.0
3	162.0	200.0	162.0	152.0	200.0	190.0	180.0	283.0	363.0	209.0	218.0	200.0
4	162.0	209.0	162.0	152.0	190.0	190.0	180.0	303.0	343.0	228.0	218.0	200.0
5	162.0	190.0	162.0	152.0	190.0	190.0	180.0	323.0	343.0	228.0	218.0	209.0
6	162.0	180.0	171.0	152.0	190.0	190.0	209.0	343.0	304.0	228.0	218.0	218.0
7	162.0	180.0	162.0	152.0	190.0	190.0	228.0	390.0	285.0	228.0	218.0	218.0
8	162.0	190.0	152.0	152.0	180.0	180.0	247.0	418.0	285.0	228.0	209.0	218.0
9	180.0	171.0	162.0	152.0	171.0	180.0	247.0	472.0	266.0	228.0	200.0	218.0
10	162.0	171.0	171.0	152.0	171.0	190.0	228.0	472.0	247.0	228.0	190.0	218.0
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16	162.0	171.0	162.0	171.0	171.0	180.0	304.0	595.0	247.0	218.0	190.0	209.0
17	162.0	171.0	152.0	209.0	171.0	180.0	285.0	595.0	228.0	218.0	190.0	209.0
18	162.0	171.0	152.0	200.0	171.0	171.0	228.0	629.0	228.0	218.0	190.0	209.0
19	162.0	171.0	152.0	190.0	171.0	171.0	228.0	629.0	228.0	209.0	190.0	190.0
20	162.0	171.0	152.0	180.0	171.0	180.0	218.0	595.0	218.0	209.0	190.0	180.0
21	162.0	171.0	152.0	171.0	171.0	200.0	218.0	612.0	209.0	209.0	190.0	171.0
22	162.0	171.0	152.0	171.0	171.0	218.0	209.0	645.0	218.0	209.0	190.0	162.0
23	162.0	171.0	152.0	162.0	171.0	209.0	209.0	677.0	209.0	209.0	190.0	190.0
24	162.0	171.0	152.0	162.0	171.0	209.0	209.0	709.0	209.0	209.0	190.0	200.0
25	162.0	171.0	152.0	190.0	162.0	190.0	209.0	709.0	209.0	209.0	190.0	247.0
26	162.0	171.0	152.0	200.0	162.0	190.0	209.0	693.0	209.0	209.0	190.0	228.0
27	162.0	162.0	162.0	247.0	171.0	180.0	218.0	661.0	209.0	209.0	200.0	228.0
28	162.0	162.0	162.0	228.0	171.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
29	162.0	162.0	152.0	209.0	180.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
30	162.0	162.0	152.0	200.0	0.0	190.0	247.0	526.0	209.0	209.0	200.0	218.0
31	162.0	0.0	152.0	190.0	0.0	190.0	0.0	472.0	0.0	209.0	200.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1921

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	190.0	168.0	168.0	168.0	192.0	266.0	454.0	677.0	213.0	244.0	223.0
2	218.0	190.0	168.0	168.0	168.0	192.0	266.0	472.0	645.0	213.0	254.0	223.0
3	218.0	190.0	168.0	168.0	168.0	200.0	300.0	508.0	612.0	213.0	244.0	233.0
4	209.0	190.0	168.0	168.0	168.0	208.0	319.0	595.0	595.0	233.0	244.0	213.0
5	209.0	190.0	168.0	168.0	168.0	232.0	354.0	612.0	595.0	233.0	244.0	213.0
6	218.0	190.0	168.0	160.0	168.0	283.0	319.0	629.0	561.0	254.0	233.0	203.0
7	209.0	190.0	168.0	160.0	168.0	266.0	318.0	709.0	561.0	254.0	233.0	203.0
8	209.0	180.0	168.0	160.0	168.0	266.0	319.0	725.0	526.0	244.0	233.0	203.0
9	209.0	180.0	168.0	160.0	168.0	249.0	336.0	757.0	526.0	233.0	233.0	203.0
10	209.0	180.0	168.0	160.0	168.0	232.0	318.0	725.0	472.0	244.0	233.0	203.0
11	209.0	180.0	176.0	160.0	168.0	266.0	300.0	709.0	454.0	244.0	244.0	203.0
12	209.0	180.0	168.0	168.0	176.0	318.0	266.0	709.0	454.0	254.0	233.0	193.0
13	190.0	180.0	168.0	168.0	176.0	354.0	318.0	693.0	418.0	254.0	233.0	193.0
14	200.0	180.0	168.0	168.0	176.0	373.0	354.0	709.0	400.0	264.0	233.0	193.0
15	190.0	180.0	168.0	168.0	176.0	411.0	392.0	725.0	372.0	254.0	233.0	193.0
16	190.0	190.0	168.0	168.0	184.0	430.0	373.0	741.0	362.0	254.0	233.0	193.0
17	190.0	190.0	168.0	168.0	176.0	449.0	336.0	741.0	343.0	254.0	233.0	193.0
18	200.0	190.0	160.0	176.0	176.0	449.0	336.0	741.0	333.0	254.0	223.0	193.0
19	209.0	190.0	168.0	176.0	176.0	487.0	354.0	725.0	343.0	254.0	213.0	193.0
20	209.0	190.0	168.0	176.0	176.0	373.0	392.0	693.0	352.0	254.0	213.0	193.0
21	209.0	190.0	168.0	176.0	176.0	336.0	392.0	661.0	323.0	254.0	213.0	184.0
22	209.0	185.0	168.0	176.0	176.0	336.0	449.0	629.0	323.0	244.0	203.0	174.0
23	209.0	181.0	160.0	168.0	176.0	336.0	468.0	578.0	303.0	244.0	213.0	174.0
24	200.0	177.0	168.0	168.0	176.0	318.0	449.0	629.0	283.0	244.0	203.0	174.0
25	190.0	177.0	168.0	168.0	176.0	336.0	449.0	645.0	273.0	244.0	213.0	174.0
26	190.0	180.0	168.0	168.0	176.0	336.0	430.0	677.0	263.0	244.0	213.0	174.0
27	190.0	189.0	168.0	168.0	184.0	318.0	411.0	677.0	252.0	244.0	213.0	174.0
28	190.0	182.0	168.0	168.0	184.0	283.0	411.0	677.0	233.0	244.0	213.0	174.0
29	190.0	179.0	168.0	168.0	0.0	266.0	392.0	693.0	224.0	244.0	223.0	174.0
30	190.0	168.0	168.0	168.0	0.0	266.0	411.0	661.0	224.0	244.0	223.0	174.0
31	190.0	0.0	168.0	168.0	0.0	249.0	0.0	677.0	0.0	244.0	223.0	0.0

DATEY DATA FOR YEAR ENDING SEPT. 1922

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174.0	184.0	197.0	192.0	176.0	176.0	283.0	480.0	538.0	275.0	275.0	244.0
2	174.0	184.0	197.0	208.0	176.0	176.0	308.0	333.0	515.0	275.0	297.0	244.0
3	174.0	184.0	178.0	200.0	184.0	176.0	336.0	372.0	469.0	275.0	297.0	264.0
4	174.0	184.0	177.0	192.0	176.0	176.0	373.0	427.0	323.0	264.0	275.0	264.0
5	174.0	184.0	186.0	192.0	176.0	176.0	392.0	561.0	404.0	254.0	264.0	275.0
6	174.0	184.0	186.0	184.0	176.0	176.0	392.0	629.0	363.0	254.0	264.0	254.0
7	174.0	184.0	177.0	176.0	176.0	176.0	392.0	629.0	404.0	254.0	264.0	254.0
8	174.0	184.0	177.0	176.0	184.0	176.0	430.0	725.0	393.0	254.0	264.0	254.0
9	174.0	184.0	176.0	184.0	192.0	176.0	373.0	661.0	365.0	264.0	254.0	254.0
10	174.0	184.0	176.0	184.0	192.0	176.0	283.0	595.0	366.0	264.0	244.0	254.0
11	174.0	184.0	176.0	184.0	184.0	176.0	318.0	508.0	349.0	264.0	244.0	254.0
12	184.0	184.0	176.0	176.0	184.0	176.0	300.0	418.0	315.0	254.0	244.0	233.0
13	184.0	184.0	176.0	176.0	176.0	176.0	300.0	436.0	314.0	254.0	244.0	193.0
14	184.0	184.0	184.0	176.0	176.0	184.0	300.0	436.0	353.0	244.0	244.0	193.0
15	184.0	184.0	184.0	168.0	184.0	184.0	283.0	472.0	343.0	244.0	233.0	193.0
16	184.0	184.0	176.0	168.0	184.0	184.0	283.0	490.0	345.0	244.0	233.0	193.0
17	184.0	184.0	176.0	184.0	184.0	192.0	266.0	561.0	348.0	244.0	233.0	193.0
18	184.0	174.0	184.0	176.0	184.0	192.0	266.0	612.0	359.0	244.0	233.0	184.0
19	184.0	184.0	184.0	176.0	176.0	192.0	266.0	661.0	336.0	244.0	244.0	193.0
20	184.0	184.0	184.0	184.0	176.0	200.0	283.0	725.0	296.0	319.0	244.0	193.0
21	174.0	193.0	184.0	184.0	184.0	208.0	283.0	757.0	286.0	275.0	244.0	193.0
22	174.0	212.0	184.0	176.0	176.0	216.0	283.0	741.0	275.0	297.0	244.0	184.0
23	193.0	211.0	184.0	176.0	176.0	232.0	300.0	677.0	244.0	297.0	264.0	193.0
24	193.0	210.0	184.0	176.0	176.0	266.0	300.0	709.0	254.0	297.0	254.0	174.0
25	193.0	200.0	184.0	176.0	176.0	283.0	318.0	709.0	264.0	275.0	254.0	174.0
26	193.0	200.0	184.0	176.0	176.0	283.0	318.0	693.0	275.0	275.0	254.0	174.0
27	193.0	190.0	184.0	176.0	176.0	283.0	336.0	693.0	297.0	275.0	254.0	174.0
28	193.0	189.0	184.0	176.0	176.0	283.0	392.0	629.0	254.0	264.0	254.0	174.0
29	184.0	189.0	184.0	176.0	0.0	249.0	392.0	578.0	286.0	264.0	254.0	174.0
30	184.0	198.0	192.0	176.0	0.0	266.0	392.0	561.0	275.0	264.0	254.0	174.0
31	184.0	0.0	192.0	176.0	0.0	266.0	0.0	526.0	0.0	264.0	244.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1923

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	220.0	220.0	230.0	150.0	210.0	538.0	323.0	363.0	247.0	247.0	247.0
2	170.0	220.0	220.0	230.0	150.0	200.0	562.0	323.0	343.0	247.0	247.0	247.0
3	170.0	220.0	220.0	230.0	150.0	180.0	562.0	323.0	304.0	209.0	266.0	247.0
4	170.0	220.0	220.0	230.0	150.0	180.0	447.0	363.0	285.0	218.0	266.0	247.0
5	170.0	220.0	200.0	230.0	150.0	200.0	383.0	383.0	285.0	266.0	266.0	228.0
6	170.0	250.0	200.0	230.0	150.0	210.0	562.0	425.0	266.0	266.0	266.0	228.0
7	170.0	250.0	200.0	230.0	150.0	210.0	538.0	469.0	266.0	209.0	247.0	247.0
8	170.0	250.0	200.0	230.0	150.0	210.0	492.0	492.0	266.0	190.0	247.0	247.0
9	170.0	250.0	200.0	230.0	150.0	210.0	425.0	492.0	266.0	190.0	247.0	247.0
10	200.0	250.0	200.0	230.0	150.0	210.0	404.0	538.0	323.0	247.0	247.0	247.0
11	200.0	250.0	180.0	230.0	150.0	210.0	383.0	538.0	304.0	266.0	247.0	247.0
12	200.0	250.0	180.0	230.0	150.0	210.0	363.0	515.0	304.0	266.0	247.0	228.0
13	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	285.0	266.0	266.0	228.0
14	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	266.0	266.0	285.0	228.0
15	200.0	250.0	180.0	230.0	150.0	210.0	323.0	469.0	247.0	247.0	266.0	228.0
16	200.0	250.0	180.0	230.0	170.0	220.0	323.0	447.0	266.0	247.0	266.0	228.0
17	200.0	250.0	180.0	230.0	170.0	220.0	343.0	469.0	247.0	247.0	247.0	228.0
18	200.0	250.0	180.0	230.0	170.0	210.0	383.0	492.0	247.0	247.0	190.0	228.0
19	200.0	250.0	180.0	230.0	170.0	230.0	404.0	515.0	266.0	247.0	190.0	228.0
20	200.0	250.0	180.0	230.0	170.0	250.0	363.0	492.0	285.0	247.0	266.0	247.0
21	200.0	220.0	200.0	230.0	200.0	250.0	363.0	492.0	323.0	228.0	247.0	228.0
22	200.0	220.0	200.0	230.0	210.0	260.0	323.0	492.0	363.0	247.0	247.0	228.0
23	200.0	220.0	200.0	230.0	210.0	270.0	304.0	469.0	363.0	447.0	247.0	209.0
24	200.0	220.0	200.0	230.0	210.0	280.0	285.0	425.0	323.0	285.0	266.0	209.0
25	200.0	220.0	200.0	230.0	210.0	300.0	285.0	425.0	304.0	285.0	266.0	209.0
26	200.0	220.0	200.0	200.0	210.0	320.0	304.0	425.0	285.0	285.0	266.0	218.0
27	200.0	220.0	200.0	200.0	210.0	340.0	323.0	404.0	266.0	285.0	247.0	228.0
28	200.0	220.0	200.0	200.0	210.0	370.0	343.0	383.0	247.0	266.0	247.0	228.0
29	200.0	220.0	200.0	200.0	0.0	400.0	343.0	363.0	247.0	266.0	247.0	247.0
30	200.0	220.0	200.0	200.0	0.0	450.0	343.0	343.0	247.0	266.0	247.0	218.0
31	200.0	0.0	200.0	200.0	0.0	500.0	0.0	383.0	0.0	247.0	266.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1924

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	207.0	197.0	200.0	186.0	213.0	213.0	234.0	234.0	192.0	202.0	141.0
2	228.0	207.0	204.0	200.0	196.0	224.0	224.0	244.0	224.0	192.0	192.0	131.0
3	208.0	207.0	203.0	199.0	196.0	234.0	244.0	266.0	213.0	213.0	192.0	131.0
4	218.0	207.0	203.0	190.0	194.0	234.0	255.0	276.0	213.0	213.0	192.0	131.0
5	218.0	207.0	197.0	179.0	185.0	224.0	255.0	297.0	234.0	213.0	192.0	141.0
6	218.0	207.0	194.0	179.0	193.0	224.0	266.0	276.0	234.0	224.0	192.0	131.0
7	218.0	207.0	194.0	179.0	195.0	213.0	276.0	276.0	234.0	234.0	202.0	131.0
8	218.0	207.0	193.0	179.0	205.0	202.0	276.0	276.0	234.0	605.0	192.0	131.0
9	228.0	206.0	193.0	179.0	214.0	202.0	255.0	266.0	234.0	319.0	182.0	141.0
10	247.0	206.0	193.0	178.0	215.0	202.0	244.0	266.0	234.0	255.0	192.0	131.0
11	228.0	208.0	193.0	178.0	215.0	202.0	234.0	234.0	224.0	213.0	182.0	131.0
12	228.0	206.0	193.0	178.0	215.0	202.0	234.0	213.0	213.0	234.0	182.0	131.0
13	218.0	206.0	193.0	178.0	225.0	202.0	255.0	202.0	234.0	224.0	192.0	121.0
14	218.0	206.0	193.0	178.0	236.0	202.0	297.0	192.0	224.0	213.0	171.0	121.0
15	218.0	206.0	192.0	185.0	236.0	202.0	266.0	202.0	213.0	202.0	161.0	121.0
16	218.0	206.0	192.0	185.0	244.0	202.0	255.0	213.0	213.0	213.0	171.0	121.0
17	218.0	205.0	192.0	185.0	244.0	202.0	244.0	224.0	224.0	213.0	171.0	121.0
18	209.0	205.0	192.0	185.0	256.0	202.0	234.0	224.0	213.0	213.0	171.0	121.0
19	209.0	205.0	192.0	185.0	256.0	202.0	224.0	234.0	213.0	192.0	171.0	131.0
20	209.0	205.0	192.0	185.0	266.0	202.0	224.0	234.0	213.0	202.0	151.0	131.0
21	209.0	205.0	192.0	184.0	244.0	202.0	224.0	276.0	213.0	192.0	151.0	121.0
22	218.0	205.0	192.0	184.0	235.0	202.0	234.0	286.0	213.0	192.0	151.0	121.0
23	228.0	205.0	191.0	184.0	214.0	202.0	255.0	276.0	213.0	202.0	161.0	121.0
24	218.0	205.0	191.0	184.0	202.0	234.0	255.0	266.0	213.0	202.0	151.0	121.0
25	209.0	204.0	191.0	184.0	203.0	234.0	244.0	244.0	202.0	202.0	151.0	121.0
26	209.0	204.0	191.0	184.0	203.0	224.0	234.0	234.0	213.0	192.0	151.0	121.0
27	209.0	198.0	191.0	184.0	213.0	224.0	234.0	234.0	213.0	202.0	151.0	121.0
28	208.0	204.0	196.0	176.0	213.0	224.0	234.0	213.0	202.0	202.0	151.0	121.0
29	208.0	204.0	200.0	176.0	213.0	213.0	234.0	213.0	202.0	192.0	151.0	121.0
30	208.0	204.0	200.0	184.0	0.0	224.0	234.0	234.0	202.0	202.0	151.0	121.0
31	208.0	0.0	200.0	184.0	0.0	213.0	0.0	234.0	0.0	192.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1925

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	161.0	161.0	161.0	161.0	171.0	234.0	255.0	255.0	202.0	131.0	286.0
2	131.0	161.0	161.0	151.0	171.0	171.0	224.0	266.0	276.0	213.0	131.0	330.0
3	131.0	161.0	161.0	151.0	171.0	182.0	224.0	266.0	286.0	213.0	141.0	297.0
4	141.0	161.0	161.0	161.0	286.0	224.0	224.0	276.0	276.0	213.0	131.0	286.0
5	141.0	161.0	171.0	161.0	276.0	234.0	234.0	297.0	255.0	688.0	131.0	255.0
6	141.0	161.0	171.0	151.0	481.0	286.0	234.0	319.0	255.0	341.0	131.0	244.0
7	141.0	161.0	171.0	151.0	276.0	330.0	224.0	341.0	244.0	266.0	131.0	244.0
8	141.0	161.0	171.0	161.0	255.0	364.0	234.0	387.0	244.0	266.0	131.0	234.0
9	141.0	161.0	161.0	161.0	224.0	297.0	224.0	433.0	234.0	234.0	131.0	213.0
10	151.0	161.0	161.0	161.0	192.0	244.0	234.0	410.0	234.0	244.0	131.0	234.0
11	141.0	161.0	161.0	151.0	192.0	213.0	244.0	410.0	234.0	213.0	131.0	224.0
12	141.0	161.0	161.0	161.0	192.0	213.0	266.0	410.0	234.0	202.0	151.0	213.0
13	141.0	161.0	161.0	161.0	192.0	202.0	266.0	410.0	213.0	192.0	171.0	213.0
14	141.0	161.0	171.0	161.0	182.0	202.0	276.0	387.0	224.0	182.0	213.0	213.0
15	141.0	161.0	171.0	161.0	182.0	202.0	276.0	410.0	244.0	182.0	224.0	171.0
16	141.0	161.0	192.0	161.0	182.0	202.0	276.0	457.0	234.0	202.0	234.0	161.0
17	141.0	161.0	171.0	151.0	182.0	213.0	341.0	457.0	255.0	213.0	234.0	161.0
18	141.0	161.0	150.0	151.0	182.0	202.0	433.0	410.0	255.0	213.0	244.0	182.0
19	141.0	161.0	150.0	151.0	182.0	224.0	387.0	387.0	244.0	213.0	255.0	171.0
20	141.0	171.0	150.0	151.0	182.0	276.0	341.0	387.0	234.0	224.0	266.0	171.0
21	141.0	171.0	150.0	151.0	182.0	330.0	319.0	387.0	234.0	234.0	266.0	176.0
22	141.0	171.0	150.0	151.0	182.0	330.0	266.0	341.0	308.0	234.0	266.0	182.0
23	141.0	171.0	150.0	151.0	182.0	308.0	286.0	319.0	286.0	255.0	255.0	182.0
24	141.0	161.0	150.0	161.0	171.0	276.0	297.0	330.0	266.0	244.0	244.0	171.0
25	141.0	161.0	150.0	161.0	171.0	255.0	286.0	319.0	234.0	244.0	244.0	171.0
26	141.0	161.0	151.0	161.0	171.0	234.0	276.0	297.0	224.0	244.0	244.0	171.0
27	141.0	161.0	151.0	161.0	171.0	224.0	276.0	286.0	213.0	244.0	234.0	171.0
28	141.0	161.0	161.0	161.0	161.0	224.0	244.0	276.0	213.0	161.0	244.0	171.0
29	171.0	161.0	151.0	161.0	0.0	224.0	244.0	266.0	202.0	151.0	255.0	171.0
30	161.0	161.0	161.0	161.0	0.0	255.0	244.0	255.0	202.0	141.0	266.0	161.0
31	161.0	0.0	161.0	161.0	0.0	244.0	0.0	276.0	0.0	141.0	286.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	180.0	190.0	170.0	170.0	210.0	220.0	270.0	260.0	220.0	170.0	124.0
2	160.0	210.0	210.0	170.0	170.0	210.0	220.0	280.0	240.0	230.0	170.0	124.0
3	160.0	200.0	190.0	170.0	170.0	230.0	210.0	270.0	240.0	220.0	170.0	122.0
4	160.0	190.0	190.0	170.0	170.0	270.0	210.0	270.0	260.0	220.0	170.0	122.0
5	160.0	190.0	190.0	170.0	180.0	302.0	270.0	312.0	270.0	220.0	151.0	122.0
6	170.0	180.0	180.0	170.0	180.0	230.0	280.0	322.0	270.0	230.0	151.0	124.0
7	170.0	180.0	190.0	170.0	190.0	210.0	280.0	312.0	260.0	230.0	170.0	124.0
8	170.0	180.0	180.0	170.0	190.0	230.0	280.0	312.0	260.0	230.0	180.0	124.0
9	170.0	180.0	180.0	160.0	210.0	240.0	260.0	260.0	260.0	230.0	190.0	124.0
10	170.0	190.0	180.0	160.0	200.0	250.0	250.0	250.0	270.0	230.0	240.0	124.0
11	190.0	190.0	180.0	160.0	190.0	250.0	230.0	240.0	280.0	220.0	210.0	121.0
12	200.0	190.0	180.0	160.0	190.0	250.0	230.0	230.0	270.0	230.0	170.0	122.0
13	200.0	190.0	180.0	160.0	180.0	312.0	230.0	220.0	270.0	240.0	170.0	121.0
14	190.0	190.0	170.0	170.0	180.0	312.0	220.0	210.0	280.0	230.0	170.0	124.0
15	190.0	180.0	180.0	170.0	180.0	302.0	230.0	210.0	260.0	230.0	160.0	124.0
16	160.0	180.0	180.0	170.0	170.0	291.0	240.0	250.0	250.0	220.0	151.0	124.0
17	180.0	180.0	180.0	170.0	170.0	270.0	250.0	240.0	240.0	230.0	151.0	124.0
18	180.0	180.0	180.0	170.0	190.0	250.0	250.0	230.0	260.0	220.0	142.0	124.0
19	190.0	180.0	180.0	170.0	220.0	230.0	260.0	230.0	240.0	220.0	151.0	124.0
20	180.0	180.0	180.0	170.0	200.0	230.0	291.0	240.0	240.0	220.0	142.0	124.0
21	180.0	180.0	180.0	170.0	180.0	230.0	270.0	230.0	250.0	210.0	142.0	124.0
22	180.0	180.0	180.0	170.0	180.0	220.0	312.0	230.0	250.0	210.0	142.0	124.0
23	180.0	180.0	180.0	170.0	170.0	220.0	302.0	240.0	230.0	210.0	132.0	121.0
24	180.0	180.0	180.0	170.0	180.0	210.0	291.0	250.0	230.0	210.0	128.0	121.0
25	180.0	180.0	180.0	170.0	170.0	210.0	291.0	250.0	230.0	210.0	124.0	121.0
26	180.0	180.0	180.0	170.0	180.0	200.0	280.0	250.0	230.0	200.0	124.0	121.0
27	180.0	190.0	180.0	170.0	190.0	200.0	270.0	260.0	220.0	220.0	132.0	121.0
28	180.0	190.0	170.0	170.0	200.0	200.0	270.0	280.0	220.0	210.0	124.0	121.0
29	180.0	180.0	170.0	170.0	0.0	210.0	270.0	280.0	220.0	200.0	128.0	142.0
30	180.0	180.0	160.0	170.0	0.0	220.0	270.0	280.0	220.0	180.0	124.0	151.0
31	180.0	0.0	160.0	170.0	0.0	230.0	0.0	270.0	0.0	170.0	124.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1927

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	151.0	174.0	155.0	155.0	174.0	302.0	492.0	334.0	258.0	265.0	192.0
2	143.0	151.0	170.0	157.0	155.0	170.0	318.0	460.0	326.0	267.0	276.0	192.0
3	143.0	151.0	166.0	157.0	155.0	170.0	294.0	412.0	318.0	294.0	267.0	192.0
4	140.0	151.0	162.0	157.0	155.0	174.0	285.0	396.0	334.0	326.0	267.0	190.0
5	140.0	151.0	162.0	157.0	157.0	174.0	276.0	396.0	334.0	310.0	267.0	190.0
6	140.0	155.0	162.0	157.0	155.0	174.0	267.0	396.0	350.0	294.0	267.0	188.0
7	140.0	155.0	162.0	157.0	155.0	178.0	249.0	396.0	388.0	276.0	267.0	186.0
8	140.0	155.0	162.0	157.0	155.0	182.0	258.0	372.0	380.0	267.0	267.0	186.0
9	140.0	153.0	162.0	157.0	155.0	180.0	258.0	334.0	428.0	258.0	258.0	178.0
10	140.0	153.0	160.0	157.0	155.0	178.0	258.0	326.0	412.0	267.0	258.0	170.0
11	140.0	153.0	159.0	155.0	155.0	178.0	258.0	318.0	412.0	258.0	258.0	170.0
12	138.0	155.0	157.0	155.0	155.0	174.0	267.0	310.0	412.0	258.0	249.0	170.0
13	140.0	157.0	157.0	155.0	155.0	178.0	258.0	310.0	412.0	258.0	258.0	170.0
14	142.0	157.0	157.0	155.0	157.0	178.0	258.0	310.0	412.0	267.0	258.0	168.0
15	143.0	157.0	157.0	155.0	159.0	182.0	230.0	350.0	396.0	267.0	267.0	168.0
16	147.0	159.0	157.0	155.0	162.0	178.0	230.0	412.0	380.0	258.0	267.0	168.0
17	147.0	157.0	157.0	155.0	166.0	176.0	226.0	476.0	365.0	258.0	267.0	166.0
18	151.0	155.0	157.0	155.0	168.0	176.0	222.0	460.0	350.0	249.0	249.0	166.0
19	147.0	155.0	155.0	155.0	170.0	176.0	214.0	476.0	334.0	249.0	210.0	164.0
20	147.0	155.0	155.0	155.0	170.0	172.0	210.0	428.0	334.0	249.0	192.0	162.0
21	147.0	162.0	155.0	155.0	186.0	176.0	208.0	380.0	310.0	267.0	194.0	162.0
22	147.0	166.0	155.0	157.0	208.0	176.0	202.0	365.0	294.0	267.0	190.0	155.0
23	147.0	170.0	155.0	159.0	190.0	176.0	200.0	334.0	276.0	267.0	188.0	162.0
24	147.0	174.0	155.0	157.0	182.0	182.0	222.0	318.0	249.0	276.0	186.0	162.0
25	147.0	178.0	155.0	157.0	178.0	186.0	240.0	294.0	249.0	276.0	188.0	162.0
26	147.0	182.0	155.0	155.0	174.0	194.0	276.0	302.0	249.0	276.0	190.0	160.0
27	145.0	186.0	155.0	155.0	174.0	214.0	334.0	302.0	220.0	276.0	190.0	159.0
28	151.0	186.0	155.0	155.0	174.0	240.0	412.0	334.0	230.0	294.0	194.0	162.0
29	151.0	182.0	155.0	155.0	0.0	258.0	428.0	326.0	249.0	294.0	206.0	162.0
30	151.0	178.0	155.0	155.0	0.0	267.0	460.0	318.0	267.0	294.0	198.0	162.0
31	151.0	0.0	155.0	155.0	0.0	285.0	0.0	350.0	0.0	285.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1978

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	196.0	194.0	170.0	170.0	162.0	230.0	380.0	267.0	226.0	276.0	192.0
2	162.0	190.0	194.0	172.0	170.0	162.0	228.0	365.0	258.0	230.0	267.0	196.0
3	162.0	190.0	198.0	174.0	170.0	162.0	226.0	350.0	240.0	240.0	258.0	188.0
4	164.0	182.0	200.0	176.0	170.0	164.0	222.0	334.0	240.0	240.0	258.0	180.0
5	164.0	174.0	200.0	178.0	170.0	166.0	216.0	342.0	240.0	258.0	249.0	174.0
6	166.0	178.0	198.0	180.0	170.0	174.0	212.0	350.0	249.0	276.0	240.0	174.0
7	170.0	182.0	196.0	180.0	170.0	182.0	208.0	365.0	249.0	294.0	230.0	172.0
8	170.0	182.0	200.0	180.0	166.0	190.0	204.0	380.0	267.0	285.0	214.0	170.0
9	170.0	186.0	204.0	180.0	164.0	230.0	200.0	412.0	285.0	267.0	218.0	170.0
10	170.0	190.0	204.0	178.0	162.0	285.0	198.0	412.0	318.0	258.0	210.0	164.0
11	170.0	198.0	204.0	178.0	159.0	412.0	198.0	412.0	334.0	249.0	206.0	159.0
12	170.0	202.0	200.0	178.0	159.0	388.0	202.0	444.0	350.0	258.0	188.0	157.0
13	172.0	206.0	196.0	178.0	159.0	334.0	208.0	492.0	365.0	267.0	200.0	157.0
14	172.0	210.0	188.0	178.0	162.0	294.0	208.0	444.0	342.0	276.0	188.0	159.0
15	176.0	214.0	188.0	174.0	162.0	285.0	208.0	428.0	334.0	267.0	188.0	155.0
16	176.0	216.0	184.0	172.0	162.0	228.0	210.0	412.0	318.0	267.0	186.0	155.0
17	176.0	220.0	186.0	172.0	162.0	230.0	210.0	412.0	302.0	258.0	186.0	153.0
18	176.0	226.0	188.0	176.0	162.0	230.0	218.0	396.0	285.0	258.0	186.0	149.0
19	178.0	230.0	184.0	172.0	162.0	230.0	214.0	396.0	276.0	258.0	186.0	138.0
20	178.0	222.0	180.0	164.0	162.0	230.0	204.0	388.0	267.0	258.0	188.0	138.0
21	182.0	210.0	176.0	164.0	162.0	230.0	202.0	388.0	258.0	258.0	184.0	136.0
22	186.0	204.0	172.0	168.0	162.0	230.0	202.0	358.0	249.0	249.0	180.0	132.0
23	188.0	190.0	168.0	172.0	162.0	249.0	206.0	350.0	249.0	258.0	180.0	132.0
24	188.0	182.0	168.0	172.0	162.0	258.0	222.0	342.0	240.0	258.0	182.0	130.0
25	190.0	186.0	168.0	172.0	162.0	334.0	249.0	334.0	228.0	258.0	184.0	132.0
26	186.0	188.0	168.0	172.0	162.0	318.0	276.0	342.0	222.0	258.0	190.0	132.0
27	186.0	186.0	168.0	172.0	162.0	294.0	326.0	342.0	240.0	258.0	196.0	132.0
28	190.0	190.0	168.0	172.0	162.0	276.0	350.0	318.0	230.0	258.0	200.0	134.0
29	194.0	194.0	168.0	172.0	162.0	249.0	380.0	310.0	226.0	262.0	198.0	138.0
30	194.0	194.0	172.0	172.0	0.0	240.0	372.0	302.0	220.0	267.0	194.0	138.0
31	196.0	0.0	168.0	172.0	0.0	230.0	0.0	285.0	0.0	272.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1929

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	162.0	160.0	153.0	142.0	142.0	222.0	248.0	240.0	240.0	218.0	166.0
2	140.0	162.0	145.0	153.0	149.0	142.0	222.0	240.0	240.0	230.0	222.0	166.0
3	142.0	164.0	145.0	157.0	143.0	140.0	240.0	216.0	230.0	240.0	218.0	162.0
4	142.0	160.0	149.0	149.0	143.0	140.0	222.0	220.0	240.0	240.0	218.0	162.0
5	140.0	160.0	153.0	145.0	145.0	143.0	222.0	222.0	249.0	240.0	212.0	155.0
6	140.0	162.0	151.0	145.0	143.0	160.0	222.0	230.0	249.0	240.0	206.0	145.0
7	140.0	155.0	151.0	140.0	145.0	166.0	222.0	240.0	267.0	249.0	208.0	147.0
8	142.0	155.0	151.0	136.0	151.0	164.0	214.0	240.0	258.0	249.0	212.0	151.0
9	142.0	153.0	151.0	149.0	142.0	178.0	206.0	240.0	267.0	249.0	212.0	155.0
10	143.0	153.0	151.0	145.0	142.0	194.0	202.0	240.0	267.0	249.0	208.0	159.0
11	145.0	153.0	157.0	143.0	143.0	206.0	202.0	258.0	276.0	249.0	218.0	162.0
12	147.0	155.0	155.0	145.0	143.0	196.0	210.0	276.0	276.0	230.0	208.0	162.0
13	145.0	155.0	153.0	143.0	145.0	186.0	218.0	276.0	267.0	230.0	202.0	162.0
14	145.0	155.0	153.0	145.0	143.0	180.0	206.0	285.0	285.0	230.0	200.0	162.0
15	143.0	155.0	155.0	145.0	142.0	190.0	214.0	294.0	285.0	230.0	194.0	182.0
16	147.0	157.0	153.0	147.0	140.0	186.0	214.0	294.0	310.0	240.0	194.0	190.0
17	145.0	157.0	151.0	147.0	142.0	186.0	210.0	294.0	334.0	230.0	198.0	186.0
18	145.0	153.0	151.0	149.0	143.0	202.0	214.0	285.0	372.0	249.0	194.0	182.0
19	145.0	153.0	153.0	147.0	143.0	210.0	214.0	258.0	276.0	267.0	194.0	186.0
20	145.0	153.0	153.0	147.0	142.0	218.0	214.0	276.0	258.0	230.0	198.0	170.0
21	147.0	153.0	153.0	149.0	140.0	294.0	214.0	285.0	249.0	230.0	194.0	218.0
22	147.0	155.0	157.0	153.0	134.0	342.0	218.0	302.0	258.0	230.0	192.0	178.0
23	147.0	155.0	153.0	153.0	138.0	310.0	218.0	310.0	258.0	230.0	194.0	178.0
24	147.0	153.0	149.0	151.0	140.0	294.0	218.0	310.0	258.0	230.0	198.0	174.0
25	147.0	151.0	149.0	147.0	138.0	267.0	212.0	310.0	258.0	230.0	194.0	170.0
26	151.0	151.0	149.0	153.0	142.0	258.0	210.0	310.0	258.0	222.0	196.0	170.0
27	157.0	155.0	151.0	151.0	145.0	249.0	218.0	318.0	258.0	214.0	194.0	170.0
28	157.0	157.0	153.0	149.0	142.0	240.0	222.0	294.0	258.0	218.0	194.0	170.0
29	157.0	153.0	153.0	147.0	0.0	258.0	230.0	258.0	258.0	218.0	178.0	170.0
30	159.0	153.0	149.0	147.0	0.0	276.0	230.0	258.0	249.0	220.0	170.0	170.0
31	160.0	0.0	157.0	142.0	0.0	222.0	0.0	249.0	0.0	222.0	166.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1930

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	151.0	151.0	145.0	142.0	157.0	176.0	190.0	166.0	220.0	132.0	130.0
2	162.0	155.0	151.0	147.0	142.0	157.0	176.0	178.0	174.0	212.0	132.0	130.0
3	159.0	155.0	155.0	145.0	142.0	157.0	172.0	174.0	186.0	204.0	140.0	130.0
4	155.0	155.0	155.0	147.0	142.0	157.0	174.0	190.0	186.0	204.0	140.0	130.0
5	151.0	151.0	155.0	147.0	142.0	157.0	172.0	194.0	194.0	208.0	140.0	134.0
6	151.0	153.0	155.0	147.0	142.0	157.0	172.0	192.0	190.0	204.0	132.0	134.0
7	151.0	155.0	155.0	147.0	142.0	160.0	172.0	196.0	198.0	200.0	140.0	130.0
8	151.0	155.0	151.0	147.0	142.0	160.0	178.0	212.0	198.0	204.0	140.0	130.0
9	155.0	155.0	155.0	147.0	145.0	160.0	180.0	230.0	166.0	164.0	151.0	130.0
10	155.0	153.0	159.0	147.0	149.0	160.0	176.0	212.0	155.0	164.0	140.0	130.0
11	155.0	155.0	159.0	147.0	153.0	157.0	176.0	202.0	159.0	164.0	140.0	130.0
12	157.0	155.0	159.0	147.0	153.0	160.0	180.0	190.0	174.0	153.0	182.0	130.0
13	159.0	155.0	159.0	151.0	160.0	176.0	184.0	178.0	170.0	157.0	194.0	130.0
14	160.0	153.0	159.0	147.0	168.0	180.0	200.0	182.0	186.0	157.0	182.0	134.0
15	160.0	157.0	155.0	147.0	168.0	208.0	192.0	186.0	190.0	153.0	174.0	130.0
16	168.0	155.0	155.0	147.0	172.0	200.0	192.0	198.0	198.0	145.0	170.0	126.0
17	176.0	155.0	155.0	147.0	180.0	200.0	192.0	222.0	206.0	142.0	174.0	130.0
18	178.0	155.0	151.0	147.0	188.0	204.0	194.0	202.0	214.0	142.0	174.0	126.0
19	176.0	147.0	151.0	147.0	200.0	200.0	194.0	186.0	230.0	160.0	155.0	119.0
20	176.0	147.0	151.0	143.0	208.0	192.0	194.0	182.0	226.0	153.0	151.0	119.0
21	168.0	147.0	151.0	143.0	196.0	192.0	194.0	190.0	230.0	153.0	151.0	126.0
22	157.0	151.0	151.0	147.0	192.0	196.0	178.0	190.0	230.0	142.0	140.0	124.0
23	149.0	151.0	151.0	147.0	184.0	180.0	170.0	182.0	249.0	145.0	140.0	130.0
24	149.0	151.0	151.0	147.0	176.0	176.0	170.0	178.0	267.0	149.0	147.0	130.0
25	149.0	151.0	151.0	143.0	164.0	176.0	196.0	178.0	230.0	149.0	151.0	130.0
26	147.0	151.0	151.0	143.0	164.0	180.0	192.0	166.0	226.0	147.0	142.0	126.0
27	151.0	155.0	151.0	143.0	160.0	176.0	196.0	159.0	230.0	143.0	138.0	130.0
28	147.0	155.0	147.0	147.0	160.0	176.0	196.0	155.0	230.0	147.0	138.0	134.0
29	147.0	155.0	147.0	143.0	0.0	172.0	196.0	147.0	230.0	147.0	142.0	134.0
30	147.0	155.0	147.0	143.0	0.0	184.0	200.0	140.0	226.0	155.0	130.0	130.0
31	149.0	0.0	147.0	143.0	0.0	180.0	0.0	162.0	0.0	140.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1931

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	147.0	142.0	136.0	134.0	134.0	164.0	143.0	230.0	106.0	100.0	93.0
2	130.0	147.0	142.0	136.0	134.0	134.0	192.0	149.0	240.0	100.0	95.0	90.0
3	142.0	147.0	142.0	136.0	134.0	138.0	160.0	149.0	218.0	100.0	93.0	93.0
4	142.0	147.0	145.0	136.0	134.0	138.0	153.0	153.0	216.0	93.0	99.0	93.0
5	138.0	151.0	145.0	136.0	134.0	134.0	149.0	157.0	212.0	97.0	100.0	93.0
6	142.0	151.0	145.0	136.0	134.0	134.0	149.0	164.0	212.0	93.0	100.0	92.0
7	145.0	151.0	145.0	140.0	134.0	138.0	149.0	168.0	214.0	93.0	99.0	90.0
8	157.0	151.0	145.0	140.0	134.0	134.0	153.0	176.0	214.0	97.0	93.0	87.0
9	172.0	147.0	145.0	140.0	138.0	134.0	153.0	164.0	222.0	99.0	93.0	90.0
10	176.0	147.0	145.0	136.0	138.0	138.0	145.0	168.0	224.0	100.0	92.0	90.0
11	176.0	147.0	145.0	136.0	138.0	142.0	149.0	168.0	214.0	102.0	93.0	93.0
12	172.0	147.0	145.0	140.0	138.0	149.0	153.0	164.0	202.0	93.0	97.0	95.0
13	172.0	155.0	145.0	140.0	138.0	149.0	157.0	149.0	194.0	99.0	97.0	93.0
14	168.0	159.0	145.0	140.0	138.0	157.0	157.0	142.0	194.0	93.0	99.0	95.0
15	172.0	147.0	145.0	136.0	138.0	149.0	157.0	140.0	200.0	93.0	99.0	93.0
16	164.0	155.0	145.0	136.0	138.0	153.0	153.0	136.0	188.0	97.0	115.0	93.0
17	153.0	155.0	149.0	140.0	138.0	160.0	153.0	136.0	138.0	100.0	97.0	90.0
18	153.0	155.0	149.0	140.0	138.0	174.0	151.0	157.0	138.0	97.0	97.0	97.0
19	153.0	143.0	149.0	136.0	138.0	168.0	153.0	147.0	134.0	92.0	100.0	99.0
20	153.0	143.0	149.0	140.0	138.0	208.0	147.0	137.0	130.0	93.0	95.0	100.0
21	153.0	147.0	149.0	140.0	138.0	258.0	145.0	168.0	122.0	93.0	93.0	99.0
22	153.0	147.0	149.0	136.0	138.0	258.0	143.0	170.0	119.0	97.0	97.0	99.0
23	153.0	147.0	149.0	140.0	138.0	258.0	151.0	168.0	119.0	95.0	93.0	108.0
24	153.0	143.0	149.0	136.0	138.0	188.0	153.0	184.0	119.0	95.0	93.0	108.0
25	149.0	147.0	145.0	136.0	134.0	180.0	153.0	192.0	108.0	97.0	93.0	111.0
26	149.0	143.0	145.0	140.0	134.0	164.0	149.0	216.0	111.0	97.0	90.0	111.0
27	149.0	143.0	145.0	136.0	134.0	153.0	147.0	240.0	134.0	100.0	90.0	119.0
28	149.0	143.0	145.0	140.0	134.0	157.0	145.0	258.0	104.0	100.0	92.0	115.0
29	149.0	147.0	142.0	136.0	0.0	157.0	145.0	249.0	108.0	102.0	93.0	115.0
30	149.0	143.0	142.0	140.0	0.0	153.0	149.0	230.0	111.0	99.0	90.0	115.0
31	149.0	0.0	142.0	140.0	0.0	160.0	0.0	230.0	0.0	102.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1932

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	128.0	132.0	126.0	126.0	218.0	216.0	216.0	180.0	176.0	151.0
2	113.0	134.0	128.0	132.0	126.0	124.0	285.0	267.0	230.0	176.0	176.0	153.0
3	113.0	126.0	134.0	128.0	126.0	121.0	285.0	285.0	222.0	176.0	174.0	151.0
4	109.0	128.0	134.0	128.0	121.0	124.0	276.0	318.0	230.0	196.0	170.0	151.0
5	111.0	121.0	130.0	128.0	122.0	124.0	258.0	310.0	226.0	212.0	174.0	157.0
6	115.0	122.0	128.0	128.0	122.0	128.0	258.0	302.0	230.0	216.0	184.0	157.0
7	119.0	130.0	126.0	126.0	122.0	128.0	258.0	302.0	249.0	212.0	160.0	159.0
8	111.0	126.0	130.0	126.0	122.0	124.0	258.0	302.0	240.0	208.0	160.0	155.0
9	108.0	128.0	134.0	128.0	124.0	121.0	204.0	310.0	258.0	204.0	160.0	153.0
10	113.0	126.0	130.0	126.0	126.0	124.0	202.0	326.0	249.0	208.0	160.0	151.0
11	117.0	128.0	130.0	128.0	128.0	121.0	200.0	318.0	249.0	204.0	160.0	153.0
12	119.0	126.0	132.0	128.0	124.0	121.0	200.0	365.0	240.0	208.0	160.0	151.0
13	121.0	124.0	128.0	128.0	126.0	117.0	204.0	365.0	249.0	212.0	151.0	151.0
14	117.0	126.0	128.0	128.0	128.0	124.0	222.0	358.0	249.0	212.0	145.0	153.0
15	115.0	128.0	122.0	128.0	124.0	124.0	222.0	380.0	249.0	208.0	149.0	140.0
16	113.0	130.0	126.0	128.0	121.0	126.0	218.0	365.0	267.0	208.0	149.0	121.0
17	113.0	140.0	126.0	128.0	119.0	138.0	222.0	334.0	267.0	202.0	149.0	121.0
18	113.0	138.0	126.0	128.0	111.0	153.0	226.0	318.0	258.0	196.0	145.0	121.0
19	113.0	128.0	124.0	126.0	102.0	166.0	240.0	318.0	240.0	192.0	142.0	121.0
20	113.0	138.0	124.0	124.0	106.0	186.0	258.0	326.0	230.0	200.0	138.0	119.0
21	109.0	132.0	134.0	124.0	113.0	166.0	249.0	318.0	208.0	198.0	138.0	119.0
22	115.0	130.0	134.0	124.0	119.0	166.0	234.0	326.0	202.0	188.0	136.0	121.0
23	119.0	132.0	134.0	121.0	117.0	166.0	220.0	310.0	190.0	188.0	136.0	119.0
24	122.0	128.0	134.0	119.0	121.0	178.0	212.0	294.0	182.0	188.0	136.0	121.0
25	117.0	130.0	134.0	119.0	121.0	174.0	202.0	267.0	170.0	186.0	136.0	119.0
26	126.0	128.0	140.0	124.0	124.0	172.0	206.0	230.0	170.0	198.0	140.0	119.0
27	122.0	132.0	140.0	126.0	124.0	176.0	218.0	220.0	160.0	182.0	147.0	117.0
28	121.0	132.0	136.0	124.0	126.0	226.0	226.0	200.0	151.0	180.0	147.0	122.0
29	119.0	132.0	138.0	122.0	128.0	214.0	222.0	210.0	180.0	178.0	162.0	117.0
30	121.0	132.0	115.0	122.0	0.0	218.0	219.0	206.0	176.0	172.0	151.0	117.0
31	124.0	0.0	119.0	122.0	0.0	218.0	0.0	214.0	0.0	178.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1933

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	140.0	138.0	132.0	124.0	178.0	230.0	285.0	206.0	176.0	134.0
2	111.0	145.0	142.0	138.0	130.0	124.0	190.0	214.0	294.0	200.0	178.0	111.0
3	113.0	147.0	142.0	138.0	132.0	124.0	206.0	204.0	294.0	188.0	172.0	104.0
4	111.0	147.0	142.0	136.0	136.0	126.0	226.0	200.0	285.0	175.0	170.0	104.0
5	113.0	145.0	140.0	136.0	136.0	121.0	249.0	212.0	267.0	162.0	170.0	104.0
6	109.0	143.0	130.0	134.0	136.0	124.0	240.0	216.0	249.0	162.0	172.0	104.0
7	111.0	143.0	130.0	134.0	134.0	124.0	230.0	194.0	249.0	186.0	174.0	104.0
8	113.0	143.0	132.0	134.0	130.0	128.0	230.0	194.0	230.0	204.0	178.0	142.0
9	113.0	145.0	138.0	132.0	124.0	132.0	214.0	190.0	226.0	204.0	170.0	140.0
10	115.0	145.0	136.0	134.0	121.0	132.0	196.0	184.0	222.0	200.0	164.0	130.0
11	115.0	143.0	132.0	136.0	117.0	132.0	188.0	182.0	222.0	204.0	160.0	130.0
12	113.0	142.0	130.0	130.0	124.0	140.0	186.0	174.0	222.0	192.0	164.0	130.0
13	115.0	142.0	134.0	132.0	130.0	140.0	184.0	168.0	220.0	194.0	166.0	130.0
14	113.0	142.0	132.0	132.0	130.0	134.0	184.0	170.0	220.0	184.0	166.0	130.0
15	113.0	142.0	130.0	136.0	126.0	132.0	180.0	170.0	212.0	180.0	168.0	104.0
16	117.0	145.0	130.0	136.0	130.0	130.0	186.0	194.0	212.0	180.0	164.0	100.0
17	117.0	143.0	128.0	138.0	128.0	124.0	212.0	240.0	216.0	186.0	157.0	100.0
18	117.0	142.0	128.0	136.0	126.0	132.0	216.0	285.0	224.0	182.0	166.0	100.0
19	128.0	140.0	130.0	136.0	122.0	126.0	218.0	285.0	240.0	174.0	170.0	100.0
20	128.0	142.0	132.0	134.0	122.0	130.0	200.0	285.0	240.0	178.0	170.0	100.0
21	128.0	145.0	132.0	134.0	124.0	132.0	190.0	310.0	230.0	174.0	151.0	97.0
22	132.0	143.0	132.0	134.0	124.0	136.0	190.0	342.0	224.0	166.0	147.0	93.0
23	132.0	140.0	130.0	134.0	124.0	136.0	192.0	358.0	218.0	170.0	147.0	99.0
24	132.0	145.0	132.0	132.0	124.0	136.0	186.0	334.0	222.0	170.0	147.0	102.0
25	132.0	138.0	132.0	132.0	124.0	136.0	188.0	318.0	224.0	170.0	147.0	102.0
26	138.0	140.0	136.0	134.0	124.0	132.0	190.0	318.0	230.0	168.0	145.0	106.0
27	136.0	140.0	134.0	132.0	128.0	140.0	194.0	326.0	226.0	170.0	149.0	104.0
28	138.0	140.0	136.0	132.0	124.0	147.0	210.0	302.0	218.0	168.0	149.0	106.0
29	134.0	140.0	136.0	132.0	0.0	157.0	230.0	285.0	228.0	170.0	153.0	117.0
30	138.0	140.0	136.0	134.0	0.0	159.0	240.0	294.0	240.0	170.0	149.0	122.0
31	126.0	0.0	138.0	132.0	0.0	166.0	0.0	285.0	0.0	170.0	149.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1934

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	128.0	124.0	145.0	132.0	136.0	121.0	113.0	119.0	93.0	85.0	79.0
2	113.0	130.0	124.0	147.0	132.0	136.0	126.0	111.0	117.0	90.0	89.0	79.0
3	106.0	126.0	126.0	145.0	134.0	136.0	121.0	184.0	102.0	106.0	90.0	79.0
4	106.0	126.0	126.0	134.0	136.0	136.0	121.0	190.0	102.0	92.0	92.0	79.0
5	106.0	128.0	126.0	132.0	138.0	136.0	108.0	186.0	102.0	87.0	89.0	84.0
6	106.0	128.0	128.0	132.0	140.0	132.0	111.0	186.0	97.0	95.0	90.0	81.0
7	106.0	128.0	132.0	128.0	138.0	132.0	106.0	206.0	93.0	99.0	87.0	81.0
8	106.0	128.0	128.0	128.0	136.0	132.0	93.0	208.0	95.0	100.0	87.0	81.0
9	106.0	128.0	128.0	128.0	134.0	130.0	93.0	226.0	99.0	99.0	90.0	79.0
10	104.0	128.0	130.0	124.0	134.0	128.0	87.0	240.0	93.0	93.0	89.0	78.0
11	106.0	128.0	130.0	126.0	132.0	124.0	87.0	240.0	97.0	93.0	85.0	84.0
12	104.0	128.0	130.0	128.0	132.0	124.0	97.0	240.0	92.0	93.0	79.0	85.0
13	106.0	126.0	132.0	128.0	134.0	126.0	99.0	240.0	95.0	93.0	82.0	82.0
14	106.0	126.0	132.0	128.0	132.0	124.0	100.0	240.0	97.0	90.0	79.0	79.0
15	102.0	126.0	136.0	128.0	132.0	121.0	109.0	240.0	97.0	92.0	81.0	81.0
16	102.0	128.0	134.0	128.0	132.0	122.0	111.0	240.0	90.0	92.0	81.0	81.0
17	102.0	128.0	132.0	128.0	132.0	122.0	111.0	218.0	90.0	97.0	81.0	81.0
18	102.0	128.0	130.0	126.0	130.0	121.0	113.0	214.0	85.0	90.0	79.0	81.0
19	102.0	128.0	132.0	126.0	132.0	119.0	104.0	210.0	85.0	90.0	79.0	81.0
20	104.0	128.0	132.0	128.0	136.0	117.0	102.0	194.0	99.0	92.0	79.0	79.0
21	102.0	128.0	132.0	134.0	134.0	119.0	102.0	190.0	100.0	92.0	79.0	82.0
22	102.0	128.0	134.0	138.0	136.0	121.0	111.0	184.0	100.0	92.0	79.0	85.0
23	102.0	130.0	136.0	138.0	140.0	121.0	108.0	200.0	99.0	87.0	78.0	109.0
24	104.0	128.0	136.0	160.0	142.0	121.0	109.0	200.0	99.0	90.0	81.0	102.0
25	104.0	128.0	136.0	145.0	140.0	113.0	111.0	204.0	99.0	90.0	81.0	87.0
26	102.0	128.0	142.0	143.0	142.0	113.0	108.0	208.0	99.0	89.0	81.0	76.0
27	102.0	126.0	142.0	147.0	136.0	113.0	102.0	202.0	102.0	85.0	81.0	76.0
28	102.0	128.0	142.0	136.0	136.0	113.0	104.0	210.0	93.0	85.0	78.0	75.0
29	104.0	132.0	142.0	140.0	0.0	121.0	104.0	214.0	92.0	84.0	82.0	75.0
30	109.0	128.0	143.0	136.0	0.0	121.0	104.0	200.0	92.0	82.0	81.0	69.0
31	121.0	0.0	145.0	136.0	0.0	121.0	0.0	168.0	0.0	84.0	79.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1975

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.0	99.0	117.0	113.0	100.0	106.0	214.0	202.0	302.0	186.0	111.0	100.0
2	72.0	106.0	117.0	115.0	99.0	106.0	174.0	186.0	285.0	180.0	104.0	100.0
3	73.0	113.0	117.0	117.0	100.0	113.0	166.0	174.0	267.0	180.0	109.0	99.0
4	78.0	115.0	115.0	115.0	100.0	117.0	170.0	172.0	258.0	198.0	106.0	97.0
5	72.0	113.0	119.0	115.0	108.0	111.0	168.0	172.0	230.0	198.0	108.0	97.0
6	69.0	113.0	117.0	108.0	108.0	100.0	168.0	174.0	230.0	196.0	106.0	93.0
7	69.0	115.0	117.0	111.0	108.0	104.0	162.0	202.0	230.0	186.0	106.0	99.0
8	69.0	113.0	111.0	111.0	113.0	104.0	184.0	188.0	228.0	178.0	108.0	95.0
9	65.0	113.0	111.0	113.0	109.0	104.0	188.0	196.0	216.0	186.0	104.0	97.0
10	68.0	113.0	113.0	115.0	106.0	104.0	186.0	174.0	214.0	192.0	102.0	97.0
11	68.0	113.0	113.0	111.0	102.0	102.0	164.0	214.0	190.0	194.0	102.0	104.0
12	68.0	109.0	113.0	111.0	102.0	102.0	162.0	230.0	186.0	196.0	104.0	102.0
13	68.0	106.0	113.0	113.0	102.0	104.0	157.0	240.0	168.0	196.0	113.0	104.0
14	71.0	108.0	117.0	115.0	99.0	138.0	153.0	240.0	198.0	194.0	100.0	108.0
15	75.0	109.0	117.0	113.0	95.0	372.0	153.0	226.0	210.0	188.0	100.0	108.0
16	76.0	109.0	117.0	113.0	99.0	310.0	240.0	222.0	214.0	182.0	109.0	106.0
17	76.0	109.0	117.0	108.0	99.0	160.0	176.0	258.0	228.0	186.0	109.0	104.0
18	76.0	117.0	117.0	111.0	102.0	153.0	172.0	276.0	218.0	180.0	108.0	100.0
19	79.0	117.0	119.0	115.0	106.0	145.0	192.0	276.0	214.0	182.0	108.0	104.0
20	79.0	117.0	122.0	102.0	106.0	142.0	200.0	258.0	216.0	182.0	106.0	104.0
21	78.0	119.0	124.0	104.0	106.0	140.0	198.0	249.0	216.0	180.0	121.0	104.0
22	81.0	119.0	132.0	104.0	106.0	138.0	190.0	224.0	210.0	184.0	124.0	102.0
23	84.0	119.0	134.0	104.0	106.0	134.0	222.0	230.0	210.0	182.0	124.0	102.0
24	84.0	119.0	132.0	104.0	102.0	134.0	212.0	249.0	216.0	186.0	102.0	100.0
25	82.0	121.0	130.0	104.0	93.0	140.0	186.0	258.0	210.0	188.0	102.0	100.0
26	85.0	119.0	126.0	104.0	95.0	228.0	194.0	249.0	200.0	188.0	106.0	100.0
27	89.0	121.0	119.0	104.0	95.0	220.0	198.0	258.0	190.0	188.0	95.0	97.0
28	95.0	119.0	122.0	102.0	102.0	208.0	200.0	294.0	194.0	172.0	104.0	97.0
29	95.0	121.0	117.0	100.0	0.0	202.0	194.0	318.0	192.0	159.0	106.0	95.0
30	95.0	117.0	117.0	100.0	0.0	226.0	200.0	302.0	194.0	115.0	104.0	89.0
31	97.0	0.0	115.0	100.0	0.0	258.0	0.0	302.0	0.0	113.0	102.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1936

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	117.0	132.0	132.0	102.0	130.0	126.0	412.0	302.0	222.0	240.0	214.0
2	90.0	117.0	134.0	134.0	136.0	130.0	128.0	428.0	294.0	214.0	212.0	190.0
3	87.0	124.0	130.0	138.0	143.0	128.0	128.0	444.0	267.0	222.0	214.0	186.0
4	85.0	121.0	126.0	138.0	145.0	128.0	128.0	476.0	258.0	222.0	218.0	186.0
5	84.0	124.0	130.0	140.0	134.0	128.0	132.0	524.0	267.0	222.0	218.0	180.0
6	89.0	126.0	132.0	109.0	134.0	128.0	130.0	524.0	267.0	222.0	208.0	176.0
7	84.0	130.0	134.0	102.0	130.0	128.0	130.0	444.0	267.0	222.0	198.0	176.0
8	81.0	130.0	132.0	128.0	132.0	130.0	151.0	412.0	258.0	228.0	198.0	178.0
9	81.0	130.0	132.0	140.0	132.0	132.0	162.0	396.0	249.0	228.0	198.0	170.0
10	81.0	132.0	136.0	140.0	128.0	132.0	184.0	396.0	240.0	224.0	200.0	168.0
11	82.0	128.0	142.0	142.0	128.0	130.0	192.0	412.0	240.0	220.0	198.0	174.0
12	84.0	132.0	145.0	145.0	136.0	126.0	249.0	428.0	240.0	228.0	200.0	170.0
13	81.0	132.0	142.0	145.0	136.0	121.0	396.0	428.0	208.0	220.0	216.0	166.0
14	84.0	128.0	138.0	145.0	140.0	128.0	444.0	428.0	206.0	226.0	228.0	174.0
15	89.0	124.0	134.0	143.0	138.0	126.0	444.0	444.0	198.0	226.0	204.0	162.0
16	85.0	136.0	130.0	142.0	142.0	126.0	508.0	444.0	210.0	230.0	196.0	140.0
17	87.0	143.0	108.0	140.0	128.0	124.0	492.0	444.0	218.0	240.0	170.0	136.0
18	87.0	145.0	90.0	134.0	128.0	132.0	476.0	428.0	194.0	240.0	164.0	136.0
19	85.0	142.0	119.0	136.0	128.0	126.0	460.0	302.0	208.0	210.0	164.0	130.0
20	89.0	138.0	130.0	136.0	126.0	130.0	428.0	302.0	202.0	202.0	164.0	128.0
21	89.0	138.0	130.0	132.0	128.0	128.0	412.0	285.0	214.0	222.0	160.0	126.0
22	89.0	138.0	130.0	122.0	162.0	130.0	444.0	267.0	210.0	230.0	162.0	124.0
23	90.0	138.0	134.0	124.0	166.0	128.0	460.0	267.0	214.0	230.0	174.0	122.0
24	93.0	138.0	136.0	124.0	153.0	128.0	508.0	249.0	206.0	230.0	178.0	121.0
25	92.0	134.0	132.0	117.0	142.0	130.0	492.0	240.0	206.0	230.0	170.0	122.0
26	92.0	136.0	128.0	130.0	143.0	130.0	460.0	249.0	240.0	230.0	159.0	124.0
27	89.0	138.0	129.0	136.0	140.0	136.0	412.0	294.0	240.0	230.0	151.0	124.0
28	95.0	134.0	130.0	143.0	134.0	132.0	428.0	294.0	240.0	230.0	155.0	121.0
29	97.0	134.0	132.0	130.0	134.0	126.0	412.0	302.0	230.0	230.0	180.0	122.0
30	102.0	134.0	134.0	128.0	0.0	124.0	428.0	276.0	230.0	230.0	222.0	122.0
31	102.0	0.0	134.0	108.0	0.0	134.0	0.0	258.0	0.0	228.0	218.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1937

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	121.0	126.0	130.0	119.0	128.0	192.0	206.0	249.0	210.0	196.0	108.0
2	121.0	121.0	122.0	119.0	119.0	130.0	192.0	214.0	240.0	214.0	192.0	104.0
3	119.0	121.0	119.0	121.0	122.0	132.0	198.0	258.0	202.0	216.0	192.0	109.0
4	117.0	121.0	126.0	122.0	122.0	132.0	206.0	249.0	208.0	202.0	188.0	109.0
5	117.0	128.0	128.0	122.0	134.0	132.0	218.0	258.0	212.0	200.0	182.0	111.0
6	117.0	130.0	130.0	122.0	126.0	134.0	222.0	302.0	214.0	214.0	182.0	109.0
7	121.0	134.0	130.0	122.0	126.0	136.0	200.0	294.0	222.0	214.0	182.0	109.0
8	121.0	134.0	128.0	122.0	124.0	132.0	182.0	310.0	222.0	230.0	182.0	119.0
9	113.0	134.0	126.0	122.0	124.0	134.0	186.0	326.0	230.0	230.0	182.0	111.0
10	115.0	132.0	130.0	122.0	122.0	134.0	198.0	334.0	230.0	216.0	176.0	108.0
11	119.0	138.0	130.0	122.0	121.0	140.0	222.0	310.0	230.0	210.0	176.0	104.0
12	117.0	136.0	119.0	121.0	121.0	145.0	226.0	294.0	228.0	210.0	180.0	104.0
13	117.0	134.0	122.0	121.0	121.0	145.0	258.0	285.0	226.0	214.0	176.0	104.0
14	113.0	136.0	126.0	122.0	126.0	142.0	326.0	294.0	216.0	228.0	176.0	106.0
15	117.0	134.0	126.0	122.0	128.0	142.0	358.0	285.0	210.0	240.0	180.0	106.0
16	113.0	130.0	130.0	124.0	124.0	153.0	326.0	285.0	206.0	228.0	172.0	108.0
17	113.0	130.0	126.0	124.0	124.0	157.0	310.0	276.0	202.0	208.0	164.0	109.0
18	113.0	138.0	122.0	122.0	132.0	151.0	249.0	267.0	206.0	208.0	160.0	108.0
19	117.0	130.0	122.0	122.0	136.0	155.0	240.0	276.0	212.0	206.0	151.0	109.0
20	124.0	130.0	124.0	122.0	122.0	155.0	222.0	267.0	210.0	206.0	117.0	109.0
21	132.0	130.0	122.0	122.0	126.0	149.0	226.0	258.0	208.0	198.0	113.0	111.0
22	132.0	130.0	122.0	122.0	126.0	155.0	214.0	240.0	208.0	192.0	113.0	111.0
23	132.0	130.0	124.0	122.0	124.0	162.0	206.0	240.0	198.0	202.0	113.0	111.0
24	132.0	130.0	126.0	122.0	126.0	151.0	206.0	240.0	202.0	196.0	102.0	111.0
25	126.0	130.0	126.0	122.0	126.0	143.0	194.0	240.0	210.0	188.0	106.0	113.0
26	121.0	128.0	124.0	122.0	126.0	157.0	206.0	258.0	204.0	192.0	106.0	113.0
27	121.0	124.0	128.0	122.0	126.0	155.0	214.0	249.0	210.0	196.0	109.0	113.0
28	117.0	124.0	132.0	122.0	130.0	155.0	218.0	249.0	214.0	192.0	109.0	113.0
29	117.0	126.0	130.0	122.0	0.0	159.0	214.0	249.0	220.0	192.0	109.0	113.0
30	119.0	126.0	126.0	122.0	0.0	162.0	202.0	249.0	214.0	188.0	111.0	119.0
31	119.0	0.0	128.0	121.0	0.0	170.0	0.0	258.0	0.0	192.0	108.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1958

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	126.0	145.0	126.0	130.0	267.0	166.0	380.0	294.0	249.0	230.0	214.0
2	113.0	126.0	143.0	128.0	134.0	249.0	168.0	372.0	302.0	267.0	230.0	216.0
3	115.0	128.0	142.0	134.0	134.0	258.0	164.0	365.0	302.0	267.0	230.0	214.0
4	115.0	124.0	140.0	130.0	132.0	285.0	168.0	326.0	294.0	285.0	230.0	214.0
5	111.0	124.0	140.0	134.0	132.0	214.0	186.0	310.0	285.0	258.0	228.0	214.0
6	115.0	124.0	140.0	134.0	130.0	192.0	194.0	294.0	285.0	249.0	224.0	210.0
7	119.0	124.0	140.0	130.0	134.0	192.0	188.0	267.0	249.0	240.0	220.0	198.0
8	115.0	122.0	140.0	130.0	134.0	172.0	176.0	267.0	249.0	220.0	220.0	190.0
9	115.0	126.0	142.0	130.0	138.0	172.0	180.0	258.0	258.0	216.0	218.0	198.0
10	117.0	124.0	160.0	130.0	168.0	170.0	186.0	258.0	249.0	226.0	218.0	202.0
11	124.0	124.0	208.0	134.0	214.0	180.0	182.0	249.0	249.0	176.0	218.0	202.0
12	124.0	124.0	249.0	134.0	310.0	176.0	178.0	249.0	267.0	176.0	218.0	202.0
13	126.0	124.0	180.0	134.0	194.0	190.0	182.0	258.0	276.0	176.0	222.0	202.0
14	134.0	126.0	174.0	132.0	186.0	196.0	186.0	267.0	276.0	222.0	212.0	202.0
15	134.0	128.0	162.0	132.0	159.0	194.0	192.0	258.0	276.0	228.0	210.0	200.0
16	134.0	132.0	157.0	151.0	160.0	212.0	194.0	318.0	276.0	230.0	220.0	194.0
17	136.0	140.0	157.0	145.0	145.0	220.0	216.0	334.0	267.0	226.0	220.0	190.0
18	136.0	145.0	157.0	143.0	142.0	208.0	249.0	358.0	267.0	218.0	220.0	186.0
19	132.0	143.0	149.0	140.0	145.0	212.0	326.0	358.0	267.0	220.0	220.0	147.0
20	132.0	145.0	149.0	126.0	145.0	206.0	342.0	294.0	276.0	216.0	212.0	143.0
21	132.0	182.0	147.0	130.0	142.0	190.0	334.0	302.0	267.0	216.0	210.0	128.0
22	130.0	166.0	147.0	134.0	142.0	166.0	326.0	267.0	258.0	212.0	210.0	122.0
23	130.0	155.0	143.0	134.0	142.0	184.0	358.0	258.0	249.0	218.0	210.0	121.0
24	130.0	147.0	143.0	130.0	142.0	180.0	358.0	249.0	249.0	224.0	210.0	121.0
25	130.0	147.0	143.0	126.0	138.0	176.0	372.0	249.0	249.0	224.0	194.0	121.0
26	128.0	143.0	143.0	126.0	138.0	178.0	396.0	276.0	249.0	230.0	212.0	119.0
27	128.0	145.0	143.0	122.0	149.0	180.0	372.0	285.0	249.0	230.0	214.0	121.0
28	124.0	145.0	140.0	124.0	155.0	178.0	372.0	302.0	240.0	222.0	214.0	119.0
29	124.0	145.0	138.0	124.0	0.0	180.0	372.0	294.0	240.0	218.0	214.0	121.0
30	128.0	145.0	134.0	124.0	0.0	174.0	372.0	302.0	240.0	212.0	216.0	121.0
31	126.0	0.0	134.0	130.0	0.0	162.0	0.0	302.0	0.0	230.0	214.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	151.0	147.0	151.0	145.0	143.0	249.0	210.0	224.0	192.0	100.0	102.0
2	121.0	151.0	147.0	149.0	138.0	143.0	249.0	210.0	220.0	192.0	102.0	102.0
3	121.0	147.0	153.0	147.0	140.0	142.0	216.0	202.0	222.0	188.0	100.0	104.0
4	121.0	151.0	151.0	147.0	143.0	143.0	224.0	202.0	224.0	206.0	100.0	102.0
5	121.0	164.0	151.0	151.0	145.0	145.0	220.0	198.0	224.0	206.0	100.0	106.0
6	115.0	160.0	151.0	151.0	145.0	145.0	204.0	194.0	230.0	210.0	100.0	106.0
7	121.0	159.0	151.0	151.0	145.0	145.0	196.0	190.0	228.0	196.0	100.0	106.0
8	121.0	160.0	155.0	147.0	143.0	147.0	190.0	182.0	224.0	188.0	100.0	95.0
9	124.0	160.0	159.0	143.0	143.0	147.0	190.0	194.0	220.0	180.0	99.0	92.0
10	124.0	160.0	155.0	145.0	143.0	149.0	190.0	202.0	216.0	196.0	93.0	92.0
11	124.0	160.0	155.0	145.0	143.0	153.0	190.0	204.0	212.0	190.0	99.0	93.0
12	124.0	160.0	151.0	145.0	143.0	160.0	188.0	240.0	214.0	194.0	93.0	117.0
13	124.0	151.0	149.0	145.0	145.0	160.0	188.0	222.0	210.0	192.0	100.0	113.0
14	124.0	149.0	147.0	145.0	147.0	157.0	194.0	222.0	210.0	196.0	102.0	87.0
15	126.0	149.0	143.0	145.0	151.0	160.0	226.0	226.0	206.0	196.0	102.0	87.0
16	124.0	153.0	145.0	145.0	151.0	164.0	194.0	230.0	218.0	184.0	99.0	104.0
17	132.0	151.0	145.0	145.0	147.0	204.0	196.0	226.0	220.0	184.0	99.0	104.0
18	136.0	153.0	147.0	145.0	143.0	310.0	196.0	226.0	222.0	184.0	95.0	104.0
19	136.0	151.0	147.0	145.0	143.0	460.0	196.0	224.0	210.0	159.0	97.0	106.0
20	136.0	149.0	147.0	145.0	145.0	388.0	196.0	224.0	198.0	124.0	99.0	102.0
21	136.0	147.0	145.0	145.0	143.0	240.0	196.0	224.0	198.0	115.0	99.0	102.0
22	134.0	145.0	147.0	145.0	140.0	258.0	196.0	224.0	178.0	111.0	97.0	102.0
23	134.0	142.0	147.0	147.0	140.0	276.0	198.0	230.0	170.0	106.0	99.0	102.0
24	134.0	147.0	147.0	145.0	142.0	294.0	200.0	228.0	170.0	106.0	102.0	106.0
25	136.0	147.0	147.0	145.0	143.0	285.0	192.0	230.0	170.0	108.0	102.0	109.0
26	136.0	147.0	147.0	143.0	143.0	285.0	196.0	230.0	168.0	100.0	102.0	117.0
27	136.0	143.0	147.0	143.0	145.0	258.0	192.0	230.0	170.0	104.0	102.0	119.0
28	134.0	140.0	147.0	145.0	145.0	249.0	192.0	228.0	188.0	106.0	102.0	115.0
29	134.0	140.0	147.0	147.0	0.0	240.0	192.0	226.0	188.0	108.0	102.0	106.0
30	136.0	140.0	147.0	147.0	0.0	230.0	214.0	222.0	188.0	108.0	102.0	106.0
31	151.0	0.0	147.0	145.0	0.0	258.0	0.0	224.0	0.0	108.0	104.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1940

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	119.0	128.0	130.0	136.0	202.0	155.0	160.0	210.0	128.0	104.0	99.0
2	109.0	122.0	130.0	132.0	136.0	196.0	153.0	159.0	210.0	124.0	109.0	90.0
3	113.0	124.0	126.0	134.0	138.0	182.0	149.0	143.0	210.0	121.0	106.0	102.0
4	113.0	122.0	126.0	138.0	140.0	182.0	147.0	142.0	210.0	113.0	106.0	102.0
5	113.0	122.0	126.0	136.0	138.0	178.0	151.0	142.0	216.0	109.0	102.0	97.0
6	117.0	122.0	128.0	134.0	138.0	180.0	151.0	142.0	230.0	95.0	106.0	97.0
7	121.0	122.0	128.0	134.0	134.0	159.0	149.0	142.0	214.0	93.0	99.0	97.0
8	121.0	122.0	128.0	134.0	134.0	162.0	151.0	128.0	214.0	90.0	102.0	95.0
9	121.0	122.0	130.0	136.0	134.0	162.0	155.0	124.0	210.0	95.0	106.0	84.0
10	121.0	122.0	130.0	140.0	132.0	164.0	170.0	119.0	206.0	99.0	104.0	84.0
11	121.0	122.0	128.0	136.0	132.0	153.0	162.0	124.0	202.0	108.0	106.0	82.0
12	121.0	122.0	130.0	134.0	132.0	153.0	149.0	147.0	194.0	100.0	102.0	84.0
13	121.0	122.0	130.0	128.0	132.0	155.0	151.0	159.0	178.0	108.0	100.0	81.0
14	122.0	126.0	130.0	128.0	130.0	153.0	162.0	186.0	172.0	100.0	99.0	82.0
15	122.0	126.0	130.0	124.0	130.0	151.0	166.0	180.0	182.0	99.0	100.0	82.0
16	124.0	126.0	130.0	128.0	132.0	151.0	166.0	176.0	190.0	100.0	99.0	82.0
17	124.0	126.0	130.0	130.0	132.0	151.0	162.0	168.0	194.0	100.0	99.0	81.0
18	128.0	126.0	122.0	130.0	132.0	151.0	164.0	151.0	192.0	100.0	95.0	87.0
19	128.0	126.0	126.0	115.0	132.0	151.0	166.0	145.0	198.0	108.0	100.0	108.0
20	126.0	126.0	126.0	126.0	132.0	147.0	182.0	145.0	200.0	104.0	97.0	106.0
21	126.0	126.0	126.0	122.0	132.0	145.0	174.0	145.0	204.0	106.0	100.0	99.0
22	126.0	126.0	126.0	124.0	132.0	143.0	174.0	147.0	198.0	108.0	100.0	99.0
23	126.0	126.0	122.0	126.0	132.0	143.0	174.0	155.0	194.0	104.0	99.0	97.0
24	126.0	126.0	126.0	130.0	132.0	151.0	180.0	136.0	194.0	104.0	97.0	95.0
25	126.0	126.0	126.0	128.0	136.0	168.0	180.0	129.0	190.0	104.0	99.0	95.0
26	126.0	130.0	122.0	132.0	143.0	174.0	182.0	159.0	182.0	104.0	102.0	95.0
27	128.0	128.0	130.0	134.0	186.0	180.0	180.0	180.0	162.0	102.0	102.0	106.0
28	124.0	126.0	130.0	134.0	222.0	172.0	176.0	174.0	151.0	104.0	100.0	111.0
29	124.0	126.0	130.0	132.0	214.0	153.0	178.0	174.0	138.0	102.0	99.0	111.0
30	124.0	128.0	130.0	136.0	0.0	153.0	172.0	180.0	109.0	99.0	99.0	111.0
31	119.0	0.0	130.0	138.0	0.0	155.0	0.0	208.0	0.0	106.0	97.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1941

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	115.0	126.0	121.0	117.0	140.0	168.0	204.0	159.0	210.0	168.0	89.0
2	102.0	115.0	126.0	115.0	130.0	186.0	168.0	222.0	159.0	206.0	155.0	89.0
3	102.0	115.0	124.0	106.0	115.0	186.0	170.0	226.0	145.0	202.0	147.0	89.0
4	102.0	115.0	122.0	102.0	113.0	176.0	164.0	226.0	147.0	198.0	128.0	85.0
5	104.0	113.0	124.0	122.0	113.0	166.0	168.0	228.0	145.0	206.0	121.0	92.0
6	104.0	115.0	124.0	122.0	115.0	160.0	172.0	228.0	143.0	194.0	99.0	85.0
7	104.0	113.0	124.0	119.0	117.0	157.0	160.0	228.0	149.0	196.0	102.0	89.0
8	104.0	115.0	122.0	121.0	119.0	153.0	151.0	208.0	145.0	180.0	95.0	89.0
9	104.0	113.0	121.0	121.0	119.0	164.0	147.0	208.0	147.0	176.0	99.0	89.0
10	102.0	115.0	121.0	117.0	119.0	149.0	157.0	214.0	147.0	172.0	95.0	92.0
11	102.0	115.0	117.0	117.0	128.0	151.0	159.0	216.0	151.0	174.0	99.0	95.0
12	100.0	115.0	117.0	109.0	157.0	119.0	159.0	230.0	147.0	178.0	99.0	99.0
13	102.0	115.0	113.0	113.0	136.0	149.0	160.0	240.0	124.0	196.0	97.0	100.0
14	102.0	113.0	113.0	117.0	126.0	130.0	168.0	249.0	117.0	196.0	95.0	99.0
15	100.0	115.0	111.0	122.0	126.0	128.0	162.0	249.0	130.0	200.0	89.0	99.0
16	102.0	115.0	109.0	121.0	128.0	134.0	162.0	249.0	149.0	198.0	89.0	102.0
17	100.0	115.0	117.0	119.0	122.0	155.0	157.0	240.0	172.0	198.0	89.0	97.0
18	99.0	124.0	117.0	115.0	117.0	186.0	160.0	222.0	172.0	198.0	89.0	95.0
19	99.0	117.0	117.0	115.0	119.0	202.0	160.0	220.0	182.0	200.0	89.0	97.0
20	99.0	117.0	119.0	115.0	122.0	218.0	147.0	204.0	190.0	196.0	89.0	99.0
21	99.0	117.0	119.0	117.0	124.0	214.0	147.0	160.0	200.0	190.0	89.0	99.0
22	99.0	117.0	119.0	119.0	124.0	202.0	145.0	159.0	194.0	192.0	89.0	99.0
23	100.0	119.0	122.0	119.0	134.0	188.0	149.0	166.0	166.0	188.0	89.0	99.0
24	102.0	117.0	140.0	119.0	142.0	184.0	151.0	166.0	188.0	188.0	89.0	100.0
25	102.0	117.0	130.0	119.0	151.0	172.0	151.0	166.0	192.0	188.0	89.0	99.0
26	104.0	117.0	124.0	119.0	134.0	162.0	153.0	166.0	190.0	184.0	92.0	99.0
27	108.0	121.0	157.0	117.0	134.0	166.0	180.0	176.0	190.0	184.0	92.0	100.0
28	111.0	122.0	128.0	119.0	132.0	170.0	178.0	176.0	194.0	186.0	89.0	99.0
29	108.0	124.0	128.0	119.0	0.0	174.0	186.0	176.0	198.0	182.0	89.0	97.0
30	108.0	130.0	124.0	117.0	0.0	182.0	196.0	176.0	202.0	178.0	89.0	100.0
31	111.0	0.0	124.0	115.0	0.0	176.0	0.0	160.0	0.0	174.0	89.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1942

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	117.0	126.0	121.0	122.0	117.0	224.0	196.0	216.0	226.0	174.0	166.0
2	106.0	117.0	126.0	121.0	121.0	119.0	228.0	192.0	212.0	230.0	174.0	157.0
3	109.0	121.0	130.0	121.0	121.0	117.0	258.0	186.0	186.0	226.0	176.0	153.0
4	108.0	122.0	145.0	121.0	124.0	117.0	365.0	186.0	190.0	222.0	178.0	149.0
5	109.0	126.0	149.0	121.0	126.0	119.0	444.0	190.0	194.0	220.0	178.0	145.0
6	109.0	126.0	130.0	121.0	128.0	124.0	396.0	194.0	182.0	220.0	176.0	138.0
7	111.0	126.0	128.0	122.0	130.0	124.0	294.0	184.0	178.0	216.0	178.0	134.0
8	113.0	126.0	128.0	122.0	126.0	117.0	230.0	192.0	176.0	214.0	180.0	134.0
9	117.0	126.0	128.0	121.0	126.0	128.0	249.0	192.0	174.0	204.0	180.0	134.0
10	117.0	124.0	126.0	119.0	126.0	140.0	249.0	204.0	170.0	204.0	178.0	134.0
11	117.0	122.0	130.0	119.0	126.0	155.0	249.0	206.0	172.0	194.0	176.0	130.0
12	111.0	124.0	128.0	119.0	119.0	156.0	230.0	218.0	168.0	194.0	188.0	126.0
13	109.0	126.0	126.0	115.0	117.0	157.0	228.0	218.0	159.0	200.0	180.0	119.0
14	109.0	130.0	130.0	111.0	113.0	153.0	240.0	212.0	198.0	188.0	190.0	108.0
15	111.0	132.0	132.0	90.0	121.0	138.0	230.0	208.0	210.0	184.0	188.0	104.0
16	115.0	132.0	128.0	108.0	124.0	138.0	228.0	212.0	208.0	188.0	184.0	100.0
17	115.0	132.0	140.0	119.0	124.0	138.0	212.0	212.0	210.0	190.0	180.0	100.0
18	115.0	134.0	136.0	119.0	117.0	138.0	204.0	210.0	212.0	190.0	176.0	100.0
19	115.0	130.0	128.0	115.0	128.0	138.0	204.0	210.0	206.0	190.0	180.0	100.0
20	115.0	121.0	132.0	113.0	121.0	130.0	224.0	204.0	208.0	190.0	172.0	100.0
21	115.0	122.0	132.0	89.0	121.0	134.0	240.0	210.0	212.0	192.0	172.0	97.0
22	115.0	122.0	130.0	97.0	121.0	142.0	240.0	240.0	212.0	190.0	172.0	97.0
23	115.0	121.0	130.0	122.0	115.0	147.0	240.0	240.0	220.0	190.0	168.0	97.0
24	113.0	121.0	130.0	119.0	115.0	149.0	222.0	249.0	224.0	188.0	168.0	97.0
25	111.0	121.0	128.0	121.0	115.0	142.0	218.0	240.0	228.0	184.0	180.0	97.0
26	115.0	121.0	119.0	124.0	117.0	142.0	216.0	240.0	224.0	184.0	170.0	97.0
27	115.0	122.0	119.0	124.0	117.0	142.0	216.0	249.0	224.0	184.0	170.0	97.0
28	115.0	122.0	119.0	132.0	117.0	145.0	212.0	249.0	224.0	184.0	168.0	97.0
29	119.0	124.0	122.0	134.0	0.0	149.0	200.0	230.0	226.0	180.0	168.0	97.0
30	117.0	126.0	128.0	134.0	0.0	159.0	196.0	224.0	226.0	174.0	168.0	97.0
31	117.0	0.0	124.0	121.0	0.0	188.0	0.0	220.0	0.0	174.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1943

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99.0	116.0	163.0	167.0	151.0	159.0	439.0	377.0	307.0	233.0	216.0	208.0
2	99.0	116.0	163.0	169.0	147.0	163.0	448.0	380.0	354.0	244.0	208.0	208.0
3	97.0	116.0	163.0	171.0	151.0	163.0	430.0	392.0	374.0	233.0	203.0	205.0
4	97.0	120.0	155.0	159.0	151.0	155.0	396.0	392.0	365.0	230.0	233.0	205.0
5	97.0	120.0	143.0	155.0	149.0	147.0	374.0	389.0	360.0	230.0	226.0	205.0
6	97.0	120.0	143.0	151.0	147.0	145.0	365.0	386.0	334.0	230.0	218.0	205.0
7	99.0	120.0	143.0	147.0	147.0	147.0	347.0	377.0	319.0	230.0	218.0	208.0
8	97.0	120.0	145.0	147.0	145.0	179.0	353.0	368.0	304.0	230.0	222.0	208.0
9	97.0	120.0	149.0	145.0	147.0	179.0	340.0	362.0	301.0	230.0	226.0	205.0
10	97.0	122.0	153.0	147.0	147.0	171.0	374.0	344.0	298.0	230.0	229.0	205.0
11	97.0	124.0	149.0	143.0	147.0	167.0	334.0	334.0	304.0	233.0	233.0	205.0
12	99.0	126.0	143.0	141.0	145.0	171.0	319.0	334.0	319.0	229.0	237.0	201.0
13	106.0	126.0	143.0	143.0	147.0	171.0	339.0	319.0	334.0	229.0	233.0	199.0
14	107.0	128.0	143.0	143.0	147.0	248.0	362.0	304.0	337.0	222.0	233.0	201.0
15	106.0	124.0	143.0	143.0	143.0	237.0	380.0	301.0	319.0	233.0	233.0	201.0
16	106.0	124.0	147.0	139.0	143.0	214.0	392.0	294.0	316.0	229.0	231.0	199.0
17	106.0	126.0	143.0	135.0	145.0	179.0	395.0	294.0	319.0	222.0	226.0	177.0
18	107.0	124.0	139.0	133.0	147.0	175.0	421.0	288.0	307.0	222.0	220.0	155.0
19	107.0	163.0	137.0	135.0	147.0	167.0	445.0	288.0	301.0	222.0	214.0	143.0
20	111.0	145.0	143.0	135.0	155.0	159.0	457.0	285.0	278.0	229.0	214.0	139.0
21	109.0	137.0	143.0	147.0	183.0	159.0	451.0	272.0	269.0	233.0	208.0	137.0
22	113.0	133.0	143.0	203.0	191.0	167.0	416.0	269.0	255.0	248.0	214.0	135.0
23	116.0	133.0	143.0	222.0	179.0	169.0	410.0	275.0	226.0	255.0	214.0	135.0
24	113.0	137.0	143.0	175.0	171.0	189.0	413.0	291.0	226.0	233.0	214.0	131.0
25	109.0	137.0	151.0	159.0	167.0	288.0	407.0	285.0	214.0	237.0	216.0	130.0
26	109.0	145.0	149.0	155.0	159.0	233.0	401.0	278.0	203.0	237.0	210.0	131.0
27	109.0	157.0	147.0	155.0	155.0	404.0	398.0	270.0	203.0	229.0	214.0	135.0
28	106.0	149.0	143.0	155.0	155.0	404.0	383.0	272.0	203.0	214.0	210.0	139.0
29	106.0	149.0	143.0	155.0	0.0	445.0	374.0	272.0	203.0	216.0	210.0	137.0
30	111.0	153.0	147.0	153.0	0.0	489.0	374.0	278.0	199.0	214.0	210.0	135.0
31	109.0	0.0	167.0	147.0	0.0	445.0	0.0	294.0	0.0	210.0	207.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1944

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	149.0	161.0	143.0	133.0	143.0	246.0	208.0	214.0	199.0	205.0	185.0
2	133.0	149.0	159.0	141.0	133.0	147.0	313.0	203.0	222.0	226.0	212.0	189.0
3	133.0	149.0	161.0	141.0	133.0	151.0	316.0	207.0	237.0	224.0	210.0	189.0
4	133.0	161.0	161.0	141.0	133.0	149.0	310.0	203.0	233.0	224.0	210.0	193.0
5	137.0	173.0	161.0	141.0	137.0	143.0	262.0	205.0	229.0	218.0	199.0	193.0
6	141.0	161.0	157.0	141.0	141.0	137.0	244.0	210.0	226.0	218.0	199.0	193.0
7	137.0	157.0	153.0	143.0	145.0	137.0	237.0	218.0	251.0	212.0	203.0	189.0
8	141.0	157.0	153.0	137.0	145.0	139.0	214.0	214.0	258.0	216.0	203.0	185.0
9	137.0	153.0	149.0	137.0	145.0	159.0	214.0	203.0	275.0	218.0	203.0	185.0
10	137.0	153.0	149.0	137.0	145.0	167.0	207.0	222.0	372.0	218.0	203.0	193.0
11	139.0	151.0	145.0	137.0	141.0	171.0	195.0	233.0	360.0	222.0	203.0	179.0
12	149.0	149.0	141.0	137.0	141.0	191.0	191.0	244.0	344.0	220.0	197.0	177.0
13	141.0	149.0	141.0	137.0	135.0	167.0	191.0	244.0	337.0	220.0	197.0	175.0
14	151.0	149.0	139.0	137.0	137.0	159.0	195.0	241.0	318.0	216.0	199.0	169.0
15	151.0	149.0	141.0	137.0	137.0	145.0	187.0	241.0	293.0	212.0	197.0	153.0
16	145.0	153.0	141.0	141.0	137.0	145.0	187.0	241.0	272.0	216.0	197.0	130.0
17	143.0	153.0	141.0	139.0	137.0	153.0	187.0	241.0	248.0	218.0	197.0	128.0
18	143.0	151.0	139.0	137.0	137.0	159.0	191.0	251.0	237.0	218.0	197.0	131.0
19	143.0	153.0	141.0	137.0	137.0	163.0	191.0	237.0	226.0	218.0	197.0	124.0
20	157.0	155.0	137.0	135.0	137.0	174.0	187.0	222.0	212.0	214.0	195.0	124.0
21	155.0	153.0	141.0	133.0	135.0	185.0	187.0	218.0	207.0	214.0	195.0	122.0
22	157.0	155.0	141.0	135.0	137.0	193.0	183.0	214.0	201.0	214.0	195.0	120.0
23	153.0	157.0	141.0	139.0	135.0	189.0	183.0	214.0	203.0	212.0	195.0	120.0
24	149.0	155.0	137.0	137.0	135.0	183.0	183.0	214.0	197.0	210.0	195.0	120.0
25	149.0	155.0	137.0	133.0	137.0	179.0	183.0	195.0	187.0	205.0	193.0	120.0
26	149.0	159.0	137.0	133.0	137.0	175.0	191.0	187.0	199.0	199.0	193.0	120.0
27	145.0	161.0	137.0	135.0	137.0	155.0	199.0	187.0	210.0	212.0	185.0	120.0
28	151.0	159.0	141.0	131.0	137.0	155.0	210.0	191.0	205.0	210.0	181.0	124.0
29	153.0	161.0	141.0	130.0	141.0	155.0	214.0	187.0	201.0	205.0	187.0	116.0
30	153.0	161.0	141.0	135.0	0.0	169.0	214.0	183.0	199.0	201.0	189.0	120.0
31	151.0	0.0	141.0	135.0	0.0	195.0	0.0	203.0	0.0	197.0	189.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1945

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	124.0	141.0	135.0	137.0	139.0	220.0	248.0	347.0	203.0	257.0	228.0
2	122.0	124.0	141.0	133.0	167.0	139.0	224.0	267.0	344.0	208.0	258.0	231.0
3	126.0	124.0	141.0	133.0	207.0	139.0	231.0	294.0	350.0	203.0	253.0	231.0
4	122.0	124.0	141.0	137.0	199.0	135.0	235.0	301.0	380.0	203.0	246.0	228.0
5	118.0	143.0	141.0	137.0	183.0	135.0	246.0	331.0	410.0	203.0	242.0	242.0
6	122.0	139.0	141.0	139.0	149.0	131.0	257.0	337.0	410.0	205.0	246.0	253.0
7	122.0	139.0	141.0	143.0	151.0	131.0	237.0	350.0	424.0	228.0	253.0	244.0
8	124.0	143.0	137.0	159.0	151.0	135.0	226.0	350.0	432.0	228.0	250.0	242.0
9	124.0	139.0	133.0	147.0	151.0	135.0	222.0	350.0	439.0	226.0	246.0	242.0
10	124.0	135.0	130.0	143.0	151.0	135.0	207.0	347.0	451.0	220.0	246.0	239.0
11	120.0	155.0	126.0	143.0	151.0	147.0	205.0	353.0	439.0	218.0	251.0	231.0
12	120.0	155.0	118.0	143.0	155.0	207.0	189.0	359.0	410.0	226.0	257.0	228.0
13	124.0	151.0	118.0	145.0	226.0	218.0	189.0	365.0	394.0	226.0	253.0	224.0
14	124.0	147.0	120.0	155.0	454.0	210.0	189.0	395.0	380.0	226.0	250.0	212.0
15	120.0	147.0	120.0	167.0	244.0	199.0	189.0	401.0	313.0	224.0	257.0	189.0
16	122.0	143.0	120.0	159.0	195.0	179.0	191.0	344.0	314.0	220.0	253.0	165.0
17	124.0	143.0	120.0	155.0	187.0	171.0	187.0	350.0	318.0	231.0	242.0	157.0
18	122.0	143.0	120.0	143.0	171.0	163.0	187.0	365.0	286.0	216.0	242.0	157.0
19	122.0	143.0	120.0	139.0	167.0	155.0	187.0	371.0	286.0	224.0	242.0	157.0
20	122.0	143.0	133.0	139.0	155.0	147.0	179.0	371.0	280.0	224.0	242.0	161.0
21	122.0	147.0	137.0	139.0	147.0	151.0	201.0	371.0	269.0	224.0	242.0	205.0
22	122.0	143.0	145.0	139.0	147.0	191.0	228.0	371.0	255.0	224.0	239.0	205.0
23	122.0	147.0	133.0	135.0	143.0	210.0	235.0	356.0	233.0	224.0	240.0	185.0
24	122.0	147.0	133.0	135.0	139.0	199.0	212.0	319.0	222.0	233.0	242.0	177.0
25	122.0	143.0	133.0	135.0	147.0	181.0	212.0	316.0	222.0	250.0	242.0	177.0
26	122.0	143.0	135.0	135.0	147.0	191.0	214.0	313.0	239.0	253.0	239.0	177.0
27	122.0	147.0	135.0	131.0	139.0	191.0	222.0	312.0	231.0	246.0	235.0	177.0
28	122.0	143.0	135.0	131.0	139.0	187.0	218.0	304.0	231.0	250.0	235.0	173.0
29	122.0	139.0	135.0	131.0	0.0	187.0	214.0	319.0	231.0	253.0	231.0	169.0
30	122.0	139.0	135.0	131.0	0.0	187.0	222.0	331.0	231.0	250.0	231.0	165.0
31	122.0	0.0	135.0	131.0	0.0	187.0	0.0	334.0	0.0	253.0	224.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1946

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166.0	170.0	160.0	206.0	160.0	162.0	468.0	649.0	371.0	229.0	225.0	218.0
2	162.0	174.0	160.0	202.0	159.0	162.0	436.0	623.0	368.0	229.0	223.0	214.0
3	159.0	174.0	160.0	194.0	160.0	162.0	436.0	607.0	364.0	227.0	223.0	218.0
4	159.0	170.0	157.0	190.0	160.0	162.0	346.0	539.0	346.0	227.0	218.0	218.0
5	159.0	170.0	157.0	182.0	159.0	159.0	364.0	539.0	309.0	255.0	218.0	223.0
6	160.0	168.0	160.0	166.0	157.0	162.0	364.0	539.0	271.0	255.0	214.0	223.0
7	160.0	166.0	160.0	166.0	160.0	160.0	364.0	539.0	251.0	253.0	210.0	227.0
8	160.0	166.0	157.0	174.0	153.0	155.0	357.0	522.0	251.0	253.0	208.0	227.0
9	160.0	162.0	153.0	170.0	149.0	162.0	357.0	522.0	227.0	253.0	208.0	227.0
10	160.0	162.0	153.0	162.0	153.0	168.0	364.0	505.0	223.0	251.0	208.0	227.0
11	160.0	164.0	153.0	160.0	153.0	214.0	324.0	488.0	223.0	247.0	210.0	206.0
12	162.0	164.0	149.0	157.0	149.0	239.0	346.0	471.0	223.0	247.0	210.0	196.0
13	162.0	164.0	149.0	157.0	157.0	309.0	364.0	418.0	227.0	247.0	210.0	196.0
14	162.0	153.0	151.0	157.0	155.0	301.0	373.0	418.0	229.0	249.0	208.0	196.0
15	162.0	168.0	151.0	160.0	155.0	267.0	418.0	400.0	229.0	255.0	208.0	196.0
16	160.0	168.0	155.0	160.0	155.0	267.0	488.0	382.0	229.0	261.0	208.0	196.0
17	164.0	172.0	155.0	157.0	155.0	227.0	488.0	364.0	229.0	257.0	206.0	176.0
18	160.0	172.0	153.0	157.0	155.0	227.0	505.0	364.0	227.0	257.0	206.0	164.0
19	160.0	172.0	155.0	157.0	159.0	328.0	505.0	346.0	241.0	251.0	192.0	149.0
20	160.0	172.0	155.0	153.0	159.0	346.0	607.0	364.0	241.0	249.0	190.0	145.0
21	162.0	164.0	155.0	155.0	155.0	353.0	623.0	364.0	223.0	245.0	184.0	147.0
22	162.0	153.0	159.0	155.0	159.0	350.0	590.0	368.0	202.0	243.0	192.0	147.0
23	162.0	153.0	155.0	155.0	160.0	357.0	585.0	371.0	194.0	233.0	200.0	143.0
24	164.0	160.0	155.0	162.0	159.0	357.0	583.0	371.0	206.0	212.0	212.0	143.0
25	159.0	164.0	153.0	159.0	162.0	407.0	583.0	371.0	218.0	210.0	210.0	140.0
26	160.0	157.0	162.0	159.0	166.0	407.0	600.0	355.0	220.0	216.0	210.0	142.0
27	160.0	153.0	170.0	155.0	166.0	400.0	661.0	364.0	220.0	218.0	210.0	138.0
28	160.0	157.0	307.0	151.0	166.0	436.0	661.0	364.0	225.0	218.0	210.0	138.0
29	164.0	164.0	360.0	159.0	0.0	468.0	661.0	375.0	220.0	218.0	204.0	138.0
30	168.0	164.0	239.0	157.0	0.0	488.0	655.0	382.0	220.0	223.0	216.0	138.0
31	168.0	0.0	223.0	157.0	0.0	471.0	0.0	375.0	0.0	225.0	220.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1947

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	196.0	188.0	151.0	151.0	168.0	188.0	253.0	174.0	225.0	198.0	182.0
2	140.0	196.0	188.0	151.0	149.0	170.0	192.0	253.0	178.0	231.0	198.0	178.0
3	130.0	196.0	184.0	140.0	149.0	170.0	192.0	257.0	178.0	233.0	198.0	178.0
4	149.0	188.0	184.0	140.0	149.0	170.0	196.0	267.0	206.0	237.0	198.0	147.0
5	155.0	184.0	182.0	140.0	149.0	170.0	200.0	275.0	198.0	239.0	206.0	142.0
6	155.0	180.0	200.0	140.0	155.0	172.0	200.0	271.0	204.0	239.0	194.0	143.0
7	160.0	180.0	200.0	143.0	155.0	172.0	196.0	271.0	204.0	229.0	190.0	159.0
8	164.0	180.0	204.0	147.0	155.0	172.0	192.0	279.0	208.0	212.0	182.0	166.0
9	162.0	176.0	200.0	149.0	151.0	176.0	188.0	290.0	212.0	214.0	200.0	166.0
10	162.0	176.0	196.0	153.0	151.0	200.0	186.0	294.0	220.0	214.0	204.0	166.0
11	163.0	176.0	192.0	153.0	153.0	220.0	184.0	298.0	220.0	212.0	212.0	166.0
12	164.0	172.0	188.0	153.0	153.0	220.0	182.0	307.0	216.0	212.0	216.0	166.0
13	166.0	176.0	192.0	149.0	155.0	204.0	178.0	288.0	216.0	202.0	216.0	162.0
14	166.0	186.0	204.0	145.0	245.0	196.0	176.0	284.0	216.0	198.0	212.0	155.0
15	168.0	174.0	200.0	138.0	237.0	200.0	176.0	280.0	212.0	204.0	208.0	155.0
16	168.0	174.0	178.0	142.0	220.0	204.0	176.0	273.0	192.0	208.0	204.0	147.0
17	174.0	174.0	170.0	145.0	216.0	204.0	176.0	269.0	182.0	206.0	200.0	147.0
18	174.0	174.0	174.0	147.0	190.0	196.0	178.0	245.0	182.0	202.0	200.0	159.0
19	174.0	174.0	174.0	147.0	186.0	192.0	186.0	214.0	170.0	202.0	196.0	166.0
20	174.0	174.0	174.0	147.0	174.0	192.0	210.0	223.0	170.0	200.0	192.0	155.0
21	174.0	174.0	174.0	147.0	170.0	182.0	223.0	216.0	174.0	200.0	192.0	155.0
22	178.0	178.0	174.0	147.0	166.0	182.0	223.0	214.0	174.0	200.0	190.0	147.0
23	182.0	194.0	172.0	147.0	174.0	190.0	223.0	198.0	174.0	200.0	194.0	143.0
24	182.0	198.0	172.0	145.0	176.0	190.0	210.0	186.0	174.0	198.0	190.0	143.0
25	182.0	202.0	172.0	147.0	176.0	190.0	206.0	184.0	174.0	198.0	188.0	143.0
26	178.0	206.0	172.0	149.0	172.0	194.0	216.0	182.0	178.0	198.0	194.0	138.0
27	180.0	210.0	172.0	149.0	168.0	194.0	225.0	180.0	180.0	190.0	194.0	140.0
28	198.0	200.0	172.0	147.0	164.0	194.0	229.0	180.0	198.0	192.0	198.0	142.0
29	206.0	196.0	164.0	149.0	0.0	190.0	233.0	178.0	204.0	202.0	198.0	142.0
30	198.0	192.0	164.0	149.0	0.0	190.0	245.0	170.0	220.0	206.0	198.0	143.0
31	194.0	0.0	157.0	147.0	0.0	190.0	0.0	166.0	0.0	202.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1948

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142.0	138.0	153.0	134.0	140.0	172.0	208.0	280.0	301.0	220.0	233.0	198.0
2	142.0	140.0	149.0	134.0	142.0	159.0	220.0	273.0	288.0	223.0	233.0	196.0
3	142.0	143.0	151.0	138.0	142.0	155.0	257.0	253.0	280.0	223.0	235.0	196.0
4	142.0	145.0	151.0	143.0	142.0	149.0	280.0	253.0	269.0	210.0	235.0	192.0
5	138.0	149.0	147.0	147.0	142.0	149.0	249.0	257.0	257.0	206.0	231.0	192.0
6	138.0	142.0	147.0	147.0	142.0	149.0	239.0	257.0	241.0	204.0	233.0	196.0
7	140.0	145.0	147.0	147.0	142.0	153.0	216.0	257.0	229.0	204.0	235.0	196.0
8	142.0	147.0	147.0	202.0	143.0	153.0	216.0	269.0	216.0	204.0	233.0	194.0
9	142.0	147.0	145.0	190.0	140.0	153.0	257.0	311.0	212.0	214.0	233.0	196.0
10	142.0	151.0	145.0	166.0	140.0	153.0	237.0	311.0	208.0	214.0	235.0	196.0
11	142.0	151.0	142.0	159.0	138.0	153.0	220.0	298.0	196.0	218.0	233.0	196.0
12	142.0	151.0	142.0	149.0	136.0	153.0	198.0	294.0	196.0	220.0	214.0	196.0
13	142.0	151.0	138.0	149.0	136.0	153.0	196.0	303.0	196.0	223.0	214.0	200.0
14	138.0	149.0	138.0	145.0	145.0	153.0	194.0	303.0	196.0	218.0	214.0	204.0
15	138.0	149.0	143.0	145.0	145.0	153.0	196.0	303.0	198.0	218.0	214.0	212.0
16	144.0	149.0	143.0	145.0	145.0	157.0	200.0	318.0	206.0	218.0	214.0	212.0
17	149.0	149.0	143.0	142.0	237.0	157.0	241.0	318.0	210.0	218.0	214.0	216.0
18	145.0	149.0	143.0	142.0	333.0	159.0	261.0	405.0	208.0	214.0	214.0	220.0
19	140.0	149.0	140.0	142.0	333.0	160.0	261.0	413.0	214.0	210.0	212.0	218.0
20	140.0	149.0	143.0	143.0	273.0	188.0	269.0	466.0	296.0	214.0	212.0	225.0
21	140.0	143.0	143.0	143.0	273.0	196.0	277.0	445.0	307.0	214.0	214.0	225.0
22	140.0	140.0	143.0	143.0	443.0	192.0	277.0	434.0	386.0	214.0	216.0	218.0
23	138.0	140.0	140.0	143.0	298.0	296.0	261.0	434.0	400.0	214.0	216.0	218.0
24	138.0	143.0	132.0	143.0	279.0	318.0	249.0	398.0	387.0	210.0	216.0	218.0
25	138.0	143.0	132.0	147.0	214.0	318.0	253.0	380.0	326.0	218.0	214.0	225.0
26	143.0	147.0	132.0	132.0	202.0	337.0	237.0	359.0	303.0	214.0	210.0	218.0
27	142.0	151.0	134.0	128.0	198.0	330.0	237.0	341.0	263.0	227.0	210.0	178.0
28	136.0	147.0	134.0	132.0	196.0	333.0	249.0	341.0	247.0	231.0	206.0	180.0
29	140.0	147.0	134.0	132.0	196.0	300.0	257.0	333.0	235.0	233.0	202.0	159.0
30	140.0	149.0	134.0	132.0	0.0	261.0	273.0	326.0	220.0	233.0	202.0	155.0
31	138.0	0.0	134.0	140.0	0.0	212.0	0.0	318.0	0.0	233.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1949

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.0	149.0	147.0	149.0	138.0	140.0	251.0	294.0	263.0	214.0	223.0	192.0
2	147.0	155.0	147.0	145.0	140.0	140.0	271.0	290.0	271.0	210.0	223.0	192.0
3	143.0	174.0	147.0	149.0	140.0	138.0	290.0	286.0	255.0	218.0	223.0	192.0
4	147.0	159.0	143.0	142.0	136.0	138.0	328.0	282.0	251.0	220.0	223.0	202.0
5	143.0	160.0	147.0	142.0	140.0	138.0	360.0	275.0	247.0	220.0	216.0	202.0
6	151.0	157.0	145.0	145.0	135.0	142.0	378.0	275.0	237.0	225.0	216.0	206.0
7	151.0	157.0	143.0	145.0	135.0	140.0	346.0	267.0	233.0	245.0	216.0	202.0
8	151.0	149.0	143.0	142.0	135.0	143.0	360.0	255.0	225.0	206.0	210.0	202.0
9	147.0	153.0	147.0	145.0	135.0	143.0	371.0	259.0	220.0	206.0	210.0	214.0
10	143.0	157.0	143.0	149.0	135.0	147.0	371.0	267.0	208.0	235.0	210.0	210.0
11	140.0	159.0	149.0	147.0	135.0	155.0	313.0	259.0	202.0	227.0	210.0	214.0
12	142.0	162.0	145.0	143.0	135.0	159.0	309.0	255.0	182.0	223.0	212.0	190.0
13	142.0	159.0	145.0	140.0	135.0	160.0	290.0	267.0	182.0	218.0	212.0	180.0
14	145.0	155.0	142.0	147.0	135.0	168.0	279.0	271.0	178.0	216.0	216.0	164.0
15	147.0	162.0	145.0	147.0	135.0	172.0	259.0	275.0	178.0	216.0	204.0	153.0
16	149.0	159.0	145.0	143.0	140.0	180.0	251.0	279.0	172.0	212.0	220.0	149.0
17	142.0	164.0	149.0	136.0	140.0	188.0	267.0	286.0	168.0	220.0	220.0	132.0
18	143.0	160.0	149.0	136.0	143.0	196.0	271.0	324.0	196.0	223.0	216.0	132.0
19	147.0	160.0	153.0	140.0	140.0	206.0	271.0	353.0	212.0	223.0	212.0	128.0
20	143.0	160.0	153.0	140.0	136.0	235.0	298.0	360.0	216.0	218.0	212.0	128.0
21	147.0	157.0	151.0	132.0	138.0	251.0	290.0	371.0	210.0	218.0	208.0	126.0
22	143.0	149.0	147.0	128.0	136.0	290.0	286.0	328.0	194.0	220.0	202.0	126.0
23	143.0	153.0	143.0	128.0	138.0	290.0	324.0	320.0	210.0	220.0	223.0	126.0
24	149.0	153.0	128.0	124.0	136.0	271.0	328.0	313.0	231.0	225.0	214.0	126.0
25	149.0	153.0	132.0	124.0	136.0	267.0	371.0	294.0	239.0	220.0	210.0	124.0
26	145.0	153.0	151.0	143.0	136.0	255.0	339.0	286.0	229.0	214.0	210.0	121.0
27	149.0	149.0	151.0	147.0	138.0	251.0	328.0	279.0	220.0	206.0	206.0	121.0
28	145.0	149.0	147.0	136.0	136.0	247.0	346.0	269.0	220.0	206.0	204.0	117.0
29	149.0	149.0	143.0	136.0	0.0	239.0	360.0	277.0	225.0	216.0	200.0	130.0
30	151.0	145.0	147.0	132.0	0.0	231.0	364.0	273.0	214.0	225.0	196.0	130.0
31	151.0	0.0	147.0	138.0	0.0	235.0	0.0	277.0	0.0	229.0	196.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1950

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128.0	170.0	162.0	151.0	162.0	294.0	275.0	350.0	573.0	317.0	255.0	239.0
2	128.0	170.0	159.0	147.0	147.0	255.0	364.0	346.0	566.0	298.0	255.0	237.0
3	132.0	166.0	155.0	147.0	147.0	267.0	409.0	342.0	558.0	294.0	251.0	206.0
4	134.0	166.0	151.0	151.0	155.0	275.0	350.0	342.0	556.0	286.0	247.0	202.0
5	138.0	164.0	151.0	147.0	166.0	342.0	332.0	350.0	554.0	286.0	247.0	202.0
6	142.0	162.0	147.0	151.0	170.0	357.0	313.0	313.0	546.0	282.0	243.0	198.0
7	142.0	166.0	147.0	147.0	174.0	294.0	360.0	332.0	534.0	294.0	239.0	196.0
8	147.0	166.0	151.0	147.0	190.0	267.0	382.0	326.0	514.0	298.0	239.0	286.0
9	143.0	170.0	155.0	147.0	186.0	251.0	378.0	330.0	496.0	305.0	243.0	305.0
10	143.0	166.0	155.0	147.0	166.0	235.0	371.0	341.0	490.0	324.0	243.0	298.0
11	143.0	166.0	155.0	147.0	162.0	231.0	350.0	317.0	400.0	317.0	247.0	305.0
12	145.0	162.0	159.0	147.0	155.0	227.0	301.0	328.0	386.0	309.0	247.0	303.0
13	149.0	166.0	162.0	143.0	159.0	223.0	320.0	342.0	382.0	305.0	247.0	305.0
14	145.0	166.0	155.0	143.0	166.0	206.0	328.0	411.0	378.0	305.0	255.0	309.0
15	142.0	166.0	155.0	143.0	174.0	202.0	313.0	488.0	373.0	294.0	255.0	305.0
16	147.0	166.0	151.0	147.0	162.0	218.0	357.0	539.0	368.0	286.0	251.0	305.0
17	151.0	166.0	147.0	151.0	170.0	251.0	364.0	582.0	364.0	282.0	251.0	313.0
18	155.0	166.0	155.0	151.0	174.0	382.0	393.0	634.0	364.0	279.0	247.0	317.0
19	159.0	162.0	151.0	151.0	182.0	371.0	389.0	647.0	360.0	267.0	243.0	317.0
20	164.0	162.0	147.0	151.0	190.0	332.0	382.0	626.0	357.0	263.0	247.0	318.0
21	180.0	159.0	151.0	155.0	182.0	294.0	427.0	628.0	350.0	255.0	247.0	320.0
22	176.0	159.0	151.0	190.0	170.0	286.0	456.0	625.0	346.0	247.0	245.0	320.0
23	176.0	159.0	151.0	251.0	162.0	243.0	450.0	631.0	324.0	243.0	245.0	324.0
24	178.0	155.0	151.0	210.0	214.0	271.0	389.0	657.0	339.0	251.0	247.0	320.0
25	174.0	155.0	147.0	178.0	271.0	267.0	386.0	650.0	342.0	247.0	245.0	317.0
26	182.0	159.0	151.0	178.0	440.0	263.0	382.0	645.0	339.0	255.0	267.0	317.0
27	182.0	162.0	147.0	178.0	414.0	255.0	393.0	639.0	335.0	255.0	263.0	317.0
28	184.0	166.0	151.0	174.0	350.0	243.0	389.0	607.0	324.0	259.0	255.0	260.0
29	176.0	170.0	151.0	174.0	0.0	231.0	375.0	607.0	320.0	255.0	251.0	230.0
30	172.0	162.0	155.0	170.0	0.0	206.0	357.0	607.0	318.0	251.0	247.0	241.0
31	176.0	0.0	155.0	166.0	0.0	239.0	0.0	607.0	0.0	251.0	243.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1951

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247.0	223.0	195.0	184.0	172.0	218.0	241.0	309.0	251.0	229.0	243.0	202.0
2	239.0	223.0	192.0	182.0	180.0	214.0	245.0	313.0	251.0	216.0	239.0	172.0
3	223.0	214.0	196.0	180.0	176.0	210.0	245.0	298.0	247.0	223.0	247.0	168.0
4	227.0	210.0	196.0	180.0	172.0	206.0	245.0	301.0	243.0	231.0	243.0	168.0
5	223.0	210.0	192.0	180.0	176.0	194.0	249.0	309.0	223.0	233.0	235.0	160.0
6	218.0	208.0	192.0	176.0	182.0	194.0	253.0	286.0	210.0	233.0	223.0	157.0
7	218.0	206.0	200.0	176.0	284.0	198.0	261.0	301.0	227.0	235.0	216.0	155.0
8	210.0	202.0	196.0	176.0	359.0	194.0	269.0	305.0	229.0	239.0	216.0	155.0
9	202.0	198.0	192.0	176.0	414.0	198.0	253.0	305.0	251.0	237.0	212.0	151.0
10	202.0	198.0	192.0	176.0	434.0	196.0	249.0	298.0	261.0	241.0	216.0	151.0
11	218.0	202.0	192.0	174.0	333.0	198.0	265.0	309.0	271.0	231.0	220.0	149.0
12	223.0	202.0	192.0	176.0	364.0	194.0	249.0	309.0	275.0	223.0	208.0	147.0
13	220.0	202.0	192.0	176.0	231.0	194.0	288.0	309.0	275.0	210.0	202.0	145.0
14	218.0	202.0	192.0	176.0	227.0	202.0	292.0	298.0	263.0	241.0	194.0	143.0
15	216.0	202.0	192.0	174.0	214.0	210.0	288.0	305.0	263.0	245.0	194.0	143.0
16	218.0	214.0	192.0	172.0	210.0	227.0	300.0	301.0	251.0	237.0	202.0	143.0
17	220.0	218.0	192.0	176.0	210.0	223.0	300.0	298.0	251.0	243.0	194.0	140.0
18	220.0	223.0	190.0	176.0	235.0	235.0	303.0	286.0	247.0	243.0	192.0	140.0
19	216.0	227.0	188.0	176.0	223.0	251.0	315.0	296.0	241.0	239.0	192.0	136.0
20	208.0	231.0	188.0	176.0	231.0	255.0	303.0	301.0	229.0	239.0	196.0	140.0
21	204.0	223.0	190.0	176.0	235.0	267.0	296.0	279.0	227.0	243.0	196.0	149.0
22	208.0	218.0	192.0	176.0	239.0	282.0	288.0	275.0	259.0	282.0	192.0	157.0
23	208.0	214.0	192.0	176.0	227.0	290.0	284.0	275.0	261.0	275.0	192.0	153.0
24	212.0	210.0	190.0	180.0	223.0	290.0	280.0	286.0	269.0	271.0	202.0	153.0
25	216.0	218.0	188.0	180.0	210.0	267.0	280.0	284.0	271.0	259.0	198.0	153.0
26	216.0	210.0	180.0	176.0	206.0	263.0	277.0	290.0	267.0	241.0	200.0	149.0
27	220.0	205.0	182.0	174.0	214.0	259.0	273.0	271.0	261.0	241.0	200.0	149.0
28	216.0	205.0	184.0	176.0	223.0	243.0	280.0	267.0	257.0	237.0	212.0	149.0
29	216.0	200.0	184.0	172.0	0.0	249.0	330.0	263.0	247.0	241.0	208.0	149.0
30	214.0	200.0	184.0	180.0	0.0	265.0	318.0	257.0	239.0	233.0	209.0	149.0
31	218.0	0.0	180.0	176.0	0.0	253.0	0.0	259.0	0.0	241.0	204.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1952

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153.0	164.0	168.0	176.0	182.0	198.0	200.0	642.0	373.0	301.0	212.0	153.0
2	153.0	164.0	168.0	178.0	184.0	202.0	202.0	650.0	369.0	280.0	216.0	151.0
3	151.0	164.0	166.0	176.0	192.0	200.0	210.0	653.0	366.0	271.0	206.0	159.0
4	151.0	166.0	164.0	180.0	184.0	202.0	218.0	665.0	357.0	263.0	210.0	170.0
5	149.0	172.0	159.0	180.0	182.0	198.0	223.0	668.0	346.0	257.0	212.0	178.0
6	149.0	176.0	162.0	176.0	180.0	200.0	286.0	663.0	317.0	253.0	214.0	192.0
7	151.0	180.0	162.0	180.0	176.0	202.0	298.0	657.0	313.0	247.0	218.0	196.0
8	149.0	180.0	162.0	180.0	174.0	202.0	322.0	655.0	307.0	235.0	220.0	204.0
9	147.0	186.0	162.0	178.0	166.0	202.0	341.0	623.0	303.0	229.0	225.0	208.0
10	149.0	186.0	160.0	166.0	174.0	198.0	353.0	595.0	298.0	212.0	225.0	212.0
11	153.0	182.0	159.0	168.0	178.0	196.0	364.0	578.0	294.0	253.0	229.0	214.0
12	153.0	184.0	166.0	172.0	178.0	190.0	400.0	563.0	290.0	280.0	227.0	212.0
13	153.0	188.0	168.0	176.0	180.0	186.0	400.0	546.0	284.0	280.0	231.0	198.0
14	170.0	188.0	170.0	172.0	184.0	182.0	410.0	480.0	273.0	280.0	233.0	194.0
15	166.0	190.0	170.0	172.0	188.0	178.0	471.0	476.0	267.0	260.0	235.0	188.0
16	168.0	188.0	174.0	170.0	190.0	178.0	432.0	468.0	259.0	250.0	235.0	180.0
17	168.0	180.0	178.0	174.0	192.0	178.0	464.0	464.0	251.0	240.0	237.0	178.0
18	164.0	190.0	182.0	178.0	192.0	170.0	486.0	462.0	247.0	230.0	225.0	170.0
19	164.0	192.0	186.0	174.0	194.0	166.0	500.0	452.0	245.0	225.0	220.0	170.0
20	170.0	188.0	188.0	174.0	198.0	162.0	490.0	450.0	239.0	225.0	212.0	168.0
21	166.0	186.0	190.0	170.0	198.0	162.0	476.0	432.0	235.0	218.0	204.0	166.0
22	170.0	188.0	186.0	180.0	196.0	162.0	476.0	418.0	245.0	214.0	198.0	164.0
23	166.0	188.0	180.0	185.0	198.0	166.0	478.0	409.0	249.0	208.0	198.0	164.0
24	166.0	188.0	184.0	192.0	198.0	178.0	480.0	407.0	288.0	204.0	186.0	160.0
25	168.0	180.0	176.0	180.0	200.0	186.0	473.0	404.0	313.0	198.0	182.0	160.0
26	166.0	178.0	186.0	170.0	202.0	186.0	491.0	395.0	318.0	200.0	178.0	159.0
27	166.0	176.0	172.0	168.0	194.0	184.0	515.0	393.0	322.0	196.0	174.0	160.0
28	166.0	172.0	176.0	174.0	194.0	190.0	568.0	391.0	320.0	196.0	172.0	157.0
29	162.0	172.0	184.0	174.0	190.0	194.0	612.0	386.0	309.0	190.0	170.0	151.0
30	162.0	170.0	180.0	178.0	0.0	198.0	620.0	384.0	305.0	202.0	160.0	147.0
31	160.0	0.0	180.0	182.0	0.0	198.0	0.0	382.0	0.0	210.0	157.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1953

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145.0	145.0	170.0	174.0	198.0	186.0	194.0	208.0	279.0	261.0	216.0	194.0
2	142.0	143.0	170.0	174.0	194.0	198.0	190.0	196.0	438.0	263.0	220.0	198.0
3	138.0	145.0	168.0	176.0	206.0	194.0	194.0	182.0	450.0	263.0	223.0	202.0
4	138.0	147.0	166.0	178.0	210.0	194.0	194.0	174.0	450.0	267.0	214.0	206.0
5	136.0	147.0	170.0	180.0	214.0	190.0	194.0	164.0	459.0	269.0	218.0	194.0
6	138.0	143.0	170.0	182.0	218.0	190.0	194.0	172.0	469.0	267.0	216.0	194.0
7	138.0	143.0	170.0	182.0	218.0	192.0	194.0	174.0	436.0	269.0	225.0	194.0
8	142.0	143.0	170.0	190.0	218.0	194.0	194.0	178.0	443.0	267.0	233.0	194.0
9	140.0	151.0	168.0	206.0	214.0	198.0	194.0	160.0	445.0	259.0	192.0	186.0
10	140.0	155.0	166.0	214.0	206.0	202.0	194.0	159.0	452.0	257.0	194.0	190.0
11	142.0	160.0	174.0	206.0	198.0	202.0	190.0	151.0	447.0	253.0	194.0	186.0
12	143.0	162.0	174.0	210.0	190.0	206.0	194.0	147.0	431.0	255.0	194.0	186.0
13	147.0	164.0	176.0	235.0	190.0	210.0	188.0	145.0	423.0	259.0	200.0	194.0
14	149.0	164.0	178.0	231.0	186.0	210.0	180.0	145.0	404.0	253.0	200.0	190.0
15	142.0	166.0	178.0	206.0	198.0	206.0	170.0	145.0	362.0	257.0	212.0	190.0
16	147.0	168.0	176.0	198.0	194.0	202.0	166.0	145.0	326.0	259.0	202.0	186.0
17	147.0	166.0	182.0	210.0	190.0	202.0	172.0	200.0	290.0	259.0	198.0	186.0
18	149.0	168.0	184.0	313.0	186.0	198.0	174.0	216.0	273.0	269.0	202.0	186.0
19	153.0	170.0	186.0	368.0	186.0	194.0	174.0	231.0	263.0	257.0	200.0	186.0
20	157.0	172.0	186.0	305.0	182.0	196.0	180.0	315.0	309.0	212.0	202.0	186.0
21	153.0	176.0	186.0	271.0	182.0	188.0	186.0	300.0	300.0	204.0	204.0	182.0
22	151.0	176.0	184.0	251.0	182.0	188.0	186.0	294.0	301.0	202.0	198.0	178.0
23	151.0	176.0	182.0	235.0	178.0	192.0	196.0	313.0	307.0	206.0	194.0	178.0
24	151.0	172.0	178.0	227.0	178.0	196.0	218.0	341.0	317.0	210.0	190.0	174.0
25	147.0	170.0	178.0	210.0	174.0	200.0	218.0	322.0	326.0	204.0	194.0	166.0
26	147.0	168.0	178.0	206.0	182.0	200.0	220.0	328.0	317.0	204.0	190.0	166.0
27	145.0	168.0	174.0	202.0	186.0	192.0	223.0	320.0	311.0	249.0	186.0	162.0
28	147.0	172.0	174.0	200.0	186.0	196.0	284.0	247.0	282.0	235.0	190.0	159.0
29	147.0	170.0	174.0	202.0	0.0	196.0	263.0	245.0	277.0	227.0	194.0	147.0
30	143.0	172.0	176.0	202.0	0.0	200.0	223.0	251.0	269.0	223.0	198.0	145.0
31	145.0	0.0	178.0	198.0	0.0	196.0	0.0	279.0	0.0	220.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1954

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	166.0	170.0	157.0	153.0	192.0	204.0	190.0	220.0	190.0	162.0	93.0
2	149.0	166.0	178.0	160.0	151.0	188.0	200.0	186.0	218.0	186.0	162.0	102.0
3	147.0	162.0	174.0	168.0	151.0	192.0	208.0	180.0	218.0	186.0	162.0	97.0
4	149.0	166.0	170.0	172.0	147.0	196.0	170.0	172.0	223.0	188.0	162.0	95.0
5	155.0	170.0	170.0	168.0	143.0	200.0	180.0	170.0	216.0	186.0	164.0	95.0
6	151.0	166.0	159.0	164.0	143.0	204.0	190.0	186.0	265.0	184.0	164.0	90.0
7	149.0	166.0	155.0	168.0	143.0	212.0	195.0	192.0	253.0	182.0	160.0	93.0
8	149.0	166.0	162.0	172.0	151.0	233.0	193.0	196.0	251.0	182.0	158.0	93.0
9	149.0	162.0	170.0	172.0	151.0	249.0	190.0	210.0	263.0	180.0	160.0	91.0
10	149.0	164.0	166.0	168.0	151.0	294.0	190.0	214.0	263.0	172.0	159.0	93.0
11	147.0	170.0	174.0	168.0	166.0	305.0	190.0	216.0	269.0	184.0	158.0	95.0
12	147.0	166.0	162.0	164.0	194.0	286.0	186.0	218.0	208.0	192.0	158.0	95.0
13	143.0	166.0	166.0	168.0	198.0	251.0	180.0	218.0	196.0	192.0	158.0	93.0
14	145.0	166.0	170.0	172.0	186.0	235.0	196.0	223.0	190.0	196.0	152.0	95.0
15	142.0	166.0	166.0	159.0	182.0	231.0	184.0	220.0	186.0	190.0	150.0	93.0
16	142.0	166.0	164.0	160.0	170.0	231.0	202.0	225.0	184.0	196.0	150.0	93.0
17	143.0	166.0	162.0	168.0	162.0	227.0	206.0	227.0	180.0	206.0	148.0	93.0
18	143.0	166.0	162.0	164.0	166.0	210.0	218.0	202.0	168.0	210.0	140.0	91.0
19	143.0	164.0	166.0	162.0	143.0	206.0	220.0	188.0	166.0	208.0	138.0	93.0
20	145.0	166.0	162.0	159.0	151.0	206.0	229.0	180.0	162.0	198.0	136.0	93.0
21	149.0	166.0	162.0	159.0	159.0	204.0	233.0	227.0	157.0	188.0	135.0	93.0
22	153.0	166.0	160.0	157.0	170.0	200.0	235.0	259.0	153.0	186.0	135.0	95.0
23	159.0	170.0	159.0	157.0	182.0	208.0	210.0	204.0	196.0	184.0	115.0	99.0
24	162.0	170.0	159.0	159.0	190.0	212.0	215.0	196.0	196.0	180.0	110.0	106.0
25	162.0	166.0	162.0	157.0	198.0	208.0	225.0	180.0	200.0	178.0	106.0	100.0
26	160.0	170.0	159.0	155.0	186.0	202.0	227.0	178.0	192.0	188.0	104.0	102.0
27	164.0	170.0	159.0	153.0	192.0	204.0	231.0	170.0	196.0	186.0	102.0	102.0
28	162.0	174.0	160.0	157.0	192.0	204.0	290.0	184.0	202.0	176.0	100.0	102.0
29	162.0	170.0	168.0	160.0	0.0	198.0	301.0	233.0	200.0	170.0	99.0	102.0
30	162.0	174.0	164.0	160.0	0.0	210.0	223.0	257.0	198.0	166.0	95.0	106.0
31	164.0	0.0	160.0	157.0	0.0	206.0	0.0	237.0	0.0	164.0	95.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1955

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	131.0	131.0	133.0	133.0	127.0	172.0	154.0	228.0	190.0	102.0	108.0
2	108.0	127.0	133.0	133.0	133.0	125.0	198.0	158.0	262.0	176.0	102.0	106.0
3	108.0	135.0	135.0	131.0	133.0	125.0	172.0	160.0	254.0	176.0	102.0	106.0
4	112.0	135.0	139.0	133.0	130.0	123.0	162.0	156.0	241.0	152.0	100.0	100.0
5	114.0	135.0	137.0	133.0	130.0	123.0	151.0	156.0	220.0	151.0	100.0	99.0
6	112.0	137.0	137.0	130.0	130.0	123.0	151.0	162.0	200.0	149.0	100.0	95.0
7	112.0	137.0	143.0	128.0	131.0	125.0	156.0	172.0	190.0	168.0	100.0	91.0
8	110.0	137.0	139.0	125.0	131.0	123.0	162.0	184.0	182.0	170.0	99.0	91.0
9	110.0	133.0	131.0	130.0	131.0	125.0	166.0	190.0	178.0	170.0	100.0	93.0
10	110.0	133.0	135.0	133.0	131.0	129.0	172.0	184.0	170.0	166.0	99.0	93.0
11	112.0	133.0	137.0	133.0	130.0	133.0	170.0	186.0	162.0	160.0	99.0	93.0
12	112.0	139.0	135.0	131.0	129.0	137.0	164.0	186.0	162.0	141.0	99.0	93.0
13	117.0	137.0	139.0	130.0	129.0	139.0	160.0	188.0	182.0	123.0	108.0	93.0
14	115.0	133.0	135.0	130.0	130.0	135.0	162.0	192.0	198.0	110.0	104.0	93.0
15	114.0	135.0	135.0	130.0	131.0	129.0	160.0	194.0	204.0	106.0	104.0	93.0
16	115.0	151.0	133.0	133.0	131.0	127.0	156.0	192.0	206.0	112.0	104.0	91.0
17	114.0	141.0	131.0	132.0	132.0	129.0	158.0	182.0	200.0	114.0	104.0	93.0
18	114.0	139.0	127.0	132.0	128.0	129.0	156.0	166.0	198.0	110.0	108.0	99.0
19	117.0	137.0	129.0	132.0	128.0	131.0	152.0	158.0	196.0	108.0	110.0	93.0
20	119.0	137.0	133.0	132.0	128.0	127.0	152.0	158.0	194.0	110.0	106.0	93.0
21	121.0	137.0	133.0	132.0	129.0	125.0	152.0	166.0	188.0	110.0	106.0	93.0
22	115.0	133.0	131.0	132.0	129.0	129.0	154.0	204.0	188.0	108.0	110.0	91.0
23	119.0	133.0	131.0	133.0	129.0	125.0	154.0	216.0	194.0	110.0	108.0	93.0
24	123.0	133.0	129.0	133.0	129.0	129.0	154.0	218.0	194.0	114.0	102.0	95.0
25	125.0	131.0	131.0	133.0	131.0	129.0	158.0	220.0	192.0	115.0	106.0	100.0
26	125.0	131.0	130.0	133.0	131.0	127.0	156.0	208.0	190.0	119.0	114.0	102.0
27	123.0	129.0	128.0	133.0	129.0	129.0	154.0	200.0	188.0	115.0	115.0	100.0
28	124.0	129.0	125.0	132.0	127.0	137.0	151.0	202.0	188.0	108.0	119.0	100.0
29	125.0	129.0	128.0	130.0	0.0	147.0	149.0	208.0	194.0	104.0	115.0	100.0
30	125.0	133.0	131.0	131.0	0.0	152.0	151.0	214.0	190.0	104.0	114.0	100.0
31	129.0	0.0	133.0	133.0	0.0	147.0	0.0	220.0	0.0	104.0	110.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1956

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	110.0	140.0	146.0	130.0	131.0	375.0	258.0	232.0	214.0	196.0	146.0
2	100.0	108.0	138.0	150.0	125.0	135.0	323.0	255.0	222.0	212.0	172.0	142.0
3	100.0	110.0	135.0	142.0	130.0	138.0	281.0	251.0	214.0	206.0	154.0	138.0
4	106.0	114.0	131.0	144.0	133.0	138.0	258.0	253.0	212.0	204.0	184.0	136.0
5	114.0	116.0	129.0	144.0	136.0	140.0	251.0	258.0	206.0	220.0	180.0	136.0
6	114.0	116.0	133.0	142.0	136.0	135.0	243.0	258.0	200.0	224.0	178.0	135.0
7	108.0	118.0	129.0	138.0	136.0	136.0	236.0	255.0	194.0	210.0	174.0	140.0
8	104.0	118.0	129.0	142.0	135.0	135.0	241.0	253.0	190.0	196.0	170.0	140.0
9	100.0	119.0	133.0	138.0	133.0	140.0	230.0	247.0	184.0	196.0	172.0	136.0
10	100.0	121.0	129.0	138.0	133.0	140.0	230.0	245.0	188.0	204.0	174.0	136.0
11	102.0	123.0	127.0	138.0	136.0	135.0	239.0	255.0	204.0	196.0	174.0	135.0
12	102.0	123.0	129.0	138.0	138.0	135.0	232.0	251.0	204.0	188.0	176.0	116.0
13	104.0	119.0	129.0	144.0	135.0	142.0	241.0	234.0	204.0	184.0	178.0	104.0
14	102.0	129.0	125.0	144.0	133.0	140.0	243.0	224.0	210.0	174.0	178.0	100.0
15	104.0	125.0	123.0	154.0	135.0	136.0	241.0	206.0	220.0	182.0	174.0	100.0
16	104.0	116.0	129.0	190.0	131.0	140.0	251.0	192.0	228.0	184.0	172.0	102.0
17	104.0	133.0	129.0	164.0	135.0	144.0	255.0	188.0	230.0	190.0	174.0	98.0
18	106.0	131.0	127.0	156.0	135.0	146.0	264.0	194.0	228.0	190.0	174.0	97.0
19	106.0	133.0	125.0	160.0	135.0	152.0	272.0	206.0	226.0	188.0	172.0	91.0
20	110.0	136.0	125.0	156.0	136.0	164.0	281.0	220.0	224.0	192.0	172.0	98.0
21	110.0	138.0	131.0	154.0	136.0	170.0	291.0	224.0	230.0	198.0	170.0	97.0
22	114.0	135.0	164.0	154.0	136.0	176.0	302.0	222.0	212.0	200.0	170.0	97.0
23	112.0	135.0	200.0	158.0	136.0	192.0	304.0	220.0	200.0	200.0	168.0	98.0
24	108.0	133.0	222.0	150.0	136.0	245.0	302.0	228.0	198.0	198.0	166.0	98.0
25	108.0	129.0	190.0	148.0	136.0	329.0	293.0	251.0	198.0	200.0	162.0	98.0
26	110.0	131.0	182.0	148.0	136.0	373.0	295.0	245.0	196.0	202.0	158.0	97.0
27	110.0	136.0	188.0	154.0	135.0	304.0	304.0	247.0	194.0	198.0	148.0	98.0
28	110.0	136.0	178.0	140.0	133.0	333.0	297.0	247.0	208.0	198.0	125.0	98.0
29	112.0	136.0	158.0	142.0	131.0	342.0	283.0	268.0	224.0	198.0	142.0	98.0
30	112.0	138.0	156.0	144.0	0.0	369.0	270.0	253.0	222.0	198.0	142.0	100.0
31	112.0	0.0	154.0	138.0	0.0	414.0	0.0	241.0	0.0	202.0	140.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1957

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	135.0	135.0	129.0	129.0	293.0	162.0	194.0	310.0	234.0	218.0	204.0
2	100.0	131.0	135.0	129.0	123.0	226.0	156.0	208.0	312.0	230.0	216.0	206.0
3	102.0	129.0	135.0	127.0	121.0	204.0	156.0	216.0	323.0	220.0	216.0	202.0
4	104.0	136.0	136.0	129.0	121.0	176.0	156.0	204.0	314.0	208.0	214.0	198.0
5	102.0	138.0	142.0	125.0	119.0	180.0	158.0	210.0	304.0	184.0	214.0	188.0
6	102.0	136.0	138.0	125.0	119.0	172.0	188.0	216.0	297.0	144.0	210.0	178.0
7	102.0	138.0	131.0	125.0	119.0	172.0	174.0	224.0	285.0	138.0	204.0	170.0
8	104.0	138.0	129.0	127.0	121.0	206.0	166.0	230.0	272.0	176.0	198.0	168.0
9	104.0	138.0	129.0	127.0	119.0	202.0	162.0	234.0	260.0	192.0	200.0	166.0
10	106.0	136.0	135.0	127.0	118.0	188.0	162.0	236.0	262.0	194.0	194.0	164.0
11	110.0	136.0	146.0	127.0	119.0	168.0	164.0	239.0	247.0	198.0	208.0	158.0
12	119.0	135.0	156.0	125.0	119.0	180.0	168.0	253.0	239.0	210.0	208.0	156.0
13	121.0	136.0	216.0	129.0	118.0	160.0	168.0	304.0	236.0	220.0	206.0	156.0
14	108.0	133.0	204.0	138.0	121.0	160.0	168.0	394.0	230.0	222.0	202.0	156.0
15	106.0	129.0	168.0	131.0	144.0	162.0	168.0	377.0	228.0	198.0	200.0	154.0
16	106.0	136.0	158.0	125.0	140.0	164.0	168.0	346.0	226.0	196.0	198.0	152.0
17	106.0	140.0	148.0	125.0	133.0	166.0	168.0	314.0	232.0	210.0	172.0	150.0
18	108.0	138.0	142.0	121.0	129.0	162.0	166.0	302.0	228.0	210.0	144.0	152.0
19	106.0	131.0	140.0	125.0	133.0	162.0	164.0	407.0	224.0	210.0	168.0	144.0
20	104.0	133.0	138.0	133.0	140.0	164.0	162.0	522.0	216.0	214.0	170.0	144.0
21	104.0	133.0	138.0	129.0	140.0	166.0	168.0	480.0	212.0	222.0	164.0	142.0
22	106.0	133.0	135.0	129.0	180.0	158.0	170.0	458.0	212.0	222.0	162.0	138.0
23	110.0	133.0	136.0	127.0	283.0	150.0	192.0	407.0	210.0	220.0	202.0	135.0
24	116.0	133.0	136.0	125.0	633.0	150.0	194.0	360.0	200.0	218.0	208.0	135.0
25	114.0	133.0	135.0	127.0	922.0	154.0	178.0	348.0	192.0	218.0	206.0	129.0
26	127.0	133.0	131.0	125.0	956.0	152.0	172.0	329.0	182.0	216.0	206.0	118.0
27	142.0	133.0	131.0	125.0	823.0	150.0	168.0	318.0	172.0	214.0	208.0	114.0
28	138.0	135.0	131.0	127.0	509.0	152.0	168.0	316.0	164.0	214.0	216.0	112.0
29	135.0	133.0	131.0	121.0	0.0	154.0	174.0	314.0	190.0	216.0	196.0	112.0
30	135.0	133.0	131.0	121.0	0.0	160.0	188.0	310.0	243.0	218.0	200.0	110.0
31	136.0	0.0	131.0	127.0	0.0	164.0	0.0	312.0	0.0	218.0	202.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1958

STREAM : PORTNUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	142.0	140.0	140.0	140.0	180.0	245.0	226.0	224.0	220.0	202.0	174.0
2	114.0	138.0	140.0	142.0	140.0	178.0	247.0	234.0	214.0	220.0	200.0	172.0
3	118.0	138.0	140.0	144.0	144.0	174.0	245.0	249.0	202.0	220.0	198.0	168.0
4	121.0	140.0	142.0	142.0	144.0	170.0	243.0	266.0	230.0	226.0	200.0	168.0
5	121.0	138.0	144.0	140.0	150.0	168.0	232.0	289.0	234.0	222.0	200.0	168.0
6	121.0	135.0	146.0	138.0	142.0	172.0	226.0	316.0	226.0	218.0	194.0	166.0
7	121.0	133.0	150.0	138.0	144.0	172.0	224.0	327.0	241.0	216.0	190.0	172.0
8	114.0	135.0	150.0	138.0	144.0	174.0	226.0	310.0	247.0	218.0	190.0	172.0
9	114.0	135.0	150.0	138.0	146.0	168.0	228.0	300.0	251.0	220.0	184.0	168.0
10	116.0	133.0	144.0	138.0	148.0	166.0	226.0	308.0	241.0	218.0	180.0	170.0
11	118.0	135.0	142.0	140.0	146.0	166.0	222.0	316.0	239.0	230.0	180.0	166.0
12	121.0	136.0	142.0	140.0	146.0	168.0	218.0	331.0	243.0	236.0	186.0	172.0
13	121.0	140.0	142.0	140.0	152.0	166.0	214.0	318.0	262.0	222.0	190.0	174.0
14	121.0	154.0	142.0	142.0	150.0	166.0	214.0	293.0	245.0	220.0	190.0	150.0
15	121.0	152.0	146.0	142.0	154.0	170.0	216.0	291.0	230.0	218.0	190.0	123.0
16	125.0	146.0	166.0	142.0	170.0	168.0	222.0	274.0	222.0	224.0	190.0	121.0
17	125.0	144.0	174.0	140.0	192.0	168.0	232.0	274.0	220.0	230.0	192.0	112.0
18	123.0	142.0	166.0	142.0	208.0	166.0	266.0	283.0	212.0	230.0	182.0	110.0
19	121.0	152.0	156.0	140.0	226.0	166.0	264.0	287.0	208.0	222.0	180.0	108.0
20	121.0	144.0	158.0	138.0	214.0	170.0	253.0	291.0	204.0	224.0	182.0	104.0
21	123.0	136.0	156.0	140.0	206.0	200.0	268.0	291.0	206.0	222.0	180.0	106.0
22	125.0	138.0	154.0	140.0	196.0	234.0	285.0	287.0	212.0	218.0	184.0	104.0
23	123.0	142.0	144.0	140.0	214.0	239.0	266.0	285.0	212.0	218.0	190.0	102.0
24	123.0	140.0	146.0	146.0	239.0	249.0	247.0	272.0	208.0	220.0	172.0	102.0
25	125.0	140.0	150.0	142.0	276.0	262.0	236.0	260.0	206.0	222.0	168.0	102.0
26	123.0	140.0	150.0	140.0	241.0	251.0	230.0	253.0	208.0	218.0	172.0	104.0
27	127.0	140.0	146.0	140.0	200.0	234.0	222.0	243.0	194.0	216.0	174.0	104.0
28	133.0	140.0	148.0	140.0	186.0	230.0	216.0	239.0	196.0	214.0	176.0	106.0
29	129.0	138.0	146.0	144.0	0.0	236.0	212.0	239.0	206.0	214.0	174.0	106.0
30	133.0	138.0	146.0	154.0	0.0	249.0	216.0	239.0	220.0	214.0	176.0	106.0
31	138.0	0.0	140.0	144.0	0.0	251.0	0.0	230.0	0.0	210.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106.0	114.0	140.0	144.0	138.0	154.0	206.0	202.0	164.0	206.0	97.0	93.0
2	106.0	114.0	142.0	140.0	133.0	162.0	214.0	208.0	150.0	198.0	100.0	95.0
3	104.0	114.0	142.0	133.0	138.0	162.0	212.0	206.0	148.0	200.0	97.0	95.0
4	104.0	116.0	144.0	131.0	142.0	154.0	208.0	198.0	156.0	194.0	93.0	91.0
5	108.0	123.0	142.0	140.0	135.0	156.0	210.0	194.0	158.0	190.0	91.0	89.0
6	110.0	127.0	146.0	144.0	138.0	152.0	214.0	194.0	152.0	188.0	89.0	89.0
7	112.0	129.0	146.0	142.0	140.0	158.0	206.0	188.0	210.0	188.0	89.0	89.0
8	112.0	133.0	150.0	138.0	140.0	156.0	198.0	184.0	222.0	192.0	91.0	89.0
9	112.0	131.0	150.0	138.0	138.0	154.0	192.0	184.0	218.0	196.0	89.0	89.0
10	106.0	135.0	152.0	142.0	140.0	156.0	188.0	186.0	212.0	198.0	87.0	89.0
11	106.0	133.0	174.0	142.0	140.0	156.0	186.0	184.0	210.0	196.0	89.0	91.0
12	102.0	129.0	206.0	142.0	140.0	156.0	186.0	174.0	206.0	194.0	89.0	89.0
13	102.0	129.0	176.0	146.0	138.0	162.0	188.0	182.0	202.0	194.0	87.0	93.0
14	104.0	144.0	158.0	142.0	133.0	160.0	190.0	245.0	210.0	198.0	85.0	93.0
15	104.0	142.0	154.0	140.0	140.0	160.0	192.0	251.0	224.0	190.0	85.0	102.0
16	106.0	140.0	154.0	146.0	144.0	160.0	190.0	258.0	228.0	206.0	85.0	97.0
17	104.0	138.0	150.0	144.0	164.0	168.0	186.0	245.0	224.0	196.0	85.0	97.0
18	102.0	138.0	148.0	144.0	166.0	202.0	184.0	241.0	216.0	176.0	89.0	95.0
19	102.0	142.0	148.0	144.0	158.0	214.0	180.0	216.0	210.0	156.0	97.0	98.0
20	108.0	146.0	146.0	142.0	156.0	198.0	176.0	220.0	210.0	135.0	100.0	97.0
21	110.0	146.0	146.0	136.0	156.0	204.0	174.0	208.0	208.0	108.0	100.0	97.0
22	110.0	146.0	148.0	140.0	156.0	222.0	172.0	218.0	204.0	100.0	95.0	95.0
23	112.0	146.0	148.0	140.0	154.0	253.0	172.0	222.0	200.0	100.0	97.0	95.0
24	112.0	150.0	148.0	142.0	152.0	247.0	178.0	220.0	196.0	108.0	95.0	97.0
25	112.0	146.0	148.0	152.0	146.0	239.0	184.0	218.0	194.0	100.0	93.0	114.0
26	112.0	144.0	142.0	150.0	150.0	234.0	210.0	222.0	206.0	98.0	95.0	131.0
27	110.0	144.0	146.0	146.0	148.0	226.0	222.0	222.0	218.0	100.0	97.0	133.0
28	110.0	138.0	146.0	150.0	150.0	214.0	202.0	200.0	208.0	100.0	97.0	127.0
29	110.0	140.0	140.0	144.0	0.0	210.0	194.0	186.0	204.0	98.0	95.0	119.0
30	110.0	140.0	142.0	138.0	0.0	206.0	194.0	180.0	208.0	98.0	93.0	116.0
31	110.0	0.0	144.0	138.0	0.0	204.0	0.0	172.0	0.0	95.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1960

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.0	119.0	123.0	125.0	125.0	125.0	258.0	184.0	222.0	200.0	85.0	81.0
2	114.0	121.0	121.0	123.0	131.0	127.0	245.0	188.0	222.0	194.0	78.0	87.0
3	116.0	121.0	123.0	121.0	127.0	129.0	255.0	194.0	218.0	194.0	80.0	85.0
4	116.0	123.0	121.0	121.0	123.0	131.0	262.0	200.0	220.0	194.0	78.0	85.0
5	110.0	118.0	118.0	121.0	125.0	135.0	276.0	202.0	216.0	192.0	78.0	81.0
6	112.0	118.0	119.0	121.0	125.0	154.0	283.0	202.0	214.0	198.0	78.0	80.0
7	118.0	121.0	119.0	125.0	127.0	168.0	262.0	206.0	214.0	186.0	76.0	80.0
8	118.0	121.0	119.0	125.0	142.0	200.0	247.0	214.0	216.0	166.0	76.0	80.0
9	121.0	121.0	119.0	125.0	154.0	192.0	247.0	216.0	220.0	160.0	76.0	81.0
10	121.0	123.0	119.0	125.0	138.0	160.0	260.0	216.0	222.0	142.0	78.0	81.0
11	118.0	121.0	121.0	129.0	131.0	150.0	247.0	226.0	218.0	116.0	78.0	78.0
12	119.0	119.0	121.0	129.0	125.0	148.0	236.0	241.0	210.0	106.0	80.0	78.0
13	119.0	119.0	121.0	127.0	127.0	156.0	218.0	249.0	204.0	100.0	78.0	78.0
14	116.0	118.0	119.0	125.0	127.0	160.0	214.0	245.0	204.0	100.0	80.0	78.0
15	118.0	119.0	119.0	127.0	129.0	150.0	204.0	232.0	204.0	102.0	83.0	80.0
16	116.0	119.0	119.0	121.0	129.0	146.0	198.0	224.0	210.0	93.0	85.0	80.0
17	116.0	119.0	119.0	116.0	129.0	144.0	192.0	212.0	212.0	95.0	87.0	81.0
18	118.0	119.0	121.0	118.0	129.0	146.0	192.0	206.0	208.0	89.0	85.0	80.0
19	118.0	123.0	121.0	119.0	131.0	156.0	200.0	194.0	210.0	95.0	85.0	80.0
20	119.0	123.0	119.0	120.0	129.0	168.0	200.0	178.0	210.0	97.0	85.0	80.0
21	119.0	125.0	121.0	121.0	133.0	186.0	204.0	168.0	206.0	93.0	85.0	81.0
22	121.0	125.0	121.0	123.0	131.0	204.0	212.0	164.0	202.0	91.0	87.0	81.0
23	121.0	125.0	121.0	123.0	127.0	228.0	220.0	160.0	198.0	93.0	89.0	81.0
24	119.0	127.0	123.0	121.0	127.0	260.0	218.0	148.0	196.0	91.0	85.0	78.0
25	119.0	125.0	133.0	121.0	127.0	291.0	216.0	180.0	192.0	87.0	83.0	78.0
26	121.0	121.0	127.0	123.0	127.0	337.0	212.0	222.0	204.0	87.0	81.0	78.0
27	119.0	121.0	119.0	123.0	127.0	388.0	206.0	212.0	206.0	85.0	80.0	80.0
28	119.0	121.0	119.0	123.0	129.0	348.0	210.0	208.0	194.0	85.0	80.0	78.0
29	119.0	121.0	119.0	121.0	125.0	270.0	202.0	194.0	188.0	85.0	78.0	78.0
30	118.0	121.0	119.0	123.0	0.0	281.0	188.0	196.0	194.0	83.0	78.0	76.0
31	121.0	0.0	123.0	123.0	0.0	291.0	0.0	220.0	0.0	89.0	80.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1961

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	93.0	119.0	118.0	119.0	123.0	142.0	119.0	166.0	91.0	87.0	87.0
2	76.0	93.0	125.0	116.0	116.0	123.0	142.0	121.0	160.0	80.0	83.0	87.0
3	76.0	95.0	125.0	112.0	119.0	121.0	144.0	127.0	154.0	76.0	81.0	85.0
4	76.0	95.0	121.0	108.0	116.0	121.0	144.0	125.0	156.0	85.0	78.0	83.0
5	76.0	91.0	118.0	106.0	114.0	123.0	142.0	118.0	158.0	98.0	78.0	83.0
6	78.0	93.0	112.0	110.0	116.0	123.0	140.0	118.0	162.0	91.0	80.0	83.0
7	78.0	97.0	106.0	112.0	118.0	121.0	138.0	108.0	160.0	91.0	81.0	83.0
8	85.0	100.0	112.0	114.0	125.0	119.0	136.0	104.0	156.0	85.0	81.0	83.0
9	87.0	98.0	114.0	116.0	136.0	123.0	138.0	100.0	156.0	81.0	81.0	87.0
10	87.0	98.0	114.0	114.0	243.0	123.0	133.0	108.0	158.0	78.0	81.0	89.0
11	87.0	104.0	114.0	114.0	230.0	125.0	129.0	114.0	162.0	83.0	80.0	93.0
12	87.0	108.0	114.0	112.0	208.0	123.0	129.0	112.0	164.0	95.0	83.0	91.0
13	87.0	114.0	112.0	114.0	170.0	133.0	133.0	112.0	162.0	93.0	85.0	89.0
14	85.0	114.0	112.0	114.0	162.0	154.0	131.0	106.0	160.0	93.0	83.0	87.0
15	83.0	110.0	112.0	114.0	142.0	182.0	127.0	110.0	156.0	95.0	83.0	87.0
16	83.0	110.0	114.0	116.0	135.0	222.0	125.0	119.0	154.0	95.0	85.0	87.0
17	85.0	110.0	116.0	118.0	131.0	194.0	121.0	121.0	156.0	93.0	87.0	81.0
18	85.0	119.0	118.0	118.0	129.0	178.0	125.0	116.0	166.0	89.0	83.0	91.0
19	85.0	121.0	118.0	116.0	125.0	162.0	138.0	119.0	148.0	93.0	81.0	102.0
20	87.0	118.0	116.0	116.0	125.0	156.0	136.0	136.0	138.0	91.0	81.0	97.0
21	89.0	114.0	116.0	114.0	127.0	144.0	131.0	123.0	136.0	93.0	81.0	98.0
22	89.0	116.0	116.0	114.0	156.0	148.0	127.0	125.0	142.0	91.0	81.0	93.0
23	89.0	119.0	116.0	114.0	133.0	154.0	125.0	131.0	144.0	91.0	81.0	91.0
24	91.0	125.0	114.0	112.0	131.0	168.0	127.0	133.0	144.0	91.0	85.0	89.0
25	89.0	123.0	116.0	114.0	131.0	164.0	125.0	142.0	144.0	91.0	85.0	87.0
26	91.0	123.0	118.0	114.0	123.0	168.0	121.0	142.0	144.0	91.0	100.0	87.0
27	89.0	123.0	116.0	110.0	123.0	164.0	118.0	150.0	148.0	91.0	83.0	85.0
28	91.0	118.0	114.0	108.0	127.0	154.0	110.0	168.0	142.0	89.0	81.0	87.0
29	95.0	116.0	108.0	112.0	0.0	148.0	112.0	174.0	127.0	89.0	81.0	89.0
30	93.0	118.0	112.0	112.0	0.0	146.0	114.0	172.0	108.0	87.0	83.0	89.0
31	91.0	0.0	116.0	114.0	0.0	144.0	0.0	174.0	0.0	87.0	85.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1962

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	111.0	127.0	120.0	108.0	129.0	290.0	236.0	213.0	198.0	188.0	188.0
2	90.0	122.0	127.0	120.0	110.0	129.0	277.0	226.0	211.0	194.0	182.0	182.0
3	90.0	120.0	139.0	120.0	108.0	126.0	255.0	217.0	211.0	186.0	176.0	180.0
4	90.0	120.0	129.0	122.0	108.0	124.0	242.0	219.0	226.0	174.0	176.0	182.0
5	85.0	117.0	129.0	118.0	108.0	124.0	234.0	228.0	217.0	172.0	182.0	180.0
6	80.0	113.0	126.0	120.0	108.0	126.0	228.0	232.0	209.0	174.0	184.0	178.0
7	82.0	113.0	122.0	135.0	110.0	129.0	232.0	236.0	213.0	178.0	186.0	176.0
8	86.0	117.0	122.0	376.0	113.0	129.0	228.0	232.0	200.0	176.0	194.0	172.0
9	86.0	118.0	118.0	352.0	118.0	131.0	215.0	232.0	192.0	164.0	186.0	168.0
10	86.0	118.0	117.0	188.0	647.0	124.0	207.0	228.0	188.0	174.0	192.0	166.0
11	86.0	120.0	106.0	156.0	1710.0	124.0	203.0	219.0	205.0	180.0	196.0	158.0
12	86.0	118.0	111.0	137.0	3250.0	120.0	203.0	213.0	209.0	174.0	194.0	158.0
13	88.0	115.0	118.0	126.0	1860.0	118.0	209.0	211.0	205.0	184.0	192.0	156.0
14	86.0	115.0	118.0	120.0	1330.0	120.0	222.0	205.0	200.0	200.0	190.0	148.0
15	86.0	117.0	117.0	120.0	740.0	120.0	242.0	203.0	200.0	203.0	198.0	144.0
16	90.0	117.0	110.0	118.0	568.0	120.0	264.0	196.0	196.0	198.0	207.0	140.0
17	85.0	115.0	122.0	117.0	462.0	131.0	273.0	190.0	194.0	194.0	198.0	129.0
18	85.0	113.0	117.0	117.0	326.0	142.0	286.0	180.0	192.0	172.0	203.0	120.0
19	85.0	113.0	126.0	118.0	230.0	144.0	297.0	164.0	196.0	186.0	200.0	120.0
20	85.0	117.0	129.0	122.0	207.0	162.0	330.0	156.0	200.0	188.0	196.0	117.0
21	88.0	118.0	133.0	108.0	178.0	230.0	301.0	160.0	215.0	194.0	196.0	118.0
22	91.0	117.0	126.0	126.0	150.0	228.0	275.0	160.0	215.0	190.0	194.0	117.0
23	88.0	120.0	126.0	122.0	144.0	176.0	275.0	162.0	213.0	152.0	192.0	111.0
24	93.0	120.0	126.0	113.0	139.0	184.0	286.0	182.0	196.0	174.0	192.0	104.0
25	91.0	118.0	126.0	113.0	139.0	174.0	297.0	180.0	190.0	182.0	190.0	101.0
26	91.0	126.0	126.0	113.0	133.0	245.0	295.0	184.0	186.0	178.0	192.0	98.0
27	96.0	127.0	126.0	110.0	126.0	540.0	279.0	190.0	178.0	160.0	190.0	96.0
28	110.0	126.0	124.0	110.0	126.0	828.0	290.0	203.0	176.0	127.0	190.0	94.0
29	101.0	124.0	124.0	108.0	0.0	698.0	271.0	213.0	180.0	172.0	192.0	96.0
30	108.0	126.0	124.0	108.0	0.0	436.0	245.0	213.0	188.0	190.0	190.0	91.0
31	110.0	0.0	122.0	108.0	0.0	319.0	0.0	215.0	0.0	194.0	188.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1963

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.0	104.0	133.0	117.0	2590.0	133.0	144.0	205.0	200.0	160.0	131.0	172.0
2	91.0	104.0	137.0	117.0	1590.0	131.0	142.0	203.0	198.0	156.0	170.0	168.0
3	91.0	104.0	139.0	118.0	665.0	127.0	139.0	203.0	205.0	152.0	178.0	160.0
4	91.0	104.0	122.0	118.0	346.0	127.0	139.0	203.0	207.0	144.0	182.0	156.0
5	93.0	108.0	122.0	117.0	230.0	126.0	135.0	203.0	219.0	150.0	186.0	154.0
6	96.0	108.0	120.0	117.0	186.0	129.0	158.0	211.0	228.0	190.0	188.0	154.0
7	94.0	106.0	120.0	118.0	162.0	127.0	188.0	222.0	209.0	196.0	188.0	154.0
8	93.0	106.0	118.0	118.0	152.0	127.0	215.0	224.0	207.0	188.0	190.0	146.0
9	93.0	106.0	120.0	120.0	146.0	129.0	192.0	271.0	205.0	182.0	190.0	140.0
10	94.0	108.0	118.0	120.0	140.0	131.0	182.0	262.0	232.0	184.0	188.0	137.0
11	96.0	108.0	118.0	110.0	135.0	133.0	172.0	249.0	232.0	182.0	190.0	137.0
12	96.0	108.0	117.0	129.0	131.0	131.0	164.0	249.0	224.0	182.0	188.0	137.0
13	93.0	110.0	115.0	122.0	131.0	127.0	158.0	234.0	213.0	182.0	194.0	139.0
14	99.0	110.0	117.0	111.0	133.0	129.0	162.0	226.0	209.0	182.0	190.0	140.0
15	101.0	113.0	122.0	115.0	131.0	133.0	178.0	226.0	209.0	184.0	180.0	135.0
16	98.0	117.0	120.0	117.0	129.0	127.0	170.0	226.0	228.0	184.0	176.0	135.0
17	96.0	117.0	120.0	117.0	133.0	129.0	164.0	224.0	236.0	180.0	176.0	127.0
18	98.0	118.0	120.0	117.0	133.0	131.0	168.0	224.0	234.0	184.0	178.0	120.0
19	99.0	117.0	122.0	108.0	133.0	131.0	168.0	224.0	219.0	168.0	176.0	118.0
20	99.0	122.0	122.0	111.0	186.0	137.0	170.0	222.0	209.0	184.0	176.0	117.0
21	99.0	127.0	120.0	111.0	160.0	144.0	174.0	219.0	211.0	184.0	174.0	124.0
22	99.0	129.0	122.0	110.0	144.0	150.0	172.0	219.0	207.0	186.0	170.0	118.0
23	101.0	131.0	118.0	108.0	139.0	154.0	172.0	222.0	203.0	186.0	168.0	115.0
24	99.0	127.0	117.0	108.0	137.0	144.0	172.0	224.0	200.0	182.0	170.0	110.0
25	99.0	127.0	110.0	108.0	135.0	135.0	172.0	232.0	200.0	184.0	168.0	108.0
26	103.0	127.0	110.0	106.0	139.0	137.0	174.0	230.0	190.0	180.0	162.0	106.0
27	103.0	129.0	113.0	106.0	137.0	137.0	203.0	224.0	182.0	178.0	168.0	104.0
28	101.0	127.0	113.0	104.0	131.0	172.0	200.0	217.0	176.0	180.0	166.0	104.0
29	99.0	129.0	113.0	106.0	0.0	158.0	198.0	203.0	170.0	176.0	164.0	104.0
30	99.0	131.0	115.0	108.0	0.0	146.0	196.0	198.0	168.0	174.0	164.0	104.0
31	104.0	0.0	115.0	442.0	0.0	144.0	0.0	196.0	0.0	170.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1964

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103.0	118.0	129.0	127.0	124.0	120.0	139.0	260.0	260.0	232.0	204.0	168.0
2	104.0	118.0	126.0	131.0	122.0	120.0	142.0	262.0	260.0	222.0	202.0	162.0
3	106.0	122.0	124.0	129.0	118.0	117.0	140.0	243.0	258.0	218.0	200.0	158.0
4	108.0	126.0	124.0	127.0	120.0	117.0	148.0	234.0	253.0	208.0	182.0	152.0
5	108.0	129.0	124.0	127.0	122.0	117.0	154.0	245.0	260.0	206.0	154.0	148.0
6	103.0	140.0	127.0	131.0	122.0	117.0	152.0	241.0	255.0	200.0	125.0	146.0
7	98.0	140.0	127.0	129.0	122.0	113.0	146.0	232.0	306.0	198.0	168.0	146.0
8	98.0	137.0	129.0	122.0	120.0	113.0	168.0	232.0	320.0	226.0	192.0	144.0
9	98.0	142.0	133.0	126.0	120.0	113.0	253.0	236.0	300.0	224.0	188.0	144.0
10	99.0	144.0	131.0	129.0	122.0	113.0	384.0	247.0	278.0	216.0	190.0	142.0
11	96.0	139.0	127.0	127.0	122.0	113.0	373.0	262.0	268.0	210.0	194.0	146.0
12	99.0	135.0	127.0	124.0	120.0	115.0	337.0	264.0	260.0	222.0	192.0	140.0
13	104.0	135.0	131.0	120.0	120.0	113.0	276.0	274.0	258.0	224.0	196.0	137.0
14	101.0	135.0	131.0	122.0	118.0	111.0	276.0	295.0	251.0	222.0	194.0	142.0
15	99.0	139.0	133.0	124.0	122.0	113.0	310.0	316.0	251.0	212.0	194.0	142.0
16	98.0	142.0	133.0	124.0	124.0	111.0	320.0	323.0	260.0	206.0	194.0	140.0
17	98.0	140.0	135.0	127.0	124.0	111.0	295.0	329.0	325.0	210.0	192.0	126.0
18	98.0	137.0	133.0	129.0	120.0	113.0	255.0	329.0	405.0	210.0	192.0	111.0
19	98.0	140.0	133.0	129.0	122.0	111.0	243.0	331.0	438.0	212.0	190.0	108.0
20	99.0	140.0	133.0	129.0	118.0	110.0	239.0	335.0	394.0	212.0	192.0	104.0
21	101.0	144.0	135.0	127.0	120.0	115.0	236.0	352.0	358.0	212.0	198.0	108.0
22	104.0	139.0	129.0	127.0	120.0	117.0	228.0	352.0	350.0	206.0	194.0	106.0
23	108.0	139.0	127.0	126.0	118.0	117.0	228.0	337.0	331.0	208.0	192.0	108.0
24	113.0	142.0	127.0	124.0	122.0	117.0	224.0	314.0	308.0	214.0	188.0	104.0
25	110.0	139.0	127.0	126.0	120.0	117.0	220.0	300.0	289.0	212.0	184.0	104.0
26	110.0	139.0	127.0	126.0	120.0	120.0	222.0	293.0	278.0	210.0	184.0	106.0
27	111.0	139.0	127.0	122.0	120.0	117.0	216.0	300.0	266.0	208.0	184.0	106.0
28	113.0	135.0	127.0	122.0	118.0	117.0	214.0	302.0	260.0	226.0	184.0	101.0
29	113.0	131.0	126.0	122.0	120.0	120.0	222.0	291.0	255.0	222.0	184.0	101.0
30	120.0	131.0	126.0	124.0	0.0	122.0	236.0	278.0	243.0	212.0	184.0	101.0
31	122.0	0.0	127.0	122.0	0.0	129.0	0.0	266.0	0.0	208.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1965

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101.0	129.0	154.0	176.0	434.0	176.0	194.0	432.0	426.0	250.0	221.0	154.0
2	99.0	135.0	156.0	170.0	264.0	172.0	210.0	444.0	399.0	242.0	217.0	150.0
3	98.0	133.0	154.0	172.0	228.0	170.0	209.0	412.0	389.0	238.0	216.0	146.0
4	98.0	131.0	148.0	174.0	207.0	168.0	200.0	402.0	370.0	231.0	218.0	139.0
5	101.0	131.0	144.0	172.0	198.0	168.0	199.0	390.0	349.0	224.0	216.0	138.0
6	101.0	131.0	140.0	172.0	198.0	170.0	200.0	367.0	327.0	218.0	212.0	140.0
7	99.0	131.0	133.0	180.0	190.0	170.0	208.0	365.0	330.0	217.0	211.0	139.0
8	99.0	131.0	133.0	168.0	182.0	174.0	206.0	380.0	323.0	231.0	207.0	142.0
9	98.0	129.0	137.0	170.0	182.0	178.0	210.0	370.0	316.0	235.0	208.0	150.0
10	103.0	135.0	139.0	168.0	172.0	176.0	211.0	367.0	306.0	236.0	210.0	142.0
11	103.0	140.0	137.0	168.0	166.0	182.0	207.0	365.0	293.0	229.0	206.0	143.0
12	103.0	140.0	127.0	166.0	170.0	182.0	202.0	383.0	282.0	221.0	207.0	142.0
13	103.0	137.0	127.0	162.0	166.0	182.0	203.0	407.0	269.0	215.0	208.0	143.0
14	106.0	133.0	127.0	162.0	168.0	182.0	205.0	429.0	258.0	209.0	205.0	144.0
15	104.0	131.0	131.0	158.0	164.0	182.0	201.0	460.0	247.0	207.0	206.0	146.0
16	106.0	131.0	122.0	158.0	166.0	182.0	204.0	479.0	246.0	206.0	205.0	153.0
17	106.0	137.0	118.0	152.0	164.0	178.0	209.0	493.0	263.0	213.0	199.0	156.0
18	108.0	135.0	122.0	152.0	162.0	166.0	211.0	487.0	278.0	220.0	197.0	154.0
19	108.0	139.0	126.0	154.0	164.0	166.0	235.0	476.0	260.0	230.0	200.0	155.0
20	108.0	137.0	131.0	150.0	170.0	170.0	297.0	481.0	249.0	247.0	204.0	154.0
21	108.0	137.0	152.0	146.0	180.0	176.0	325.0	492.0	249.0	249.0	206.0	152.0
22	110.0	139.0	421.0	146.0	198.0	174.0	353.0	489.0	251.0	236.0	195.0	153.0
23	110.0	139.0	1330.0	150.0	178.0	168.0	398.0	485.0	250.0	231.0	192.0	150.0
24	113.0	139.0	1080.0	154.0	176.0	166.0	375.0	498.0	248.0	229.0	181.0	149.0
25	113.0	150.0	606.0	146.0	174.0	164.0	381.0	480.0	287.0	226.0	173.0	150.0
26	113.0	154.0	326.0	146.0	174.0	172.0	381.0	455.0	310.0	229.0	169.0	151.0
27	120.0	144.0	260.0	150.0	184.0	176.0	369.0	432.0	313.0	227.0	166.0	150.0
28	118.0	144.0	230.0	150.0	186.0	174.0	369.0	417.0	294.0	226.0	165.0	151.0
29	120.0	142.0	211.0	190.0	0.0	178.0	379.0	414.0	273.0	246.0	162.0	153.0
30	126.0	144.0	192.0	552.0	0.0	186.0	406.0	415.0	262.0	238.0	157.0	149.0
31	129.0	0.0	190.0	810.0	0.0	186.0	0.0	425.0	0.0	238.0	153.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1966

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.0	133.0	150.0	146.0	142.0	147.0	340.0	176.0	212.0	165.0	154.0	148.0
2	151.0	133.0	149.0	140.0	142.0	145.0	339.0	177.0	209.0	166.0	151.0	153.0
3	148.0	144.0	150.0	144.0	139.0	140.0	301.0	183.0	209.0	165.0	164.0	152.0
4	145.0	145.0	148.0	144.0	140.0	136.0	268.0	192.0	209.0	183.0	156.0	131.0
5	145.0	147.0	148.0	145.0	142.0	138.0	245.0	200.0	215.0	187.0	137.0	111.0
6	145.0	147.0	146.0	144.0	147.0	144.0	238.0	203.0	212.0	187.0	122.0	108.0
7	144.0	148.0	144.0	158.0	147.0	143.0	236.0	206.0	218.0	188.0	110.0	104.0
8	143.0	149.0	144.0	155.0	144.0	148.0	232.0	206.0	218.0	185.0	106.0	100.0
9	143.0	148.0	143.0	153.0	147.0	150.0	234.0	209.0	221.0	185.0	113.0	97.0
10	144.0	146.0	146.0	153.0	145.0	158.0	239.0	252.0	229.0	178.0	130.0	94.0
11	143.0	148.0	147.0	154.0	143.0	159.0	236.0	273.0	241.0	176.0	139.0	95.0
12	142.0	149.0	146.0	152.0	147.0	158.0	228.0	247.0	224.0	175.0	132.0	95.0
13	143.0	156.0	149.0	154.0	142.0	165.0	218.0	232.0	215.0	178.0	133.0	95.0
14	142.0	163.0	149.0	156.0	148.0	175.0	208.0	212.0	209.0	170.0	133.0	97.0
15	144.0	169.0	138.0	152.0	144.0	181.0	201.0	194.0	203.0	166.0	126.0	102.0
16	143.0	161.0	141.0	147.0	142.0	182.0	205.0	186.0	200.0	164.0	125.0	99.0
17	142.0	163.0	142.0	142.0	143.0	163.0	208.0	171.0	197.0	165.0	124.0	91.0
18	141.0	163.0	134.0	142.0	144.0	162.0	211.0	160.0	192.0	159.0	129.0	78.0
19	143.0	177.0	134.0	145.0	144.0	166.0	203.0	154.0	192.0	159.0	139.0	75.0
20	142.0	169.0	138.0	144.0	146.0	166.0	195.0	148.0	194.0	157.0	135.0	75.0
21	141.0	166.0	136.0	139.0	146.0	174.0	194.0	177.0	197.0	154.0	137.0	76.0
22	140.0	165.0	143.0	142.0	145.0	161.0	186.0	194.0	203.0	152.0	139.0	68.0
23	140.0	169.0	141.0	145.0	145.0	165.0	183.0	238.0	218.0	152.0	140.0	68.0
24	142.0	187.0	139.0	147.0	146.0	163.0	181.0	238.0	209.0	152.0	138.0	70.0
25	141.0	185.0	142.0	142.0	146.0	175.0	179.0	238.0	180.0	151.0	140.0	92.0
26	138.0	174.0	141.0	142.0	148.0	193.0	184.0	226.0	177.0	148.0	144.0	105.0
27	136.0	170.0	139.0	141.0	146.0	228.0	186.0	218.0	180.0	146.0	147.0	108.0
28	134.0	158.0	140.0	141.0	144.0	296.0	182.0	218.0	177.0	145.0	147.0	105.0
29	133.0	154.0	143.0	139.0	0.0	336.0	177.0	212.0	173.0	149.0	145.0	103.0
30	132.0	151.0	151.0	142.0	0.0	353.0	174.0	209.0	170.0	149.0	144.0	96.0
31	132.0	0.0	146.0	142.0	0.0	361.0	0.0	215.0	0.0	150.0	146.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1967

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94.0	92.0	138.0	121.0	128.0	125.0	205.0	146.0	249.0	211.0	170.0	185.0
2	96.0	92.0	148.0	120.0	125.0	126.0	194.0	146.0	251.0	200.0	168.0	186.0
3	99.0	94.0	163.0	117.0	124.0	125.0	188.0	148.0	237.0	190.0	165.0	177.0
4	97.0	95.0	152.0	120.0	124.0	123.0	194.0	152.0	239.0	188.0	196.0	172.0
5	97.0	95.0	156.0	125.0	124.0	122.0	207.0	155.0	246.0	172.0	211.0	173.0
6	96.0	98.0	149.0	120.0	121.0	123.0	204.0	155.0	250.0	163.0	198.0	171.0
7	94.0	104.0	148.0	116.0	122.0	122.0	195.0	165.0	259.0	160.0	194.0	164.0
8	92.0	116.0	142.0	117.0	115.0	123.0	193.0	200.0	275.0	176.0	185.0	165.0
9	91.0	104.0	128.0	117.0	120.0	128.0	187.0	232.0	276.0	175.0	175.0	164.0
10	91.0	109.0	132.0	114.0	120.0	142.0	183.0	276.0	273.0	156.0	173.0	162.0
11	94.0	114.0	133.0	113.0	118.0	174.0	181.0	262.0	285.0	147.0	172.0	164.0
12	98.0	117.0	132.0	116.0	119.0	204.0	180.0	230.0	283.0	138.0	180.0	165.0
13	101.0	117.0	131.0	119.0	122.0	177.0	174.0	214.0	287.0	130.0	182.0	164.0
14	99.0	115.0	136.0	126.0	135.0	161.0	175.0	204.0	306.0	124.0	181.0	126.0
15	92.0	115.0	131.0	127.0	123.0	152.0	176.0	201.0	339.0	118.0	182.0	118.0
16	90.0	118.0	124.0	127.0	126.0	153.0	176.0	213.0	328.0	110.0	183.0	109.0
17	85.0	117.0	125.0	123.0	123.0	165.0	167.0	239.0	308.0	140.0	183.0	105.0
18	85.0	116.0	121.0	123.0	131.0	175.0	165.0	277.0	292.0	156.0	180.0	110.0
19	84.0	115.0	122.0	121.0	117.0	185.0	171.0	312.0	270.0	150.0	180.0	109.0
20	87.0	116.0	122.0	122.0	111.0	183.0	168.0	328.0	288.0	153.0	182.0	109.0
21	87.0	130.0	123.0	131.0	113.0	189.0	163.0	320.0	315.0	146.0	183.0	107.0
22	89.0	129.0	120.0	136.0	114.0	201.0	161.0	322.0	315.0	144.0	183.0	104.0
23	94.0	123.0	116.0	131.0	117.0	220.0	163.0	340.0	314.0	170.0	186.0	104.0
24	92.0	119.0	116.0	123.0	116.0	225.0	163.0	348.0	280.0	180.0	185.0	104.0
25	91.0	123.0	120.0	130.0	124.0	224.0	158.0	344.0	254.0	182.0	177.0	104.0
26	90.0	130.0	120.0	124.0	126.0	223.0	157.0	314.0	239.0	179.0	165.0	103.0
27	93.0	125.0	118.0	125.0	122.0	213.0	156.0	287.0	238.0	168.0	166.0	101.0
28	94.0	130.0	116.0	122.0	122.0	217.0	159.0	281.0	261.0	165.0	174.0	101.0
29	94.0	137.0	117.0	124.0	0.0	238.0	159.0	301.0	241.0	164.0	175.0	102.0
30	94.0	135.0	118.0	129.0	0.0	218.0	155.0	297.0	223.0	162.0	178.0	106.0
31	93.0	0.0	118.0	132.0	0.0	211.0	0.0	273.0	0.0	167.0	178.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1968

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	134.0	126.0	138.0	138.0	219.0	183.0	173.0	228.0	203.0	190.0	128.0
2	122.0	135.0	124.0	137.0	137.0	209.0	186.0	182.0	221.0	196.0	181.0	128.0
3	128.0	131.0	125.0	133.0	141.0	206.0	177.0	186.0	229.0	202.0	178.0	131.0
4	122.0	132.0	130.0	128.0	135.0	205.0	174.0	195.0	244.0	211.0	175.0	130.0
5	131.0	131.0	130.0	137.0	135.0	211.0	181.0	212.0	258.0	206.0	171.0	130.0
6	139.0	129.0	126.0	131.0	133.0	222.0	180.0	216.0	296.0	204.0	172.0	128.0
7	110.0	132.0	132.0	127.0	133.0	241.0	176.0	201.0	303.0	208.0	133.0	118.0
8	108.0	130.0	133.0	133.0	130.0	234.0	173.0	186.0	317.0	223.0	121.0	118.0
9	105.0	133.0	120.0	137.0	129.0	220.0	168.0	183.0	330.0	219.0	173.0	116.0
10	119.0	137.0	131.0	137.0	129.0	207.0	166.0	177.0	347.0	220.0	172.0	114.0
11	128.0	132.0	131.0	136.0	129.0	197.0	170.0	182.0	342.0	226.0	170.0	110.0
12	131.0	127.0	120.0	127.0	130.0	196.0	173.0	195.0	301.0	225.0	167.0	107.0
13	133.0	125.0	116.0	130.0	129.0	197.0	169.0	203.0	291.0	231.0	173.0	105.0
14	132.0	127.0	119.0	136.0	125.0	198.0	165.0	225.0	271.0	218.0	178.0	108.0
15	130.0	127.0	125.0	134.0	124.0	199.0	167.0	220.0	248.0	195.0	177.0	110.0
16	129.0	128.0	126.0	134.0	128.0	199.0	169.0	205.0	225.0	192.0	164.0	117.0
17	132.0	127.0	130.0	137.0	124.0	205.0	163.0	188.0	210.0	195.0	165.0	114.0
18	131.0	126.0	129.0	131.0	128.0	198.0	161.0	179.0	193.0	194.0	192.0	118.0
19	131.0	130.0	129.0	133.0	150.0	188.0	160.0	169.0	184.0	175.0	178.0	120.0
20	130.0	131.0	128.0	132.0	192.0	181.0	155.0	169.0	184.0	182.0	173.0	121.0
21	133.0	131.0	130.0	132.0	207.0	180.0	155.0	181.0	181.0	183.0	185.0	125.0
22	136.0	124.0	128.0	133.0	220.0	178.0	153.0	204.0	216.0	180.0	212.0	127.0
23	137.0	134.0	127.0	131.0	225.0	178.0	151.0	208.0	228.0	177.0	181.0	128.0
24	136.0	134.0	128.0	131.0	235.0	181.0	150.0	200.0	231.0	177.0	161.0	127.0
25	134.0	132.0	130.0	133.0	237.0	183.0	151.0	211.0	230.0	182.0	148.0	125.0
26	133.0	130.0	136.0	136.0	221.0	188.0	151.0	225.0	240.0	182.0	141.0	124.0
27	132.0	118.0	136.0	142.0	209.0	180.0	151.0	227.0	231.0	180.0	137.0	124.0
28	145.0	127.0	136.0	141.0	213.0	182.0	145.0	211.0	228.0	175.0	133.0	126.0
29	143.0	130.0	132.0	134.0	225.0	184.0	149.0	221.0	226.0	171.0	133.0	127.0
30	135.0	137.0	133.0	140.0	0.0	186.0	158.0	240.0	224.0	172.0	132.0	126.0
31	131.0	0.0	129.0	140.0	0.0	181.0	0.0	241.0	0.0	172.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1969

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	134.0	143.0	128.0	187.0	158.0	670.0	537.0	272.0	241.0	213.0	199.0
2	126.0	133.0	142.0	129.0	180.0	157.0	711.0	537.0	261.0	228.0	214.0	194.0
3	120.0	136.0	140.0	122.0	175.0	150.0	778.0	546.0	283.0	217.0	222.0	193.0
4	121.0	143.0	142.0	122.0	172.0	152.0	609.0	554.0	277.0	200.0	216.0	189.0
5	120.0	137.0	141.0	125.0	173.0	151.0	543.0	560.0	274.0	185.0	217.0	185.0
6	120.0	134.0	141.0	136.0	173.0	156.0	539.0	576.0	277.0	184.0	213.0	180.0
7	123.0	132.0	140.0	140.0	169.0	153.0	478.0	592.0	275.0	183.0	206.0	174.0
8	123.0	134.0	146.0	136.0	166.0	149.0	380.0	598.0	269.0	180.0	201.0	175.0
9	123.0	151.0	142.0	133.0	165.0	146.0	337.0	603.0	268.0	172.0	200.0	174.0
10	122.0	146.0	142.0	130.0	163.0	145.0	329.0	602.0	277.0	163.0	200.0	178.0
11	124.0	143.0	145.0	132.0	161.0	147.0	331.0	590.0	284.0	207.0	204.0	176.0
12	125.0	146.0	141.0	137.0	163.0	148.0	313.0	590.0	253.0	205.0	220.0	169.0
13	125.0	143.0	138.0	137.0	165.0	147.0	326.0	591.0	266.0	200.0	215.0	169.0
14	139.0	136.0	139.0	176.0	155.0	145.0	342.0	608.0	248.0	199.0	206.0	168.0
15	143.0	142.0	141.0	177.0	157.0	147.0	350.0	599.0	236.0	198.0	201.0	162.0
16	144.0	138.0	142.0	169.0	155.0	146.0	346.0	578.0	243.0	177.0	201.0	154.0
17	141.0	139.0	140.0	161.0	151.0	151.0	362.0	539.0	238.0	207.0	201.0	154.0
18	142.0	139.0	139.0	152.0	148.0	173.0	400.0	511.0	232.0	208.0	202.0	156.0
19	140.0	145.0	141.0	185.0	151.0	166.0	412.0	504.0	229.0	203.0	202.0	162.0
20	140.0	145.0	137.0	465.0	154.0	160.0	427.0	484.0	242.0	207.0	205.0	148.0
21	139.0	145.0	129.0	750.0	153.0	160.0	435.0	455.0	263.0	224.0	188.0	139.0
22	137.0	145.0	130.0	887.0	153.0	163.0	489.0	422.0	259.0	208.0	181.0	134.0
23	137.0	148.0	134.0	482.0	154.0	161.0	598.0	404.0	240.0	202.0	179.0	133.0
24	132.0	149.0	139.0	316.0	158.0	160.0	647.0	392.0	268.0	202.0	179.0	129.0
25	130.0	154.0	138.0	255.0	175.0	161.0	628.0	388.0	288.0	211.0	181.0	109.0
26	129.0	140.0	141.0	241.0	160.0	176.0	606.0	384.0	289.0	211.0	183.0	108.0
27	126.0	147.0	137.0	222.0	154.0	198.0	556.0	362.0	278.0	211.0	186.0	107.0
28	128.0	144.0	138.0	210.0	153.0	223.0	533.0	370.0	270.0	216.0	185.0	106.0
29	133.0	136.0	128.0	199.0	0.0	251.0	538.0	343.0	266.0	218.0	187.0	108.0
30	136.0	142.0	108.0	194.0	0.0	392.0	542.0	330.0	257.0	222.0	185.0	113.0
31	137.0	0.0	120.0	189.0	0.0	580.0	0.0	296.0	0.0	213.0	184.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1970

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104.0	136.0	139.0	138.0	171.0	187.0	157.0	171.0	487.0	220.0	200.0	179.0
2	109.0	140.0	138.0	136.0	166.0	218.0	160.0	169.0	470.0	199.0	183.0	180.0
3	114.0	139.0	139.0	139.0	163.0	203.0	159.0	169.0	425.0	188.0	174.0	179.0
4	114.0	139.0	141.0	141.0	160.0	190.0	157.0	176.0	420.0	206.0	168.0	175.0
5	113.0	139.0	139.0	135.0	159.0	179.0	159.0	198.0	464.0	207.0	170.0	202.0
6	111.0	138.0	134.0	127.0	161.0	172.0	164.0	211.0	469.0	206.0	173.0	199.0
7	110.0	144.0	139.0	126.0	159.0	174.0	166.0	242.0	457.0	203.0	172.0	204.0
8	109.0	144.0	137.0	130.0	159.0	180.0	161.0	224.0	446.0	205.0	170.0	196.0
9	111.0	142.0	140.0	136.0	157.0	179.0	158.0	225.0	468.0	209.0	169.0	191.0
10	116.0	145.0	138.0	144.0	158.0	172.0	162.0	248.0	473.0	217.0	170.0	182.0
11	115.0	141.0	138.0	137.0	157.0	169.0	171.0	233.0	425.0	229.0	175.0	151.0
12	115.0	139.0	138.0	137.0	165.0	170.0	165.0	226.0	390.0	213.0	184.0	140.0
13	120.0	137.0	139.0	140.0	175.0	169.0	162.0	222.0	399.0	203.0	182.0	140.0
14	126.0	136.0	139.0	145.0	169.0	171.0	164.0	215.0	409.0	206.0	180.0	139.0
15	136.0	135.0	141.0	152.0	168.0	184.0	160.0	209.0	378.0	202.0	179.0	141.0
16	138.0	140.0	141.0	155.0	170.0	182.0	157.0	221.0	365.0	201.0	182.0	141.0
17	145.0	137.0	141.0	197.0	178.0	186.0	158.0	247.0	352.0	202.0	182.0	140.0
18	147.0	132.0	141.0	211.0	167.0	163.0	155.0	282.0	311.0	197.0	187.0	128.0
19	143.0	131.0	142.0	217.0	164.0	167.0	159.0	338.0	297.0	193.0	187.0	126.0
20	138.0	134.0	155.0	237.0	160.0	168.0	163.0	330.0	231.0	189.0	190.0	131.0
21	137.0	142.0	160.0	229.0	159.0	174.0	160.0	430.0	212.0	155.0	190.0	131.0
22	138.0	143.0	173.0	306.0	159.0	174.0	163.0	478.0	204.0	205.0	186.0	134.0
23	138.0	140.0	162.0	331.0	160.0	170.0	163.0	524.0	187.0	200.0	191.0	133.0
24	135.0	142.0	154.0	297.0	159.0	171.0	161.0	521.0	180.0	202.0	192.0	132.0
25	134.0	140.0	148.0	249.0	160.0	168.0	160.0	488.0	169.0	198.0	210.0	127.0
26	134.0	141.0	151.0	223.0	162.0	172.0	167.0	487.0	162.0	195.0	223.0	129.0
27	134.0	138.0	148.0	266.0	164.0	165.0	176.0	505.0	162.0	203.0	209.0	127.0
28	143.0	138.0	136.0	216.0	172.0	168.0	175.0	538.0	220.0	206.0	201.0	125.0
29	143.0	138.0	133.0	196.0	0.0	168.0	175.0	545.0	225.0	215.0	184.0	125.0
30	138.0	139.0	137.0	181.0	0.0	168.0	174.0	529.0	222.0	215.0	179.0	124.0
31	136.0	0.0	139.0	168.0	0.0	163.0	0.0	508.0	0.0	207.0	177.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1971

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	138.0	165.0	141.0	210.0	166.0	420.0	554.0	777.0	260.0	227.0	244.0
2	122.0	136.0	158.0	134.0	207.0	161.0	375.0	600.0	780.0	255.0	226.0	249.0
3	121.0	135.0	157.0	127.0	202.0	164.0	367.0	663.0	778.0	255.0	231.0	266.0
4	119.0	134.0	153.0	125.0	185.0	165.0	372.0	739.0	736.0	255.0	234.0	266.0
5	123.0	138.0	152.0	114.0	185.0	165.0	375.0	785.0	651.0	250.0	237.0	253.0
6	133.0	143.0	152.0	120.0	179.0	162.0	379.0	794.0	633.0	250.0	236.0	241.0
7	142.0	142.0	152.0	132.0	179.0	163.0	389.0	827.0	602.0	255.0	238.0	247.0
8	136.0	141.0	162.0	134.0	177.0	166.0	390.0	845.0	583.0	265.0	237.0	247.0
9	140.0	141.0	172.0	146.0	169.0	164.0	398.0	862.0	570.0	265.0	233.0	244.0
10	152.0	144.0	174.0	148.0	175.0	160.0	399.0	891.0	530.0	257.0	231.0	241.0
11	142.0	140.0	162.0	145.0	178.0	160.0	404.0	899.0	500.0	250.0	233.0	238.0
12	139.0	143.0	146.0	138.0	178.0	190.0	389.0	908.0	470.0	245.0	233.0	238.0
13	142.0	142.0	144.0	137.0	181.0	309.0	375.0	940.0	445.0	236.0	234.0	236.0
14	138.0	135.0	140.0	137.0	185.0	266.0	381.0	964.0	410.0	244.0	234.0	234.0
15	136.0	134.0	144.0	135.0	196.0	242.0	400.0	953.0	395.0	244.0	241.0	234.0
16	142.0	135.0	146.0	137.0	196.0	230.0	404.0	932.0	390.0	244.0	240.0	235.0
17	136.0	135.0	147.0	155.0	194.0	232.0	430.0	905.0	375.0	250.0	247.0	237.0
18	133.0	140.0	147.0	176.0	192.0	219.0	439.0	867.0	360.0	260.0	255.0	237.0
19	133.0	139.0	143.0	174.0	192.0	214.0	443.0	822.0	350.0	256.0	251.0	233.0
20	132.0	137.0	136.0	220.0	179.0	221.0	436.0	776.0	330.0	251.0	244.0	235.0
21	134.0	136.0	146.0	199.0	174.0	231.0	431.0	741.0	320.0	255.0	241.0	234.0
22	138.0	134.0	146.0	189.0	166.0	252.0	454.0	720.0	305.0	254.0	237.0	233.0
23	140.0	147.0	133.0	198.0	181.0	307.0	463.0	725.0	300.0	235.0	235.0	234.0
24	152.0	166.0	139.0	191.0	184.0	442.0	464.0	711.0	290.0	219.0	231.0	237.0
25	150.0	184.0	138.0	183.0	176.0	529.0	481.0	695.0	285.0	233.0	233.0	209.0
26	148.0	185.0	134.0	186.0	163.0	527.0	567.0	697.0	275.0	237.0	234.0	187.0
27	140.0	171.0	136.0	184.0	163.0	576.0	595.0	707.0	265.0	227.0	234.0	182.0
28	136.0	161.0	142.0	176.0	167.0	551.0	561.0	719.0	265.0	189.0	234.0	186.0
29	140.0	156.0	143.0	170.0	0.0	516.0	521.0	731.0	270.0	212.0	249.0	195.0
30	141.0	171.0	144.0	182.0	0.0	548.0	522.0	746.0	270.0	223.0	254.0	211.0
31	140.0	0.0	141.0	202.0	0.0	528.0	0.0	764.0	0.0	228.0	247.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1972

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224.0	201.0	189.0	229.0	201.0	322.0	412.0	552.0	498.0	279.0	235.0	230.0
2	224.0	198.0	182.0	224.0	193.0	353.0	423.0	546.0	513.0	273.0	235.0	228.0
3	221.0	198.0	190.0	193.0	191.0	408.0	427.0	549.0	526.0	267.0	232.0	227.0
4	215.0	200.0	189.0	195.0	190.0	424.0	431.0	569.0	519.0	262.0	227.0	227.0
5	212.0	202.0	193.0	203.0	188.0	438.0	440.0	600.0	500.0	263.0	224.0	236.0
6	211.0	194.0	198.0	205.0	186.0	521.0	488.0	638.0	488.0	260.0	222.0	249.0
7	210.0	194.0	183.0	205.0	186.0	560.0	521.0	690.0	479.0	248.0	221.0	237.0
8	209.0	197.0	171.0	204.0	185.0	587.0	515.0	754.0	492.0	231.0	233.0	232.0
9	203.0	195.0	181.0	203.0	186.0	546.0	513.0	753.0	510.0	254.0	232.0	237.0
10	197.0	197.0	182.0	178.0	183.0	531.0	514.0	733.0	493.0	255.0	231.0	247.0
11	196.0	199.0	181.0	169.0	183.0	528.0	522.0	693.0	463.0	252.0	227.0	243.0
12	197.0	203.0	181.0	173.0	185.0	510.0	621.0	679.0	442.0	250.0	226.0	239.0
13	196.0	214.0	181.0	169.0	188.0	519.0	629.0	663.0	418.0	245.0	232.0	237.0
14	202.0	214.0	180.0	167.0	190.0	528.0	561.0	659.0	400.0	242.0	240.0	236.0
15	203.0	209.0	182.0	167.0	192.0	500.0	575.0	673.0	384.0	242.0	226.0	214.0
16	211.0	198.0	179.0	165.0	198.0	479.0	511.0	690.0	380.0	237.0	223.0	199.0
17	226.0	197.0	178.0	170.0	205.0	481.0	510.0	695.0	383.0	236.0	219.0	191.0
18	230.0	195.0	179.0	179.0	209.0	489.0	498.0	704.0	379.0	240.0	217.0	189.0
19	225.0	192.0	180.0	193.0	220.0	518.0	486.0	706.0	367.0	242.0	216.0	207.0
20	225.0	195.0	182.0	192.0	225.0	506.0	472.0	692.0	347.0	246.0	216.0	202.0
21	221.0	198.0	181.0	217.0	228.0	486.0	470.0	663.0	352.0	256.0	217.0	200.0
22	214.0	199.0	183.0	226.0	232.0	484.0	474.0	643.0	352.0	249.0	218.0	202.0
23	214.0	196.0	198.0	231.0	233.0	504.0	469.0	622.0	342.0	246.0	225.0	200.0
24	213.0	201.0	198.0	189.0	235.0	491.0	453.0	580.0	341.0	244.0	223.0	198.0
25	210.0	205.0	227.0	218.0	234.0	466.0	482.0	524.0	357.0	263.0	221.0	197.0
26	209.0	199.0	259.0	206.0	233.0	452.0	520.0	519.0	349.0	249.0	221.0	198.0
27	215.0	209.0	236.0	205.0	245.0	432.0	520.0	493.0	327.0	251.0	220.0	202.0
28	212.0	199.0	231.0	205.0	277.0	428.0	527.0	483.0	310.0	240.0	220.0	203.0
29	199.0	201.0	234.0	199.0	309.0	421.0	551.0	488.0	295.0	237.0	228.0	204.0
30	202.0	198.0	233.0	200.0	0.0	414.0	558.0	488.0	284.0	235.0	231.0	200.0
31	204.0	0.0	229.0	200.0	0.0	408.0	0.0	489.0	0.0	236.0	238.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1973

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198.0	205.0	275.0	201.0	200.0	224.0	229.0	370.0	296.0	270.0	180.0	192.0
2	198.0	213.0	280.0	207.0	196.0	232.0	222.0	355.0	299.0	234.0	173.0	208.0
3	196.0	215.0	280.0	212.0	196.0	219.0	225.0	371.0	293.0	151.0	176.0	193.0
4	196.0	217.0	265.0	199.0	202.0	216.0	234.0	411.0	288.0	174.0	178.0	184.0
5	203.0	219.0	250.0	202.0	202.0	219.0	249.0	449.0	279.0	192.0	180.0	183.0
6	199.0	212.0	250.0	208.0	204.0	217.0	304.0	456.0	275.0	192.0	176.0	181.0
7	199.0	209.0	250.0	202.0	208.0	216.0	327.0	469.0	267.0	190.0	174.0	181.0
8	200.0	209.0	245.0	201.0	200.0	215.0	300.0	495.0	260.0	202.0	171.0	211.0
9	199.0	208.0	240.0	202.0	198.0	204.0	280.0	501.0	248.0	215.0	174.0	224.0
10	234.0	205.0	220.0	201.0	212.0	202.0	307.0	492.0	243.0	217.0	175.0	198.0
11	220.0	205.0	210.0	199.0	208.0	209.0	372.0	489.0	240.0	214.0	175.0	188.0
12	211.0	205.0	208.0	206.0	216.0	201.0	428.0	484.0	234.0	207.0	174.0	162.0
13	209.0	202.0	206.0	222.0	211.0	200.0	501.0	482.0	225.0	209.0	174.0	154.0
14	205.0	202.0	203.0	243.0	210.0	194.0	545.0	484.0	269.0	217.0	175.0	151.0
15	207.0	202.0	196.0	236.0	201.0	190.0	515.0	486.0	312.0	211.0	175.0	151.0
16	209.0	204.0	198.0	221.0	201.0	193.0	443.0	486.0	288.0	208.0	178.0	150.0
17	207.0	205.0	200.0	246.0	208.0	201.0	415.0	492.0	267.0	209.0	178.0	154.0
18	205.0	205.0	202.0	227.0	208.0	202.0	395.0	498.0	255.0	202.0	177.0	151.0
19	205.0	215.0	207.0	226.0	202.0	197.0	360.0	510.0	248.0	213.0	175.0	145.0
20	218.0	240.0	214.0	206.0	197.0	201.0	328.0	526.0	241.0	255.0	176.0	150.0
21	226.0	270.0	218.0	213.0	202.0	206.0	306.0	526.0	221.0	247.0	182.0	149.0
22	222.0	270.0	240.0	203.0	201.0	205.0	297.0	500.0	213.0	234.0	198.0	150.0
23	219.0	265.0	248.0	209.0	203.0	205.0	303.0	471.0	210.0	236.0	210.0	161.0
24	222.0	260.0	239.0	207.0	204.0	206.0	319.0	448.0	210.0	234.0	200.0	167.0
25	220.0	280.0	221.0	210.0	207.0	212.0	326.0	465.0	208.0	223.0	187.0	171.0
26	217.0	300.0	221.0	211.0	207.0	218.0	323.0	466.0	226.0	211.0	183.0	168.0
27	214.0	300.0	219.0	205.0	210.0	228.0	334.0	438.0	229.0	183.0	180.0	165.0
28	215.0	285.0	221.0	198.0	213.0	227.0	372.0	416.0	242.0	184.0	169.0	162.0
29	214.0	275.0	212.0	203.0	0.0	218.0	401.0	385.0	243.0	187.0	168.0	160.0
30	198.0	270.0	200.0	203.0	0.0	220.0	384.0	361.0	250.0	185.0	180.0	159.0
31	199.0	0.0	213.0	202.0	0.0	228.0	0.0	295.0	0.0	192.0	182.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1974

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156.0	155.0	185.0	163.0	194.0	184.0	474.0	560.0	494.0	212.0	208.0	207.0
2	153.0	155.0	190.0	160.0	181.0	236.0	409.0	587.0	476.0	216.0	213.0	209.0
3	149.0	160.0	190.0	160.0	180.0	236.0	388.0	600.0	463.0	212.0	219.0	212.0
4	150.0	165.0	180.0	168.0	180.0	208.0	371.0	609.0	448.0	211.0	230.0	207.0
5	150.0	175.0	172.0	177.0	186.0	194.0	356.0	618.0	401.0	235.0	229.0	201.0
6	153.0	180.0	173.0	176.0	178.0	205.0	353.0	636.0	366.0	218.0	228.0	200.0
7	152.0	185.0	176.0	175.0	178.0	211.0	343.0	653.0	336.0	221.0	230.0	198.0
8	165.0	195.0	177.0	173.0	174.0	272.0	337.0	680.0	316.0	215.0	236.0	195.0
9	169.0	190.0	170.0	174.0	178.0	287.0	344.0	720.0	297.0	213.0	231.0	192.0
10	163.0	185.0	172.0	171.0	173.0	332.0	370.0	744.0	280.0	226.0	219.0	191.0
11	159.0	185.0	177.0	172.0	173.0	333.0	393.0	714.0	272.0	239.0	214.0	191.0
12	162.0	195.0	178.0	171.0	176.0	310.0	392.0	674.0	278.0	243.0	205.0	190.0
13	161.0	210.0	178.0	173.0	177.0	377.0	384.0	633.0	278.0	246.0	201.0	186.0
14	157.0	200.0	179.0	172.0	171.0	354.0	370.0	598.0	277.0	226.0	202.0	185.0
15	156.0	195.0	177.0	177.0	172.0	323.0	371.0	563.0	272.0	220.0	202.0	182.0
16	157.0	190.0	177.0	187.0	173.0	374.0	383.0	533.0	269.0	228.0	202.0	172.0
17	160.0	195.0	179.0	197.0	176.0	454.0	402.0	507.0	264.0	224.0	202.0	173.0
18	158.0	205.0	183.0	196.0	170.0	450.0	428.0	486.0	256.0	219.0	200.0	170.0
19	156.0	220.0	168.0	204.0	175.0	454.0	458.0	477.0	246.0	210.0	207.0	169.0
20	156.0	205.0	170.0	196.0	171.0	399.0	463.0	489.0	234.0	211.0	209.0	159.0
21	160.0	190.0	178.0	188.0	161.0	363.0	450.0	525.0	226.0	219.0	215.0	153.0
22	163.0	185.0	183.0	182.0	169.0	350.0	449.0	507.0	222.0	219.0	216.0	156.0
23	165.0	185.0	182.0	185.0	159.0	330.0	482.0	479.0	208.0	216.0	216.0	155.0
24	175.0	185.0	178.0	183.0	156.0	320.0	521.0	459.0	203.0	219.0	216.0	154.0
25	172.0	180.0	177.0	186.0	157.0	328.0	569.0	452.0	218.0	212.0	215.0	153.0
26	170.0	175.0	168.0	188.0	160.0	367.0	625.0	467.0	215.0	197.0	222.0	154.0
27	169.0	170.0	177.0	186.0	160.0	429.0	611.0	496.0	218.0	202.0	214.0	156.0
28	169.0	170.0	183.0	186.0	171.0	487.0	579.0	521.0	217.0	203.0	208.0	156.0
29	165.0	170.0	182.0	185.0	0.0	495.0	548.0	536.0	214.0	202.0	207.0	142.0
30	160.0	175.0	178.0	183.0	0.0	474.0	542.0	538.0	213.0	203.0	213.0	138.0
31	160.0	0.0	166.0	190.0	0.0	465.0	0.0	517.0	0.0	199.0	211.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1975

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	196.0	175.0	166.0	170.0	185.0	200.0	248.0	624.0	314.0	283.0	190.0
2	131.0	190.0	174.0	169.0	170.0	194.0	198.0	247.0	653.0	291.0	248.0	189.0
3	130.0	185.0	176.0	172.0	180.0	217.0	198.0	254.0	684.0	275.0	242.0	190.0
4	132.0	184.0	179.0	172.0	178.0	209.0	204.0	272.0	717.0	267.0	232.0	189.0
5	133.0	187.0	182.0	175.0	176.0	205.0	208.0	275.0	721.0	261.0	220.0	186.0
6	124.0	182.0	179.0	171.0	170.0	224.0	225.0	275.0	696.0	258.0	209.0	189.0
7	125.0	181.0	183.0	166.0	176.0	238.0	245.0	289.0	710.0	248.0	201.0	189.0
8	130.0	180.0	175.0	173.0	171.0	232.0	244.0	299.0	700.0	239.0	198.0	189.0
9	136.0	176.0	170.0	179.0	176.0	228.0	227.0	310.0	662.0	234.0	203.0	190.0
10	138.0	176.0	168.0	170.0	182.0	227.0	221.0	314.0	611.0	229.0	203.0	197.0
11	143.0	178.0	171.0	160.0	173.0	232.0	223.0	343.0	560.0	240.0	202.0	203.0
12	146.0	181.0	175.0	155.0	175.0	228.0	240.0	378.0	527.0	236.0	204.0	200.0
13	145.0	179.0	184.0	160.0	195.0	226.0	260.0	405.0	515.0	230.0	201.0	192.0
14	146.0	179.0	178.0	165.0	191.0	224.0	281.0	464.0	528.0	224.0	201.0	194.0
15	148.0	178.0	177.0	168.0	181.0	225.0	288.0	513.0	522.0	218.0	209.0	194.0
16	145.0	175.0	175.0	168.0	176.0	234.0	307.0	568.0	513.0	216.0	187.0	201.0
17	146.0	173.0	178.0	168.0	173.0	223.0	316.0	609.0	505.0	213.0	182.0	201.0
18	146.0	184.0	172.0	168.0	175.0	223.0	312.0	650.0	510.0	232.0	204.0	205.0
19	149.0	173.0	175.0	168.0	175.0	226.0	289.0	692.0	494.0	219.0	204.0	205.0
20	151.0	170.0	183.0	170.0	179.0	276.0	261.0	688.0	467.0	219.0	202.0	208.0
21	163.0	176.0	181.0	170.0	166.0	296.0	273.0	601.0	459.0	226.0	203.0	207.0
22	159.0	184.0	167.0	170.0	160.0	286.0	268.0	539.0	451.0	199.0	202.0	207.0
23	162.0	178.0	158.0	170.0	164.0	256.0	272.0	537.0	448.0	187.0	203.0	207.0
24	163.0	175.0	155.0	175.0	163.0	246.0	256.0	528.0	435.0	185.0	202.0	207.0
25	160.0	178.0	165.0	230.0	163.0	259.0	270.0	531.0	422.0	187.0	192.0	207.0
26	163.0	181.0	167.0	225.0	162.0	250.0	268.0	531.0	407.0	190.0	187.0	209.0
27	164.0	182.0	159.0	220.0	165.0	206.0	253.0	533.0	380.0	190.0	189.0	208.0
28	164.0	184.0	162.0	200.0	176.0	208.0	240.0	543.0	362.0	188.0	190.0	212.0
29	165.0	174.0	160.0	190.0	0.0	209.0	237.0	555.0	345.0	206.0	189.0	211.0
30	162.0	174.0	165.0	180.0	0.0	211.0	243.0	573.0	334.0	281.0	190.0	211.0
31	191.0	0.0	166.0	170.0	0.0	208.0	0.0	598.0	0.0	317.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210.0	207.0	178.0	156.0	149.0	210.0	282.0	451.0	483.0	271.0	229.0	190.0
2	210.0	201.0	185.0	148.0	151.0	187.0	332.0	481.0	446.0	268.0	224.0	189.0
3	210.0	201.0	185.0	138.0	155.0	184.0	322.0	507.0	424.0	228.0	226.0	181.0
4	207.0	197.0	186.0	144.0	156.0	180.0	390.0	559.0	414.0	229.0	232.0	168.0
5	204.0	197.0	194.0	150.0	149.0	177.0	537.0	599.0	399.0	238.0	205.0	167.0
6	204.0	194.0	212.0	147.0	143.0	177.0	687.0	616.0	387.0	230.0	218.0	169.0
7	207.0	197.0	226.0	138.0	148.0	177.0	612.0	668.0	376.0	223.0	216.0	166.0
8	224.0	201.0	230.0	138.0	150.0	177.0	740.0	684.0	368.0	218.0	219.0	160.0
9	224.0	194.0	220.0	142.0	161.0	184.0	910.0	686.0	358.0	213.0	219.0	158.0
10	224.0	197.0	205.0	154.0	157.0	191.0	930.0	716.0	334.0	211.0	215.0	162.0
11	224.0	181.0	198.0	156.0	151.0	193.0	804.0	777.0	356.0	205.0	213.0	162.0
12	236.0	188.0	190.0	156.0	155.0	182.0	722.0	787.0	366.0	199.0	213.0	167.0
13	239.0	185.0	184.0	138.0	156.0	189.0	590.0	753.0	392.0	204.0	205.0	163.0
14	253.0	185.0	178.0	132.0	154.0	197.0	510.0	749.0	377.0	220.0	206.0	160.0
15	242.0	188.0	174.0	142.0	155.0	194.0	482.0	772.0	357.0	222.0	211.0	161.0
16	236.0	188.0	173.0	150.0	157.0	192.0	459.0	766.0	345.0	228.0	216.0	161.0
17	216.0	188.0	172.0	160.0	155.0	198.0	433.0	737.0	343.0	227.0	218.0	166.0
18	201.0	181.0	170.0	162.0	153.0	210.0	418.0	730.0	345.0	230.0	220.0	179.0
19	197.0	175.0	169.0	160.0	152.0	216.0	411.0	734.0	338.0	226.0	221.0	179.0
20	197.0	169.0	167.0	159.0	150.0	197.0	407.0	726.0	323.0	213.0	214.0	174.0
21	194.0	175.0	164.0	156.0	143.0	210.0	411.0	690.0	314.0	212.0	206.0	163.0
22	201.0	162.0	162.0	152.0	143.0	207.0	415.0	697.0	305.0	221.0	215.0	164.0
23	201.0	172.0	162.0	152.0	150.0	219.0	425.0	711.0	296.0	228.0	235.0	165.0
24	201.0	175.0	168.0	154.0	152.0	213.0	438.0	683.0	290.0	222.0	224.0	167.0
25	204.0	172.0	170.0	155.0	152.0	219.0	480.0	650.0	287.0	220.0	211.0	165.0
26	242.0	172.0	173.0	154.0	156.0	219.0	496.0	617.0	282.0	220.0	205.0	166.0
27	242.0	175.0	178.0	155.0	162.0	224.0	482.0	587.0	281.0	219.0	206.0	166.0
28	229.0	178.0	170.0	156.0	167.0	219.0	452.0	569.0	278.0	212.0	205.0	166.0
29	216.0	165.0	168.0	153.0	185.0	221.0	435.0	559.0	276.0	210.0	205.0	169.0
30	210.0	169.0	160.0	154.0	0.0	221.0	436.0	528.0	272.0	214.0	198.0	168.0
31	210.0	0.0	165.0	153.0	0.0	236.0	0.0	505.0	0.0	237.0	191.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1977

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165.0	175.0	164.0	175.0	166.0	166.0	175.0	219.0	185.0	187.0	170.0	118.0
2	167.0	175.0	162.0	180.0	162.0	169.0	173.0	221.0	173.0	187.0	171.0	118.0
3	186.0	173.0	163.0	180.0	159.0	169.0	167.0	211.0	160.0	192.0	166.0	118.0
4	182.0	172.0	165.0	185.0	162.0	166.0	170.0	213.0	160.0	196.0	162.0	115.0
5	178.0	171.0	169.0	180.0	156.0	166.0	173.0	215.0	177.0	205.0	160.0	118.0
6	177.0	168.0	166.0	175.0	156.0	166.0	170.0	227.0	179.0	197.0	167.0	118.0
7	174.0	166.0	168.0	175.0	156.0	167.0	170.0	223.0	191.0	190.0	168.0	120.0
8	174.0	164.0	169.0	175.0	156.0	173.0	167.0	213.0	190.0	183.0	171.0	120.0
9	176.0	164.0	171.0	170.0	156.0	173.0	167.0	211.0	209.0	185.0	166.0	120.0
10	179.0	168.0	166.0	170.0	156.0	170.0	162.0	209.0	211.0	187.0	164.0	120.0
11	179.0	169.0	166.0	165.0	156.0	165.0	157.0	208.0	201.0	185.0	166.0	120.0
12	183.0	167.0	163.0	165.0	153.0	167.0	153.0	201.0	202.0	186.0	164.0	120.0
13	179.0	163.0	165.0	165.0	156.0	173.0	152.0	197.0	195.0	183.0	162.0	118.0
14	177.0	164.0	165.0	165.0	159.0	165.0	152.0	193.0	186.0	180.0	158.0	120.0
15	177.0	167.0	170.0	165.0	159.0	162.0	148.0	200.0	195.0	180.0	156.0	118.0
16	178.0	166.0	170.0	165.0	162.0	170.0	148.0	209.0	201.0	177.0	152.0	113.0
17	177.0	166.0	170.0	169.0	159.0	170.0	145.0	212.0	195.0	177.0	147.0	110.0
18	178.0	169.0	170.0	169.0	166.0	170.0	140.0	195.0	186.0	178.0	152.0	105.0
19	178.0	149.0	170.0	172.0	166.0	170.0	137.0	203.0	188.0	175.0	139.0	105.0
20	176.0	168.0	165.0	169.0	169.0	165.0	137.0	211.0	193.0	172.0	115.0	105.0
21	176.0	162.0	165.0	172.0	175.0	167.0	138.0	202.0	192.0	175.0	107.0	107.0
22	177.0	165.0	165.0	172.0	178.0	173.0	157.0	195.0	176.0	157.0	115.0	107.0
23	174.0	162.0	165.0	172.0	169.0	178.0	185.0	193.0	174.0	171.0	120.0	113.0
24	180.0	162.0	170.0	166.0	172.0	183.0	186.0	191.0	173.0	178.0	115.0	107.0
25	187.0	167.0	175.0	166.0	169.0	175.0	185.0	204.0	177.0	184.0	125.0	105.0
26	186.0	164.0	175.0	166.0	172.0	173.0	189.0	195.0	178.0	181.0	125.0	107.0
27	181.0	149.0	180.0	166.0	162.0	173.0	186.0	190.0	186.0	177.0	123.0	105.0
28	176.0	149.0	175.0	166.0	172.0	170.0	190.0	193.0	192.0	178.0	120.0	102.0
29	175.0	154.0	175.0	166.0	0.0	170.0	194.0	187.0	190.0	175.0	118.0	100.0
30	174.0	160.0	170.0	162.0	0.0	167.0	205.0	183.0	187.0	172.0	118.0	107.0
31	172.0	0.0	170.0	162.0	0.0	170.0	0.0	181.0	0.0	170.0	118.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1978

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	128.0	141.0	120.0	128.0	146.0	450.0	358.0	397.0	189.0	201.0	169.0
2	106.0	126.0	198.0	100.0	131.0	146.0	465.0	373.0	380.0	186.0	204.0	169.0
3	106.0	123.0	270.0	103.0	136.0	144.0	373.0	390.0	369.0	192.0	204.0	166.0
4	104.0	123.0	198.0	112.0	138.0	146.0	320.0	394.0	369.0	201.0	198.0	166.0
5	104.0	126.0	152.0	118.0	138.0	161.0	309.0	380.0	380.0	213.0	201.0	172.0
6	106.0	133.0	152.0	128.0	152.0	175.0	284.0	358.0	387.0	201.0	198.0	178.0
7	106.0	128.0	146.0	138.0	149.0	172.0	313.0	328.0	390.0	192.0	192.0	172.0
8	104.0	128.0	131.0	150.0	146.0	178.0	428.0	305.0	394.0	189.0	192.0	169.0
9	106.0	121.0	133.0	152.0	141.0	178.0	404.0	291.0	390.0	195.0	192.0	152.0
10	106.0	121.0	133.0	138.0	141.0	189.0	362.0	309.0	390.0	198.0	195.0	149.0
11	104.0	121.0	137.0	135.0	146.0	192.0	358.0	362.0	387.0	204.0	195.0	141.0
12	104.0	123.0	142.0	133.0	141.0	198.0	339.0	425.0	350.0	192.0	192.0	138.0
13	106.0	121.0	158.0	130.0	138.0	184.0	328.0	448.0	281.0	169.0	207.0	131.0
14	113.0	123.0	175.0	130.0	138.0	175.0	320.0	465.0	277.0	161.0	216.0	129.0
15	113.0	131.0	193.0	130.0	141.0	169.0	313.0	502.0	257.0	152.0	192.0	129.0
16	113.0	128.0	180.0	130.0	133.0	169.0	387.0	536.0	240.0	161.0	184.0	130.0
17	116.0	131.0	150.0	130.0	128.0	172.0	373.0	552.0	229.0	186.0	181.0	133.0
18	118.0	128.0	143.0	130.0	133.0	178.0	313.0	548.0	213.0	181.0	175.0	134.0
19	109.0	128.0	136.0	130.0	136.0	186.0	291.0	533.0	210.0	184.0	175.0	132.0
20	111.0	126.0	131.0	128.0	136.0	201.0	288.0	506.0	207.0	186.0	164.0	138.0
21	111.0	128.0	126.0	131.0	136.0	219.0	295.0	487.0	201.0	189.0	152.0	142.0
22	111.0	138.0	128.0	131.0	136.0	246.0	281.0	483.0	195.0	189.0	152.0	139.0
23	113.0	136.0	131.0	128.0	134.0	288.0	270.0	480.0	192.0	166.0	152.0	138.0
24	116.0	141.0	133.0	121.0	138.0	354.0	260.0	470.0	184.0	186.0	149.0	137.0
25	113.0	149.0	132.0	131.0	141.0	354.0	263.0	465.0	184.0	189.0	152.0	137.0
26	116.0	201.0	131.0	133.0	144.0	350.0	313.0	450.0	181.0	189.0	152.0	136.0
27	121.0	181.0	131.0	131.0	152.0	350.0	350.0	434.0	184.0	186.0	152.0	133.0
28	123.0	169.0	132.0	128.0	144.0	331.0	347.0	417.0	189.0	192.0	152.0	131.0
29	128.0	155.0	135.0	131.0	0.0	320.0	350.0	414.0	192.0	198.0	155.0	130.0
30	131.0	141.0	139.0	126.0	0.0	316.0	358.0	422.0	189.0	201.0	158.0	130.0
31	128.0	0.0	134.0	128.0	0.0	335.0	0.0	419.0	0.0	201.0	169.0	0.0

DAILY DATA FOR YEAR ENDING SEPT.-1979

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133.0	121.0	166.0	130.0	144.0	145.0	195.0	222.0	243.0	195.0	184.0	121.0
2	133.0	123.0	155.0	135.0	141.0	145.0	198.0	222.0	229.0	195.0	181.0	113.0
3	131.0	128.0	149.0	141.0	138.0	140.0	198.0	226.0	210.0	195.0	184.0	113.0
4	133.0	128.0	155.0	141.0	138.0	140.0	199.0	233.0	229.0	192.0	158.0	118.0
5	143.0	133.0	161.0	144.0	138.0	138.0	184.0	246.0	246.0	198.0	175.0	118.0
6	142.0	133.0	144.0	136.0	138.0	144.0	210.0	267.0	253.0	192.0	178.0	118.0
7	133.0	136.0	136.0	128.0	138.0	169.0	257.0	257.0	253.0	184.0	178.0	118.0
8	133.0	136.0	136.0	125.0	136.0	172.0	270.0	247.0	250.0	181.0	186.0	121.0
9	135.0	138.0	138.0	135.0	133.0	155.0	302.0	226.0	236.0	175.0	192.0	121.0
10	133.0	138.0	144.0	141.0	133.0	149.0	260.0	207.0	226.0	172.0	190.0	111.0
11	133.0	149.0	141.0	144.0	131.0	149.0	240.0	195.0	219.0	172.0	182.0	106.0
12	130.0	161.0	144.0	149.0	133.0	149.0	233.0	186.0	213.0	155.0	171.0	109.0
13	129.0	155.0	141.0	138.0	166.0	155.0	229.0	181.0	213.0	146.0	167.0	109.0
14	128.0	146.0	141.0	138.0	146.0	155.0	226.0	178.0	216.0	158.0	166.0	106.0
15	127.0	141.0	141.0	141.0	141.0	158.0	233.0	184.0	216.0	166.0	161.0	116.0
16	128.0	141.0	141.0	141.0	136.0	158.0	222.0	204.0	210.0	164.0	159.0	111.0
17	129.0	144.0	144.0	138.0	138.0	158.0	222.0	229.0	210.0	164.0	153.0	104.0
18	128.0	149.0	152.0	138.0	136.0	155.0	222.0	240.0	213.0	164.0	152.0	100.0
19	128.0	149.0	149.0	141.0	141.0	158.0	207.0	246.0	226.0	178.0	154.0	97.0
20	128.0	155.0	146.0	138.0	138.0	158.0	192.0	246.0	226.0	181.0	155.0	92.0
21	128.0	155.0	144.0	138.0	138.0	161.0	189.0	246.0	226.0	184.0	144.0	92.0
22	118.0	158.0	149.0	141.0	136.0	164.0	192.0	253.0	226.0	207.0	141.0	92.0
23	116.0	158.0	149.0	136.0	138.0	164.0	201.0	260.0	213.0	201.0	136.0	95.0
24	121.0	149.0	146.0	138.0	138.0	169.0	201.0	270.0	204.0	195.0	126.0	95.0
25	126.0	146.0	146.0	141.0	136.0	175.0	198.0	281.0	201.0	192.0	128.0	92.0
26	128.0	149.0	141.0	138.0	136.0	181.0	195.0	270.0	198.0	184.0	128.0	100.0
27	111.0	146.0	144.0	136.0	138.0	186.0	198.0	253.0	201.0	181.0	128.0	100.0
28	111.0	149.0	141.0	136.0	139.0	204.0	204.0	250.0	201.0	184.0	131.0	95.0
29	116.0	149.0	144.0	133.0	0.0	195.0	214.0	253.0	195.0	186.0	128.0	97.0
30	116.0	158.0	136.0	130.0	0.0	195.0	222.0	257.0	195.0	186.0	126.0	97.0
31	121.0	0.0	158.0	135.0	0.0	195.0	0.0	246.0	0.0	186.0	123.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	125.0	125.0	110.0	105.0	210.0	165.0	357.0	466.0	171.0	174.0	143.0
2	104.0	129.0	128.0	111.0	104.0	192.0	165.0	338.0	468.0	176.0	172.0	139.0
3	105.0	132.0	128.0	111.0	105.0	178.0	165.0	318.0	474.0	176.0	172.0	140.0
4	105.0	137.0	127.0	112.0	107.0	178.0	165.0	305.0	426.0	179.0	170.0	139.0
5	106.0	138.0	128.0	109.0	105.0	201.0	175.0	290.0	416.0	181.0	172.0	138.0
6	108.0	139.0	129.0	109.0	106.0	195.0	175.0	300.0	417.0	184.0	174.0	139.0
7	108.0	138.0	130.0	109.0	106.0	184.0	165.0	305.0	396.0	184.0	174.0	142.0
8	108.0	137.0	131.0	111.0	103.0	172.0	160.0	315.0	361.0	186.0	171.0	146.0
9	107.0	137.0	130.0	111.0	102.0	164.0	155.0	330.0	337.0	186.0	168.0	141.0
10	108.0	135.0	131.0	110.0	103.0	175.0	155.0	350.0	317.0	186.0	168.0	133.0
11	108.0	139.0	124.0	95.0	103.0	222.0	155.0	370.0	304.0	185.0	167.0	138.0
12	108.0	133.0	122.0	201.0	103.0	213.0	160.0	400.0	307.0	185.0	167.0	147.0
13	102.0	133.0	124.0	515.0	103.0	178.0	160.0	440.0	297.0	186.0	166.0	148.0
14	101.0	132.0	122.0	509.0	107.0	175.0	160.0	447.0	286.0	192.0	166.0	135.0
15	100.0	132.0	119.0	426.0	109.0	210.0	160.0	410.0	283.0	192.0	175.0	137.0
16	103.0	131.0	121.0	250.0	110.0	175.0	161.0	420.0	269.0	192.0	182.0	132.0
17	103.0	136.0	120.0	183.0	116.0	172.0	164.0	425.0	259.0	193.0	180.0	117.0
18	106.0	142.0	119.0	155.0	336.0	175.0	170.0	425.0	244.0	191.0	179.0	113.0
19	128.0	140.0	120.0	131.0	818.0	178.0	185.0	428.0	242.0	195.0	176.0	115.0
20	131.0	130.0	120.0	123.0	1030.0	175.0	213.0	428.0	239.0	193.0	169.0	114.0
21	125.0	128.0	121.0	123.0	922.0	189.0	255.0	428.0	229.0	187.0	166.0	120.0
22	123.0	126.0	121.0	117.0	525.0	184.0	294.0	431.0	217.0	186.0	163.0	121.0
23	121.0	129.0	118.0	116.0	320.0	186.0	298.0	431.0	211.0	187.0	162.0	121.0
24	119.0	132.0	118.0	115.0	213.0	184.0	336.0	431.0	204.0	192.0	162.0	122.0
25	119.0	132.0	118.0	115.0	172.0	180.0	334.0	434.0	191.0	190.0	161.0	117.0
26	120.0	134.0	115.0	113.0	164.0	180.0	333.0	434.0	183.0	185.0	149.0	120.0
27	120.0	129.0	111.0	112.0	169.0	175.0	312.0	436.0	174.0	186.0	133.0	120.0
28	122.0	120.0	109.0	107.0	184.0	160.0	304.0	436.0	173.0	186.0	133.0	117.0
29	124.0	116.0	106.0	109.0	219.0	165.0	330.0	436.0	174.0	184.0	133.0	115.0
30	125.0	123.0	108.0	108.0	0.0	170.0	385.0	447.0	173.0	180.0	137.0	113.0
31	125.0	0.0	108.0	105.0	0.0	165.0	0.0	457.0	0.0	178.0	142.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1981

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	145.0	141.0	131.0	128.0	138.0	144.0	151.0	347.0	200.0	138.0	159.0
2	112.0	147.0	141.0	131.0	123.0	138.0	146.0	162.0	317.0	202.0	140.0	159.0
3	111.0	150.0	141.0	131.0	122.0	138.0	149.0	163.0	358.0	205.0	149.0	154.0
4	112.0	150.0	141.0	133.0	123.0	137.0	148.0	153.0	312.0	205.0	146.0	150.0
5	110.0	150.0	141.0	131.0	123.0	136.0	143.0	145.0	265.0	206.0	141.0	154.0
6	108.0	145.0	141.0	131.0	123.0	136.0	140.0	144.0	243.0	209.0	140.0	155.0
7	109.0	147.0	140.0	128.0	123.0	135.0	140.0	144.0	236.0	179.0	148.0	151.0
8	109.0	149.0	134.0	126.0	120.0	134.0	139.0	141.0	227.0	202.0	151.0	151.0
9	106.0	148.0	128.0	129.0	115.0	135.0	140.0	133.0	218.0	205.0	149.0	146.0
10	110.0	145.0	126.0	122.0	110.0	135.0	141.0	128.0	211.0	209.0	150.0	143.0
11	112.0	144.0	128.0	121.0	120.0	135.0	141.0	138.0	201.0	211.0	161.0	136.0
12	113.0	144.0	128.0	120.0	125.0	135.0	144.0	137.0	195.0	204.0	158.0	133.0
13	115.0	144.0	126.0	120.0	128.0	136.0	143.0	127.0	193.0	201.0	149.0	133.0
14	120.0	144.0	126.0	120.0	130.0	136.0	140.0	126.0	190.0	204.0	149.0	136.0
15	125.0	143.0	126.0	120.0	140.0	135.0	142.0	140.0	186.0	204.0	151.0	136.0
16	142.0	143.0	128.0	119.0	150.0	135.0	145.0	160.0	184.0	203.0	149.0	128.0
17	160.0	139.0	128.0	121.0	165.0	135.0	148.0	182.0	185.0	201.0	144.0	108.0
18	175.0	140.0	128.0	121.0	185.0	135.0	143.0	202.0	185.0	198.0	143.0	96.0
19	183.0	140.0	128.0	121.0	175.0	136.0	148.0	192.0	185.0	194.0	148.0	91.0
20	179.0	140.0	128.0	120.0	170.0	140.0	165.0	187.0	185.0	189.0	149.0	90.0
21	175.0	140.0	128.0	120.0	160.0	150.0	230.0	204.0	187.0	187.0	153.0	90.0
22	165.0	141.0	136.0	121.0	150.0	150.0	220.0	391.0	189.0	186.0	156.0	94.0
23	160.0	141.0	136.0	120.0	145.0	145.0	205.0	553.0	190.0	189.0	152.0	93.0
24	160.0	141.0	133.0	122.0	143.0	138.0	190.0	531.0	192.0	186.0	157.0	93.0
25	165.0	138.0	136.0	125.0	145.0	140.0	180.0	508.0	192.0	180.0	156.0	97.0
26	170.0	141.0	136.0	124.0	150.0	145.0	180.0	551.0	193.0	169.0	155.0	96.0
27	170.0	140.0	136.0	127.0	145.0	150.0	170.0	561.0	194.0	170.0	157.0	97.0
28	170.0	141.0	136.0	129.0	142.0	151.0	165.0	504.0	198.0	170.0	158.0	83.0
29	160.0	141.0	136.0	130.0	0.0	150.0	155.0	445.0	199.0	159.0	158.0	81.0
30	150.0	141.0	131.0	131.0	0.0	149.0	154.0	401.0	200.0	149.0	164.0	80.0
31	145.0	0.0	131.0	128.0	0.0	146.0	0.0	389.0	0.0	138.0	160.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1982

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	102.0	121.0	121.0	123.0	178.0	213.0	551.0	542.0	240.0	226.0	213.0
2	76.0	104.0	118.0	113.0	131.0	189.0	210.0	626.0	511.0	240.0	213.0	204.0
3	80.0	104.0	118.0	116.0	131.0	198.0	207.0	740.0	500.0	240.0	201.0	201.0
4	80.0	104.0	118.0	111.0	118.0	198.0	213.0	803.0	489.0	250.0	198.0	201.0
5	78.0	104.0	116.0	121.0	110.0	189.0	201.0	733.0	465.0	250.0	198.0	198.0
6	78.0	104.0	118.0	116.0	115.0	181.0	201.0	690.0	448.0	240.0	195.0	192.0
7	80.0	104.0	121.0	106.0	123.0	178.0	198.0	663.0	425.0	224.0	181.0	186.0
8	86.0	102.0	121.0	113.0	118.0	181.0	198.0	658.0	414.0	240.0	189.0	180.0
9	84.0	102.0	121.0	113.0	123.0	186.0	198.0	722.0	404.0	267.0	210.0	177.0
10	86.0	102.0	121.0	113.0	123.0	204.0	195.0	733.0	373.0	250.0	210.0	179.0
11	106.0	102.0	121.0	116.0	128.0	226.0	210.0	658.0	347.0	236.0	201.0	179.0
12	113.0	102.0	116.0	121.0	121.0	229.0	320.0	608.0	339.0	229.0	192.0	182.0
13	104.0	106.0	121.0	118.0	123.0	226.0	298.0	577.0	350.0	213.0	189.0	189.0
14	102.0	111.0	121.0	118.0	128.0	226.0	288.0	569.0	390.0	204.0	189.0	175.0
15	100.0	111.0	133.0	121.0	138.0	246.0	281.0	583.0	362.0	198.0	189.0	193.0
16	97.0	111.0	126.0	126.0	181.0	243.0	260.0	610.0	350.0	181.0	189.0	211.0
17	97.0	109.0	121.0	123.0	186.0	229.0	246.0	658.0	358.0	178.0	186.0	213.0
18	100.0	113.0	118.0	123.0	181.0	226.0	243.0	703.0	347.0	213.0	192.0	197.0
19	100.0	106.0	126.0	121.0	184.0	222.0	229.0	744.0	331.0	226.0	189.0	188.0
20	100.0	111.0	189.0	112.0	184.0	210.0	219.0	722.0	320.0	226.0	204.0	186.0
21	100.0	118.0	181.0	109.0	189.0	204.0	219.0	693.0	309.0	233.0	204.0	182.0
22	97.0	133.0	141.0	117.0	213.0	198.0	226.0	678.0	302.0	229.0	207.0	182.0
23	97.0	128.0	126.0	121.0	207.0	195.0	250.0	675.0	298.0	233.0	210.0	179.0
24	100.0	138.0	121.0	126.0	181.0	195.0	281.0	678.0	284.0	240.0	204.0	181.0
25	102.0	138.0	123.0	126.0	181.0	195.0	313.0	678.0	284.0	267.0	201.0	189.0
26	102.0	128.0	121.0	123.0	178.0	204.0	343.0	680.0	277.0	263.0	192.0	230.0
27	102.0	123.0	116.0	128.0	178.0	213.0	358.0	698.0	267.0	250.0	186.0	246.0
28	102.0	123.0	113.0	126.0	178.0	229.0	417.0	733.0	257.0	260.0	192.0	244.0
29	111.0	116.0	118.0	123.0	0.0	246.0	502.0	718.0	246.0	270.0	195.0	234.0
30	109.0	121.0	123.0	126.0	0.0	229.0	521.0	645.0	240.0	288.0	207.0	231.0
31	104.0	0.0	109.0	126.0	0.0	216.0	0.0	590.0	0.0	246.0	216.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1983

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227.0	209.0	182.0	151.0	173.0	230.0	385.0	576.0	985.0	321.0	254.0	236.0
2	227.0	200.0	176.0	151.0	170.0	300.0	376.0	589.0	935.0	348.0	257.0	230.0
3	218.0	191.0	173.0	157.0	157.0	400.0	369.0	595.0	881.0	340.0	248.0	239.0
4	209.0	191.0	173.0	164.0	160.0	380.0	356.0	612.0	845.0	320.0	242.0	236.0
5	206.0	188.0	176.0	164.0	164.0	360.0	352.0	645.0	817.0	320.0	239.0	236.0
6	200.0	188.0	179.0	170.0	160.0	340.0	352.0	687.0	787.0	311.0	236.0	236.0
7	200.0	188.0	179.0	200.0	176.0	320.0	349.0	664.0	752.0	308.0	203.0	236.0
8	200.0	188.0	160.0	218.0	170.0	300.0	352.0	663.0	711.0	298.0	227.0	251.0
9	197.0	191.0	167.0	197.0	173.0	290.0	349.0	691.0	711.0	303.0	233.0	281.0
10	194.0	191.0	167.0	188.0	170.0	330.0	352.0	679.0	682.0	337.0	233.0	259.0
11	191.0	191.0	160.0	182.0	167.0	370.0	352.0	677.0	661.0	325.0	259.0	251.0
12	191.0	185.0	164.0	176.0	167.0	363.0	349.0	675.0	676.0	306.0	265.0	248.0
13	191.0	179.0	167.0	176.0	176.0	377.0	343.0	653.0	618.0	293.0	245.0	245.0
14	188.0	167.0	167.0	170.0	182.0	435.0	340.0	621.0	559.0	283.0	239.0	248.0
15	188.0	167.0	170.0	167.0	173.0	398.0	340.0	600.0	520.0	278.0	236.0	245.0
16	185.0	176.0	173.0	167.0	173.0	364.0	344.0	600.0	515.0	278.0	233.0	245.0
17	185.0	179.0	170.0	170.0	176.0	345.0	347.0	577.0	516.0	276.0	230.0	245.0
18	185.0	179.0	164.0	167.0	176.0	333.0	357.0	585.0	502.0	265.0	230.0	242.0
19	185.0	212.0	170.0	167.0	179.0	321.0	368.0	645.0	487.0	251.0	230.0	242.0
20	185.0	206.0	167.0	167.0	173.0	306.0	381.0	643.0	472.0	242.0	242.0	245.0
21	185.0	191.0	173.0	170.0	176.0	301.0	399.0	652.0	457.0	245.0	268.0	254.0
22	185.0	182.0	182.0	170.0	176.0	300.0	407.0	683.0	431.0	239.0	270.0	251.0
23	185.0	164.0	185.0	176.0	176.0	307.0	419.0	728.0	395.0	257.0	265.0	251.0
24	185.0	167.0	170.0	173.0	179.0	308.0	458.0	782.0	379.0	262.0	265.0	248.0
25	185.0	167.0	157.0	176.0	185.0	305.0	483.0	797.0	368.0	265.0	259.0	245.0
26	194.0	164.0	156.0	173.0	194.0	297.0	462.0	818.0	361.0	291.0	254.0	230.0
27	200.0	164.0	155.0	173.0	191.0	294.0	452.0	904.0	356.0	283.0	251.0	227.0
28	194.0	170.0	154.0	179.0	197.0	295.0	456.0	944.0	347.0	265.0	242.0	242.0
29	194.0	176.0	154.0	173.0	0.0	293.0	492.0	981.0	334.0	262.0	245.0	239.0
30	212.0	179.0	154.0	176.0	0.0	344.0	535.0	1020.0	329.0	257.0	239.0	259.0
31	221.0	0.0	154.0	173.0	0.0	384.0	0.0	1030.0	0.0	248.0	236.0	0.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1920	162.9	173.6	158.4	172.9	175.9	188.0	227.0	524.7	259.5	217.2	200.7	208.0	222.7	152.0	709.0
1921	202.5	184.3	167.7	167.7	173.7	310.0	359.8	663.7	410.1	244.1	227.1	193.7	276.1	160.0	757.0
1922	181.5	188.7	182.8	180.6	179.7	208.1	324.4	578.2	339.9	265.6	253.8	212.4	258.5	168.0	757.0
1923	191.3	235.0	196.1	224.2	170.4	256.1	390.0	442.0	288.4	256.2	251.9	232.4	261.6	150.0	562.0
1924	216.6	205.5	194.5	183.6	217.7	212.5	245.2	243.8	218.6	224.2	171.7	126.7	205.1	121.0	605.0
1925	142.3	162.3	160.5	157.1	204.8	243.7	271.8	346.0	243.7	232.3	201.5	207.7	214.5	121.0	680.0
1926	177.7	184.7	180.3	168.4	183.9	239.6	257.9	257.4	249.3	217.7	154.9	124.4	199.8	121.0	322.0
1927	144.7	161.7	158.5	155.9	165.5	189.5	270.7	369.5	333.7	272.9	234.5	171.5	219.3	138.0	492.0
1928	176.9	197.3	185.5	173.9	163.8	246.6	233.6	373.7	271.6	259.5	206.6	154.5	220.7	130.0	492.0
1929	146.4	155.6	152.1	147.5	142.5	210.9	216.7	268.6	266.9	234.7	200.1	169.3	192.9	134.0	372.0
1930	157.4	153.1	152.9	146.0	163.4	175.7	184.5	185.3	203.8	165.4	149.4	129.2	163.8	119.0	267.0
1931	153.6	148.1	145.5	137.9	136.3	162.9	152.6	173.9	169.6	97.2	95.8	98.6	139.3	87.0	258.0
1932	115.9	129.2	129.9	125.9	121.3	151.2	230.7	296.1	221.2	195.7	153.6	136.0	167.4	102.0	380.0
1933	121.4	142.0	133.9	134.3	127.2	134.1	203.8	247.2	236.3	180.9	161.5	111.6	161.3	93.0	358.0
1934	105.5	128.1	133.0	134.5	135.1	124.2	106.1	203.4	97.4	91.5	83.0	81.7	118.7	69.0	240.0
1935	77.7	114.1	118.9	108.9	102.4	155.6	184.8	232.7	217.8	181.1	106.9	100.1	141.9	65.0	372.0
1936	88.2	132.0	130.5	132.4	136.1	128.7	331.5	370.9	234.1	225.4	191.5	152.3	187.8	81.0	524.0
1937	119.8	129.7	125.8	122.2	125.1	146.0	227.4	268.4	215.4	207.5	151.8	109.7	162.6	102.0	358.0
1938	125.0	136.6	152.5	131.6	154.1	197.2	255.2	294.4	265.1	225.8	217.4	171.7	194.1	111.0	396.0
1939	129.9	150.9	148.7	146.1	143.9	214.1	202.0	216.9	204.7	159.3	99.7	103.6	160.0	87.0	460.0
1940	121.6	124.6	127.7	131.1	141.6	161.9	164.4	153.8	191.6	104.2	101.1	94.7	134.7	81.0	230.0
1941	103.0	116.9	122.5	117.0	126.2	167.7	161.8	205.1	165.1	190.6	100.6	95.4	139.5	85.0	249.0
1942	112.9	124.5	129.3	118.0	121.4	138.8	246.2	213.5	201.6	197.2	176.1	116.7	158.2	89.0	444.0
1943	104.5	131.0	147.4	154.0	153.9	222.2	391.2	318.2	289.0	229.5	219.4	174.2	211.3	97.0	489.0
1944	144.9	155.0	145.3	137.2	137.8	162.3	213.7	215.5	245.8	213.7	197.4	152.9	176.8	116.0	372.0
1945	122.2	141.4	132.0	140.9	175.0	168.1	212.5	338.5	325.7	226.5	244.7	202.4	202.5	118.0	454.0
1946	161.5	164.7	172.3	164.9	157.7	284.9	482.5	440.6	247.6	239.1	208.7	181.9	247.6	138.0	661.0
1947	169.7	185.2	181.8	146.5	171.8	188.8	199.5	240.2	193.6	209.8	198.5	154.7	186.8	130.0	307.0
1948	140.7	146.4	141.6	145.9	197.8	200.8	239.5	330.7	256.4	217.2	219.2	201.5	203.1	128.0	466.0
1949	166.3	155.9	145.6	140.0	137.0	195.3	315.7	289.2	216.3	219.2	212.0	161.0	194.7	117.0	378.0
1950	155.9	164.0	152.6	160.6	198.6	267.0	367.8	490.0	415.2	279.4	248.6	281.1	265.2	128.0	657.0
1951	217.2	210.6	190.3	176.8	243.0	230.3	278.0	291.7	250.6	239.7	209.6	152.5	224.0	136.0	434.0
1952	159.6	180.2	173.2	175.9	187.5	186.9	408.6	510.0	296.7	235.7	207.1	176.1	241.5	147.0	668.0
1953	145.2	161.4	175.6	217.5	194.4	197.0	198.0	220.9	361.9	243.8	202.9	182.8	208.4	136.0	469.0
1954	151.4	167.1	164.5	162.7	166.8	219.5	210.8	204.5	206.3	186.3	138.6	96.1	173.0	90.0	305.0
1955	116.4	134.7	133.0	131.6	130.1	130.3	159.5	185.6	197.8	131.4	105.5	96.3	137.6	91.0	262.0
1956	106.7	125.5	145.7	148.3	134.2	195.1	270.9	237.1	210.1	198.3	167.4	113.5	171.2	91.0	414.0
1957	112.4	134.5	142.8	126.8	248.3	173.5	169.2	309.1	240.7	206.6	197.7	153.7	184.2	100.0	956.0
1958	122.2	140.1	148.6	141.1	177.1	194.5	235.4	278.1	222.1	220.6	185.2	136.0	183.5	102.0	331.0
1959	107.7	135.2	150.5	141.9	145.5	185.8	193.6	207.4	199.2	157.9	92.4	99.5	151.4	85.0	258.0
1960	117.9	121.2	120.8	122.8	129.5	197.7	226.1	203.3	208.5	122.2	81.1	80.1	144.2	76.0	388.0
1961	85.4	109.2	115.3	113.4	140.4	146.8	130.1	127.3	151.0	89.3	82.8	88.3	114.7	76.0	243.0
1962	90.1	118.4	123.0	137.5	484.1	213.9	258.4	202.7	200.5	180.1	191.2	139.6	192.7	80.0	3250.0
1963	96.9	116.1	119.6	124.3	310.9	136.0	171.4	222.4	207.7	177.9	176.0	131.4	164.8	88.0	2590.0
1964	104.5	135.9	128.9	125.8	120.7	115.8	232.9	286.3	293.3	213.8	186.7	128.4	172.7	96.0	438.0
1965	107.5	136.9	248.5	195.0	191.6	174.6	265.2	432.0	297.2	228.8	196.5	147.9	218.8	98.0	1330.0
1966	141.7	158.0	143.5	146.2	144.4	184.9	221.1	205.3	203.4	164.7	136.3	99.7	162.5	68.0	361.0
1967	92.7	114.7	130.2	122.9	121.5	173.1	175.9	247.8	274.0	160.8	180.3	134.5	160.9	84.0	348.0
1968	129.2	130.0	128.2	134.2	161.9	197.8	164.3	200.5	248.6	196.0	164.4	121.0	164.7	105.0	347.0
1969	130.7	141.5	137.5	230.2	162.3	183.0	485.2	498.2	262.7	203.3	199.3	154.8	232.7	106.0	887.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1970	127.2	139.0	143.2	185.2	163.6	175.6	163.0	326.1	336.0	203.1	184.5	151.7	191.7	104.0	545.0
1971	136.8	146.1	148.2	159.2	182.6	287.9	433.9	789.5	450.3	243.8	237.8	232.1	287.9	114.0	964.0
1972	211.4	199.9	195.8	196.1	210.7	475.3	501.4	620.3	410.3	249.4	225.7	217.0	309.7	165.0	754.0
1973	209.2	232.4	227.5	210.7	204.5	210.5	344.8	454.1	252.6	209.6	179.1	170.8	242.4	145.0	545.0
1974	160.3	184.3	177.5	180.1	172.5	341.6	437.1	567.0	289.2	217.3	214.2	176.9	260.4	138.0	744.0
1975	148.9	179.8	172.1	176.2	173.6	229.4	251.6	456.8	532.1	232.9	205.6	199.6	246.7	124.0	721.0
1976	216.6	184.3	181.8	150.5	154.0	200.6	514.9	654.6	347.1	223.2	214.2	168.0	267.7	132.0	930.0
1977	177.4	165.3	168.5	170.0	162.8	169.7	166.0	203.4	186.7	181.3	144.5	112.6	167.5	100.0	227.0
1978	112.1	135.2	150.0	128.5	139.2	223.3	336.8	429.2	279.6	187.7	179.1	145.0	204.1	100.0	552.0
1979	127.4	144.0	145.9	137.5	138.6	162.5	216.8	234.9	219.9	181.1	156.9	105.9	164.4	92.0	302.0
1980	112.4	132.1	121.0	159.1	236.9	182.6	217.1	393.6	291.6	185.6	164.0	129.4	193.6	95.0	1030.0
1981	139.1	143.4	133.0	124.9	138.5	139.8	157.9	261.1	218.6	190.8	150.9	120.4	160.0	80.0	561.0
1982	95.1	112.7	125.1	119.1	152.6	209.3	268.6	671.5	361.0	236.3	198.5	198.1	229.6	76.0	803.0
1983	196.5	183.0	167.7	173.6	174.6	331.9	389.2	710.2	579.6	286.4	244.4	244.7	307.4	151.0	1030.0
AVE	139.5	152.7	152.9	152.4	169.4	200.5	261.3	338.0	265.3	204.2	178.8	150.3	197.2		

EXHIBIT B

GENERAL LOCATION

OF THE

MARSH VALLEY PROJECT

EXHIBIT B

GENERAL LOCATION

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co, Ltd. either holds title to or has secured real property interests in any lands occupied by the project or in any structures to which the project is connected. Se Exhibit B - Appendix A for copies of agreements to secure said property rights.

The following Exhibit drawings depict the proposed project location:

EXHIBIT	TITLE
B - 1-2	Project Location
B - 3	Principal Project Features

See Exhibit B - Appendix B for boundary description.

EXHIBIT	TITLE
B - 4	Project Boundary

EXHIBIT B - APPENDIX A

PROPERTY AGREEMENTS

PROPERTY

9-1

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OPTION TO PURCHASE REAL PROPERTY

AND EASEMENT

THIS AGREEMENT made and entered into this 3 day of October, 1983, by and between ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, of 305 West Main Street, Lava Hot Springs, Bannock County, Idaho, hereinafter called "SELLER" and MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation with its principal place of business being in the City of McCammon, Bannock County, Idaho, hereinafter called "BUYER".

RECITALS

WHEREAS, Seller is the owner of certain real property located in Bannock County, Idaho, which is described as Lot 5, Section 20, Township 9 South, Range 37 East of the Boise Meridian; and

WHEREAS, Buyer desires to construct, own and operate a hydro electric generation plant, together with penstocks, diversion structures and related equipment and facilities on the real property of Seller described above; and

WHEREAS, Seller is willing to grant to Buyer and Buyer desires to purchase from Seller an Option to Purchase certain real property for a plant site together with a permanent right-of-way and easement to permit construction and operation of the plant and related facilities, together with a right of ingress and egress thereto upon the terms and conditions set forth below;

NOW, THEREFORE, for the reasons set forth and in consideration of the mutual covenents and promises of the parties hereto, Buyer and Seller agree as follows:

1. GRANT OF OPTION: For and in consideration of the sum of $500 to be paid by Buyer to Seller upon execution of this Agreement, receipt of which is hereby acknowledged, Seller grants to Buyer the exclusive and irrevocable option and right to purchase, under the conditions hereinafter provided:

(a) a parcel of land sufficient in size and nature to permit Buyer to locate and construct a hydro electric generation plant. Said plant site shall be approximately one acre in size and located within the parcel of land owned by Buyer as described in Exhibit "A" attached and incorporated by reference. The exact location of said plant site within

the property described in Exhibit "A" may be selected by Buyer.

(b) A permanent right-of-way and easement on, over, under and through the remaining lands owned by Seller and described in Exhibit "A" and adjacent thereto not selected as a plant site as described in paragraph 1(a) above, on which to construct, maintain, operate and repair diversion structures, penstocks, forebays and other equipment, fixtures and structures related to the hydro electric generation plant, together with a roadway to provide a right of ingress and egress to the plant site.

(c) The right to the temporary use of such additional land on each side of the plant site and permanent right-of-way and easement as is reasonably required during the construction of the facilities.

(d) All other rights and benefits necessary for the full enjoyment or use of the plant site and right-of-way and easement including the right of ingress and egress over and across said lands as well as the adjacent lands of Seller and the use thereof reasonably necessary in connection with the construction, maintenance, operation and repair of the hydro electric generation plant, related equipment and facilities and access road.

(e) It is understood and agreed that to gain access to the property, Buyer will construct a roadway to connect to the existing railroad service road on the South or in a Northerly direction to connect to U. S. Highway 30 North which will require the construction of a bridge across the Portneuf River which transverses Sellers adjacent property in Section 20, Township 9 South, Range 37 East of the Boise Meridian, Bannock County, Idaho, or both. Buyer may select the exact location of the roadways and bridge which must be approved and accepted by Seller in advance to construction.

Buyer shall be soley responsible for the construction, maintenance and repair of all roadways and bridges and, further, shall be responsible to keep all railroad gates closed. Seller shall have the right to use all roadways constructed by Buyer to gain access to his property for all personal uses. Should Seller desire to develop his property and expand his personal use of the roadways to include their use for residential, commercial or other purposes, Seller may do so provided that he shall then be responsible for one-half of the costs of maintenance and repair.

(f) Buyer shall prevent any contamination of Sellers land and is required to restore any land used temporarily during construction to its previous condition.

2. PRICE AND TERMS OF PAYMENT: The price for the plant site and permanent right-of-way and easement shall be $7,500. Said amount shall be paid in full by Buyer at the time of closing.

3. PERIOD OF OPTION AND EXTENTIONS: The option may be exercised by Buyer, at any time while the offer herein shall remain in force, by mailing, telegraphing or delivering in person a written notice of acceptance of the offer herein to the undersigned Seller at the address provided above.

This offer shall remain irrevocable for a period of three years, and may be extended for an additional period of time upon written agreement by Seller.

If the option is exercised, the consideration paid for this Agreement by Buyer shall be applied to the purchase price. If the option is not exercised, the sum paid by Buyer shall be retained by Seller in consideration for this Agreement.

4. TITLE: Upon exercise of this option by Buyer as provided herein, the Seller shall secure and submit to Buyer for examination by it or its attorney a preliminary title report of a qualified title insurance company doing buisness in the State of Idaho. Thereafter, Buyer shall give notice in writing to Seller of any defect in or objections to the title as so evidenced, and the Seller shall clear the title of the defects and objections so specified.

If Seller fails to clear the title to the extent herein required or to submit evidence of their ability to do so prior to closing, and such failure continues for 30 days after the date of the exercise of the option, Buyer may clear title to the extent so required and charge the cost of clearing to Seller or, at its option, may terminate this contract by giving five days written notice to Seller.

Title conveyed as herein provided shall be merchantable title, free and clear from all liens, encumbrances, restrictions and easements. Seller shall provide Buyer with a standard form Owners Title Insurance Policy for the amount of the purchase price.

5. CLOSING: A closing agent shall be designated by the parties after exercise of the option. All necessary documents shall be delivered to the closing agent and all pay-

ments required hereunder, including payment of the balance of the purchase price, shall be made to the closing agent. Seller and Buyer shall execute such closing instructions and other documents, not inconsistent with the terms of the option, as may be required by the closing agent from time to time.

Taxes, water assessments and other general and special assessments of whatsoever nature for the year in which the closing of the transaction takes place shall be prorated as of the date of closing of the transaction. If the closing of the transaction shall occur before the tax rate is fixed, the apportionment of taxes shall be on the basis of the rate for the next preceding year applied to the latest assessed valuation.

The sale transaction shall close when the closing agent is able to comply with the provisions hereof, and within a reasonable time.

6. POSSESSION AND RISK OF LOSS: Seller shall continue in possession of the property until the time of closing and shall maintain the same in its present condition, reasonable wear from ordinary use expected. Possession shall be transferred to Buyer on closing.

Risk of loss from fire or other casualty to the property shall be Sellers until transfer of possession as herein provided.

7. NOTICES: Any notice hreunder shall be given in writing to the party for whom it is intended in person or by registered mail at the following addresses:

MARSH VALLEY HYDRO ELECTRIC CO.
c/o Lyndon Green, President
Star Route, Box 37
McCammon, Idaho 83250

Randall C. Budge, Esq.
RACINE, OLSON, NYE, COOPER & BUDGE, CHRTD.
P. O. Box 1391
Pocatello, Idaho 83204

Mr. and Mrs. Roger S. Johnson
305 West Main Street
Lava Hot Springs, Idaho 83246

Notice shall be given in writing to any successor or assignee of either party at the address stated in the Notice of Succession or Assignment.

8. ASSIGNMENT: This option and the contract resulting from the exercise thereof shall bind and inure to the benefit of the heirs, administrators, executors, successors and assigns of the respective parties. All rights of the Buyer hereunder may be assigned without restrictions, but notice of each Assignment shall be given in writing to Seller.

9-5 718016

IN WITNESS WHEREOF, the Seller and Buyer have set their hands and seals this 3rd day of October, 1983.

SELLERS:

ROGER S. JOHNSON

KAYE R. JOHNSON

MARSH VALLEY HYDRO ELECTRIC CO.

By: Lyndon Green
TITLE: President

ATTESTED:

By: Arthur Bowen
TITLE: Sec.

STATE OF IDAHO)
: ss
County of Bannock)

On this ~~3rd~~ 4th day of October, 1983, before me, the undersigned, a Notary Public in and for said State, personally appeared ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, known to me to be the persons whose names are subscribed to the foregoing and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

NOTARY

(SEAL)

Randall C. Budge
NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 10/15/84

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

9-6

718016

J-U-B ENGINEERS, Inc. 920 Dixon Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 233-0305

Description For
Portnuef Marsh Valley Hydroelectric Co.
Parcel of Land From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M., Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

Thence South 39°28'06" East 2157.12 feet to an iron pin set on the southerly bank of the Portneuf River. Said point being the REAL POINT OF BEGINNING;

Thence South 3°21'41" West 679.60 feet to an iron pin set on the northerly bank of the Prtneuf Marsh Valley Canal;

Thence North 70°38'31" East 509.96 feet to an iron pin set on the northerly bank of the Portneuf Marsh Valley Canal;

Thence North 12°10'46" West 689.25 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 44°47'44" West 123.91 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 69°17'04" West 222.16 feet to the point of beginning, comprising 6.09 acres more or less.

Excluding the parcel of land contained in this description which is owned by the Union Pacific Railroad Company and comprising 1.00 acres more or less.

Considering the excluded acreages, total needed acreage for this parcel will be 5.09 acres more or less.

REGISTERED LAND SURVEYOR 1029 STATE OF IDAHO ALLEN R. JOHNSON

Prepared by;
J-U-B Enginners, Inc

Allen R. Johnson, L.S.
Area Surveyor

9-7 718016

J-U-B ENGINEERS, Inc. 920 Oak Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 232-0336

Description For
Portneuf Marsh Valley Hydroelectric Co.
Easement From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M. Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

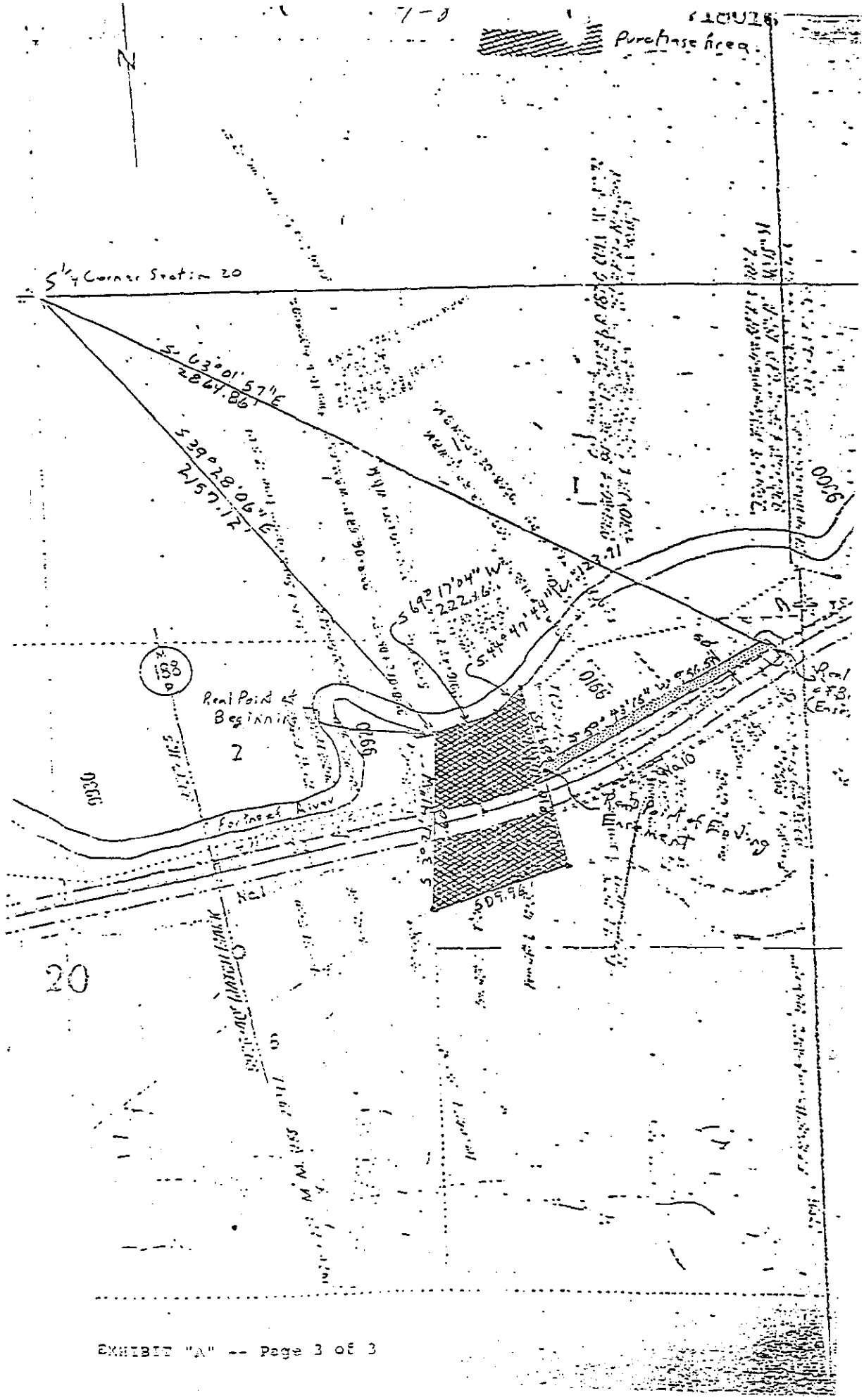
Thence South 63°01'57" East 2864.86 feet to a point on the northerly Right-of-Way Ownership line of the Union Pacific Railroad property, said point being at an existing gate in the railroad fence line, said point being the REAL POINT OF BEGINNING of a 50 foot wide roadway easement.

Thence South 59°43'15" West 956.54 feet along the centerline of the Right- of-Way easement to a point on the easterly ownership line of the property purchased by the Portnuef Marsh Valley Hydroelectric Company. Said point being the REAL POINT OF ENDING of the said Right-of-Way comprising 1.10 acres more or less.

Prepared by:
J-U-B Engineers, Inc

Allen R. Johnson, L.S.
Area Surveyor

REGISTERED LAND SURVEYOR 1029 STATE OF IDAHO ALLEN R. JOHNSON


Purchase Area
S 1/4 Corner Section 20
S 63°01'57"E
2864.86'
S 39°28'06"E
2157.12'
S 69°17'04"W
222.16'
S 44°47'44"W
123.21'
Real Point of Beginning
Fox River
509.96'
20

9-9 718016

STATE OF IDAHO)
: ss
County of Bannock)

On this ~~3rd~~ 25 day of October, 1983, before me, the undersigned, a Notary public in and for said State, personally appeared LYDON GREEN and JOHN BOWEN, who, being first duly sworn, declared that they are the President and Secretary respectively of MARSH VALLEY HYDRO ELECTRIC CO., that they signed the foregoing document as officers of the corporation and that the statements contained therein are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

Eileen Sorensen
NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 11-17-85

(SEAL)

NOTARY SEAL

NO. 718016
RECORDED AT REQUEST OF
Randy C. Budge
'83 OCT 31 A10:16

OFFICIAL RECORD BK. NO. 401
BANNOCK COUNTY, IDAHO
LARRY W. GHAN RECORDER
FEE 18.00 DEPUTY lah

AGREEMENT

Underground Pipeline Crossing
Topaz, Idaho (MP 187.81)

LD No. 25939
Audit No. _____

THIS AGREEMENT, made and entered into as of the 22nd day of February, 1984, by and between OREGON SHORT LINE RAILROAD COMPANY and its lessee, UNION PACIFIC RAILROAD COMPANY, corporations of the State of Utah (hereinafter collectively the Licensor), and MARSH VALLEY HYDROELECTRIC COMPANY, a corporation of the State of Idaho (hereinafter the Licensee), WITNESSETH:

NOW THEREFORE, it is mutually agreed by and between the parties hereto as follows:

1. Upon the execution and delivery of this Agreement, the Licensee shall pay to the Licensor the sum of one hundred dollars ($100.00) to cover the cost of preparation hereof. In consideration of the sum of one hundred fifty dollars ($150.00) to be paid by the Licensee to the Licensor upon the execution and delivery of this Agreement and in further consideration of the covenants and agreements herein contained to be by the Licensee kept, observed and performed, the Licensor hereby grants to the Licensee, subject to the terms and conditions herein stated, the right to construct and thereafter, during the term hereof, to maintain and operate the underground water pipeline (hereinafter the Pipe Line) across the property and under the track of the Licensor in the location identified by yellow line, and in conformity with the dimensions and specifications indicated, on the print dated October 21, 1983, marked Exhibit A, hereto attached.

2. The grant herein made is subject to each and all of the terms, provisions, conditions, limitations and covenants set forth herein and in Exhibit B hereto attached and by this reference incorporated herein.

3. This Agreement shall take effect as of the date first herein written and shall continue in full force and effect until terminated as herein provided.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in duplicate as of the date first herein written.

Witness:

OREGON SHORT LINE RAILROAD COMPANY
UNION PACIFIC RAILROAD COMPANY

By _____
General Manager

Attest:

Secretary

MARSH VALLEY HYDROELECTRIC COMPANY

By _____
President

DUPLICATE ORIGINAL - LICENSEE'S COPY

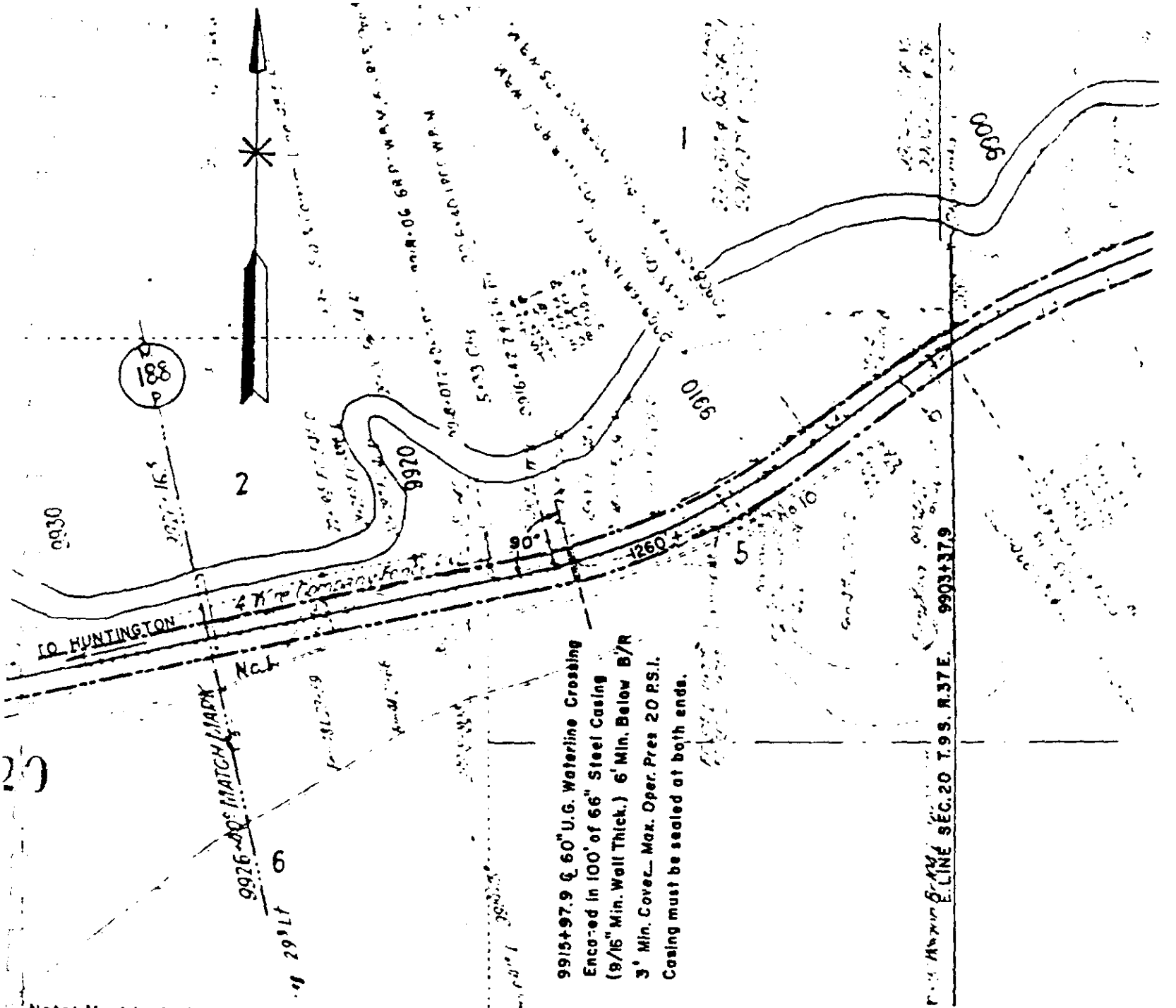


EXHIBIT "A"
OREGON SHORT LINE RAILROAD CO.
UNION PACIFIC RAILROAD COMPANY (LESSEE)
Topaz ~~Boise~~, Bannock County, Idaho
M.P. 187.81 - Main Line

To accompany agreement with Marsh Valley HydroElectric Company covering an underground water pipeline crossing

Scale 1" = 400'

Office of Director - Real Estate
Omaha, Nebraska October 21, 1983

* L E G E N D *

U.G. water line shown.....YELLOW
R/W outlined.....

EXHIBIT B

The foregoing grant is subject and subordinate to the prior and continuing right and obligation of the Licensor to use and maintain its entire property in the performance of its public duty as a common carrier, and is also subject to the right and power of the Licensor to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication or other wire lines, pipe lines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by the Licensor without liability to the Licensee or to any other party for compensation or damages.

The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of the Licensor's property, and others) and the right of the Licensor to renew and extend the same, and is made without covenant of title or for quiet enjoyment.

Section 2. CONSTRUCTION, MAINTENANCE AND OPERATION.

The Pipe Line shall be constructed, operated, maintained, repaired, renewed, modified and/or reconstructed by the Licensee in strict conformity with Union Pacific Railroad Co. Common Standard Specification 1029 adopted November 1949, as subsequently amended, except as may be modified and approved by the Licensor's Chief Engineer. In the event such Specification conflicts in any respect with the requirements of any federal, state or municipal law or regulation, such requirements shall govern on all points of conflict, but in all other respects the Specification shall apply.

All work performed on property of the Licensor in connection with the construction, maintenance, repair, renewal, modification or reconstruction of the Pipe Line shall be done under the supervision and to the satisfaction of the Licensor.

Prior to the commencement of any work in connection with the construction, maintenance, repair, renewal, modification, relocation, reconstruction or removal of the Pipe Line where it passes underneath the roadbed and track or tracks of the Licensor, the Licensee shall submit to the Licensor plans setting out the method and manner of handling the work, including the shoring and cribbing, if any, required to protect the Licensor's operations, and shall not proceed with the work until such plans have been approved by the Chief Engineer of the Licensor and then only under the supervision of the Chief Engineer or his authorized representative. The Licensor shall have the right, if it so elects, to provide such support as it may deem necessary for the safety of its track or tracks during the time of construction, maintenance, repair, renewal, modification, relocation, reconstruction or removal of the Pipe Line, and, in the event the Licensor provides such support, the Licensee shall pay to the Licensor, within fifteen (15) days after bills shall have been rendered therefor, all expense incurred by the Licensor in connection therewith, which expense shall include all assignable costs plus ten percent (10%) to cover elements of expense not capable of exact ascertainment.

The Licensee shall keep and maintain the soil over the Pipe Line thoroughly compacted and the grade even with the adjacent surface of the ground.

Section 3. NOTICE OF COMMENCEMENT OF WORK.

The Licensee shall notify the Licensor at least forty-eight (48) hours in advance of the commencement of any work upon property of the Licensor in connection with the construction, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line. All such work shall be prosecuted diligently to completion.

Section 4. LICENSEE TO BEAR ENTIRE EXPENSE.

The Licensee shall bear the entire cost and expense incurred in connection with the construction, maintenance, repair and renewal and any and all modification, revision, relocation, removal or reconstruction of the Pipe Line, including any and all expense which may be incurred by the Licensor in connection therewith for supervision or inspection, or otherwise.

Section 5. RELOCATION OR REMOVAL OF PIPE LINE.

The license herein granted is subject to the needs and requirements of the Licensor in the operation of its railroad and in the improvement and use of its property, and the Licensee shall, at the sole expense of the Licensee, move all or any portion of the Pipe Line to such new location or (unless the Pipe Line extends entirely across the property of the Licensor) remove the Pipe Line from such property, as the Licensor may designate, whenever, in the furtherance of its needs and requirements, the Licensor shall find such action necessary or desirable.

All the terms, conditions and stipulations herein expressed with reference to the Pipe Line on property of the Licensor in the location hereinbefore described shall, so far as the Pipe Line remains on the property, apply to the Pipe Line as modified, changed or relocated within the contemplation of this section.

Section 6. NO INTERFERENCE WITH LICENSOR'S OPERATION.

The Pipe Line and all parts thereof within and outside of the limits of the property of the Licensor shall be constructed and, at all times, maintained, repaired, renewed and operated in such manner as to cause no interference whatsoever with the constant, continuous and uninterrupted use of the tracks, property and facilities of the Licensor, and nothing shall be done or suffered to be done by the Licensee at any time that would in any manner impair the safety thereof.

Section 7. CLAIMS AND LIENS FOR LABOR AND MATERIAL; TAXES.

The Licensee shall fully pay for all materials joined or affixed to and labor performed upon property of the Licensor in connection with the construction, maintenance, repair, renewal, modification or reconstruction of the Pipe Line, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of the Licensee. The Licensee shall indemnify and hold harmless the Licensor against and from any and all liens, claims, demands, costs and expenses of whatsoever nature in any way connected with or growing out of such work done, labor performed, or materials furnished.

The Licensee shall promptly pay or discharge all taxes, charges and assessments levied upon, in respect to, or on account of the Pipe Line, to prevent the same from becoming a charge or lien upon property of the Licensor, and so that the taxes, charges and assessments levied upon or in respect to such property shall not be increased because of the location, construction or maintenance of the Pipe Line or any improvement, appliance or fixture connected therewith placed upon such property, or on account of the Licensee's interest therein. Where such tax, charge or assessment may not be separately made or assessed to the Licensee but shall be included in the assessment of the property of the Licensor, then the Licensee shall pay to the Licensor an equitable proportion of such taxes determined by the value of the Licensee's property upon property of the Licensor as compared with the entire value of such property.

Section 8. RESTORATION OF LICENSOR'S PROPERTY.

In the event the Licensee shall take down any fence of the Licensor or in any manner move or disturb any of the other property of the Licensor in connection with the construction, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line, then and in that event the Licensee shall, as soon as possible and at Licensee's sole expense, restore such fence and other property to the same condition as the same were in before such fence was taken down or such other property was moved or disturbed, and the Licensee shall indemnify and hold harmless the Licensor, its officers, agents and employes, against and from any and all liability, loss, damages, claims, demands, costs and expenses of whatsoever nature, including court costs and attorneys' fees, which may result from injury to or death of persons whomsoever, or damage to or loss or destruction of property whatsoever, when such injury, death, damage, loss or destruction grows out of or arises from the taking down of any fence or the moving or disturbance of any other property of the Licensor.

Section 9. LIABILITY.

The Licensee shall indemnify and hold harmless the Licensor and other companies which use the property of the Licensor, their officers, agents and employes, against and from any and all liability, loss, damage, claims, demands, costs and expenses of whatsoever nature, including court costs and attorneys' fees, which may result from injury to or death of persons whomsoever, or against and from damage to or loss or destruction of property whatsoever (including damage to the roadbed, tracks, equipment or other property of the Licensor and such other companies or property in their care or custody), when such injury, death, loss, destruction or damage is due to or arises from the bursting of or leaks in the Pipe Line, or in any other way whatsoever is due to, or arises because of, the existence of the Pipe Line or the construction, operation, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line or any part thereof, or to the contents therein or therefrom (except when caused directly and solely by the negligence of the Licensor and such other companies, their officers, agents or employes). The Licensee does hereby release the Licensor and such other companies, their officers, agents and employes, from all liability for damages on account of injury to the Pipe Line from any cause whatsoever.

Section 10. TERMINATION ON NONUSER OR DEFAULT.

If the Licensee does not use the right herein granted or the Pipe Line for one (1) year, or if the Licensee continues in default in the performance of any covenant or agreement herein contained for a period of thirty (30) days after written notice from the Licensor to the Licensee specifying such default, the Licensor may, at its option, forthwith terminate this Agreement. Notice of default and notice of termination may be served upon the Licensee by mailing to the last known address of the Licensee.

Section 11. REMOVAL OF PIPE LINE UPON TERMINATION OF AGREEMENT.

Within ninety (90) days after the termination of this Agreement howsoever, the Licensee shall, at Licensee's sole expense, remove the Pipe Line from those portions of the property not occupied by the roadbed and track or tracks of the Licensor and shall restore, to the satisfaction of the Licensor, such portions of such property to as good condition as they were in at the time of the construction of the Pipe Line. If the Licensee fails to do the foregoing, the Licensor may do such work of removal and restoration at the cost and expense of the Licensee. The Licensor may, at its option, upon such termination, at the entire cost and expense of the Licensee, remove the portions of the Pipe Line located underneath its roadbed and track or tracks and restore such roadbed to as good condition as it was in at the time of the construction of the Pipe Line, or it may permit the Licensee to do such work of removal and restoration under the supervision of the Licensor. In the event of the removal by the Licensor of the property of the Licensee and of the restoration of the roadbed and property as herein provided, the Licensor shall in no manner be liable to the Licensee for any damage sustained by the Licensee for or on account thereof, and such removal and restoration shall in no manner prejudice or impair any right of action for damages, or otherwise, that the Licensor may have against the Licensee.

Section 12. WAIVER OF BREACH.

The waiver by the Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by the Licensee shall in no way impair the right of the Licensor to avail itself of any subsequent breach thereof.

Section 13. AGREEMENT NOT TO BE ASSIGNED.

The Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of the Licensor, and it is agreed that any transfer or assignment or attempted transfer or assignment of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without such consent in writing, shall be absolutely void and, at the option of the Licensor, shall terminate this Agreement.

Section 14. SUCCESSORS AND ASSIGNS.

Subject to the provisions of Section 13 hereof, this Agreement shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

STATE OF OREGON)
: ss.
County of Multnomah)

On the 14th day of March, 1984, before me, a Notary Public in and for said County, personally appeared A. L. SHOENER to me personally known to be the General Manager of OREGON SHORT LINE RAILROAD COMPANY and UNION PACIFIC RAILROAD COMPANY, who, being duly sworn, did say that the instrument was signed and executed in behalf of said corporations by authority duly conferred by their By-Laws, and acknowledged to me said instrument to be the free act and deed of said corporations.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first in this, my certificate, written.

Notary Public

Residing at Barton

My Commission Expires:

9-14-86

STATE OF IDAHO)
: ss.
County of Bannock)

On the 22nd day of February, 19 84, before me, a Notary Public, personally appeared ~~LYNDON GREEN and~~ JOHN BOWEN to me personally known to be the ~~President and Secretary, respectively,~~ of MARSH VALLEY HYDROELECTRIC COMPANY, who, being duly sworn, did say that the instrument was signed and executed in behalf of said corporation by authority duly conferred according to law, and acknowledged to me said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first in this, my certificate, written.

Notary Public

Residing at

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

My Commission Expires:

10/15/84

NO 726364

Union Pacific System
Salt Lake City, Utah
'84 APR -2 A9:12

407

LARRY W. [illegible] RECORDER
FEE 12.00 DEPUTY lah

EXHIBIT B - APPENDIX B

BOUNDARY DESCRIPTION

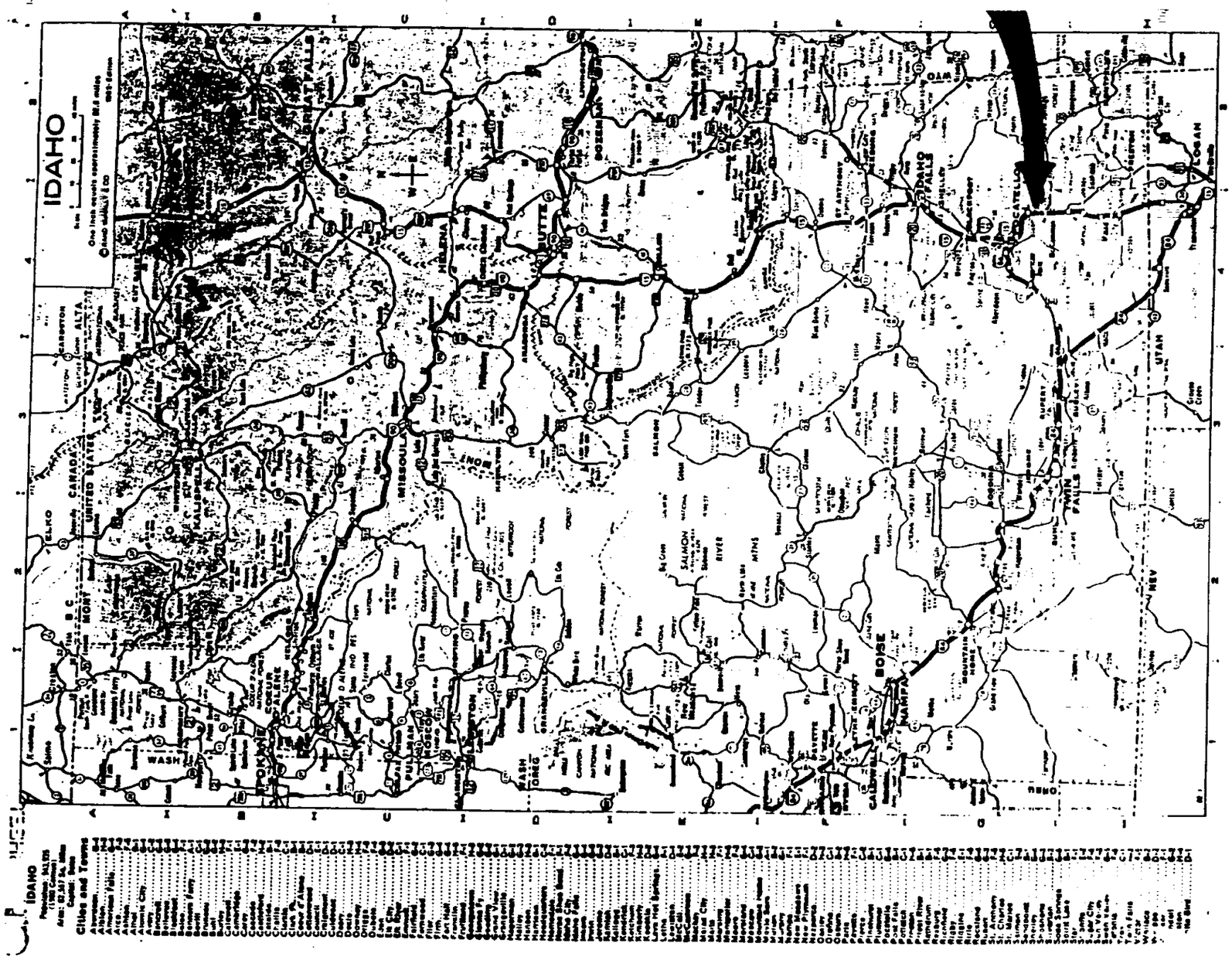
BOUNDARY DESCRIPTION

The point of bearing (POB) is located on the southwest side corner of the proposed power plant site, which is approximately 202 feet by 228 feet.

The project boundary will encompass 50 feet to the south of the site, on both sides of the penstock easement to the Portneuf Marsh Valley canal.

The access easement and power transmission easement is a corridor that runs northeast from the power plant site to highway 30 and terminates at the Utah Power & Light connection pole. The project boundary encompasses 25 feet on both sides of this corridor.

MARSH VALLEY HYDROELECTRIC PROJECT LOCATION



REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.

FINANCING PLANNING CONSTRUCTION

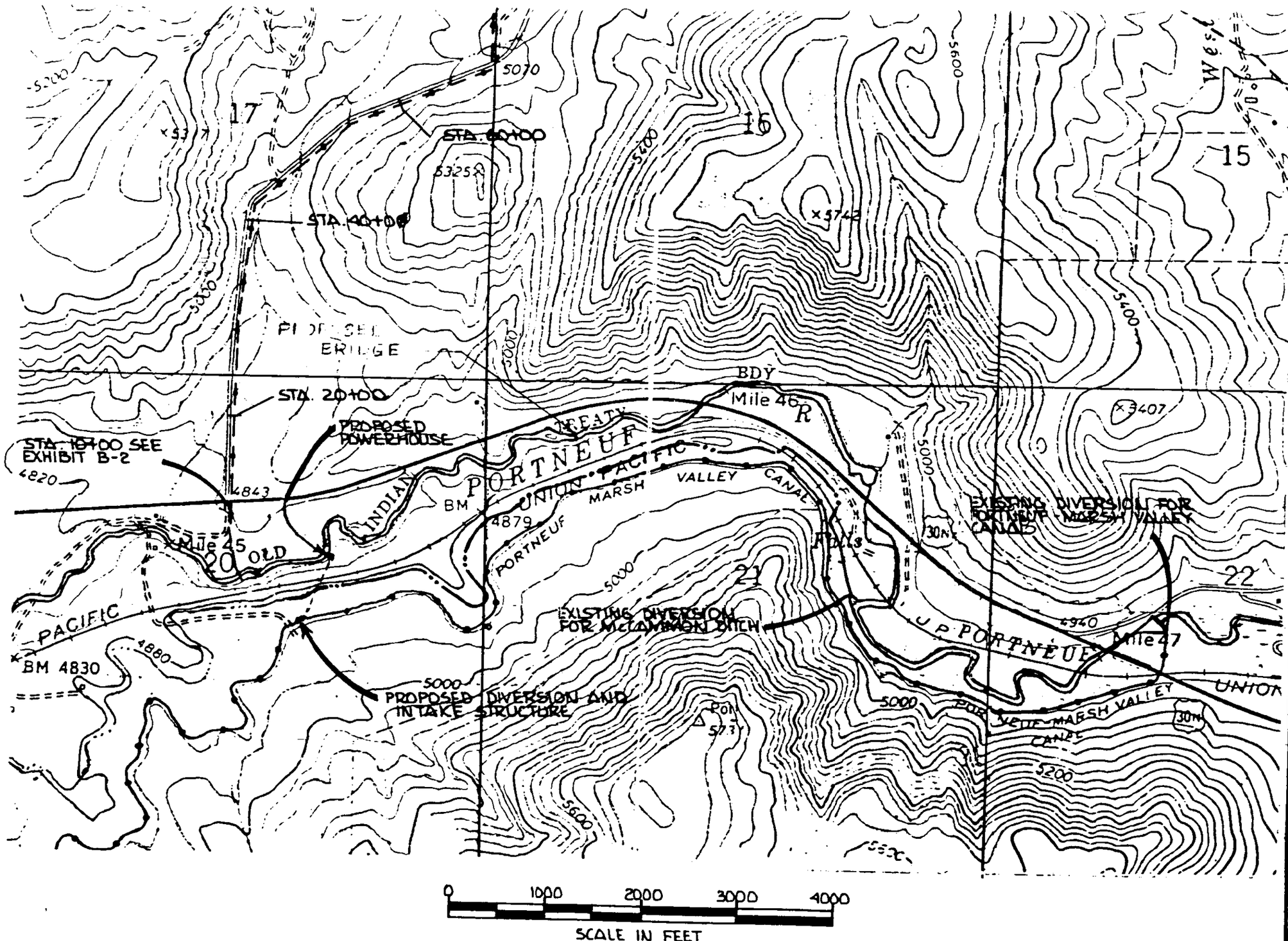
ORANGE, CALIFORNIA (714) 647-6667

MARSH VALLEY HYDROELECTRIC PROJECT

EXHIBIT B-1

PROJECT LOCATION MAP

SHEET 1 OF 3 SHEETS

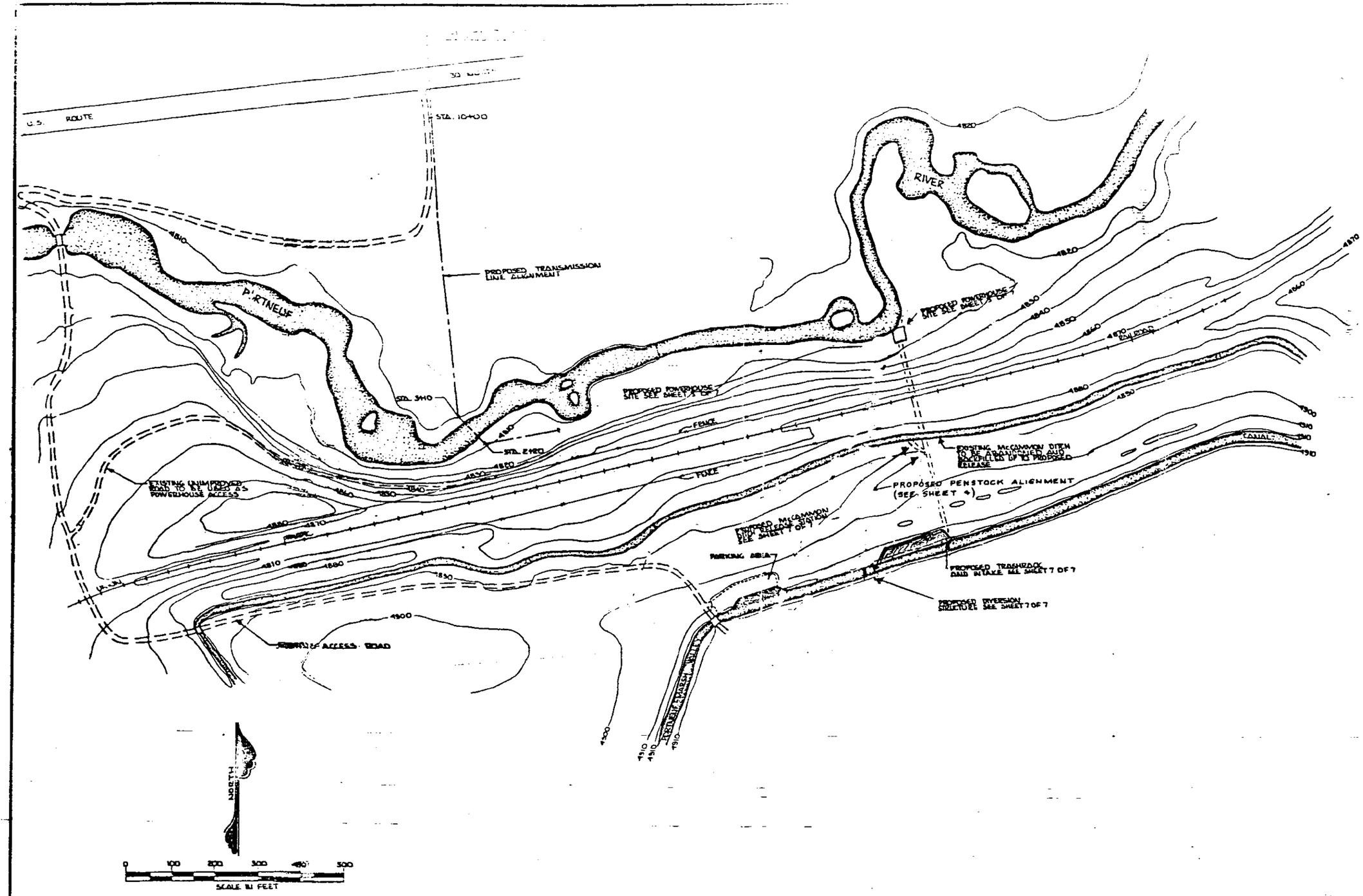


REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 647-6667

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT B-2
PROJECT LOCATION MAP

SHEET 2 OF 3 SHEETS



REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.

FINANCING PLANNING CONSTRUCTION

ORANGE, CALIFORNIA

MARSH VALLEY HYDROELECTRIC PROJECT

EXHIBIT B-3

PRINCIPLE PROJECT FEATURES

SHEET 3 OF 3 SHEETS

EXHIBIT E

ENVIRONMENTAL REPORT

FOR THE

MARSH VALLEY PROJECT

EXHIBIT E

EVIRONMENTAL REPORT

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EXHIBIT E

ENVIRONMENTAL REPORT

1. ENVIRONMENTAL SETTING

1.1 Vegetative Cover

The Portneuf River-Marsh Valley (PMV) Canal originates from the Portneuf River just upstream from the Highway 30 bridge and roughly parallels the river through the project area. There are three types of vegetation within the project area: (1) dryland vegetation dominated by a sagebrush-grass association; (2) riverine vegetation along the Portneuf River and the PMV Canal; and (3) cultivated crops within the valley area.

Relatively sparse dryland vegetation characterizes the hillsides adjacent to the Portneuf Valley. Sagebrush, cheatgrass, rabbitbrush and wheatgrass are the primary species. Plant density is locally heavy in the numerous small draws that extend down the hillsides to the valley. Sagebrush is also scattered throughout the river valley.

Riverine vegetation predominates along the Portneuf River and the PMV Canal. This riparian vegetation includes such species as willow, wild rose, currant, sagebrush and a variety of grasses and forbs. Narrow-leafed cottonwood, willow and a few other tree species are generally scattered along the Portneuf River, but occur in significant concentrations in a few areas. The trees occur primarily along the river with the largest stand located upstream from the PMV Canal inlet structure.

There is some cropland within the general project area. Hay and small grains appear to be the main crops grown on these parcels. All crops are irrigated by the Portneuf River and associated canals.

1.2 Fish and Wildlife Resources

The 1978 Stream Evaluation Map, State of Idaho classifies the Portneuf River as a Value Class II stream from the Portneuf-Marsh Valley Canal diversion upstream to Lava Hot Springs. Downstream from the canal diversion the river is classified as a Value Class III stream. The bulk of the project area appears to contain the reach of the Portneuf which has been classed as a Value Class III fishery.

The Portneuf River in the general project vicinity is known to contain rainbow, brown and cutthroat trout. The mixture and number of these trout varies greatly within different reaches of the river. The Idaho Department of Fish and Game has conducted electrofishing surveys on several sections of the Portneuf River, but the reach of the Portneuf within the project area was not included. Surveys were conducted from Lava Hot Springs downstream for a distance of two miles. This section

is still several miles upstream from the project area. Trout population estimates based on these 1979-1981 surveys are shown below:

TROUT POPULATION ESTIMATES
PORTNEUF RIVER FROM LAVA HOT SPRINGS DOWNSTREAM TWO MILES

Year	Wild Rainbows	Hatchery Rainbows	Brown	Cutthroat	Total*
1979	1,290	—	128	—	1,418
1980	872	—	28	18	918
1981	2,369	50	112	5	2,536

*The 95 percent confidence interval of the population estimate was ±904 in 1979, ±884 in 1980 and ±1,061 in 1981.

Since the Idaho Department of Fish and Game surveys did not cover the project area, a survey for most of the affected reach of the Portneuf was conducted (See Appendix B of Exhibit E). This survey was conducted during January and February of 1983 and utilized a combination of gillnet, electroshocking and seining. The reach of the river from the canal diversion downstream to an area near the proposed powerhouse site was surveyed.

The survey discovered eight species of fish within the surveyed reach of the Portneuf: brown trout, rainbow trout, Utah sucker, bluehead sucker, Utah chub, speckled dace, redside shiner and mottled sculpin. A total of 139 fish were collected, excluding the sculpin which was relatively abundant in some localities. Most of the fish were suckers and minnows (shiners, dace and chub) were relatively uncommon.

A total of five brown trout and two rainbow trout were collected. All were wild trout, and the browns appeared to be in poor condition. The surveyor attributed the poor condition of the brown trout to a lack of forage fish. The total number of trout within the study segment was extimated to be less than 200.

Wildlife which inhabit the project area include those associated with the riparian habitat and those found on the adjacent drylands and cultivated areas. Ducks, geese, gulls and other waterfowl are common along the Portneuf River at certain times of the year. Beaver, Muskrat and perhaps other aquatic furbearing animals inhabit the river and canals and obtain relatively high populations in a few areas. Other mammals inhabiting the general project area include the mule deer, badger, skunk and ground squirrel.

Some upland game birds inhabit the dryland and cultivated fields in the project area. Gray (Hungarian) partridge, mourning dove, valley quail, a few ring-necked pheasants and perhaps an occasional sage grouse are found within the project area.

A variety of birds-of-prey range along the Portneuf River. Cooper's hawk, sharpshinned hawk, goshawk, red-tailed hawk, golden eagle and several species of owl are common in the general area. In addition to raptors, a variety of small songbirds and other nongame species inhabit the area.

1.3 Water Quality and Quantity

A gaging station is maintained at Topaz which is approximately 1.5 miles upstream from the PMV Canal inlet. Hydrologic flows are discussed in Exhibit A, Section 4.

There is no water quality information for the Portneuf River or the canals within the project area. The Idaho Department of Health and Welfare maintains one trend station on the Portneuf River below Pocatello. Water quality in the tested area is rated as poor. Sources of pollution are agricultural, industrial and urban. Though the water quality in the project area is probably superior to that at the Pocatello trend station, it is also polluted to some degree by irrigation and municipal wastes. Currently, during the irrigation season, the Portneuf River is virtually dewatered, and low flows combine with high temperatures to produce poor water quality.

1.4 Land and Water Uses

U.S. Highway 30N and the Union Pacific Railroad are within the narrow Portneuf Valley. Other than these transportation routes and a few irrigated agricultural plots, there is little land use in the area. Some fishing and hunting activity is conducted along the river, but these uses appear to be limited.

The PMV Canal and the McCammon Ditch are diverted from the Portneuf River within the Project area. These canals carry water to large agricultural areas located downstream from the project. The primary water use of the Portneuf River in the general project area is for agricultural irrigation.

1.5 Recreational Uses

Recreational uses of the project area are limited to occasional hunting and fishing activities. The subject reach of the Portneuf is generally regarded as a poor fishery for trout.

1.6 Socio-Economic Conditions

There are no legal, social or institutional constraints associated with the proposed Marsh Valley Power Project. The project is small scale. There will be short term employment benefits for the area during construction. Over the long-term, the project will provide economic benefits to the Canal Co. which can be passed on to the water users in the area in the form of reduced rates and/or better services.

1.7 Historical and Archaeological Resources

There are no recorded historical or archaeological sites within the project area. The proposed project would utilize existing facilities and would not involve sufficient construction to damage any historical or archaeological resources. According to the State Historic

Preservation Officer, the project will have no effect on any archaeological or historical resources (See letter from the State Historic Preservation Officer - Appendix A of Exhibit E). In the event historical sites are uncovered during construction, all construction would be stopped until authorization to proceed is given by the State Historical Preservation Officer.

1.8 Scenic and Aesthetic Resources

There are no unusual scenic or aesthetic resources in the project area. Highway 30, the railroad and the canals help create a very mediocre scene. Surrounding hills are generally dry and do not support tree growth.

1.9 Endangered and Threatened Species

There are no known endangered or threatened species of plants or animals in the project area (See U.S. Fish & Wildlife Letter - Appendix A of Exhibit E).

1.10 Critical Habitats

The riverine vegetation along the Portneuf River and the PMV Canal provides habitat for a variety of birds and animals. However, this habitat is not considered critical and similar habitat is found along the waterways outside of the project area.

1.11 National Register of Historic Places

There are no sites included in or eligible for inclusion in the National Register of Historic Places.

2. POTENTIAL ENVIRONMENTAL IMPACTS

2.1 Construction

The proposed project would require the new construction of a forebay, penstock, powerhouse and appurtenant facilities. Most of the potential adverse impacts would be related to the construction phase in the vicinity of the proposed powerhouse.

Construction of the new facilities and the tailrace channel would create some potential for increased stream turbidity. Most of the potential would be associated with the forebay in the PMV Canal, and any increased turbidity would be largely dissipated into the irrigation network.

Construction activity would result in a temporary increase in noise levels in the immediate project area. This increased noise could poten-

tially disrupt the normal activity of wildlife in the project vicinity. Nesting waterfowl would be especially vulnerable if construction is conducted during the nesting season. Since the highway and railroad are in the immediate area at present, wildlife are not likely to be disturbed to any great extent by construction activity. There are no human dwellings in the immediate project area.

Construction activity would have the potential to destroy riparian vegetation along the canal and at certain points on the Portneuf River (i.e., powerhouse location and tailrace).

2.2 Operation

The operation of the proposed hydroelectric faciltiy would create potential for some ongoing impacts. These long-term impacts include the potential hazard to fish and wildlife, noise, water pollution and degradation of aesthetic quality.

Electrical shock from generating and transmission facilities is a potential hazard to wildlife. Raptors inhabit the project area, and these birds have a natural tendency to perch upon structures.

There are also a variety of mammals in the area that could come in contact with electrical components of the faciliity.

Damage to aquatic life due to turbine ingestion is a hazard with hydropower plants unless precautions are taken to screen the inlet water. Some screening is usually necessary to protect generating equipment as well as fish and aquatic wildlife.

Operation of the generating units would produce some noise on a long-term basis. However, noise levels would not be sufficient to be disruptive to wildlife or human activities. Noise from generating equipment would not exceed the 65 decibel level outside of the immediate powerhouse area.

Turbine operation could potentially contribute minute amounts of pollution to the river by releasing grease, oil or metallic particles. These pollutants would not be measurable even in extreme cases. Selection of properly constructed generating equipment would essentially eliminate any potential for water pollution.

2.3 Agency Concerns

The following agencies were consulted regarding the proposed development.

a. U. S. Fish and Wildlife

(1) Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

(2) The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

(3) Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage and nitrogen supersaturation resulting from air entrainment in the penstocks.

b. Idaho State Historical Society

The project will have no effect on any archaeological or historic properties.

c. National Marine Fisheries Service

Since there are no anadromous fish, the agency had no comments.

2.4 Proposed Mitigation Measures

a. By Agencies

(1) U.S. Fish and Wildlife Service (FWS)

The FWS determined that the following study and preliminary terms and conditions were appropriate.

- Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

- Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

- Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

- Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

(2) Idaho Department of Fish and Game (IDFG)

- Recommended a minimum streamflow in the Portneuf River past the check structures of not less than what presently occurs during irrigation season. Ten (10) cfs was indicated by the agency as appropriate.

- Transmission lines buried or designed to preclude raptor mortalities.

- Avoid short-term and long-term erosion due to construction practices.

- Avoid undue disturbance of riparian habitat; replacement of vegetation may be required.

B. By Applicant

Most of the potential adverse environmental impacts from the construction and operation of the proposed facility can be mitigated. The following measures are proposed to largely eliminate the potential for adverse environmental effects from the construction and operation of the facility:

(1) Establish standards and procedures in the project bid documents regarding the timing of construction, soil stabilization, construction methods and other efforts required to minimize stream turbidity.

(2) Establish standards and procedures in the project bid documents regarding the use of mufflered equipment, the hours of construction and other requirements to reduce construction noise impact.

(3) Fence the transformer area and raptor-proof transmission line facilities to minimize the electrocution hazard to wildlife.

(4) Select turbines which utilize sealed bearings or water-lubricated bearings in order to minimize the potential for water pollution.

(5) Design the total facility to minimize the potential for nitrogen and oxygen problems.

(6) Use appropriate earthtone colors for the powerhouse unit to minimize the potential for adverse visual and aesthetic impacts.

EXHIBIT E

ALTERNATIVE MEANS OF OBTAINING POWER

3. ALTERNATIVE MEANS OF OBTAINING POWER

In the event that the proposed hydroelectric facilities are not constructed, the Applicant would have to obtain power from the Utah Power and Light Company. Utah produces power from a variety of sources, including hydroelectric and fossil fuel.

EXHIBIT E - APPENDIX A

Letters of Agency Consultation

File
Marsh Valley
Ind Co file

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
4620 Overland Road, Room 209
Boise, Idaho 83705

February 11, 1983

Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Avenue
Suite 1
Boise, Idaho 83709

Dear Mr. Auth:

Thank you for your letter of January 11 regarding the proposed hydroelectric project. In accordance with 18 CFR consultation requirements, we have reviewed your license exemption project on Portneuf River in Bannock County, Idaho.

We understand that the proposed project would consist of the following: (1) an automatically controlled diversion in the Portneuf-Marsh Valley Canal, (2) two steel penstocks, 400 feet long and 125 feet long, (3) a powerhouse with an estimated installed capacity of 1,200 kW, and (4) a three-phase transmission line about 2 miles long.

Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage, and nitrogen supersaturation resulting from air entrainment in the penstocks.

No listed or proposed threatened or endangered species are known to occur within the project area.

Based on the present information, we have determined that the following study and preliminary terms and conditions are appropriate. We encourage the applicant to perform the needed study prior to submitting an application to the FERC since a design change may be required.

Needed Study:

Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

Preliminary terms and conditions:

1. Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

2. Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

3. Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

When you file the application with FERC, please provide complete copies to us and IDFG for our review. If deemed necessary after further analysis of the project, we shall stipulate new or revised terms and conditions in our response to FERC's public notice of the proposed exemption. Please let us know if we can be of further assistance.

Sincerely yours,

Walter D. Ray

for John P. Wolflin
Acting Field Supervisor

cc: IDFG, Hdqtrs, Boise
IDFG, Region 5, Pocatello
BIA, Portland
FWS, AE-LWD, Portland
FWS, SE, Boise
Sho-Ban Tribes, Ft. Hall (Christoferson)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

January 19, 1983 F/NWR5:CRB

Mr. Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Ave., Suite 1
Boise, Idaho 83709

Re: Portneuf - Marsh Valley Hydroelectric Project - Application for Exemption from Licensing

Dear Mr. Auth:

The National Marine Fisheries Service has received your letter requesting our views and recommendations concerning the development of the subject project.

Since there are no anadromous fish in the area, we have no comments to offer.

Sincerely,

Dale R. Evans
Division Chief

cc: Federal Energy Regulatory Commission, Washington, D.C.

IDAHO STATE HISTORICAL SOCIETY
610 NORTH JULIA DAVIS DRIVE BOISE, 83702

J-U-B Engineers
RECEIVED
JAN 2 1 1983
BOISE, IDAHO

January 25, 1983

Mr. Marc A. Auth
J-U-B Engineers, Inc.
250 S. Beechwood Avenue
Suite 1
Boise, ID 83709

Dear Mr. Auth:

Thank you for informing us of the proposed Portneuf - Marsh Valley hydroelectric project. This project will have no effect on any archaeological or historic properties.

Sincerely,

Thomas J. Green
State Archaeologist
State Historic Preservation Office

TG/kh

IDAHO DEPARTMENT OF FISH AND GAME
REGION 5 Phone 232-4703
South Fifth Avenue • P.O. Box 4229
Pocatello, Idaho 83201

March 11, 1983

Mr. Marc A. Auth
Project Engineer
J-U-B Engineers, Inc.
250 So. Beechwood Ave.
Suite One
Boise, ID 83709

Re: Portneuf/Marsh Valley Hydroelectric Project. Early consultation. Application for exemption from FERC licensing. Marsh Valley Hydroelectric Company.

Dear Mr. Auth:

This letter is based on your request for early consultation on the above named project. We recently acquired J. S. Griffith's study entitled "Fish Populations In The Vicinity Of The Proposed Marsh Valley Hydro Project," and have reviewed his findings.

We recommend that minimum flows in the area from the diversion to the powerplant be not less than those that currently occur during the irrigation season. On August 26, 1977 we measured 10 cfs of water in this area and feel this is indicative of irrigation season flows.

Other requirements of this project include the following: (1) transmission lines buried or designed to prevent raptor mortalities; (2) project construction to avoid creating short-term and long-term erosion and undue disturbance of riparian habitat; and (3) replacement of vegetation may be required.

These conditions do not constitute submission of terms and conditions under Section 408 of the Energy Security Act of 1980. Terms and conditions will be submitted after notice of application from the Federal Energy Regulatory Commission (FERC).

As required by Section 4.107 (a), (2) of the FERC Order No. 106, please forward a copy of the exemption application to the Idaho Department of Fish and Game, P. O. Box 25, Boise, Idaho 83707, at the time it is submitted to the Federal Energy Regulatory Commission.

Sincerely,

John T. Heimer
for Jerry Mallet
Region 5 Supervisor

cc: USFWS (Wolflin)
Program Coordination

• EQUAL OPPORTUNITY EMPLOYER •

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83201
Telephone: (208) 232-4703

September 20, 1984

Mr. Ronald D. Carlson
Eastern Regional Supervisor
Idaho Department of Water Resources
150 Shoup
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Re: Application for Water Rights, #29-7578 and #29-7772, Portneuf River Hydroelectric Projects

We would like to withdraw our protests against the above referenced applications as we have now been furnished with information regarding them as requested. We understand that a minimum of 10 cfs is to be left in the stream and all other conditions requested by the Department agreed to.

Sincerely,

David Neider
Supervisor, Region 5

DN:JH:sc

cc: Randall C. Budge

EQUAL OPPORTUNITY EMPLOYER

EXHIBIT E - APPENDIX B

Fish Population Study

FISH POPULATIONS IN THE VICINITY OF

THE

PROPOSED MARSH VALLEY HYDRO PROJECT

Report To:

J-U-B Engineers, Inc.
and
The Marsh Valley Hydro Electric Company

22 February 1983

By:

J. S. Griffith, Ph.D.
2055 Kenneth Place
Pocatello, ID 83201

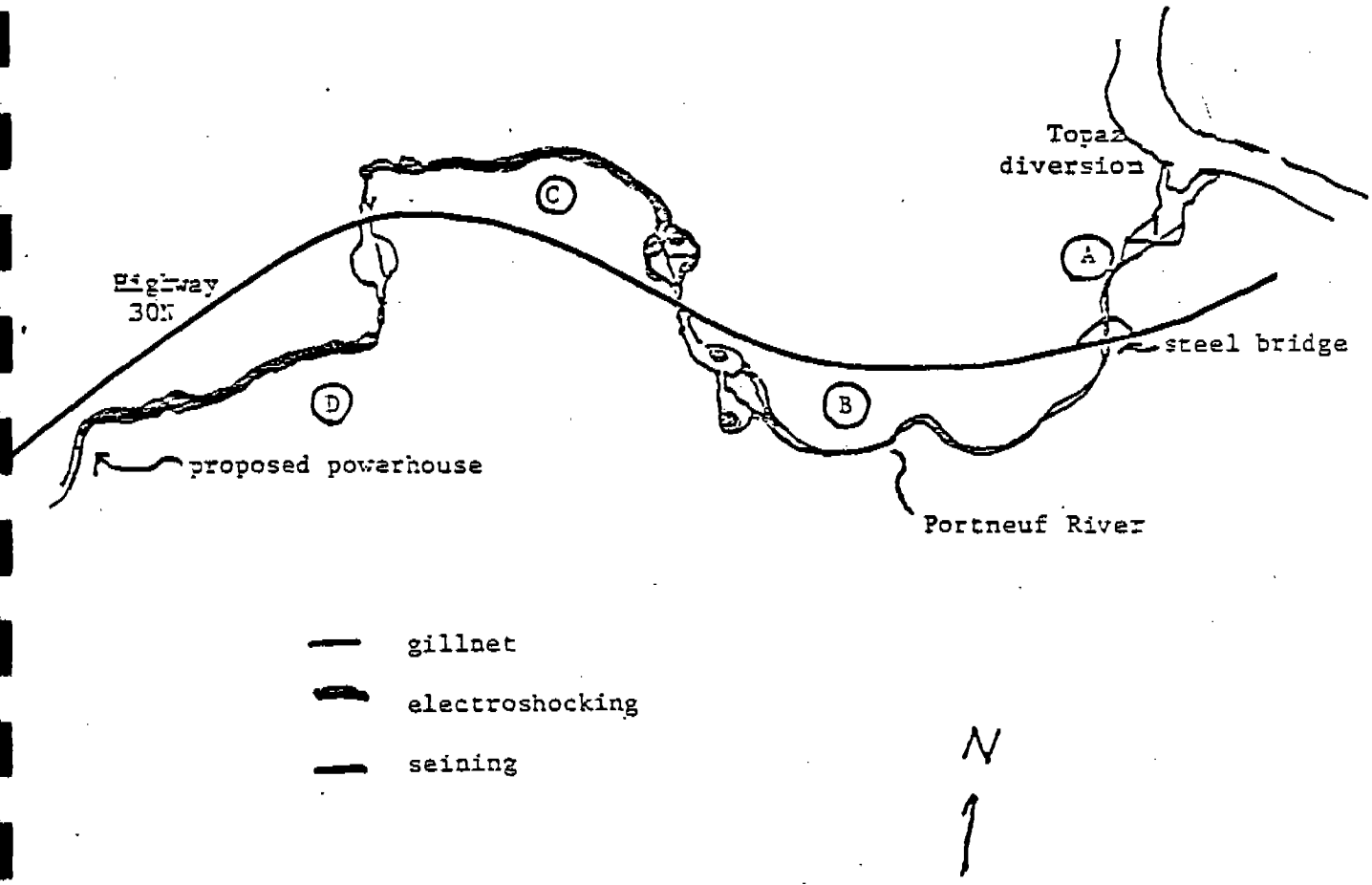
Introduction

Field data were gathered in January and February 1983 to characterize fish populations in a portion of the Portneuf River between McCammon and Lava Hot Springs (Bannock County, Idaho) that would be impacted by the proposed hydro project. The project would divert approximately 250 cfs at the existing Topaz Diversion during the non-irrigation season and return that flow through a powerhouse to the river at a point adjacent to Highway 30N approximately 1.3 road miles west of the highway bridge at Topaz (Figure 1). Flows in approximately 15,000 feet of the river would thus be substantially reduced, in a manner similar to that in which it (and a longer reach downriver) is presently dewatered during the irrigation season. During peak runoff (typically at 500 - 700 cfs in April), flow would resume in the natural channel.

Site Description

From the Topaz Diversion to the site of the proposed powerhouse, the river is dissected into four segments as it is passed in culverts under Highway 30N (Figure 1). It is impossible to drift a boat equipped with sampling gear from one segment to the next. River segment A, at the head of the section studied, extends approximately 500 feet and is characterized by a steep cascade over a lava sill, a deep plunge pool, and a short run. Segment B, approximately 8,700 feet long, is low-velocity water (possibly channelized along the Union Pacific rail line) followed by two waterfalls and plunge pools. Segment C, approximately 3,500 feet in length, consists of a large pool (the largest in the area studied)

Figure 1. Sampling locations and gear types used to sample fish populations in the Portneuf River below Topaz Diversion.



and a low-velocity run, with the lower quarter being a series of short drops over lava sills, and small pools. Segment D is 2,300 feet in length, with a pool at its head and then a series of drops (some to 3 feet) and pools. In all, there were five major pools in the 15,000-foot section, all deeper than 10 feet.

During our sampling in January an February of 1983, flows were estimated at approximately 150 cfs. Water levels, as shown on a gage near the powerhouse site, were 1 foot, 1 inch on 29 January and 1 foot, 2 inches on 20 February. Water clarity was about 12-16 inches at the end of January and improved to approximately twice that by mid-February. Water temperature was 39°F on 29 January and 45°F on 20 February.

Sampling Methods

The area was difficult to sample because of physical conditions (depth, velocity, turbidity) and lack of boat access. A combination of electroshocking and gillnetting was utilized and a few seine hauls were made.

A portion of each of the four river segments was sampled. An effort was made to concentrate on the areas of habitat that appeared most likely to hold game fish. Nearly all of Segments C and D were sampled. About half of Segment A was sampled, and Segment B received the least effort.

Electroshocking was done from a 16-foot aluminum drift boat with a 2,500-watt generator producing 300 volts D.C. and using the boat hull as the negative electrode. Two sizes of bottom-set gillnets were used. One was 1½ inch square mesh X 4-feet high X 60 -feet long, and the other was graded in mesh size from 3/4 inch to 1-3/4in five increments, 4-feet

high and 125-feet long. Nets were set for 1-2 hours during the day, or, in one case, overnight. The seine utilized was a 50-foot bag seine.

The only pool that would be sampled by electroshocking was that in Segment C. The rest of that segment was also electroshocked to the beginning of the lava falls at the downstream end. The pool in Segment D was inaccessible to the electroshocking boat, but the portion of the segment beginning approximately 250 feet below the tail of the pool was shocked. The pools in Segments A and B were inaccessible to the shocker.

Gillnetting was feasible only in the pools and was used in Segments A, C and D. The pools in Segment B were too small and water was too swiftly-flowing to enable the nets to be effectively used. The bag seine could only be used where water was shallow and free of submerged obstructions.

Fish Populations

Eight species of fish were collected, probably all of those that are present in the section of river. They were:

brown trout ... *Salmo trutta*
rainbow trout...*Salmo gairdneri*
Utah sucker ... *Catostomus ardens*
bluehead sucker... *Catostomus discobolus*
Utah chub.....*Gila atraria*
speckled dace...*Rhinichthys osculus*
redside shiner..*Richardsonius balteatus*
mottled sculpin.*Cottus bairdi*

All are common in southeast Idaho with the exception of the bluehead sucker, which is relatively uncommon but is not considered to be a species of special concern at this time.

A total of 139 fish were collected (Table 1), excluding mottled sculpin which were abundant in some areas of rocky substrate but were not collected. The bulk of the fish collected, both by weight and by numbers, were suckers. Most suckers were 10-14 inches in length, with none smaller than 8 inches taken.

Minnows (shiners, dace and chub) were relatively uncommon. Therefore the forage base of small fish available as food for predatory brown trout was very limited.

Only seven trout (5% of all fish collected) were captured. Brown trout were more numerous than rainbow trout. Sizes of the trout were:

	total length, cm	weight, grams
Browns:	48.3	822
	38.7	482
	29.9	229
	33.1	325
	29.5	226
Rainbows:	25.8	255
	19.8	162

All were wild trout. Scales were analyzed, and the oldest rainbow was in its third year of life. The two largest browns, both captured in the pool in Segment D, were both aged seven years. The smaller browns were ages 4 and 5. All browns were in noticeably poor condition (see photos), probably due to a lack of forage fish.

Due to the small sample size, it was not possible to obtain a quantative estimate of trout abundance. Trout are certainly not abundant in the area examined, and I would estimate the total population to be

Table 1. Numbers of fish collected in the vicinity of the proposed Marsh Valley Hydro Project on the Portneuf River below the Topaz Diversion, 1983.

Stream segment	Date	Gear	Effort, hours	trout		suckers		Utah chub	speckled dace	redside shiner	mottled sculpin
				brown	rainbow	Utah	bluehead				
A - pool	19 Feb	1½" gillnet	2.0	no fish collected							
		graded "	2.0	no fish collected							
B - pool	19 Feb	bag seine	0.5							26	
C - pool	29 Jan	shocker	0.7	2	2	3	0	0	4	4	2
"	" "	1½ gillnet	1.0	0	0	15	0	1	0	0	0
"	" "	graded "	1.0	0	0	18	1	0	0	0	0
"	" "	bag seine	1.0	no fish collected							
C - middle	29 Jan	shocker	0.6	no fish collected							
"	" "	1½ gillnet	1.0	no fish collected							
D - all except pool	29 Jan	shocker	1.2	1	0	23	4	0	0	0	common
D - pool	20-21 Feb	graded gill.	16.0	2	0	28	5	0	0	0	0
TOTAL				5	2	87	10	1	4	30	

less than 200 trout, mostly inhabiting the pools.

No anglers were observed in the area examined on any of the occasions we sampled. One local resident reported taking a few trout from the pool in Segment C over the last few years.

Physically, the section of river appears to provide fair habitat for trout. There is good water depth and bank cover. The substrate was very heavily sedimented. No spring areas nor areas offering spawning habitat for trout were observed.

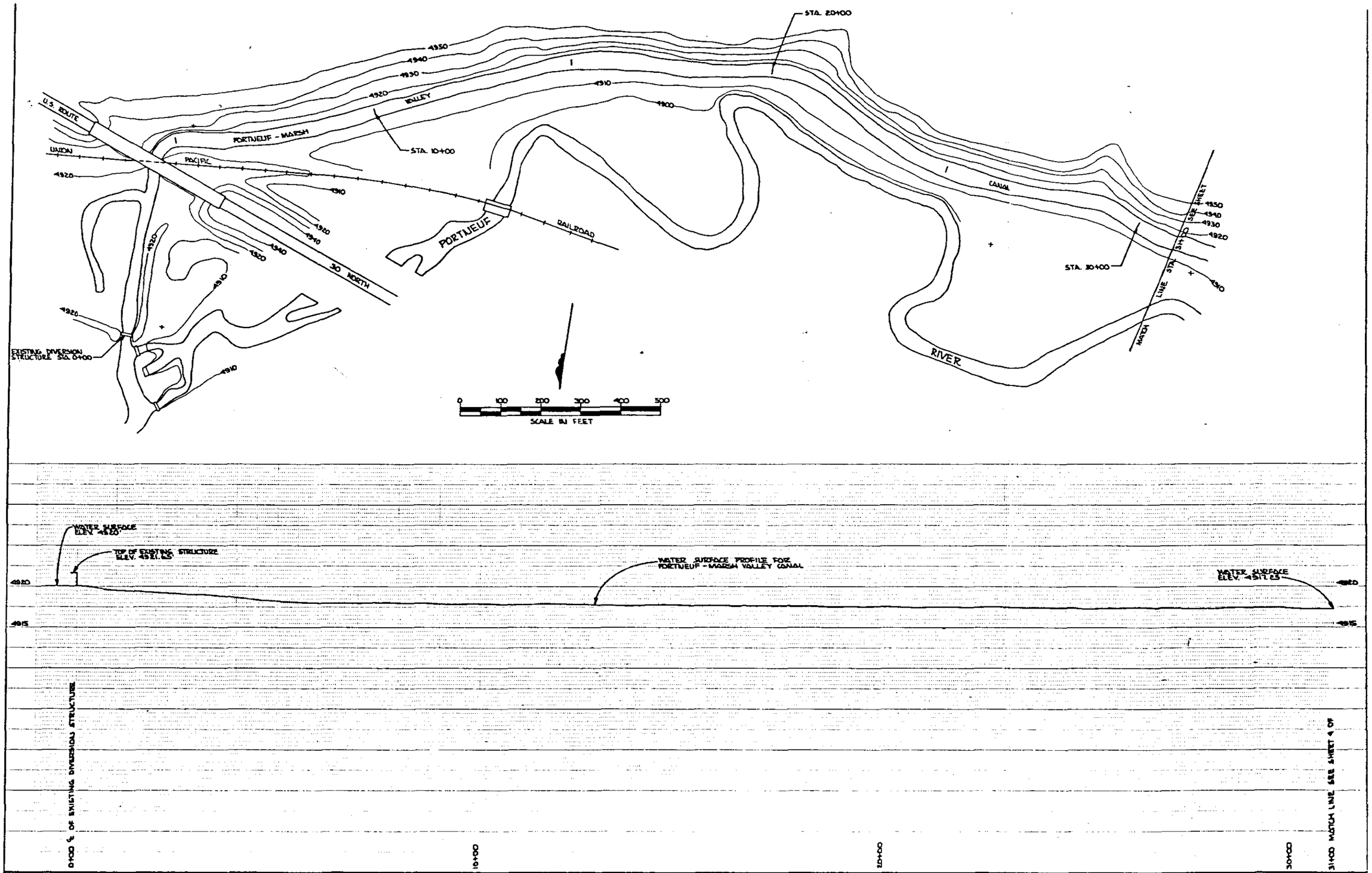
EXHIBIT G

PROJECT DRAWINGS

FOR THE

MARSH VALLEY PROJECT

EXHIBIT	TITLE
G - 1	Plan and Profile: Existing Portneuf-Marsh Valley Canal- Sheet 1
G - 2	" " " " " " " " - Sheet 2
G - 3	" " " " " " " " - Sheet 3
G - 4	" " " " " " " " - Sheet 4
G - 5	Proposed Powerhouse
G - 6	Existing Diversion Structures
G - 7	Proposed Intake Structure and Related Facilities



NO.	DATE	REVISION	BY	APP'D

APPROVED BY

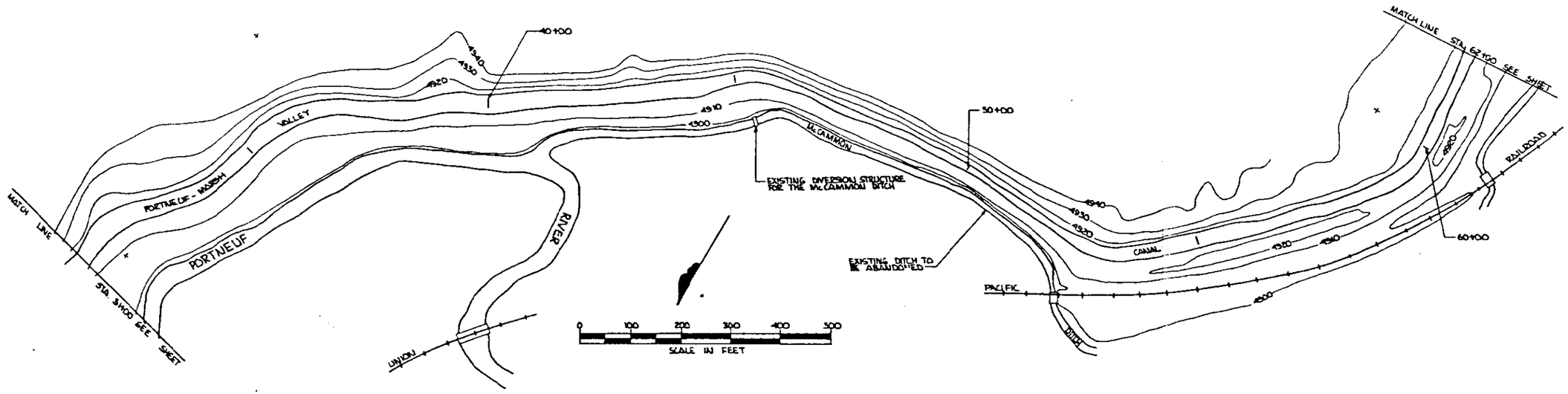
APPROVED BY

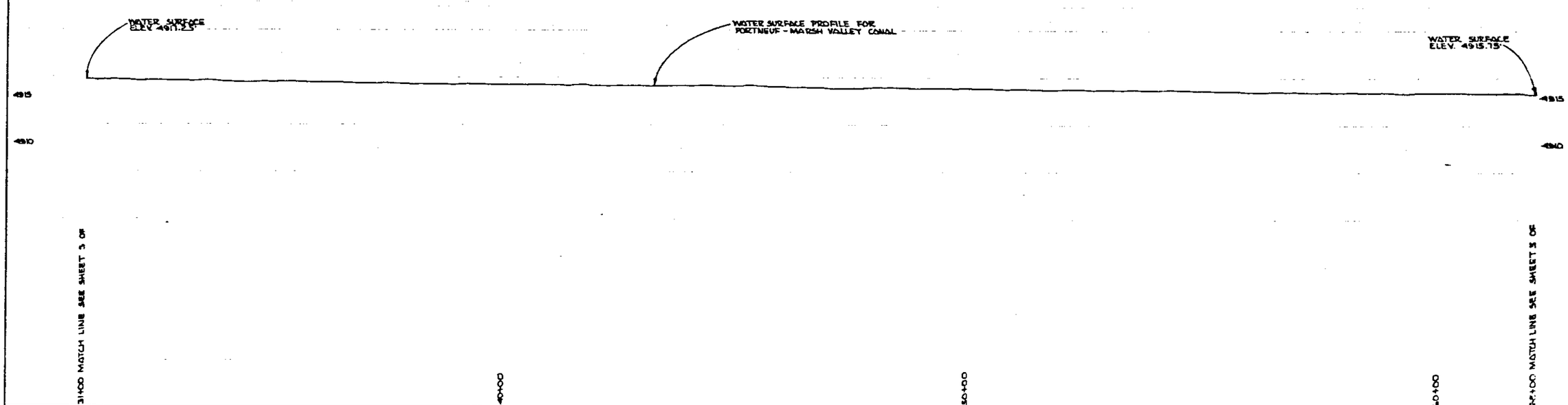
DRAWN BY: TFT
CHECKED BY: KKK
SCALE: AS SHOWN

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-8867

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-1
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

DATE: 7-3-84
WORK ORDER
DWG. NO.
SHEET 1 OF 7





NO.	DATE	REVISION	BY	APP'D.

APPROVED BY

APPROVED BY

DRAWN BY: TIFT

CHECKED BY: KICK

SCALE: AS SHOWN

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

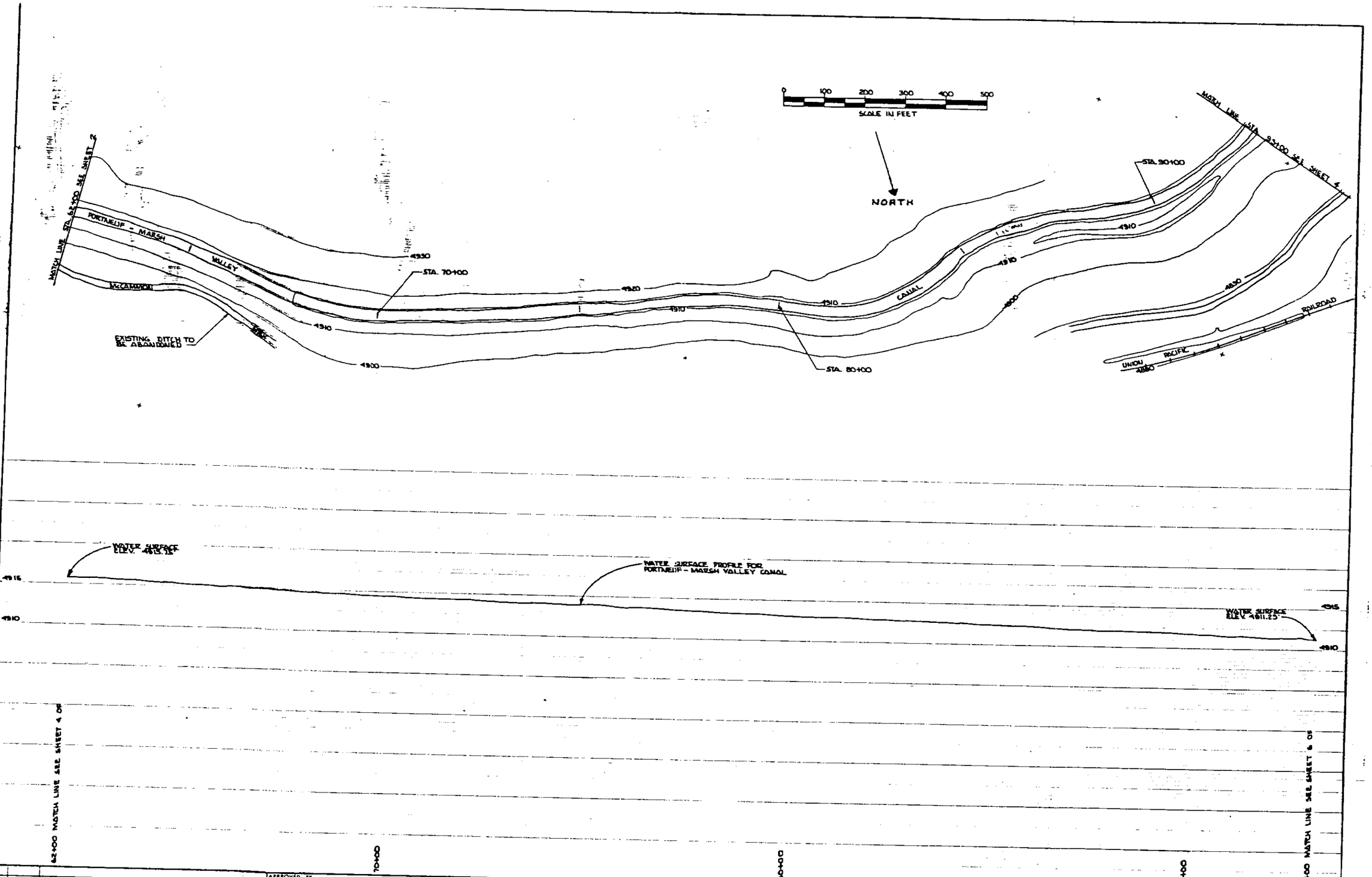
MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-2
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

DATE: 7-3-84

WORK ORDER

DWG. NO.

SHEET 2 OF 7 SHEETS



NO.	DATE	REVISION	BY	APP'D.

APPROVED BY

APPROVED BY

DRAWN BY TIFT

CHECKED BY KKK

SCALE AS SHOWN

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

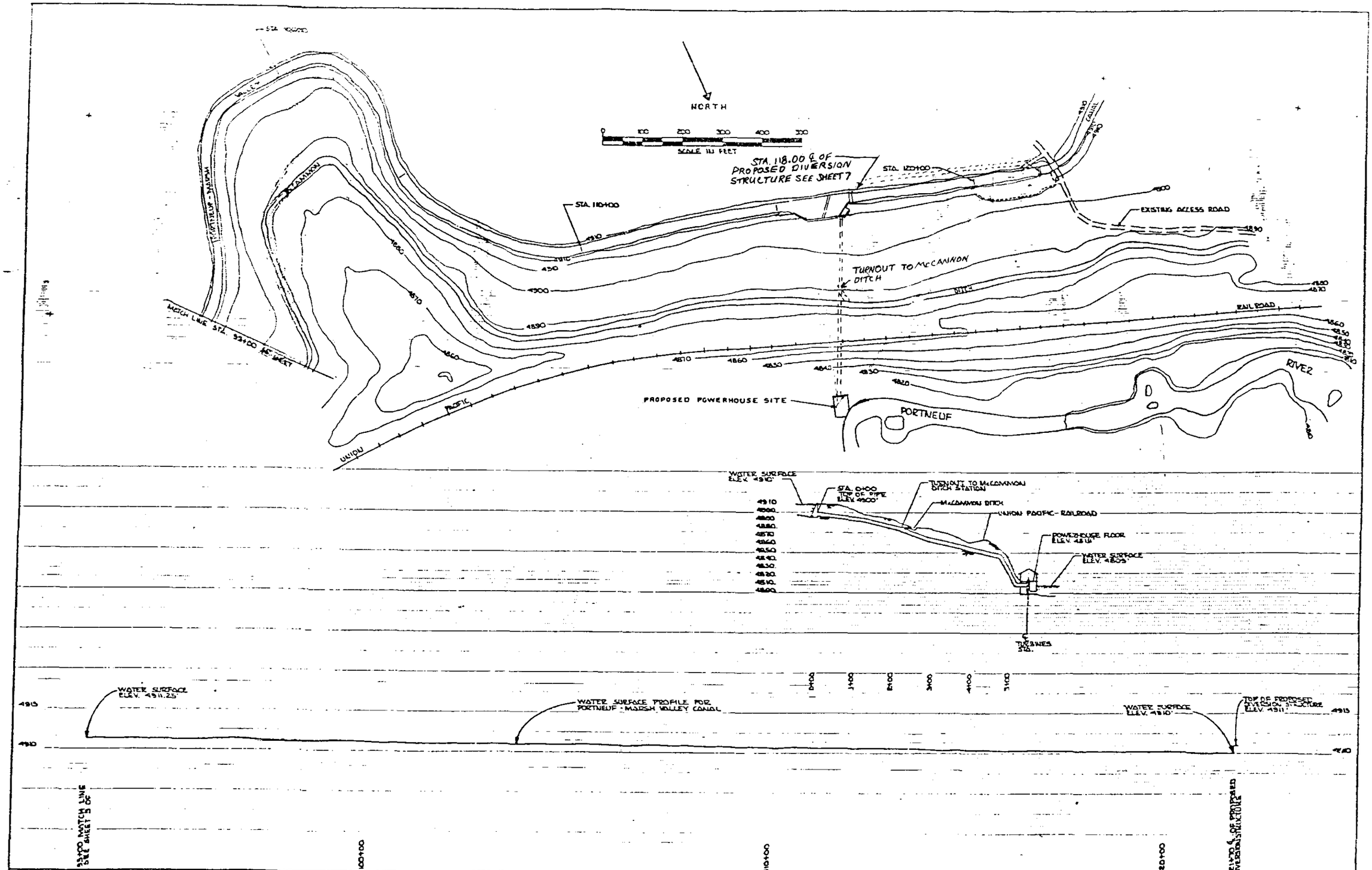
MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-3
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

DATE 7-3-84

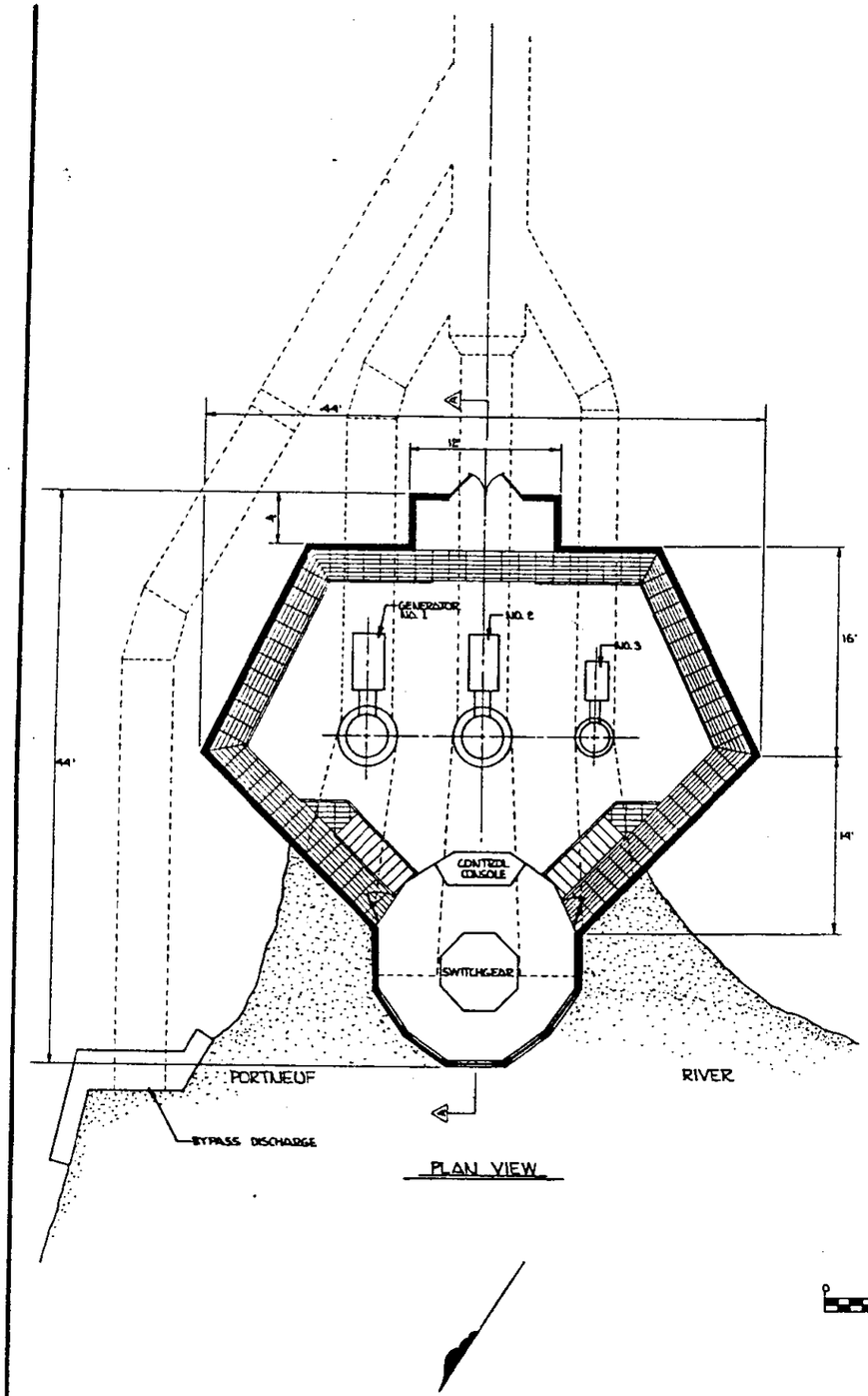
WORK ORDER

DWG. NO.

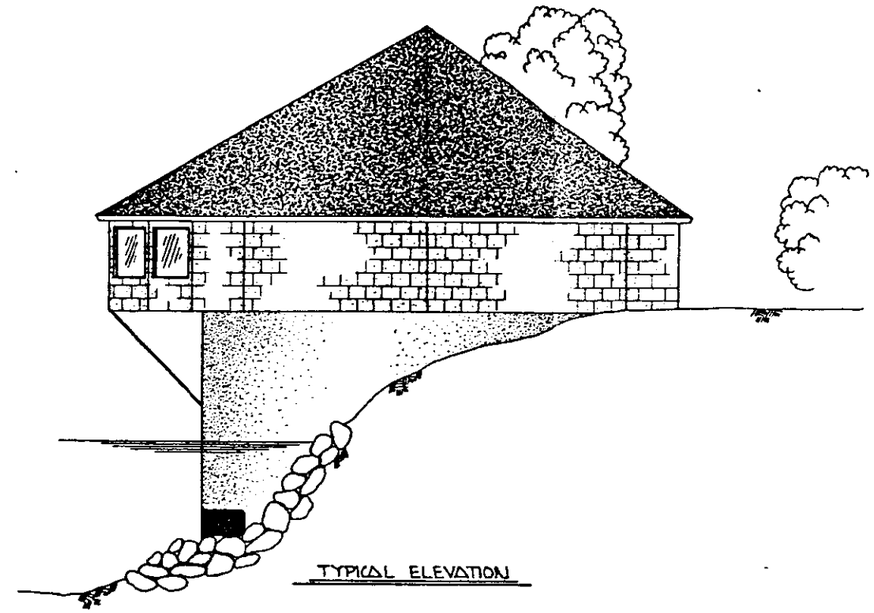
SHEET 3 OF 7 SHEET



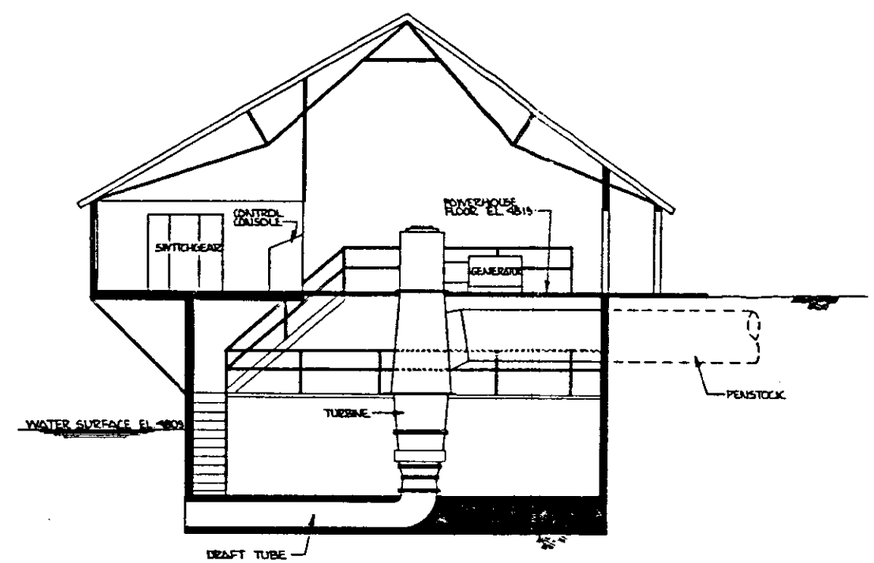
APPROVED BY	DRAWN BY TIFT	HYDROELECTRIC CONSTRUCTORS, INC. FINANCING PLANNING CONSTRUCTION	MARSH VALLEY HYDROELECTRIC PROJECT EXHIBIT G-4
APPROVED BY	CHECKED BY KJCK	ORANGE, CALIFORNIA (714) 547-6867	PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL
NO. DATE REVISION BY APP'D	SCALE AS SHOWN		DATE 7-3-84 SHEET 4 OF 7



PLAN VIEW



TYPICAL ELEVATION



SECTION A - A

0 5 10 15 20
SCALE IN FEET

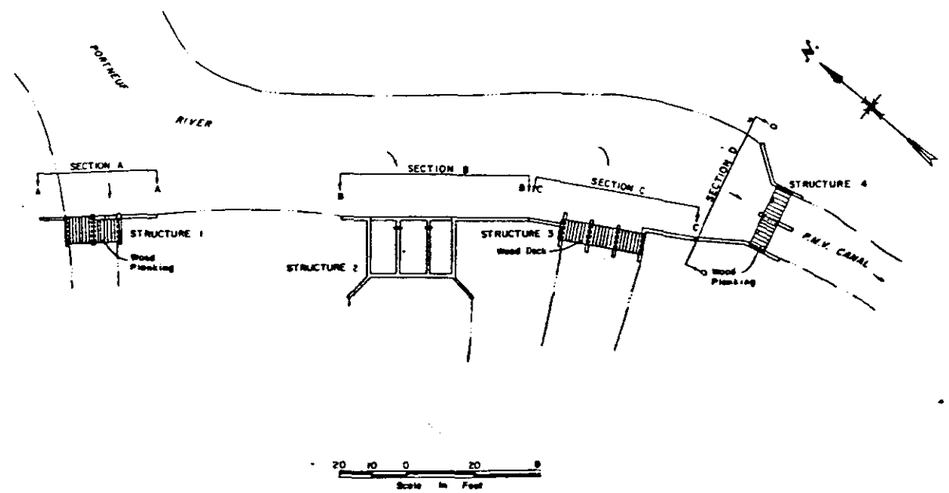
TIPT

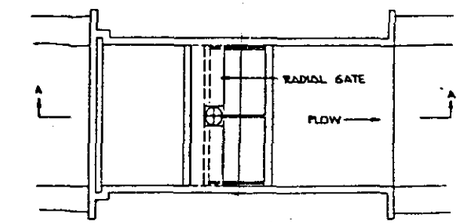
REV.	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

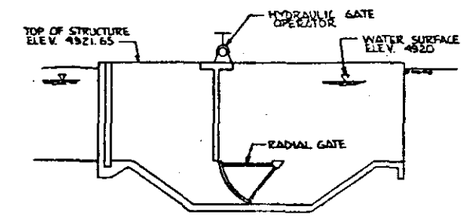
MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-5
PROPOSED POWERHOUSE

SHEET 5 OF 7 SHEETS





INLET STRUCTURE



SECTION A-A

SKETCH NO. 1 STRUCTURE NO. 4
PLANNED 1984 REPAIR AND MODIFICATION

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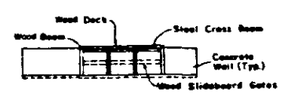
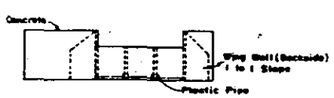
SCALE IN FEET

SECTION A
STRUCTURE #1
SEE SKETCH NO. 2



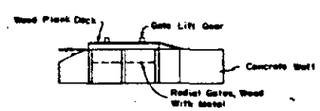
SECTION C
STRUCTION #3

PLANNED 1984 REPAIR: RECONDITION OF EXISTING FACILITIES

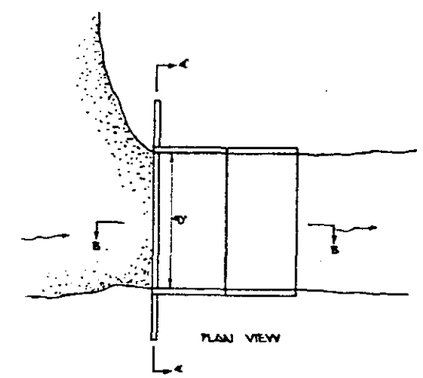


SECTION B
STRUCTURE #2

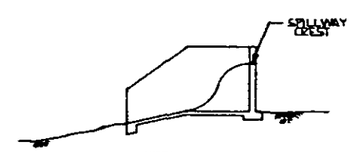
PLANNED 1984 REPAIR: NO WORK NECESSARY



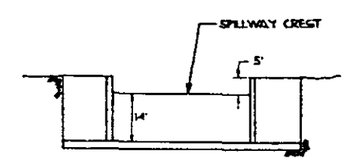
SECTION D
STRUCTURE #4
SEE SKETCH NO. 1



PLAN VIEW



SECTION B-B



SECTION A-A

SKETCH NO. 2 STRUCTURE NO. 1
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SCALE IN FEET

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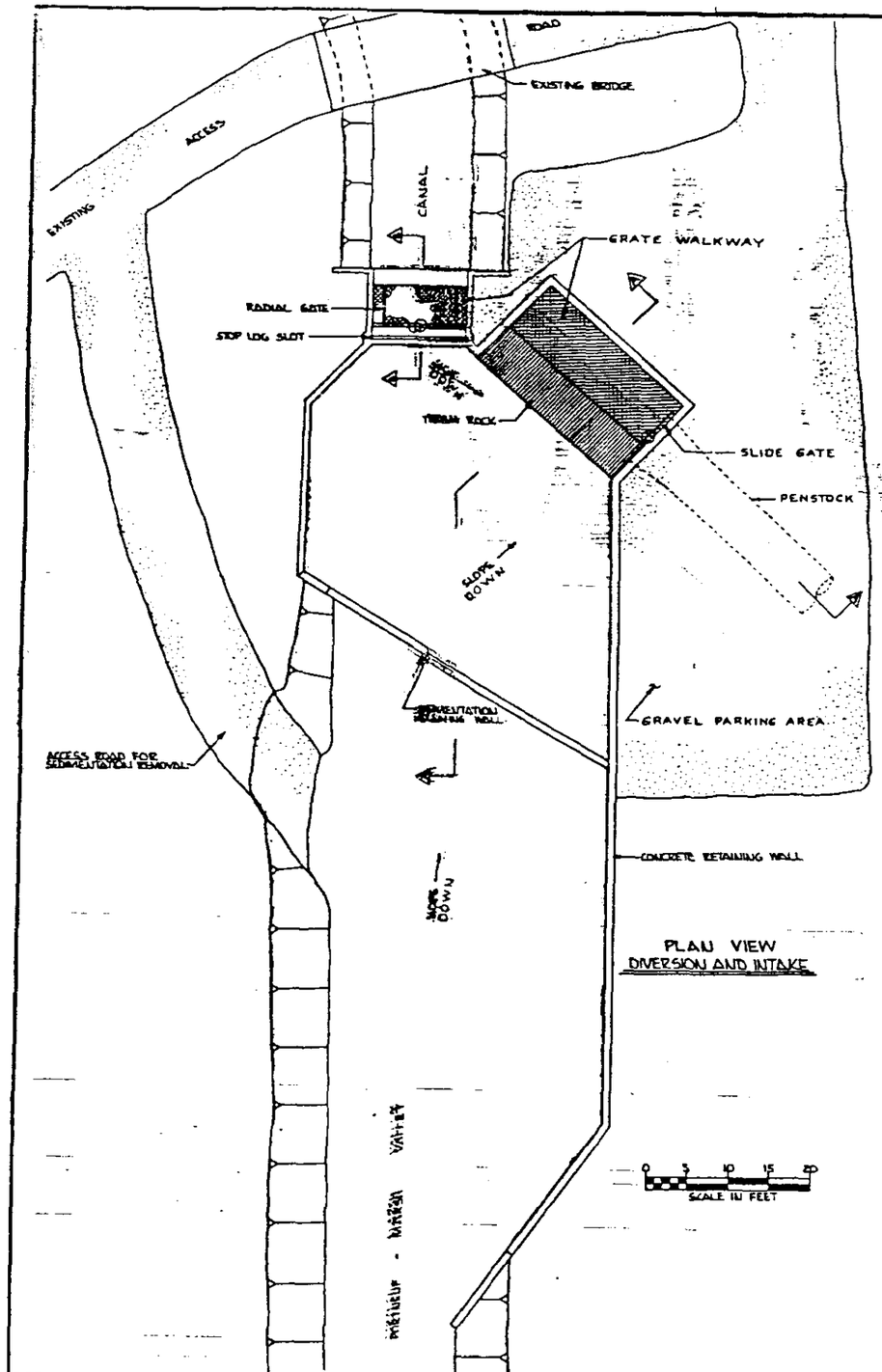
REV.	DATE	DESCRIPTION

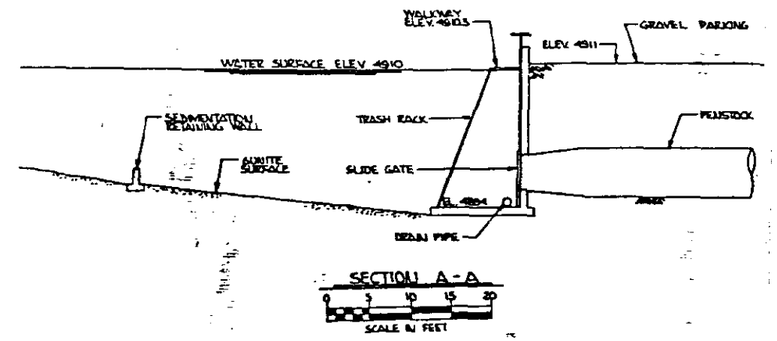
HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-6
EXISTING DIVERSION STRUCTURES

SHEET 6 OF 7 SHEETS



PLAN VIEW
DIVERSION AND INTAKE



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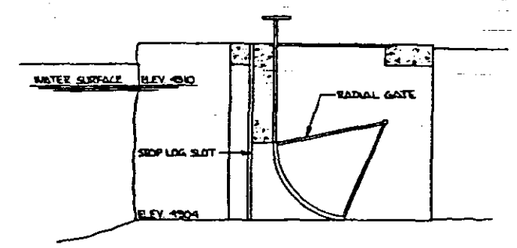

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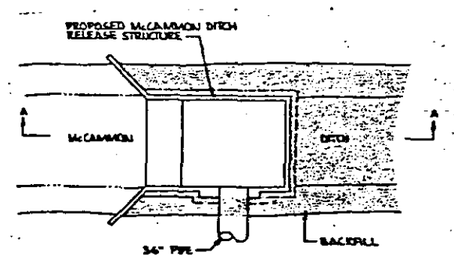
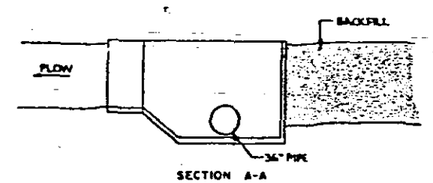


PLAN VIEW



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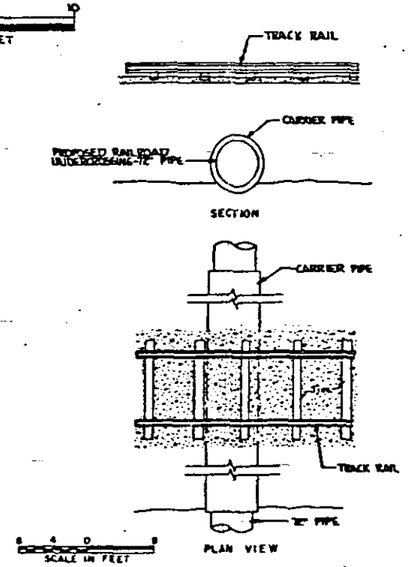

PLAN VIEW

0 4 8
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REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-7
PROPOSED INTAKE STRUCTURE AND RELATED FACILITIES

SHEET 7 OF 7 SHEETS

APPLICATION FOR EXEMPTION
SMALL CONDUIT HYDROELECTRIC PROJECT

BEFORE THE FEDERAL ENERGY COMMISSION

MARSH VALLEY
HYDROELECTRIC PROJECT

PREPARED BY:
HYDRO ELECTRIC CONSTRUCTORS

PREPARED FOR:
PORTNEUF-MARSH VALLEY CANAL CO. LTD.
AND MC CAMMON DITCH CO.
Bannock County, Idaho

NOVEMBER 1984

JAN 22 1993

HYDRO ELECTRIC
CONSTRUCTORS INC.

RECEIVED
JAN 28 1985
Department of Water Resources

PETITION FOR WAIVER

OF SECTION 4.91 (f)(5)

MARSH VALLEY HYDROELECTRIC PROJECT

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co.Ltd. hereby petitions for a waiver of Section 4.91 (f)(5) for its Marsh Valley Hydroelectric Project.

This plant will utilize water presently discharged into a conduit and being delivered for agricultural needs. The plant will also utilize certain flows which previously were returned into the Portneuf River and were not historically routed through the conduit. These additional flows will be utilized when the conduit is not running full from agricultural deliveries and water is available. This additional water will be returned immediately to the Portneuf River after it runs through the power plant.

Under oath, the undersigned states that the above is true and accurate.

BY: Lyndon Green

McCammon Ditch Company
McCammon, Idaho 83250

BY: Keith Bennett

Portneuf-Marsh Valley
Canal Co., Ltd.
Downey, Idaho 83234

MICROFILMED
JAN 22 1993

McCAMMON DITCH COMPANY
McCammon, Idaho 8325

PORTNEUF-MARSH VALLEY CANAL CO, LTD.
Downey, Idaho 83234

November 7, 1984

Kenneth F. Plumb, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
825 West Capitol Street, N.E.
Washington, D. C. 20426

Dear Mr. Plumb:

APPLICATION FOR SMALL CONDUIT EXEMPTION FOR THE MARSH VALLEY HYDRO ELECTRIC PROJECT IN BANNOCK COUNTY, IDAHO.

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd., Applicants, hereby apply for a small conduit exemption from all or part of part 1 of the Federal Power Act. This application is for the Marsh Valley Hydro Electric Project, a small hydro electric project with a generating capacity of 5 MW or less. This project utilizes an existing private dam and canal and would have an installed capacity of 1700 KW and generate an average of 7,120,000 KWH/year.

The Applicants are submitting the original and 14 copies of the Exemption Application to FERC in accordance with §4.90-4.94 of the Federal Energy Guidelines.

Fifteen (15) full size copies of Exhibits "B" and "G" are concurrently submitted to FERC under separate cover. Photographic reductions of these exhibits have been enclosed in each Exemption Application for convenience.

Sincerely,

McCAMMON DITCH COMPANY

By: Lyndon Green
LYNDON GREEN, President

PORTNEUF-MARSH VALLEY CANAL CO., LTD.

By: Keith Bennett
KEITH BENNETT, President

enclosures
Exhibits "B" and "G"
Marsh Valley Exemption Application

c: Arthur C. Martin, Regional Engineer
FEDERAL ENERGY REGULATORY COMMISSION
819 Taylor Street
Fort Worth, Texas 76102

McCAMMON DITCH COMPANY
McCammon, Idaho 8325

PORTNEUF-MARSH VALLEY CANAL CO, LTD.
Downey, Idaho 83234

November 7, 1984

Kenneth F. Plumb, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
825 West Capitol Street, N.E.
Washington, D. C. 20426

Dear Mr. Plumb:

APPLICATION FOR SMALL CONDUIT EXEMPTION FOR THE MARSH VALLEY HYDRO ELECTRIC PROJECT IN BANNOCK COUNTY, IDAHO.

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co., Ltd., Applicants, hereby completed the above listed application by submitting for Commission's review 15 full size coies of Exhibit "B" and "G". The original and 14 coies of Exemption Application were concurrently submitted to FERC under separate cover. By copy of this letter, one full size set of exhibit drawings are also being forwarded to the Commission's Regional Engineer in Fort Worth, Texas.

Sincerely,

McCAMMON DITCH COMPANY

By: Lyndon Green
LYNDON GREEN, President

PORTNEUF-MARSH VALLEY CANAL CO., LTD.

By: Keith Bennett
KEITH BENNETT, President

enclosures
Exhibits "B" and "G"
Marsh Valley Exemption Application

c: Arthur C. Martin, Regional Engineer
FEDERAL ENERGY REGULATORY COMMISSION
819 Taylor Street
Fort Worth, Texas 76102

PROPOSED MARSH VALLEY HYDROELECTRIC PROJECT

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EXHIBIT A	A-1
EXHIBIT B	B-1
EXHIBIT E	E-1
EXHIBIT G	G-1

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR EXEMPTION

SMALL CONDUIT HYDROELECTRIC FACILITY

THE

PROPOSED MARSH VALLEY HYDROELECTRIC PROJECT

IN

BANNOCK COUNTY, IDAHO

SUBMITTED BY:

THE MCCAMMON DITCH COMPANY

AND

THE PORTNEUF-MARSH VALLEY CANAL CO. LTD.

APPLICANTS

PREPARED BY:

HYDRO ELECTRIC CONSTRUCTORS, INC.

ORANGE, CALIFORNIA 92668

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR EXEMPTION FOR SMALL CONDUIT HYDROELECTRIC FACILITY

The McCammon Ditch Co. and the Portneuf-Marsh Valley Canal Co. Ltd. applies to the Federal Energy Regulatory Commission for an exemption for the Marsh Valley Hydroelectric Project, a small conduit hydroelectric facility that meets the requirements of Section 4.91 (f) of this subpart, except paragraph (f) (5), from certain provisions of Part 1 of the Federal Power Act. This application is accompanied by a petition for waiver of Section 4.91 (f) (5), submitted pursuant to 18 CFR Section 1.7 (b).

The location of the project is:

State: Idaho

County: Bannock

Nearby Town: McCammon

The exact name and business address of the Applicants are:

McCammon Ditch Company
c/o Mr. Lyndon Green, President
McCammon, Idaho 83250

Telephone: (208)254-3494

Portneuf-Marsh Valley Canal Co. Ltd.
c/o Mr. Keith Bennett, President
Downey, Idaho 83234

Telephone: (208)897-5791

The exact name and business address of each person authorized to act as agent for the Applicants in this application are:

Mr. Randall C. Budge
Racine, Olson, Nye, Cooper & Budge
P.O. Box 1391
A-2 Center Plaza
First and Center Street
Pocatello, Idaho 83201

Telephone: (209)232-6101

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co. Ltd. are corporations formed under the laws of the State of Idaho.

The provisions of Part I of the Federal Power Act for which exemption is requested are:

All Sections of Part I

"This application is accompanied by a petition for waiver of Section 4.91 (f) (5), submitted pursuant to 18 CFR Section 385.207".

The Applicants respectfully request that copies of all correspondence concerning this matter be distributed to:

Hydro Electric Construtors, Inc.
932 Town and Country Road
Orange, CA. 92668
Attention: Pete McAlpin

Telephone: (714)547-6867

The following Exhibits are filed with and are hereby made a part of this Application:

Exhibit A - Project Description and Mode of Operation

Exhibit B - General Location of the Project

Exhibit E - Environmental Report

Exhibit G - Project Drawings

Exhibit drawings B-1, B-2, G-1, G-2, G-3, G-4, G-5, and G-6 are drawings and maps submitted concurrently under separate cover. A reduced copy of each drawing is included in this application for the convenience of the reader.

VERIFICATION

STATE OF IDAHO)
ss
County of Bannock)

Randall C. Budge, being first duly sworn, deposes and says that he is the authorized agent for the Applicant in this Application for the Exemption from Licensing; that he has read the contents herein; that the same are true to the best of his knowledge and belief.

Randall C. Budge
Randall C. Budge
Agent for the Applicant

SUBSCRIBED AND SWORN TO before me this 26th day of September, 1984, by Randall C. Budge.

Christine Woodward Nu
Notary Public
Residing at Pocatello, Idaho

/SEAL/

EXHIBIT A

DESCRIPTION OF PROJECT

AND

MODE OF OPERATION

FOR THE

MARSH VALLEY PROJECT

EXHIBIT A

DESCRIPTION OF PROJECT AND MODE OF OPERATION

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EXHIBIT A

DESCRIPTION OF PROJECT AND MODE OF OPERATION

1. EXISTING FACILITIES

1.1 Diversion Structures and Impoundment

Diversion Pond

Gross Surface Area	=	0.2 acres
Total Storage	=	2.0 acre-feet
Usable Storage	=	2.0 acre-feet

Structure #1 (Emergency Spillway #1)

Height (Toe to Spillcrest)	=	14 feet
Spill Width	=	40 feet
Spill Capacity	=	1,500 cfs
Construction	=	reinforced concrete

Structure #2 (Emergency Spillway #2)

Height	=	14 feet
Spill Width	=	25 feet
Spill Capacity (Full Pool)	=	900 cfs
Combined Spill Capacity (#1 plus #2)	=	2400 cfs
Construction	=	reinforced concrete

Structure #3 (Bypass Works)

Height	=	14 feet
Width	=	15 feet
Number of Gates	=	2
Gate Width (Each)	=	7 feet
Gate Capacity (Full Pool)	=	500 cfs
Construction	=	reinforced concrete with steel gates
Other Features	=	12 inch steel pipe for fish releases

Structure #4 (Canal Intake)

Height	=	14 feet
Width	=	19 feet
Number of Gates	=	2
Gate Dimension - each	=	9'w x 10'h
Design Gate Capacity (Full Pool)	=	300 cfs max.
Construction	=	reinforced

1.2 Portneuf-Marsh Valley (PMV) Canal

Width (invert)	=	18 feet
Length (to proposed forebay)	=	12,000 feet
Capacity	=	300 cfs max.
Lining	=	Gunite and/or earthen
Side Slopes	=	1-1/2 : 1
Width (normal water surface)	=	33 feet
Freeboard	=	2 feet

The Portneuf River in the project area presently passes through, and is regulated by two check dams and an overflow spillway (See Exhibit G-1 and G-6). It is not intended to make physical modifications to these structures in any way. The structures are already scheduled for major maintenance in 1984 and will require little modification because of the proposed hydroelectric facility. Because of the hydroelectric facility, automatic gates are being proposed for use during power outages, emergency plant shutdowns, canal outages, etc. This is the only modification being considered at this time for the existing canal headworks on the PMV.

1.3 McCammon Ditch

Additional irrigation flows are presently conveyed through the McCammon Ditch, the inlet of which is located on the Portneuf River (See Exhibit G-2) downstream of the PMV Canal. The ditch closely parallels the PMV Canal in the project area. The ditch will not be an integral part of the proposed hydroelectric project other than abandonment for reasons described below.

2. PROPOSED FACILITIES

2.1 Forebay Pool

Normal Water Surface Elevation	=	4,910.0 feet
Gross Surface Area	=	0.11 acres
Total Storage	=	1.5 acre-feet
Usable Storage	=	1.2 acre-feet
Structure		
Height	=	7 feet
Width	=	15 feet
Canal Release Gate Dimensions	=	12'w x 8' h
Intake Works		
Height	=	17 feet
Length	=	22 feet
Intake Opening	=	7'w x 4'h
Shutoff Gate Size	=	8'w x 5'h
Trashrack Size	=	20'w x 14'h

Rock Trap		
Length	=	85 feet
Width	=	40 feet
Other Features	=	sediment containment wall and access road

A forebay structure would be constructed in the PMV Canal, approximately 12,000 feet from the PMV diversion on the Portneuf River. This forebay structure would be a new modification to the existing canal that would 1) control down-canal passage of irrigation flows; 2) create a relatively constant forebay pool for the power penstock; and 3) allow for sediment deposition into a rock trap at the head of forebay. The forebay section in the PMV Canal would contain a single radial gate (See Exhibit G-6).

The intake works of the penstock would contain a submerged trashrack and a slide gate. Downstream of the slide gate, an air vent pipe would release trapped air and at the same time allow air to enter the penstock during penstock drainage. A sluice gate would not be necessary for the forebay since a rock trap area would be provided to collect sediments. These sediments would be removed periodically by a loader or similiar device as necessary. A road into the rock trap would be provided for equipment access.

2.2 Penstock

Diameter	=	72"
Length	=	540 feet
Design Flow	=	250 cfs
Material	=	Welded steel
Other Features	=	Carrier pipe (at UPRR undercrossing); Trifurcation at powerhouse; turnout at McCammon Ditch.

Approximately 540 feet of 72-inch welded steel pipeline would convey the canal flows from the forebay to the powerhouse turbines. The penstock would be preferably buried, however soil conditions may prevent easy burial. If the penstock is an above ground feature, an aesthetic color

would be used to blend the facility into its environment. A single Union Pacific Railroad (UPRR) track is located between the proposed PMV Canal forebay and the powerhouse. The penstock would have to penetrate the fill material under the track. The proposed design of the undercrossing would be presented to the UPRR for review.

2.3 Powerhouse

Generating Units	=	Hydraulic power recovery turbines with adjustable or fixed wicket gates.
Gross Head	=	100 feet
Design Flow	=	250 cfs
Net Head at Design Q	=	97 feet
Rated Capacity	=	1700 KW
Average Expected Generation	=	7.12 Gwh/yr

The proposed plant capacity of 1700 KW would be developed with approximately two or three (depending upon final selection) hydraulic power recovery turbines. The turbines would utilize a draft tube with a normal water surface elevation of 4809.0 feet. During irrigation releases to McCammon Ditch, a small turbine would utilize the 25 feet of drop to develop 85 KW of energy. This would be done either directly with a separate turbine/generating unit or as a part of the main powerhouse with a tailwater back pressure of 75 feet to get the water into the McCammon Ditch. The selection would be dependent upon final cost estimates and engineering.

The powerhouse would consist of a reinforced concrete foundation with an enclosed draft tube. Concrete foundation walls would extend up to the generator floor level at elevation 4,819 feet. The powerhouse generating and control room walls would be reinforced concrete block. See Exhibit Drawings G-5 for conceptual drawings of the proposed powerhouse structure.

The switchyard is proposed as an exterior transformer, completely enclosed and protected from unauthorized entry. The first primary transmission pole would be located at a sufficient distance from the powerhouse to preclude hazards of overhead crane contact.

During those periods of non-irrigation flows, the proposed powerhouse would operate as a run-of-the-river plant, with peak generation occuring during non-summer months.

2.4 Transmission Line

A new three-phase 46KV transmission line would span the Portneuf River and extend approximately 1.95 miles north to the proposed intertie. According to Utah Power and Light Company, the intended purchasers, the primary line would intertie with an existing UP & L 46 KV distribution feeder. See Exhibits B-1 and B-2 for location of the proposed transmission line.

3. CONSTRUCTION

Estimated construction time of the proposed facilities is 9 months, beginning on May 1, 1985 and ending on December 31, 1985 Preliminary cost estimates are $2,500,000.

4. HYDROLOGY

4.1 Gage Data

The hydrology for this project was derived from USGS gaging records for gage number 13073000, for the Portneuf River at Topaz, Idaho. This gage is located approximately 1.5 miles upstream of the PMV Canal inlet and was therefore considered as representative of the flows available to the canal for generation. The drainage area at the gaging station is 570 square miles and is at a mean altitude of 6,080 feet (datum of gage is 4,918 feet). The period of record is January, 1913 to September, 1915, and July, 1919 to current year. Because of missing or extra data, only the 64-year period of October, 1919 through September, 1983 was utilized for generation studies. Average discharge for the period of record is 141,900 acre-feet a year or a mean annual flow of 196 cfs. Normal monthly means, in cfs, are provided below:

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
143	154	154	153	170	204	268	342	266	206	178	151

The hydrologic records including flow duration curves and mean data is provided in Exhibit A - Appendix A.

4.2 Irrigation Demands

Irrigation demands were derived from the Idaho Water User Daily Record Books for Water District 29. These logs are maintained by the ditch tender and provided to the State as a log of the diverted flows down the Portneuf River. Average monthly diversions were derived from these records to indicate those quantities of water that would not be available for generation. The following flows, in cfs, are current average diversions for irrigation by the canal companies and would continue down the canal to respective canal users:

JUNE	JULY	AUGUST	SEPTEMBER 1-15
230	230	230	220

4.3 Flood Statistics

An annual peak flow frequency analysis was computed by the USGS for the gaging station records of the Portneuf River. The "expected probability" estimate was 2,462 cfs for the 100 year flood. Preliminary studies indicate that a flood flow of 4,100 cfs would have an elevation of 4,814 feet at the proposed powerhouse site. Further studies during the final engineering will determine the 100 year flood elevation to protect the generators and control switchgear.

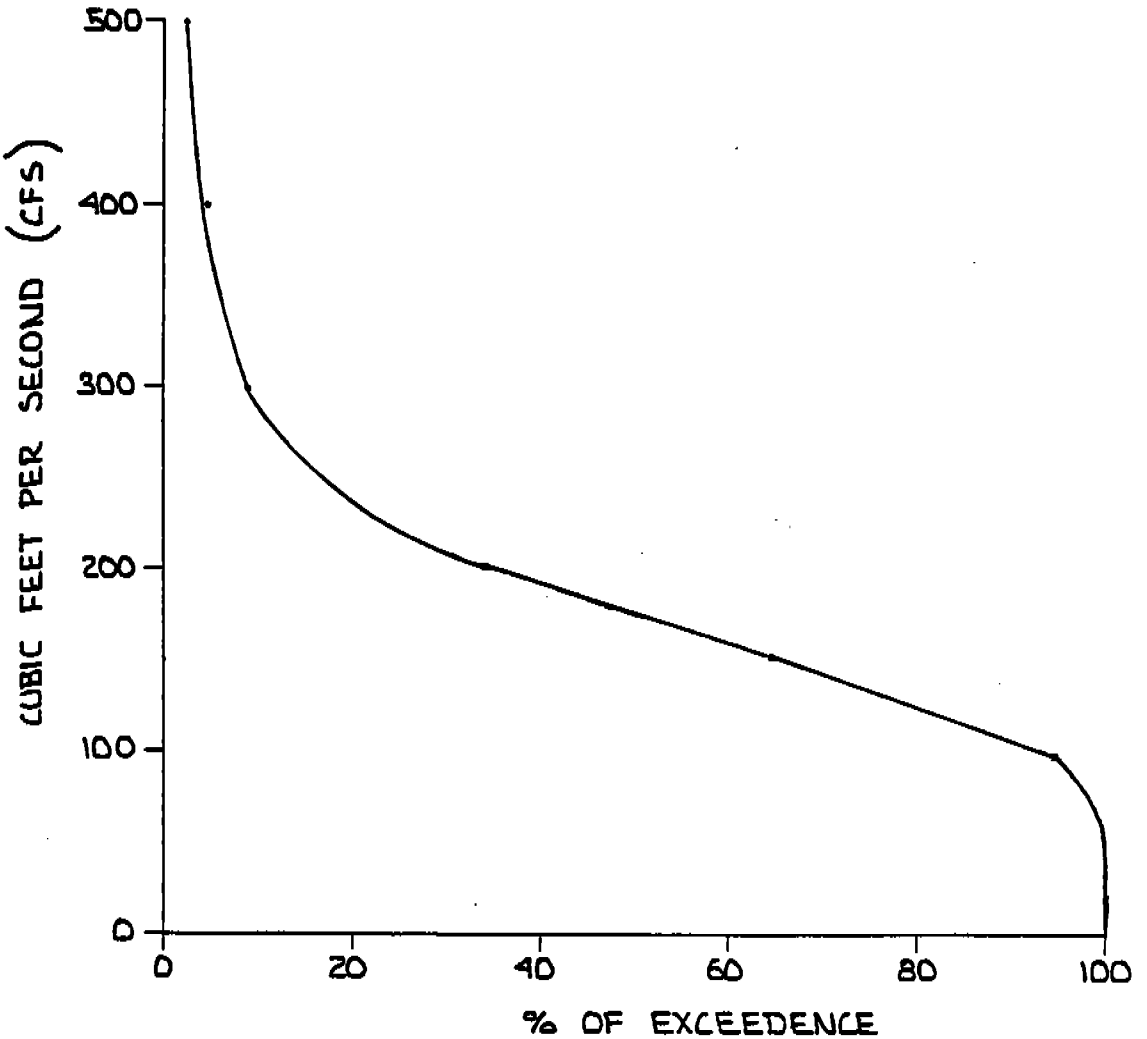
EXHIBIT A - APPENDIX A

HYDROLOGIC RECORDS

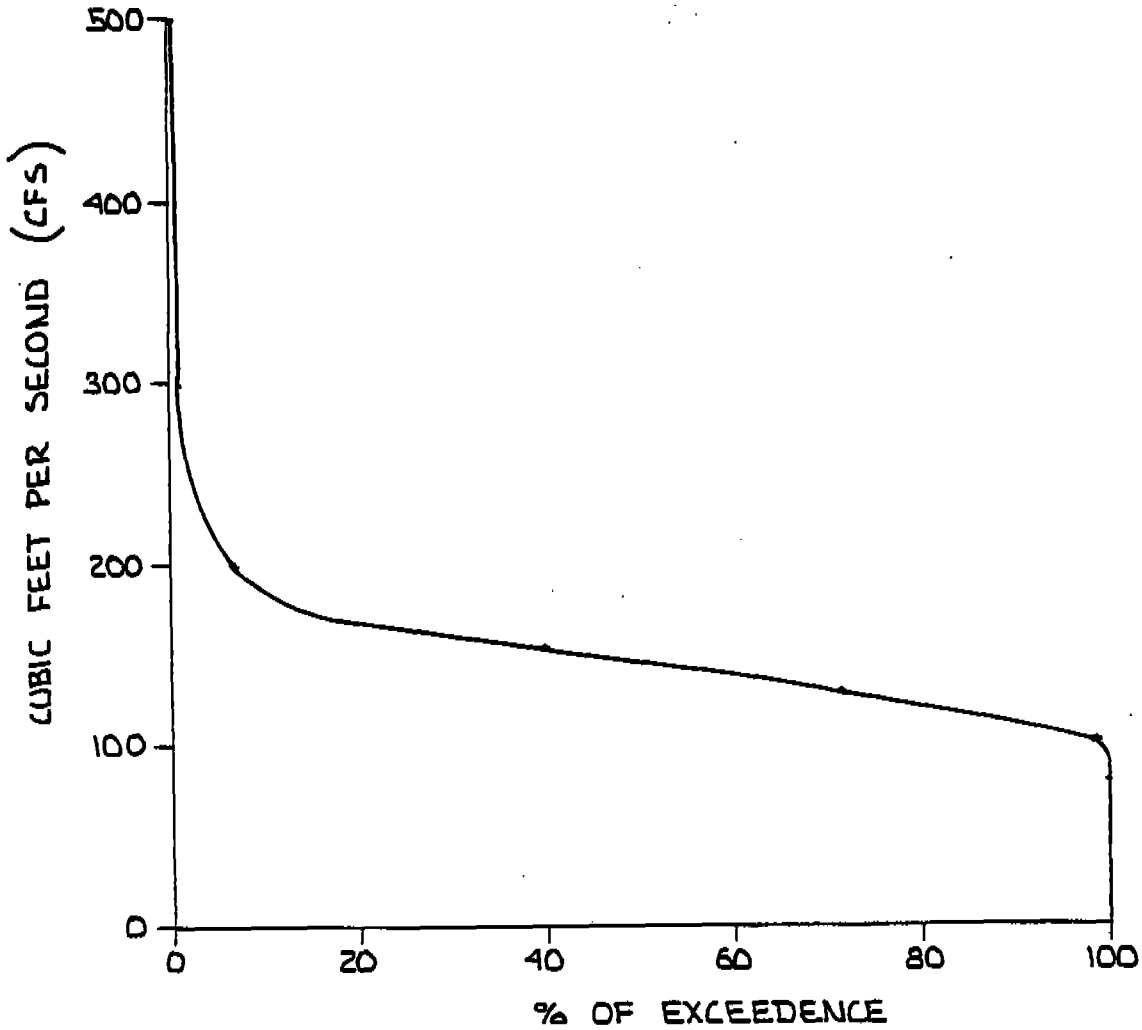
PORTNEUF RIVER AT TOPAZ, IDAHO

1919 - 1983

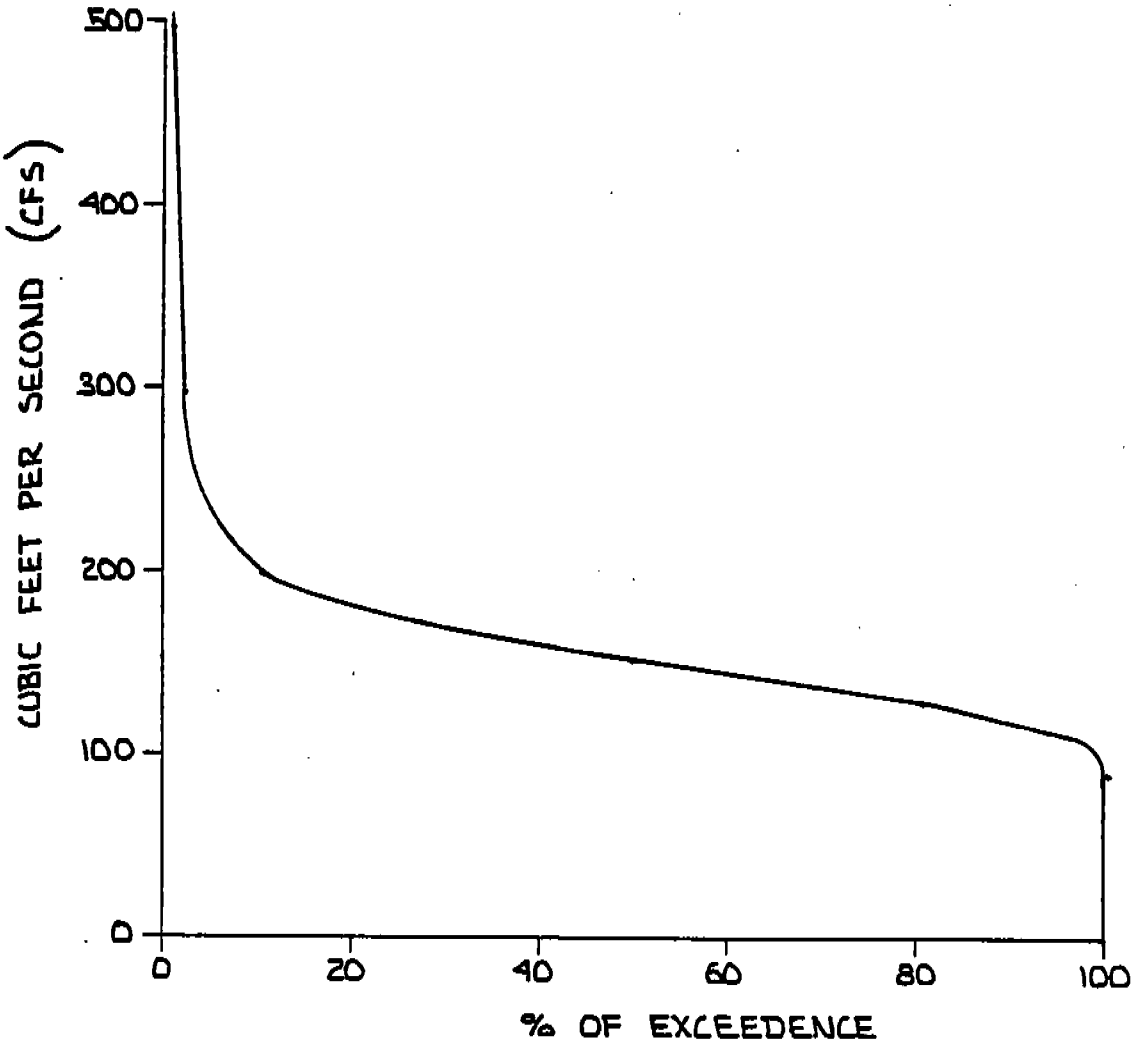
ANNUAL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



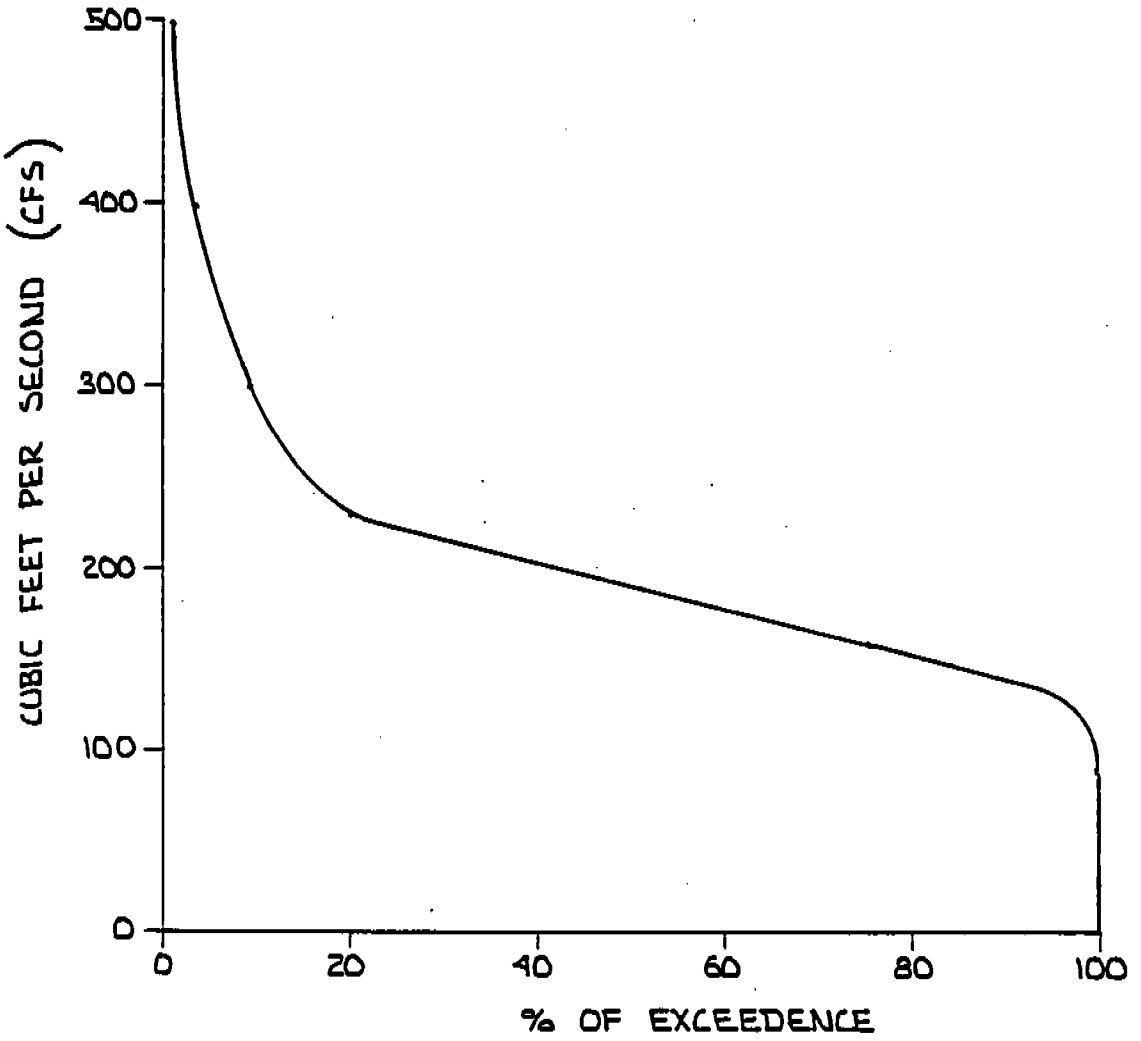
JANUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



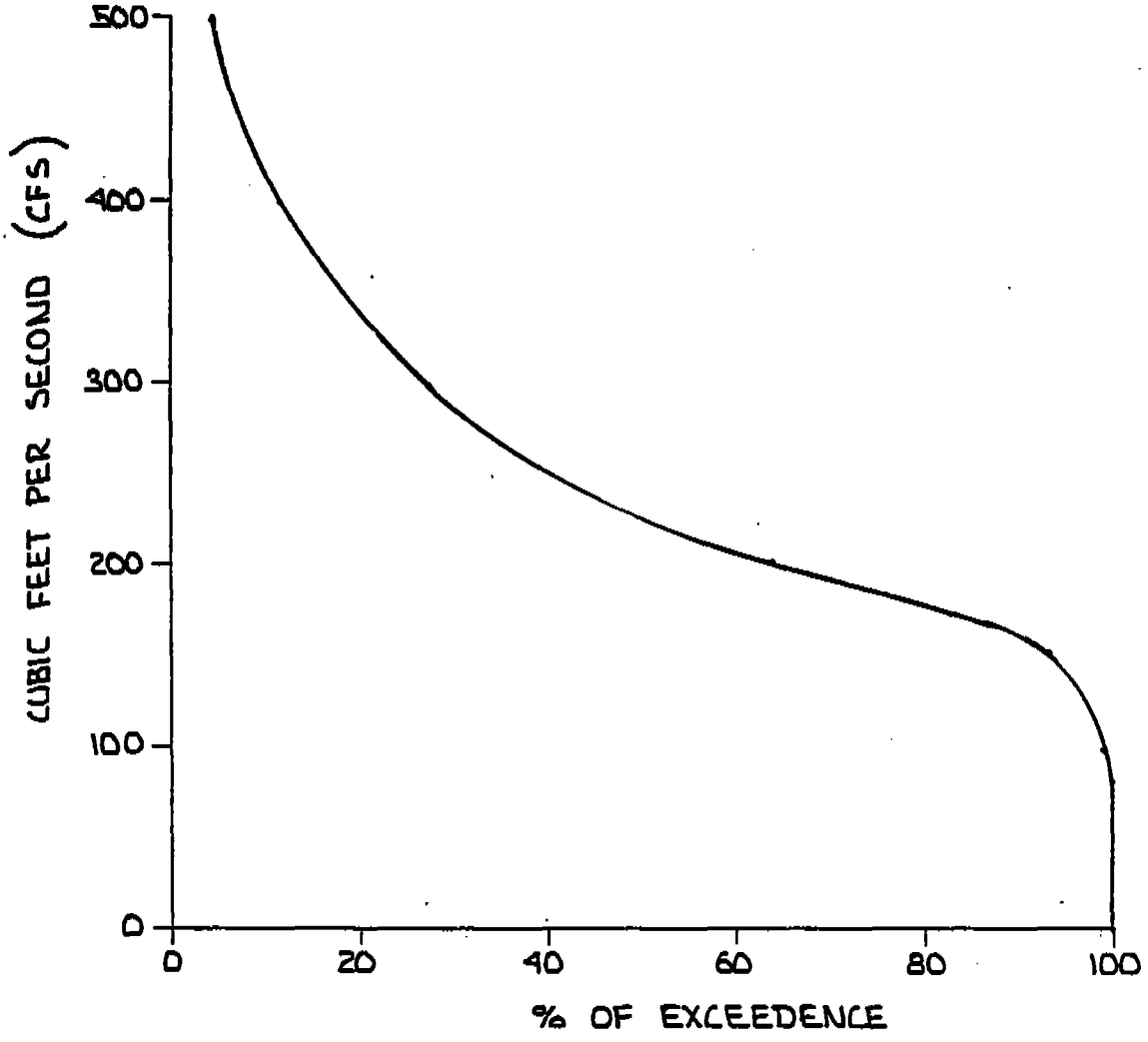
FEBRUARY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



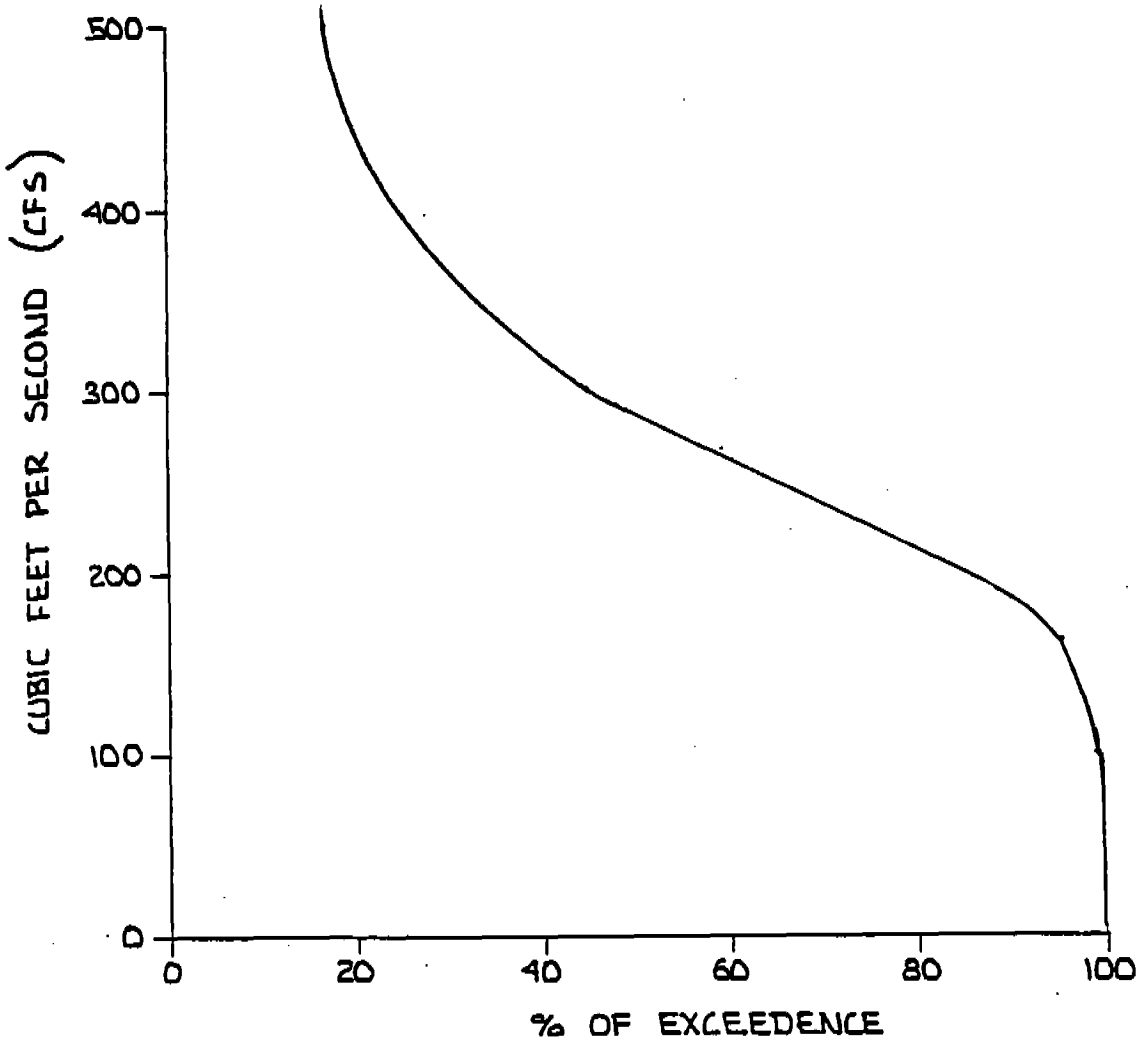
MARCH FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



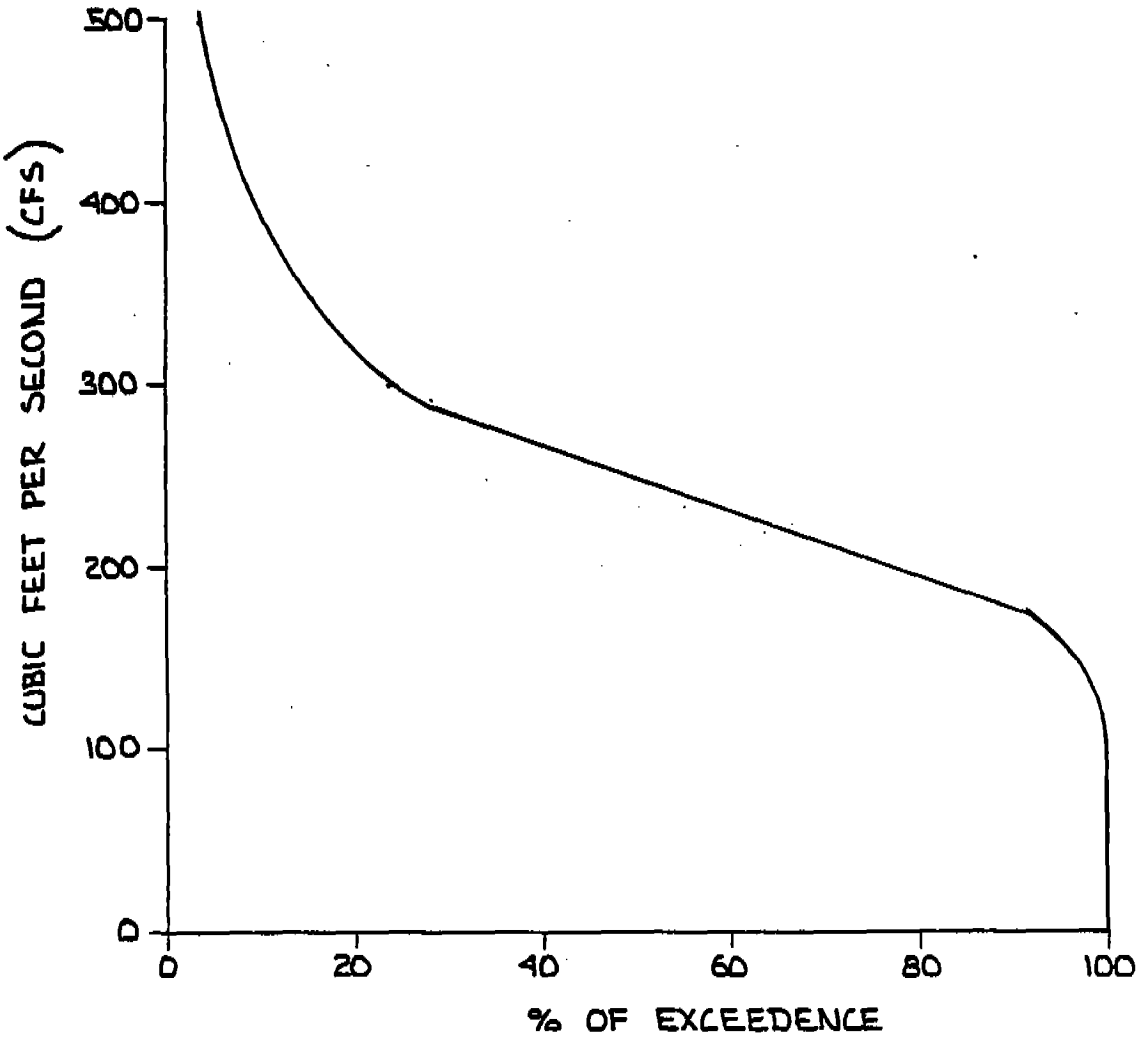
APRIL FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



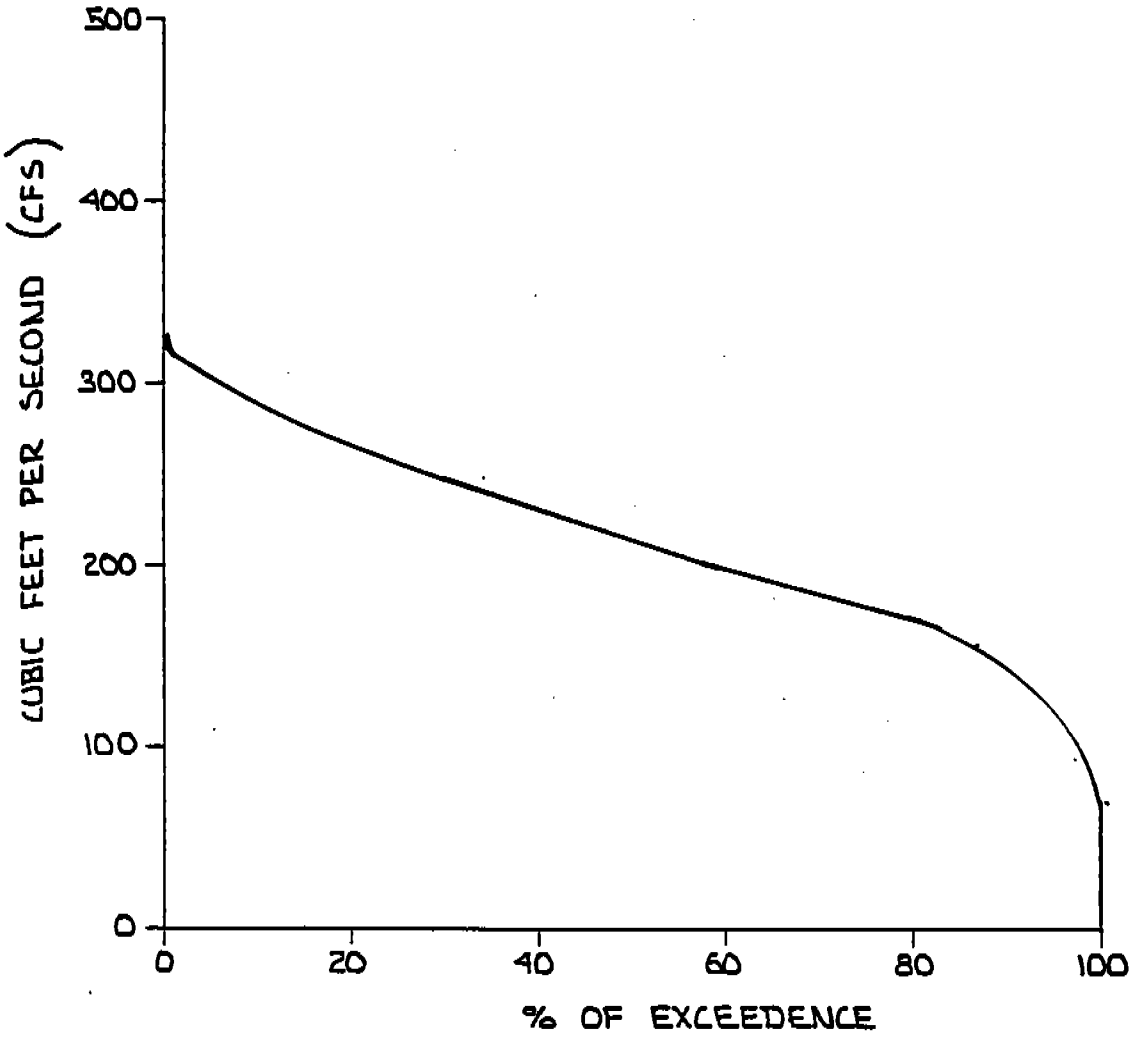
MAY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



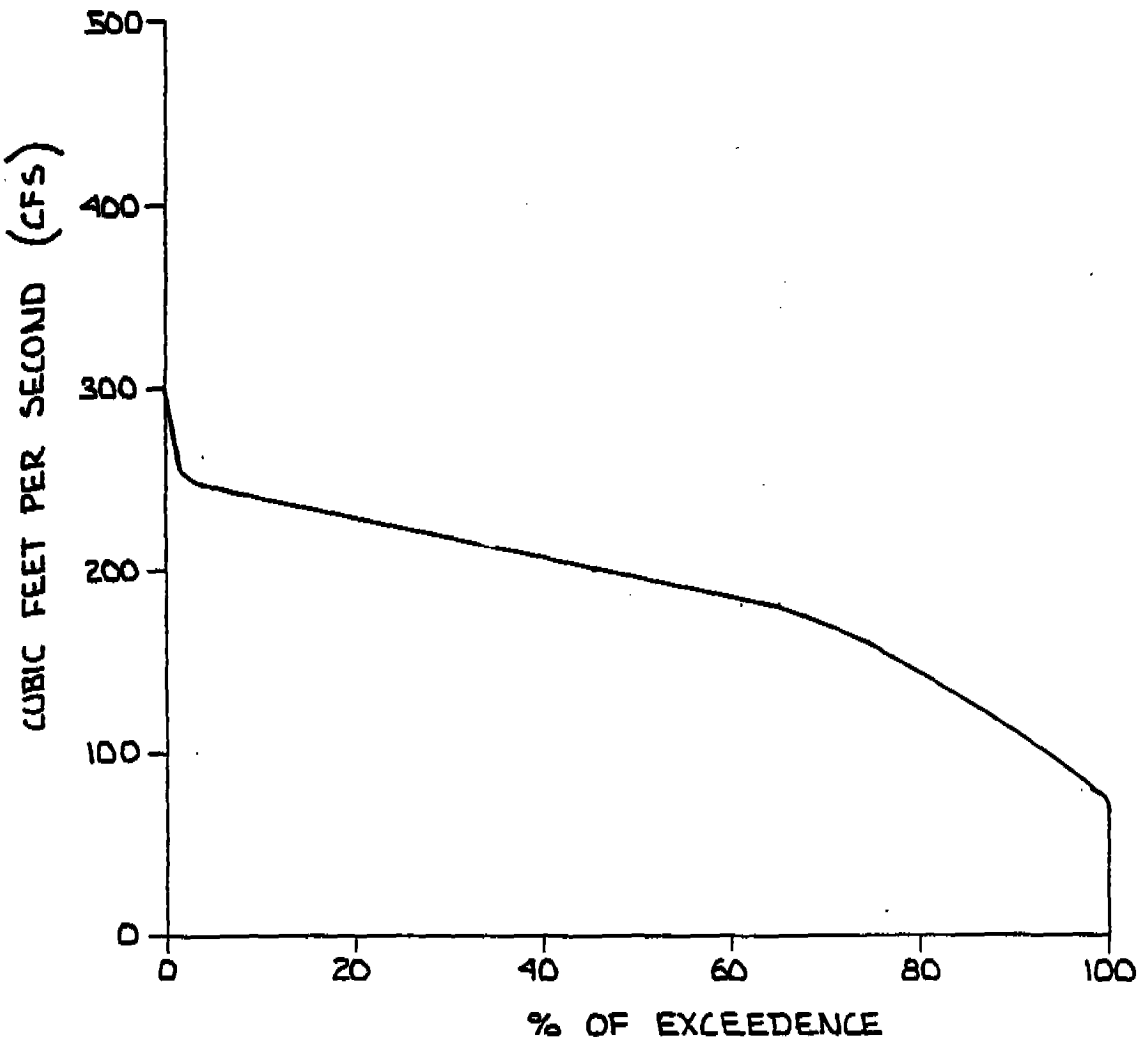
JUNE FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



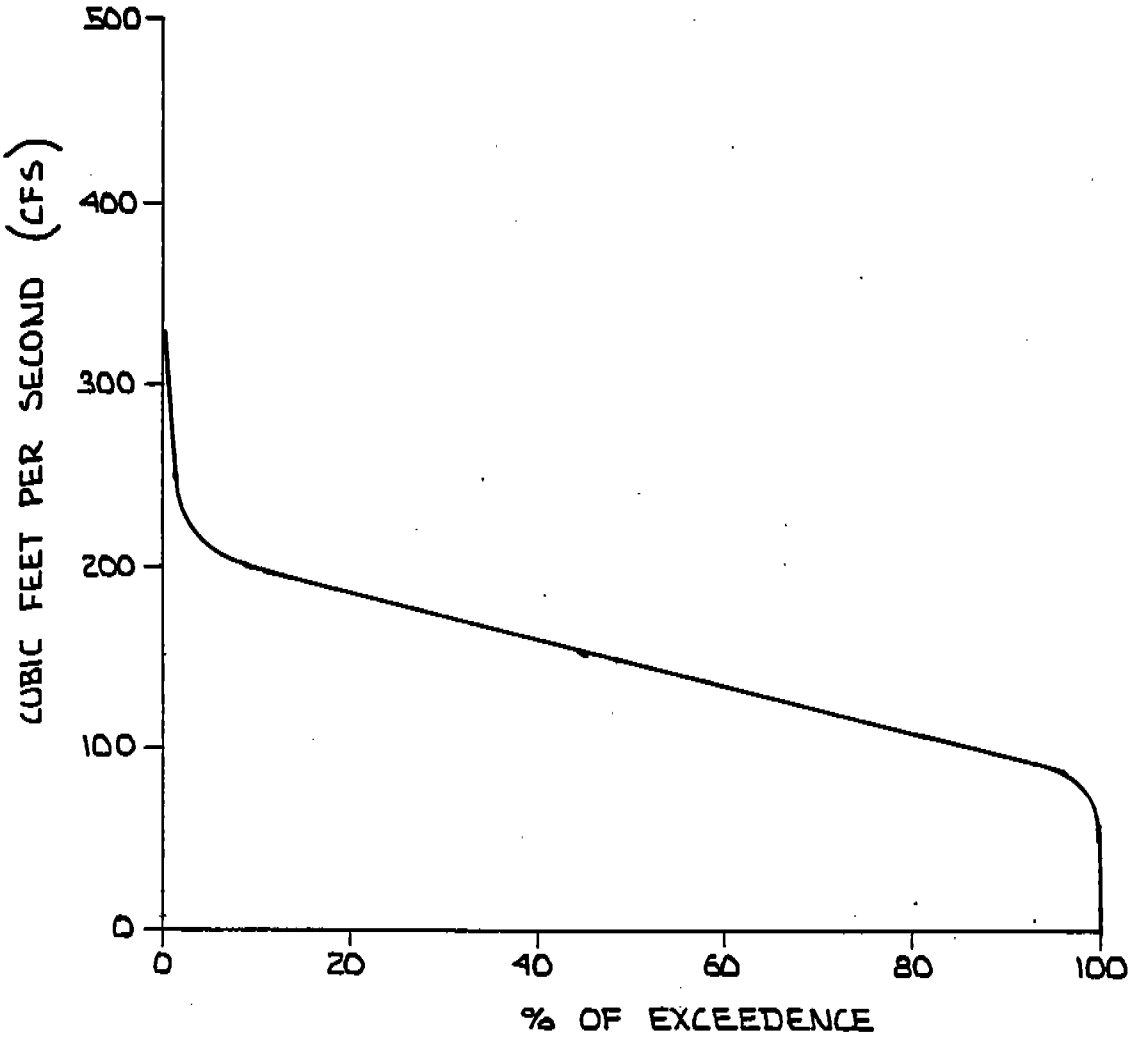
JULY FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



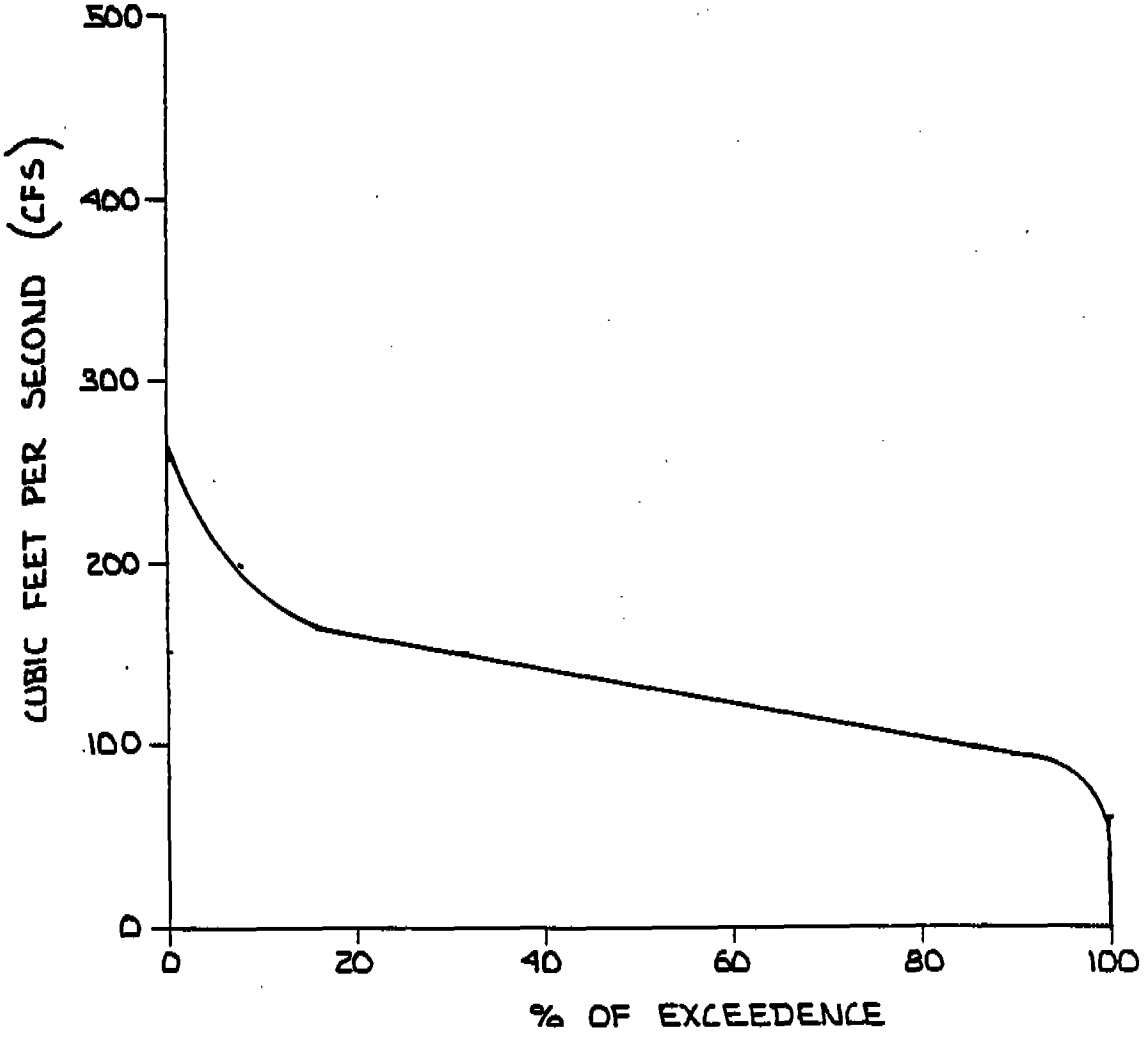
AUGUST FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



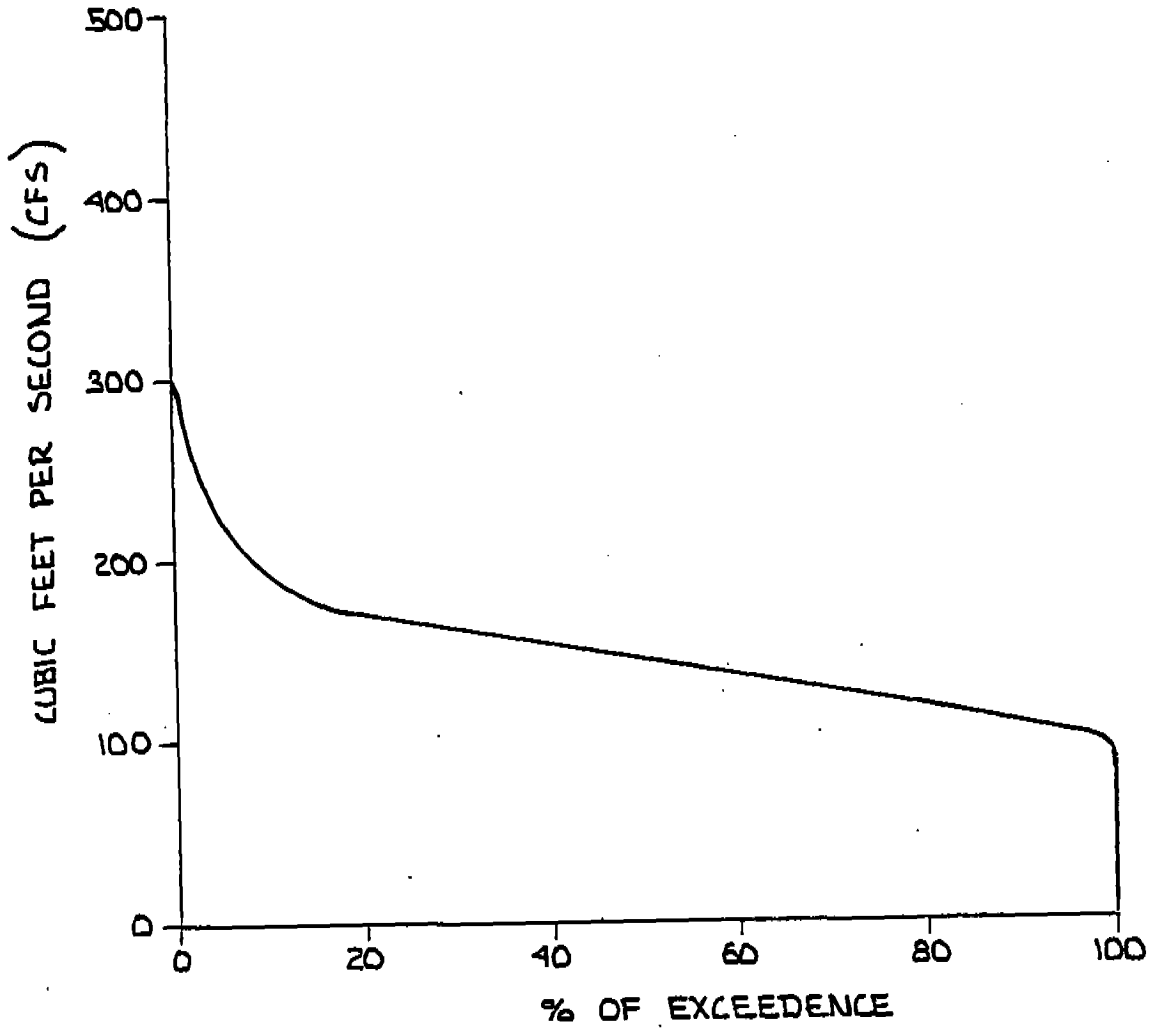
SEPTEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



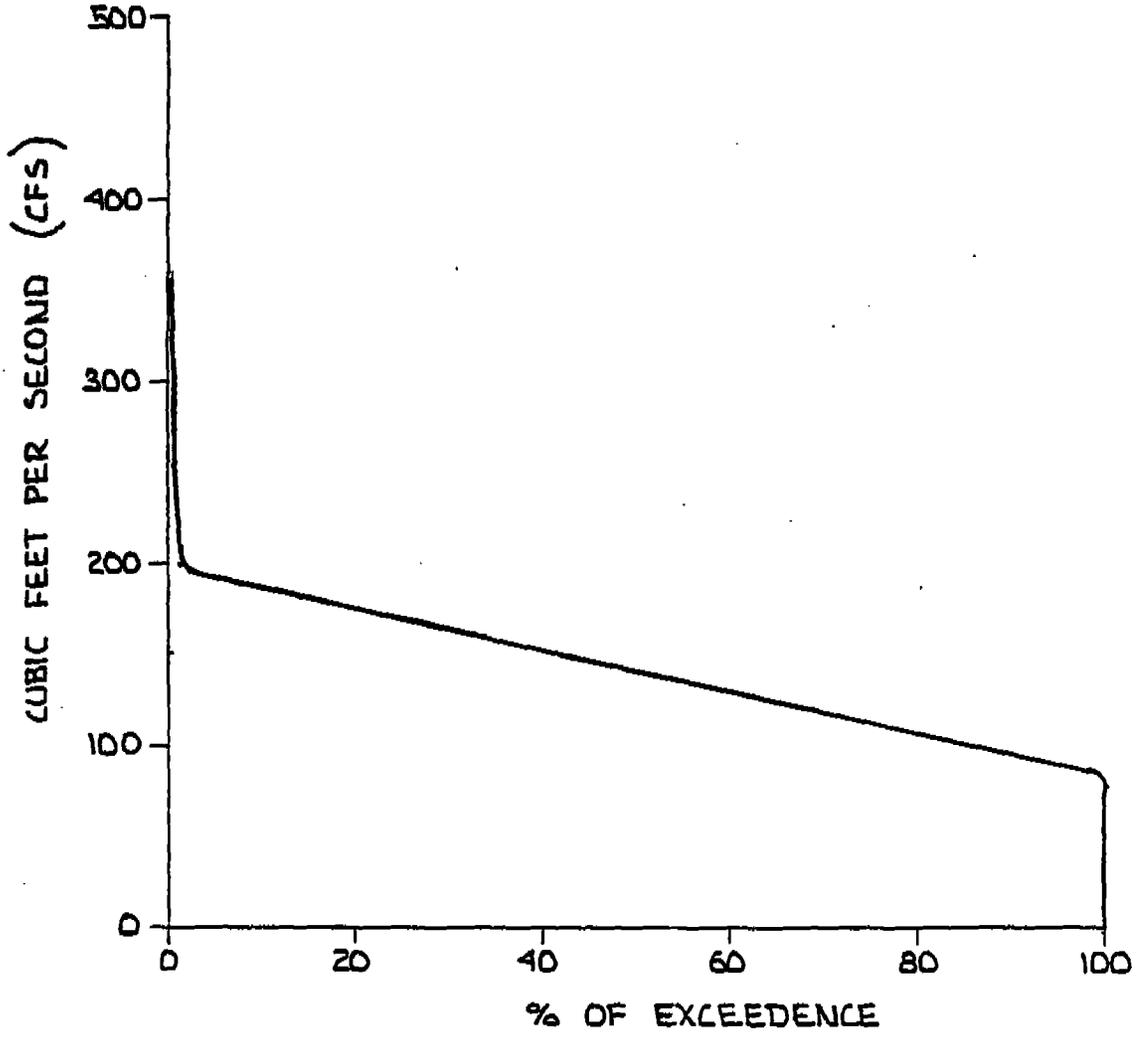
OCTOBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



NOVEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DECEMBER FLOW DURATION CURVE
PORTNEUF RIVER NEAR TOPAZ, IDAHO



DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	162.0	162.0	152.0	190.0	180.0	190.0	323.0	425.0	209.0	209.0	200.0
2	171.0	171.0	162.0	152.0	190.0	190.0	190.0	303.0	404.0	209.0	218.0	200.0
3	162.0	200.0	162.0	152.0	200.0	190.0	190.0	283.0	363.0	209.0	218.0	200.0
4	162.0	209.0	162.0	152.0	190.0	190.0	190.0	303.0	343.0	228.0	218.0	200.0
5	162.0	190.0	162.0	152.0	190.0	190.0	190.0	323.0	343.0	228.0	218.0	209.0
6	162.0	180.0	171.0	152.0	190.0	190.0	209.0	343.0	304.0	228.0	218.0	218.0
7	162.0	180.0	162.0	152.0	190.0	190.0	228.0	390.0	285.0	228.0	218.0	218.0
8	162.0	190.0	152.0	152.0	180.0	180.0	247.0	418.0	285.0	228.0	209.0	218.0
9	180.0	171.0	162.0	152.0	171.0	180.0	247.0	472.0	266.0	228.0	200.0	218.0
10	162.0	171.0	171.0	152.0	171.0	190.0	228.0	472.0	247.0	228.0	190.0	218.0
11	162.0	171.0	171.0	152.0	171.0	190.0	228.0	490.0	266.0	228.0	200.0	209.0
12	162.0	171.0	162.0	152.0	171.0	180.0	228.0	526.0	266.0	228.0	200.0	209.0
13	162.0	171.0	162.0	152.0	171.0	190.0	228.0	561.0	247.0	218.0	209.0	209.0
14	162.0	171.0	162.0	152.0	171.0	190.0	285.0	595.0	247.0	228.0	200.0	209.0
15	162.0	171.0	162.0	152.0	171.0	190.0	304.0	595.0	247.0	218.0	190.0	209.0
16	162.0	171.0	162.0	171.0	171.0	180.0	304.0	595.0	247.0	218.0	190.0	209.0
17	162.0	171.0	152.0	209.0	171.0	180.0	285.0	595.0	228.0	218.0	190.0	209.0
18	162.0	171.0	152.0	200.0	171.0	171.0	228.0	629.0	228.0	218.0	190.0	209.0
19	162.0	171.0	152.0	190.0	171.0	171.0	228.0	629.0	228.0	209.0	190.0	190.0
20	162.0	171.0	152.0	180.0	171.0	180.0	219.0	595.0	218.0	209.0	190.0	180.0
21	162.0	171.0	152.0	171.0	171.0	200.0	218.0	612.0	209.0	209.0	190.0	171.0
22	162.0	171.0	152.0	171.0	171.0	218.0	209.0	645.0	218.0	209.0	190.0	162.0
23	162.0	171.0	152.0	162.0	171.0	209.0	209.0	677.0	209.0	209.0	190.0	190.0
24	162.0	171.0	152.0	162.0	171.0	209.0	209.0	709.0	209.0	209.0	190.0	200.0
25	162.0	171.0	152.0	190.0	162.0	190.0	209.0	709.0	209.0	209.0	190.0	247.0
26	162.0	171.0	152.0	200.0	162.0	190.0	209.0	693.0	209.0	209.0	190.0	228.0
27	162.0	162.0	162.0	247.0	171.0	180.0	218.0	661.0	209.0	209.0	200.0	228.0
28	162.0	162.0	162.0	228.0	171.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
29	162.0	162.0	152.0	209.0	180.0	180.0	228.0	561.0	209.0	218.0	209.0	228.0
30	162.0	162.0	152.0	200.0	0.0	190.0	247.0	526.0	209.0	209.0	200.0	218.0
31	162.0	0.0	152.0	190.0	0.0	190.0	0.0	472.0	0.0	209.0	200.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1921

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	190.0	168.0	168.0	168.0	192.0	266.0	454.0	677.0	213.0	244.0	223.0
2	218.0	190.0	168.0	168.0	168.0	192.0	266.0	472.0	645.0	213.0	254.0	223.0
3	218.0	190.0	168.0	168.0	168.0	200.0	300.0	508.0	612.0	213.0	244.0	233.0
4	209.0	190.0	168.0	168.0	168.0	208.0	318.0	595.0	595.0	233.0	244.0	213.0
5	209.0	190.0	168.0	168.0	168.0	232.0	354.0	612.0	595.0	233.0	244.0	213.0
6	218.0	190.0	168.0	160.0	168.0	283.0	318.0	629.0	561.0	254.0	233.0	203.0
7	209.0	190.0	168.0	160.0	168.0	266.0	318.0	709.0	561.0	254.0	233.0	203.0
8	209.0	180.0	168.0	160.0	168.0	266.0	318.0	725.0	526.0	244.0	233.0	203.0
9	209.0	180.0	168.0	160.0	168.0	249.0	336.0	757.0	526.0	233.0	233.0	203.0
10	209.0	180.0	168.0	160.0	168.0	232.0	318.0	725.0	472.0	244.0	233.0	203.0
11	209.0	180.0	176.0	160.0	168.0	266.0	300.0	709.0	454.0	244.0	244.0	203.0
12	209.0	180.0	168.0	168.0	176.0	318.0	266.0	709.0	454.0	254.0	233.0	193.0
13	190.0	180.0	168.0	168.0	176.0	354.0	318.0	693.0	418.0	254.0	233.0	193.0
14	200.0	180.0	168.0	168.0	176.0	373.0	354.0	709.0	400.0	264.0	233.0	193.0
15	190.0	180.0	168.0	168.0	176.0	411.0	392.0	725.0	372.0	254.0	233.0	193.0
16	190.0	190.0	168.0	168.0	184.0	430.0	373.0	741.0	362.0	254.0	233.0	193.0
17	190.0	190.0	168.0	168.0	176.0	449.0	336.0	741.0	343.0	254.0	233.0	193.0
18	200.0	190.0	160.0	176.0	176.0	449.0	336.0	741.0	333.0	254.0	223.0	193.0
19	209.0	190.0	168.0	176.0	176.0	487.0	354.0	725.0	343.0	254.0	213.0	193.0
20	209.0	190.0	168.0	176.0	176.0	373.0	392.0	693.0	352.0	254.0	213.0	193.0
21	209.0	190.0	168.0	176.0	176.0	336.0	392.0	661.0	323.0	254.0	213.0	184.0
22	209.0	185.0	168.0	176.0	176.0	336.0	449.0	629.0	323.0	244.0	203.0	174.0
23	209.0	181.0	160.0	168.0	176.0	336.0	468.0	578.0	303.0	244.0	213.0	174.0
24	200.0	177.0	168.0	168.0	176.0	318.0	449.0	629.0	283.0	244.0	203.0	174.0
25	190.0	177.0	168.0	168.0	176.0	336.0	449.0	645.0	273.0	244.0	213.0	174.0
26	190.0	180.0	168.0	168.0	176.0	336.0	430.0	677.0	263.0	244.0	213.0	174.0
27	190.0	189.0	168.0	168.0	184.0	318.0	411.0	677.0	252.0	244.0	213.0	174.0
28	190.0	182.0	168.0	168.0	184.0	283.0	411.0	677.0	233.0	244.0	213.0	174.0
29	190.0	179.0	168.0	168.0	0.0	266.0	392.0	693.0	224.0	244.0	223.0	174.0
30	190.0	168.0	168.0	168.0	0.0	266.0	411.0	661.0	224.0	244.0	223.0	174.0
31	190.0	0.0	168.0	168.0	0.0	249.0	0.0	677.0	0.0	244.0	223.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1972

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174.0	184.0	197.0	192.0	176.0	176.0	283.0	400.0	538.0	275.0	275.0	244.0
2	174.0	184.0	197.0	208.0	176.0	176.0	300.0	333.0	515.0	275.0	297.0	244.0
3	174.0	184.0	178.0	200.0	184.0	176.0	336.0	372.0	469.0	275.0	297.0	264.0
4	174.0	184.0	177.0	192.0	176.0	176.0	373.0	427.0	323.0	264.0	275.0	264.0
5	174.0	184.0	186.0	192.0	176.0	176.0	392.0	561.0	404.0	254.0	264.0	275.0
6	174.0	184.0	186.0	184.0	176.0	176.0	392.0	629.0	363.0	254.0	264.0	254.0
7	174.0	184.0	177.0	176.0	176.0	176.0	392.0	629.0	404.0	254.0	264.0	254.0
8	174.0	184.0	177.0	176.0	184.0	176.0	430.0	725.0	393.0	254.0	264.0	254.0
9	174.0	184.0	176.0	184.0	192.0	176.0	373.0	661.0	365.0	264.0	254.0	254.0
10	174.0	184.0	176.0	184.0	192.0	176.0	283.0	595.0	366.0	264.0	244.0	254.0
11	174.0	184.0	176.0	184.0	184.0	176.0	318.0	508.0	349.0	264.0	244.0	254.0
12	184.0	184.0	176.0	176.0	184.0	176.0	300.0	418.0	315.0	254.0	244.0	233.0
13	184.0	184.0	176.0	176.0	176.0	176.0	300.0	436.0	314.0	254.0	244.0	193.0
14	184.0	184.0	184.0	176.0	176.0	184.0	300.0	436.0	353.0	244.0	244.0	193.0
15	184.0	184.0	184.0	168.0	184.0	184.0	283.0	472.0	343.0	244.0	233.0	193.0
16	184.0	184.0	176.0	168.0	184.0	184.0	283.0	490.0	345.0	244.0	233.0	193.0
17	184.0	184.0	176.0	184.0	184.0	192.0	266.0	561.0	348.0	244.0	233.0	193.0
18	184.0	174.0	184.0	176.0	184.0	192.0	266.0	612.0	359.0	244.0	233.0	184.0
19	184.0	184.0	184.0	176.0	176.0	192.0	266.0	661.0	336.0	244.0	244.0	193.0
20	184.0	184.0	184.0	184.0	176.0	200.0	283.0	725.0	296.0	319.0	244.0	193.0
21	174.0	193.0	184.0	184.0	184.0	208.0	283.0	757.0	286.0	275.0	244.0	193.0
22	174.0	212.0	184.0	176.0	176.0	216.0	283.0	741.0	275.0	297.0	244.0	184.0
23	193.0	211.0	184.0	176.0	176.0	232.0	300.0	677.0	244.0	297.0	264.0	193.0
24	193.0	210.0	184.0	176.0	176.0	266.0	300.0	709.0	254.0	297.0	254.0	174.0
25	193.0	200.0	184.0	176.0	176.0	283.0	318.0	709.0	264.0	275.0	254.0	174.0
26	193.0	200.0	184.0	176.0	176.0	283.0	318.0	693.0	275.0	275.0	254.0	174.0
27	193.0	190.0	184.0	176.0	176.0	283.0	336.0	693.0	297.0	275.0	254.0	174.0
28	193.0	189.0	184.0	176.0	176.0	283.0	392.0	629.0	254.0	264.0	254.0	174.0
29	184.0	189.0	184.0	176.0	0.0	249.0	392.0	578.0	286.0	264.0	254.0	174.0
30	184.0	198.0	192.0	176.0	0.0	266.0	392.0	561.0	275.0	264.0	254.0	174.0
31	184.0	0.0	192.0	176.0	0.0	266.0	0.0	576.0	0.0	264.0	244.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1923

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	220.0	220.0	230.0	150.0	210.0	538.0	323.0	363.0	247.0	247.0	247.0
2	170.0	220.0	220.0	230.0	150.0	200.0	562.0	323.0	343.0	247.0	247.0	247.0
3	170.0	220.0	220.0	230.0	150.0	180.0	562.0	323.0	304.0	209.0	266.0	247.0
4	170.0	220.0	220.0	230.0	150.0	180.0	447.0	363.0	285.0	218.0	266.0	247.0
5	170.0	220.0	200.0	230.0	150.0	200.0	383.0	383.0	285.0	266.0	266.0	228.0
6	170.0	250.0	200.0	230.0	150.0	210.0	562.0	425.0	266.0	266.0	266.0	228.0
7	170.0	250.0	200.0	230.0	150.0	210.0	538.0	469.0	266.0	209.0	247.0	247.0
8	170.0	250.0	200.0	230.0	150.0	210.0	492.0	492.0	266.0	190.0	247.0	247.0
9	170.0	250.0	200.0	230.0	150.0	210.0	425.0	492.0	266.0	190.0	247.0	247.0
10	200.0	250.0	200.0	230.0	150.0	210.0	404.0	538.0	323.0	247.0	247.0	247.0
11	200.0	250.0	180.0	230.0	150.0	210.0	383.0	538.0	304.0	266.0	247.0	247.0
12	200.0	250.0	180.0	230.0	150.0	210.0	363.0	515.0	304.0	266.0	247.0	228.0
13	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	285.0	266.0	266.0	228.0
14	200.0	250.0	180.0	230.0	150.0	210.0	343.0	515.0	266.0	266.0	285.0	228.0
15	200.0	250.0	180.0	230.0	150.0	210.0	323.0	469.0	247.0	247.0	266.0	228.0
16	200.0	250.0	180.0	230.0	170.0	220.0	323.0	447.0	266.0	247.0	266.0	228.0
17	200.0	250.0	180.0	230.0	170.0	220.0	343.0	469.0	247.0	247.0	247.0	228.0
18	200.0	250.0	180.0	230.0	170.0	210.0	383.0	492.0	247.0	247.0	190.0	228.0
19	200.0	250.0	180.0	230.0	170.0	230.0	404.0	515.0	266.0	247.0	190.0	228.0
20	200.0	250.0	180.0	230.0	170.0	250.0	363.0	492.0	285.0	247.0	266.0	247.0
21	200.0	220.0	200.0	230.0	200.0	250.0	363.0	492.0	323.0	228.0	247.0	228.0
22	200.0	220.0	200.0	230.0	210.0	260.0	323.0	492.0	363.0	247.0	247.0	228.0
23	200.0	220.0	200.0	230.0	210.0	270.0	304.0	469.0	363.0	447.0	247.0	209.0
24	200.0	220.0	200.0	230.0	210.0	280.0	285.0	425.0	323.0	285.0	266.0	209.0
25	200.0	220.0	200.0	230.0	210.0	300.0	285.0	425.0	304.0	285.0	266.0	209.0
26	200.0	220.0	200.0	200.0	210.0	320.0	304.0	425.0	285.0	285.0	266.0	218.0
27	200.0	220.0	200.0	200.0	210.0	340.0	323.0	404.0	266.0	285.0	247.0	228.0
28	200.0	220.0	200.0	200.0	210.0	370.0	343.0	383.0	247.0	266.0	247.0	228.0
29	200.0	220.0	200.0	200.0	0.0	400.0	343.0	363.0	247.0	266.0	247.0	247.0
30	200.0	220.0	200.0	200.0	0.0	450.0	343.0	343.0	247.0	266.0	247.0	218.0
31	200.0	0.0	200.0	200.0	0.0	500.0	0.0	383.0	0.0	247.0	266.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1924

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218.0	207.0	197.0	200.0	186.0	213.0	213.0	234.0	234.0	192.0	202.0	141.0
2	228.0	207.0	204.0	200.0	196.0	224.0	224.0	244.0	224.0	192.0	192.0	131.0
3	208.0	207.0	203.0	199.0	196.0	234.0	244.0	266.0	213.0	213.0	192.0	131.0
4	218.0	207.0	203.0	190.0	194.0	234.0	255.0	276.0	213.0	213.0	192.0	131.0
5	218.0	207.0	197.0	179.0	185.0	224.0	255.0	297.0	234.0	213.0	192.0	141.0
6	218.0	207.0	194.0	179.0	193.0	224.0	266.0	276.0	234.0	224.0	192.0	131.0
7	218.0	207.0	194.0	179.0	195.0	213.0	276.0	276.0	234.0	234.0	202.0	131.0
8	218.0	207.0	193.0	179.0	205.0	202.0	276.0	276.0	234.0	605.0	192.0	131.0
9	228.0	206.0	193.0	179.0	214.0	202.0	255.0	266.0	234.0	319.0	182.0	141.0
10	247.0	206.0	193.0	178.0	215.0	202.0	244.0	266.0	234.0	255.0	192.0	131.0
11	228.0	208.0	193.0	178.0	215.0	202.0	234.0	234.0	224.0	213.0	182.0	131.0
12	228.0	206.0	193.0	178.0	215.0	202.0	234.0	213.0	213.0	234.0	182.0	131.0
13	218.0	206.0	193.0	178.0	225.0	202.0	255.0	202.0	234.0	224.0	192.0	121.0
14	218.0	206.0	193.0	178.0	236.0	202.0	297.0	192.0	224.0	213.0	171.0	121.0
15	218.0	206.0	192.0	185.0	236.0	202.0	266.0	202.0	213.0	202.0	161.0	121.0
16	218.0	206.0	192.0	185.0	244.0	202.0	255.0	213.0	213.0	213.0	171.0	121.0
17	218.0	205.0	192.0	185.0	244.0	202.0	244.0	224.0	224.0	213.0	171.0	121.0
18	209.0	205.0	192.0	185.0	256.0	202.0	234.0	224.0	213.0	213.0	171.0	121.0
19	209.0	205.0	192.0	185.0	256.0	202.0	224.0	234.0	213.0	192.0	171.0	131.0
20	209.0	205.0	192.0	185.0	266.0	202.0	224.0	234.0	213.0	202.0	151.0	131.0
21	209.0	205.0	192.0	184.0	244.0	202.0	224.0	276.0	213.0	192.0	151.0	121.0
22	218.0	205.0	192.0	184.0	235.0	202.0	234.0	286.0	213.0	192.0	151.0	121.0
23	228.0	205.0	191.0	184.0	214.0	202.0	255.0	276.0	213.0	202.0	161.0	121.0
24	218.0	205.0	191.0	184.0	202.0	234.0	255.0	266.0	213.0	202.0	151.0	121.0
25	209.0	204.0	191.0	184.0	203.0	234.0	244.0	244.0	202.0	202.0	151.0	121.0
26	209.0	204.0	191.0	184.0	203.0	224.0	234.0	234.0	213.0	192.0	151.0	121.0
27	209.0	194.0	191.0	184.0	213.0	224.0	234.0	234.0	213.0	202.0	151.0	121.0
28	208.0	204.0	196.0	176.0	213.0	224.0	234.0	213.0	202.0	202.0	151.0	121.0
29	208.0	204.0	200.0	176.0	213.0	213.0	234.0	213.0	202.0	192.0	151.0	121.0
30	208.0	204.0	200.0	184.0	0.0	224.0	234.0	234.0	202.0	202.0	151.0	121.0
31	208.0	0.0	200.0	184.0	0.0	213.0	0.0	234.0	0.0	192.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1925

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	161.0	161.0	161.0	161.0	171.0	234.0	255.0	255.0	202.0	131.0	286.0
2	131.0	161.0	161.0	151.0	171.0	171.0	224.0	266.0	276.0	213.0	131.0	330.0
3	131.0	161.0	161.0	151.0	171.0	182.0	224.0	266.0	296.0	213.0	141.0	297.0
4	141.0	161.0	161.0	161.0	286.0	224.0	224.0	276.0	276.0	213.0	131.0	286.0
5	141.0	161.0	171.0	161.0	276.0	234.0	234.0	297.0	255.0	680.0	131.0	255.0
6	141.0	161.0	171.0	151.0	481.0	286.0	234.0	319.0	255.0	341.0	131.0	244.0
7	141.0	161.0	171.0	151.0	276.0	330.0	224.0	341.0	244.0	266.0	131.0	244.0
8	141.0	161.0	171.0	161.0	255.0	364.0	234.0	387.0	244.0	266.0	131.0	234.0
9	141.0	161.0	161.0	161.0	224.0	297.0	224.0	433.0	234.0	234.0	131.0	213.0
10	151.0	161.0	161.0	161.0	192.0	244.0	234.0	410.0	234.0	244.0	131.0	234.0
11	141.0	161.0	161.0	151.0	192.0	213.0	244.0	410.0	234.0	213.0	131.0	224.0
12	141.0	161.0	161.0	161.0	192.0	213.0	266.0	410.0	234.0	202.0	151.0	213.0
13	141.0	161.0	161.0	161.0	192.0	202.0	266.0	410.0	213.0	192.0	171.0	213.0
14	141.0	161.0	171.0	161.0	182.0	202.0	276.0	387.0	224.0	182.0	213.0	213.0
15	141.0	161.0	171.0	161.0	182.0	202.0	276.0	410.0	244.0	182.0	224.0	171.0
16	141.0	161.0	192.0	161.0	182.0	202.0	276.0	457.0	234.0	202.0	234.0	161.0
17	141.0	161.0	171.0	151.0	182.0	213.0	341.0	457.0	255.0	213.0	234.0	161.0
18	141.0	161.0	150.0	151.0	182.0	202.0	433.0	410.0	255.0	213.0	244.0	182.0
19	141.0	161.0	150.0	151.0	182.0	224.0	387.0	387.0	244.0	213.0	255.0	171.0
20	141.0	171.0	150.0	151.0	182.0	276.0	341.0	387.0	234.0	224.0	266.0	171.0
21	141.0	171.0	150.0	151.0	182.0	330.0	319.0	387.0	234.0	234.0	266.0	176.0
22	141.0	171.0	150.0	151.0	182.0	330.0	266.0	341.0	308.0	234.0	266.0	182.0
23	141.0	171.0	150.0	151.0	182.0	308.0	286.0	319.0	286.0	255.0	255.0	182.0
24	141.0	161.0	150.0	161.0	171.0	276.0	297.0	330.0	266.0	244.0	244.0	171.0
25	141.0	161.0	150.0	161.0	171.0	255.0	286.0	319.0	234.0	244.0	244.0	171.0
26	141.0	161.0	151.0	161.0	171.0	234.0	276.0	297.0	224.0	244.0	244.0	171.0
27	141.0	161.0	151.0	161.0	171.0	224.0	276.0	286.0	213.0	244.0	234.0	171.0
28	141.0	161.0	161.0	161.0	161.0	224.0	244.0	276.0	213.0	161.0	244.0	171.0
29	171.0	161.0	151.0	161.0	0.0	224.0	244.0	266.0	202.0	151.0	255.0	171.0
30	161.0	161.0	161.0	161.0	0.0	255.0	244.0	255.0	202.0	141.0	266.0	161.0
31	161.0	0.0	161.0	161.0	0.0	244.0	0.0	276.0	0.0	141.0	286.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.0	180.0	190.0	170.0	170.0	210.0	220.0	270.0	260.0	220.0	170.0	124.0
2	160.0	210.0	210.0	170.0	170.0	210.0	220.0	280.0	240.0	230.0	170.0	124.0
3	160.0	200.0	190.0	170.0	170.0	230.0	210.0	270.0	240.0	220.0	170.0	122.0
4	160.0	190.0	190.0	170.0	170.0	270.0	210.0	270.0	260.0	220.0	170.0	122.0
5	160.0	190.0	190.0	170.0	180.0	302.0	270.0	312.0	270.0	220.0	151.0	122.0
6	170.0	180.0	180.0	170.0	180.0	230.0	280.0	322.0	270.0	230.0	151.0	124.0
7	170.0	180.0	190.0	170.0	190.0	210.0	280.0	312.0	260.0	230.0	170.0	124.0
8	170.0	180.0	180.0	170.0	190.0	230.0	280.0	312.0	260.0	230.0	180.0	124.0
9	170.0	180.0	180.0	160.0	210.0	240.0	260.0	260.0	260.0	230.0	190.0	124.0
10	170.0	190.0	180.0	160.0	200.0	250.0	250.0	250.0	270.0	230.0	240.0	124.0
11	190.0	190.0	180.0	160.0	190.0	250.0	230.0	240.0	280.0	220.0	210.0	121.0
12	200.0	190.0	180.0	160.0	190.0	250.0	230.0	230.0	270.0	230.0	170.0	122.0
13	200.0	190.0	180.0	160.0	180.0	312.0	230.0	220.0	270.0	240.0	170.0	121.0
14	190.0	190.0	170.0	170.0	180.0	312.0	220.0	210.0	280.0	230.0	170.0	124.0
15	190.0	180.0	180.0	170.0	180.0	302.0	230.0	210.0	260.0	230.0	160.0	124.0
16	180.0	180.0	180.0	170.0	170.0	291.0	240.0	250.0	250.0	220.0	151.0	124.0
17	180.0	180.0	180.0	170.0	170.0	270.0	250.0	240.0	240.0	230.0	151.0	124.0
18	180.0	180.0	180.0	170.0	190.0	250.0	250.0	230.0	260.0	220.0	142.0	124.0
19	180.0	180.0	180.0	170.0	220.0	230.0	260.0	230.0	240.0	220.0	151.0	124.0
20	180.0	180.0	180.0	170.0	200.0	230.0	291.0	240.0	240.0	220.0	142.0	124.0
21	180.0	180.0	180.0	170.0	180.0	230.0	270.0	230.0	250.0	210.0	142.0	124.0
22	180.0	180.0	180.0	170.0	180.0	220.0	312.0	230.0	250.0	210.0	142.0	124.0
23	180.0	180.0	180.0	170.0	170.0	220.0	302.0	240.0	230.0	210.0	132.0	121.0
24	180.0	180.0	180.0	170.0	180.0	210.0	291.0	250.0	230.0	210.0	128.0	121.0
25	180.0	180.0	180.0	170.0	170.0	210.0	291.0	250.0	230.0	210.0	124.0	121.0
26	180.0	180.0	180.0	170.0	180.0	200.0	280.0	250.0	230.0	200.0	124.0	121.0
27	180.0	190.0	180.0	170.0	190.0	200.0	270.0	260.0	220.0	220.0	132.0	121.0
28	180.0	190.0	170.0	170.0	200.0	200.0	270.0	280.0	220.0	210.0	124.0	121.0
29	180.0	180.0	170.0	170.0	0.0	210.0	270.0	280.0	220.0	200.0	128.0	142.0
30	180.0	180.0	160.0	170.0	0.0	220.0	270.0	280.0	220.0	180.0	124.0	151.0
31	180.0	0.0	160.0	170.0	0.0	230.0	0.0	270.0	0.0	170.0	124.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1927

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	151.0	174.0	155.0	155.0	174.0	302.0	492.0	334.0	258.0	285.0	192.0
2	143.0	151.0	170.0	157.0	155.0	170.0	318.0	460.0	326.0	267.0	276.0	192.0
3	143.0	151.0	166.0	157.0	155.0	170.0	294.0	412.0	318.0	294.0	267.0	192.0
4	140.0	151.0	162.0	157.0	155.0	174.0	285.0	396.0	334.0	326.0	267.0	190.0
5	140.0	151.0	162.0	157.0	157.0	174.0	276.0	396.0	334.0	310.0	267.0	190.0
6	140.0	155.0	162.0	157.0	155.0	174.0	267.0	396.0	358.0	294.0	267.0	188.0
7	140.0	155.0	162.0	157.0	155.0	178.0	249.0	396.0	388.0	276.0	267.0	186.0
8	140.0	155.0	162.0	157.0	155.0	182.0	258.0	372.0	380.0	267.0	267.0	186.0
9	140.0	153.0	162.0	157.0	155.0	180.0	258.0	334.0	428.0	258.0	258.0	178.0
10	140.0	153.0	160.0	157.0	155.0	178.0	258.0	326.0	412.0	267.0	258.0	170.0
11	140.0	153.0	159.0	155.0	155.0	178.0	258.0	318.0	412.0	258.0	258.0	170.0
12	138.0	155.0	157.0	155.0	155.0	174.0	267.0	310.0	412.0	258.0	249.0	170.0
13	140.0	157.0	157.0	155.0	155.0	178.0	258.0	310.0	412.0	258.0	258.0	170.0
14	142.0	157.0	157.0	155.0	157.0	178.0	258.0	310.0	412.0	267.0	258.0	168.0
15	143.0	157.0	157.0	155.0	159.0	182.0	230.0	350.0	396.0	267.0	267.0	168.0
16	147.0	159.0	157.0	155.0	162.0	178.0	230.0	412.0	380.0	258.0	267.0	168.0
17	147.0	157.0	157.0	155.0	166.0	176.0	226.0	476.0	365.0	258.0	267.0	166.0
18	151.0	155.0	157.0	155.0	168.0	176.0	222.0	460.0	350.0	249.0	249.0	166.0
19	147.0	155.0	155.0	155.0	170.0	176.0	214.0	476.0	334.0	249.0	210.0	164.0
20	147.0	155.0	155.0	155.0	170.0	172.0	210.0	428.0	334.0	249.0	192.0	162.0
21	147.0	162.0	155.0	155.0	186.0	176.0	208.0	380.0	310.0	267.0	194.0	162.0
22	147.0	166.0	155.0	157.0	208.0	176.0	202.0	365.0	294.0	267.0	190.0	155.0
23	147.0	170.0	155.0	159.0	190.0	176.0	200.0	334.0	276.0	267.0	188.0	162.0
24	147.0	174.0	155.0	157.0	182.0	182.0	222.0	318.0	249.0	276.0	186.0	162.0
25	147.0	178.0	155.0	157.0	178.0	186.0	240.0	294.0	249.0	276.0	188.0	162.0
26	147.0	182.0	155.0	155.0	174.0	194.0	276.0	302.0	249.0	276.0	190.0	160.0
27	145.0	186.0	155.0	155.0	174.0	214.0	334.0	302.0	220.0	276.0	190.0	159.0
28	151.0	186.0	155.0	155.0	174.0	240.0	412.0	334.0	230.0	294.0	194.0	162.0
29	151.0	182.0	155.0	155.0	0.0	258.0	428.0	326.0	249.0	294.0	206.0	162.0
30	151.0	178.0	155.0	155.0	0.0	267.0	460.0	318.0	267.0	294.0	198.0	162.0
31	151.0	0.0	155.0	155.0	0.0	285.0	0.0	350.0	0.0	285.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1928

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	196.0	194.0	170.0	170.0	162.0	230.0	380.0	267.0	226.0	276.0	192.0
2	162.0	190.0	194.0	172.0	170.0	162.0	228.0	365.0	258.0	230.0	267.0	196.0
3	162.0	190.0	198.0	174.0	170.0	162.0	226.0	350.0	240.0	240.0	258.0	188.0
4	164.0	182.0	200.0	176.0	170.0	164.0	222.0	334.0	240.0	240.0	258.0	180.0
5	164.0	174.0	200.0	178.0	170.0	166.0	216.0	342.0	240.0	258.0	249.0	174.0
6	166.0	178.0	198.0	180.0	170.0	174.0	212.0	350.0	249.0	276.0	240.0	174.0
7	170.0	182.0	196.0	180.0	170.0	182.0	208.0	365.0	249.0	294.0	230.0	172.0
8	170.0	182.0	200.0	180.0	166.0	190.0	204.0	380.0	267.0	285.0	214.0	170.0
9	170.0	186.0	204.0	180.0	164.0	230.0	200.0	412.0	285.0	267.0	218.0	170.0
10	170.0	190.0	204.0	178.0	162.0	285.0	198.0	412.0	318.0	258.0	210.0	164.0
11	170.0	198.0	204.0	178.0	159.0	412.0	198.0	412.0	334.0	249.0	206.0	159.0
12	170.0	202.0	200.0	178.0	159.0	388.0	202.0	444.0	350.0	258.0	188.0	157.0
13	172.0	206.0	196.0	178.0	159.0	334.0	208.0	492.0	365.0	267.0	200.0	157.0
14	172.0	210.0	188.0	178.0	162.0	294.0	208.0	444.0	342.0	276.0	188.0	159.0
15	176.0	214.0	188.0	174.0	162.0	285.0	208.0	428.0	334.0	267.0	188.0	155.0
16	176.0	216.0	184.0	172.0	162.0	228.0	210.0	412.0	318.0	267.0	186.0	155.0
17	176.0	220.0	188.0	172.0	162.0	230.0	210.0	412.0	302.0	258.0	186.0	153.0
18	176.0	226.0	188.0	176.0	162.0	230.0	218.0	396.0	285.0	258.0	186.0	149.0
19	178.0	230.0	184.0	172.0	162.0	230.0	214.0	396.0	276.0	258.0	186.0	138.0
20	178.0	222.0	180.0	164.0	162.0	230.0	204.0	388.0	267.0	258.0	188.0	138.0
21	182.0	210.0	176.0	164.0	162.0	230.0	202.0	388.0	258.0	258.0	184.0	136.0
22	186.0	204.0	172.0	168.0	162.0	230.0	202.0	358.0	249.0	249.0	180.0	132.0
23	188.0	190.0	168.0	172.0	162.0	249.0	206.0	350.0	249.0	258.0	180.0	132.0
24	188.0	182.0	168.0	172.0	162.0	258.0	222.0	342.0	240.0	258.0	182.0	130.0
25	190.0	186.0	168.0	172.0	162.0	334.0	249.0	334.0	228.0	258.0	184.0	132.0
26	186.0	188.0	168.0	172.0	162.0	318.0	276.0	342.0	222.0	258.0	190.0	132.0
27	186.0	186.0	168.0	172.0	162.0	294.0	326.0	342.0	240.0	258.0	196.0	132.0
28	190.0	190.0	168.0	172.0	162.0	276.0	350.0	318.0	230.0	258.0	200.0	134.0
29	194.0	194.0	168.0	172.0	162.0	249.0	380.0	310.0	226.0	262.0	198.0	138.0
30	194.0	194.0	172.0	172.0	0.0	240.0	372.0	302.0	220.0	267.0	194.0	138.0
31	196.0	0.0	168.0	172.0	0.0	230.0	0.0	285.0	0.0	272.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1929

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	162.0	160.0	153.0	142.0	142.0	222.0	240.0	240.0	240.0	218.0	166.0
2	140.0	162.0	145.0	153.0	149.0	142.0	222.0	240.0	240.0	230.0	222.0	166.0
3	142.0	164.0	145.0	157.0	143.0	140.0	240.0	216.0	230.0	240.0	218.0	162.0
4	142.0	160.0	149.0	149.0	143.0	140.0	222.0	220.0	240.0	240.0	218.0	162.0
5	140.0	160.0	153.0	145.0	145.0	143.0	222.0	222.0	249.0	240.0	212.0	155.0
6	140.0	162.0	151.0	145.0	143.0	160.0	222.0	230.0	249.0	240.0	206.0	145.0
7	140.0	155.0	151.0	140.0	145.0	166.0	222.0	240.0	267.0	249.0	208.0	147.0
8	142.0	155.0	151.0	136.0	151.0	164.0	214.0	240.0	258.0	249.0	212.0	151.0
9	142.0	153.0	151.0	149.0	142.0	178.0	206.0	240.0	267.0	249.0	212.0	155.0
10	143.0	153.0	151.0	145.0	142.0	194.0	202.0	240.0	267.0	249.0	208.0	159.0
11	145.0	153.0	157.0	143.0	143.0	206.0	202.0	258.0	276.0	249.0	218.0	162.0
12	147.0	155.0	155.0	145.0	143.0	196.0	210.0	276.0	276.0	230.0	208.0	162.0
13	145.0	155.0	153.0	143.0	145.0	186.0	218.0	276.0	267.0	230.0	202.0	162.0
14	145.0	155.0	153.0	145.0	143.0	180.0	206.0	285.0	285.0	230.0	200.0	162.0
15	143.0	155.0	155.0	145.0	142.0	190.0	214.0	294.0	285.0	230.0	194.0	182.0
16	147.0	157.0	153.0	147.0	140.0	186.0	214.0	294.0	310.0	240.0	194.0	190.0
17	145.0	157.0	151.0	147.0	142.0	186.0	210.0	294.0	334.0	230.0	198.0	186.0
18	145.0	153.0	151.0	149.0	143.0	202.0	214.0	285.0	372.0	249.0	194.0	182.0
19	145.0	153.0	153.0	147.0	143.0	210.0	214.0	258.0	276.0	267.0	194.0	186.0
20	145.0	153.0	153.0	147.0	142.0	218.0	214.0	276.0	258.0	230.0	198.0	170.0
21	147.0	153.0	153.0	149.0	140.0	294.0	214.0	285.0	249.0	230.0	194.0	218.0
22	147.0	155.0	157.0	153.0	134.0	342.0	218.0	302.0	258.0	230.0	192.0	178.0
23	147.0	155.0	153.0	153.0	138.0	310.0	218.0	310.0	258.0	230.0	194.0	178.0
24	147.0	153.0	149.0	151.0	140.0	294.0	218.0	310.0	258.0	230.0	198.0	174.0
25	147.0	151.0	149.0	147.0	138.0	267.0	212.0	310.0	258.0	230.0	194.0	170.0
26	151.0	151.0	149.0	153.0	142.0	258.0	210.0	310.0	258.0	222.0	196.0	170.0
27	157.0	155.0	151.0	151.0	145.0	249.0	218.0	318.0	258.0	214.0	194.0	170.0
28	157.0	157.0	153.0	149.0	142.0	240.0	222.0	294.0	258.0	218.0	194.0	170.0
29	157.0	153.0	153.0	147.0	0.0	258.0	230.0	258.0	258.0	218.0	178.0	170.0
30	159.0	153.0	149.0	147.0	0.0	276.0	230.0	258.0	249.0	220.0	170.0	170.0
31	160.0	0.0	157.0	142.0	0.0	222.0	0.0	249.0	0.0	222.0	166.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1930

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162.0	151.0	151.0	145.0	142.0	157.0	174.0	190.0	166.0	220.0	132.0	130.0
2	162.0	155.0	151.0	147.0	142.0	157.0	176.0	178.0	174.0	212.0	132.0	130.0
3	159.0	155.0	155.0	145.0	142.0	157.0	172.0	174.0	186.0	204.0	140.0	130.0
4	155.0	155.0	155.0	147.0	142.0	157.0	174.0	190.0	186.0	204.0	140.0	130.0
5	151.0	151.0	155.0	147.0	142.0	157.0	172.0	194.0	194.0	208.0	140.0	134.0
6	151.0	153.0	155.0	147.0	142.0	157.0	172.0	192.0	190.0	204.0	132.0	134.0
7	151.0	155.0	155.0	147.0	142.0	160.0	172.0	196.0	198.0	200.0	140.0	130.0
8	151.0	155.0	151.0	147.0	142.0	160.0	178.0	212.0	198.0	204.0	140.0	130.0
9	155.0	155.0	155.0	147.0	145.0	160.0	180.0	230.0	166.0	164.0	151.0	130.0
10	155.0	153.0	159.0	147.0	149.0	160.0	176.0	212.0	155.0	164.0	140.0	130.0
11	155.0	155.0	159.0	147.0	153.0	157.0	176.0	202.0	159.0	164.0	140.0	130.0
12	157.0	155.0	159.0	147.0	153.0	160.0	180.0	190.0	174.0	153.0	182.0	130.0
13	159.0	155.0	159.0	151.0	160.0	176.0	194.0	178.0	170.0	157.0	194.0	130.0
14	160.0	153.0	159.0	147.0	168.0	180.0	200.0	182.0	186.0	157.0	182.0	134.0
15	160.0	157.0	155.0	147.0	168.0	208.0	192.0	186.0	190.0	153.0	174.0	130.0
16	168.0	155.0	155.0	147.0	172.0	200.0	192.0	198.0	198.0	145.0	170.0	126.0
17	176.0	155.0	155.0	147.0	180.0	200.0	192.0	222.0	206.0	142.0	174.0	130.0
18	178.0	155.0	151.0	147.0	188.0	204.0	194.0	202.0	214.0	142.0	174.0	126.0
19	176.0	147.0	151.0	147.0	200.0	200.0	194.0	186.0	230.0	160.0	155.0	119.0
20	176.0	147.0	151.0	143.0	208.0	192.0	194.0	182.0	226.0	153.0	151.0	119.0
21	168.0	147.0	151.0	143.0	196.0	192.0	194.0	190.0	230.0	153.0	151.0	126.0
22	157.0	151.0	151.0	147.0	192.0	196.0	178.0	190.0	230.0	142.0	140.0	124.0
23	149.0	151.0	151.0	147.0	184.0	180.0	170.0	182.0	249.0	145.0	140.0	130.0
24	149.0	151.0	151.0	147.0	176.0	176.0	170.0	178.0	267.0	149.0	147.0	130.0
25	149.0	151.0	151.0	143.0	164.0	176.0	196.0	178.0	230.0	149.0	151.0	130.0
26	147.0	151.0	151.0	143.0	164.0	180.0	192.0	166.0	226.0	147.0	142.0	126.0
27	151.0	155.0	151.0	143.0	160.0	176.0	194.0	159.0	230.0	143.0	138.0	130.0
28	147.0	155.0	147.0	147.0	160.0	176.0	196.0	155.0	230.0	147.0	138.0	134.0
29	147.0	155.0	147.0	143.0	0.0	172.0	196.0	147.0	230.0	147.0	142.0	134.0
30	147.0	155.0	147.0	143.0	0.0	184.0	200.0	140.0	226.0	155.0	130.0	130.0
31	149.0	0.0	147.0	143.0	0.0	180.0	0.0	162.0	0.0	140.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1931

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	147.0	142.0	136.0	134.0	134.0	164.0	143.0	230.0	106.0	100.0	93.0
2	130.0	147.0	142.0	136.0	134.0	134.0	192.0	149.0	240.0	100.0	95.0	90.0
3	142.0	147.0	142.0	136.0	134.0	138.0	160.0	149.0	218.0	100.0	93.0	93.0
4	142.0	147.0	145.0	136.0	134.0	138.0	153.0	153.0	216.0	93.0	99.0	93.0
5	138.0	151.0	145.0	136.0	134.0	134.0	149.0	157.0	212.0	97.0	100.0	93.0
6	142.0	151.0	145.0	136.0	134.0	134.0	149.0	164.0	212.0	93.0	100.0	92.0
7	145.0	151.0	145.0	140.0	134.0	138.0	149.0	168.0	214.0	93.0	99.0	90.0
8	157.0	151.0	145.0	140.0	134.0	134.0	153.0	176.0	214.0	97.0	93.0	87.0
9	172.0	147.0	145.0	140.0	138.0	134.0	153.0	164.0	222.0	99.0	93.0	90.0
10	176.0	147.0	145.0	136.0	138.0	138.0	145.0	168.0	224.0	100.0	92.0	90.0
11	176.0	147.0	145.0	136.0	138.0	142.0	149.0	168.0	214.0	102.0	93.0	93.0
12	172.0	147.0	145.0	140.0	138.0	149.0	153.0	164.0	202.0	93.0	97.0	95.0
13	172.0	155.0	145.0	140.0	138.0	149.0	157.0	149.0	194.0	99.0	97.0	93.0
14	168.0	159.0	145.0	140.0	138.0	157.0	157.0	142.0	194.0	93.0	99.0	95.0
15	172.0	147.0	145.0	136.0	138.0	149.0	157.0	140.0	200.0	93.0	99.0	93.0
16	164.0	155.0	145.0	136.0	138.0	153.0	153.0	136.0	188.0	97.0	115.0	93.0
17	153.0	155.0	149.0	140.0	138.0	160.0	153.0	136.0	138.0	100.0	97.0	90.0
18	153.0	155.0	149.0	140.0	138.0	174.0	151.0	157.0	138.0	97.0	97.0	97.0
19	153.0	143.0	149.0	136.0	138.0	168.0	153.0	147.0	134.0	92.0	100.0	99.0
20	153.0	143.0	149.0	140.0	138.0	208.0	147.0	197.0	130.0	93.0	95.0	100.0
21	153.0	147.0	149.0	140.0	138.0	258.0	145.0	168.0	122.0	93.0	93.0	99.0
22	153.0	147.0	149.0	136.0	138.0	258.0	143.0	170.0	119.0	97.0	97.0	99.0
23	153.0	147.0	149.0	140.0	138.0	258.0	151.0	168.0	119.0	95.0	93.0	108.0
24	153.0	143.0	149.0	136.0	138.0	188.0	153.0	184.0	119.0	95.0	93.0	108.0
25	149.0	147.0	145.0	136.0	134.0	180.0	153.0	192.0	108.0	97.0	93.0	111.0
26	149.0	143.0	145.0	140.0	134.0	164.0	149.0	216.0	111.0	97.0	90.0	111.0
27	149.0	143.0	145.0	136.0	134.0	153.0	147.0	240.0	134.0	100.0	90.0	119.0
28	149.0	143.0	145.0	140.0	134.0	157.0	145.0	258.0	104.0	100.0	92.0	115.0
29	149.0	147.0	142.0	136.0	0.0	157.0	145.0	249.0	108.0	102.0	93.0	115.0
30	149.0	143.0	142.0	140.0	0.0	153.0	149.0	230.0	111.0	99.0	90.0	115.0
31	149.0	0.0	142.0	140.0	0.0	160.0	0.0	230.0	0.0	102.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1932

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	128.0	132.0	126.0	126.0	218.0	216.0	216.0	180.0	176.0	151.0
2	113.0	134.0	128.0	132.0	126.0	124.0	285.0	267.0	230.0	176.0	176.0	153.0
3	113.0	126.0	134.0	128.0	126.0	121.0	285.0	285.0	222.0	176.0	174.0	151.0
4	109.0	128.0	134.0	128.0	121.0	124.0	276.0	318.0	230.0	196.0	170.0	151.0
5	111.0	121.0	130.0	128.0	122.0	124.0	258.0	310.0	226.0	212.0	174.0	157.0
6	115.0	122.0	128.0	128.0	122.0	128.0	258.0	302.0	230.0	216.0	184.0	157.0
7	119.0	130.0	126.0	126.0	122.0	128.0	258.0	302.0	249.0	212.0	160.0	159.0
8	111.0	126.0	130.0	126.0	122.0	124.0	258.0	302.0	240.0	208.0	160.0	155.0
9	108.0	128.0	134.0	128.0	124.0	121.0	204.0	310.0	258.0	204.0	160.0	153.0
10	113.0	126.0	130.0	126.0	126.0	124.0	202.0	326.0	249.0	208.0	160.0	151.0
11	117.0	128.0	130.0	128.0	128.0	121.0	200.0	318.0	249.0	204.0	160.0	153.0
12	119.0	126.0	132.0	128.0	124.0	121.0	200.0	365.0	240.0	208.0	160.0	151.0
13	121.0	124.0	128.0	128.0	126.0	117.0	204.0	365.0	249.0	212.0	151.0	151.0
14	117.0	126.0	128.0	128.0	128.0	124.0	222.0	358.0	249.0	212.0	145.0	153.0
15	115.0	128.0	122.0	128.0	124.0	124.0	222.0	380.0	249.0	208.0	149.0	140.0
16	113.0	130.0	126.0	128.0	121.0	126.0	218.0	365.0	267.0	208.0	149.0	121.0
17	113.0	140.0	126.0	128.0	119.0	138.0	222.0	334.0	267.0	202.0	149.0	121.0
18	113.0	138.0	126.0	128.0	111.0	153.0	226.0	318.0	258.0	196.0	145.0	121.0
19	113.0	128.0	124.0	126.0	102.0	166.0	240.0	318.0	240.0	192.0	142.0	121.0
20	113.0	138.0	124.0	124.0	106.0	186.0	258.0	326.0	230.0	200.0	138.0	119.0
21	109.0	132.0	134.0	124.0	113.0	166.0	249.0	318.0	208.0	198.0	138.0	119.0
22	115.0	130.0	134.0	124.0	119.0	166.0	234.0	326.0	202.0	188.0	136.0	121.0
23	119.0	132.0	134.0	121.0	117.0	166.0	220.0	310.0	190.0	188.0	136.0	119.0
24	122.0	128.0	134.0	119.0	121.0	178.0	212.0	294.0	182.0	188.0	136.0	121.0
25	117.0	130.0	134.0	119.0	121.0	174.0	202.0	267.0	170.0	186.0	136.0	119.0
26	126.0	128.0	140.0	124.0	124.0	172.0	206.0	230.0	170.0	192.0	140.0	119.0
27	122.0	132.0	140.0	126.0	124.0	176.0	218.0	220.0	160.0	182.0	147.0	117.0
28	121.0	132.0	136.0	124.0	126.0	226.0	226.0	200.0	151.0	180.0	147.0	122.0
29	119.0	132.0	138.0	122.0	128.0	214.0	222.0	210.0	180.0	178.0	162.0	117.0
30	121.0	132.0	115.0	122.0	0.0	210.0	219.0	206.0	176.0	172.0	151.0	117.0
31	124.0	0.0	119.0	122.0	0.0	218.0	0.0	214.0	0.0	178.0	151.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1933

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113.0	122.0	140.0	138.0	132.0	124.0	178.0	230.0	285.0	206.0	176.0	134.0
2	111.0	145.0	142.0	138.0	130.0	124.0	190.0	214.0	294.0	200.0	178.0	111.0
3	113.0	147.0	142.0	138.0	132.0	124.0	206.0	204.0	294.0	188.0	172.0	104.0
4	111.0	147.0	142.0	136.0	136.0	126.0	226.0	200.0	285.0	175.0	170.0	104.0
5	113.0	145.0	140.0	136.0	136.0	121.0	249.0	212.0	267.0	162.0	170.0	104.0
6	109.0	143.0	130.0	134.0	136.0	124.0	240.0	216.0	249.0	162.0	172.0	104.0
7	111.0	143.0	130.0	134.0	134.0	124.0	230.0	194.0	249.0	186.0	174.0	104.0
8	113.0	143.0	132.0	134.0	130.0	128.0	230.0	194.0	230.0	204.0	178.0	142.0
9	113.0	145.0	138.0	132.0	124.0	132.0	214.0	190.0	226.0	204.0	170.0	140.0
10	115.0	145.0	136.0	134.0	121.0	132.0	196.0	184.0	222.0	200.0	164.0	130.0
11	115.0	143.0	132.0	136.0	117.0	132.0	188.0	182.0	222.0	204.0	160.0	130.0
12	113.0	142.0	130.0	130.0	124.0	140.0	186.0	174.0	222.0	192.0	164.0	130.0
13	115.0	142.0	134.0	132.0	130.0	140.0	184.0	168.0	220.0	194.0	166.0	130.0
14	113.0	142.0	132.0	132.0	130.0	134.0	184.0	170.0	220.0	184.0	166.0	130.0
15	113.0	142.0	130.0	136.0	126.0	132.0	180.0	170.0	212.0	180.0	168.0	104.0
16	117.0	145.0	130.0	136.0	130.0	130.0	186.0	194.0	212.0	180.0	164.0	100.0
17	117.0	143.0	128.0	138.0	128.0	124.0	212.0	240.0	216.0	186.0	157.0	100.0
18	117.0	142.0	128.0	136.0	126.0	132.0	216.0	285.0	224.0	182.0	166.0	100.0
19	128.0	140.0	130.0	136.0	122.0	126.0	218.0	285.0	240.0	174.0	170.0	100.0
20	128.0	142.0	132.0	134.0	122.0	130.0	200.0	285.0	240.0	178.0	170.0	100.0
21	128.0	145.0	132.0	134.0	124.0	132.0	190.0	310.0	230.0	174.0	151.0	97.0
22	132.0	143.0	132.0	134.0	124.0	136.0	190.0	342.0	224.0	166.0	147.0	93.0
23	132.0	140.0	130.0	134.0	124.0	136.0	192.0	358.0	218.0	170.0	147.0	99.0
24	132.0	145.0	132.0	132.0	124.0	136.0	186.0	334.0	222.0	170.0	147.0	102.0
25	132.0	138.0	132.0	132.0	124.0	136.0	188.0	318.0	224.0	170.0	147.0	102.0
26	138.0	140.0	136.0	134.0	124.0	132.0	190.0	318.0	230.0	168.0	145.0	106.0
27	136.0	140.0	134.0	132.0	128.0	140.0	194.0	326.0	226.0	170.0	149.0	104.0
28	138.0	140.0	136.0	132.0	124.0	147.0	210.0	302.0	218.0	168.0	149.0	106.0
29	134.0	140.0	136.0	132.0	0.0	157.0	230.0	285.0	228.0	170.0	153.0	117.0
30	138.0	140.0	136.0	134.0	0.0	159.0	240.0	294.0	240.0	170.0	149.0	122.0
31	126.0	0.0	138.0	132.0	0.0	166.0	0.0	285.0	0.0	170.0	149.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1934

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	128.0	124.0	145.0	132.0	136.0	121.0	113.0	119.0	93.0	85.0	79.0
2	113.0	130.0	124.0	147.0	132.0	136.0	126.0	111.0	117.0	90.0	89.0	79.0
3	106.0	126.0	126.0	145.0	134.0	136.0	121.0	184.0	102.0	106.0	90.0	79.0
4	106.0	128.0	126.0	134.0	136.0	136.0	121.0	190.0	102.0	92.0	92.0	79.0
5	106.0	128.0	126.0	132.0	138.0	136.0	108.0	186.0	102.0	87.0	89.0	84.0
6	106.0	128.0	128.0	132.0	140.0	132.0	111.0	186.0	97.0	95.0	90.0	81.0
7	106.0	128.0	132.0	128.0	138.0	132.0	106.0	206.0	93.0	99.0	87.0	81.0
8	106.0	128.0	128.0	128.0	136.0	132.0	93.0	208.0	95.0	100.0	87.0	81.0
9	106.0	128.0	128.0	128.0	134.0	130.0	93.0	226.0	99.0	99.0	90.0	79.0
10	104.0	128.0	130.0	124.0	134.0	128.0	87.0	240.0	93.0	93.0	89.0	78.0
11	106.0	126.0	130.0	126.0	132.0	124.0	87.0	240.0	97.0	93.0	85.0	84.0
12	104.0	128.0	130.0	128.0	132.0	124.0	97.0	240.0	92.0	93.0	79.0	85.0
13	106.0	126.0	132.0	128.0	134.0	126.0	99.0	240.0	95.0	93.0	82.0	82.0
14	106.0	126.0	132.0	128.0	132.0	124.0	100.0	240.0	97.0	90.0	79.0	79.0
15	102.0	126.0	136.0	128.0	132.0	121.0	109.0	240.0	97.0	92.0	81.0	81.0
16	102.0	128.0	134.0	128.0	132.0	122.0	111.0	240.0	90.0	92.0	81.0	81.0
17	102.0	128.0	132.0	128.0	132.0	122.0	111.0	218.0	90.0	97.0	81.0	81.0
18	102.0	128.0	130.0	126.0	130.0	121.0	113.0	214.0	85.0	90.0	79.0	81.0
19	102.0	128.0	132.0	126.0	132.0	119.0	104.0	210.0	85.0	90.0	79.0	81.0
20	104.0	128.0	132.0	128.0	136.0	117.0	102.0	194.0	99.0	92.0	79.0	79.0
21	102.0	128.0	132.0	134.0	134.0	119.0	102.0	190.0	100.0	92.0	79.0	82.0
22	102.0	128.0	134.0	138.0	136.0	121.0	111.0	184.0	100.0	92.0	79.0	85.0
23	102.0	130.0	136.0	138.0	140.0	121.0	108.0	200.0	99.0	87.0	78.0	109.0
24	104.0	128.0	136.0	160.0	142.0	121.0	109.0	200.0	99.0	90.0	81.0	102.0
25	104.0	128.0	136.0	145.0	140.0	113.0	111.0	204.0	99.0	90.0	81.0	87.0
26	102.0	128.0	142.0	143.0	142.0	113.0	108.0	208.0	99.0	89.0	81.0	76.0
27	102.0	126.0	142.0	147.0	136.0	113.0	102.0	202.0	102.0	85.0	81.0	76.0
28	102.0	128.0	142.0	136.0	136.0	113.0	104.0	210.0	93.0	85.0	78.0	75.0
29	104.0	132.0	142.0	140.0	0.0	121.0	104.0	214.0	92.0	84.0	82.0	75.0
30	109.0	128.0	143.0	136.0	0.0	121.0	104.0	200.0	92.0	82.0	81.0	69.0
31	121.0	0.0	145.0	136.0	0.0	121.0	0.0	168.0	0.0	84.0	79.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1935

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.0	99.0	117.0	113.0	100.0	106.0	214.0	202.0	302.0	186.0	111.0	100.0
2	72.0	106.0	117.0	115.0	99.0	106.0	174.0	186.0	285.0	180.0	104.0	100.0
3	73.0	113.0	117.0	117.0	100.0	113.0	166.0	174.0	267.0	180.0	109.0	99.0
4	78.0	115.0	115.0	115.0	100.0	117.0	170.0	172.0	258.0	198.0	106.0	97.0
5	72.0	113.0	119.0	115.0	108.0	111.0	168.0	172.0	230.0	198.0	108.0	97.0
6	69.0	113.0	117.0	108.0	108.0	100.0	168.0	174.0	230.0	196.0	106.0	93.0
7	69.0	115.0	117.0	111.0	108.0	104.0	162.0	202.0	230.0	186.0	106.0	99.0
8	69.0	113.0	111.0	111.0	113.0	104.0	184.0	188.0	228.0	178.0	108.0	95.0
9	65.0	113.0	111.0	113.0	109.0	104.0	188.0	196.0	216.0	186.0	104.0	97.0
10	68.0	113.0	113.0	115.0	106.0	104.0	186.0	174.0	214.0	192.0	102.0	97.0
11	68.0	113.0	113.0	111.0	102.0	102.0	164.0	214.0	190.0	194.0	102.0	104.0
12	68.0	109.0	113.0	111.0	102.0	102.0	162.0	230.0	186.0	196.0	104.0	102.0
13	68.0	106.0	113.0	113.0	102.0	104.0	157.0	240.0	168.0	196.0	113.0	104.0
14	71.0	108.0	117.0	115.0	99.0	138.0	153.0	240.0	198.0	194.0	108.0	108.0
15	75.0	109.0	117.0	113.0	95.0	372.0	153.0	226.0	210.0	188.0	108.0	108.0
16	76.0	109.0	117.0	113.0	99.0	310.0	240.0	222.0	214.0	182.0	109.0	106.0
17	76.0	109.0	117.0	108.0	99.0	160.0	176.0	258.0	228.0	186.0	109.0	104.0
18	76.0	117.0	117.0	111.0	102.0	153.0	172.0	276.0	218.0	180.0	108.0	100.0
19	79.0	117.0	119.0	115.0	106.0	145.0	192.0	276.0	214.0	182.0	108.0	104.0
20	79.0	117.0	122.0	102.0	106.0	142.0	200.0	258.0	216.0	182.0	106.0	104.0
21	78.0	119.0	124.0	104.0	106.0	140.0	198.0	249.0	216.0	180.0	121.0	104.0
22	81.0	119.0	132.0	104.0	106.0	138.0	190.0	224.0	210.0	184.0	124.0	102.0
23	84.0	119.0	134.0	104.0	106.0	134.0	222.0	230.0	210.0	182.0	124.0	102.0
24	84.0	119.0	132.0	104.0	102.0	134.0	212.0	249.0	216.0	186.0	102.0	100.0
25	82.0	121.0	130.0	104.0	93.0	140.0	186.0	258.0	210.0	188.0	102.0	100.0
26	85.0	119.0	126.0	104.0	95.0	228.0	194.0	249.0	200.0	188.0	106.0	100.0
27	89.0	121.0	119.0	104.0	95.0	220.0	198.0	258.0	190.0	188.0	95.0	97.0
28	95.0	119.0	122.0	102.0	102.0	208.0	200.0	294.0	194.0	172.0	104.0	97.0
29	95.0	121.0	117.0	100.0	0.0	202.0	194.0	318.0	192.0	159.0	106.0	95.0
30	95.0	117.0	117.0	100.0	0.0	226.0	200.0	302.0	194.0	115.0	104.0	89.0
31	97.0	0.0	115.0	100.0	0.0	258.0	0.0	302.0	0.0	113.0	102.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1936

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	117.0	132.0	132.0	102.0	130.0	126.0	412.0	302.0	222.0	240.0	214.0
2	90.0	117.0	134.0	134.0	136.0	130.0	128.0	428.0	294.0	214.0	212.0	190.0
3	87.0	124.0	130.0	138.0	143.0	128.0	128.0	444.0	267.0	222.0	214.0	186.0
4	85.0	121.0	126.0	138.0	145.0	128.0	128.0	476.0	258.0	222.0	218.0	186.0
5	84.0	124.0	130.0	140.0	134.0	128.0	132.0	524.0	267.0	222.0	218.0	180.0
6	89.0	126.0	132.0	109.0	134.0	128.0	130.0	524.0	267.0	222.0	208.0	176.0
7	84.0	130.0	134.0	102.0	130.0	128.0	130.0	444.0	267.0	222.0	198.0	176.0
8	81.0	130.0	132.0	128.0	132.0	130.0	151.0	412.0	258.0	228.0	198.0	178.0
9	81.0	130.0	132.0	140.0	132.0	132.0	162.0	396.0	249.0	228.0	198.0	170.0
10	81.0	132.0	136.0	140.0	128.0	132.0	184.0	396.0	240.0	224.0	200.0	168.0
11	82.0	128.0	142.0	142.0	128.0	130.0	192.0	412.0	240.0	220.0	198.0	174.0
12	84.0	132.0	145.0	145.0	136.0	126.0	249.0	428.0	240.0	228.0	200.0	170.0
13	81.0	132.0	142.0	145.0	136.0	121.0	396.0	428.0	208.0	220.0	216.0	166.0
14	84.0	129.0	138.0	145.0	140.0	128.0	444.0	428.0	206.0	226.0	228.0	174.0
15	89.0	124.0	134.0	143.0	138.0	126.0	444.0	444.0	198.0	226.0	204.0	162.0
16	85.0	136.0	130.0	142.0	142.0	126.0	508.0	444.0	210.0	230.0	196.0	140.0
17	87.0	143.0	108.0	140.0	128.0	124.0	492.0	444.0	218.0	240.0	170.0	136.0
18	87.0	145.0	90.0	134.0	128.0	132.0	476.0	428.0	194.0	240.0	164.0	136.0
19	85.0	142.0	119.0	136.0	128.0	126.0	460.0	302.0	208.0	210.0	164.0	130.0
20	89.0	138.0	130.0	136.0	126.0	130.0	428.0	302.0	202.0	202.0	164.0	128.0
21	89.0	138.0	130.0	132.0	128.0	128.0	412.0	285.0	214.0	222.0	160.0	126.0
22	89.0	138.0	130.0	122.0	162.0	130.0	444.0	267.0	210.0	230.0	162.0	124.0
23	90.0	138.0	134.0	124.0	166.0	128.0	460.0	267.0	214.0	230.0	174.0	122.0
24	93.0	138.0	136.0	124.0	153.0	128.0	508.0	249.0	206.0	230.0	178.0	121.0
25	92.0	134.0	132.0	117.0	142.0	130.0	492.0	240.0	206.0	230.0	170.0	122.0
26	92.0	136.0	128.0	130.0	143.0	130.0	460.0	249.0	240.0	230.0	159.0	124.0
27	89.0	138.0	129.0	136.0	140.0	136.0	412.0	294.0	240.0	230.0	151.0	124.0
28	95.0	134.0	130.0	143.0	134.0	132.0	428.0	294.0	240.0	230.0	155.0	121.0
29	97.0	134.0	132.0	130.0	134.0	126.0	412.0	302.0	230.0	230.0	180.0	122.0
30	102.0	134.0	134.0	128.0	0.0	124.0	428.0	276.0	230.0	230.0	222.0	122.0
31	102.0	0.0	134.0	108.0	0.0	134.0	0.0	258.0	0.0	228.0	218.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1937

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	121.0	126.0	130.0	119.0	128.0	192.0	206.0	249.0	210.0	196.0	108.0
2	121.0	121.0	122.0	119.0	119.0	130.0	192.0	214.0	240.0	214.0	192.0	104.0
3	119.0	121.0	119.0	121.0	122.0	132.0	198.0	258.0	202.0	216.0	192.0	109.0
4	117.0	121.0	126.0	122.0	122.0	132.0	206.0	249.0	208.0	202.0	188.0	109.0
5	117.0	128.0	128.0	122.0	134.0	132.0	218.0	258.0	212.0	200.0	182.0	111.0
6	117.0	130.0	130.0	122.0	126.0	134.0	222.0	302.0	214.0	214.0	182.0	109.0
7	121.0	134.0	130.0	122.0	126.0	136.0	200.0	294.0	222.0	214.0	182.0	109.0
8	121.0	134.0	128.0	122.0	124.0	132.0	182.0	310.0	222.0	230.0	182.0	119.0
9	113.0	134.0	126.0	122.0	124.0	134.0	186.0	326.0	230.0	230.0	182.0	111.0
10	115.0	132.0	130.0	122.0	122.0	134.0	198.0	334.0	230.0	216.0	176.0	108.0
11	119.0	138.0	130.0	122.0	121.0	140.0	222.0	310.0	230.0	210.0	176.0	104.0
12	117.0	136.0	119.0	121.0	121.0	145.0	226.0	294.0	228.0	210.0	180.0	104.0
13	117.0	134.0	122.0	121.0	121.0	145.0	258.0	285.0	226.0	214.0	176.0	104.0
14	113.0	136.0	126.0	122.0	126.0	142.0	326.0	294.0	216.0	228.0	176.0	106.0
15	117.0	134.0	126.0	122.0	128.0	142.0	358.0	285.0	210.0	240.0	180.0	106.0
16	113.0	130.0	130.0	124.0	124.0	153.0	326.0	285.0	206.0	228.0	172.0	108.0
17	113.0	130.0	126.0	124.0	124.0	157.0	310.0	276.0	202.0	208.0	164.0	109.0
18	113.0	138.0	122.0	122.0	132.0	151.0	249.0	267.0	206.0	208.0	160.0	108.0
19	117.0	130.0	122.0	122.0	136.0	155.0	240.0	276.0	212.0	206.0	151.0	109.0
20	124.0	130.0	124.0	122.0	122.0	155.0	222.0	267.0	210.0	206.0	117.0	109.0
21	132.0	130.0	122.0	122.0	126.0	149.0	226.0	258.0	208.0	198.0	113.0	111.0
22	132.0	130.0	122.0	122.0	126.0	155.0	214.0	240.0	208.0	192.0	113.0	111.0
23	132.0	130.0	124.0	122.0	124.0	162.0	206.0	240.0	198.0	202.0	113.0	111.0
24	132.0	130.0	126.0	122.0	126.0	151.0	206.0	240.0	202.0	196.0	102.0	111.0
25	126.0	130.0	126.0	122.0	126.0	143.0	194.0	240.0	210.0	188.0	106.0	113.0
26	121.0	128.0	124.0	122.0	126.0	157.0	206.0	258.0	204.0	192.0	106.0	113.0
27	121.0	124.0	128.0	122.0	126.0	155.0	214.0	249.0	210.0	196.0	109.0	113.0
28	117.0	124.0	132.0	122.0	130.0	155.0	218.0	249.0	214.0	192.0	109.0	113.0
29	117.0	126.0	130.0	122.0	0.0	159.0	214.0	249.0	220.0	192.0	109.0	113.0
30	119.0	126.0	126.0	122.0	0.0	162.0	202.0	249.0	214.0	188.0	111.0	119.0
31	119.0	0.0	128.0	121.0	0.0	170.0	0.0	258.0	0.0	192.0	108.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1938

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	126.0	145.0	126.0	130.0	267.0	166.0	380.0	294.0	249.0	230.0	214.0
2	113.0	126.0	143.0	128.0	134.0	249.0	168.0	372.0	302.0	267.0	230.0	216.0
3	115.0	128.0	142.0	134.0	134.0	258.0	164.0	365.0	302.0	267.0	230.0	214.0
4	115.0	124.0	140.0	130.0	132.0	285.0	168.0	326.0	294.0	285.0	230.0	214.0
5	111.0	124.0	140.0	134.0	132.0	214.0	186.0	310.0	285.0	258.0	228.0	214.0
6	115.0	124.0	140.0	134.0	130.0	192.0	194.0	294.0	285.0	249.0	224.0	210.0
7	119.0	124.0	140.0	130.0	134.0	192.0	188.0	267.0	249.0	240.0	220.0	198.0
8	115.0	122.0	140.0	130.0	134.0	172.0	176.0	267.0	249.0	220.0	220.0	190.0
9	115.0	126.0	142.0	130.0	138.0	172.0	180.0	258.0	258.0	216.0	218.0	198.0
10	117.0	124.0	160.0	130.0	168.0	170.0	186.0	258.0	249.0	226.0	218.0	202.0
11	124.0	124.0	208.0	134.0	214.0	180.0	182.0	249.0	249.0	176.0	218.0	202.0
12	124.0	124.0	249.0	134.0	310.0	176.0	178.0	249.0	267.0	176.0	218.0	202.0
13	126.0	124.0	180.0	134.0	194.0	190.0	182.0	258.0	276.0	176.0	222.0	202.0
14	134.0	126.0	174.0	132.0	186.0	196.0	186.0	267.0	276.0	222.0	212.0	202.0
15	134.0	128.0	162.0	132.0	159.0	194.0	192.0	258.0	276.0	228.0	210.0	200.0
16	134.0	132.0	157.0	151.0	160.0	212.0	194.0	318.0	276.0	230.0	220.0	194.0
17	136.0	140.0	157.0	145.0	145.0	220.0	216.0	334.0	267.0	226.0	220.0	190.0
18	136.0	145.0	157.0	143.0	142.0	208.0	249.0	358.0	267.0	218.0	220.0	186.0
19	132.0	143.0	149.0	140.0	145.0	212.0	326.0	358.0	267.0	220.0	220.0	147.0
20	132.0	145.0	149.0	126.0	145.0	206.0	342.0	294.0	276.0	216.0	212.0	143.0
21	132.0	182.0	147.0	130.0	142.0	190.0	334.0	302.0	267.0	216.0	210.0	128.0
22	130.0	166.0	147.0	134.0	142.0	166.0	326.0	267.0	258.0	212.0	210.0	122.0
23	130.0	155.0	143.0	134.0	142.0	184.0	358.0	258.0	249.0	218.0	210.0	121.0
24	130.0	147.0	143.0	130.0	142.0	180.0	358.0	249.0	249.0	224.0	210.0	121.0
25	130.0	147.0	143.0	126.0	138.0	176.0	372.0	249.0	249.0	224.0	194.0	121.0
26	128.0	143.0	143.0	126.0	138.0	178.0	396.0	276.0	249.0	230.0	212.0	119.0
27	128.0	145.0	143.0	122.0	149.0	180.0	372.0	285.0	249.0	230.0	214.0	121.0
28	124.0	145.0	140.0	124.0	155.0	178.0	372.0	302.0	240.0	222.0	214.0	119.0
29	124.0	145.0	138.0	124.0	0.0	180.0	372.0	294.0	240.0	218.0	214.0	121.0
30	128.0	145.0	134.0	124.0	0.0	174.0	372.0	302.0	240.0	212.0	216.0	121.0
31	126.0	0.0	134.0	130.0	0.0	162.0	0.0	302.0	0.0	230.0	214.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121.0	151.0	147.0	151.0	145.0	143.0	249.0	210.0	224.0	192.0	100.0	102.0
2	121.0	151.0	147.0	149.0	138.0	143.0	249.0	210.0	220.0	192.0	102.0	102.0
3	121.0	147.0	153.0	147.0	140.0	142.0	216.0	202.0	222.0	188.0	100.0	104.0
4	121.0	151.0	151.0	147.0	143.0	143.0	224.0	202.0	224.0	206.0	100.0	102.0
5	121.0	164.0	151.0	151.0	145.0	145.0	220.0	198.0	224.0	206.0	100.0	106.0
6	115.0	160.0	151.0	151.0	145.0	145.0	204.0	194.0	230.0	210.0	100.0	106.0
7	121.0	159.0	151.0	151.0	145.0	145.0	196.0	190.0	228.0	196.0	100.0	106.0
8	121.0	160.0	155.0	147.0	143.0	147.0	190.0	182.0	224.0	188.0	100.0	95.0
9	124.0	160.0	159.0	143.0	143.0	147.0	190.0	194.0	220.0	180.0	99.0	92.0
10	124.0	160.0	155.0	145.0	143.0	149.0	190.0	202.0	216.0	196.0	93.0	92.0
11	124.0	160.0	155.0	145.0	143.0	153.0	190.0	204.0	212.0	190.0	99.0	93.0
12	124.0	160.0	151.0	145.0	143.0	160.0	188.0	240.0	214.0	194.0	93.0	117.0
13	124.0	151.0	149.0	145.0	145.0	160.0	188.0	222.0	210.0	192.0	100.0	113.0
14	124.0	149.0	147.0	145.0	147.0	157.0	194.0	222.0	210.0	196.0	102.0	87.0
15	126.0	149.0	143.0	145.0	151.0	160.0	226.0	226.0	206.0	196.0	102.0	87.0
16	124.0	153.0	145.0	145.0	151.0	164.0	194.0	230.0	218.0	184.0	99.0	104.0
17	132.0	151.0	145.0	145.0	147.0	204.0	196.0	226.0	220.0	184.0	99.0	104.0
18	136.0	153.0	147.0	145.0	143.0	310.0	196.0	226.0	222.0	184.0	95.0	104.0
19	136.0	151.0	147.0	145.0	143.0	460.0	196.0	224.0	210.0	159.0	97.0	106.0
20	136.0	149.0	147.0	145.0	145.0	388.0	196.0	224.0	198.0	124.0	99.0	102.0
21	136.0	147.0	145.0	145.0	143.0	240.0	196.0	224.0	198.0	115.0	99.0	102.0
22	134.0	145.0	147.0	145.0	140.0	258.0	196.0	224.0	178.0	111.0	97.0	102.0
23	134.0	142.0	147.0	147.0	140.0	276.0	198.0	230.0	170.0	106.0	99.0	102.0
24	134.0	147.0	147.0	145.0	142.0	294.0	200.0	228.0	170.0	108.0	102.0	106.0
25	136.0	147.0	147.0	145.0	143.0	285.0	192.0	230.0	170.0	108.0	102.0	109.0
26	136.0	147.0	147.0	143.0	143.0	285.0	196.0	230.0	168.0	100.0	102.0	117.0
27	136.0	143.0	147.0	143.0	145.0	258.0	192.0	230.0	170.0	104.0	102.0	119.0
28	134.0	140.0	147.0	145.0	145.0	249.0	192.0	228.0	188.0	106.0	102.0	115.0
29	134.0	140.0	147.0	147.0	0.0	240.0	192.0	226.0	188.0	108.0	102.0	106.0
30	136.0	140.0	147.0	147.0	0.0	230.0	214.0	222.0	188.0	108.0	102.0	106.0
31	151.0	0.0	147.0	145.0	0.0	258.0	0.0	224.0	0.0	108.0	104.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1940

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	119.0	128.0	130.0	136.0	202.0	155.0	160.0	210.0	128.0	104.0	99.0
2	109.0	122.0	130.0	132.0	136.0	196.0	153.0	159.0	210.0	124.0	109.0	90.0
3	113.0	124.0	126.0	134.0	138.0	182.0	149.0	143.0	210.0	121.0	106.0	102.0
4	113.0	122.0	126.0	138.0	140.0	182.0	147.0	142.0	210.0	113.0	106.0	102.0
5	113.0	122.0	126.0	136.0	138.0	178.0	151.0	142.0	216.0	109.0	102.0	97.0
6	117.0	122.0	128.0	134.0	138.0	180.0	151.0	142.0	230.0	95.0	106.0	97.0
7	121.0	122.0	128.0	134.0	134.0	159.0	149.0	142.0	214.0	93.0	99.0	97.0
8	121.0	122.0	128.0	134.0	134.0	162.0	151.0	128.0	214.0	90.0	102.0	95.0
9	121.0	122.0	130.0	136.0	134.0	162.0	155.0	124.0	210.0	95.0	106.0	84.0
10	121.0	122.0	130.0	140.0	132.0	164.0	170.0	119.0	206.0	99.0	104.0	84.0
11	121.0	122.0	128.0	136.0	132.0	153.0	162.0	124.0	202.0	108.0	106.0	82.0
12	121.0	122.0	130.0	134.0	132.0	153.0	149.0	147.0	194.0	100.0	102.0	84.0
13	121.0	122.0	130.0	128.0	132.0	155.0	151.0	159.0	178.0	100.0	100.0	81.0
14	122.0	126.0	130.0	128.0	130.0	153.0	162.0	186.0	172.0	100.0	99.0	82.0
15	122.0	126.0	130.0	124.0	130.0	151.0	166.0	180.0	182.0	99.0	100.0	82.0
16	124.0	126.0	130.0	128.0	132.0	151.0	166.0	176.0	190.0	100.0	99.0	82.0
17	124.0	126.0	130.0	130.0	132.0	151.0	162.0	168.0	194.0	100.0	99.0	81.0
18	128.0	126.0	122.0	130.0	132.0	151.0	164.0	151.0	192.0	100.0	95.0	87.0
19	128.0	126.0	126.0	115.0	132.0	151.0	166.0	145.0	198.0	108.0	100.0	108.0
20	126.0	126.0	126.0	126.0	132.0	147.0	182.0	145.0	200.0	104.0	97.0	106.0
21	126.0	126.0	126.0	122.0	132.0	145.0	174.0	145.0	204.0	106.0	100.0	99.0
22	126.0	126.0	126.0	124.0	132.0	143.0	174.0	147.0	198.0	108.0	100.0	99.0
23	126.0	126.0	122.0	126.0	132.0	143.0	174.0	155.0	194.0	104.0	99.0	97.0
24	126.0	126.0	126.0	130.0	132.0	151.0	160.0	136.0	194.0	104.0	97.0	95.0
25	126.0	126.0	126.0	128.0	136.0	168.0	180.0	129.0	190.0	104.0	99.0	95.0
26	126.0	130.0	122.0	132.0	143.0	174.0	182.0	159.0	182.0	104.0	102.0	95.0
27	128.0	128.0	130.0	134.0	186.0	180.0	180.0	180.0	162.0	102.0	102.0	106.0
28	124.0	126.0	130.0	134.0	222.0	172.0	176.0	174.0	151.0	104.0	100.0	111.0
29	124.0	126.0	130.0	132.0	214.0	153.0	178.0	174.0	130.0	102.0	99.0	111.0
30	124.0	128.0	130.0	136.0	0.0	153.0	172.0	180.0	109.0	99.0	99.0	111.0
31	119.0	0.0	130.0	138.0	0.0	155.0	0.0	208.0	0.0	106.0	97.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1941

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	115.0	126.0	121.0	117.0	140.0	168.0	204.0	159.0	210.0	168.0	89.0
2	102.0	115.0	126.0	115.0	130.0	186.0	168.0	222.0	159.0	206.0	155.0	89.0
3	102.0	115.0	124.0	106.0	115.0	186.0	170.0	226.0	145.0	202.0	147.0	89.0
4	102.0	115.0	122.0	102.0	113.0	176.0	164.0	226.0	147.0	198.0	128.0	85.0
5	104.0	113.0	124.0	122.0	113.0	166.0	168.0	228.0	145.0	206.0	121.0	92.0
6	104.0	115.0	124.0	122.0	115.0	160.0	172.0	228.0	143.0	194.0	99.0	85.0
7	104.0	113.0	124.0	119.0	117.0	157.0	160.0	228.0	149.0	196.0	102.0	89.0
8	104.0	115.0	122.0	121.0	119.0	153.0	151.0	208.0	145.0	180.0	95.0	89.0
9	104.0	113.0	121.0	121.0	119.0	164.0	147.0	208.0	147.0	176.0	99.0	89.0
10	102.0	115.0	121.0	117.0	119.0	149.0	157.0	214.0	147.0	172.0	95.0	92.0
11	102.0	115.0	117.0	117.0	128.0	151.0	159.0	216.0	151.0	174.0	99.0	95.0
12	100.0	115.0	117.0	109.0	157.0	119.0	159.0	230.0	147.0	178.0	99.0	99.0
13	102.0	115.0	113.0	113.0	136.0	149.0	160.0	240.0	124.0	196.0	97.0	100.0
14	102.0	113.0	113.0	117.0	126.0	130.0	168.0	249.0	117.0	196.0	95.0	99.0
15	100.0	115.0	111.0	122.0	126.0	128.0	162.0	249.0	130.0	200.0	89.0	99.0
16	102.0	115.0	109.0	121.0	128.0	134.0	162.0	249.0	149.0	198.0	89.0	102.0
17	100.0	115.0	117.0	119.0	122.0	155.0	157.0	240.0	172.0	198.0	89.0	97.0
18	99.0	124.0	117.0	115.0	117.0	186.0	160.0	222.0	172.0	198.0	89.0	95.0
19	99.0	117.0	117.0	115.0	119.0	202.0	160.0	220.0	182.0	200.0	89.0	97.0
20	99.0	117.0	119.0	115.0	122.0	218.0	147.0	204.0	190.0	196.0	89.0	99.0
21	99.0	117.0	119.0	117.0	124.0	214.0	147.0	160.0	200.0	190.0	89.0	99.0
22	99.0	117.0	119.0	119.0	124.0	202.0	145.0	159.0	194.0	192.0	89.0	99.0
23	100.0	119.0	122.0	119.0	134.0	188.0	149.0	166.0	186.0	188.0	89.0	99.0
24	102.0	117.0	140.0	119.0	142.0	184.0	151.0	166.0	188.0	188.0	89.0	100.0
25	102.0	117.0	130.0	119.0	151.0	172.0	151.0	166.0	192.0	188.0	89.0	99.0
26	104.0	117.0	124.0	119.0	134.0	162.0	153.0	166.0	190.0	184.0	92.0	99.0
27	108.0	121.0	157.0	117.0	134.0	166.0	180.0	176.0	190.0	184.0	92.0	100.0
28	111.0	122.0	128.0	119.0	132.0	170.0	178.0	176.0	194.0	186.0	89.0	99.0
29	108.0	124.0	128.0	119.0	0.0	174.0	186.0	176.0	198.0	182.0	89.0	97.0
30	108.0	130.0	124.0	117.0	0.0	182.0	196.0	176.0	202.0	178.0	89.0	100.0
31	111.0	0.0	124.0	115.0	0.0	176.0	0.0	160.0	0.0	174.0	89.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1942

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	117.0	126.0	121.0	122.0	117.0	224.0	196.0	216.0	226.0	174.0	166.0
2	106.0	117.0	126.0	121.0	121.0	119.0	228.0	192.0	212.0	230.0	174.0	157.0
3	109.0	121.0	130.0	121.0	121.0	117.0	258.0	186.0	186.0	226.0	176.0	153.0
4	108.0	122.0	145.0	121.0	124.0	117.0	365.0	186.0	190.0	222.0	178.0	149.0
5	109.0	126.0	149.0	121.0	126.0	119.0	444.0	190.0	194.0	220.0	178.0	145.0
6	109.0	126.0	130.0	121.0	128.0	124.0	396.0	194.0	182.0	220.0	176.0	138.0
7	111.0	126.0	128.0	122.0	130.0	124.0	294.0	184.0	178.0	216.0	178.0	134.0
8	113.0	126.0	128.0	122.0	126.0	117.0	230.0	192.0	176.0	214.0	180.0	134.0
9	117.0	126.0	128.0	121.0	126.0	128.0	249.0	192.0	174.0	204.0	180.0	134.0
10	117.0	124.0	126.0	119.0	126.0	140.0	249.0	204.0	170.0	204.0	178.0	134.0
11	117.0	122.0	130.0	119.0	126.0	155.0	249.0	206.0	172.0	194.0	176.0	130.0
12	111.0	124.0	128.0	119.0	119.0	156.0	230.0	218.0	168.0	194.0	188.0	126.0
13	109.0	126.0	126.0	115.0	117.0	157.0	228.0	218.0	159.0	200.0	180.0	119.0
14	109.0	130.0	130.0	111.0	113.0	153.0	240.0	212.0	198.0	188.0	190.0	108.0
15	111.0	132.0	132.0	90.0	121.0	138.0	230.0	208.0	210.0	184.0	188.0	104.0
16	115.0	132.0	128.0	108.0	124.0	138.0	228.0	212.0	208.0	188.0	184.0	100.0
17	115.0	132.0	140.0	119.0	124.0	138.0	212.0	212.0	210.0	190.0	180.0	100.0
18	115.0	134.0	136.0	119.0	117.0	138.0	204.0	210.0	212.0	190.0	176.0	100.0
19	115.0	130.0	128.0	115.0	128.0	138.0	204.0	210.0	206.0	190.0	180.0	100.0
20	115.0	121.0	132.0	113.0	121.0	130.0	224.0	204.0	208.0	190.0	172.0	100.0
21	115.0	122.0	132.0	89.0	121.0	134.0	240.0	210.0	212.0	192.0	172.0	97.0
22	115.0	122.0	130.0	97.0	121.0	142.0	240.0	240.0	212.0	190.0	172.0	97.0
23	115.0	121.0	130.0	122.0	115.0	147.0	240.0	240.0	220.0	190.0	168.0	97.0
24	113.0	121.0	130.0	119.0	115.0	149.0	222.0	249.0	224.0	188.0	168.0	97.0
25	111.0	121.0	128.0	121.0	115.0	142.0	218.0	240.0	228.0	184.0	180.0	97.0
26	115.0	121.0	119.0	126.0	117.0	142.0	216.0	240.0	224.0	184.0	170.0	97.0
27	115.0	122.0	119.0	124.0	117.0	142.0	216.0	249.0	224.0	184.0	170.0	97.0
28	115.0	122.0	119.0	132.0	117.0	145.0	212.0	249.0	224.0	184.0	168.0	97.0
29	119.0	124.0	122.0	134.0	0.0	149.0	200.0	230.0	226.0	180.0	168.0	97.0
30	117.0	126.0	128.0	134.0	0.0	159.0	196.0	224.0	226.0	174.0	168.0	97.0
31	117.0	0.0	124.0	121.0	0.0	188.0	0.0	220.0	0.0	174.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1943

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99.0	116.0	163.0	167.0	151.0	159.0	439.0	377.0	307.0	233.0	216.0	208.0
2	99.0	116.0	163.0	169.0	147.0	163.0	448.0	380.0	354.0	244.0	208.0	208.0
3	97.0	116.0	163.0	171.0	151.0	163.0	430.0	392.0	374.0	233.0	203.0	205.0
4	97.0	120.0	155.0	159.0	151.0	155.0	396.0	392.0	365.0	230.0	233.0	205.0
5	97.0	120.0	143.0	155.0	149.0	147.0	374.0	389.0	360.0	230.0	226.0	205.0
6	97.0	120.0	143.0	151.0	147.0	145.0	365.0	386.0	334.0	230.0	218.0	205.0
7	99.0	120.0	143.0	147.0	147.0	147.0	347.0	377.0	319.0	230.0	218.0	208.0
8	97.0	120.0	145.0	147.0	145.0	179.0	353.0	368.0	304.0	230.0	222.0	208.0
9	97.0	120.0	149.0	145.0	147.0	179.0	340.0	362.0	301.0	230.0	226.0	205.0
10	97.0	122.0	153.0	147.0	147.0	171.0	374.0	344.0	298.0	230.0	229.0	205.0
11	97.0	124.0	149.0	143.0	147.0	167.0	334.0	334.0	304.0	233.0	233.0	205.0
12	99.0	126.0	143.0	141.0	145.0	171.0	319.0	334.0	319.0	229.0	237.0	201.0
13	106.0	126.0	143.0	143.0	147.0	171.0	339.0	319.0	334.0	229.0	233.0	199.0
14	107.0	128.0	143.0	143.0	147.0	248.0	362.0	304.0	337.0	222.0	233.0	201.0
15	106.0	124.0	143.0	143.0	143.0	237.0	380.0	301.0	319.0	233.0	233.0	201.0
16	106.0	124.0	147.0	139.0	143.0	214.0	392.0	294.0	316.0	229.0	231.0	199.0
17	106.0	126.0	143.0	135.0	145.0	179.0	395.0	294.0	319.0	222.0	226.0	177.0
18	107.0	124.0	139.0	133.0	147.0	175.0	421.0	288.0	307.0	222.0	220.0	155.0
19	107.0	163.0	137.0	135.0	147.0	167.0	445.0	288.0	301.0	222.0	214.0	143.0
20	111.0	145.0	143.0	135.0	155.0	159.0	457.0	285.0	278.0	229.0	214.0	139.0
21	109.0	137.0	143.0	147.0	183.0	159.0	451.0	272.0	269.0	233.0	208.0	137.0
22	113.0	133.0	143.0	203.0	191.0	167.0	416.0	269.0	255.0	248.0	214.0	135.0
23	116.0	133.0	143.0	222.0	179.0	169.0	410.0	275.0	226.0	255.0	214.0	135.0
24	113.0	137.0	143.0	175.0	171.0	189.0	413.0	291.0	226.0	233.0	214.0	131.0
25	109.0	137.0	151.0	159.0	167.0	288.0	407.0	285.0	214.0	237.0	216.0	130.0
26	109.0	145.0	149.0	155.0	159.0	233.0	401.0	278.0	203.0	237.0	210.0	131.0
27	109.0	157.0	147.0	155.0	155.0	404.0	398.0	270.0	203.0	229.0	214.0	135.0
28	106.0	149.0	143.0	155.0	155.0	404.0	383.0	272.0	203.0	214.0	210.0	139.0
29	106.0	149.0	143.0	155.0	0.0	445.0	374.0	272.0	203.0	216.0	210.0	137.0
30	111.0	153.0	147.0	153.0	0.0	489.0	374.0	278.0	199.0	214.0	210.0	135.0
31	109.0	0.0	167.0	147.0	0.0	445.0	0.0	294.0	0.0	210.0	207.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1944

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	149.0	161.0	143.0	133.0	143.0	246.0	208.0	214.0	199.0	205.0	185.0
2	133.0	149.0	159.0	141.0	133.0	147.0	313.0	203.0	222.0	226.0	212.0	189.0
3	133.0	149.0	161.0	141.0	133.0	151.0	316.0	207.0	237.0	224.0	210.0	189.0
4	133.0	161.0	161.0	141.0	133.0	149.0	310.0	203.0	233.0	224.0	210.0	193.0
5	137.0	173.0	161.0	141.0	137.0	143.0	262.0	205.0	229.0	218.0	199.0	193.0
6	141.0	161.0	157.0	141.0	141.0	137.0	244.0	210.0	226.0	218.0	199.0	193.0
7	137.0	157.0	153.0	143.0	145.0	137.0	237.0	218.0	251.0	212.0	203.0	189.0
8	141.0	157.0	153.0	137.0	145.0	139.0	214.0	214.0	258.0	216.0	203.0	185.0
9	137.0	153.0	149.0	137.0	145.0	159.0	214.0	203.0	275.0	218.0	203.0	185.0
10	137.0	153.0	149.0	137.0	145.0	167.0	207.0	222.0	372.0	218.0	203.0	193.0
11	139.0	151.0	145.0	137.0	141.0	171.0	195.0	233.0	360.0	222.0	203.0	179.0
12	149.0	149.0	141.0	137.0	141.0	191.0	191.0	244.0	344.0	220.0	197.0	177.0
13	141.0	149.0	141.0	137.0	135.0	167.0	191.0	244.0	337.0	220.0	197.0	175.0
14	151.0	149.0	139.0	137.0	137.0	159.0	195.0	241.0	318.0	216.0	199.0	169.0
15	151.0	149.0	141.0	137.0	137.0	145.0	187.0	241.0	293.0	212.0	197.0	153.0
16	145.0	153.0	141.0	141.0	137.0	145.0	187.0	241.0	272.0	216.0	197.0	130.0
17	143.0	153.0	141.0	139.0	137.0	153.0	187.0	241.0	248.0	218.0	197.0	128.0
18	143.0	151.0	139.0	137.0	137.0	159.0	191.0	251.0	237.0	218.0	197.0	131.0
19	143.0	153.0	141.0	137.0	137.0	163.0	191.0	237.0	226.0	218.0	197.0	124.0
20	157.0	155.0	137.0	135.0	137.0	174.0	187.0	222.0	212.0	214.0	195.0	124.0
21	155.0	153.0	141.0	133.0	135.0	185.0	187.0	218.0	207.0	214.0	195.0	122.0
22	157.0	155.0	141.0	135.0	137.0	193.0	183.0	214.0	201.0	214.0	195.0	120.0
23	153.0	157.0	141.0	139.0	135.0	189.0	183.0	214.0	203.0	212.0	195.0	120.0
24	149.0	155.0	137.0	137.0	135.0	183.0	183.0	214.0	197.0	210.0	195.0	120.0
25	149.0	155.0	137.0	133.0	137.0	179.0	183.0	195.0	187.0	205.0	193.0	120.0
26	149.0	159.0	137.0	133.0	137.0	175.0	191.0	187.0	199.0	199.0	193.0	120.0
27	145.0	161.0	137.0	135.0	137.0	155.0	199.0	187.0	210.0	212.0	185.0	120.0
28	151.0	159.0	141.0	131.0	137.0	155.0	210.0	191.0	205.0	210.0	181.0	124.0
29	153.0	161.0	141.0	130.0	141.0	155.0	214.0	187.0	201.0	205.0	187.0	116.0
30	153.0	161.0	141.0	135.0	0.0	169.0	214.0	183.0	199.0	201.0	189.0	120.0
31	151.0	0.0	141.0	135.0	0.0	195.0	0.0	203.0	0.0	197.0	189.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1945

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122.0	124.0	141.0	135.0	137.0	139.0	220.0	248.0	347.0	203.0	257.0	228.0
2	122.0	124.0	141.0	133.0	167.0	139.0	224.0	267.0	344.0	208.0	258.0	231.0
3	126.0	124.0	141.0	133.0	207.0	139.0	231.0	294.0	350.0	203.0	253.0	231.0
4	122.0	124.0	141.0	137.0	199.0	135.0	235.0	301.0	380.0	203.0	246.0	228.0
5	118.0	143.0	141.0	137.0	183.0	135.0	246.0	331.0	410.0	203.0	242.0	242.0
6	122.0	139.0	141.0	139.0	149.0	131.0	257.0	337.0	410.0	205.0	246.0	253.0
7	122.0	139.0	141.0	143.0	151.0	131.0	237.0	350.0	424.0	228.0	253.0	244.0
8	124.0	143.0	137.0	159.0	151.0	135.0	226.0	350.0	432.0	228.0	250.0	242.0
9	124.0	139.0	133.0	147.0	151.0	135.0	222.0	350.0	439.0	226.0	246.0	242.0
10	124.0	135.0	130.0	143.0	151.0	135.0	207.0	347.0	451.0	220.0	246.0	239.0
11	120.0	155.0	126.0	143.0	151.0	147.0	205.0	353.0	439.0	218.0	251.0	231.0
12	120.0	155.0	118.0	143.0	155.0	207.0	189.0	359.0	410.0	226.0	257.0	228.0
13	124.0	151.0	118.0	145.0	226.0	218.0	189.0	365.0	394.0	226.0	253.0	224.0
14	124.0	147.0	120.0	155.0	454.0	210.0	189.0	395.0	380.0	226.0	250.0	212.0
15	120.0	147.0	120.0	167.0	244.0	199.0	189.0	401.0	313.0	224.0	257.0	189.0
16	122.0	143.0	120.0	159.0	195.0	179.0	191.0	344.0	314.0	220.0	253.0	165.0
17	124.0	143.0	120.0	155.0	187.0	171.0	187.0	350.0	318.0	231.0	242.0	157.0
18	122.0	143.0	120.0	143.0	171.0	163.0	187.0	365.0	286.0	216.0	242.0	157.0
19	122.0	143.0	120.0	139.0	167.0	155.0	187.0	371.0	286.0	224.0	242.0	157.0
20	122.0	143.0	133.0	139.0	155.0	147.0	179.0	371.0	280.0	224.0	242.0	161.0
21	122.0	147.0	137.0	139.0	147.0	151.0	201.0	371.0	269.0	224.0	242.0	205.0
22	122.0	143.0	145.0	139.0	147.0	191.0	228.0	371.0	255.0	224.0	239.0	205.0
23	122.0	147.0	133.0	135.0	143.0	210.0	235.0	356.0	233.0	224.0	240.0	185.0
24	122.0	147.0	133.0	135.0	139.0	199.0	212.0	319.0	222.0	233.0	242.0	177.0
25	122.0	143.0	133.0	135.0	147.0	181.0	212.0	316.0	222.0	250.0	242.0	177.0
26	122.0	143.0	135.0	135.0	147.0	191.0	214.0	313.0	239.0	253.0	239.0	177.0
27	122.0	147.0	135.0	131.0	139.0	191.0	222.0	312.0	231.0	246.0	235.0	177.0
28	122.0	143.0	135.0	131.0	139.0	187.0	219.0	304.0	231.0	250.0	235.0	173.0
29	122.0	139.0	135.0	131.0	0.0	187.0	214.0	319.0	231.0	253.0	231.0	169.0
30	122.0	139.0	135.0	131.0	0.0	187.0	222.0	331.0	231.0	250.0	231.0	165.0
31	122.0	0.0	135.0	131.0	0.0	187.0	0.0	334.0	0.0	253.0	224.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1946

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166.0	170.0	160.0	206.0	160.0	162.0	468.0	649.0	371.0	229.0	225.0	218.0
2	162.0	174.0	160.0	202.0	159.0	162.0	436.0	623.0	368.0	229.0	223.0	214.0
3	159.0	174.0	160.0	194.0	160.0	162.0	436.0	607.0	364.0	227.0	223.0	218.0
4	159.0	170.0	157.0	190.0	160.0	162.0	346.0	539.0	346.0	227.0	218.0	218.0
5	159.0	170.0	157.0	182.0	159.0	159.0	364.0	539.0	309.0	255.0	218.0	223.0
6	160.0	168.0	160.0	166.0	157.0	162.0	364.0	539.0	271.0	255.0	214.0	223.0
7	160.0	166.0	160.0	166.0	160.0	160.0	364.0	539.0	251.0	253.0	210.0	227.0
8	160.0	166.0	157.0	174.0	153.0	155.0	357.0	522.0	251.0	253.0	208.0	227.0
9	160.0	162.0	153.0	170.0	149.0	162.0	357.0	522.0	227.0	253.0	208.0	227.0
10	160.0	162.0	153.0	162.0	153.0	168.0	364.0	505.0	223.0	251.0	208.0	227.0
11	160.0	164.0	153.0	160.0	153.0	214.0	324.0	488.0	223.0	247.0	210.0	206.0
12	162.0	164.0	149.0	157.0	149.0	239.0	346.0	471.0	223.0	247.0	210.0	196.0
13	162.0	164.0	149.0	157.0	157.0	309.0	364.0	418.0	227.0	247.0	210.0	196.0
14	162.0	153.0	151.0	157.0	155.0	301.0	373.0	418.0	229.0	249.0	208.0	196.0
15	162.0	168.0	151.0	160.0	155.0	267.0	418.0	400.0	229.0	255.0	208.0	196.0
16	160.0	168.0	155.0	160.0	155.0	267.0	488.0	382.0	229.0	261.0	208.0	196.0
17	164.0	172.0	155.0	157.0	155.0	227.0	488.0	364.0	229.0	257.0	206.0	176.0
18	160.0	172.0	153.0	157.0	155.0	227.0	505.0	364.0	227.0	257.0	206.0	164.0
19	160.0	172.0	155.0	157.0	159.0	328.0	505.0	346.0	241.0	251.0	192.0	149.0
20	160.0	172.0	155.0	153.0	159.0	346.0	607.0	364.0	241.0	249.0	190.0	145.0
21	162.0	164.0	155.0	155.0	155.0	353.0	623.0	364.0	223.0	245.0	184.0	147.0
22	162.0	153.0	159.0	155.0	159.0	350.0	590.0	368.0	202.0	243.0	192.0	147.0
23	162.0	153.0	155.0	155.0	160.0	357.0	585.0	371.0	194.0	233.0	200.0	143.0
24	164.0	160.0	155.0	162.0	159.0	357.0	583.0	371.0	206.0	212.0	212.0	143.0
25	159.0	164.0	153.0	159.0	162.0	407.0	583.0	371.0	218.0	210.0	210.0	140.0
26	160.0	157.0	162.0	159.0	166.0	407.0	600.0	355.0	220.0	216.0	210.0	142.0
27	160.0	153.0	170.0	155.0	166.0	400.0	661.0	364.0	220.0	218.0	210.0	138.0
28	160.0	157.0	307.0	151.0	166.0	436.0	661.0	364.0	225.0	218.0	210.0	138.0
29	164.0	164.0	360.0	159.0	0.0	468.0	661.0	375.0	220.0	218.0	204.0	138.0
30	168.0	164.0	239.0	157.0	0.0	488.0	655.0	382.0	220.0	223.0	216.0	138.0
31	168.0	0.0	223.0	157.0	0.0	471.0	0.0	375.0	0.0	225.0	220.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1947

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140.0	196.0	188.0	151.0	151.0	168.0	188.0	253.0	174.0	225.0	198.0	182.0
2	140.0	196.0	188.0	151.0	149.0	170.0	192.0	253.0	178.0	231.0	198.0	178.0
3	130.0	196.0	184.0	140.0	149.0	170.0	192.0	257.0	178.0	233.0	198.0	178.0
4	149.0	188.0	184.0	140.0	149.0	170.0	196.0	267.0	206.0	237.0	198.0	147.0
5	155.0	184.0	182.0	140.0	149.0	170.0	200.0	275.0	198.0	239.0	206.0	142.0
6	155.0	180.0	200.0	140.0	155.0	172.0	200.0	271.0	204.0	239.0	194.0	143.0
7	160.0	180.0	200.0	143.0	155.0	172.0	196.0	271.0	204.0	229.0	190.0	159.0
8	164.0	180.0	204.0	147.0	155.0	172.0	192.0	279.0	208.0	212.0	182.0	166.0
9	162.0	176.0	200.0	149.0	151.0	176.0	188.0	290.0	212.0	214.0	200.0	166.0
10	162.0	176.0	196.0	153.0	151.0	200.0	186.0	294.0	220.0	214.0	204.0	166.0
11	163.0	176.0	192.0	153.0	153.0	220.0	184.0	298.0	220.0	212.0	212.0	166.0
12	164.0	172.0	188.0	153.0	153.0	220.0	182.0	307.0	216.0	212.0	216.0	166.0
13	166.0	176.0	192.0	149.0	155.0	204.0	178.0	288.0	216.0	202.0	216.0	162.0
14	166.0	186.0	204.0	145.0	245.0	196.0	176.0	284.0	216.0	198.0	212.0	155.0
15	168.0	174.0	200.0	138.0	237.0	200.0	176.0	280.0	212.0	204.0	208.0	155.0
16	168.0	174.0	178.0	142.0	220.0	204.0	176.0	273.0	192.0	208.0	204.0	147.0
17	174.0	174.0	170.0	145.0	216.0	204.0	176.0	269.0	182.0	206.0	200.0	147.0
18	174.0	174.0	174.0	147.0	190.0	196.0	178.0	245.0	182.0	202.0	200.0	159.0
19	174.0	174.0	174.0	147.0	186.0	192.0	186.0	214.0	170.0	202.0	196.0	166.0
20	174.0	174.0	174.0	147.0	174.0	192.0	210.0	223.0	170.0	200.0	192.0	155.0
21	174.0	174.0	174.0	147.0	170.0	182.0	223.0	216.0	174.0	200.0	192.0	155.0
22	178.0	178.0	174.0	147.0	166.0	182.0	223.0	214.0	174.0	200.0	190.0	147.0
23	182.0	194.0	172.0	147.0	174.0	190.0	223.0	198.0	174.0	200.0	194.0	143.0
24	182.0	198.0	172.0	145.0	176.0	190.0	210.0	186.0	174.0	198.0	190.0	143.0
25	182.0	202.0	172.0	147.0	176.0	190.0	206.0	184.0	174.0	198.0	188.0	143.0
26	178.0	206.0	172.0	149.0	172.0	194.0	216.0	182.0	178.0	198.0	194.0	138.0
27	180.0	210.0	172.0	149.0	168.0	194.0	225.0	180.0	180.0	190.0	194.0	140.0
28	198.0	200.0	172.0	147.0	164.0	194.0	229.0	180.0	198.0	192.0	198.0	142.0
29	206.0	194.0	164.0	149.0	0.0	190.0	233.0	178.0	204.0	202.0	198.0	142.0
30	198.0	192.0	164.0	149.0	0.0	190.0	245.0	170.0	220.0	206.0	198.0	143.0
31	194.0	0.0	157.0	147.0	0.0	190.0	0.0	166.0	0.0	202.0	194.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1948

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142.0	138.0	153.0	134.0	140.0	172.0	208.0	280.0	301.0	220.0	233.0	198.0
2	142.0	140.0	149.0	134.0	142.0	159.0	220.0	273.0	288.0	223.0	233.0	196.0
3	142.0	143.0	151.0	138.0	142.0	155.0	257.0	253.0	280.0	223.0	235.0	196.0
4	142.0	145.0	151.0	143.0	142.0	149.0	280.0	253.0	269.0	210.0	235.0	192.0
5	138.0	149.0	147.0	147.0	142.0	149.0	249.0	257.0	257.0	206.0	231.0	192.0
6	138.0	142.0	147.0	147.0	142.0	149.0	239.0	257.0	241.0	204.0	233.0	196.0
7	140.0	145.0	147.0	147.0	142.0	153.0	216.0	257.0	229.0	204.0	235.0	196.0
8	142.0	147.0	147.0	202.0	143.0	153.0	216.0	269.0	216.0	204.0	233.0	194.0
9	142.0	147.0	145.0	190.0	140.0	153.0	257.0	311.0	212.0	214.0	233.0	196.0
10	142.0	151.0	145.0	166.0	140.0	153.0	237.0	311.0	208.0	214.0	235.0	196.0
11	142.0	151.0	142.0	159.0	138.0	153.0	220.0	298.0	196.0	218.0	233.0	196.0
12	142.0	151.0	142.0	149.0	136.0	153.0	198.0	294.0	196.0	220.0	214.0	196.0
13	142.0	151.0	138.0	149.0	136.0	153.0	196.0	303.0	196.0	223.0	214.0	200.0
14	138.0	149.0	138.0	145.0	145.0	153.0	194.0	303.0	196.0	218.0	214.0	204.0
15	138.0	149.0	143.0	145.0	145.0	153.0	196.0	303.0	198.0	218.0	214.0	212.0
16	144.0	149.0	143.0	145.0	145.0	157.0	200.0	318.0	206.0	218.0	214.0	212.0
17	149.0	149.0	143.0	142.0	237.0	157.0	241.0	318.0	210.0	218.0	214.0	216.0
18	145.0	149.0	143.0	142.0	333.0	159.0	261.0	405.0	208.0	214.0	214.0	220.0
19	140.0	149.0	140.0	142.0	333.0	160.0	261.0	413.0	214.0	210.0	212.0	218.0
20	140.0	149.0	143.0	143.0	273.0	188.0	269.0	466.0	296.0	214.0	212.0	225.0
21	140.0	143.0	143.0	143.0	273.0	196.0	277.0	445.0	307.0	214.0	214.0	225.0
22	140.0	140.0	143.0	143.0	443.0	192.0	277.0	434.0	386.0	214.0	216.0	218.0
23	138.0	140.0	140.0	143.0	298.0	296.0	261.0	434.0	400.0	214.0	216.0	218.0
24	138.0	143.0	132.0	143.0	279.0	318.0	249.0	398.0	387.0	210.0	216.0	218.0
25	138.0	143.0	132.0	147.0	214.0	318.0	253.0	380.0	326.0	218.0	214.0	225.0
26	143.0	147.0	132.0	132.0	202.0	337.0	237.0	359.0	303.0	214.0	210.0	218.0
27	142.0	151.0	134.0	128.0	198.0	330.0	237.0	341.0	263.0	227.0	210.0	178.0
28	136.0	147.0	134.0	132.0	196.0	333.0	249.0	341.0	247.0	231.0	206.0	180.0
29	140.0	147.0	134.0	132.0	196.0	300.0	257.0	333.0	235.0	233.0	202.0	159.0
30	140.0	149.0	134.0	132.0	0.0	261.0	273.0	326.0	220.0	233.0	202.0	155.0
31	138.0	0.0	134.0	140.0	0.0	212.0	0.0	318.0	0.0	233.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1949

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.0	149.0	147.0	149.0	138.0	140.0	251.0	294.0	263.0	214.0	223.0	192.0
2	147.0	155.0	147.0	145.0	140.0	140.0	271.0	290.0	271.0	210.0	223.0	192.0
3	143.0	174.0	147.0	149.0	140.0	138.0	290.0	286.0	255.0	218.0	223.0	192.0
4	147.0	159.0	143.0	142.0	136.0	138.0	328.0	282.0	251.0	220.0	223.0	202.0
5	143.0	160.0	147.0	142.0	140.0	138.0	360.0	275.0	247.0	220.0	216.0	202.0
6	151.0	157.0	145.0	145.0	135.0	142.0	378.0	275.0	237.0	225.0	216.0	206.0
7	151.0	157.0	143.0	145.0	135.0	140.0	346.0	267.0	233.0	245.0	216.0	202.0
8	151.0	149.0	143.0	142.0	135.0	143.0	360.0	255.0	225.0	206.0	210.0	202.0
9	147.0	153.0	147.0	145.0	135.0	143.0	371.0	259.0	220.0	206.0	210.0	214.0
10	143.0	157.0	143.0	149.0	135.0	147.0	371.0	267.0	208.0	235.0	210.0	210.0
11	140.0	159.0	149.0	147.0	135.0	155.0	313.0	259.0	202.0	227.0	210.0	214.0
12	142.0	162.0	145.0	143.0	135.0	159.0	309.0	255.0	182.0	223.0	212.0	190.0
13	142.0	159.0	145.0	140.0	135.0	160.0	290.0	267.0	182.0	218.0	212.0	180.0
14	145.0	155.0	142.0	147.0	135.0	168.0	279.0	271.0	178.0	216.0	216.0	164.0
15	147.0	162.0	145.0	147.0	135.0	172.0	259.0	275.0	178.0	216.0	204.0	153.0
16	149.0	159.0	145.0	143.0	140.0	180.0	251.0	279.0	172.0	212.0	220.0	149.0
17	142.0	164.0	149.0	136.0	140.0	188.0	267.0	286.0	168.0	220.0	220.0	132.0
18	143.0	160.0	149.0	136.0	143.0	196.0	271.0	324.0	196.0	223.0	216.0	132.0
19	147.0	160.0	153.0	140.0	140.0	206.0	271.0	353.0	212.0	223.0	212.0	128.0
20	143.0	160.0	153.0	140.0	136.0	235.0	298.0	360.0	216.0	218.0	212.0	128.0
21	147.0	157.0	151.0	132.0	138.0	251.0	290.0	371.0	210.0	218.0	208.0	126.0
22	143.0	149.0	147.0	128.0	136.0	290.0	286.0	328.0	194.0	220.0	202.0	126.0
23	143.0	153.0	143.0	128.0	138.0	290.0	324.0	320.0	210.0	220.0	223.0	126.0
24	149.0	153.0	128.0	124.0	136.0	271.0	328.0	313.0	231.0	225.0	214.0	126.0
25	149.0	153.0	132.0	124.0	136.0	267.0	371.0	294.0	239.0	220.0	210.0	124.0
26	145.0	153.0	151.0	143.0	136.0	255.0	339.0	286.0	229.0	214.0	210.0	121.0
27	149.0	149.0	151.0	147.0	138.0	251.0	328.0	279.0	220.0	206.0	206.0	121.0
28	145.0	149.0	147.0	136.0	136.0	247.0	346.0	269.0	220.0	206.0	204.0	117.0
29	149.0	149.0	143.0	136.0	0.0	239.0	360.0	277.0	225.0	216.0	200.0	130.0
30	151.0	145.0	147.0	132.0	0.0	231.0	364.0	273.0	214.0	225.0	196.0	130.0
31	151.0	0.0	147.0	138.0	0.0	235.0	0.0	277.0	0.0	229.0	196.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1950

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128.0	170.0	162.0	151.0	162.0	294.0	275.0	350.0	573.0	317.0	255.0	239.0
2	128.0	170.0	159.0	147.0	147.0	255.0	364.0	346.0	566.0	298.0	255.0	237.0
3	132.0	166.0	155.0	147.0	147.0	267.0	409.0	342.0	558.0	294.0	251.0	206.0
4	134.0	166.0	151.0	151.0	155.0	275.0	350.0	342.0	556.0	286.0	247.0	202.0
5	138.0	164.0	151.0	147.0	166.0	342.0	332.0	350.0	554.0	286.0	247.0	202.0
6	142.0	162.0	147.0	151.0	170.0	357.0	313.0	313.0	546.0	282.0	243.0	198.0
7	142.0	166.0	147.0	147.0	174.0	294.0	360.0	332.0	534.0	294.0	239.0	196.0
8	147.0	166.0	151.0	147.0	190.0	267.0	382.0	326.0	514.0	298.0	239.0	286.0
9	143.0	170.0	155.0	147.0	186.0	251.0	378.0	330.0	496.0	305.0	243.0	305.0
10	143.0	166.0	155.0	147.0	166.0	235.0	371.0	341.0	490.0	324.0	243.0	298.0
11	143.0	166.0	155.0	147.0	162.0	231.0	350.0	317.0	400.0	317.0	247.0	305.0
12	145.0	162.0	159.0	147.0	155.0	227.0	301.0	328.0	386.0	309.0	247.0	303.0
13	149.0	166.0	162.0	143.0	159.0	223.0	320.0	342.0	382.0	305.0	247.0	305.0
14	145.0	166.0	155.0	143.0	166.0	206.0	328.0	411.0	378.0	305.0	255.0	309.0
15	142.0	166.0	155.0	143.0	174.0	202.0	313.0	488.0	373.0	294.0	255.0	305.0
16	147.0	166.0	151.0	147.0	162.0	218.0	357.0	539.0	368.0	286.0	251.0	305.0
17	151.0	166.0	147.0	151.0	170.0	251.0	364.0	582.0	364.0	282.0	251.0	313.0
18	155.0	166.0	155.0	151.0	174.0	382.0	393.0	634.0	364.0	279.0	247.0	317.0
19	159.0	162.0	151.0	151.0	182.0	371.0	389.0	647.0	360.0	267.0	243.0	317.0
20	164.0	162.0	147.0	151.0	190.0	332.0	382.0	626.0	357.0	263.0	247.0	318.0
21	180.0	159.0	151.0	155.0	182.0	294.0	427.0	628.0	350.0	255.0	247.0	320.0
22	176.0	159.0	151.0	190.0	170.0	286.0	456.0	625.0	346.0	247.0	245.0	320.0
23	176.0	159.0	151.0	251.0	162.0	243.0	450.0	631.0	324.0	243.0	245.0	324.0
24	178.0	155.0	151.0	210.0	214.0	271.0	389.0	657.0	339.0	251.0	247.0	320.0
25	174.0	155.0	147.0	178.0	271.0	267.0	386.0	650.0	342.0	247.0	245.0	317.0
26	182.0	159.0	151.0	178.0	440.0	263.0	382.0	645.0	339.0	255.0	267.0	317.0
27	182.0	162.0	147.0	178.0	414.0	255.0	393.0	639.0	335.0	255.0	263.0	317.0
28	184.0	166.0	151.0	174.0	350.0	243.0	389.0	607.0	324.0	259.0	255.0	260.0
29	176.0	170.0	151.0	174.0	0.0	231.0	375.0	607.0	320.0	255.0	251.0	230.0
30	172.0	162.0	155.0	170.0	0.0	206.0	357.0	607.0	318.0	251.0	247.0	241.0
31	176.0	0.0	155.0	166.0	0.0	239.0	0.0	607.0	0.0	251.0	243.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1951

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247.0	223.0	195.0	184.0	172.0	218.0	241.0	309.0	251.0	229.0	243.0	202.0
2	239.0	223.0	192.0	182.0	180.0	214.0	245.0	313.0	251.0	216.0	239.0	172.0
3	223.0	214.0	196.0	180.0	176.0	210.0	245.0	298.0	247.0	223.0	247.0	168.0
4	227.0	210.0	196.0	180.0	172.0	206.0	245.0	301.0	243.0	231.0	243.0	168.0
5	223.0	210.0	192.0	180.0	176.0	194.0	249.0	309.0	223.0	233.0	235.0	160.0
6	218.0	208.0	192.0	176.0	182.0	194.0	253.0	286.0	210.0	233.0	223.0	157.0
7	218.0	206.0	200.0	176.0	284.0	198.0	261.0	301.0	227.0	235.0	216.0	155.0
8	210.0	202.0	196.0	176.0	359.0	194.0	269.0	305.0	229.0	239.0	216.0	155.0
9	202.0	198.0	192.0	176.0	414.0	198.0	253.0	305.0	251.0	237.0	212.0	151.0
10	202.0	198.0	192.0	176.0	434.0	196.0	249.0	298.0	261.0	241.0	216.0	151.0
11	218.0	202.0	192.0	174.0	333.0	198.0	265.0	309.0	271.0	231.0	220.0	149.0
12	223.0	202.0	192.0	176.0	364.0	194.0	269.0	309.0	275.0	223.0	208.0	147.0
13	220.0	202.0	192.0	176.0	231.0	194.0	288.0	309.0	275.0	210.0	202.0	145.0
14	218.0	202.0	192.0	176.0	227.0	202.0	292.0	298.0	263.0	241.0	194.0	143.0
15	216.0	202.0	192.0	174.0	214.0	210.0	288.0	305.0	263.0	245.0	194.0	143.0
16	218.0	214.0	192.0	172.0	210.0	227.0	300.0	301.0	251.0	237.0	202.0	143.0
17	220.0	218.0	192.0	176.0	210.0	223.0	300.0	298.0	251.0	243.0	194.0	140.0
18	220.0	223.0	190.0	176.0	235.0	235.0	303.0	286.0	247.0	243.0	192.0	140.0
19	216.0	227.0	188.0	176.0	223.0	251.0	315.0	296.0	241.0	239.0	192.0	136.0
20	208.0	231.0	188.0	176.0	231.0	255.0	303.0	301.0	229.0	239.0	196.0	140.0
21	204.0	223.0	190.0	176.0	235.0	267.0	296.0	279.0	227.0	243.0	196.0	149.0
22	208.0	218.0	192.0	176.0	239.0	282.0	288.0	275.0	259.0	282.0	192.0	157.0
23	208.0	214.0	192.0	176.0	227.0	290.0	284.0	275.0	261.0	275.0	192.0	153.0
24	212.0	210.0	190.0	180.0	223.0	290.0	280.0	286.0	269.0	271.0	202.0	153.0
25	216.0	218.0	188.0	180.0	210.0	267.0	280.0	284.0	271.0	259.0	198.0	153.0
26	216.0	210.0	180.0	176.0	206.0	263.0	277.0	290.0	267.0	241.0	200.0	149.0
27	220.0	205.0	182.0	174.0	214.0	259.0	273.0	271.0	261.0	241.0	200.0	149.0
28	216.0	205.0	184.0	176.0	223.0	243.0	280.0	267.0	257.0	237.0	212.0	149.0
29	216.0	200.0	184.0	172.0	0.0	249.0	330.0	263.0	247.0	241.0	208.0	149.0
30	214.0	200.0	184.0	180.0	0.0	265.0	318.0	257.0	239.0	233.0	209.0	149.0
31	218.0	0.0	180.0	176.0	0.0	253.0	0.0	259.0	0.0	241.0	204.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1952

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153.0	164.0	168.0	176.0	182.0	198.0	200.0	642.0	373.0	301.0	212.0	153.0
2	153.0	164.0	168.0	178.0	184.0	202.0	202.0	650.0	369.0	280.0	216.0	151.0
3	151.0	164.0	166.0	176.0	192.0	200.0	210.0	653.0	366.0	271.0	206.0	159.0
4	151.0	166.0	164.0	180.0	184.0	202.0	218.0	665.0	357.0	263.0	210.0	170.0
5	149.0	172.0	159.0	180.0	182.0	198.0	223.0	668.0	346.0	257.0	212.0	178.0
6	149.0	176.0	162.0	176.0	180.0	200.0	286.0	663.0	317.0	253.0	214.0	192.0
7	151.0	180.0	162.0	180.0	176.0	202.0	298.0	657.0	313.0	247.0	218.0	196.0
8	149.0	180.0	162.0	180.0	174.0	202.0	322.0	655.0	307.0	235.0	220.0	204.0
9	147.0	186.0	162.0	178.0	166.0	202.0	341.0	623.0	303.0	229.0	225.0	208.0
10	149.0	186.0	160.0	166.0	174.0	198.0	353.0	595.0	298.0	212.0	225.0	212.0
11	153.0	182.0	159.0	168.0	178.0	196.0	364.0	578.0	294.0	253.0	229.0	214.0
12	153.0	184.0	166.0	172.0	178.0	190.0	400.0	563.0	290.0	280.0	227.0	212.0
13	153.0	188.0	168.0	176.0	180.0	186.0	400.0	546.0	284.0	280.0	231.0	198.0
14	170.0	188.0	170.0	172.0	184.0	182.0	410.0	480.0	273.0	280.0	233.0	194.0
15	166.0	190.0	170.0	172.0	188.0	178.0	471.0	476.0	267.0	260.0	235.0	188.0
16	168.0	188.0	174.0	170.0	190.0	178.0	432.0	468.0	259.0	250.0	235.0	180.0
17	168.0	180.0	178.0	174.0	192.0	178.0	464.0	464.0	251.0	240.0	237.0	178.0
18	164.0	190.0	182.0	178.0	192.0	170.0	486.0	462.0	247.0	230.0	225.0	170.0
19	164.0	192.0	186.0	174.0	194.0	166.0	500.0	452.0	245.0	225.0	220.0	170.0
20	170.0	188.0	188.0	174.0	198.0	162.0	490.0	450.0	239.0	225.0	212.0	168.0
21	166.0	186.0	190.0	170.0	198.0	162.0	476.0	432.0	235.0	218.0	204.0	166.0
22	170.0	188.0	186.0	180.0	196.0	162.0	476.0	418.0	245.0	214.0	198.0	164.0
23	166.0	188.0	180.0	185.0	198.0	166.0	478.0	409.0	249.0	208.0	198.0	164.0
24	166.0	188.0	184.0	192.0	198.0	178.0	480.0	407.0	288.0	204.0	186.0	160.0
25	168.0	180.0	176.0	180.0	200.0	186.0	473.0	404.0	313.0	198.0	182.0	160.0
26	166.0	178.0	186.0	170.0	202.0	186.0	491.0	395.0	318.0	200.0	178.0	159.0
27	166.0	176.0	172.0	168.0	194.0	184.0	515.0	393.0	322.0	196.0	174.0	160.0
28	166.0	172.0	176.0	174.0	194.0	190.0	568.0	391.0	320.0	196.0	172.0	157.0
29	162.0	172.0	184.0	174.0	190.0	194.0	612.0	386.0	309.0	190.0	170.0	151.0
30	162.0	170.0	180.0	178.0	0.0	198.0	620.0	384.0	305.0	202.0	160.0	147.0
31	160.0	0.0	180.0	182.0	0.0	198.0	0.0	382.0	0.0	210.0	157.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1953

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145.0	145.0	170.0	174.0	198.0	186.0	194.0	208.0	279.0	261.0	216.0	194.0
2	142.0	143.0	170.0	174.0	194.0	198.0	190.0	196.0	438.0	263.0	220.0	198.0
3	138.0	145.0	168.0	176.0	206.0	194.0	194.0	182.0	450.0	263.0	223.0	202.0
4	138.0	147.0	166.0	178.0	210.0	194.0	194.0	174.0	450.0	267.0	214.0	206.0
5	136.0	147.0	170.0	180.0	214.0	190.0	194.0	164.0	459.0	269.0	218.0	194.0
6	138.0	143.0	170.0	182.0	218.0	190.0	194.0	172.0	469.0	267.0	216.0	194.0
7	138.0	143.0	170.0	182.0	218.0	192.0	194.0	174.0	436.0	269.0	225.0	194.0
8	142.0	143.0	170.0	190.0	218.0	194.0	194.0	178.0	443.0	267.0	233.0	194.0
9	140.0	151.0	168.0	206.0	214.0	198.0	194.0	160.0	445.0	259.0	192.0	186.0
10	140.0	155.0	166.0	214.0	206.0	202.0	194.0	159.0	452.0	257.0	194.0	190.0
11	142.0	160.0	174.0	206.0	198.0	202.0	190.0	151.0	447.0	253.0	194.0	186.0
12	143.0	162.0	174.0	210.0	190.0	206.0	194.0	147.0	431.0	255.0	194.0	186.0
13	147.0	164.0	176.0	235.0	190.0	210.0	188.0	145.0	423.0	259.0	200.0	194.0
14	149.0	164.0	178.0	231.0	186.0	210.0	180.0	145.0	404.0	253.0	200.0	190.0
15	142.0	166.0	178.0	206.0	198.0	206.0	170.0	145.0	362.0	257.0	212.0	190.0
16	147.0	168.0	176.0	198.0	194.0	202.0	166.0	145.0	326.0	259.0	202.0	186.0
17	147.0	166.0	182.0	210.0	190.0	202.0	172.0	200.0	290.0	259.0	198.0	186.0
18	149.0	168.0	184.0	313.0	186.0	198.0	174.0	216.0	273.0	269.0	202.0	186.0
19	153.0	170.0	186.0	368.0	186.0	194.0	174.0	231.0	263.0	257.0	200.0	186.0
20	157.0	172.0	186.0	305.0	182.0	196.0	180.0	315.0	309.0	212.0	202.0	186.0
21	153.0	176.0	186.0	271.0	182.0	188.0	186.0	300.0	300.0	204.0	204.0	182.0
22	151.0	176.0	184.0	251.0	182.0	188.0	186.0	294.0	301.0	202.0	198.0	178.0
23	151.0	176.0	182.0	235.0	178.0	192.0	196.0	313.0	307.0	206.0	194.0	178.0
24	151.0	172.0	178.0	227.0	178.0	196.0	218.0	341.0	317.0	210.0	190.0	174.0
25	147.0	170.0	178.0	210.0	174.0	200.0	218.0	322.0	326.0	204.0	194.0	166.0
26	147.0	168.0	178.0	206.0	182.0	200.0	220.0	328.0	317.0	204.0	190.0	166.0
27	145.0	168.0	174.0	202.0	186.0	192.0	223.0	320.0	311.0	249.0	186.0	162.0
28	147.0	172.0	174.0	200.0	186.0	196.0	284.0	247.0	282.0	235.0	190.0	159.0
29	147.0	170.0	174.0	202.0	0.0	196.0	263.0	245.0	277.0	227.0	194.0	147.0
30	143.0	172.0	176.0	202.0	0.0	200.0	223.0	251.0	269.0	223.0	198.0	145.0
31	145.0	0.0	178.0	198.0	0.0	196.0	0.0	279.0	0.0	220.0	198.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1954

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147.0	166.0	170.0	157.0	153.0	192.0	204.0	190.0	220.0	190.0	162.0	93.0
2	149.0	166.0	178.0	160.0	151.0	188.0	200.0	186.0	218.0	186.0	162.0	102.0
3	147.0	162.0	174.0	168.0	151.0	192.0	208.0	180.0	218.0	186.0	162.0	97.0
4	149.0	166.0	170.0	172.0	147.0	196.0	170.0	172.0	223.0	188.0	162.0	95.0
5	155.0	170.0	170.0	168.0	143.0	200.0	180.0	170.0	216.0	186.0	164.0	95.0
6	151.0	166.0	159.0	164.0	143.0	204.0	190.0	186.0	265.0	184.0	164.0	90.0
7	149.0	166.0	155.0	168.0	143.0	212.0	195.0	192.0	253.0	182.0	160.0	93.0
8	149.0	166.0	162.0	172.0	151.0	233.0	193.0	196.0	251.0	182.0	158.0	93.0
9	149.0	162.0	170.0	172.0	151.0	249.0	190.0	210.0	263.0	180.0	160.0	91.0
10	149.0	164.0	166.0	168.0	151.0	294.0	190.0	214.0	263.0	172.0	159.0	93.0
11	147.0	170.0	174.0	168.0	166.0	305.0	190.0	216.0	269.0	184.0	158.0	95.0
12	147.0	166.0	162.0	164.0	194.0	286.0	186.0	218.0	208.0	192.0	158.0	95.0
13	143.0	166.0	166.0	168.0	198.0	251.0	180.0	218.0	196.0	192.0	158.0	93.0
14	145.0	166.0	170.0	172.0	186.0	235.0	196.0	223.0	190.0	196.0	152.0	95.0
15	142.0	166.0	166.0	159.0	182.0	231.0	184.0	220.0	186.0	190.0	150.0	93.0
16	142.0	166.0	164.0	160.0	170.0	231.0	202.0	225.0	184.0	196.0	150.0	93.0
17	143.0	166.0	162.0	168.0	162.0	227.0	206.0	227.0	180.0	206.0	148.0	93.0
18	143.0	166.0	162.0	164.0	166.0	210.0	218.0	202.0	168.0	210.0	140.0	91.0
19	143.0	164.0	166.0	162.0	143.0	206.0	220.0	188.0	166.0	208.0	138.0	93.0
20	145.0	166.0	162.0	159.0	151.0	206.0	229.0	180.0	162.0	198.0	136.0	93.0
21	149.0	166.0	162.0	159.0	159.0	204.0	233.0	227.0	157.0	188.0	135.0	93.0
22	153.0	166.0	160.0	157.0	170.0	200.0	235.0	259.0	153.0	186.0	135.0	95.0
23	159.0	170.0	159.0	157.0	182.0	208.0	210.0	204.0	196.0	184.0	115.0	99.0
24	162.0	170.0	159.0	159.0	190.0	212.0	218.0	196.0	196.0	180.0	110.0	106.0
25	162.0	166.0	162.0	157.0	198.0	208.0	225.0	180.0	200.0	178.0	106.0	100.0
26	160.0	170.0	159.0	155.0	186.0	202.0	227.0	178.0	192.0	188.0	104.0	102.0
27	164.0	170.0	159.0	153.0	192.0	204.0	231.0	170.0	196.0	186.0	102.0	102.0
28	162.0	174.0	160.0	157.0	192.0	204.0	290.0	184.0	202.0	176.0	100.0	102.0
29	162.0	170.0	168.0	160.0	0.0	198.0	301.0	233.0	200.0	170.0	99.0	102.0
30	162.0	174.0	164.0	160.0	0.0	210.0	223.0	257.0	198.0	166.0	95.0	106.0
31	164.0	0.0	160.0	157.0	0.0	206.0	0.0	237.0	0.0	164.0	95.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1955

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108.0	131.0	131.0	133.0	133.0	127.0	172.0	154.0	228.0	190.0	102.0	108.0
2	108.0	127.0	133.0	133.0	133.0	125.0	198.0	158.0	262.0	176.0	102.0	106.0
3	108.0	135.0	135.0	131.0	133.0	125.0	172.0	160.0	254.0	176.0	102.0	106.0
4	112.0	135.0	139.0	133.0	130.0	123.0	162.0	156.0	241.0	152.0	100.0	100.0
5	114.0	135.0	137.0	133.0	130.0	123.0	151.0	156.0	220.0	151.0	100.0	99.0
6	112.0	137.0	137.0	130.0	130.0	123.0	151.0	162.0	200.0	149.0	100.0	95.0
7	112.0	137.0	143.0	128.0	131.0	125.0	156.0	172.0	190.0	168.0	100.0	91.0
8	110.0	137.0	139.0	125.0	131.0	123.0	162.0	184.0	182.0	170.0	99.0	91.0
9	110.0	133.0	131.0	130.0	131.0	125.0	166.0	190.0	178.0	170.0	100.0	93.0
10	110.0	133.0	135.0	133.0	131.0	129.0	172.0	184.0	170.0	166.0	99.0	93.0
11	112.0	133.0	137.0	133.0	130.0	133.0	170.0	186.0	162.0	160.0	99.0	93.0
12	112.0	139.0	135.0	131.0	129.0	137.0	164.0	186.0	162.0	141.0	99.0	93.0
13	117.0	137.0	139.0	130.0	129.0	139.0	160.0	188.0	182.0	123.0	108.0	93.0
14	115.0	133.0	135.0	130.0	130.0	135.0	162.0	192.0	198.0	110.0	104.0	93.0
15	114.0	135.0	135.0	130.0	131.0	129.0	160.0	194.0	204.0	106.0	104.0	93.0
16	115.0	151.0	133.0	133.0	131.0	127.0	156.0	192.0	206.0	112.0	104.0	91.0
17	114.0	141.0	131.0	132.0	132.0	129.0	158.0	182.0	200.0	114.0	104.0	93.0
18	114.0	139.0	127.0	132.0	128.0	129.0	156.0	166.0	198.0	110.0	108.0	99.0
19	117.0	137.0	129.0	132.0	128.0	131.0	152.0	158.0	196.0	108.0	110.0	93.0
20	119.0	137.0	133.0	132.0	128.0	127.0	152.0	158.0	194.0	110.0	106.0	93.0
21	121.0	137.0	133.0	132.0	129.0	125.0	152.0	166.0	188.0	110.0	106.0	93.0
22	115.0	133.0	131.0	132.0	129.0	129.0	154.0	204.0	188.0	108.0	110.0	91.0
23	119.0	133.0	131.0	133.0	129.0	125.0	154.0	216.0	194.0	110.0	108.0	93.0
24	123.0	133.0	129.0	133.0	129.0	129.0	154.0	218.0	194.0	114.0	102.0	95.0
25	125.0	131.0	131.0	133.0	131.0	129.0	158.0	220.0	192.0	115.0	106.0	100.0
26	125.0	131.0	130.0	133.0	131.0	127.0	156.0	208.0	190.0	119.0	114.0	102.0
27	123.0	129.0	128.0	133.0	129.0	129.0	154.0	200.0	188.0	115.0	115.0	100.0
28	124.0	129.0	125.0	132.0	127.0	137.0	151.0	202.0	188.0	108.0	119.0	100.0
29	125.0	129.0	128.0	130.0	0.0	147.0	149.0	208.0	194.0	104.0	115.0	100.0
30	125.0	133.0	131.0	131.0	0.0	152.0	151.0	214.0	190.0	104.0	114.0	100.0
31	129.0	0.0	133.0	133.0	0.0	147.0	0.0	220.0	0.0	104.0	110.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1956

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	110.0	140.0	146.0	130.0	131.0	375.0	258.0	232.0	214.0	196.0	146.0
2	100.0	108.0	138.0	150.0	125.0	135.0	323.0	255.0	222.0	212.0	172.0	142.0
3	100.0	110.0	135.0	142.0	130.0	138.0	281.0	251.0	214.0	206.0	154.0	138.0
4	106.0	114.0	131.0	144.0	133.0	138.0	258.0	253.0	212.0	204.0	184.0	136.0
5	114.0	116.0	129.0	144.0	136.0	140.0	251.0	258.0	206.0	220.0	180.0	136.0
6	114.0	116.0	133.0	142.0	136.0	135.0	243.0	258.0	200.0	224.0	178.0	135.0
7	108.0	118.0	129.0	138.0	136.0	136.0	236.0	255.0	194.0	210.0	174.0	140.0
8	104.0	118.0	129.0	142.0	135.0	135.0	241.0	253.0	190.0	196.0	170.0	140.0
9	100.0	119.0	133.0	138.0	133.0	140.0	230.0	247.0	184.0	196.0	172.0	136.0
10	100.0	121.0	129.0	138.0	133.0	140.0	230.0	245.0	188.0	204.0	174.0	136.0
11	102.0	123.0	127.0	138.0	136.0	135.0	239.0	255.0	204.0	196.0	174.0	135.0
12	102.0	123.0	129.0	138.0	138.0	135.0	232.0	251.0	204.0	188.0	176.0	116.0
13	104.0	119.0	129.0	144.0	135.0	142.0	241.0	234.0	204.0	184.0	178.0	104.0
14	102.0	129.0	125.0	144.0	133.0	140.0	243.0	224.0	210.0	174.0	178.0	100.0
15	104.0	125.0	123.0	154.0	135.0	136.0	241.0	206.0	220.0	182.0	174.0	100.0
16	104.0	116.0	129.0	190.0	131.0	140.0	251.0	192.0	228.0	184.0	172.0	102.0
17	104.0	133.0	129.0	164.0	135.0	144.0	255.0	188.0	230.0	190.0	174.0	98.0
18	106.0	131.0	127.0	156.0	135.0	146.0	264.0	194.0	228.0	190.0	174.0	97.0
19	106.0	133.0	125.0	160.0	135.0	152.0	272.0	206.0	226.0	188.0	172.0	91.0
20	110.0	136.0	125.0	156.0	136.0	164.0	281.0	220.0	224.0	192.0	172.0	98.0
21	110.0	138.0	131.0	154.0	136.0	170.0	291.0	224.0	230.0	198.0	170.0	97.0
22	114.0	135.0	164.0	154.0	136.0	176.0	302.0	222.0	212.0	200.0	170.0	97.0
23	112.0	135.0	200.0	158.0	136.0	192.0	304.0	220.0	200.0	200.0	168.0	98.0
24	108.0	133.0	222.0	150.0	136.0	245.0	302.0	228.0	198.0	198.0	166.0	98.0
25	108.0	129.0	190.0	148.0	136.0	329.0	293.0	251.0	198.0	200.0	162.0	98.0
26	110.0	131.0	182.0	148.0	136.0	373.0	295.0	245.0	196.0	202.0	158.0	97.0
27	110.0	136.0	188.0	154.0	135.0	304.0	304.0	247.0	194.0	198.0	148.0	98.0
28	110.0	136.0	178.0	140.0	133.0	333.0	297.0	247.0	208.0	198.0	125.0	98.0
29	112.0	136.0	158.0	142.0	131.0	342.0	283.0	268.0	224.0	198.0	142.0	98.0
30	112.0	138.0	156.0	144.0	0.0	369.0	270.0	253.0	222.0	198.0	142.0	100.0
31	112.0	0.0	154.0	138.0	0.0	414.0	0.0	241.0	0.0	202.0	140.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1957

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102.0	135.0	135.0	129.0	129.0	293.0	162.0	194.0	310.0	234.0	218.0	204.0
2	100.0	131.0	135.0	129.0	123.0	226.0	156.0	208.0	312.0	230.0	216.0	206.0
3	102.0	129.0	135.0	127.0	121.0	204.0	156.0	216.0	323.0	220.0	216.0	202.0
4	104.0	136.0	136.0	129.0	121.0	176.0	156.0	204.0	314.0	208.0	214.0	198.0
5	102.0	138.0	142.0	125.0	119.0	180.0	158.0	210.0	304.0	184.0	214.0	188.0
6	102.0	136.0	138.0	125.0	119.0	172.0	188.0	216.0	297.0	144.0	210.0	178.0
7	102.0	138.0	131.0	125.0	119.0	172.0	174.0	224.0	285.0	138.0	204.0	170.0
8	104.0	138.0	129.0	127.0	121.0	206.0	166.0	230.0	272.0	176.0	198.0	168.0
9	104.0	138.0	129.0	127.0	119.0	202.0	162.0	234.0	260.0	192.0	200.0	166.0
10	106.0	136.0	135.0	127.0	118.0	188.0	162.0	236.0	262.0	194.0	194.0	164.0
11	110.0	136.0	146.0	127.0	119.0	168.0	164.0	239.0	247.0	198.0	208.0	158.0
12	119.0	135.0	156.0	125.0	119.0	180.0	168.0	253.0	239.0	210.0	208.0	156.0
13	121.0	136.0	216.0	129.0	118.0	160.0	168.0	304.0	236.0	220.0	206.0	156.0
14	108.0	133.0	204.0	138.0	121.0	160.0	168.0	394.0	230.0	222.0	202.0	156.0
15	106.0	129.0	168.0	131.0	144.0	162.0	168.0	377.0	228.0	198.0	200.0	154.0
16	106.0	136.0	158.0	125.0	140.0	164.0	168.0	346.0	226.0	196.0	198.0	152.0
17	106.0	140.0	148.0	125.0	133.0	166.0	168.0	314.0	232.0	210.0	172.0	150.0
18	108.0	138.0	142.0	121.0	129.0	162.0	166.0	302.0	228.0	210.0	144.0	152.0
19	106.0	131.0	140.0	125.0	133.0	162.0	164.0	407.0	224.0	210.0	168.0	144.0
20	104.0	133.0	138.0	133.0	140.0	164.0	162.0	522.0	216.0	214.0	170.0	144.0
21	104.0	133.0	138.0	129.0	140.0	166.0	168.0	480.0	212.0	222.0	164.0	142.0
22	106.0	133.0	135.0	129.0	180.0	158.0	170.0	458.0	212.0	222.0	162.0	138.0
23	110.0	133.0	136.0	127.0	283.0	150.0	192.0	407.0	210.0	220.0	202.0	135.0
24	116.0	133.0	136.0	125.0	633.0	150.0	194.0	360.0	200.0	218.0	208.0	135.0
25	114.0	133.0	135.0	127.0	922.0	154.0	178.0	348.0	192.0	218.0	206.0	129.0
26	127.0	133.0	131.0	125.0	956.0	152.0	172.0	329.0	182.0	216.0	206.0	118.0
27	142.0	133.0	131.0	125.0	823.0	150.0	168.0	318.0	172.0	214.0	208.0	114.0
28	138.0	135.0	131.0	127.0	509.0	152.0	168.0	316.0	164.0	214.0	216.0	112.0
29	135.0	133.0	131.0	121.0	0.0	154.0	174.0	314.0	190.0	216.0	196.0	112.0
30	135.0	133.0	131.0	121.0	0.0	160.0	188.0	310.0	243.0	218.0	200.0	110.0
31	136.0	0.0	131.0	127.0	0.0	164.0	0.0	312.0	0.0	218.0	202.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1958

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	142.0	140.0	140.0	140.0	180.0	245.0	226.0	224.0	220.0	202.0	174.0
2	114.0	138.0	140.0	142.0	140.0	178.0	247.0	234.0	214.0	220.0	200.0	172.0
3	118.0	138.0	140.0	144.0	144.0	174.0	245.0	249.0	202.0	220.0	198.0	168.0
4	121.0	140.0	142.0	142.0	144.0	170.0	243.0	266.0	230.0	226.0	200.0	168.0
5	121.0	138.0	144.0	140.0	150.0	168.0	232.0	289.0	234.0	222.0	200.0	168.0
6	121.0	135.0	146.0	138.0	142.0	172.0	226.0	316.0	226.0	218.0	194.0	166.0
7	121.0	133.0	150.0	138.0	144.0	172.0	224.0	327.0	241.0	216.0	190.0	172.0
8	114.0	135.0	150.0	138.0	144.0	174.0	226.0	310.0	247.0	218.0	190.0	172.0
9	114.0	135.0	150.0	138.0	146.0	168.0	228.0	300.0	251.0	220.0	184.0	168.0
10	116.0	133.0	144.0	138.0	148.0	166.0	226.0	308.0	241.0	218.0	180.0	170.0
11	118.0	135.0	142.0	140.0	146.0	166.0	222.0	316.0	239.0	230.0	180.0	166.0
12	121.0	136.0	142.0	140.0	146.0	168.0	218.0	331.0	243.0	236.0	186.0	172.0
13	121.0	140.0	142.0	140.0	152.0	166.0	214.0	318.0	262.0	222.0	190.0	174.0
14	121.0	154.0	142.0	142.0	150.0	166.0	214.0	293.0	245.0	220.0	190.0	150.0
15	121.0	152.0	146.0	142.0	154.0	170.0	216.0	291.0	230.0	218.0	190.0	123.0
16	125.0	146.0	166.0	142.0	170.0	168.0	222.0	274.0	222.0	224.0	190.0	121.0
17	125.0	144.0	174.0	140.0	192.0	168.0	232.0	274.0	220.0	230.0	192.0	112.0
18	123.0	142.0	166.0	142.0	208.0	166.0	266.0	283.0	212.0	230.0	182.0	110.0
19	121.0	152.0	156.0	140.0	226.0	166.0	264.0	287.0	208.0	222.0	180.0	108.0
20	121.0	144.0	158.0	138.0	214.0	170.0	253.0	291.0	204.0	224.0	182.0	104.0
21	123.0	136.0	156.0	140.0	206.0	200.0	268.0	291.0	206.0	222.0	180.0	106.0
22	125.0	138.0	154.0	140.0	196.0	234.0	285.0	287.0	212.0	218.0	184.0	104.0
23	123.0	142.0	144.0	140.0	214.0	239.0	266.0	285.0	212.0	218.0	190.0	102.0
24	123.0	140.0	146.0	146.0	239.0	249.0	247.0	272.0	208.0	220.0	172.0	102.0
25	125.0	140.0	150.0	142.0	276.0	262.0	236.0	260.0	206.0	222.0	168.0	102.0
26	123.0	140.0	150.0	140.0	241.0	251.0	230.0	253.0	208.0	218.0	172.0	104.0
27	127.0	140.0	146.0	140.0	200.0	234.0	222.0	243.0	194.0	216.0	174.0	104.0
28	133.0	140.0	148.0	140.0	186.0	230.0	216.0	239.0	196.0	214.0	176.0	106.0
29	129.0	138.0	146.0	144.0	0.0	236.0	212.0	239.0	206.0	214.0	174.0	106.0
30	133.0	138.0	146.0	154.0	0.0	249.0	216.0	239.0	220.0	214.0	176.0	106.0
31	138.0	0.0	140.0	144.0	0.0	251.0	0.0	230.0	0.0	210.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1959

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106.0	114.0	140.0	144.0	138.0	154.0	206.0	202.0	164.0	206.0	97.0	93.0
2	106.0	114.0	142.0	140.0	133.0	162.0	214.0	208.0	150.0	198.0	100.0	95.0
3	104.0	114.0	142.0	133.0	138.0	162.0	212.0	206.0	148.0	200.0	97.0	95.0
4	104.0	116.0	144.0	131.0	142.0	154.0	208.0	198.0	156.0	194.0	93.0	91.0
5	108.0	123.0	142.0	140.0	135.0	156.0	210.0	194.0	158.0	190.0	91.0	89.0
6	110.0	127.0	146.0	144.0	138.0	152.0	214.0	194.0	152.0	188.0	89.0	89.0
7	112.0	129.0	146.0	142.0	140.0	158.0	206.0	188.0	210.0	188.0	89.0	89.0
8	112.0	133.0	150.0	138.0	140.0	156.0	198.0	184.0	222.0	192.0	91.0	89.0
9	112.0	131.0	150.0	138.0	138.0	154.0	192.0	184.0	218.0	196.0	89.0	89.0
10	106.0	135.0	152.0	142.0	140.0	156.0	188.0	186.0	212.0	198.0	87.0	89.0
11	106.0	133.0	174.0	142.0	140.0	156.0	186.0	184.0	210.0	196.0	89.0	91.0
12	102.0	129.0	206.0	142.0	140.0	156.0	186.0	174.0	206.0	194.0	89.0	89.0
13	102.0	129.0	176.0	146.0	138.0	162.0	188.0	182.0	202.0	194.0	87.0	93.0
14	104.0	144.0	158.0	142.0	133.0	160.0	190.0	245.0	210.0	198.0	85.0	93.0
15	104.0	142.0	154.0	140.0	140.0	160.0	192.0	251.0	224.0	190.0	85.0	102.0
16	106.0	140.0	154.0	146.0	144.0	160.0	190.0	258.0	228.0	206.0	85.0	97.0
17	104.0	138.0	150.0	144.0	164.0	168.0	186.0	245.0	224.0	196.0	85.0	97.0
18	102.0	138.0	148.0	144.0	166.0	202.0	184.0	241.0	216.0	176.0	89.0	95.0
19	102.0	142.0	148.0	144.0	158.0	214.0	180.0	216.0	210.0	156.0	97.0	98.0
20	108.0	146.0	146.0	142.0	156.0	198.0	176.0	220.0	210.0	135.0	100.0	97.0
21	110.0	146.0	146.0	136.0	156.0	204.0	174.0	208.0	208.0	108.0	100.0	97.0
22	110.0	146.0	148.0	140.0	156.0	222.0	172.0	218.0	204.0	100.0	95.0	95.0
23	112.0	146.0	148.0	140.0	154.0	253.0	172.0	222.0	200.0	100.0	97.0	95.0
24	112.0	150.0	148.0	142.0	152.0	247.0	178.0	220.0	196.0	108.0	95.0	97.0
25	112.0	146.0	148.0	152.0	146.0	239.0	184.0	218.0	194.0	100.0	93.0	114.0
26	112.0	144.0	142.0	150.0	150.0	234.0	210.0	222.0	206.0	98.0	95.0	131.0
27	110.0	144.0	146.0	146.0	148.0	226.0	222.0	222.0	218.0	100.0	97.0	133.0
28	110.0	138.0	146.0	150.0	150.0	214.0	202.0	200.0	208.0	100.0	97.0	127.0
29	110.0	140.0	140.0	144.0	0.0	210.0	194.0	186.0	204.0	98.0	95.0	119.0
30	110.0	140.0	142.0	138.0	0.0	206.0	194.0	180.0	208.0	98.0	93.0	116.0
31	110.0	0.0	144.0	138.0	0.0	204.0	0.0	172.0	0.0	95.0	93.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1960

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.0	119.0	123.0	125.0	125.0	125.0	258.0	184.0	222.0	200.0	85.0	81.0
2	114.0	121.0	121.0	123.0	131.0	127.0	245.0	188.0	222.0	194.0	78.0	87.0
3	116.0	121.0	123.0	121.0	127.0	129.0	255.0	194.0	218.0	194.0	80.0	85.0
4	116.0	123.0	121.0	121.0	123.0	131.0	262.0	200.0	220.0	194.0	78.0	85.0
5	110.0	118.0	118.0	121.0	125.0	135.0	276.0	202.0	216.0	192.0	78.0	81.0
6	117.0	118.0	119.0	121.0	125.0	154.0	283.0	202.0	214.0	198.0	78.0	80.0
7	118.0	121.0	119.0	125.0	127.0	168.0	262.0	206.0	214.0	186.0	76.0	80.0
8	118.0	121.0	119.0	125.0	142.0	200.0	247.0	214.0	216.0	166.0	76.0	80.0
9	121.0	121.0	119.0	125.0	154.0	192.0	247.0	216.0	220.0	160.0	76.0	81.0
10	121.0	123.0	119.0	125.0	138.0	160.0	260.0	216.0	222.0	142.0	78.0	81.0
11	118.0	121.0	121.0	129.0	131.0	150.0	247.0	226.0	218.0	116.0	78.0	78.0
12	119.0	119.0	121.0	129.0	125.0	148.0	236.0	241.0	210.0	106.0	80.0	78.0
13	119.0	119.0	121.0	127.0	127.0	156.0	218.0	249.0	204.0	100.0	78.0	78.0
14	116.0	118.0	119.0	125.0	127.0	160.0	214.0	245.0	204.0	100.0	80.0	78.0
15	118.0	119.0	119.0	127.0	129.0	150.0	204.0	232.0	204.0	102.0	83.0	80.0
16	116.0	119.0	119.0	121.0	129.0	146.0	198.0	224.0	210.0	93.0	85.0	80.0
17	116.0	119.0	119.0	116.0	129.0	144.0	192.0	212.0	212.0	95.0	87.0	81.0
18	118.0	119.0	121.0	118.0	129.0	146.0	192.0	206.0	208.0	89.0	85.0	80.0
19	118.0	123.0	121.0	119.0	131.0	156.0	200.0	194.0	210.0	95.0	85.0	80.0
20	119.0	123.0	119.0	120.0	129.0	168.0	200.0	178.0	210.0	97.0	85.0	80.0
21	119.0	125.0	121.0	121.0	133.0	186.0	204.0	168.0	206.0	93.0	85.0	81.0
22	121.0	125.0	121.0	123.0	131.0	204.0	212.0	164.0	202.0	91.0	87.0	81.0
23	121.0	125.0	121.0	123.0	127.0	228.0	220.0	160.0	198.0	93.0	89.0	81.0
24	119.0	127.0	123.0	121.0	127.0	260.0	218.0	148.0	196.0	91.0	85.0	78.0
25	119.0	125.0	133.0	121.0	127.0	291.0	216.0	180.0	192.0	87.0	83.0	78.0
26	121.0	121.0	127.0	123.0	127.0	337.0	212.0	222.0	204.0	87.0	81.0	78.0
27	119.0	121.0	119.0	123.0	127.0	388.0	206.0	212.0	206.0	85.0	80.0	80.0
28	119.0	121.0	119.0	123.0	129.0	348.0	210.0	208.0	194.0	85.0	80.0	78.0
29	119.0	121.0	119.0	121.0	125.0	270.0	202.0	194.0	188.0	85.0	78.0	78.0
30	118.0	121.0	119.0	123.0	0.0	281.0	188.0	196.0	194.0	83.0	78.0	76.0
31	121.0	0.0	123.0	123.0	0.0	291.0	0.0	220.0	0.0	89.0	80.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1961

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	93.0	119.0	118.0	119.0	123.0	142.0	119.0	166.0	91.0	87.0	87.0
2	76.0	93.0	125.0	116.0	116.0	123.0	142.0	121.0	160.0	80.0	83.0	87.0
3	76.0	95.0	125.0	112.0	119.0	121.0	144.0	127.0	154.0	76.0	81.0	85.0
4	76.0	95.0	121.0	108.0	116.0	121.0	144.0	125.0	156.0	85.0	78.0	83.0
5	76.0	91.0	118.0	106.0	114.0	123.0	142.0	118.0	158.0	98.0	78.0	83.0
6	78.0	93.0	112.0	110.0	116.0	123.0	140.0	118.0	162.0	91.0	80.0	83.0
7	78.0	97.0	106.0	112.0	118.0	121.0	138.0	108.0	160.0	91.0	81.0	83.0
8	85.0	100.0	112.0	114.0	125.0	119.0	136.0	104.0	156.0	85.0	81.0	83.0
9	87.0	98.0	114.0	116.0	136.0	123.0	138.0	100.0	156.0	81.0	81.0	87.0
10	87.0	98.0	114.0	114.0	243.0	123.0	133.0	108.0	158.0	78.0	81.0	89.0
11	87.0	104.0	114.0	114.0	230.0	125.0	129.0	114.0	162.0	83.0	80.0	93.0
12	87.0	108.0	114.0	112.0	208.0	123.0	129.0	112.0	164.0	95.0	83.0	91.0
13	87.0	114.0	112.0	114.0	170.0	133.0	133.0	112.0	162.0	93.0	85.0	89.0
14	85.0	114.0	112.0	114.0	162.0	154.0	131.0	106.0	160.0	93.0	83.0	87.0
15	83.0	110.0	112.0	114.0	142.0	182.0	127.0	110.0	156.0	95.0	83.0	87.0
16	83.0	110.0	114.0	116.0	135.0	222.0	125.0	119.0	154.0	95.0	85.0	87.0
17	85.0	110.0	116.0	118.0	131.0	194.0	121.0	121.0	156.0	93.0	87.0	81.0
18	85.0	119.0	118.0	118.0	129.0	178.0	125.0	116.0	166.0	89.0	83.0	91.0
19	85.0	121.0	118.0	116.0	125.0	162.0	138.0	119.0	148.0	93.0	81.0	102.0
20	87.0	118.0	116.0	116.0	125.0	156.0	136.0	136.0	138.0	91.0	81.0	97.0
21	89.0	114.0	116.0	114.0	127.0	144.0	131.0	123.0	136.0	93.0	81.0	98.0
22	89.0	116.0	116.0	114.0	156.0	148.0	127.0	125.0	142.0	91.0	81.0	93.0
23	89.0	119.0	116.0	114.0	133.0	154.0	125.0	131.0	144.0	91.0	81.0	91.0
24	91.0	125.0	114.0	112.0	131.0	168.0	127.0	133.0	144.0	91.0	85.0	89.0
25	89.0	123.0	116.0	114.0	131.0	164.0	125.0	142.0	144.0	91.0	85.0	87.0
26	91.0	123.0	118.0	114.0	123.0	168.0	121.0	142.0	144.0	91.0	100.0	87.0
27	89.0	123.0	116.0	110.0	123.0	164.0	118.0	150.0	148.0	91.0	83.0	85.0
28	91.0	118.0	114.0	108.0	127.0	154.0	110.0	168.0	142.0	89.0	81.0	87.0
29	95.0	116.0	108.0	112.0	0.0	148.0	112.0	174.0	127.0	89.0	81.0	89.0
30	93.0	118.0	112.0	112.0	0.0	146.0	114.0	172.0	108.0	87.0	83.0	89.0
31	91.0	0.0	116.0	114.0	0.0	144.0	0.0	174.0	0.0	87.0	85.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1962

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90.0	111.0	127.0	120.0	108.0	129.0	290.0	236.0	213.0	198.0	188.0	188.0
2	90.0	122.0	127.0	120.0	110.0	129.0	277.0	226.0	211.0	194.0	182.0	182.0
3	90.0	120.0	139.0	120.0	108.0	126.0	255.0	217.0	211.0	186.0	176.0	180.0
4	90.0	120.0	129.0	122.0	108.0	124.0	242.0	219.0	226.0	174.0	176.0	182.0
5	85.0	117.0	129.0	118.0	108.0	124.0	234.0	228.0	217.0	172.0	182.0	180.0
6	80.0	113.0	126.0	120.0	108.0	126.0	228.0	232.0	209.0	174.0	184.0	178.0
7	82.0	113.0	122.0	135.0	110.0	129.0	232.0	236.0	213.0	178.0	186.0	176.0
8	86.0	117.0	122.0	376.0	113.0	129.0	228.0	232.0	200.0	176.0	194.0	172.0
9	86.0	118.0	118.0	352.0	118.0	131.0	215.0	232.0	192.0	164.0	186.0	168.0
10	86.0	118.0	117.0	188.0	647.0	124.0	207.0	228.0	188.0	174.0	192.0	166.0
11	86.0	120.0	106.0	156.0	1810.0	124.0	203.0	219.0	205.0	180.0	196.0	158.0
12	86.0	118.0	111.0	137.0	3250.0	120.0	203.0	213.0	209.0	174.0	194.0	158.0
13	88.0	115.0	118.0	126.0	1860.0	118.0	209.0	211.0	205.0	184.0	192.0	156.0
14	86.0	115.0	118.0	120.0	1330.0	120.0	222.0	205.0	200.0	200.0	190.0	148.0
15	86.0	117.0	117.0	120.0	740.0	120.0	242.0	203.0	200.0	203.0	198.0	144.0
16	90.0	117.0	110.0	118.0	568.0	120.0	264.0	196.0	196.0	198.0	207.0	140.0
17	85.0	115.0	122.0	117.0	462.0	131.0	273.0	190.0	194.0	194.0	198.0	129.0
18	85.0	113.0	117.0	117.0	326.0	142.0	286.0	180.0	192.0	172.0	203.0	120.0
19	85.0	113.0	126.0	118.0	230.0	144.0	297.0	164.0	196.0	186.0	200.0	120.0
20	85.0	117.0	129.0	122.0	207.0	162.0	330.0	156.0	200.0	188.0	196.0	117.0
21	88.0	118.0	133.0	108.0	178.0	230.0	301.0	160.0	215.0	194.0	196.0	118.0
22	91.0	117.0	126.0	126.0	150.0	228.0	275.0	160.0	215.0	190.0	194.0	117.0
23	88.0	120.0	126.0	122.0	144.0	176.0	275.0	162.0	213.0	152.0	192.0	111.0
24	93.0	120.0	126.0	113.0	139.0	184.0	286.0	182.0	196.0	174.0	192.0	104.0
25	91.0	118.0	126.0	113.0	139.0	174.0	297.0	180.0	190.0	182.0	190.0	101.0
26	91.0	126.0	126.0	113.0	133.0	245.0	295.0	184.0	186.0	178.0	192.0	98.0
27	96.0	127.0	126.0	110.0	126.0	540.0	279.0	190.0	178.0	160.0	190.0	96.0
28	110.0	126.0	124.0	110.0	126.0	828.0	290.0	203.0	176.0	127.0	190.0	94.0
29	101.0	124.0	124.0	108.0	0.0	698.0	271.0	213.0	180.0	172.0	192.0	96.0
30	108.0	126.0	124.0	108.0	0.0	436.0	245.0	213.0	188.0	190.0	190.0	91.0
31	110.0	0.0	122.0	108.0	0.0	319.0	0.0	215.0	0.0	194.0	188.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1963

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88.0	104.0	133.0	117.0	2590.0	133.0	144.0	205.0	200.0	160.0	131.0	172.0
2	91.0	104.0	137.0	117.0	1590.0	131.0	142.0	203.0	198.0	156.0	170.0	168.0
3	91.0	104.0	139.0	118.0	665.0	127.0	139.0	203.0	205.0	152.0	178.0	160.0
4	91.0	104.0	122.0	118.0	346.0	127.0	139.0	203.0	207.0	144.0	182.0	156.0
5	93.0	108.0	122.0	117.0	230.0	126.0	135.0	203.0	219.0	150.0	186.0	154.0
6	96.0	108.0	120.0	117.0	186.0	129.0	158.0	211.0	228.0	190.0	188.0	154.0
7	94.0	106.0	120.0	118.0	162.0	127.0	188.0	222.0	209.0	196.0	188.0	154.0
8	93.0	106.0	118.0	118.0	152.0	127.0	215.0	224.0	207.0	188.0	190.0	146.0
9	93.0	106.0	120.0	120.0	146.0	129.0	192.0	271.0	205.0	182.0	190.0	140.0
10	94.0	108.0	118.0	120.0	140.0	131.0	182.0	262.0	232.0	184.0	188.0	137.0
11	96.0	108.0	118.0	110.0	135.0	133.0	172.0	249.0	232.0	182.0	190.0	137.0
12	96.0	108.0	117.0	129.0	131.0	131.0	164.0	249.0	224.0	182.0	188.0	137.0
13	93.0	110.0	115.0	122.0	131.0	127.0	158.0	234.0	213.0	182.0	194.0	139.0
14	99.0	110.0	117.0	111.0	133.0	129.0	162.0	226.0	209.0	182.0	190.0	140.0
15	101.0	113.0	122.0	115.0	131.0	133.0	178.0	226.0	209.0	184.0	180.0	135.0
16	98.0	117.0	120.0	117.0	129.0	127.0	170.0	226.0	228.0	184.0	176.0	135.0
17	96.0	117.0	120.0	117.0	133.0	129.0	164.0	224.0	236.0	180.0	176.0	127.0
18	98.0	118.0	120.0	117.0	133.0	131.0	168.0	224.0	234.0	184.0	178.0	120.0
19	99.0	117.0	122.0	108.0	133.0	131.0	168.0	224.0	219.0	188.0	176.0	118.0
20	99.0	122.0	122.0	111.0	186.0	137.0	170.0	222.0	209.0	184.0	176.0	117.0
21	99.0	127.0	120.0	111.0	160.0	144.0	174.0	219.0	211.0	184.0	174.0	124.0
22	99.0	129.0	122.0	110.0	144.0	150.0	172.0	219.0	207.0	186.0	170.0	118.0
23	101.0	131.0	118.0	108.0	139.0	154.0	172.0	222.0	203.0	186.0	168.0	115.0
24	99.0	127.0	117.0	108.0	137.0	144.0	172.0	224.0	200.0	182.0	170.0	110.0
25	99.0	127.0	110.0	108.0	135.0	135.0	172.0	232.0	200.0	184.0	168.0	108.0
26	103.0	127.0	110.0	106.0	139.0	137.0	174.0	230.0	190.0	180.0	162.0	106.0
27	103.0	129.0	113.0	106.0	137.0	137.0	203.0	224.0	182.0	178.0	168.0	104.0
28	101.0	127.0	113.0	104.0	131.0	172.0	200.0	217.0	176.0	180.0	166.0	104.0
29	99.0	129.0	113.0	106.0	0.0	158.0	198.0	203.0	170.0	176.0	164.0	104.0
30	99.0	131.0	115.0	108.0	0.0	146.0	196.0	198.0	168.0	174.0	164.0	104.0
31	104.0	0.0	115.0	442.0	0.0	144.0	0.0	196.0	0.0	170.0	168.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1964

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103.0	118.0	129.0	127.0	124.0	120.0	139.0	260.0	260.0	232.0	204.0	168.0
2	104.0	118.0	126.0	131.0	122.0	120.0	142.0	262.0	260.0	222.0	202.0	162.0
3	106.0	122.0	124.0	129.0	118.0	117.0	140.0	243.0	258.0	218.0	200.0	158.0
4	108.0	126.0	124.0	127.0	120.0	117.0	148.0	234.0	253.0	208.0	182.0	152.0
5	108.0	129.0	124.0	127.0	122.0	117.0	154.0	245.0	260.0	206.0	154.0	148.0
6	103.0	140.0	127.0	131.0	122.0	117.0	152.0	241.0	255.0	200.0	125.0	146.0
7	98.0	140.0	127.0	129.0	122.0	113.0	146.0	232.0	306.0	198.0	168.0	146.0
8	98.0	137.0	129.0	122.0	120.0	113.0	168.0	232.0	320.0	226.0	192.0	144.0
9	98.0	142.0	133.0	126.0	120.0	113.0	253.0	236.0	300.0	224.0	188.0	144.0
10	99.0	144.0	131.0	129.0	122.0	113.0	384.0	247.0	278.0	216.0	190.0	142.0
11	96.0	139.0	127.0	127.0	122.0	113.0	373.0	262.0	268.0	210.0	194.0	146.0
12	99.0	135.0	127.0	124.0	120.0	115.0	337.0	264.0	260.0	222.0	192.0	140.0
13	104.0	135.0	131.0	120.0	120.0	113.0	276.0	274.0	258.0	224.0	196.0	137.0
14	101.0	135.0	131.0	122.0	118.0	111.0	276.0	295.0	251.0	222.0	194.0	142.0
15	99.0	139.0	133.0	124.0	122.0	113.0	310.0	316.0	251.0	212.0	194.0	142.0
16	98.0	142.0	133.0	124.0	124.0	111.0	320.0	323.0	260.0	206.0	194.0	140.0
17	98.0	140.0	135.0	127.0	124.0	111.0	285.0	329.0	325.0	210.0	192.0	126.0
18	98.0	137.0	133.0	129.0	120.0	113.0	255.0	329.0	405.0	210.0	192.0	111.0
19	98.0	140.0	133.0	129.0	122.0	111.0	243.0	331.0	438.0	212.0	190.0	108.0
20	99.0	140.0	133.0	129.0	118.0	110.0	239.0	335.0	394.0	212.0	192.0	104.0
21	101.0	144.0	135.0	127.0	120.0	115.0	236.0	352.0	358.0	212.0	198.0	108.0
22	104.0	139.0	129.0	127.0	120.0	117.0	228.0	352.0	350.0	206.0	194.0	106.0
23	108.0	139.0	127.0	126.0	118.0	117.0	228.0	337.0	331.0	208.0	192.0	108.0
24	113.0	142.0	127.0	124.0	122.0	117.0	224.0	314.0	308.0	214.0	188.0	104.0
25	110.0	139.0	127.0	126.0	120.0	117.0	220.0	300.0	289.0	212.0	184.0	104.0
26	110.0	139.0	127.0	126.0	120.0	120.0	222.0	293.0	278.0	210.0	184.0	106.0
27	111.0	139.0	127.0	122.0	120.0	117.0	216.0	300.0	266.0	208.0	184.0	106.0
28	113.0	135.0	127.0	122.0	118.0	117.0	214.0	302.0	260.0	226.0	184.0	101.0
29	113.0	131.0	126.0	122.0	120.0	120.0	222.0	291.0	255.0	222.0	184.0	101.0
30	120.0	131.0	126.0	124.0	0.0	122.0	236.0	278.0	243.0	212.0	184.0	101.0
31	122.0	0.0	127.0	122.0	0.0	129.0	0.0	266.0	0.0	208.0	176.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1967

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94.0	92.0	138.0	121.0	128.0	125.0	205.0	146.0	249.0	211.0	170.0	185.0
2	96.0	92.0	148.0	120.0	125.0	126.0	194.0	146.0	251.0	200.0	168.0	186.0
3	99.0	94.0	163.0	117.0	124.0	125.0	188.0	148.0	237.0	190.0	165.0	177.0
4	97.0	95.0	152.0	120.0	124.0	123.0	194.0	152.0	239.0	188.0	196.0	172.0
5	97.0	95.0	156.0	125.0	124.0	122.0	207.0	155.0	246.0	172.0	211.0	173.0
6	96.0	98.0	149.0	120.0	121.0	123.0	204.0	155.0	250.0	163.0	198.0	171.0
7	94.0	104.0	148.0	116.0	122.0	122.0	195.0	165.0	259.0	160.0	194.0	164.0
8	92.0	116.0	142.0	117.0	115.0	123.0	193.0	200.0	275.0	176.0	185.0	165.0
9	91.0	104.0	128.0	117.0	120.0	128.0	187.0	232.0	276.0	175.0	175.0	164.0
10	91.0	109.0	132.0	114.0	120.0	142.0	183.0	276.0	273.0	156.0	173.0	162.0
11	94.0	114.0	133.0	113.0	118.0	174.0	181.0	262.0	285.0	147.0	172.0	164.0
12	98.0	117.0	132.0	116.0	119.0	204.0	180.0	230.0	283.0	138.0	180.0	165.0
13	101.0	117.0	131.0	119.0	122.0	177.0	174.0	214.0	287.0	130.0	182.0	164.0
14	99.0	115.0	136.0	126.0	135.0	161.0	175.0	204.0	306.0	124.0	181.0	126.0
15	92.0	115.0	131.0	127.0	123.0	152.0	176.0	201.0	339.0	118.0	182.0	118.0
16	90.0	118.0	124.0	127.0	126.0	153.0	176.0	213.0	328.0	110.0	183.0	109.0
17	85.0	117.0	125.0	123.0	123.0	165.0	167.0	239.0	308.0	140.0	183.0	105.0
18	85.0	116.0	121.0	123.0	131.0	175.0	165.0	277.0	292.0	156.0	180.0	110.0
19	84.0	115.0	122.0	121.0	117.0	185.0	171.0	312.0	270.0	150.0	180.0	109.0
20	87.0	116.0	122.0	122.0	111.0	183.0	168.0	328.0	288.0	153.0	182.0	109.0
21	87.0	130.0	123.0	131.0	113.0	189.0	163.0	320.0	315.0	146.0	183.0	107.0
22	89.0	129.0	120.0	136.0	114.0	201.0	161.0	322.0	315.0	144.0	183.0	104.0
23	94.0	123.0	116.0	131.0	117.0	220.0	163.0	340.0	314.0	170.0	186.0	104.0
24	92.0	119.0	116.0	123.0	116.0	225.0	163.0	348.0	280.0	180.0	185.0	104.0
25	91.0	123.0	120.0	130.0	124.0	224.0	158.0	344.0	254.0	182.0	177.0	104.0
26	90.0	130.0	120.0	124.0	126.0	223.0	157.0	314.0	239.0	179.0	165.0	103.0
27	93.0	125.0	118.0	125.0	122.0	213.0	156.0	287.0	238.0	168.0	166.0	101.0
28	94.0	130.0	116.0	122.0	122.0	217.0	159.0	281.0	261.0	165.0	174.0	101.0
29	94.0	137.0	117.0	124.0	0.0	238.0	159.0	301.0	241.0	164.0	175.0	102.0
30	94.0	135.0	118.0	129.0	0.0	218.0	155.0	297.0	223.0	162.0	178.0	106.0
31	93.0	0.0	118.0	132.0	0.0	211.0	0.0	273.0	0.0	167.0	178.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1968

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.0	134.0	126.0	138.0	138.0	219.0	183.0	173.0	228.0	203.0	190.0	128.0
2	122.0	135.0	124.0	137.0	137.0	209.0	186.0	182.0	221.0	196.0	181.0	128.0
3	128.0	131.0	125.0	133.0	141.0	206.0	177.0	186.0	229.0	202.0	178.0	131.0
4	122.0	132.0	130.0	128.0	135.0	205.0	174.0	195.0	244.0	211.0	175.0	130.0
5	131.0	131.0	130.0	137.0	135.0	211.0	181.0	212.0	258.0	206.0	171.0	130.0
6	139.0	129.0	126.0	131.0	133.0	222.0	180.0	216.0	296.0	204.0	172.0	128.0
7	110.0	132.0	132.0	127.0	133.0	241.0	176.0	201.0	303.0	208.0	133.0	118.0
8	108.0	130.0	133.0	133.0	130.0	234.0	173.0	186.0	317.0	223.0	121.0	118.0
9	105.0	133.0	120.0	137.0	129.0	220.0	168.0	183.0	330.0	219.0	173.0	116.0
10	119.0	137.0	131.0	137.0	129.0	207.0	166.0	177.0	347.0	220.0	172.0	114.0
11	128.0	132.0	131.0	136.0	129.0	197.0	170.0	182.0	342.0	226.0	170.0	110.0
12	131.0	127.0	120.0	127.0	130.0	196.0	173.0	195.0	301.0	225.0	167.0	107.0
13	133.0	125.0	116.0	130.0	129.0	197.0	169.0	203.0	291.0	231.0	173.0	105.0
14	132.0	127.0	119.0	136.0	125.0	198.0	165.0	225.0	271.0	218.0	178.0	108.0
15	130.0	127.0	125.0	134.0	124.0	199.0	167.0	220.0	248.0	195.0	177.0	110.0
16	129.0	128.0	126.0	134.0	128.0	199.0	169.0	205.0	225.0	192.0	164.0	117.0
17	132.0	127.0	130.0	137.0	124.0	205.0	163.0	188.0	210.0	195.0	165.0	114.0
18	131.0	126.0	129.0	131.0	128.0	198.0	161.0	179.0	193.0	194.0	192.0	118.0
19	131.0	130.0	129.0	133.0	150.0	188.0	160.0	169.0	184.0	175.0	178.0	120.0
20	130.0	131.0	128.0	132.0	192.0	181.0	155.0	169.0	184.0	182.0	173.0	121.0
21	133.0	131.0	130.0	132.0	207.0	180.0	155.0	181.0	181.0	183.0	185.0	125.0
22	136.0	124.0	128.0	133.0	220.0	178.0	153.0	204.0	216.0	180.0	212.0	127.0
23	137.0	134.0	127.0	131.0	225.0	178.0	151.0	208.0	228.0	177.0	181.0	128.0
24	136.0	134.0	128.0	131.0	235.0	181.0	150.0	200.0	231.0	177.0	161.0	127.0
25	134.0	132.0	130.0	133.0	237.0	183.0	151.0	211.0	230.0	182.0	148.0	125.0
26	133.0	130.0	136.0	136.0	221.0	188.0	151.0	225.0	240.0	182.0	141.0	124.0
27	132.0	118.0	136.0	142.0	209.0	180.0	151.0	227.0	231.0	180.0	137.0	124.0
28	145.0	127.0	136.0	141.0	213.0	182.0	145.0	211.0	228.0	175.0	133.0	126.0
29	143.0	130.0	132.0	134.0	225.0	184.0	149.0	221.0	226.0	171.0	133.0	127.0
30	135.0	137.0	133.0	140.0	0.0	186.0	158.0	240.0	224.0	172.0	132.0	126.0
31	131.0	0.0	129.0	140.0	0.0	181.0	0.0	241.0	0.0	172.0	130.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1969

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126.0	134.0	143.0	128.0	187.0	158.0	670.0	537.0	272.0	241.0	213.0	199.0
2	126.0	133.0	142.0	129.0	180.0	157.0	711.0	537.0	261.0	228.0	214.0	194.0
3	120.0	136.0	140.0	122.0	175.0	150.0	778.0	546.0	283.0	217.0	222.0	193.0
4	121.0	143.0	142.0	122.0	172.0	152.0	609.0	554.0	277.0	200.0	216.0	189.0
5	120.0	137.0	141.0	125.0	173.0	151.0	543.0	560.0	274.0	185.0	217.0	185.0
6	120.0	134.0	141.0	136.0	173.0	156.0	539.0	576.0	277.0	184.0	213.0	180.0
7	123.0	132.0	140.0	140.0	169.0	153.0	478.0	592.0	275.0	183.0	206.0	174.0
8	123.0	134.0	146.0	136.0	166.0	149.0	380.0	598.0	269.0	180.0	201.0	175.0
9	123.0	151.0	142.0	133.0	165.0	146.0	337.0	603.0	268.0	172.0	200.0	174.0
10	122.0	146.0	142.0	130.0	163.0	145.0	329.0	602.0	277.0	163.0	200.0	178.0
11	124.0	143.0	145.0	132.0	161.0	147.0	331.0	590.0	284.0	207.0	204.0	176.0
12	125.0	146.0	141.0	137.0	163.0	148.0	313.0	590.0	253.0	205.0	220.0	169.0
13	125.0	143.0	138.0	137.0	165.0	147.0	326.0	591.0	266.0	200.0	215.0	169.0
14	139.0	136.0	139.0	176.0	155.0	145.0	342.0	608.0	248.0	199.0	206.0	168.0
15	143.0	142.0	141.0	177.0	157.0	147.0	350.0	599.0	236.0	198.0	201.0	162.0
16	144.0	138.0	142.0	169.0	155.0	146.0	346.0	578.0	243.0	177.0	201.0	154.0
17	141.0	139.0	140.0	161.0	151.0	151.0	362.0	539.0	238.0	207.0	201.0	154.0
18	142.0	139.0	139.0	152.0	148.0	173.0	400.0	511.0	232.0	208.0	202.0	156.0
19	140.0	145.0	141.0	185.0	151.0	166.0	412.0	504.0	229.0	203.0	202.0	162.0
20	140.0	145.0	137.0	465.0	154.0	160.0	427.0	484.0	242.0	207.0	205.0	148.0
21	139.0	145.0	129.0	750.0	153.0	160.0	435.0	455.0	263.0	224.0	188.0	139.0
22	137.0	145.0	130.0	887.0	153.0	163.0	489.0	422.0	259.0	208.0	181.0	134.0
23	137.0	148.0	134.0	482.0	154.0	161.0	598.0	404.0	240.0	202.0	179.0	133.0
24	132.0	149.0	139.0	316.0	158.0	160.0	647.0	392.0	268.0	202.0	179.0	129.0
25	130.0	154.0	138.0	255.0	175.0	161.0	628.0	388.0	288.0	211.0	181.0	109.0
26	129.0	140.0	141.0	241.0	160.0	176.0	606.0	384.0	289.0	211.0	183.0	108.0
27	126.0	147.0	137.0	222.0	154.0	198.0	556.0	362.0	278.0	211.0	186.0	107.0
28	128.0	144.0	138.0	210.0	153.0	223.0	533.0	370.0	270.0	216.0	185.0	106.0
29	133.0	136.0	128.0	199.0	0.0	251.0	538.0	343.0	266.0	218.0	187.0	108.0
30	136.0	142.0	108.0	194.0	0.0	392.0	542.0	330.0	257.0	222.0	185.0	113.0
31	137.0	0.0	120.0	189.0	0.0	580.0	0.0	296.0	0.0	213.0	184.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1970

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104.0	136.0	139.0	138.0	171.0	187.0	157.0	171.0	487.0	220.0	200.0	179.0
2	109.0	140.0	138.0	136.0	166.0	218.0	160.0	169.0	470.0	199.0	183.0	180.0
3	114.0	139.0	139.0	139.0	163.0	203.0	159.0	169.0	425.0	188.0	174.0	179.0
4	114.0	139.0	141.0	141.0	160.0	190.0	157.0	176.0	420.0	206.0	168.0	175.0
5	113.0	139.0	139.0	135.0	159.0	179.0	159.0	198.0	464.0	207.0	170.0	202.0
6	111.0	138.0	134.0	127.0	161.0	172.0	164.0	211.0	469.0	206.0	173.0	199.0
7	110.0	144.0	139.0	126.0	159.0	174.0	166.0	242.0	457.0	203.0	172.0	204.0
8	109.0	144.0	137.0	130.0	159.0	180.0	161.0	224.0	446.0	205.0	170.0	196.0
9	111.0	142.0	140.0	136.0	157.0	179.0	158.0	225.0	468.0	209.0	169.0	191.0
10	116.0	145.0	138.0	144.0	158.0	172.0	162.0	248.0	473.0	217.0	170.0	182.0
11	115.0	141.0	138.0	137.0	157.0	169.0	171.0	233.0	425.0	229.0	175.0	151.0
12	115.0	139.0	138.0	137.0	165.0	170.0	165.0	226.0	390.0	213.0	184.0	140.0
13	120.0	137.0	139.0	140.0	175.0	169.0	162.0	222.0	399.0	203.0	182.0	140.0
14	126.0	136.0	139.0	145.0	169.0	171.0	164.0	215.0	409.0	206.0	180.0	139.0
15	136.0	135.0	141.0	152.0	168.0	184.0	160.0	209.0	378.0	202.0	179.0	141.0
16	138.0	140.0	141.0	155.0	170.0	182.0	157.0	221.0	365.0	201.0	182.0	141.0
17	145.0	137.0	141.0	197.0	178.0	186.0	158.0	247.0	352.0	202.0	182.0	140.0
18	147.0	132.0	141.0	211.0	167.0	163.0	155.0	282.0	311.0	197.0	187.0	128.0
19	143.0	131.0	142.0	217.0	164.0	167.0	159.0	338.0	297.0	193.0	187.0	126.0
20	138.0	134.0	155.0	237.0	160.0	168.0	163.0	330.0	231.0	189.0	190.0	131.0
21	137.0	142.0	160.0	229.0	159.0	174.0	160.0	430.0	212.0	155.0	190.0	131.0
22	138.0	143.0	173.0	306.0	159.0	174.0	163.0	478.0	204.0	205.0	186.0	134.0
23	138.0	140.0	162.0	331.0	160.0	170.0	163.0	524.0	187.0	200.0	191.0	133.0
24	135.0	142.0	154.0	297.0	159.0	171.0	161.0	521.0	180.0	202.0	192.0	132.0
25	134.0	140.0	148.0	249.0	160.0	168.0	160.0	488.0	169.0	198.0	210.0	127.0
26	134.0	141.0	151.0	223.0	162.0	172.0	167.0	487.0	162.0	195.0	223.0	129.0
27	134.0	138.0	148.0	266.0	164.0	165.0	176.0	505.0	162.0	203.0	209.0	127.0
28	143.0	138.0	136.0	216.0	172.0	168.0	175.0	538.0	220.0	206.0	201.0	125.0
29	143.0	138.0	133.0	196.0	0.0	168.0	175.0	545.0	225.0	215.0	184.0	125.0
30	138.0	139.0	137.0	181.0	0.0	168.0	174.0	529.0	222.0	215.0	179.0	124.0
31	136.0	0.0	139.0	168.0	0.0	163.0	0.0	508.0	0.0	207.0	177.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1973

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198.0	205.0	275.0	201.0	200.0	224.0	229.0	370.0	296.0	270.0	180.0	192.0
2	198.0	213.0	280.0	207.0	196.0	232.0	222.0	355.0	299.0	234.0	173.0	208.0
3	196.0	215.0	280.0	212.0	196.0	219.0	225.0	371.0	293.0	151.0	176.0	193.0
4	196.0	217.0	265.0	199.0	202.0	216.0	234.0	411.0	288.0	174.0	178.0	184.0
5	203.0	219.0	250.0	202.0	202.0	219.0	249.0	449.0	279.0	192.0	180.0	183.0
6	199.0	212.0	250.0	208.0	204.0	217.0	304.0	456.0	275.0	192.0	176.0	181.0
7	199.0	209.0	250.0	202.0	208.0	216.0	327.0	469.0	267.0	190.0	174.0	181.0
8	200.0	209.0	245.0	201.0	200.0	215.0	300.0	495.0	260.0	202.0	171.0	211.0
9	199.0	208.0	240.0	202.0	198.0	204.0	280.0	501.0	248.0	215.0	174.0	224.0
10	234.0	205.0	220.0	201.0	212.0	202.0	307.0	492.0	243.0	217.0	175.0	198.0
11	220.0	205.0	210.0	199.0	208.0	209.0	372.0	489.0	240.0	214.0	175.0	188.0
12	211.0	205.0	208.0	206.0	216.0	201.0	428.0	484.0	234.0	207.0	174.0	162.0
13	209.0	202.0	206.0	222.0	211.0	200.0	501.0	482.0	225.0	209.0	174.0	154.0
14	205.0	202.0	203.0	243.0	210.0	194.0	545.0	484.0	269.0	217.0	175.0	151.0
15	207.0	202.0	196.0	236.0	201.0	190.0	515.0	486.0	312.0	211.0	175.0	151.0
16	209.0	204.0	198.0	221.0	201.0	193.0	443.0	486.0	288.0	208.0	178.0	150.0
17	207.0	205.0	200.0	246.0	208.0	201.0	415.0	492.0	267.0	209.0	178.0	154.0
18	205.0	205.0	202.0	227.0	208.0	202.0	395.0	498.0	255.0	202.0	177.0	151.0
19	205.0	215.0	207.0	226.0	202.0	197.0	360.0	510.0	248.0	213.0	175.0	145.0
20	218.0	240.0	214.0	206.0	197.0	201.0	328.0	526.0	241.0	255.0	176.0	150.0
21	226.0	270.0	218.0	213.0	202.0	206.0	306.0	526.0	221.0	247.0	182.0	149.0
22	222.0	270.0	240.0	203.0	201.0	205.0	297.0	500.0	213.0	234.0	198.0	150.0
23	219.0	265.0	248.0	209.0	203.0	205.0	303.0	471.0	210.0	236.0	210.0	161.0
24	222.0	260.0	239.0	207.0	204.0	206.0	319.0	448.0	210.0	234.0	200.0	167.0
25	220.0	280.0	221.0	210.0	207.0	212.0	326.0	465.0	208.0	223.0	187.0	171.0
26	217.0	300.0	221.0	211.0	207.0	218.0	323.0	466.0	226.0	211.0	183.0	168.0
27	214.0	300.0	219.0	205.0	210.0	228.0	334.0	438.0	229.0	183.0	180.0	165.0
28	215.0	285.0	221.0	198.0	213.0	227.0	372.0	416.0	242.0	184.0	169.0	162.0
29	214.0	275.0	212.0	203.0	0.0	218.0	401.0	385.0	243.0	187.0	168.0	160.0
30	198.0	270.0	200.0	203.0	0.0	220.0	384.0	361.0	250.0	185.0	180.0	159.0
31	199.0	0.0	213.0	202.0	0.0	228.0	0.0	295.0	0.0	192.0	182.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1974

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156.0	155.0	185.0	163.0	194.0	184.0	424.0	560.0	494.0	212.0	208.0	207.0
2	153.0	155.0	190.0	160.0	181.0	236.0	409.0	587.0	476.0	216.0	213.0	209.0
3	149.0	160.0	190.0	160.0	180.0	236.0	388.0	600.0	463.0	212.0	219.0	212.0
4	150.0	165.0	180.0	168.0	180.0	208.0	371.0	609.0	448.0	211.0	230.0	207.0
5	150.0	175.0	172.0	177.0	186.0	194.0	356.0	618.0	401.0	235.0	229.0	201.0
6	153.0	180.0	173.0	176.0	178.0	205.0	353.0	636.0	366.0	218.0	228.0	200.0
7	152.0	185.0	176.0	175.0	178.0	211.0	343.0	653.0	336.0	221.0	230.0	198.0
8	165.0	195.0	177.0	173.0	174.0	272.0	337.0	680.0	316.0	215.0	236.0	195.0
9	169.0	190.0	170.0	174.0	178.0	287.0	344.0	720.0	297.0	213.0	231.0	192.0
10	163.0	185.0	172.0	171.0	173.0	332.0	370.0	744.0	280.0	226.0	219.0	191.0
11	159.0	185.0	177.0	172.0	173.0	333.0	393.0	714.0	272.0	239.0	214.0	191.0
12	162.0	195.0	178.0	171.0	176.0	310.0	392.0	674.0	278.0	243.0	205.0	190.0
13	161.0	210.0	178.0	173.0	177.0	377.0	384.0	633.0	278.0	246.0	201.0	186.0
14	157.0	200.0	179.0	172.0	171.0	354.0	370.0	598.0	277.0	226.0	202.0	185.0
15	156.0	195.0	177.0	177.0	172.0	323.0	371.0	563.0	272.0	220.0	202.0	182.0
16	157.0	190.0	177.0	187.0	173.0	374.0	383.0	533.0	269.0	228.0	202.0	172.0
17	160.0	195.0	179.0	197.0	176.0	454.0	402.0	507.0	264.0	224.0	202.0	173.0
18	158.0	205.0	173.0	196.0	170.0	450.0	428.0	486.0	256.0	219.0	200.0	170.0
19	156.0	220.0	168.0	204.0	175.0	454.0	458.0	477.0	246.0	210.0	207.0	169.0
20	156.0	205.0	170.0	196.0	171.0	399.0	463.0	489.0	234.0	211.0	209.0	159.0
21	160.0	190.0	178.0	188.0	161.0	363.0	450.0	525.0	226.0	219.0	215.0	153.0
22	163.0	185.0	183.0	182.0	169.0	350.0	449.0	507.0	222.0	219.0	216.0	156.0
23	165.0	185.0	182.0	185.0	159.0	330.0	482.0	479.0	208.0	216.0	216.0	155.0
24	175.0	185.0	178.0	183.0	156.0	320.0	521.0	459.0	203.0	219.0	216.0	154.0
25	172.0	180.0	177.0	186.0	157.0	328.0	569.0	452.0	218.0	212.0	215.0	153.0
26	170.0	175.0	168.0	188.0	160.0	367.0	625.0	467.0	215.0	197.0	222.0	154.0
27	169.0	170.0	177.0	186.0	160.0	429.0	611.0	496.0	218.0	202.0	214.0	156.0
28	169.0	170.0	183.0	186.0	171.0	487.0	579.0	521.0	217.0	203.0	208.0	156.0
29	165.0	170.0	182.0	185.0	0.0	495.0	548.0	536.0	214.0	202.0	207.0	142.0
30	160.0	175.0	178.0	183.0	0.0	474.0	542.0	538.0	213.0	203.0	213.0	138.0
31	160.0	0.0	166.0	190.0	0.0	465.0	0.0	517.0	0.0	199.0	211.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1975

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137.0	196.0	175.0	166.0	170.0	185.0	200.0	248.0	624.0	314.0	283.0	190.0
2	131.0	190.0	174.0	169.0	170.0	194.0	198.0	247.0	653.0	291.0	248.0	189.0
3	130.0	185.0	176.0	172.0	180.0	217.0	198.0	254.0	684.0	275.0	242.0	190.0
4	132.0	184.0	179.0	172.0	178.0	209.0	204.0	272.0	717.0	267.0	232.0	189.0
5	133.0	187.0	182.0	175.0	176.0	205.0	208.0	275.0	721.0	261.0	220.0	186.0
6	124.0	182.0	179.0	171.0	170.0	224.0	225.0	275.0	696.0	258.0	209.0	189.0
7	125.0	181.0	183.0	166.0	176.0	238.0	245.0	289.0	710.0	248.0	201.0	189.0
8	130.0	180.0	175.0	173.0	171.0	232.0	244.0	299.0	700.0	239.0	198.0	189.0
9	136.0	176.0	170.0	179.0	176.0	228.0	227.0	310.0	662.0	234.0	203.0	190.0
10	138.0	176.0	168.0	170.0	182.0	227.0	221.0	314.0	611.0	229.0	203.0	197.0
11	143.0	178.0	171.0	160.0	173.0	232.0	223.0	343.0	560.0	240.0	202.0	203.0
12	146.0	181.0	175.0	155.0	175.0	228.0	240.0	378.0	527.0	236.0	204.0	200.0
13	145.0	179.0	184.0	160.0	195.0	226.0	260.0	405.0	515.0	230.0	201.0	192.0
14	146.0	179.0	178.0	165.0	191.0	224.0	281.0	464.0	528.0	224.0	201.0	194.0
15	148.0	178.0	177.0	168.0	181.0	225.0	288.0	513.0	522.0	218.0	209.0	194.0
16	145.0	175.0	175.0	168.0	176.0	234.0	307.0	568.0	513.0	216.0	187.0	201.0
17	146.0	173.0	178.0	168.0	173.0	223.0	316.0	609.0	505.0	213.0	182.0	201.0
18	146.0	184.0	172.0	168.0	175.0	223.0	312.0	650.0	510.0	232.0	204.0	205.0
19	149.0	173.0	175.0	168.0	175.0	226.0	289.0	692.0	494.0	219.0	204.0	205.0
20	151.0	170.0	183.0	170.0	179.0	276.0	281.0	688.0	467.0	219.0	202.0	208.0
21	163.0	176.0	181.0	170.0	166.0	296.0	273.0	601.0	459.0	228.0	203.0	207.0
22	159.0	184.0	167.0	170.0	160.0	286.0	268.0	539.0	451.0	199.0	202.0	207.0
23	162.0	178.0	158.0	170.0	164.0	256.0	272.0	537.0	448.0	187.0	203.0	207.0
24	163.0	175.0	155.0	175.0	163.0	246.0	256.0	528.0	435.0	185.0	202.0	207.0
25	160.0	178.0	165.0	230.0	163.0	259.0	270.0	531.0	422.0	187.0	192.0	207.0
26	163.0	181.0	167.0	225.0	162.0	250.0	268.0	531.0	407.0	190.0	187.0	209.0
27	164.0	182.0	159.0	220.0	165.0	206.0	253.0	533.0	390.0	190.0	189.0	208.0
28	164.0	186.0	162.0	200.0	176.0	208.0	240.0	543.0	362.0	188.0	190.0	212.0
29	165.0	174.0	160.0	190.0	0.0	209.0	237.0	555.0	345.0	206.0	189.0	211.0
30	182.0	174.0	165.0	180.0	0.0	211.0	243.0	573.0	334.0	281.0	190.0	211.0
31	191.0	0.0	166.0	170.0	0.0	208.0	0.0	598.0	0.0	317.0	192.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1976

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210.0	207.0	178.0	156.0	149.0	210.0	242.0	451.0	483.0	271.0	229.0	190.0
2	210.0	201.0	185.0	148.0	151.0	187.0	332.0	481.0	446.0	268.0	224.0	189.0
3	210.0	201.0	185.0	138.0	155.0	184.0	322.0	507.0	424.0	228.0	226.0	181.0
4	207.0	197.0	186.0	144.0	156.0	180.0	390.0	559.0	414.0	229.0	232.0	168.0
5	204.0	197.0	194.0	150.0	149.0	177.0	537.0	599.0	399.0	238.0	205.0	167.0
6	204.0	194.0	212.0	147.0	143.0	177.0	687.0	616.0	387.0	230.0	218.0	169.0
7	207.0	197.0	226.0	138.0	148.0	177.0	612.0	668.0	376.0	223.0	216.0	166.0
8	224.0	201.0	230.0	138.0	150.0	177.0	740.0	684.0	368.0	218.0	219.0	160.0
9	224.0	194.0	220.0	142.0	161.0	184.0	910.0	686.0	358.0	213.0	219.0	158.0
10	224.0	197.0	205.0	154.0	157.0	191.0	930.0	716.0	334.0	211.0	215.0	162.0
11	224.0	181.0	198.0	156.0	151.0	193.0	804.0	777.0	356.0	205.0	213.0	162.0
12	236.0	188.0	190.0	156.0	155.0	182.0	722.0	787.0	366.0	199.0	213.0	167.0
13	239.0	185.0	184.0	138.0	156.0	189.0	590.0	753.0	392.0	204.0	205.0	163.0
14	253.0	185.0	178.0	132.0	154.0	197.0	510.0	749.0	377.0	220.0	206.0	160.0
15	242.0	188.0	174.0	142.0	155.0	194.0	482.0	772.0	357.0	222.0	211.0	161.0
16	236.0	188.0	173.0	150.0	157.0	192.0	459.0	766.0	345.0	228.0	216.0	161.0
17	216.0	188.0	172.0	160.0	155.0	198.0	433.0	737.0	343.0	227.0	218.0	166.0
18	201.0	181.0	170.0	162.0	153.0	210.0	418.0	730.0	345.0	230.0	220.0	179.0
19	197.0	175.0	169.0	160.0	152.0	216.0	411.0	734.0	338.0	226.0	221.0	179.0
20	197.0	169.0	167.0	159.0	150.0	197.0	407.0	726.0	323.0	213.0	214.0	174.0
21	194.0	175.0	164.0	156.0	143.0	210.0	411.0	690.0	314.0	212.0	206.0	163.0
22	201.0	162.0	162.0	152.0	143.0	207.0	415.0	697.0	305.0	221.0	215.0	164.0
23	201.0	172.0	162.0	152.0	150.0	219.0	425.0	711.0	296.0	228.0	235.0	165.0
24	201.0	175.0	168.0	154.0	152.0	213.0	438.0	683.0	290.0	222.0	224.0	167.0
25	204.0	172.0	170.0	155.0	152.0	219.0	480.0	650.0	287.0	220.0	211.0	165.0
26	242.0	172.0	173.0	154.0	156.0	219.0	496.0	617.0	282.0	220.0	205.0	166.0
27	242.0	175.0	178.0	155.0	162.0	224.0	482.0	587.0	281.0	219.0	206.0	166.0
28	229.0	178.0	170.0	156.0	167.0	219.0	452.0	569.0	278.0	212.0	205.0	166.0
29	216.0	165.0	168.0	153.0	185.0	221.0	435.0	559.0	276.0	210.0	205.0	169.0
30	210.0	169.0	160.0	154.0	0.0	221.0	436.0	528.0	272.0	214.0	198.0	168.0
31	210.0	0.0	165.0	153.0	0.0	236.0	0.0	505.0	0.0	237.0	191.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1977

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165.0	175.0	164.0	175.0	166.0	166.0	175.0	219.0	185.0	187.0	170.0	118.0
2	167.0	175.0	162.0	180.0	162.0	169.0	173.0	221.0	173.0	187.0	171.0	118.0
3	186.0	173.0	163.0	180.0	159.0	169.0	167.0	211.0	160.0	192.0	166.0	118.0
4	182.0	172.0	165.0	185.0	162.0	166.0	170.0	213.0	160.0	196.0	162.0	115.0
5	178.0	171.0	169.0	180.0	156.0	166.0	173.0	215.0	177.0	205.0	160.0	118.0
6	177.0	168.0	166.0	175.0	156.0	166.0	170.0	227.0	179.0	197.0	167.0	118.0
7	174.0	166.0	168.0	175.0	156.0	167.0	170.0	223.0	191.0	190.0	168.0	120.0
8	174.0	164.0	169.0	175.0	156.0	173.0	167.0	213.0	190.0	183.0	171.0	120.0
9	176.0	164.0	171.0	170.0	156.0	173.0	167.0	211.0	209.0	185.0	166.0	120.0
10	179.0	168.0	166.0	170.0	156.0	170.0	162.0	209.0	211.0	187.0	164.0	120.0
11	179.0	169.0	166.0	165.0	156.0	165.0	157.0	208.0	201.0	185.0	166.0	120.0
12	183.0	167.0	163.0	165.0	153.0	167.0	153.0	201.0	202.0	186.0	164.0	120.0
13	179.0	163.0	165.0	165.0	156.0	173.0	152.0	197.0	195.0	183.0	162.0	118.0
14	177.0	164.0	165.0	165.0	159.0	165.0	152.0	193.0	186.0	180.0	158.0	120.0
15	177.0	167.0	170.0	165.0	159.0	162.0	148.0	200.0	195.0	180.0	156.0	118.0
16	178.0	166.0	170.0	165.0	162.0	170.0	148.0	209.0	201.0	177.0	152.0	113.0
17	177.0	166.0	170.0	169.0	159.0	170.0	145.0	212.0	195.0	177.0	147.0	110.0
18	178.0	169.0	170.0	169.0	166.0	170.0	140.0	195.0	186.0	178.0	152.0	105.0
19	178.0	169.0	170.0	172.0	166.0	170.0	137.0	203.0	188.0	175.0	139.0	105.0
20	176.0	168.0	165.0	169.0	169.0	165.0	137.0	211.0	193.0	172.0	115.0	105.0
21	176.0	162.0	165.0	172.0	175.0	167.0	138.0	202.0	192.0	175.0	107.0	107.0
22	177.0	165.0	165.0	172.0	178.0	173.0	157.0	195.0	176.0	157.0	115.0	107.0
23	174.0	162.0	165.0	172.0	169.0	178.0	185.0	193.0	174.0	171.0	120.0	113.0
24	180.0	162.0	170.0	166.0	172.0	183.0	186.0	191.0	173.0	178.0	115.0	107.0
25	187.0	167.0	175.0	166.0	169.0	175.0	186.0	204.0	177.0	184.0	125.0	105.0
26	186.0	164.0	175.0	166.0	172.0	173.0	189.0	195.0	178.0	181.0	125.0	107.0
27	181.0	149.0	180.0	166.0	162.0	173.0	186.0	190.0	186.0	177.0	123.0	105.0
28	176.0	149.0	175.0	166.0	172.0	170.0	190.0	193.0	192.0	178.0	120.0	102.0
29	175.0	154.0	175.0	166.0	0.0	170.0	194.0	187.0	190.0	175.0	118.0	100.0
30	174.0	160.0	170.0	162.0	0.0	167.0	205.0	183.0	187.0	172.0	118.0	107.0
31	172.0	0.0	170.0	162.0	0.0	170.0	0.0	181.0	0.0	170.0	118.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1978

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109.0	128.0	141.0	120.0	128.0	146.0	450.0	358.0	397.0	189.0	201.0	169.0
2	106.0	126.0	198.0	100.0	131.0	146.0	465.0	373.0	380.0	186.0	204.0	169.0
3	106.0	123.0	270.0	103.0	136.0	144.0	373.0	390.0	369.0	192.0	204.0	166.0
4	104.0	123.0	198.0	112.0	138.0	146.0	320.0	394.0	369.0	201.0	198.0	166.0
5	104.0	126.0	152.0	118.0	138.0	161.0	309.0	380.0	380.0	213.0	201.0	172.0
6	106.0	133.0	152.0	128.0	152.0	175.0	284.0	358.0	387.0	201.0	198.0	178.0
7	106.0	128.0	146.0	138.0	149.0	172.0	313.0	328.0	390.0	192.0	192.0	172.0
8	104.0	128.0	131.0	150.0	146.0	178.0	428.0	305.0	394.0	189.0	192.0	169.0
9	106.0	121.0	133.0	152.0	141.0	178.0	404.0	291.0	390.0	195.0	192.0	152.0
10	106.0	121.0	133.0	138.0	141.0	189.0	362.0	309.0	390.0	198.0	195.0	149.0
11	104.0	121.0	137.0	135.0	146.0	192.0	358.0	362.0	387.0	204.0	195.0	141.0
12	104.0	123.0	142.0	133.0	141.0	198.0	339.0	425.0	350.0	192.0	192.0	138.0
13	106.0	121.0	158.0	130.0	138.0	184.0	329.0	448.0	281.0	169.0	207.0	131.0
14	113.0	123.0	175.0	130.0	138.0	175.0	320.0	465.0	277.0	161.0	216.0	129.0
15	113.0	131.0	193.0	130.0	141.0	169.0	313.0	502.0	257.0	152.0	192.0	129.0
16	113.0	128.0	180.0	130.0	133.0	169.0	387.0	536.0	240.0	161.0	184.0	130.0
17	116.0	131.0	150.0	130.0	128.0	172.0	373.0	552.0	229.0	186.0	181.0	133.0
18	118.0	128.0	143.0	130.0	133.0	178.0	313.0	548.0	213.0	181.0	175.0	134.0
19	109.0	128.0	136.0	130.0	136.0	186.0	291.0	533.0	210.0	184.0	175.0	132.0
20	111.0	126.0	131.0	128.0	136.0	201.0	288.0	506.0	207.0	186.0	164.0	138.0
21	111.0	128.0	126.0	131.0	136.0	219.0	295.0	487.0	201.0	189.0	152.0	142.0
22	111.0	138.0	128.0	131.0	136.0	246.0	281.0	483.0	195.0	189.0	152.0	139.0
23	113.0	136.0	131.0	128.0	136.0	288.0	270.0	480.0	192.0	166.0	152.0	138.0
24	116.0	141.0	133.0	121.0	138.0	354.0	260.0	470.0	184.0	186.0	149.0	137.0
25	113.0	149.0	132.0	131.0	141.0	354.0	263.0	465.0	184.0	189.0	152.0	137.0
26	116.0	201.0	131.0	133.0	144.0	350.0	313.0	450.0	181.0	189.0	152.0	136.0
27	121.0	181.0	131.0	131.0	152.0	350.0	350.0	434.0	184.0	186.0	152.0	133.0
28	123.0	169.0	132.0	128.0	144.0	331.0	347.0	417.0	189.0	192.0	152.0	131.0
29	128.0	155.0	135.0	131.0	0.0	320.0	350.0	414.0	192.0	198.0	155.0	130.0
30	131.0	141.0	139.0	126.0	0.0	316.0	358.0	422.0	189.0	201.0	158.0	130.0
31	128.0	0.0	134.0	128.0	0.0	335.0	0.0	419.0	0.0	201.0	169.0	0.0

DAILY DATA FOR YEAR ENDING SEPT.-1979

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133.0	121.0	166.0	130.0	144.0	145.0	195.0	222.0	243.0	195.0	184.0	121.0
2	133.0	123.0	155.0	135.0	141.0	145.0	198.0	222.0	229.0	195.0	181.0	113.0
3	131.0	128.0	149.0	141.0	138.0	140.0	198.0	226.0	210.0	195.0	184.0	113.0
4	133.0	128.0	155.0	141.0	138.0	140.0	189.0	233.0	229.0	192.0	158.0	118.0
5	143.0	133.0	161.0	144.0	138.0	138.0	184.0	246.0	246.0	198.0	175.0	118.0
6	142.0	133.0	144.0	136.0	138.0	144.0	210.0	267.0	253.0	192.0	178.0	118.0
7	133.0	136.0	136.0	128.0	138.0	169.0	257.0	257.0	253.0	184.0	178.0	118.0
8	133.0	136.0	136.0	125.0	136.0	172.0	270.0	247.0	250.0	181.0	186.0	121.0
9	135.0	138.0	138.0	135.0	133.0	155.0	302.0	226.0	236.0	175.0	192.0	121.0
10	133.0	138.0	144.0	141.0	133.0	149.0	260.0	207.0	226.0	172.0	190.0	111.0
11	133.0	149.0	141.0	144.0	131.0	149.0	240.0	195.0	219.0	172.0	182.0	106.0
12	130.0	161.0	144.0	149.0	133.0	149.0	233.0	186.0	213.0	155.0	171.0	109.0
13	129.0	155.0	141.0	138.0	166.0	155.0	229.0	181.0	213.0	146.0	167.0	109.0
14	128.0	146.0	141.0	138.0	146.0	155.0	226.0	178.0	216.0	158.0	166.0	106.0
15	127.0	141.0	141.0	141.0	141.0	158.0	233.0	184.0	216.0	166.0	161.0	116.0
16	128.0	141.0	141.0	141.0	136.0	158.0	222.0	204.0	210.0	164.0	159.0	111.0
17	129.0	144.0	144.0	138.0	138.0	158.0	222.0	229.0	210.0	164.0	153.0	104.0
18	128.0	149.0	152.0	138.0	136.0	155.0	222.0	240.0	213.0	164.0	152.0	100.0
19	128.0	149.0	149.0	141.0	141.0	158.0	207.0	246.0	226.0	178.0	154.0	97.0
20	128.0	155.0	146.0	138.0	138.0	158.0	192.0	246.0	226.0	181.0	155.0	92.0
21	128.0	155.0	144.0	138.0	138.0	161.0	189.0	246.0	226.0	184.0	144.0	92.0
22	118.0	158.0	149.0	141.0	136.0	164.0	192.0	253.0	226.0	207.0	141.0	92.0
23	116.0	158.0	149.0	136.0	138.0	164.0	201.0	260.0	213.0	201.0	136.0	95.0
24	121.0	149.0	146.0	138.0	138.0	169.0	201.0	270.0	204.0	195.0	126.0	95.0
25	126.0	146.0	146.0	141.0	136.0	175.0	198.0	281.0	201.0	192.0	128.0	92.0
26	128.0	149.0	141.0	138.0	136.0	181.0	195.0	270.0	198.0	184.0	128.0	100.0
27	111.0	146.0	144.0	136.0	138.0	186.0	198.0	253.0	201.0	181.0	128.0	100.0
28	111.0	149.0	141.0	136.0	139.0	204.0	204.0	250.0	201.0	184.0	131.0	95.0
29	116.0	149.0	144.0	133.0	0.0	195.0	216.0	253.0	195.0	186.0	128.0	97.0
30	116.0	158.0	136.0	130.0	0.0	195.0	222.0	257.0	195.0	186.0	126.0	97.0
31	121.0	0.0	158.0	135.0	0.0	195.0	0.0	246.0	0.0	186.0	123.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1980

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	125.0	125.0	110.0	105.0	210.0	165.0	357.0	466.0	171.0	174.0	143.0
2	104.0	129.0	128.0	111.0	104.0	192.0	165.0	338.0	468.0	176.0	172.0	139.0
3	105.0	132.0	128.0	111.0	105.0	178.0	165.0	318.0	474.0	176.0	172.0	140.0
4	105.0	137.0	127.0	112.0	107.0	178.0	165.0	305.0	426.0	179.0	170.0	139.0
5	106.0	138.0	128.0	109.0	105.0	201.0	175.0	290.0	416.0	181.0	172.0	138.0
6	108.0	139.0	129.0	109.0	106.0	195.0	175.0	300.0	417.0	184.0	174.0	139.0
7	108.0	138.0	130.0	109.0	106.0	184.0	165.0	305.0	396.0	184.0	174.0	142.0
8	108.0	137.0	131.0	111.0	103.0	172.0	160.0	315.0	361.0	186.0	171.0	146.0
9	107.0	137.0	130.0	111.0	102.0	164.0	155.0	330.0	337.0	186.0	168.0	141.0
10	108.0	135.0	131.0	110.0	103.0	175.0	155.0	350.0	317.0	186.0	168.0	133.0
11	108.0	139.0	124.0	95.0	103.0	222.0	155.0	370.0	304.0	185.0	167.0	138.0
12	100.0	133.0	122.0	201.0	103.0	213.0	160.0	400.0	307.0	185.0	167.0	147.0
13	102.0	133.0	124.0	515.0	103.0	178.0	160.0	440.0	297.0	186.0	166.0	148.0
14	101.0	132.0	122.0	509.0	107.0	175.0	160.0	447.0	286.0	192.0	166.0	135.0
15	100.0	132.0	119.0	426.0	109.0	210.0	160.0	410.0	283.0	192.0	175.0	137.0
16	103.0	131.0	121.0	250.0	110.0	175.0	161.0	420.0	269.0	192.0	182.0	132.0
17	103.0	136.0	120.0	183.0	116.0	172.0	164.0	425.0	259.0	193.0	180.0	117.0
18	106.0	142.0	119.0	155.0	336.0	175.0	170.0	425.0	244.0	191.0	179.0	113.0
19	128.0	140.0	120.0	131.0	818.0	178.0	185.0	428.0	242.0	195.0	176.0	115.0
20	131.0	130.0	120.0	123.0	1030.0	175.0	213.0	428.0	239.0	193.0	169.0	114.0
21	125.0	128.0	121.0	123.0	922.0	189.0	255.0	428.0	229.0	187.0	166.0	120.0
22	123.0	126.0	121.0	117.0	525.0	184.0	294.0	431.0	217.0	186.0	163.0	121.0
23	121.0	129.0	118.0	116.0	320.0	186.0	299.0	431.0	211.0	187.0	162.0	121.0
24	119.0	132.0	118.0	115.0	213.0	184.0	336.0	431.0	204.0	192.0	162.0	122.0
25	119.0	132.0	118.0	115.0	172.0	180.0	334.0	434.0	191.0	190.0	161.0	117.0
26	120.0	134.0	115.0	113.0	164.0	180.0	333.0	434.0	183.0	185.0	149.0	120.0
27	120.0	129.0	111.0	112.0	169.0	175.0	312.0	436.0	174.0	186.0	133.0	120.0
28	122.0	120.0	109.0	107.0	184.0	160.0	304.0	436.0	173.0	186.0	133.0	117.0
29	124.0	116.0	106.0	109.0	219.0	165.0	330.0	436.0	174.0	184.0	133.0	115.0
30	125.0	123.0	108.0	108.0	0.0	170.0	385.0	447.0	173.0	180.0	137.0	113.0
31	125.0	0.0	108.0	105.0	0.0	165.0	0.0	457.0	0.0	178.0	142.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1981

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110.0	145.0	141.0	131.0	128.0	138.0	144.0	151.0	347.0	200.0	138.0	159.0
2	112.0	147.0	141.0	131.0	123.0	138.0	146.0	162.0	317.0	202.0	140.0	159.0
3	111.0	150.0	141.0	131.0	122.0	138.0	149.0	163.0	358.0	205.0	149.0	154.0
4	112.0	150.0	141.0	133.0	123.0	137.0	148.0	153.0	312.0	205.0	146.0	150.0
5	110.0	150.0	141.0	131.0	123.0	136.0	143.0	145.0	265.0	206.0	141.0	154.0
6	108.0	145.0	141.0	131.0	123.0	136.0	140.0	144.0	243.0	209.0	140.0	155.0
7	109.0	147.0	140.0	128.0	123.0	135.0	140.0	144.0	236.0	179.0	148.0	151.0
8	109.0	149.0	134.0	126.0	120.0	134.0	139.0	141.0	227.0	202.0	151.0	151.0
9	106.0	148.0	128.0	129.0	115.0	135.0	140.0	133.0	218.0	205.0	149.0	146.0
10	110.0	145.0	126.0	122.0	110.0	135.0	141.0	128.0	211.0	209.0	150.0	143.0
11	112.0	144.0	128.0	121.0	120.0	135.0	141.0	138.0	201.0	211.0	161.0	136.0
12	113.0	144.0	128.0	120.0	125.0	135.0	144.0	137.0	195.0	204.0	158.0	133.0
13	115.0	144.0	126.0	120.0	128.0	136.0	143.0	127.0	193.0	201.0	149.0	133.0
14	120.0	144.0	126.0	120.0	130.0	136.0	140.0	126.0	190.0	204.0	149.0	136.0
15	125.0	143.0	126.0	120.0	140.0	135.0	142.0	140.0	186.0	204.0	151.0	136.0
16	142.0	143.0	128.0	119.0	150.0	135.0	145.0	160.0	184.0	203.0	149.0	128.0
17	160.0	139.0	128.0	121.0	165.0	135.0	148.0	182.0	185.0	201.0	144.0	108.0
18	175.0	140.0	128.0	121.0	185.0	135.0	143.0	202.0	185.0	198.0	143.0	96.0
19	183.0	140.0	128.0	121.0	175.0	136.0	148.0	192.0	185.0	194.0	148.0	91.0
20	179.0	140.0	128.0	120.0	170.0	140.0	165.0	187.0	185.0	189.0	149.0	90.0
21	175.0	140.0	128.0	120.0	160.0	150.0	230.0	204.0	187.0	187.0	153.0	90.0
22	165.0	141.0	136.0	121.0	150.0	150.0	220.0	391.0	189.0	186.0	156.0	94.0
23	160.0	141.0	136.0	120.0	145.0	145.0	205.0	553.0	190.0	189.0	152.0	93.0
24	160.0	141.0	133.0	122.0	143.0	138.0	190.0	531.0	192.0	186.0	157.0	93.0
25	165.0	138.0	136.0	125.0	145.0	140.0	180.0	508.0	192.0	180.0	156.0	97.0
26	170.0	141.0	136.0	124.0	150.0	145.0	180.0	551.0	193.0	169.0	155.0	96.0
27	170.0	140.0	136.0	127.0	145.0	158.0	170.0	561.0	194.0	170.0	157.0	97.0
28	170.0	141.0	136.0	129.0	142.0	151.0	165.0	504.0	198.0	170.0	158.0	83.0
29	160.0	141.0	136.0	130.0	0.0	150.0	155.0	445.0	199.0	159.0	158.0	81.0
30	150.0	141.0	131.0	131.0	0.0	149.0	154.0	401.0	200.0	149.0	164.0	80.0
31	145.0	0.0	131.0	128.0	0.0	146.0	0.0	389.0	0.0	138.0	160.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1982

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.0	102.0	121.0	121.0	123.0	178.0	213.0	551.0	542.0	240.0	226.0	213.0
2	76.0	104.0	118.0	113.0	131.0	189.0	210.0	626.0	511.0	240.0	213.0	204.0
3	80.0	104.0	118.0	116.0	131.0	198.0	207.0	740.0	500.0	240.0	201.0	201.0
4	80.0	104.0	118.0	111.0	118.0	198.0	213.0	803.0	489.0	250.0	198.0	201.0
5	78.0	104.0	116.0	121.0	110.0	189.0	201.0	733.0	465.0	250.0	198.0	198.0
6	78.0	104.0	118.0	116.0	115.0	181.0	201.0	690.0	448.0	240.0	195.0	192.0
7	80.0	104.0	121.0	106.0	123.0	178.0	198.0	663.0	425.0	226.0	181.0	186.0
8	86.0	102.0	121.0	113.0	118.0	181.0	198.0	658.0	414.0	240.0	189.0	180.0
9	84.0	102.0	121.0	113.0	123.0	186.0	198.0	722.0	404.0	267.0	210.0	177.0
10	86.0	102.0	121.0	113.0	123.0	204.0	195.0	733.0	373.0	250.0	210.0	179.0
11	106.0	102.0	121.0	116.0	128.0	226.0	210.0	658.0	347.0	236.0	201.0	179.0
12	113.0	102.0	116.0	121.0	121.0	229.0	320.0	608.0	339.0	229.0	192.0	182.0
13	104.0	106.0	121.0	118.0	123.0	226.0	298.0	577.0	350.0	213.0	189.0	189.0
14	102.0	111.0	121.0	118.0	128.0	226.0	288.0	569.0	390.0	204.0	189.0	175.0
15	100.0	111.0	133.0	121.0	138.0	246.0	281.0	583.0	362.0	198.0	189.0	193.0
16	97.0	111.0	126.0	126.0	181.0	243.0	260.0	610.0	350.0	181.0	189.0	211.0
17	97.0	109.0	121.0	123.0	186.0	229.0	246.0	658.0	358.0	178.0	186.0	213.0
18	100.0	113.0	118.0	123.0	181.0	226.0	243.0	703.0	347.0	213.0	192.0	197.0
19	100.0	106.0	126.0	121.0	184.0	222.0	229.0	744.0	331.0	226.0	189.0	188.0
20	100.0	111.0	189.0	112.0	184.0	210.0	219.0	722.0	320.0	226.0	204.0	186.0
21	100.0	118.0	181.0	109.0	189.0	204.0	219.0	693.0	309.0	233.0	204.0	182.0
22	97.0	133.0	141.0	117.0	213.0	198.0	226.0	678.0	302.0	229.0	207.0	182.0
23	97.0	128.0	126.0	121.0	207.0	195.0	250.0	675.0	298.0	233.0	210.0	179.0
24	100.0	138.0	121.0	126.0	181.0	195.0	281.0	678.0	284.0	240.0	204.0	181.0
25	102.0	138.0	123.0	126.0	181.0	195.0	313.0	678.0	284.0	267.0	201.0	189.0
26	102.0	128.0	121.0	123.0	178.0	204.0	343.0	680.0	277.0	263.0	192.0	230.0
27	102.0	123.0	116.0	128.0	178.0	213.0	358.0	698.0	267.0	250.0	186.0	246.0
28	102.0	123.0	113.0	126.0	178.0	229.0	417.0	733.0	257.0	260.0	192.0	244.0
29	111.0	116.0	118.0	123.0	0.0	246.0	502.0	718.0	246.0	270.0	195.0	234.0
30	109.0	121.0	123.0	126.0	0.0	229.0	521.0	645.0	240.0	288.0	207.0	231.0
31	104.0	0.0	109.0	126.0	0.0	216.0	0.0	590.0	0.0	246.0	216.0	0.0

DAILY DATA FOR YEAR ENDING SEPT. 1983

STREAM : PORTNEUF RIVER NEAR TOPAZ, IDAHO

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227.0	209.0	182.0	151.0	173.0	230.0	385.0	576.0	985.0	321.0	254.0	236.0
2	227.0	200.0	176.0	151.0	170.0	300.0	376.0	589.0	935.0	348.0	257.0	230.0
3	218.0	191.0	173.0	157.0	157.0	400.0	369.0	595.0	881.0	340.0	248.0	239.0
4	209.0	191.0	173.0	164.0	160.0	380.0	356.0	612.0	845.0	320.0	242.0	236.0
5	206.0	188.0	176.0	164.0	164.0	360.0	352.0	645.0	817.0	320.0	239.0	236.0
6	200.0	188.0	179.0	170.0	160.0	340.0	352.0	687.0	787.0	311.0	236.0	236.0
7	200.0	188.0	179.0	200.0	176.0	320.0	349.0	664.0	752.0	308.0	203.0	236.0
8	200.0	188.0	160.0	218.0	170.0	300.0	352.0	663.0	711.0	298.0	227.0	251.0
9	197.0	191.0	167.0	197.0	173.0	290.0	349.0	691.0	711.0	303.0	233.0	281.0
10	194.0	191.0	167.0	188.0	170.0	330.0	352.0	679.0	682.0	337.0	233.0	259.0
11	191.0	191.0	160.0	182.0	167.0	370.0	352.0	677.0	661.0	325.0	259.0	251.0
12	191.0	185.0	164.0	176.0	167.0	363.0	349.0	675.0	676.0	306.0	265.0	248.0
13	191.0	179.0	167.0	176.0	176.0	377.0	343.0	653.0	618.0	293.0	245.0	245.0
14	188.0	167.0	167.0	170.0	182.0	435.0	340.0	621.0	559.0	283.0	239.0	248.0
15	188.0	167.0	170.0	167.0	173.0	398.0	340.0	600.0	520.0	276.0	236.0	245.0
16	185.0	176.0	173.0	167.0	173.0	364.0	344.0	600.0	515.0	278.0	233.0	245.0
17	185.0	179.0	170.0	170.0	176.0	345.0	347.0	577.0	516.0	276.0	230.0	245.0
18	185.0	179.0	164.0	167.0	176.0	333.0	357.0	585.0	502.0	265.0	230.0	242.0
19	185.0	212.0	170.0	167.0	179.0	321.0	368.0	645.0	487.0	251.0	230.0	242.0
20	185.0	206.0	167.0	167.0	173.0	306.0	381.0	643.0	472.0	242.0	242.0	245.0
21	185.0	191.0	173.0	170.0	176.0	301.0	399.0	652.0	457.0	245.0	268.0	254.0
22	185.0	182.0	182.0	170.0	176.0	300.0	407.0	683.0	431.0	239.0	270.0	251.0
23	185.0	164.0	185.0	176.0	176.0	307.0	419.0	728.0	395.0	257.0	265.0	251.0
24	185.0	167.0	170.0	173.0	179.0	308.0	458.0	782.0	379.0	262.0	265.0	248.0
25	185.0	167.0	157.0	176.0	185.0	305.0	483.0	797.0	368.0	265.0	259.0	245.0
26	194.0	164.0	156.0	173.0	194.0	297.0	462.0	818.0	361.0	291.0	254.0	230.0
27	200.0	164.0	155.0	173.0	191.0	294.0	452.0	904.0	356.0	283.0	251.0	227.0
28	194.0	170.0	154.0	179.0	197.0	295.0	456.0	944.0	347.0	265.0	242.0	242.0
29	194.0	176.0	154.0	173.0	0.0	293.0	492.0	981.0	334.0	262.0	245.0	239.0
30	212.0	179.0	154.0	176.0	0.0	344.0	535.0	1020.0	329.0	257.0	239.0	259.0
31	221.0	0.0	154.0	173.0	0.0	384.0	0.0	1030.0	0.0	248.0	236.0	0.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1920	162.9	173.6	158.4	172.9	175.9	188.0	227.0	524.7	259.5	217.2	200.7	208.0	222.7	152.0	709.0
1921	202.5	184.3	167.7	167.7	173.7	310.0	359.8	663.7	410.1	244.1	227.1	193.7	276.1	160.0	757.0
1922	181.5	188.7	192.8	180.6	179.7	208.1	324.4	578.2	339.9	265.6	253.8	212.4	258.5	168.0	757.0
1923	191.3	235.0	196.1	224.2	170.4	256.1	390.0	442.0	288.4	256.2	251.9	232.4	261.6	150.0	562.0
1924	216.6	205.5	194.5	183.6	217.7	212.5	245.2	243.8	218.6	224.2	171.7	126.7	205.1	121.0	605.0
1925	142.3	162.3	160.5	157.1	204.8	243.7	271.8	346.0	243.7	232.3	201.5	207.7	214.5	121.0	680.0
1926	177.7	184.7	180.3	168.4	183.9	239.6	257.9	257.4	249.3	217.7	154.9	124.4	199.8	121.0	322.0
1927	144.7	161.7	158.5	155.9	165.5	189.5	270.7	369.5	333.7	272.9	234.5	171.5	219.3	138.0	492.0
1928	176.9	197.3	185.5	173.9	163.8	246.6	233.6	373.7	271.6	259.5	206.6	154.5	220.7	130.0	492.0
1929	146.4	155.6	152.1	147.5	142.5	210.9	216.7	268.6	266.9	234.7	200.1	169.3	192.9	134.0	372.0
1930	157.4	153.1	152.9	146.0	163.4	175.7	184.5	185.3	203.8	165.4	149.4	129.2	163.8	119.0	267.0
1931	153.6	148.1	145.5	137.9	136.3	162.9	152.6	173.9	169.6	97.2	95.8	98.6	139.3	87.0	258.0
1932	115.9	129.2	129.9	125.9	121.3	151.2	230.7	296.1	221.2	195.7	153.6	136.0	167.4	102.0	380.0
1933	121.4	142.0	133.9	134.3	127.2	134.1	203.8	247.2	236.3	180.9	161.5	111.6	161.3	93.0	358.0
1934	105.5	128.1	133.0	134.5	135.1	124.2	106.1	203.4	97.4	91.5	83.0	81.7	118.7	69.0	240.0
1935	77.7	114.1	118.9	108.9	102.4	155.6	184.8	232.7	217.8	181.1	106.9	100.1	141.9	65.0	372.0
1936	88.2	132.0	130.5	132.4	136.1	128.7	331.5	370.9	234.1	225.4	191.5	152.3	187.8	81.0	524.0
1937	119.8	129.7	125.8	122.2	125.1	146.0	227.4	268.4	215.4	207.5	151.8	109.7	162.6	102.0	358.0
1938	125.0	136.6	152.5	131.6	154.1	197.2	255.2	294.4	265.1	225.8	217.4	171.7	194.1	111.0	396.0
1939	129.9	150.9	148.7	146.1	143.9	214.1	202.0	216.9	204.7	159.3	99.7	103.6	160.0	87.0	460.0
1940	121.6	124.6	127.7	131.1	141.6	161.9	164.4	153.8	191.6	104.2	101.1	94.7	134.7	81.0	230.0
1941	103.0	116.9	122.5	117.0	126.2	167.7	161.8	205.1	165.1	190.6	100.6	95.4	139.5	85.0	249.0
1942	112.9	124.5	129.3	118.0	121.4	138.8	246.2	213.5	201.6	197.2	176.1	116.7	158.2	89.0	444.0
1943	104.5	131.0	147.4	154.0	153.9	222.2	391.2	318.2	289.0	229.5	219.4	174.2	211.3	97.0	489.0
1944	144.9	155.0	145.3	137.2	137.8	162.3	213.7	215.5	245.8	213.7	197.4	152.9	176.8	116.0	372.0
1945	122.2	141.4	132.0	140.9	175.0	168.1	212.5	338.5	325.7	226.5	244.7	202.4	202.5	118.0	454.0
1946	161.5	164.7	172.3	164.9	157.7	284.9	482.5	440.6	247.6	239.1	208.7	181.9	242.6	138.0	661.0
1947	169.7	185.2	181.8	146.5	171.8	188.8	199.5	240.2	193.6	209.8	198.5	154.7	186.8	130.0	307.0
1948	140.7	146.4	141.6	145.9	197.8	200.8	239.5	330.7	256.4	217.2	219.2	201.5	203.1	128.0	466.0
1949	146.3	155.9	145.6	140.0	137.0	195.3	315.7	289.2	216.3	219.2	212.0	161.0	194.7	117.0	378.0
1950	155.9	164.0	152.6	160.6	198.6	267.0	367.8	490.0	415.2	279.4	248.6	281.1	265.2	128.0	657.0
1951	217.2	210.6	190.3	176.8	243.0	230.3	278.0	291.7	250.6	239.7	209.6	152.5	224.0	136.0	434.0
1952	159.6	180.2	173.2	175.9	187.5	186.9	408.6	510.0	296.7	235.7	207.1	176.1	241.5	147.0	668.0
1953	145.2	161.4	175.6	217.5	194.4	197.0	198.0	220.9	361.9	243.8	202.9	182.8	208.4	136.0	469.0
1954	151.4	167.1	164.5	162.7	166.8	219.5	210.8	204.5	206.3	186.3	138.6	96.1	173.0	90.0	305.0
1955	116.4	134.7	133.0	131.6	130.1	130.3	159.5	185.6	197.8	131.4	105.5	96.3	137.6	91.0	262.0
1956	106.7	125.5	145.7	148.3	134.2	195.1	270.9	237.1	210.1	198.3	167.4	113.5	171.2	91.0	414.0
1957	112.4	134.5	142.8	126.8	248.3	173.5	169.2	309.1	240.7	206.6	197.7	153.7	184.2	100.0	956.0
1958	122.2	140.1	148.6	141.1	177.1	194.5	235.4	278.1	222.1	220.6	185.2	136.0	183.5	102.0	331.0
1959	107.7	135.2	150.5	141.9	145.5	185.8	193.6	207.4	199.2	157.9	92.4	99.5	151.4	85.0	258.0
1960	117.9	121.2	120.8	122.8	129.5	197.7	226.1	203.3	208.5	122.2	81.1	80.1	144.2	76.0	388.0
1961	85.4	109.2	115.3	113.4	140.4	146.8	130.1	127.3	151.0	89.3	82.8	88.3	114.7	76.0	243.0
1962	90.1	118.4	123.0	137.5	484.1	213.9	258.4	202.7	200.5	180.1	191.2	139.6	192.7	80.0	3250.0
1963	96.9	116.1	119.6	124.3	310.9	136.0	171.4	222.4	207.7	177.9	176.0	131.4	164.8	88.0	2590.0
1964	104.5	135.9	128.9	125.8	120.7	115.8	232.9	286.3	293.3	213.8	186.7	128.4	172.7	96.0	438.0
1965	107.5	136.9	248.5	195.0	191.6	174.6	265.2	432.0	297.2	228.8	196.5	147.9	218.8	98.0	1330.0
1966	141.7	158.0	143.5	146.2	144.4	184.9	221.1	205.3	203.4	164.7	136.3	99.7	162.5	68.0	361.0
1967	92.7	114.7	130.2	122.9	121.5	173.1	175.9	247.8	274.0	160.8	180.3	134.5	160.9	84.0	348.0
1968	129.2	130.0	128.2	134.2	161.9	197.8	164.3	200.5	248.6	196.0	164.4	121.0	164.7	105.0	347.0
1969	130.7	141.5	137.5	230.2	162.3	183.0	485.2	498.2	262.7	203.3	199.3	154.8	232.7	106.0	887.0

SUMMARY DATA FOR -- PORTNEUF RIVER NEAR TOPAZ, IDAHO

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AVG	MIN	MAX
1970	127.2	139.0	143.2	185.2	163.6	175.6	163.0	326.1	336.0	203.1	184.5	151.7	191.7	104.0	545.0
1971	136.8	146.1	148.2	159.2	182.6	287.9	433.9	789.5	450.3	243.8	237.8	232.1	287.9	114.0	964.0
1972	211.4	199.9	195.8	196.1	210.7	475.3	501.4	620.3	410.3	249.4	225.7	217.0	309.7	165.0	754.0
1973	209.2	232.4	227.5	210.7	204.5	210.5	344.8	454.1	252.6	209.6	179.1	170.8	242.4	145.0	545.0
1974	160.3	184.3	177.5	180.1	172.5	341.6	437.1	567.0	289.2	217.3	214.2	176.9	260.4	138.0	744.0
1975	148.9	179.8	172.1	176.2	173.6	229.4	251.6	456.8	532.1	232.9	205.6	199.6	246.7	124.0	721.0
1976	216.6	184.3	181.8	150.5	154.0	200.6	514.9	654.6	347.1	223.2	214.2	168.0	267.7	132.0	930.0
1977	177.4	165.3	168.5	170.0	162.8	169.7	166.0	203.4	186.7	181.3	144.5	112.6	167.5	100.0	227.0
1978	112.1	135.2	150.0	128.5	139.2	223.3	336.8	429.2	279.6	187.7	179.1	145.0	204.1	100.0	552.0
1979	127.4	144.0	145.9	137.5	138.6	162.5	216.8	234.9	219.9	181.1	156.9	105.9	164.4	92.0	302.0
1980	112.4	132.1	121.0	159.1	236.9	182.6	217.1	393.6	291.6	185.6	164.0	129.4	193.6	95.0	1030.0
1981	139.1	143.4	133.0	124.9	138.5	139.8	157.9	261.1	218.6	190.8	150.9	120.4	160.0	80.0	561.0
1982	95.1	112.7	125.1	119.1	152.6	209.3	268.6	671.5	361.0	236.3	198.5	198.1	229.6	76.0	803.0
1983	196.5	183.0	167.7	173.6	174.6	331.9	389.2	710.2	579.6	286.4	244.4	244.7	307.4	151.0	1030.0
AVE	139.5	152.7	152.9	152.4	169.4	200.5	261.3	338.0	265.3	204.2	178.8	150.3	197.2		

EXHIBIT B

GENERAL LOCATION

OF THE

MARSH VALLEY PROJECT

EXHIBIT B

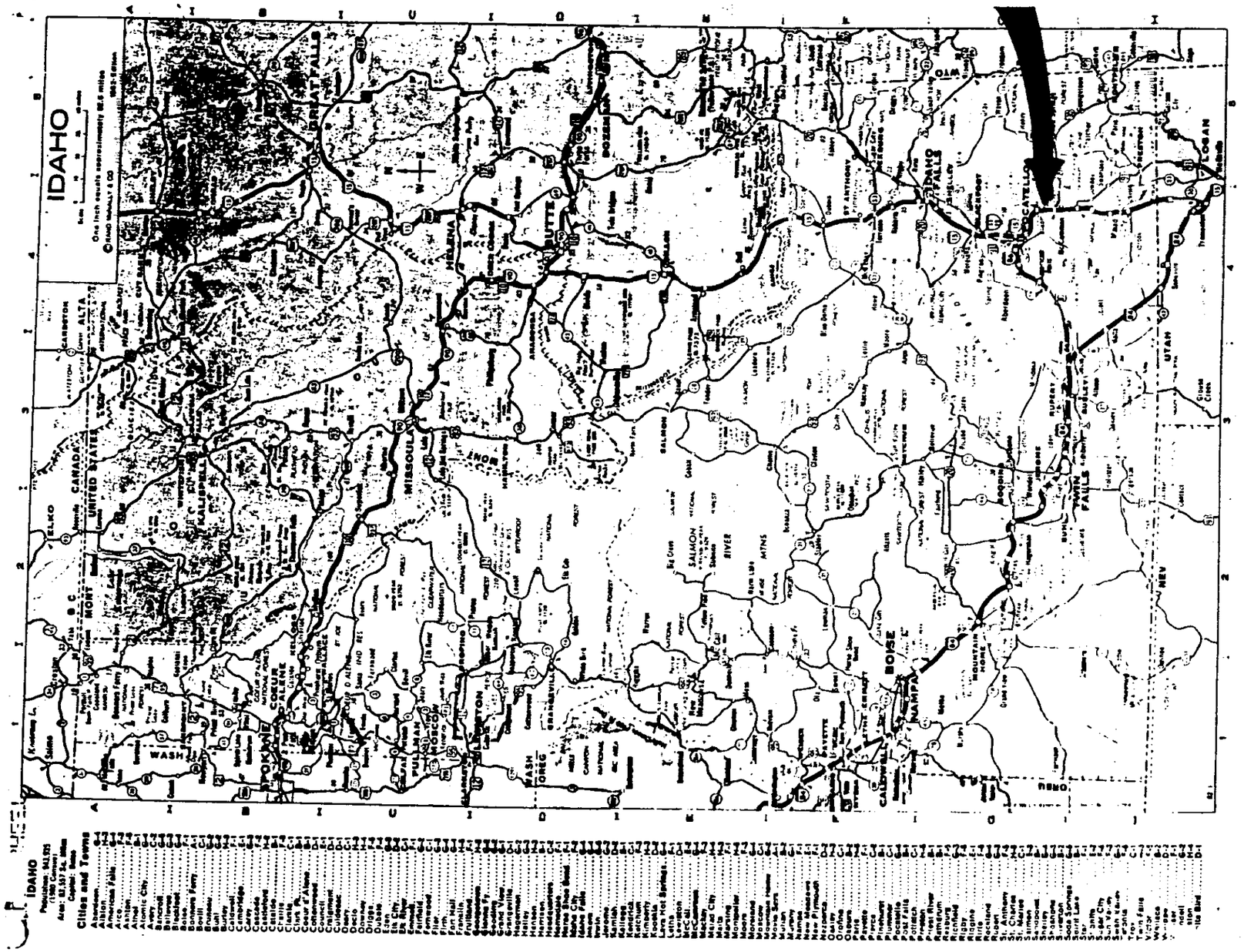
GENERAL LOCATION

The McCammon Ditch Company and the Portneuf-Marsh Valley Canal Co, Ltd. either holds title to or has secured real property interests in any lands occupied by the project or in any structures to which the project is connected. Se Exhibit B - Appendix A for copies of agreements to secure said property rights.

The following Exhibit drawings depict the proposed project location:

EXHIBIT	TITLE
B - 1-2	Project Location
B - 3	Principal Project Features

MARSH VALLEY HYDROELECTRIC PROJECT LOCATION



REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.

FINANCING PLANNING CONSTRUCTION

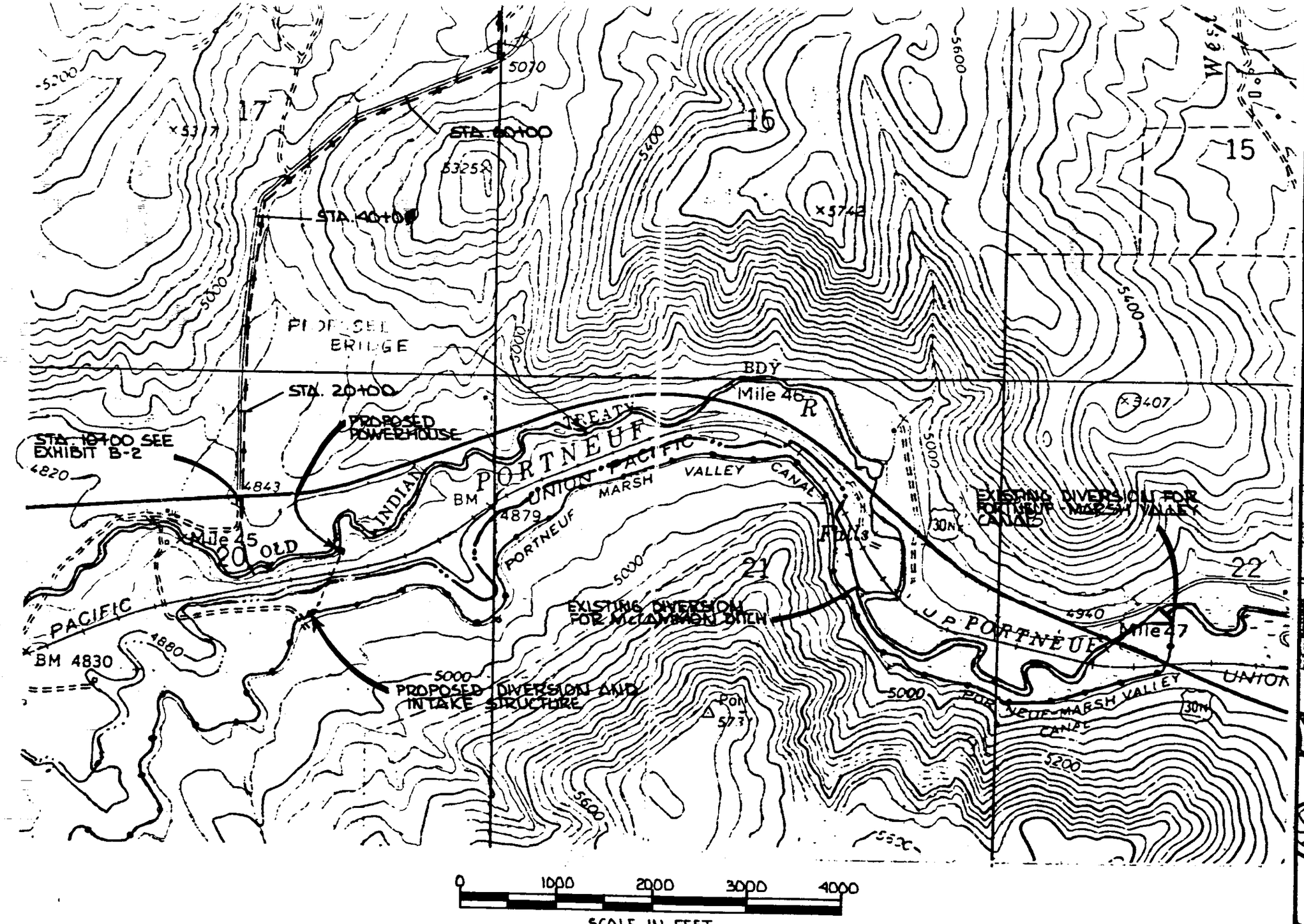
ORANGE, CALIFORNIA (714) 547-6867

MARSH VALLEY HYDROELECTRIC PROJECT

EXHIBIT B-1

PROJECT LOCATION MAP

SHEET 1 OF 3 SHEETS

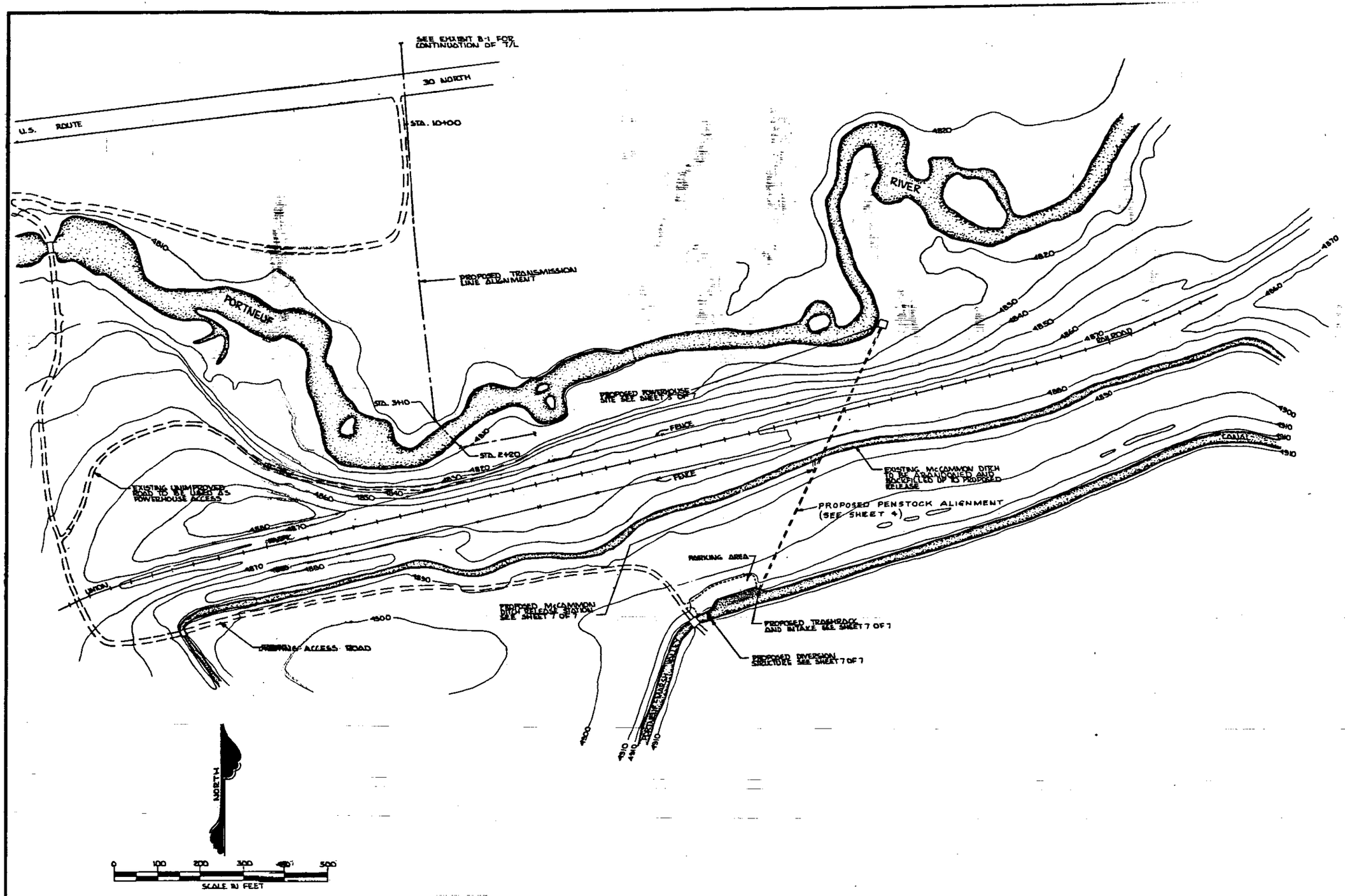


REV	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 647-6667

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT B-1
PROJECT LOCATION MAP

SHEET 3 OF 22 SHEETS



REV.	DATE	DESCRIPTION

HYDROELECTRIC CONSTRUCTORS, INC.

FINANCING PLANNING CONSTRUCTION

ORANGE, CALIFORNIA

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT B-2
PRINCIPLE PROJECT FEATURES

SHEET 3 OF 3 SHEETS

EXHIBIT B - APPENDIX A

PROPERTY AGREEMENTS

PROPERTY

9-1

718016

OPTION TO PURCHASE REAL PROPERTY

AND EASEMENT

THIS AGREEMENT made and entered into this 3 day of October, 1983, by and between ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, of 305 West Main Street, Lava Hot Springs, Bannock County, Idaho, hereinafter called "SELLER" and MARSH VALLEY HYDRO ELECTRIC CO., an Idaho corporation with its principal place of business being in the City of McCammon, Bannock County, Idaho, hereinafter called "BUYER".

RECITALS

WHEREAS, Seller is the owner of certain real property located in Bannock County, Idaho, which is described as Lot 5, Section 20, Township 9 South, Range 37 East of the Boise Meridian; and

WHEREAS, Buyer desires to construct, own and operate a hydro electric generation plant, together with penstocks, diversion structures and related equipment and facilities on the real property of Seller described above; and

WHEREAS, Seller is willing to grant to Buyer and Buyer desires to purchase from Seller an Option to Purchase certain real property for a plant site together with a permanent right-of-way and easement to permit construction and operation of the plant and related facilities, together with a right of ingress and egress thereto upon the terms and conditions set forth below;

NOW, THEREFORE, for the reasons set forth and in consideration of the mutual covenents and promises of the parties hereto, Buyer and Seller agree as follows:

1. GRANT OF OPTION: For and in consideration of the sum of $500 to be paid by Buyer to Seller upon execution of this Agreement, receipt of which is hereby acknowledged, Seller grants to Buyer the exclusive and irrevocable option and right to purchase, under the conditions hereinafter provided:

(a) a parcel of land sufficient in size and nature to permit Buyer to locate and construct a hydro electric generation plant. Said plant site shall be approximately one acre in size and located within the parcel of land owned by Buyer as described in Exhibit "A" attached and incorporated by reference. The exact location of said plant site within

the property described in Exhibit "A" may be selected by Buyer.

(b) A permanent right-of-way and easement on, over, under and through the remaining lands owned by Seller and described in Exhibit "A" and adjacent thereto not selected as a plant site as described in paragraph 1(a) above, on which to construct, maintain, operate and repair diversion structures, penstocks, forebays and other equipment, fixtures and structures related to the hydro electric generation plant, together with a roadway to provide a right of ingress and egress to the plant site.

(c) The right to the temporary use of such additional land on each side of the plant site and permanent right-of-way and easement as is reasonably required during the construction of the facilities.

(d) All other rights and benefits necessary for the full enjoyment or use of the plant site and right-of-way and easement including the right of ingress and egress over and across said lands as well as the adjacent lands of Seller and the use thereof reasonably necessary in connection with the construction, maintenance, operation and repair of the hydro electric generation plant, related equipment and facilities and access road.

(e) It is understood and agreed that to gain access to the property, Buyer will construct a roadway to connect to the existing railroad service road on the South or in a Northerly direction to connect to U. S. Highway 30 North which will require the construction of a bridge across the Portneuf River which transverses Sellers adjacent property in Section 20, Township 9 South, Range 37 East of the Boise Meridian, Bannock County, Idaho, or both. Buyer may select the exact location of the roadways and bridge which must be approved and accepted by Seller in advance to construction.

Buyer shall be soley responsible for the construction, maintenance and repair of all roadways and bridges and, further, shall be responsible to keep all railroad gates closed. Seller shall have the right to use all roadways constructed by Buyer to gain access to his property for all personal uses. Should Seller desire to develop his property and expand his personal use of the roadways to include their use for residential, commercial or other purposes, Seller may do so provided that he shall then be responsible for one-half of the costs of maintenance and repair.

(f) Buyer shall prevent any contamination of Sellers land and is required to restore any land used temporarily during construction to its previous condition.

2. PRICE AND TERMS OF PAYMENT: The price for the plant site and permanent right-of-way and easement shall be $7,500. Said amount shall be paid in full by Buyer at the time of closing.

3. PERIOD OF OPTION AND EXTENTIONS: The option may be exercised by Buyer, at any time while the offer herein shall remain in force, by mailing, telegraphing or delivering in person a written notice of acceptance of the offer herein to the undersigned Seller at the address provided above.

This offer shall remain irrevocable for a period of three years, and may be extended for an additional period of time upon written agreement by Seller.

If the option is exercised, the consideration paid for this Agreement by Buyer shall be applied to the purchase price. If the option is not exercised, the sum paid by Buyer shall be retained by Seller in consideration for this Agreement.

4. TITLE: Upon exercise of this option by Buyer as provided herein, the Seller shall secure and submit to Buyer for examination by it or its attorney a preliminary title report of a qualified title insurance company doing buisness in the State of Idaho. Thereafter, Buyer shall give notice in writing to Seller of any defect in or objections to the title as so evidenced, and the Seller shall clear the title of the defects and objections so specified.

If Seller fails to clear the title to the extent herein required or to submit evidence of their ability to do so prior to closing, and such failure continues for 30 days after the date of the exercise of the option, Buyer may clear title to the extent so required and charge the cost of clearing to Seller or, at its option, may terminate this contract by giving five days written notice to Seller.

Title conveyed as herein provided shall be merchantable title, free and clear from all liens, encumbrances, restrictions and easements. Seller shall provide Buyer with a standard form Owners Title Insurance Policy for the amount of the purchase price.

5. CLOSING: A closing agent shall be designated by the parties after exercise of the option. All necessary documents shall be delivered to the closing agent and all pay-

ments required hereunder, including payment of the balance of the purchase price, shall be made to the closing agent. Seller and Buyer shall execute such closing instructions and other documents, not inconsistent with the terms of the option, as may be required by the closing agent from time to time.

Taxes, water assessments and other general and special assessments of whatsoever nature for the year in which the closing of the transaction takes place shall be prorated as of the date of closing of the transaction. If the closing of the transaction shall occur before the tax rate is fixed, the apportionment of taxes shall be on the basis of the rate for the next preceding year applied to the latest assessed valuation.

The sale transaction shall close when the closing agent is able to comply with the provisions hereof, and within a reasonable time.

6. POSSESSION AND RISK OF LOSS: Seller shall continue in possession of the property until the time of closing and shall maintain the same in its present condition, reasonable wear from ordinary use expected. Possession shall be transferred to Buyer on closing.

Risk of loss from fire or other casualty to the property shall be Sellers until transfer of possession as herein provided.

7. NOTICES: Any notice hreunder shall be given in writing to the party for whom it is intended in person or by registered mail at the following addresses:

MARSH VALLEY HYDRO ELECTRIC CO.
c/o Lyndon Green, President
Star Route, Box 37
McCammon, Idaho 83250

Randall C. Budge, Esq.
RACINE, OLSON, NYE, COOPER & BUDGE, CHRTD.
P. O. Box 1391
Pocatello, Idaho 83204

Mr. and Mrs. Roger S. Johnson
305 West Main Street
Lava Hot Springs, Idaho 83246

Notice shall be given in writing to any successor or assignee of either party at the address stated in the Notice of Succession or Assignment.

8. ASSIGNMENT: This option and the contract resulting from the exercise thereof shall bind and inure to the benefit of the heirs, administrators, executors, successors and assigns of the respective parties. All rights of the Buyer hereunder may be assigned without restrictions, but notice of each Assignment shall be given in writing to Seller.

9-5 718016

IN WITNESS WHEREOF, the Seller and Buyer have set their hands and seals this 3rd day of October, 1983.

SELLERS:

Roger S. Johnson
ROGER S. JOHNSON

Kaye R. Johnson
KAYE R. JOHNSON

MARSH VALLEY HYDRO ELECTRIC CO.

By: Lyndon Green
TITLE: President

ATTESTED:

By: John Brown
TITLE: Sec.

STATE OF IDAHO)
: ss
County of Bannock)

On this ~~3rd~~ 24th day of October, 1983, before me, the undersigned, a Notary Public in and for said State, personally appeared ROGER S. JOHNSON and KAYE R. JOHNSON, husband and wife, known to me to be the persons whose names are subscribed to the foregoing and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

NOTARY SEAL

(SEAL)

Randall C. Budge
NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 10/15/84

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

9-6

718016

J-U-B ENGINEERS, Inc. 920 Deon Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 233-0306

Description For
Portnuef Marsh Valley Hydroelectric Co.
Parcel of Land From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M., Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

Thence South 39°28'06" East 2157.12 feet to an iron pin set on the southerly bank of the Portneuf River. Said point being the REAL POINT OF BEGINNING;

Thence South 3°21'41" West 679.60 feet to an iron pin set on the northerly bank of the Prtneuf Marsh Valley Canal;

Thence North 70°38'31" East 509.96 feet to an iron pin set on the northerly bank of the Portneuf Marsh Valley Canal;

Thence North 12°10'46" West 689.25 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 44°47'44" West 123.91 feet to an iron pin set on the southerly bank of the Portneuf River;

Thence South 69°17'04" West 222.16 feet to the point of beginning, comprising 6.09 acres more or less.

Excluding the parcel of land contained in this description which is owned by the Union Pacific Railroad Company and comprising 1.00 acres more or less.

Considering the excluded acreages, total needed acreage for this parcel will be 5.09 acres more or less.

REGISTERED LAND SURVEYOR 1049 STATE OF IDAHO ALLEN R. JOHNSON

Prepared by;
J-U-B Enginners, Inc

Allen R. Johnson, L.S.
Area Surveyor

9-7 718016

J-U-B ENGINEERS, Inc. 920 Deon Drive, Suite B Pocatello, Idaho 83201 Telephone: (208) 232-0306

Description For
Portneuf Marsh Valley Hydroelectric Co.
Easement From Roger Johnson

A parcel of land located in Lot 5, Section 20, T.9S., R.37E., B.M. Bannock County, Idaho and more particularly described as follows:

Beginning at a Brasscap marking the 1/4 corner on the north line of Section 20, T.9S., R.37E., B.M., Bannock County, Idaho;

Thence South 63°01'57" East 2864.86 feet to a point on the northerly Right-of-Way Ownership line of the Union Pacific Railroad property, said point being at an existing gate in the railroad fence line, said point being the REAL POINT OF BEGINNING of a 50 foot wide roadway easement.

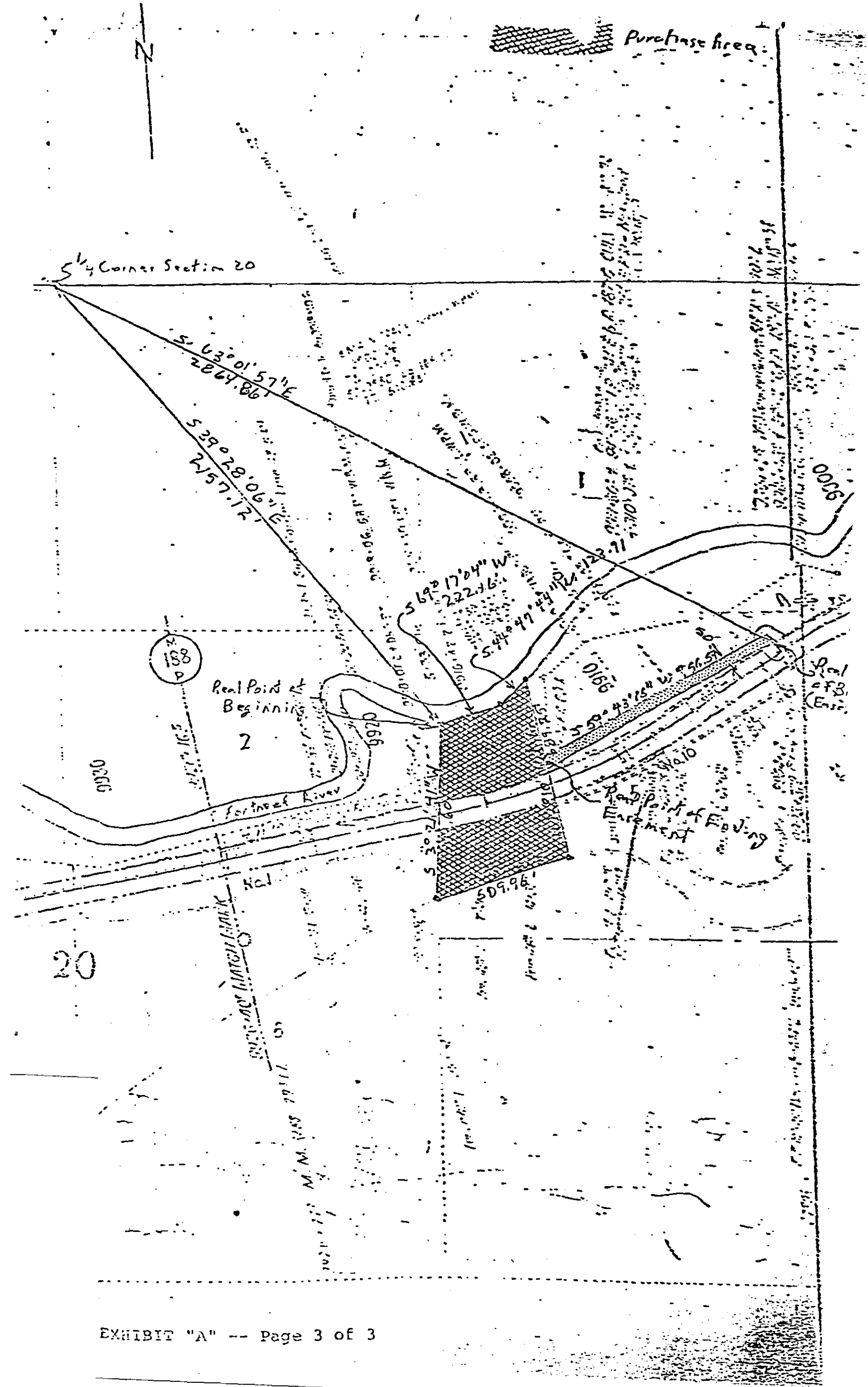
Thence South 59°43'15" West 956.54 feet along the centerline of the Right- of-Way easement to a point on the easterly ownership line of the property purchased by the Portnuef Marsh Valley Hydroelectric Company. Said point being the REAL POINT OF ENDING of the said Right-of-Way comprising 1.10 acres more or less.

Prepared by:
J-U-B Engineers, Inc

Allen R. Johnson, L.S.
Area Surveyor

REGISTERED LAND SURVEYOR 1029 STATE OF IDAHO ALLEN R. JOHNSON 9/12/86

EXHIBIT "A" -- Page 2 of 3


Purchase Area
N
1/4 Corner Section 20
S 63°01'57"E
2864.86'
S 29°28'06"E
2157.12'
S 69°17'04" W
222.46'
S 44°49'44" W
123.71'
S 59°43'15" W
156.54'
S 30°21'W
509.96'
Real Point of Beginning
2
188
P
Fortneck River
Hal
20
9300
9200
9100
9000
Real Point of Ends of Easement

9-9 718016

STATE OF IDAHO)
: ss
County of Bannock)

On this ~~3rd~~ 25 day of October, 1983, before me, the undersigned, a Notary public in and for said State, personally appeared LYDON GREEN and JOHN BOWEN, who, being first duly sworn, declared that they are the President and Secretary respectively of MARSH VALLEY HYDRO ELECTRIC CO., that they signed the foregoing document as officers of the corporation and that the statements contained therein are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

Eleanor Sorensen
NOTARY PUBLIC FOR IDAHO
Residing at Pocatello
My Commission Expires: 11-17-85

(SEAL)

NOTARY SEAL

NO. 718016
RECORDED AT REQUEST OF
Randy C. Budge
'83 OCT 31 A10:16

OFFICIAL RECORD BK. NO 401
BANNOCK COUNTY, IDAHO
LARRY W. GHAN RECORDER
FEE 18.00 DEPUTY lah

AGREEMENT

Underground Pipeline Crossing
Topaz, Idaho (MP 187.81)

LD No. 25939
Audit No. _____

THIS AGREEMENT, made and entered into as of the 22nd day of February, 1984, by and between OREGON SHORT LINE RAILROAD COMPANY and its lessee, UNION PACIFIC RAILROAD COMPANY, corporations of the State of Utah (hereinafter collectively the Licensor), and MARSH VALLEY HYDROELECTRIC COMPANY, a corporation of the State of Idaho (hereinafter the Licensee), WITNESSETH:

NOW THEREFORE, it is mutually agreed by and between the parties hereto as follows:

1. Upon the execution and delivery of this Agreement, the Licensee shall pay to the Licensor the sum of one hundred dollars ($100.00) to cover the cost of preparation hereof. In consideration of the sum of one hundred fifty dollars ($150.00) to be paid by the Licensee to the Licensor upon the execution and delivery of this Agreement and in further consideration of the covenants and agreements herein contained to be by the Licensee kept, observed and performed, the Licensor hereby grants to the Licensee, subject to the terms and conditions herein stated, the right to construct and thereafter, during the term hereof, to maintain and operate the underground water pipeline (hereinafter the Pipe Line) across the property and under the track of the Licensor in the location identified by yellow line, and in conformity with the dimensions and specifications indicated, on the print dated October 21, 1983, marked Exhibit A, hereto attached.

2. The grant herein made is subject to each and all of the terms, provisions, conditions, limitations and covenants set forth herein and in Exhibit B hereto attached and by this reference incorporated herein.

3. This Agreement shall take effect as of the date first herein written and shall continue in full force and effect until terminated as herein provided.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in duplicate as of the date first herein written.

Witness:

_____

Attest:

_____
Secretary

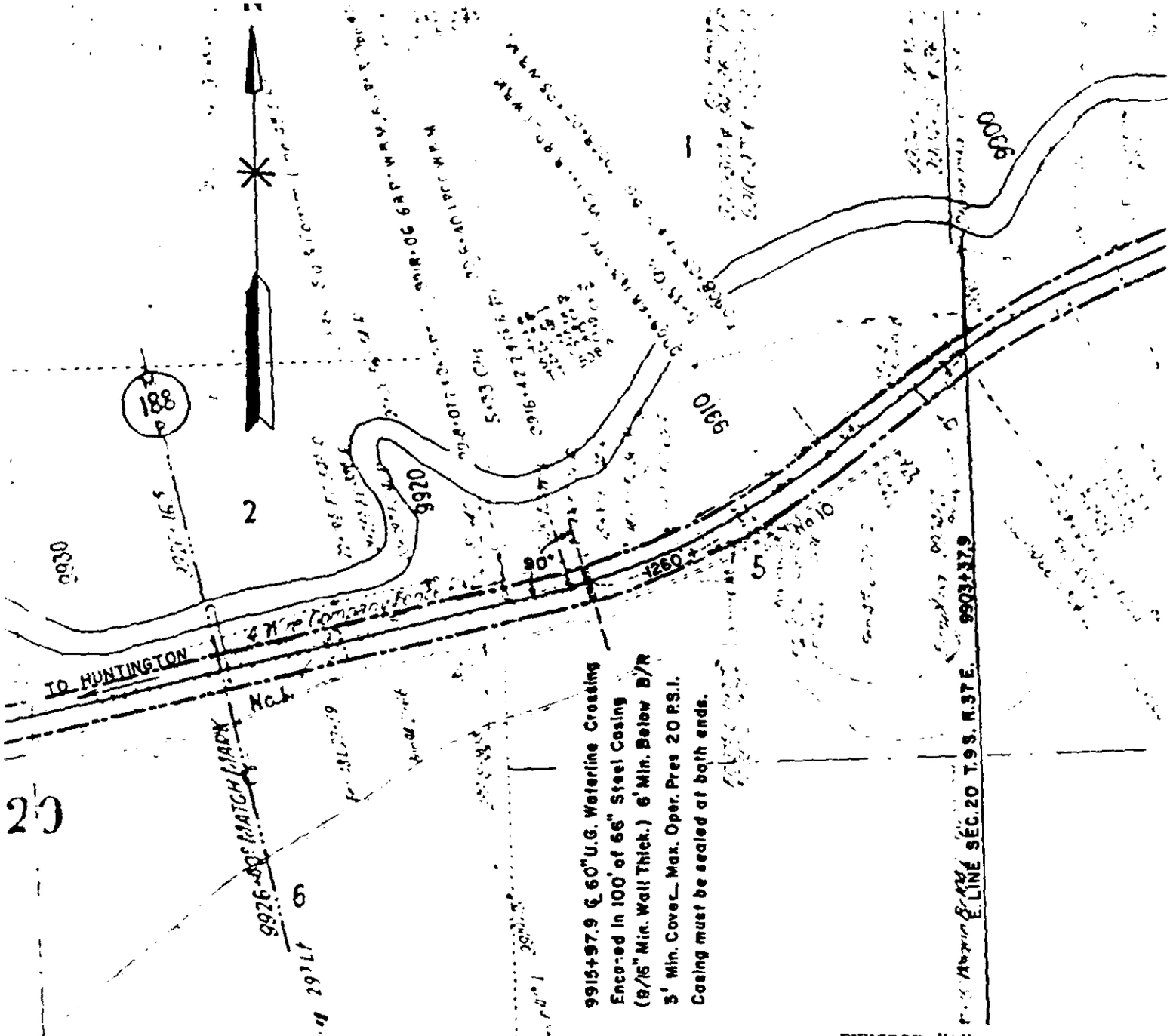
OREGON SHORT LINE RAILROAD COMPANY
UNION PACIFIC RAILROAD COMPANY

By _____
General Manager

MARSH VALLEY HYDROELECTRIC COMPANY

By _____
President

DUPLICATE ORIGINAL - LICENSEE'S COPY



Note: Must be jacked or bored under track.

EXHIBIT "A"
OREGON SHORT LINE RAILROAD CO.
UNION PACIFIC RAILROAD COMPANY (LESSEE)
Topaz ~~Boise~~, Bannock County, Idaho
M.P. 187.81 - Main Line

To accompany agreement with Marsh Valley HydroElectric Company covering an underground water pipeline crossing

Scale 1" = 400'

Office of Director - Real Estate
Omaha, Nebraska October 21, 1983

* L E G E N D *

U.G. water line shown.....YELLOW
R/W outlined.....

EXHIBIT B

The foregoing grant is subject and subordinate to the prior and continuing right and obligation of the Licensor to use and maintain its entire property in the performance of its public duty as a common carrier, and is also subject to the right and power of the Licensor to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication or other wire lines, pipe lines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by the Licensor without liability to the Licensee or to any other party for compensation or damages.

The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of the Licensor's property, and others) and the right of the Licensor to renew and extend the same, and is made without covenant of title or for quiet enjoyment.

Section 2. CONSTRUCTION, MAINTENANCE AND OPERATION.

The Pipe Line shall be constructed, operated, maintained, repaired, renewed, modified and/or reconstructed by the Licensee in strict conformity with Union Pacific Railroad Co. Common Standard Specification 1029 adopted November 1949, as subsequently amended, except as may be modified and approved by the Licensor's Chief Engineer. In the event such Specification conflicts in any respect with the requirements of any federal, state or municipal law or regulation, such requirements shall govern on all points of conflict, but in all other respects the Specification shall apply.

All work performed on property of the Licensor in connection with the construction, maintenance, repair, renewal, modification or reconstruction of the Pipe Line shall be done under the supervision and to the satisfaction of the Licensor.

Prior to the commencement of any work in connection with the construction, maintenance, repair, renewal, modification, relocation, reconstruction or removal of the Pipe Line where it passes underneath the roadbed and track or tracks of the Licensor, the Licensee shall submit to the Licensor plans setting out the method and manner of handling the work, including the shoring and cribbing, if any, required to protect the Licensor's operations, and shall not proceed with the work until such plans have been approved by the Chief Engineer of the Licensor and then only under the supervision of the Chief Engineer or his authorized representative. The Licensor shall have the right, if it so elects, to provide such support as it may deem necessary for the safety of its track or tracks during the time of construction, maintenance, repair, renewal, modification, relocation, reconstruction or removal of the Pipe Line, and, in the event the Licensor provides such support, the Licensee shall pay to the Licensor, within fifteen (15) days after bills shall have been rendered therefor, all expense incurred by the Licensor in connection therewith, which expense shall include all assignable costs plus ten percent (10%) to cover elements of expense not capable of exact ascertainment.

The Licensee shall keep and maintain the soil over the Pipe Line thoroughly compacted and the grade even with the adjacent surface of the ground.

Section 3. NOTICE OF COMMENCEMENT OF WORK.

The Licensee shall notify the Licensor at least forty-eight (48) hours in advance of the commencement of any work upon property of the Licensor in connection with the construction, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line. All such work shall be prosecuted diligently to completion.

Section 4. LICENSEE TO BEAR ENTIRE EXPENSE.

The Licensee shall bear the entire cost and expense incurred in connection with the construction, maintenance, repair and renewal and any and all modification, revision, relocation, removal or reconstruction of the Pipe Line, including any and all expense which may be incurred by the Licensor in connection therewith for supervision or inspection, or otherwise.

Section 5. RELOCATION OR REMOVAL OF PIPE LINE.

The license herein granted is subject to the needs and requirements of the Licensor in the operation of its railroad and in the improvement and use of its property, and the Licensee shall, at the sole expense of the Licensee, move all or any portion of the Pipe Line to such new location or (unless the Pipe Line extends entirely across the property of the Licensor) remove the Pipe Line from such property, as the Licensor may designate, whenever, in the furtherance of its needs and requirements, the Licensor shall find such action necessary or desirable.

All the terms, conditions and stipulations herein expressed with reference to the Pipe Line on property of the Licensor in the location hereinbefore described shall, so far as the Pipe Line remains on the property, apply to the Pipe Line as modified, changed or relocated within the contemplation of this section.

Section 6. NO INTERFERENCE WITH LICENSOR'S OPERATION.

The Pipe Line and all parts thereof within and outside of the limits of the property of the Licensor shall be constructed and, at all times, maintained, repaired, renewed and operated in such manner as to cause no interference whatsoever with the constant, continuous and uninterrupted use of the tracks, property and facilities of the Licensor, and nothing shall be done or suffered to be done by the Licensee at any time that would in any manner impair the safety thereof.

Section 7. CLAIMS AND LIENS FOR LABOR AND MATERIAL; TAXES.

The Licensee shall fully pay for all materials joined or affixed to and labor performed upon property of the Licensor in connection with the construction, maintenance, repair, renewal, modification or reconstruction of the Pipe Line, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of the Licensee. The Licensee shall indemnify and hold harmless the Licensor against and from any and all liens, claims, demands, costs and expenses of whatsoever nature in any way connected with or growing out of such work done, labor performed, or materials furnished.

The Licensee shall promptly pay or discharge all taxes, charges and assessments levied upon, in respect to, or on account of the Pipe Line, to prevent the same from becoming a charge or lien upon property of the Licensor, and so that the taxes, charges and assessments levied upon or in respect to such property shall not be increased because of the location, construction or maintenance of the Pipe Line or any improvement, appliance or fixture connected therewith placed upon such property, or on account of the Licensee's interest therein. Where such tax, charge or assessment may not be separately made or assessed to the Licensee but shall be included in the assessment of the property of the Licensor, then the Licensee shall pay to the Licensor an equitable proportion of such taxes determined by the value of the Licensee's property upon property of the Licensor as compared with the entire value of such property.

Section 8. RESTORATION OF LICENSOR'S PROPERTY.

In the event the Licensee shall take down any fence of the Licensor or in any manner move or disturb any of the other property of the Licensor in connection with the construction, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line, then and in that event the Licensee shall, as soon as possible and at Licensee's sole expense, restore such fence and other property to the same condition as the same were in before such fence was taken down or such other property was moved or disturbed, and the Licensee shall indemnify and hold harmless the Licensor, its officers, agents and employes, against and from any and all liability, loss, damages, claims, demands, costs and expenses of whatsoever nature, including court costs and attorneys' fees, which may result from injury to or death of persons whomsoever, or damage to or loss or destruction of property whatsoever, when such injury, death, damage, loss or destruction grows out of or arises from the taking down of any fence or the moving or disturbance of any other property of the Licensor.

Section 9. LIABILITY.

The Licensee shall indemnify and hold harmless the Licensor and other companies which use the property of the Licensor, their officers, agents and employes, against and from any and all liability, loss, damage, claims, demands, costs and expenses of whatsoever nature, including court costs and attorneys' fees, which may result from injury to or death of persons whomsoever, or against and from damage to or loss or destruction of property whatsoever (including damage to the roadbed, tracks, equipment or other property of the Licensor and such other companies or property in their care or custody), when such injury, death, loss, destruction or damage is due to or arises from the bursting of or leaks in the Pipe Line, or in any other way whatsoever is due to, or arises because of, the existence of the Pipe Line or the construction, operation, maintenance, repair, renewal, modification, reconstruction, relocation or removal of the Pipe Line or any part thereof, or to the contents therein or therefrom (except when caused directly and solely by the negligence of the Licensor and such other companies, their officers, agents or employes). The Licensee does hereby release the Licensor and such other companies, their officers, agents and employes, from all liability for damages on account of injury to the Pipe Line from any cause whatsoever.

Section 10. TERMINATION ON NONUSER OR DEFAULT.

If the Licensee does not use the right herein granted or the Pipe Line for one (1) year, or if the Licensee continues in default in the performance of any covenant or agreement herein contained for a period of thirty (30) days after written notice from the Licensor to the Licensee specifying such default, the Licensor may, at its option, forthwith terminate this Agreement. Notice of default and notice of termination may be served upon the Licensee by mailing to the last known address of the Licensee.

Section 11. REMOVAL OF PIPE LINE UPON TERMINATION OF AGREEMENT.

Within ninety (90) days after the termination of this Agreement howsoever, the Licensee shall, at Licensee's sole expense, remove the Pipe Line from those portions of the property not occupied by the roadbed and track or tracks of the Licensor and shall restore, to the satisfaction of the Licensor, such portions of such property to as good condition as they were in at the time of the construction of the Pipe Line. If the Licensee fails to do the foregoing, the Licensor may do such work of removal and restoration at the cost and expense of the Licensee. The Licensor may, at its option, upon such termination, at the entire cost and expense of the Licensee, remove the portions of the Pipe Line located underneath its roadbed and track or tracks and restore such roadbed to as good condition as it was in at the time of the construction of the Pipe Line, or it may permit the Licensee to do such work of removal and restoration under the supervision of the Licensor. In the event of the removal by the Licensor of the property of the Licensee and of the restoration of the roadbed and property as herein provided, the Licensor shall in no manner be liable to the Licensee for any damage sustained by the Licensee for or on account thereof, and such removal and restoration shall in no manner prejudice or impair any right of action for damages, or otherwise, that the Licensor may have against the Licensee.

Section 12. WAIVER OF BREACH.

The waiver by the Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by the Licensee shall in no way impair the right of the Licensor to avail itself of any subsequent breach thereof.

Section 13. AGREEMENT NOT TO BE ASSIGNED.

The Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of the Licensor, and it is agreed that any transfer or assignment or attempted transfer or assignment of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without such consent in writing, shall be absolutely void and, at the option of the Licensor, shall terminate this Agreement.

Section 14. SUCCESSORS AND ASSIGNS.

Subject to the provisions of Section 13 hereof, this Agreement shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

STATE OF OREGON)
: ss.
County of Multnomah)

On the 14th day of March, 1984, before me, a Notary Public in and for said County, personally appeared A. L. SHOENER to me personally known to be the General Manager of OREGON SHORT LINE RAILROAD COMPANY and UNION PACIFIC RAILROAD COMPANY, who, being duly sworn, did say that the instrument was signed and executed in behalf of said corporations by authority duly conferred by their By-Laws, and acknowledged to me said instrument to be the free act and deed of said corporations.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first in this, my certificate, written.

Notary Public

Residing at Barton

My Commission Expires:

9-14-86

STATE OF IDAHO)
: ss.
County of Bannock)

On the 22nd day of February, 19 84, before me, a Notary Public, personally appeared ~~LYNDON GREEN and~~ JOHN BOWEN to me personally known to be the ~~President and Secretary, respectively,~~ of MARSH VALLEY HYDROELECTRIC COMPANY, who, being duly sworn, did say that the instrument was signed and executed in behalf of said corporation by authority duly conferred according to law, and acknowledged to me said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first in this, my certificate, written.

Notary Public

Residing at

RANDALL C. BUDGE
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION EXPIRES OCT. 15, 1984

My Commission Expires:

10/15/84

NO 726364

Union Pacific System
Salt Lake City, Utah
'84 APR -2 A9:12

407

LARRY W. RECORDER
FEE 12.00 DEPUTY lah

EXHIBIT E

ENVIRONMENTAL REPORT

FOR THE

MARSH VALLEY PROJECT

EXHIBIT E

EVIRONMENTAL REPORT

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EXHIBIT E

ENVIRONMENTAL REPORT

1. ENVIRONMENTAL SETTING

1.1 Vegetative Cover

The Portneuf River-Marsh Valley (PMV) Canal originates from the Portneuf River just upstream from the Highway 30 bridge and roughly parallels the river through the project area. There are three types of vegetation within the project area: (1) dryland vegetation dominated by a sagebrush-grass association; (2) riverine vegetation along the Portneuf River and the PMV Canal; and (3) cultivated crops within the valley area.

Relatively sparse dryland vegetation characterizes the hillsides adjacent to the Portneuf Valley. Sagebrush, cheatgrass, rabbitbrush and wheatgrass are the primary species. Plant density is locally heavy in the numerous small draws that extend down the hillsides to the valley. Sagebrush is also scattered throughout the river valley.

Riverine vegetation predominates along the Portneuf River and the PMV Canal. This riparian vegetation includes such species as willow, wild rose, currant, sagebrush and a variety of grasses and forbs. Narrow-leafed cottonwood, willow and a few other tree species are generally scattered along the Portneuf River, but occur in significant concentrations in a few areas. The trees occur primarily along the river with the largest stand located upstream from the PMV Canal inlet structure.

There is some cropland within the general project area. Hay and small grains appear to be the main crops grown on these parcels. All crops are irrigated by the Portneuf River and associated canals.

1.2 Fish and Wildlife Resources

The 1978 Stream Evaluation Map, State of Idaho classifies the Portneuf River as a Value Class II stream from the Portneuf-Marsh Valley Canal diversion upstream to Lava Hot Springs. Downstream from the canal diversion the river is classified as a Value Class III stream. The bulk of the project area appears to contain the reach of the Portneuf which has been classed as a Value Class III fishery.

The Portneuf River in the general project vicinity is known to contain rainbow, brown and cutthroat trout. The mixture and number of these trout varies greatly within different reaches of the river. The Idaho Department of Fish and Game has conducted electrofishing surveys on several sections of the Portneuf River, but the reach of the Portneuf within the project area was not included. Surveys were conducted from Lava Hot Springs downstream for a distance of two miles. This section

is still several miles upstream from the project area. Trout population estimates based on these 1979-1981 surveys are shown below:

TROUT POPULATION ESTIMATES
PORTNEUF RIVER FROM LAVA HOT SPRINGS DOWNSTREAM TWO MILES

Year	Wild Rainbows	Hatchery Rainbows	Brown	Cutthroat	Total*
1979	1,290	—	128	—	1,418
1980	872	—	28	18	918
1981	2,369	50	112	5	2,536

*The 95 percent confidence interval of the population estimate was ±904 in 1979, ±884 in 1980 and ±1,061 in 1981.

Since the Idaho Department of Fish and Game surveys did not cover the project area, a survey for most of the affected reach of the Portneuf was conducted (See Appendix B of Exhibit E). This survey was conducted during January and February of 1983 and utilized a combination of gillnet, electroshocking and seining. The reach of the river from the canal diversion downstream to an area near the proposed powerhouse site was surveyed.

The survey discovered eight species of fish within the surveyed reach of the Portneuf: brown trout, rainbow trout, Utah sucker, bluehead sucker, Utah chub, speckled dace, redside shiner and mottled sculpin. A total of 139 fish were collected, excluding the sculpin which was relatively abundant in some localities. Most of the fish were suckers and minnows (shiners, dace and chub) were relatively uncommon.

A total of five brown trout and two rainbow trout were collected. All were wild trout, and the browns appeared to be in poor condition. The surveyor attributed the poor condition of the brown trout to a lack of forage fish. The total number of trout within the study segment was extimated to be less than 200.

Wildlife which inhabit the project area include those associated with the riparian habitat and those found on the adjacent drylands and cultivated areas. Ducks, geese, gulls and other waterfowl are common along the Portneuf River at certain times of the year. Beaver, Muskrat and perhaps other aquatic furbearing animals inhabit the river and canals and obtain relatively high populations in a few areas. Other mammals inhabiting the general project area include the mule deer, badger, skunk and ground squirrel.

Some upland game birds inhabit the dryland and cultivated fields in the project area. Gray (Hungarian) partridge, mourning dove, valley quail, a few ring-necked pheasants and perhaps an occasional sage grouse are found within the project area.

A variety of birds-of-prey range along the Portneuf River. Cooper's hawk, sharpshinned hawk, goshawk, red-tailed hawk, golden eagle and several species of owl are common in the general area. In addition to raptors, a variety of small songbirds and other nongame species inhabit the area.

1.3 Water Quality and Quantity

A gaging station is maintained at Topaz which is approximately 1.5 miles upstream from the PMV Canal inlet. Hydrologic flows are discussed in Exhibit A, Section 4.
There is no water quality information for the Portneuf River or the canals within the project area. The Idaho Department of Health and Welfare maintains one trend station on the Portneuf River below Pocatello. Water quality in the tested area is rated as poor. Sources of pollution are agricultural, industrial and urban. Though the water quality in the project area is probably superior to that at the Pocatello trend station, it is also polluted to some degree by irrigation and municipal wastes. Currently, during the irrigation season, the Portneuf River is virtually dewatered, and low flows combine with high temperatures to produce poor water quality.

1.4 Land and Water Uses

U.S. Highway 30N and the Union Pacific Railroad are within the narrow Portneuf Valley. Other than these transportation routes and a few irrigated agricultural plots, there is little land use in the area. Some fishing and hunting activity is conducted along the river, but these uses appear to be limited.
The PMV Canal and the McCammon Ditch are diverted from the Portneuf River within the Project area. These canals carry water to large agricultural areas located downstream from the project. The primary water use of the Portneuf River in the general project area is for agricultural irrigation.

1.5 Recreational Uses

Recreational uses of the project area are limited to occasional hunting and fishing activities. The subject reach of the Portneuf is generally regarded as a poor fishery for trout.

1.6 Socio-Economic Conditions

There are no legal, social or institutional constraints associated with the proposed Marsh Valley Power Project. The project is small scale. There will be short term employment benefits for the area during construction. Over the long-term, the project will provide economic benefits to the Canal Co. which can be passed on to the water users in the area in the form of reduced rates and/or better services.

1.7 Historical and Archaeological Resources

There are no recorded historical or archaeological sites within the project area. The proposed project would utilize existing facilities and would not involve sufficient construction to damage any historical or archaeological resources. According to the State Historic

Preservation Officer, the project will have no effect on any archaeological or historical resources (See letter from the State Historic Preservation Officer - Appendix A of Exhibit E). In the event historical sites are uncovered during construction, all construction would be stopped until authorization to proceed is given by the State Historical Preservation Officer.

1.8 Scenic and Aesthetic Resources

There are no unusual scenic or aesthetic resources in the project area. Highway 30, the railroad and the canals help create a very mediocre scene. Surrounding hills are generally dry and do not support tree growth.

1.9 Endangered and Threatened Species

There are no known endangered or threatened species of plants or animals in the project area (See U.S. Fish & Wildlife Letter - Appendix A of Exhibit E).

1.10 Critical Habitats

The riverine vegetation along the Portneuf River and the PMV Canal provides habitat for a variety of birds and animals. However, this habitat is not considered critical and similar habitat is found along the waterways outside of the project area.

1.11 National Register of Historic Places

There are no sites included in or eligible for inclusion in the National Register of Historic Places.

2. POTENTIAL ENVIRONMENTAL IMPACTS

2.1 Construction

The proposed project would require the new construction of a forebay, penstock, powerhouse and appurtenant facilities. Most of the potential adverse impacts would be related to the construction phase in the vicinity of the proposed powerhouse.

Construction of the new facilities and the tailrace channel would create some potential for increased stream turbidity. Most of the potential would be associated with the forebay in the PMV Canal, and any increased turbidity would be largely dissipated into the irrigation network.

Construction activity would result in a temporary increase in noise levels in the immediate project area. This increased noise could poten-

tially disrupt the normal activity of wildlife in the project vicinity. Nesting waterfowl would be especially vulnerable if construction is conducted during the nesting season. Since the highway and railroad are in the immediate area at present, wildlife are not likely to be disturbed to any great extent by construction activity. There are no human dwellings in the immediate project area.

Construction activity would have the potential to destroy riparian vegetation along the canal and at certain points on the Portneuf River (i.e., powerhouse location and tailrace).

2.2 Operation

The operation of the proposed hydroelectric faciltiy would create potential for some ongoing impacts. These long-term impacts include the potential hazard to fish and wildlife, noise, water pollution and degradation of aesthetic quality.

Electrical shock from generating and transmission facilities is a potential hazard to wildlife. Raptors inhabit the project area, and these birds have a natural tendency to perch upon structures.

There are also a variety of mammals in the area that could come in contact with electrical components of the faciliity.

Damage to aquatic life due to turbine ingestion is a hazard with hydropower plants unless precautions are taken to screen the inlet water. Some screening is usually necessary to protect generating equipment as well as fish and aquatic wildlife.

Operation of the generating units would produce some noise on a long-term basis. However, noise levels would not be sufficient to be disruptive to wildlife or human activities. Noise from generating equipment would not exceed the 65 decibel level outside of the immediate powerhouse area.

Turbine operation could potentially contribute minute amounts of pollution to the river by releasing grease, oil or metallic particles. These pollutants would not be measurable even in extreme cases. Selection of properly constructed generating equipment would essentially eliminate any potential for water pollution.

2.3 Agency Concerns

The following agencies were consulted regarding the proposed development.

a. U. S. Fish and Wildlife

(1) Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

(2) The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

(3) Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage and nitrogen supersaturation resulting from air entrainment in the penstocks.

b. Idaho State Historical Society

The project will have no effect on any archaeological or historic properties.

c. National Marine Fisheries Service

Since there are no anadromous fish, the agency had no comments.

2.4 Proposed Mitigation Measures

a. By Agencies

(1) U.S. Fish and Wildlife Service (FWS)

The FWS determined that the following study and preliminary terms and conditions were appropriate.

- Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

- Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

- Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

- Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

(2) Idaho Department of Fish and Game (IDFG)

- Recommended a minimum streamflow in the Portneuf River past the check structures of not less than what presently occurs during irrigation season. Ten (10) cfs was indicated by the agency as appropriate.

- Transmission lines buried or designed to preclude raptor mortalities.

- Avoid short-term and long-term erosion due to construction practices.

- Avoid undue disturbance of riparian habitat; replacement of vegetation may be required.

B. By Applicant

Most of the potential adverse environmental impacts from the construction and operation of the proposed facility can be mitigated. The following measures are proposed to largely eliminate the potential for adverse environmental effects from the construction and operation of the facility:

(1) Establish standards and procedures in the project bid documents regarding the timing of construction, soil stabilization, construction methods and other efforts required to minimize stream turbidity.

(2) Establish standards and procedures in the project bid documents regarding the use of mufflered equipment, the hours of construction and other requirements to reduce construction noise impact.

(3) Fence the transformer area and raptor-proof transmission line facilities to minimize the electrocution hazard to wildlife.

(4) Select turbines which utilize sealed bearings or water-lubricated bearings in order to minimize the potential for water pollution.

(5) Design the total facility to minimize the potential for nitrogen and oxygen problems.

(6) Use appropriate earthtone colors for the powerhouse unit to minimize the potential for adverse visual and aesthetic impacts.

EXHIBIT E

ALTERNATIVE MEANS OF OBTAINING POWER

3. ALTERNATIVE MEANS OF OBTAINING POWER

In the event that the proposed hydroelectric facilities are not constructed, the Applicant would have to obtain power from the Utah Power and Light Company. Utah produces power from a variety of sources, including hydroelectric and fossil fuel.

EXHIBIT E - APPENDIX A

Letters of Agency Consultation

File
Marsh Valley
Ind Co Files

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
4620 Overland Road, Room 209
Boise, Idaho 83705

February 11, 1983

Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Avenue
Suite 1
Boise, Idaho 83709

Dear Mr. Auth:

Thank you for your letter of January 11 regarding the proposed hydroelectric project. In accordance with 18 CFR consultation requirements, we have reviewed your license exemption project on Portneuf River in Bannock County, Idaho.

We understand that the proposed project would consist of the following: (1) an automatically controlled diversion in the Portneuf-Marsh Valley Canal, (2) two steel penstocks, 400 feet long and 125 feet long, (3) a powerhouse with an estimated installed capacity of 1,200 kW, and (4) a three-phase transmission line about 2 miles long.

Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage, and nitrogen supersaturation resulting from air entrainment in the penstocks.

No listed or proposed threatened or endangered species are known to occur within the project area.

Based on the present information, we have determined that the following study and preliminary terms and conditions are appropriate. We encourage the applicant to perform the needed study prior to submitting an application to the FERC since a design change may be required.

Needed Study:

Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

Preliminary terms and conditions:

1. Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

2. Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

3. Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

When you file the application with FERC, please provide complete copies to us and IDFG for our review. If deemed necessary after further analysis of the project, we shall stipulate new or revised terms and conditions in our response to FERC's public notice of the proposed exemption. Please let us know if we can be of further assistance.

Sincerely yours,

Walter D. Ray

for John P. Wolflin
Acting Field Supervisor

cc: IDFG, Hdqtrs, Boise
IDFG, Region 5, Pocatello
BIA, Portland
FWS, AE-LWD, Portland
FWS, SE, Boise
Sho-Ban Tribes, Ft. Hall (Christoferson)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

January 19, 1983 F/NWR5:CRB

Mr. Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Ave., Suite 1
Boise, Idaho 83709

Re: Portneuf - Marsh Valley Hydroelectric Project - Application for Exemption from Licensing

Dear Mr. Auth:

The National Marine Fisheries Service has received your letter requesting our views and recommendations concerning the development of the subject project.

Since there are no anadromous fish in the area, we have no comments to offer.

Sincerely,

Dale R. Evans
Division Chief

cc: Federal Energy Regulatory Commission, Washington, D.C.

IDAHO STATE HISTORICAL SOCIETY
610 NORTH JULIA DAVIS DRIVE BOISE, 83702

J-U-B Engineers
RECEIVED
JAN 2 1983
BOISE, IDAHO

January 25, 1983

Mr. Marc A. Auth
J-U-B Engineers, Inc.
250 S. Beechwood Avenue
Suite 1
Boise, ID 83709

Dear Mr. Auth:

Thank you for informing us of the proposed Portneuf - Marsh Valley hydroelectric project. This project will have no effect on any archaeological or historic properties.

Sincerely,

Thomas J. Green
State Archaeologist
State Historic Preservation Office

TG/kh

IDAHO DEPARTMENT OF FISH AND GAME
REGION 5 Phone 232-4703
South Fifth Avenue • P.O. Box 4229
Pocatello, Idaho 83201

March 11, 1983

Mr. Marc A. Auth
Project Engineer
J-U-B Engineers, Inc.
250 So. Beechwood Ave.
Suite One
Boise, ID 83709

Re: Portneuf/Marsh Valley Hydroelectric Project. Early consultation. Application for exemption from FERC licensing. Marsh Valley Hydroelectric Company.

Dear Mr. Auth:

This letter is based on your request for early consultation on the above named project. We recently acquired J. S. Griffith's study entitled "Fish Populations In The Vicinity Of The Proposed Marsh Valley Hydro Project," and have reviewed his findings.

We recommend that minimum flows in the area from the diversion to the powerplant be not less than those that currently occur during the irrigation season. On August 26, 1977 we measured 10 cfs of water in this area and feel this is indicative of irrigation season flows.

Other requirements of this project include the following: (1) transmission lines buried or designed to prevent raptor mortalities; (2) project construction to avoid creating short-term and long-term erosion and undue disturbance of riparian habitat; and (3) replacement of vegetation may be required.

These conditions do not constitute submission of terms and conditions under Section 408 of the Energy Security Act of 1980. Terms and conditions will be submitted after notice of application from the Federal Energy Regulatory Commission (FERC).

As required by Section 4.107 (a), (2) of the FERC Order No. 106, please forward a copy of the exemption application to the Idaho Department of Fish and Game, P. O. Box 25, Boise, Idaho 83707, at the time it is submitted to the Federal Energy Regulatory Commission.

Sincerely,

John T. Heimer
for Jerry Mallet
Region 5 Supervisor

cc: USFWS (Wolflin)
Program Coordination

Region 5
5205 S. 5th Avenue
Pocatello, Idaho 83201
Telephone: (208) 232-4703

September 20, 1984

Mr. Ronald D. Carlson
Eastern Regional Supervisor
Idaho Department of Water Resources
150 Shoup
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Re: Application for Water Rights, #29-7578 and #29-7772, Portneuf River Hydroelectric Projects

We would like to withdraw our protests against the above referenced applications as we have now been furnished with information regarding them as requested. We understand that a minimum of 10 cfs is to be left in the stream and all other conditions requested by the Department agreed to.

Sincerely,

David Neider
Supervisor, Region 5

DN:JH:sc

cc: Randall C. Budge

EQUAL OPPORTUNITY EMPLOYER

EXHIBIT E - APPENDIX B

Fish Population Study

FISH POPULATIONS IN THE VICINITY OF

THE

PROPOSED MARSH VALLEY HYDRO PROJECT

Report To:

J-U-B Engineers, Inc.
and
The Marsh Valley Hydro Electric Company

22 February 1983

By:

J. S. Griffith, Ph.D.
2055 Kenneth Place
Pocatello, ID 83201

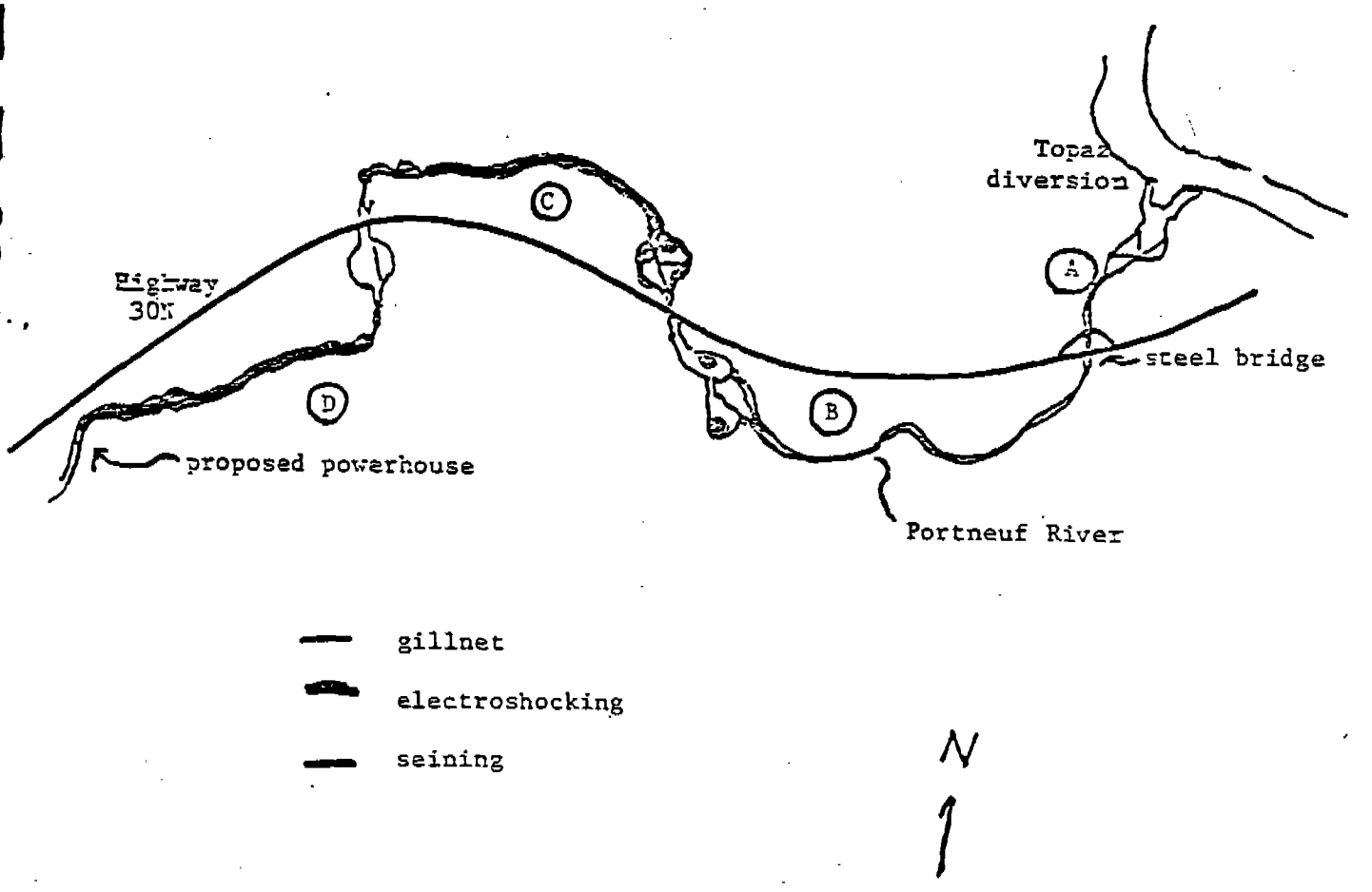
Introduction

Field data were gathered in January and February 1983 to characterize fish populations in a portion of the Portneuf River between McCammon and Lava Hot Springs (Bannock County, Idaho) that would be impacted by the proposed hydro project. The project would divert approximately 250 cfs at the existing Topaz Diversion during the non-irrigation season and return that flow through a powerhouse to the river at a point adjacent to Highway 30N approximately 1.3 road miles west of the highway bridge at Topaz (Figure 1). Flows in approximately 15,000 feet of the river would thus be substantially reduced, in a manner similar to that in which it (and a longer reach downriver) is presently dewatered during the irrigation season. During peak runoff (typically at 500 - 700 cfs in April), flow would resume in the natural channel.

Site Description

From the Topaz Diversion to the site of the proposed powerhouse, the river is dissected into four segments as it is passed in culverts under Highway 30N (Figure 1). It is impossible to drift a boat equipped with sampling gear from one segment to the next. River segment A, at the head of the section studied, extends approximately 500 feet and is characterized by a steep cascade over a lava sill, a deep plunge pool, and a short run. Segment B, approximately 8,700 feet long, is low-velocity water (possibly channelized along the Union Pacific rail line) followed by two waterfalls and plunge pools. Segment C, approximately 3,500 feet in length, consists of a large pool (the largest in the area studied)

Figure 1. Sampling locations and gear types used to sample fish populations in the Portneuf River below Topaz Diversion.



and a low-velocity run, with the lower quarter being a series of short drops over lava sills, and small pools. Segment D is 2,300 feet in length, with a pool at its head and then a series of drops (some to 3 feet) and pools. In all, there were five major pools in the 15,000-foot section, all deeper than 10 feet.

During our sampling in January an February of 1983, flows were estimated at approximately 150 cfs. Water levels, as shown on a gage near the powerhouse site, were 1 foot, 1 inch on 29 January and 1 foot, 2 inches on 20 February. Water clarity was about 12-16 inches at the end of January and improved to approximately twice that by mid-February. Water temperature was 39°F on 29 January and 45°F on 20 February.

Sampling Methods

The area was difficult to sample because of physical conditions (depth, velocity, turbidity) and lack of boat access. A combination of electroshocking and gillnetting was utilized and a few seine hauls were made.

A portion of each of the four river segments was sampled. An effort was made to concentrate on the areas of habitat that appeared most likely to hold game fish. Nearly all of Segments C and D were sampled. About half of Segment A was sampled, and Segment B received the least effort.

Electroshocking was done from a 16-foot aluminum drift boat with a 2,500-watt generator producing 300 volts D.C. and using the boat hull as the negative electrode. Two sizes of bottom-set gillnets were used. One was 1½ inch square mesh X 4-feet high X 60 -feet long, and the other was graded in mesh size from 3/4 inch to 1-3/4in five increments, 4-feet

high and 125-feet long. Nets were set for 1-2 hours during the day, or, in one case, overnight. The seine utilized was a 50-foot bag seine.

The only pool that would be sampled by electroshocking was that in Segment C. The rest of that segment was also electroshocked to the beginning of the lava falls at the downstream end. The pool in Segment D was inaccessible to the electroshocking boat, but the portion of the segment beginning approximately 250 feet below the tail of the pool was shocked. The pools in Segments A and B were inaccessible to the shocker.

Gillnetting was feasible only in the pools and was used in Segments A, C and D. The pools in Segment B were too small and water was too swiftly-flowing to enable the nets to be effectively used. The bag seine could only be used where water was shallow and free of submerged obstructions.

Fish Populations

Eight species of fish were collected, probably all of those that are present in the section of river. They were:

brown trout ... *Salmo trutta*
rainbow trout...*Salmo gairdneri*
Utah sucker ... *Catostomus ardens*
bluehead sucker... *Catostomus discobolus*
Utah chub.....*Gila atraria*
speckled dace...*Rhinichthys osculus*
redside shiner..*Richardsonius balteatus*
mottled sculpin.*Cottus bairdi*

All are common in southeast Idaho with the exception of the bluehead sucker, which is relatively uncommon but is not considered to be a species of special concern at this time.

A total of 139 fish were collected (Table 1), excluding mottled sculpin which were abundant in some areas of rocky substrate but were not collected. The bulk of the fish collected, both by weight and by numbers, were suckers. Most suckers were 10-14 inches in length, with none smaller than 8 inches taken.

Minnows (shiners, dace and chub) were relatively uncommon. Therefore the forage base of small fish available as food for predatory brown trout was very limited.

Only seven trout (5% of all fish collected) were captured. Brown trout were more numerous than rainbow trout. Sizes of the trout were:

	total length, cm	weight, grams
Browns:	48.3	822
	38.7	482
	29.9	229
	33.1	325
	29.5	226
Rainbows:	25.8	255
	19.8	162

All were wild trout. Scales were analyzed, and the oldest rainbow was in its third year of life. The two largest browns, both captured in the pool in Segment D, were both aged seven years. The smaller browns were ages 4 and 5. All browns were in noticeably poor condition (see photos), probably due to a lack of forage fish.

Due to the small sample size, it was not possible to obtain a quantative estimate of trout abundance. Trout are certainly not abundant in the area examined, and I would estimate the total population to be

Table 1. Numbers of fish collected in the vicinity of the proposed Marsh Valley Hydro Project on the Portneuf River below the Topaz Diversion, 1983.

Stream segment	Date	Gear	Effort, hours	trout		suckers		Utah chub	speckled dace	redside shiner	mottled sculpin
				brown	rainbow	Utah	bluehead				
A - pool	19 Feb	1½" gillnet	2.0	no fish collected							
		graded "	2.0	no fish collected							
B - pool	19 Feb	bag seine	0.5							26	
C - pool	29 Jan	shocker	0.7	2	2	3	0	0	4	4	2
"	" "	1½ gillnet	1.0	0	0	15	0	1	0	0	0
"	" "	graded "	1.0	0	0	18	1	0	0	0	0
"	" "	bag seine	1.0	no fish collected							
C - middle	29 Jan	shocker	0.6	no fish collected							
"	" "	1½ gillnet	1.0	no fish collected							
D - all except pool	29 Jan	shocker	1.2	1	0	23	4	0	0	0	common
D - pool	20-21 Feb	graded gill.	16.0	2	0	28	5	0	0	0	0
TOTAL				5	2	87	10	1	4	30	

less than 200 trout, mostly inhabiting the pools.

No anglers were observed in the area examined on any of the occasions we sampled. One local resident reported taking a few trout from the pool in Segment C over the last few years.

Physically, the section of river appears to provide fair habitat for trout. There is good water depth and bank cover. The substrate was very heavily sedimented. No spring areas nor areas offering spawning habitat for trout were observed.

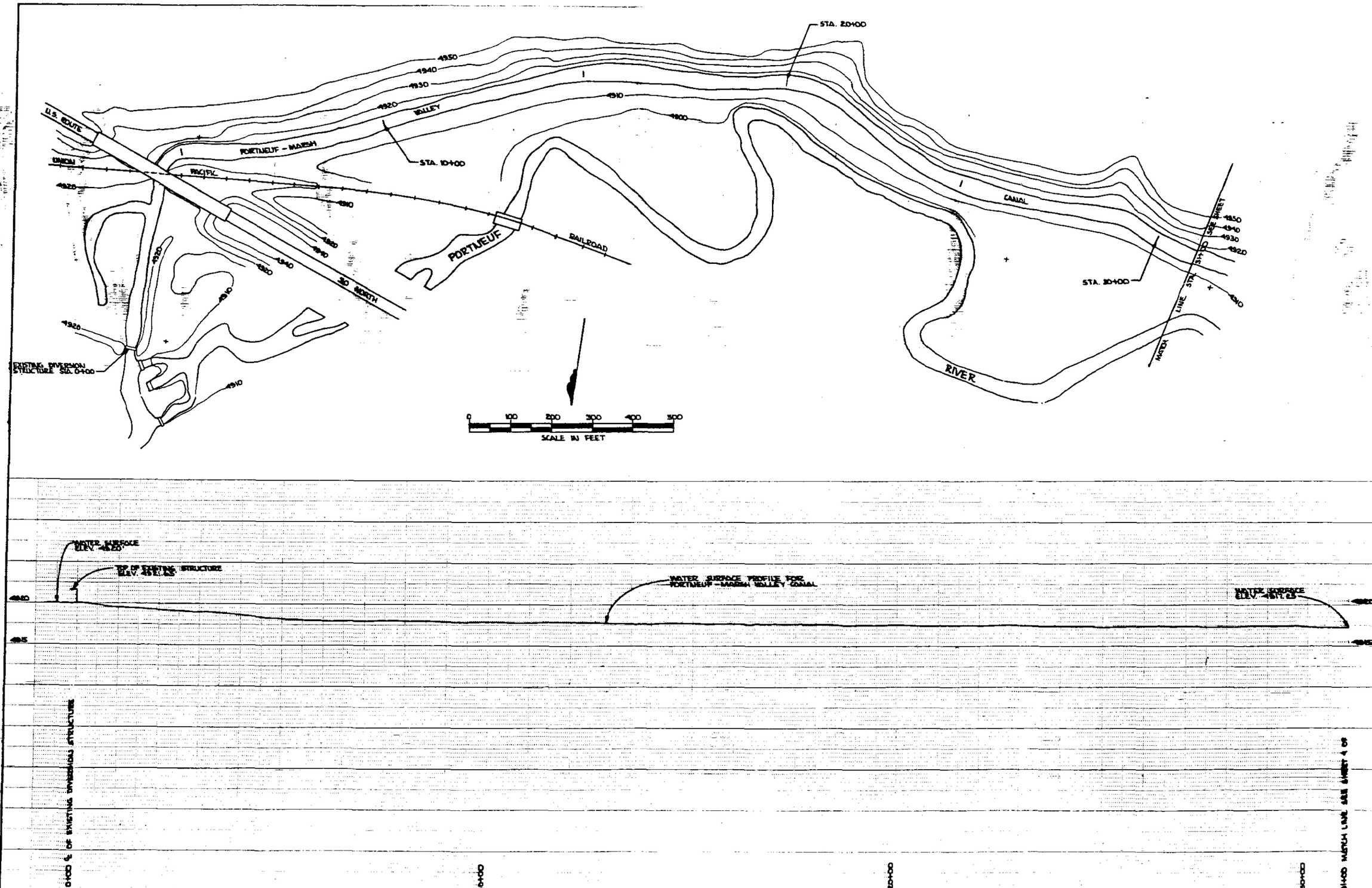
EXHIBIT G

PROJECT DRAWINGS

FOR THE

MARSH VALLEY PROJECT

EXHIBIT	TITLE
G - 1	Plan and Profile: Existing Portneuf-Marsh Valley Canal- Sheet 1
G - 2	" " " " " " " " - Sheet 2
G - 3	" " " " " " " " - Sheet 3
G - 4	" " " " " " " " - Sheet 4
G - 5	Proposed Powerhouse
G - 6	Existing Diversion Structures
G - 7	Proposed Intake Structure and Related Facilities



NO.	DATE	REVISION	BY	APP'D.

APPROVED BY

APPROVED BY

DRAWN BY TIFT

CHECKED BY KKK

SCALE AS SHOWN

HYDROELECTRIC CONSTRUCTORS, INC.
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-8887

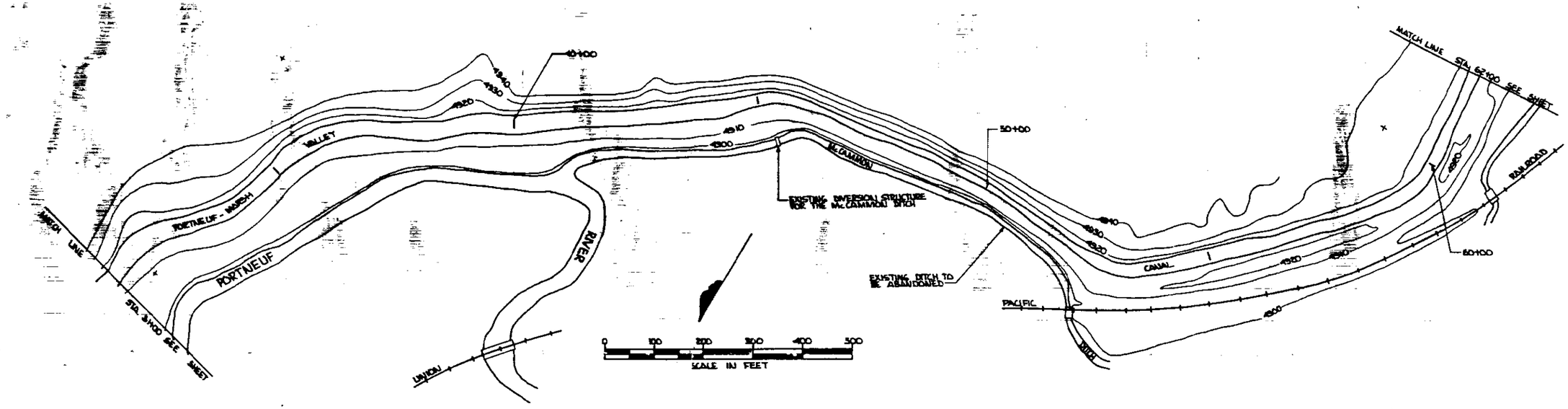
MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-1
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

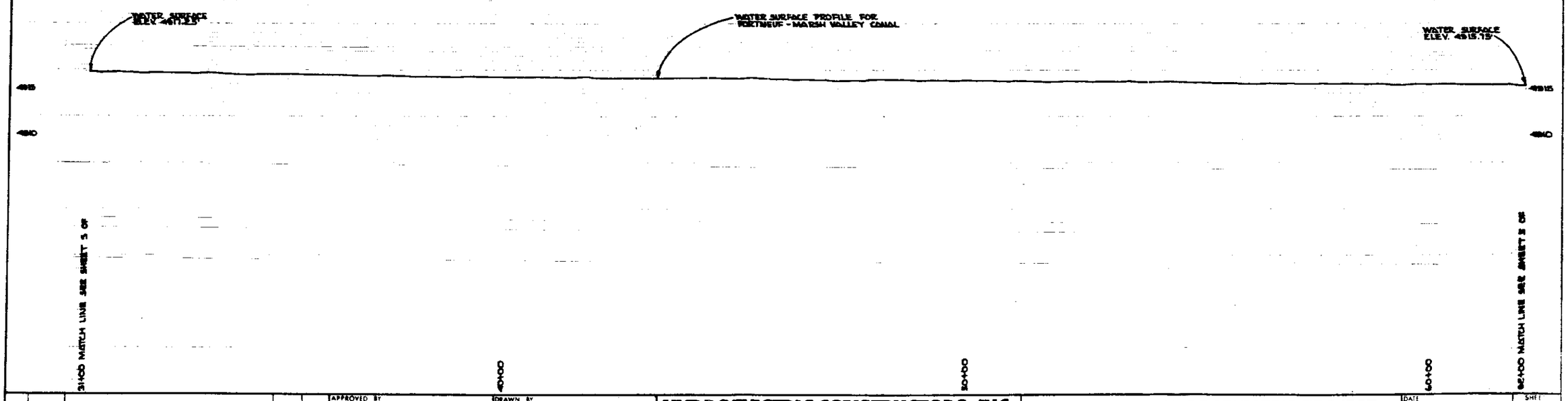
DATE 7-3-84

WORK ORDER

DWG. NO.

SHEET 1 OF 7 SHEET





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CHECKED BY K.K.K.

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FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6857

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-2
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

DATE 7-2-84

WORK ORDER

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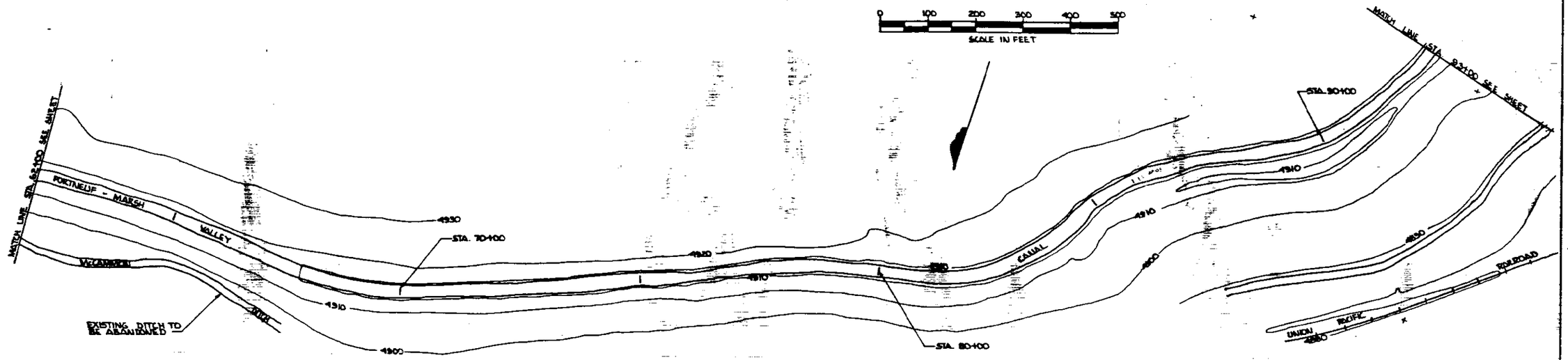

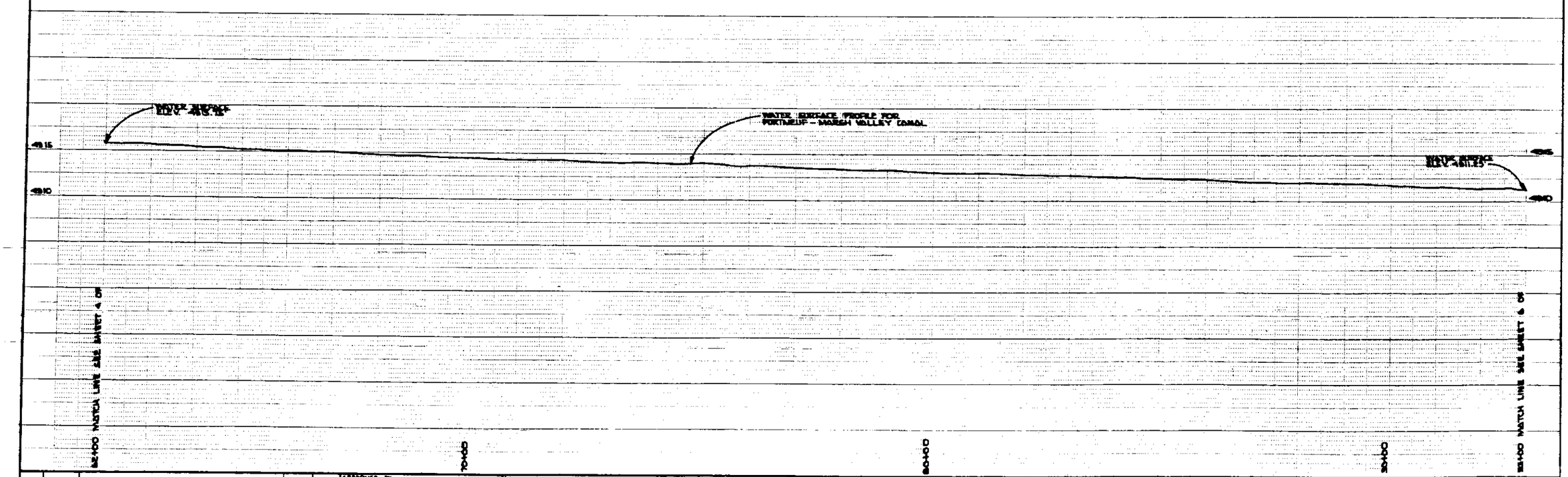

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MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-3
PLAN AND PROFILE PORTNEUF — MARSH VALLEY CANAL

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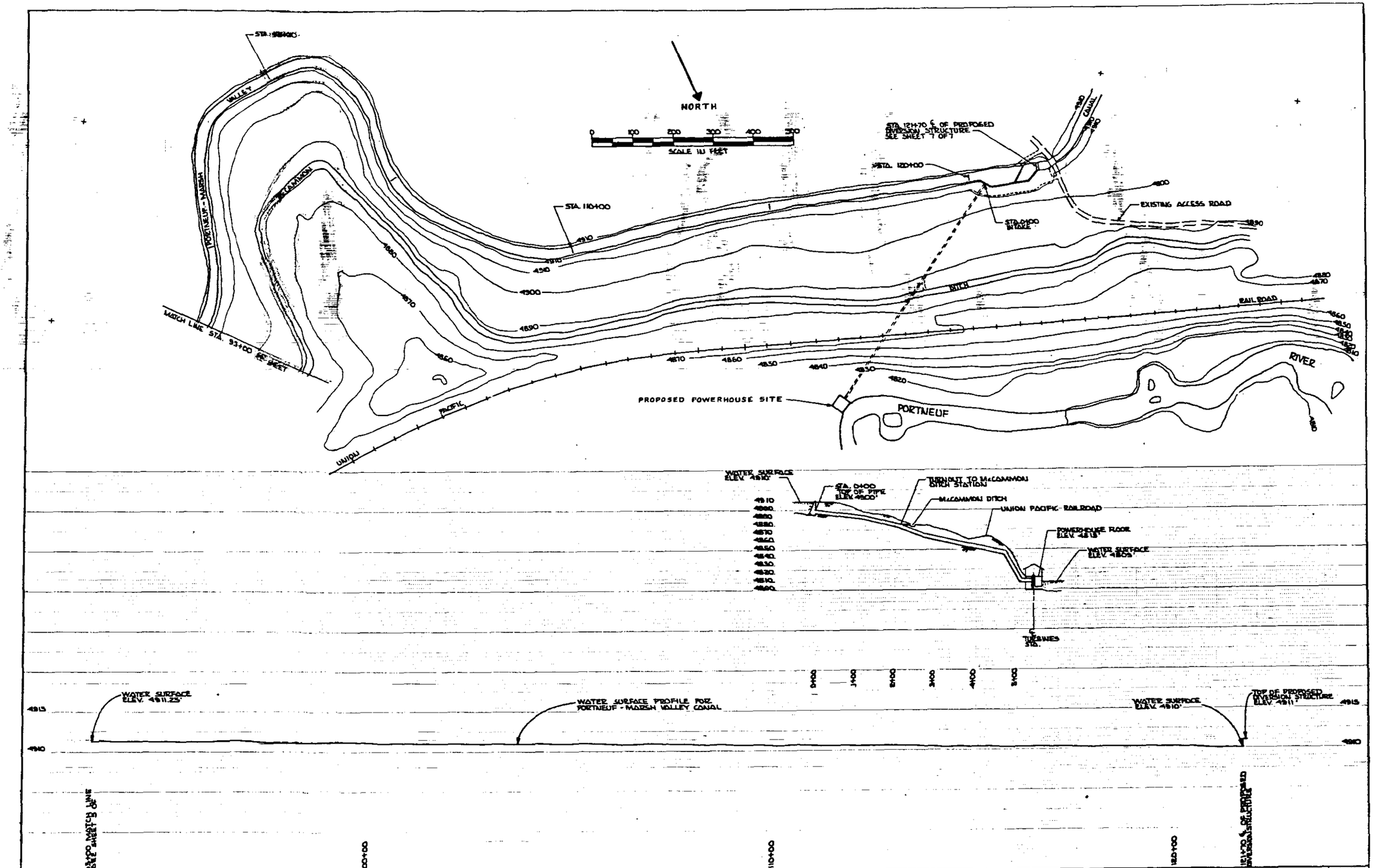

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MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-4
PLAN AND PROFILE PORTNEUF – MARSH VALLEY CANAL

DATE 7-3-84

WORK ORDER

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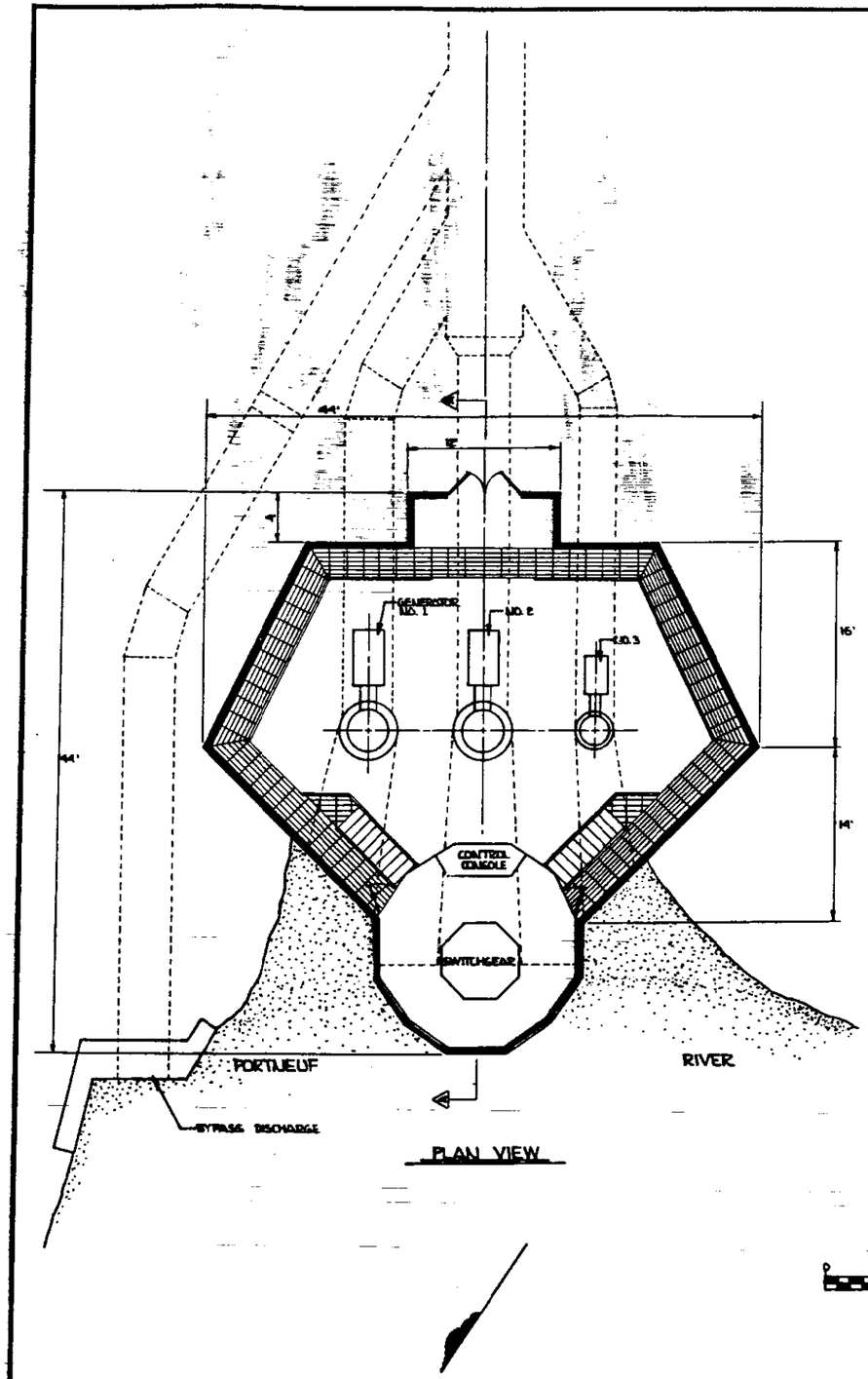
SHEET 4 OF 7



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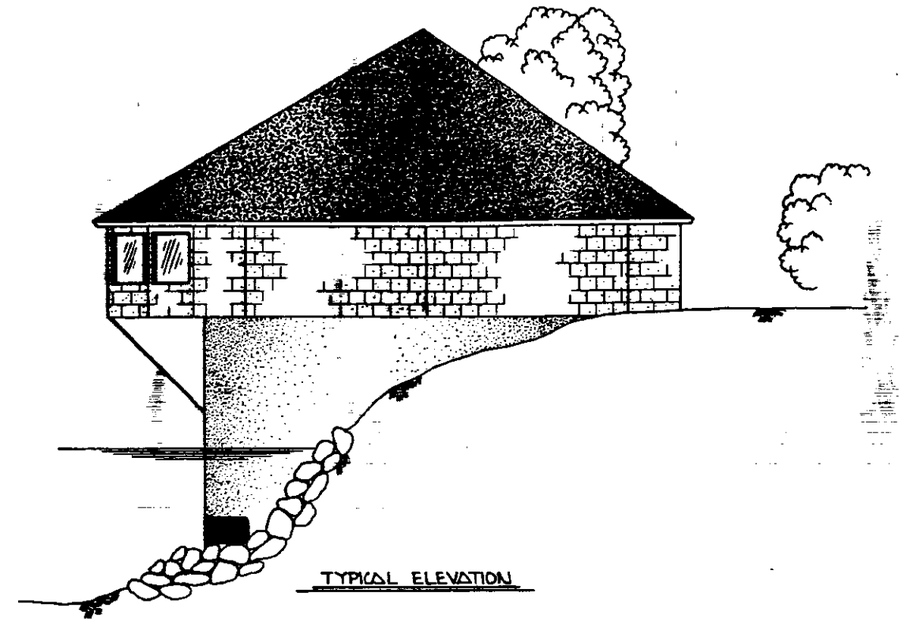

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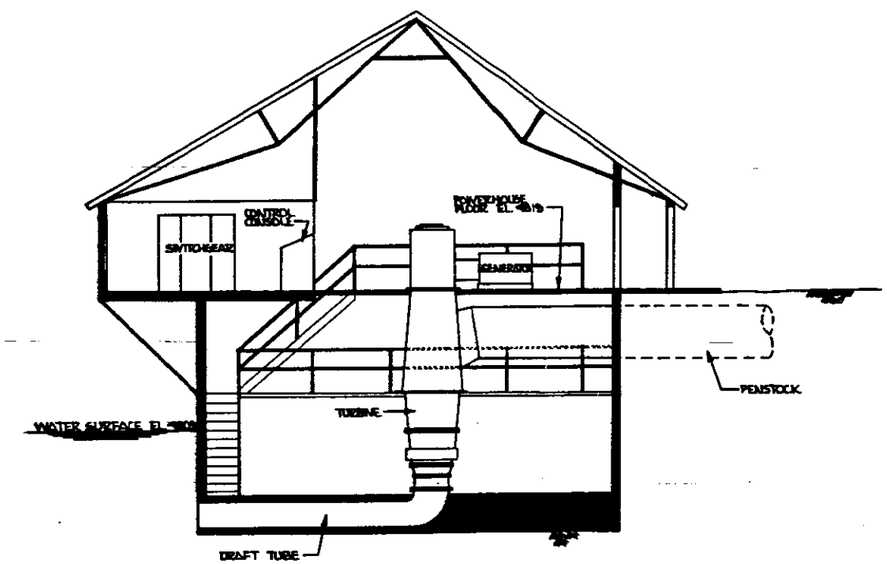

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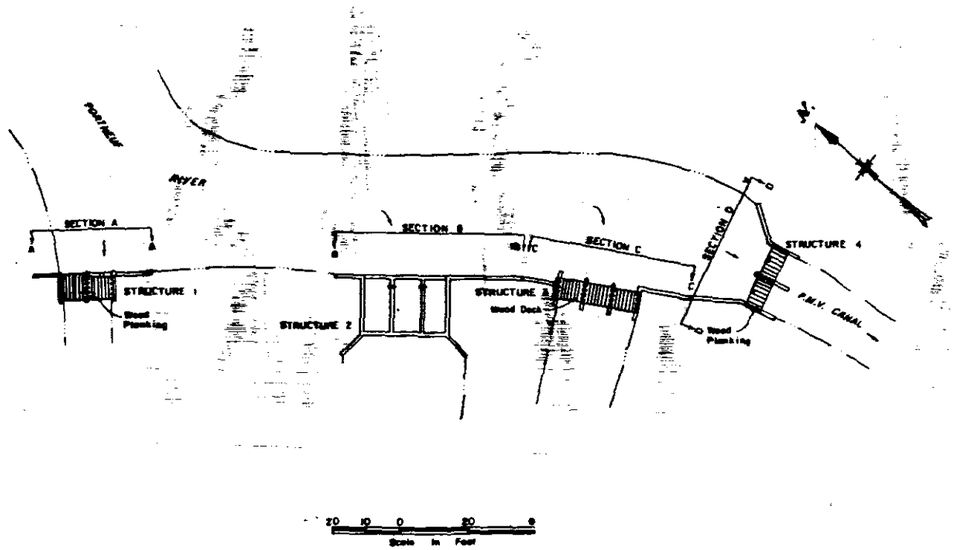
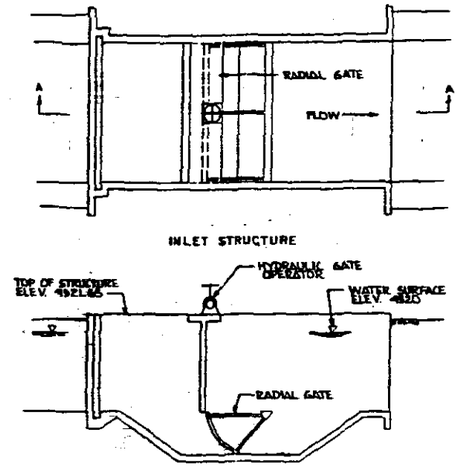
FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-5
PROPOSED POWERHOUSE

SHEET 5 OF 7 SHEETS





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PLANNED 1984 REPAIR AND MODIFICATION

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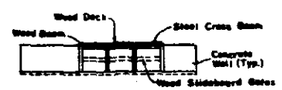
STRUCTURE #1
SEE SKETCH NO.2



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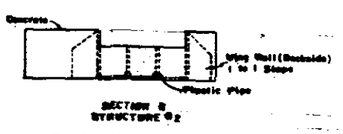
STRUCTURE #3
PLANNED 1984 REPAIR: RECONDITION OF EXISTING FACILITIES



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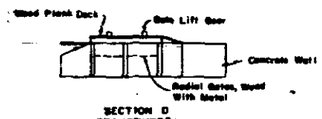

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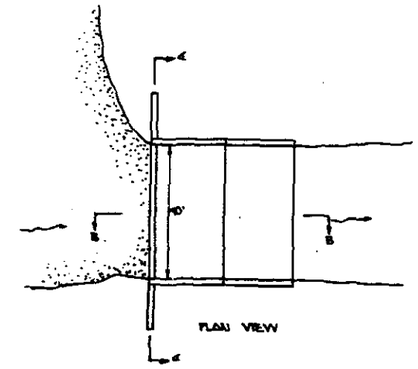
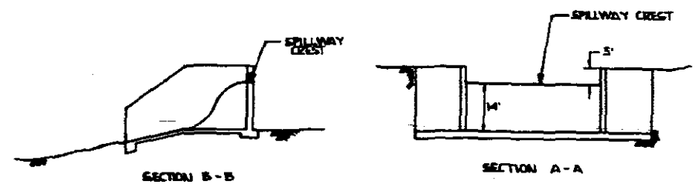
STRUCTURE #4
SEE SKETCH NO. 1





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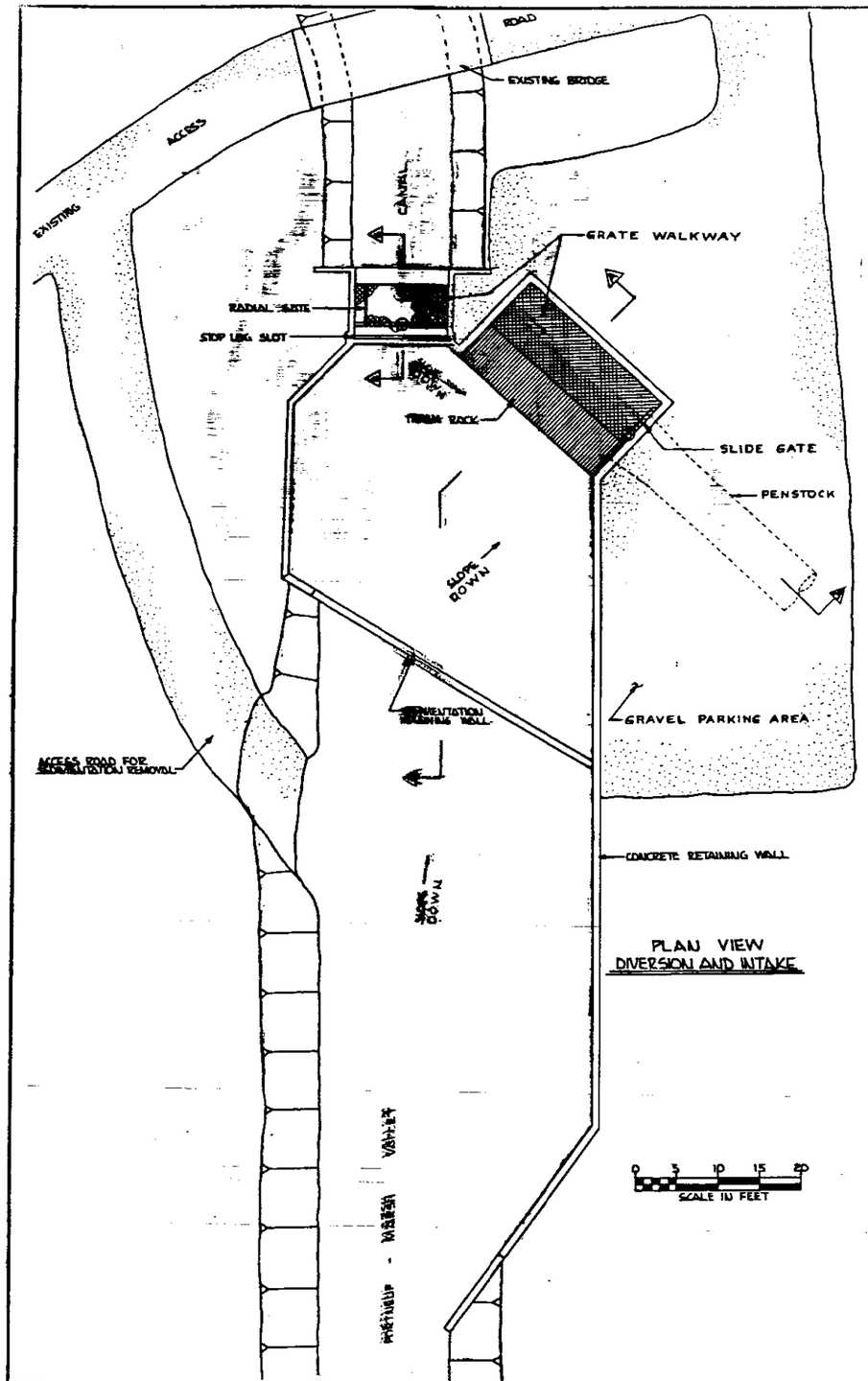
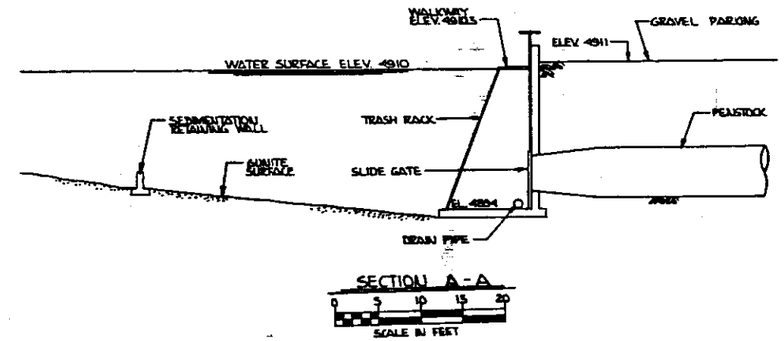
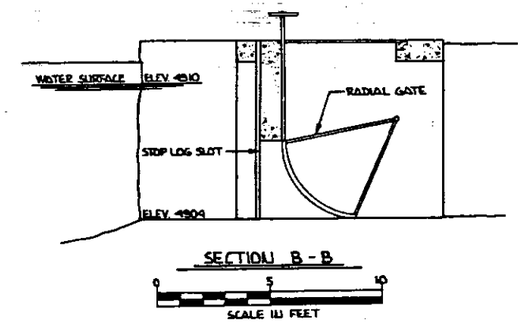
ORANGE, CALIFORNIA (714) 547-6867

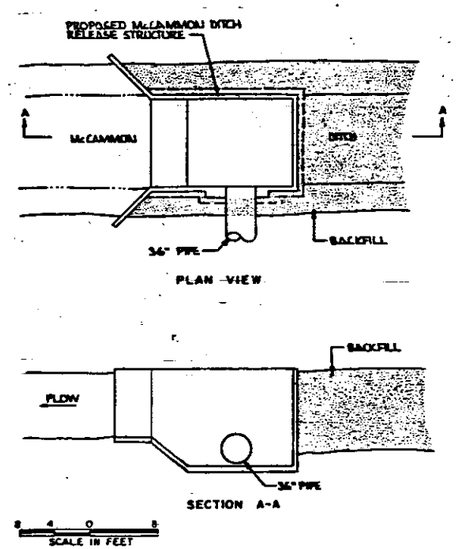
MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-6
EXISTING DIVERSION STRUCTURES

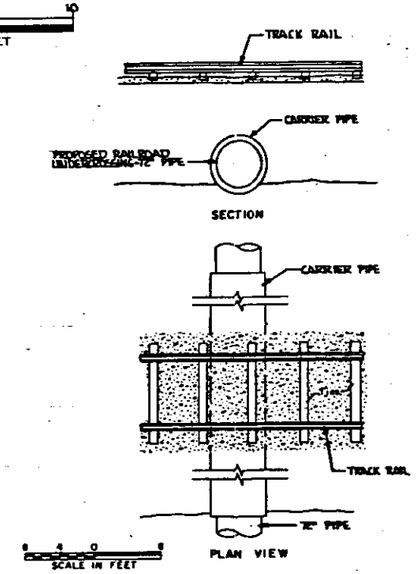
SHEET 6 OF 7 SHEETS

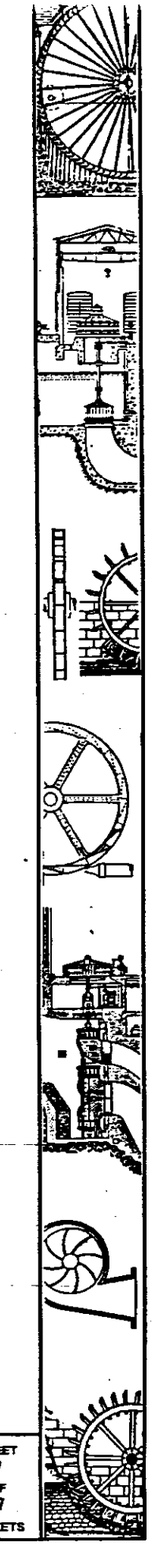












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FINANCING PLANNING CONSTRUCTION
ORANGE, CALIFORNIA (714) 547-6867

MARSH VALLEY HYDROELECTRIC PROJECT
EXHIBIT G-7
PROPOSED INTAKE STRUCTURE AND RELATED FACILITIES

SHEET 7 OF 7 SHEETS

FEASIBILITY STUDY OF THE

MARSH VALLEY HYDROELECTRIC PROJECT

FOR THE

MARSH VALLEY HYDROELECTRIC COMPANY

BANNOCK COUNTY, IDAHO

MARCH , 1983

Prepared By

J-U-B ENGINEERS, INC.

Engineers Surveyors Planners

920 Deon Drive Suite B

Pocatello, Idaho 83201

JAN 22 1993
1st 2 pp only

FEASIBILITY STUDY

OF THE

MARSH VALLEY HYDROELECTRIC PROJECT

FOR THE

MARSH VALLEY HYDRO ELECTRIC COMPANY

BANNOCK COUNTY, IDAHO

REGISTERED PROFESSIONAL ENGINEER
2451
STATE OF IDAHO
DELBERT W. BLOCK

MARCH 23, 1983

PREPARED BY:

J-U-B ENGINEERS, INC.
920 DEON DRIVE
POCATELLO, IDAHO 83201

MICROFILMED
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JAN 22 1993

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

The Marsh Valley Hydroelectric Company (MVH Co.) requested J-U-B ENGINEERS, Inc., to evaluate the potential for a small hydroelectric project to be located on Portneuf-Marsh Valley (PMV) canal system in an area located three to four miles southeast of the City of McCammon, Idaho.

The approach to the Engineering studies included some basic directions as follows:

1. Use the existing PMV canal with as little modification as practical;
2. Use existing structures where functional;
3. Determine canal flows available for power generation;
4. Study several, and select one turbine/generator type for detailed analysis at the selected site; and,
5. Determine the feasibility of installing a turbine between the PMV canal and the McCammon Ditch.

Field studies were initiated using these criteria in November, 1982. An existing transmission line (46.5 KV) was selected by the Utah Power and Light Company approximately 1.3 miles north of the proposed site. Access to the area for construction was found to be readily available. Only a minor amount of land would need to be acquired to construct any of the project alternatives. All field work and preliminary design studies were completed in February, 1983. An Application for Exemption from Licensing will be made to the Federal Energy Regulatory Commission (FERC) later this year.

Computer analysis and final economic feasibility studies were completed in February, 1983. These studies resulted in long term cash flow calculations and benefit/cost ratio figures for comparative evaluation to aid the MVH Co. in their discussions.

B. CONCLUSIONS

The following table summarizes the results of the studies conducted at the selected site.

PROJECT SUMMARY

AVAIL. HEAD (ft.)	PEAK FLOW (cfs)	INSTALL'D CAPACITY (KW)	ANNUAL PROD. (MWHrs.)	PROJ. COST $/1000	B/C RATIO	NET PRES. VALUE BENEFIT 35 Years
88	192.5	1134	5,600	1883	1.25	$385,820

It is apparent from this table that the selected site and combination of fixed-geometry turbines and induction generators is feasible.

Analysis of the feasibility of installing a turbine/generator between the PMV Canal and McCammon Ditch was considered. It was determined that only 184,500 KWhrs. could be produced with 20 feet net head available and using an average of 55 cfs (Appendix B). This was found not to be a feasible alternative.

The concept envisioned for the selected alternative employs a sophisticated electronic control module in the powerhouse to automatically control flow of water for power generation and irrigation use. Using this equipment, the cost for operation and maintenance is kept low and requires only one half of the operators full-time per year.

C. RECOMMENDATIONS

J-U-B ENIGNEERS, Inc., recommends that the Marsh Valley Hydro Electric Company take the following steps as soon as practical.

1. Apply to FERC for exemption from licensing or for licensing of the project;
2. Develop funding sources for construction of the project;
3. Negotiate for the acquisition of all necessary lands;
4. Begin negotiations with potential buyers of the power produced; and,
5. Authorize J-U-B to begin design studies.

I·INTRODUCTION

I. INTRODUCTION

A. PURPOSE

The purpose of this report is to present the results of a study which investigated the feasibility of developing hydroelectric power at a proposed generation site in the vicinity of McCammon, Idaho. It is intended that this information will form the basis of a decision whether or not to proceed with design and construction of the hydroelectric power facilities.

B. AUTHORITY

This feasibility study was authorized by an agreement between the Marsh Valley Hydroelectric Company (MVH Co.) and J-U-B ENGINEERS, Inc., dated May 12, 1982.

C. PROBLEM

The Marsh Valley Hydroelectric Company wants to determine whether the energy production income produced by a hydroelectric plant would pay the project costs and produce a significant income for their company.

D. SCOPE

The evaluation of this proposed site is depended on the following:

1. The estimated cost of upgrading the existing facilities;
2. The optimum amount of water available to the proposed hydroelectric site;
3. The estimated cost of the project including construction cost and the operation and maintenance costs;
4. The estimated energy produced income generated by the proposed hydroelectric site;
5. The necessary licensing requirements and constraints of local, state and federal agencies; and,
6. The environmental and social impact of the project on the area.

E. STUDY LIMITATIONS

Field information collected for this project on various natural and man-made features comprises a data base which was used in this study to

estimate river levels, construction quantities, etc. When more extensive and detailed information is acquired for the design of this project, some adjustments in the construction quantities, for example, should be expected. A contingencies fund has been added to the cost estimate to account for this variance.

F. CORPORATION STATUS

The Marsh Valley Hydroelectric Company has not yet filed for incorporation under the rules and laws of the State of Idaho. Further work, applications and negotiations with utilities, financing groups and regulatory agencies will not be possible until this action has been completed.

II·PROJECT DESCRIPTION

GENERAL LOCATION

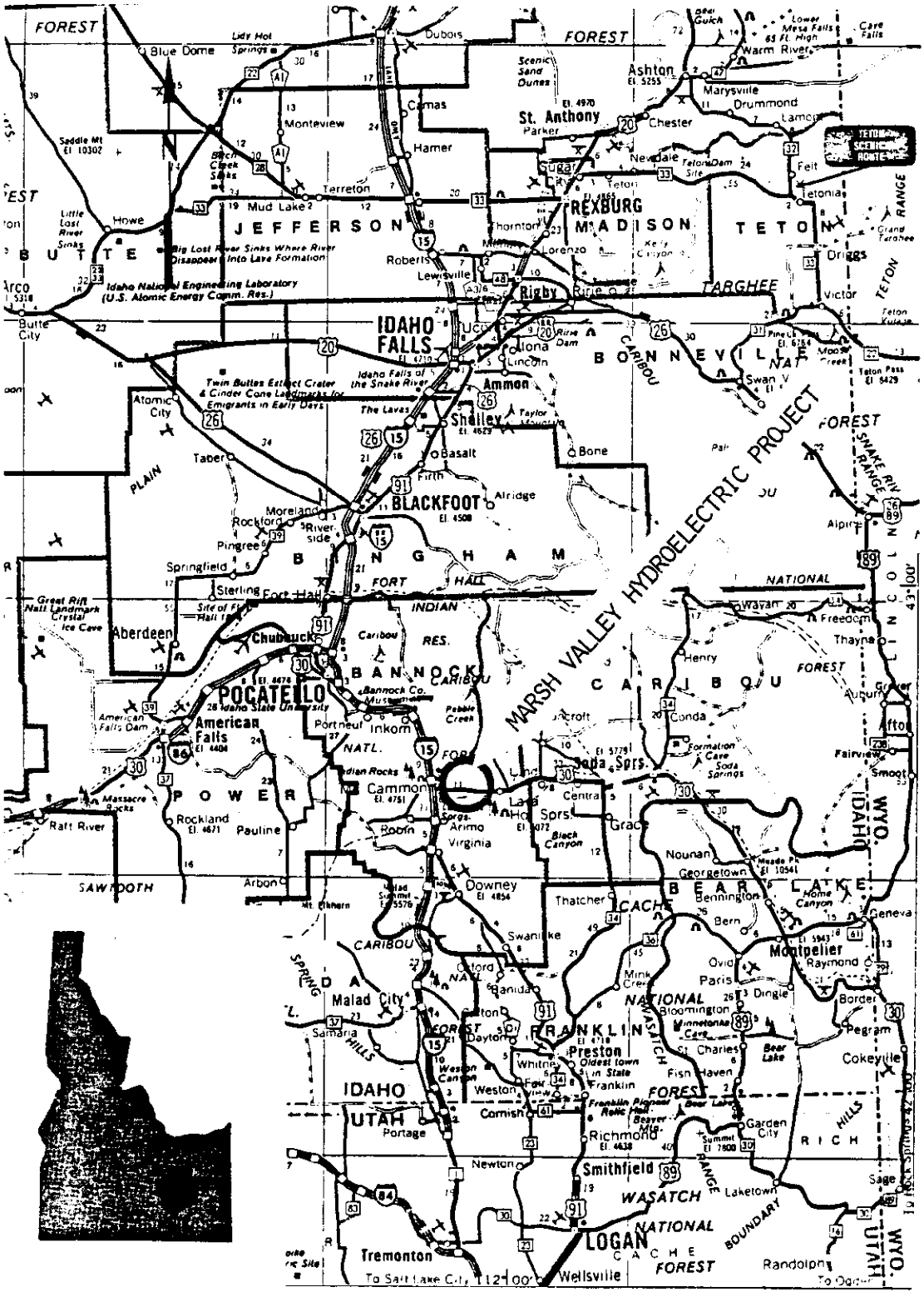


FIGURE 1

II. PROJECT DESCRIPTION

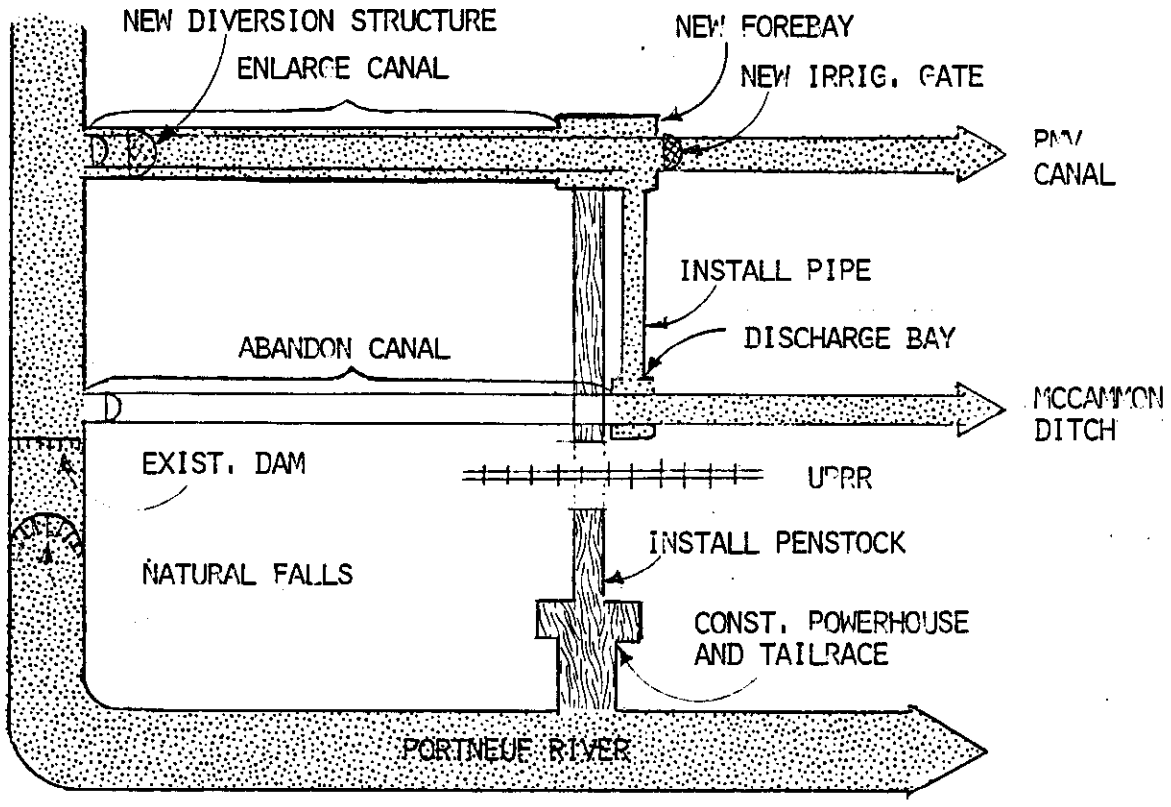
A. GENERAL

The proposed project is located approximately 3 miles southeast of the City of McCammon in Bannock County, Idaho. Three primary hydroelectric generation sites were studied in varying degrees of intensity to determine the best site. Site 1 was studied near the existing water falls on the Portneuf River. A second site was investigated approximately 2800 feet downstream from the falls and the third called Site 3, 400 feet further downstream from Site 2 in the NE 1/4 of Section 21, T.9S., R.37E.

Preliminary cost estimates, power production and engineering character showed that the third site, Site 3, was by far the most feasible location of the three studied. After this was determined no further study was made of the first two sites. This report is concerned only with the selected site.

The proposed plan for the project consists of the following elements, (see Figure 2).

1. All available flow from the Portneuf River, up to 192.5 cfs, will be diverted for hydroelectric power generation (less irrigation needs).
2. All irrigation water for both the Portneuf-Marsh Valley (PMV) Canal and the McCammon Ditch will be carried by the PMV canal to the proposed forebay structure.
3. A forebay will be constructed on the PMV canal to control irrigation water to the PMV canal, McCammon Ditch and to provide excess water to the proposed power house via a penstock.
4. The McCammon Ditch will receive irrigation water from the PMV canal via a pipe and discharge bay. The McCammon Ditch canal will be abandoned from the discharge bay structure upstream to the existing diversion.



SCHEMATIC DIAGRAM OF
THE MARSH VALLEY HYDROELECTRIC PROJECT

FIGURE 2

5. Permission will be solicited from the Union Pacific Railroad Company to cross under their single track with the proposed penstock.
6. Intertie with the Utah Power and Light Comany's 46.5 KV line will be anticipated and negotiated.
7. A powerhouse using state of the art equipment will be constructed near the Portneuf River.
8. An access and operation road will be constructed from UPRR right-of-way. (Permission will be needed to use the UPRR road during construction and later phases.)
9. All necessary lands for the project will be surveyed during the early design stage and acquired either by purchase or long term lease.

B. LEGAL DESCRIPTIONS

The following descriptions provide a quick reference to the princiapl existing and proposed structures.

Diversion Structure	SE 1/4, NW 1/4, Section 22, T.9S., R.37E., B.M.
Overflow Structure	SW 1/4, NE 1/4, Section 21, T.9S., R.37E., B.M.
Powerhouse	NW 1/4, NW 1/4, Section 21, T.9S., R.37E., B.M.
Forebay	NW 1/4, NW 1/4, Section 21, T.9S., R.37E., B.M.

C. LAND AND OWNERSHIP

Ownership of the land associated with the proposed project is shown on Figure 3. The existing canal control structures, the diversion inlet, wasteway, and PMV Canal and the operation and maintenance roads are all on property owned by irrigation district companies.

Construction of a powerhouse, penstocks and tailrace would require either an easement or ownership of land now owned by David T. Johnson. Some additional land adjacent to the proposed facilities should be acquired for

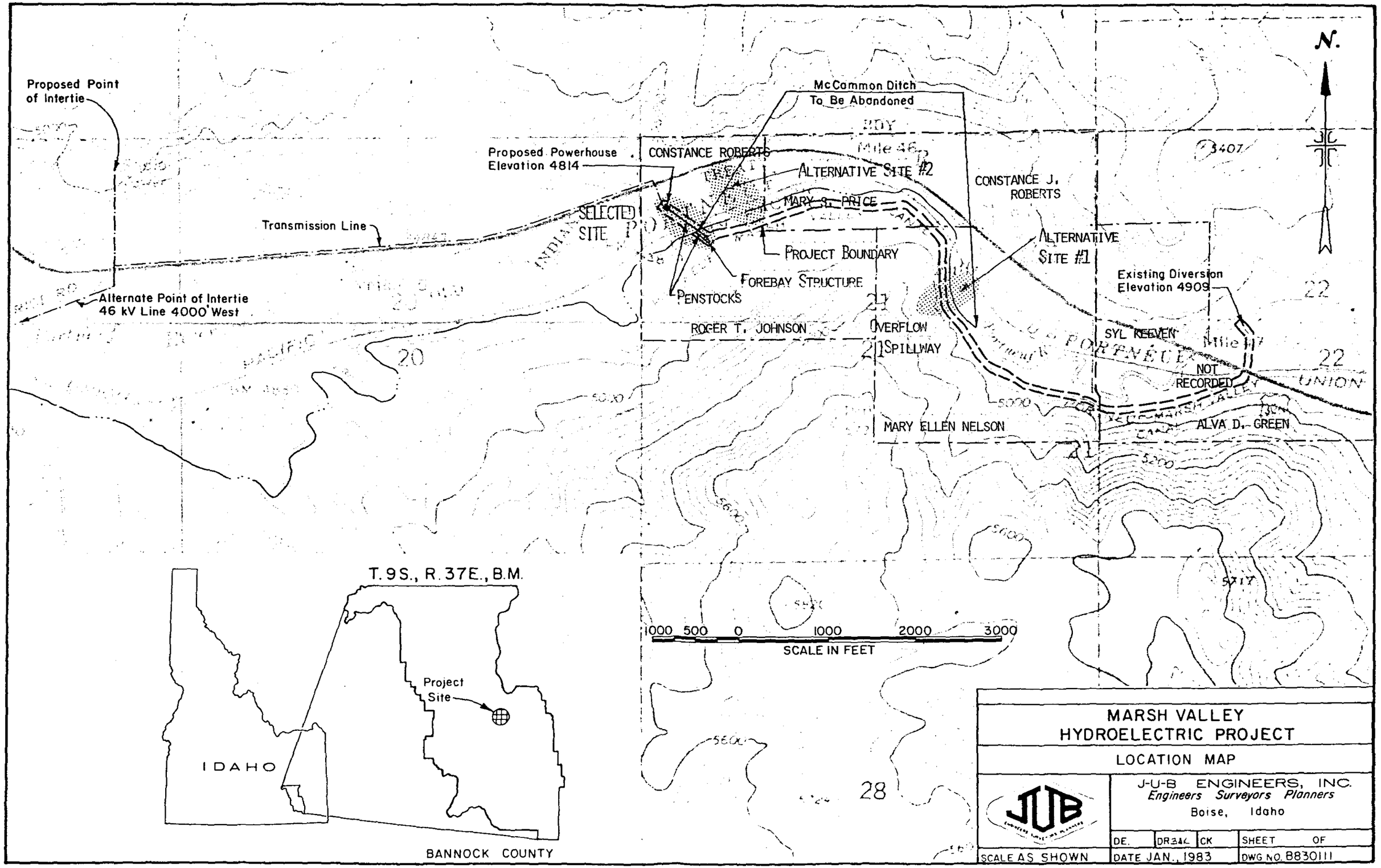

N.
Proposed Point of Intertie
McCammon Ditch To Be Abandoned
Proposed Powerhouse Elevation 4814
CONSTANCE ROBERTS
ALTERNATIVE SITE #2
CONSTANCE J. ROBERTS
MARY S. PRICE
SELECTED SITE
Transmission Line
PROJECT BOUNDARY
ALTERNATIVE SITE #1
FOREBAY STRUCTURE
PENSTOCKS
Existing Diversion Elevation 4909
Alternate Point of Intertie 46 kV Line 4000' West
ROGER T. JOHNSON
OVERFLOW SPILLWAY
SYL REEVEN
NOT RECORDED
MARY ELLEN NELSON
ALVA D. GREEN
T. 9 S., R. 37 E., B.M.
Project Site
IDAHO
BANNOCK COUNTY
1000 500 0 1000 2000 3000
SCALE IN FEET
MARSH VALLEY
HYDROELECTRIC PROJECT
LOCATION MAP
J-U-B ENGINEERS, INC.
Engineers Surveyors Planners
Boise, Idaho
DE. DR. CK SHEET OF
SCALE AS SHOWN
DATE JAN., 1983
DWG NO. 8830111

FIGURE 3

temporary construction easement and maintenance easement. Approximately 6.0 acres should be acquired.

If the canal is enlarged to carry 250 cfs, additional land would be needed. We estimate that 1.0 acres would be needed from land now owned by McCammon Ditch Company. An additional easement will be needed from the Union Pacific Railroad to permit crossing through the railroad fill and the tracks with the penstock.

PHOTO 1

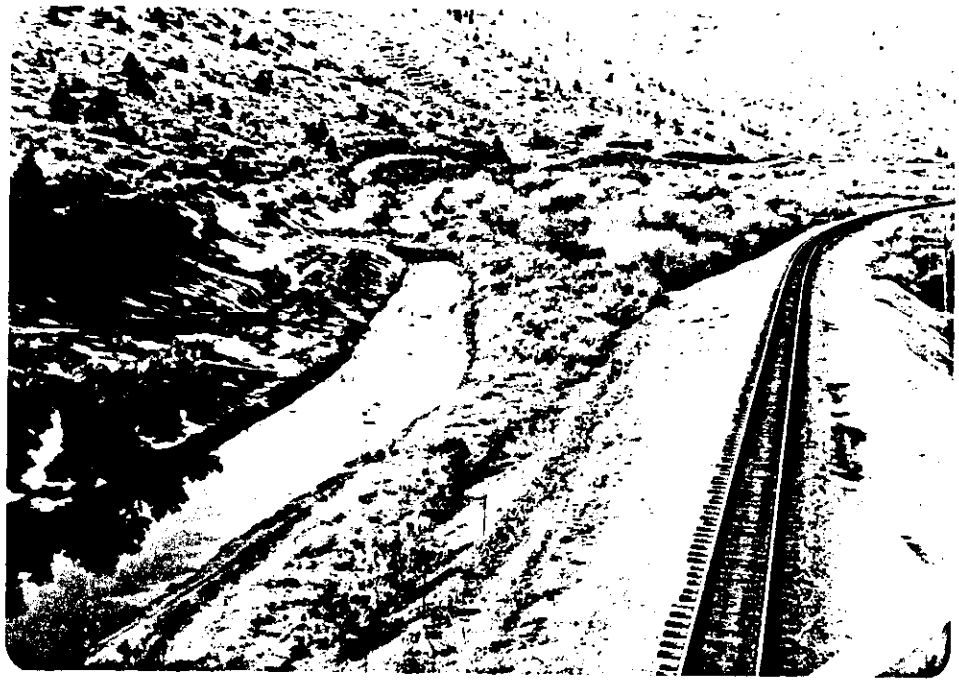


PHOTO 1 - PMV Canal from U.S. Highway 30 bridge over Portneuf River.
NOTE: Temporary dike in canal. 3/3/83 RRU

The fair market value of land for cost estimating in this study was set at $3,000 per acre. The value of land needed for construction and permanent maintenance easment was estimated at thirty percent of the estimated fair market value of the land or $900 for a thirty-five year lease. It may be more practical, however, for MVH Co. to purchase all land needed rather than obtain leases.

D. CLIMATE

The following information was derived and modified by the writers from the Idaho Water Resources Board "Comprehensive Rural Water and Sewerage Planning Study, Bannock County, 1972".

This area of eastern Idaho has moderately warm, sunny summers and moderate to severe winters, with little sunshine and frequent light precipitation. Mean annual precipitation is low, totaling approximately 10-1/2 inches. Mean temperatures range between 23.0 degrees Farenheit in January and 71.9 degrees Farenheit in July, with a mean maximum of 88.9 degrees and a mean minimum of 14.1 degrees.

TABLE 1

DATA – Pocatello WB AP	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Precipitation	1.12	.89	.95	.95	1.19	1.09	.34	.52	.67	.94	1.02	.92	10.60
Snowfall	10.5	6.5	5.4	2.8	.2	T	T	T	T	1.5	3.3	6.0	36.2
Temperature	23.0	28.7	36.0	46.3	55.0	62.0	71.9	70.0	60.3	49.0	35.1	28.2	47.1
Maximum temperature	31.9	37.7	46.3	58.9	68.6	76.7	88.9	86.7	76.5	63.1	45.4	36.8	59.8
Minimum temperature	14.1	19.5	25.8	33.6	41.2	47.3	54.8	53.1	44.0	34.8	24.7	19.5	34.4

E. GEOLOGY

1. General

The ground surface consists of low hills with relatively flat areas incised by natural drainage channels, in some places several feet deep. The more level areas are farmed and consequently have been graded to remove undulations in the ground surface. Hilly areas are more or less undisturbed and are used for grazing.

2. Stratigraphy

The stratigraphy sequence of material found in the project area consists of wind-blown and water-laid soils at the ground surface which are generally fine-grained silty sands of low to moderate density, generally

less than five feet thick. This material grades downward to more coarse alluvial sand and gravel which is distinctly bedded in local outcrops but can not be traced over a hundred feet owing to the lenticular character of these beds.

In the project area basalt underlies the alluvial deposits. The upper surface of the basalt ranges widely from elevations 4830 to 4868. The character of basalt is highly variable in physical condition but relatively consistant mineralogically. Exposures of the basalt as well as drillers logs indicate that much of the basalt is highly fractured and jointed in the upper 50 feet. Some outcrops reveal weakly developed columnar joints spaced a foot or two apart. Locally the basalt may include alluvial material incorporated into the basalt mass. Fluvial sand, clay and gravel, and ash and cinder deposits, are found interbedded in the basalt. The deposits range from an inch to a foot in thickness. The upper layers of basalt may be found in excavation for foundations and along the penstock alignment for the proposed project. Drilling and testing should be completed to locate bed rock at these sites prior to completing final designs.

The basalt in the project area appears to be very permeable as a mass unit. That is, although the rock itself is only slightly permeable, the joints and fractures provide conduits for both vertical and horizontal water movement.

3. Ground Water

Ground water ranges from 15 to 45 feet deep and varies with the seasons. Higher water levels occur during August and September and are probably the result of excess water from irrigation. This water table may be encountered in any deep cuts associated with the proposed project and would require dewatering.

F. FERC APPLICATION

Permission to construct, own and operate the project must be granted by the Federal Energy Regulatory Commission (FERC) through an application com-

prised of various exhibits describing the proposed project. Marsh Valley Hydro Electric Company has several options in gaining FERC approval, as described in the following narratives.

1. License. The granting of a license by FERC gives the licensee absolute right to develop. The FERC may impose terms or conditions in the license document which must be adhered to by the licensee (e.g., time frames for construction, minimum streamflows, annual charges, etc.). It essentially establishes a long-term relationship between the licensee and the FERC, which could span 50 years.

2. Exemption from Licensing. Depending upon the project sponsor's desires, it is possible that the project could be exempted from all of Part 1 of the Federal Power Act (FPA) including licensing; however, certain criteria must be met for the project to be exemptable. Depending upon the type of the applicant, the size of the project, project characteristics and other qualifiers, the project could be exempted under different FERC Final Rules. An exemption from licensing is granted to the project, and the applicant has the first right to construct and operate the project such that preliminary permit applicants or other license applicants may not "take" the project. Further discussions with the MVH Co. will be required to select which type of application should be filed. Although an exemption essentially implies federal "deregulation", it does include several major stipulations:

a. The exempted project will be subject to any terms and conditions which state and federal fish and wildlife agencies indicate are necessary for protection of fish and wildlife resources.
b. Rigid time frames for the start and completion of construction must be adhered to.
c. Other terms could be attached as a condition of exemption from licensing.

Failure to comply with the above may result in the revocation of the exemption granted, and the FERC will not accept another exemption application for at least two (2) years. Because small hydroelectric production has be-

come a truly dynamic industry, the complex regulatory process may be subject to further change. It is suggested, therefore, that the various avenues of application be further discussed with the engineer's regulatory affairs personnel.

III·HYDROLOGY

III. HYDROLOGY

A. GENERAL

The following describes the general hydrologic conditions in the area of the study. This information is quoted from the Water Resources Board's Comprehensive Rural Water and Sewerage Planning Study, 1972.

"Bannock County lies almost entirely in the Portneuf River and Marsh Creek drainage basins. A small portion of the Snake River basin which is included in the description of the Portneuf system lies in the extreme northwest area of the county.

Portneuf River. Headwaters are in the Chesterfield mountains. It crosses two counties before draining into American Falls Reservoir near Pocatello.

From origin in Bingham County it flows south into Caribou County where it passes through Portneuf Valley, then turns west and enters Bannock County. Within Bannock, it almost completely reverses its direction and flows northwest through the city of Pocatello and into American Falls Reservoir.

This reservoir which is on the Snake River covers part of three counties having its northern portion in Bannock County. It was built by the Bureau of Reclamation and completed in 1927 with a storage capacity of 1,700,000 acre feet; purpose was for irrigation needs, but recreational uses also play a part.

The Portneuf River is the only tributary to the Snake River of significant size that lies within the county. All other sizeable streams are tributary to the Portneuf River. One such tributary is Marsh Creek which joins the Portneuf near Pocatello.

Marsh Creek. Drainage lies entirely within Bannock County. Headwaters start in the mountain areas at the extreme southern portion of the county. Flowing north it drains the Bannock Mountains and joins the Portneuf River approximately 12 miles southeast of Pocatello.

Flows measured at specific locations on Portneuf River and Marsh Creek are listed.

TABLE 2

GAGE	DRAINAGE AREA (sq. mile)	RECORD PERIOD (yrs.)	MEAN ANNUAL RUNOFF (ac-ft)	EXTREMES OF DRAINAGE (cfs) MAX.	MIN.
Portneuf River at					
Pebble	260	4	-------	624	21
Topaz	570	53	137,700	7,120[1]	64
Pocatello	1,250	51	182,600	2,990	0.4
Marsh Creek at					
McCammon	59	18	55,640	1,120	20

1 Resulting because of highway fill failure 2 miles upstream.

The Portneuf Reservoir was completed in 1912 and raised 7 feet in 1950. The capacity was changed from 16,410 acre feet. Diversions made above the Portneuf River at Pocatello gage station for irrigation area about 33,000 acres.

Flooding in the Portneuf River Basin has generally been concentrated at four communities, Bancroft, Lava Hot Springs, Inkom and Pocatello. Inundation of lands have been extensive in a reach of the Portneuf River between Inkom and Pocatello and along a 25 mile length of Marsh Creek in Marsh Valley.

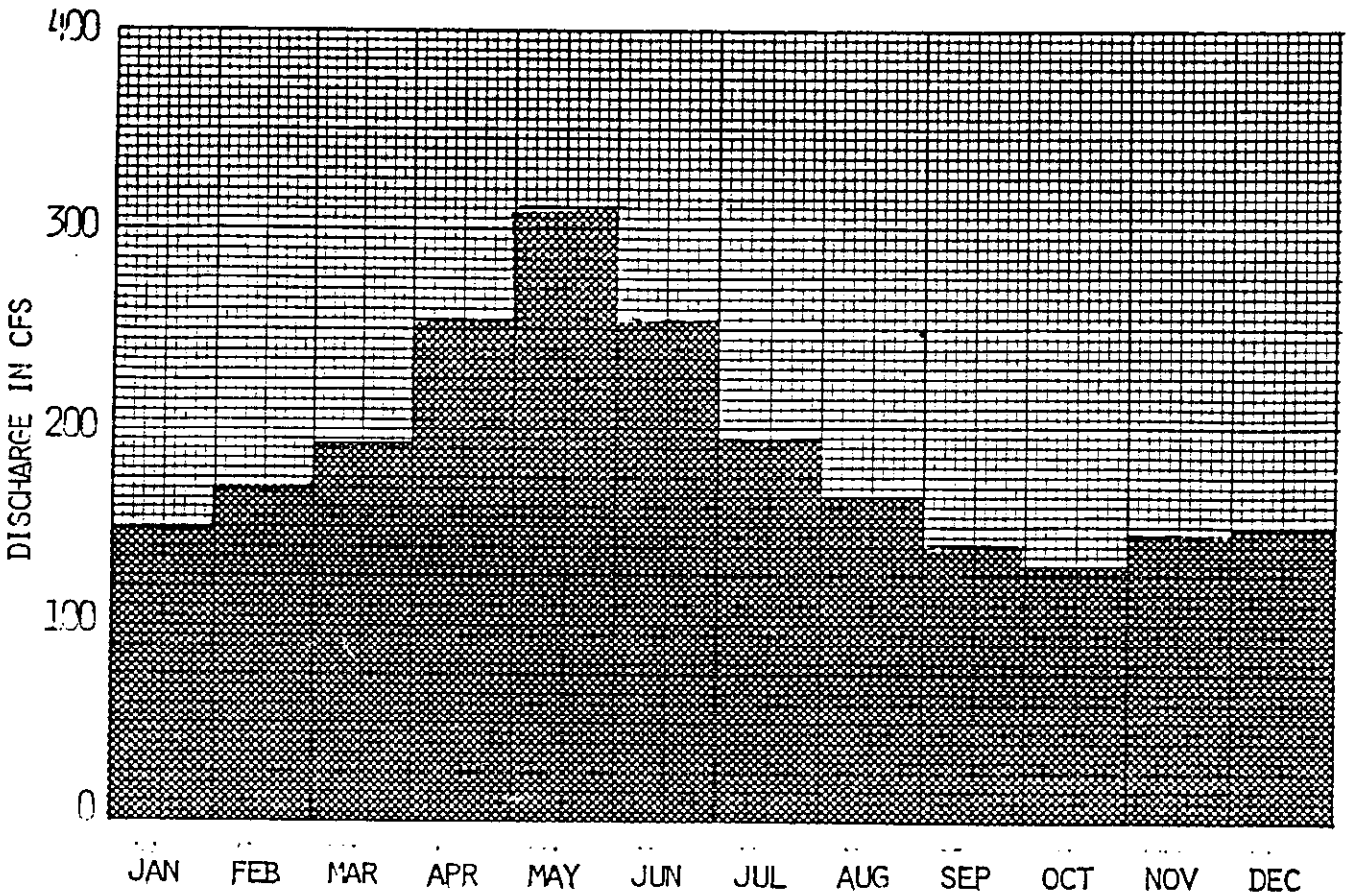
Flooding in the basin is caused mainly by unprecedented high discharges. Most of the runoff is generated in areas below 6,000 feet in elevation. Frozen ground minimized losses of generated water and increases the percentage of runoff far beyond normal occurrences."

Average monthly flows for the Portneuf River at the Topaz gaging station are shown on Figure 4. This information was developed using U.S. Geological Survey data provided by the Idaho Department of Water Resources.

B. FLOW DURATION CURVES

Flow duration curves for power production are presented for the PMV Canal for the primary design flow of 250 cfs. A computer program was written to model the PMV canal system at varying canal capacities and minimum stream flow conditions in the Portneuf River (Appendix B). Input data to the program were historical mean monthly flows for the Portneuf River at Topaz gaging station and historical monthly irrigation flows for the period of October 1976 to September, 1980. From this data the computer produced flow exceedence data for the studies. Irrigation flows for a typical year were deducted from the available flow in the Portneuf River. During typical years a maximum total of 243 cfs is directed into the McCammon Ditch and PMV canal from June through September. However, less than 200 cfs is usually available during these months. From June through September the Portneuf River flow is nearly eliminated from the McCammon Ditch inlet structure downstream to the City of McCammon (Figure 4).

FIGURE 4



AVERAGE MONTHLY FLOWS
IN THE PORTNEUF RIVER

1942-1976

TOPAZ STATION

C. WATER RIGHTS

An application for a permit to appropriate water from the Portneuf River for power generation was initiated by the McCammon Ditch Company and was received by the IDWR December 12, 1980 (Appendix A). The amount requested was 175 cfs. Publication of the request was made in the Idaho State Journal newspaper, on February 12, 1981 and February 19, 1981. This application has not been acted on further by the IDWR as of the completion of this study. The MVH Co. will need to ammend or resubmit this application for 192.5 cfs or more as soon as corporate status is established.

IV·PROJECT ALTERNATIVES

IV. PROJECT ALTERNATIVES

A. GENERAL

In this section, project alternatives are presented so that MVH Co. may review the elements of each. Selection of the best alternatives was limited to the three locations for the powerhouse which provided the maximum head and best construction site within right-of-way and land ownership limitations.

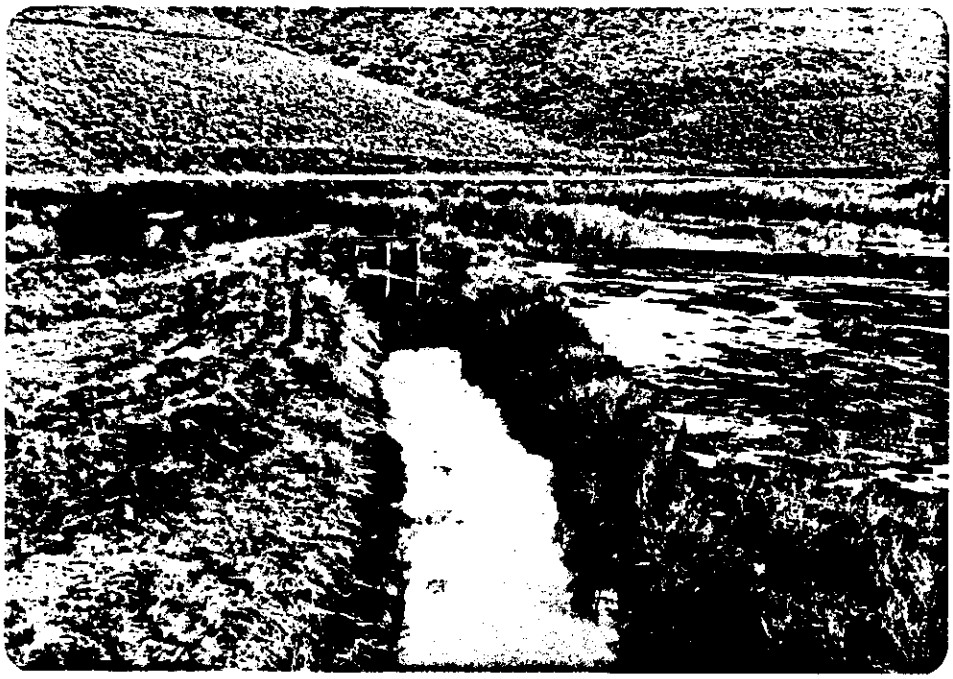


PHOTO 2 - Inlet structure to PMV canal from U.S. Highway 30 bridge over Portneuf River. 3/3/83 RRU

The concept of the project is to enlarge the capacity of the PMV canal to divert water to some point along the canal so that it could be returned to the river through one or more turbines to produce power. The major requirement of the plant is that it would not interfere with required irrigation flow to users of the canal system. Several portions of the project are common to all alternatives such as construction of a new inlet structure, improvements to the canal, and locations of flow sensors. The McCammon Ditch would be abandoned from the selected power diversion site. Instead the water needed for the McCammon Ditch irrigators would be supplied through the PMV canal and delivered to the McCammon Ditch through a pipe and discharge bay.

B. ALTERNATIVE SITES

Site 1 is located near the water falls on the Portneuf River in SW 1/4 NE 1/4, Section 21, T.9S., R.37E., B.M. Surveys conducted at this site showed that the gross available head was 57 feet. Preliminary calculations indicated that this site could produce 3,064,000 Kwhrs. per year production.

Site 2 was located downstream from Site 1 approximately 4,000 feet. This site had a gross available head of 89 feet. Potential power production was estimated at 5,500,000 Kwhrs. per year.

The third site selected for evaluation was located approximately 600 feet downstream from Site 2. The gross available head was measured at 90 feet with power production calculated to be 5,600,000 Kwhrs. per year. The topographic setting, easy access and proximity to an existing 46.5 KV UP&L Co. power line made this site the most desirable of the three studied.

The proposed powerhouse would be located on the south bank of the Portneuf River with the tailrace approximately 100 feet in length. Waste materials from the tailrace and powerhouse excavation could be placed east and west of the tailrace to form protective berms. The proposed power transmission line to connect with the existing 46.5 KV line in the UP&L Co. system is located north of the proposed powerhouse site, a distance of approximately 1.3 miles.

The design presented in this study required major canal improvements and raising of the PMV canal banks. No unusual or particularly difficult construction problems are expected at this site.

1. Turbine Considerations and Selection.

Several different turbine types and designs were considered during this study. They included fixed-geometry multiple configuration, single semi-Kaplan and pulse units. The fixed-geometry turbine designs proved more productive and cost-effective than the other designs which were evaluated.

Fixed-geometry turbines are similar in design to large vertical or horizontal turbine irrigation pump units designed to run in reverse. However, these units are designed as power generation turbines, thoroughly tested and evaluated to insure maximum efficiency and long life. Typical contracts with turbine manufacturers include a guaranteed turbine efficiency.

These turbines have nearly flat efficiency curves in the range of 80 to 100 percent flow. Manufacturers of fixed-geometry turbines have supplied units with quoted turbine efficiencies of up to 88 percent. Due to their fixed head versus flow characteristics, it is not possible to operate a single turbine across as wide a range of flows as with variable geometry units.

To efficiently capture energy, the turbines are turned on or off by an automatic control system which matches the number of units to the available flow. The fixed-geometry units generally produce a few percentage points less energy than variable geometry configurations, however, this production loss is offset by a lower turbine cost.

The fixed-geometry turbine alternative selected for this project consisted of a total of three units with a total rated flow of 192.5 cfs. One unit was rated at a maximum flow of approximately 110 cfs, one at 55 cfs and one at 27.5 cfs.

Computer analysis of the potential energy production of various type and size combinations of turbine generator units was used to arrive at the recommended configuration at each site. Turbine efficiencies were entered into the computer as well as physical site characteristics such as available head and flow duration data. Turbine combinations were analyzed to find the most compatible series of units to produce the maximum amount of power. Final selection was made by comparing all the computerized data with turbine costs, associated structures, appurtenances, switching, sensing and control devices.

Repair time for even the most catastrophic failure expected for fixed-geometry units (i.e. bearing seizure, runner damage, generator shorting) is commonly just a week or two. Parts and repair services are commonly available from local shops. The fixed-geometry turbines are simple in construction and installed so the entire turbine may be removed in a few hours. This greatly increases serviceability. Simplicity of parts makes for quick repair. Experience has shown that in impeller can be removed, rebuilt and put back in service in less than two weeks. Since multiple units are planned for installation, even if one unit were to fail, the plant could continue operation using the other unit or units. Therefore the risk of total loss of revenue while the plant is down is greatly reduced. Routine maintenance can be more easily scheduled on a multiple unit plant than a single unit plant, since the plant may not need to be totally shutdown.

2. Generators, Switchgear and Transmission Lines

Only one type of generator was evaluated for this project, induction. Induction generators were selected for use with the fixed-geometry turbine because of their lower cost when compared to synchronous generators.

Switchgear should be NEMA standard medium-volgate, metal-enclosed swithgear. A 1.5 MVA transformer will be required to transform from the generation voltage of 416 V to 46.5 KV. Intertie and metering requirements will be provided by Utah Power and Light Co.

Transmission lines would be constructed in accordance with criteria of the selected utility company. A cost estimate for the proposed transmission line was supplied by the Utah Power and Light Co. Their estimate was for $110,000. This cost may be high. We suggest that UP&L Co. be contacted during the design stage of this project to further evaluate this estimate.

3. Control Equipment

Control of the power plant functions will be provided by a programmable controller (PC). The programmable controller will provide the sophistication of control that is required to monitor and actuate the system. It is proposed to use a programmable controller equivalent to the General Electric Model 6000. Cost estimates in this study are based on the General Electric unit.

The PC is similar in many ways to a computer. The advantages of a PC over a computer are that it is built to operate under rugged industrial environmental conditions, with high reliability and ease of service and mainteanance. It is also constructed in a self-testing, replaceable modular form which provides for on-site service for most any failure which could occur in the control system. The programmable controller does not have the data processing capability of a large computer but has sufficient memory for this system.

The control system will provide optimization of plant operation under changing load and flow conditions. It will provide plant protection in the case of equipment failure or utility outage and for automatic, unattended operation of the facility. Final selection of the specific control system will be made during the design phase of the project.

A remotly located computer system is proposed to monitor the physical conditions at the power plant through data transmitted via telephone lines. The remote controller (RC) may be installed at any location selected by the MVH Co. An Apple II or equivalent model has been used for cost estimating purposes. This unit has been used on other projects and has performed satisfactorily. Although primarily intended to monitor the hydroelectric plant, this computer may also be used by the irrigation companies to perform bookkeeping and other functions without disturbing the hydroelectric data logging function.

4. Powerhouse

The powerhouse consists of three elements, the superstructure, substructure and tailrace (Figure 5). The superstructure is commonly constructed of reinforced concrete where security and vandalism is expected to be a problem. The substructure which lies below and includes the floor is also constructed of reinforced concrete. The floor of the tailrace is located under the powerhouse building and is commonly concrete. The remainder of the tailrace, from the powerhouse to the Portneuf River, will be constructed by excavating the soil and forming a trapizoidal channel. This channel will then be surfaced with riprap to deter erosion.

5. Penstock, Forebay and Discharge Bay

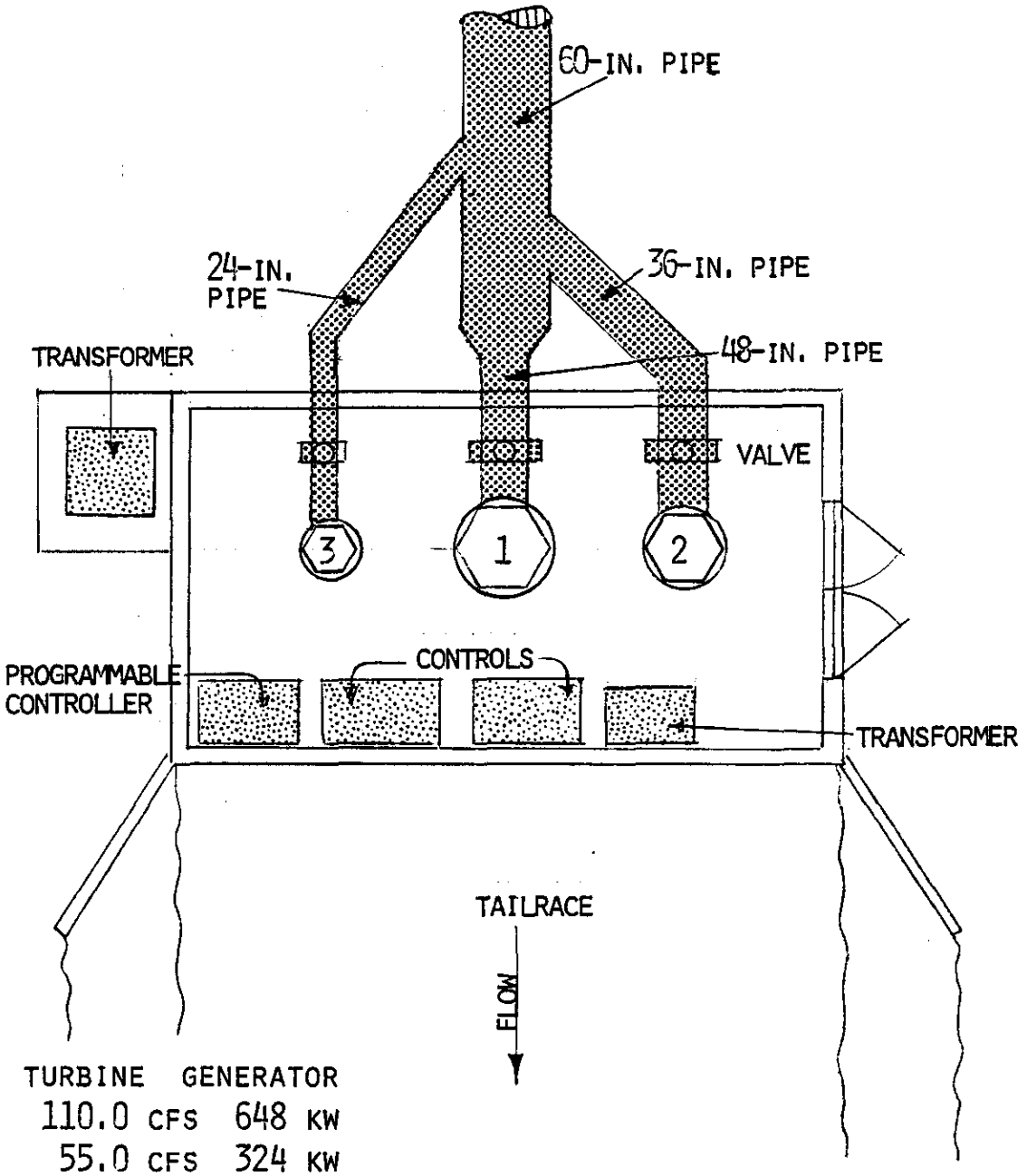
The most cost effective penstock design was found to be a steel pipe with 1/4-in to 5/16-in wall thickness, 60 inches in diameter, approximately 460 feet in length. The irrigation pipe to supply water to the McCammon Ditch was sized at 36 inches in diameter with 3/16-inch thick walls approximately 210 feet in length.

The forebay will be located on the PMV canal and will consist of a concrete structure with a trash rack, walkway, a single sluice gate and a radial gate (Figure 6). The forebay structure is designed to permit irrigation water to flow to the distribution system via the radial gate. Water will be sealed off with stop logs during the non-irrigation season. The sluice gate will control irrigation flow to the McCammon Ditch via the discharge bay (Figure 7).

Water for power generation will enter the 60-inch diameter penstock at the forebay. Flow volume will be controlled by a series of valves located in the manifold at the powerhouse.

6. UPRR Undercrossing

The Union Pacific Railroad is located between the PMV canal and the McCammon Ditch. The power penstock will have to penetrate the fill material under the single railroad track. The proposed design and other requirements will be presented to the UPRR for review (Figure 8). It may be necessary to drill holes to determine the type of material composing the fill and underlying the fill material prior to final design. If this is needed, authorization for drilling must first be granted by the UPRR.



NO.	TURBINE	GENERATOR
1	110.0 CFS	648 KW
2	55.0 CFS	324 KW
3	27.5 CFS	162 KW

NOT TO SCALE

DIAGRAM OF POWERHOUSE

FIGURE 5

FOREBAY STRUCTURE

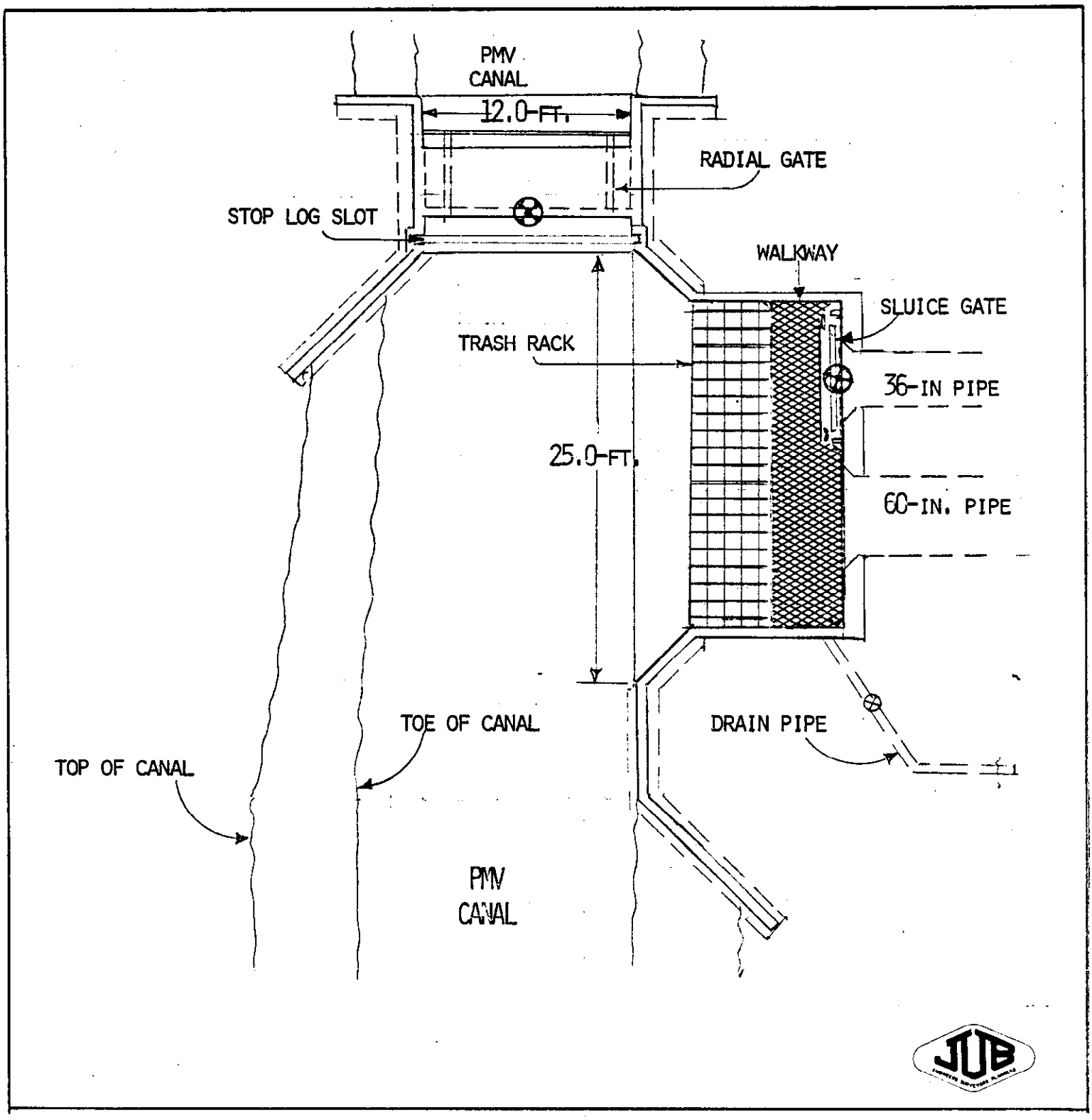


FIGURE 6

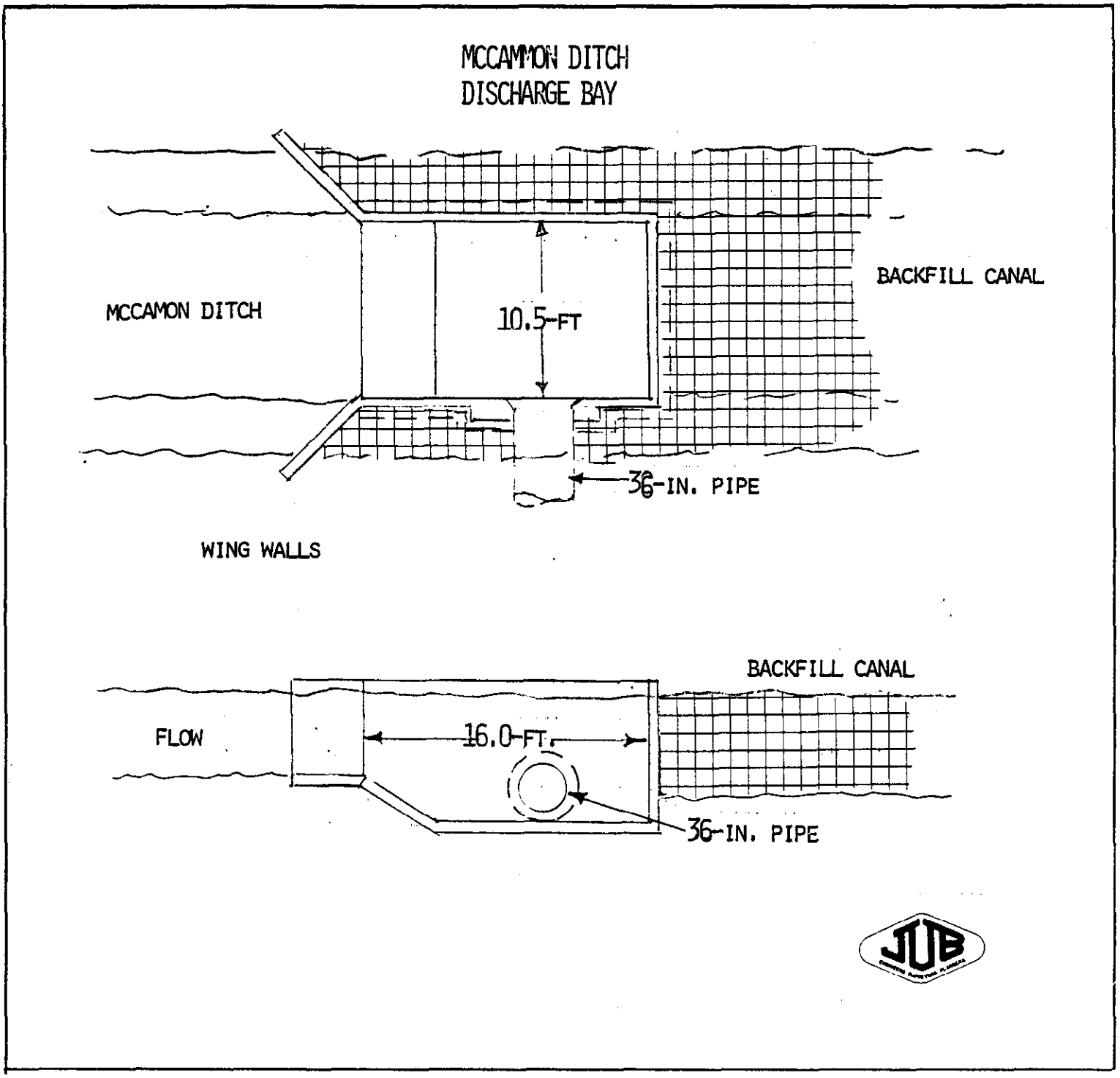

MCCAMMON DITCH
DISCHARGE BAY
BACKFILL CANAL
MCCAMON DITCH
10.5-FT
36-IN. PIPE
WING WALLS
BACKFILL CANAL
FLOW
16.0-FT.
36-IN. PIPE

FIGURE 7

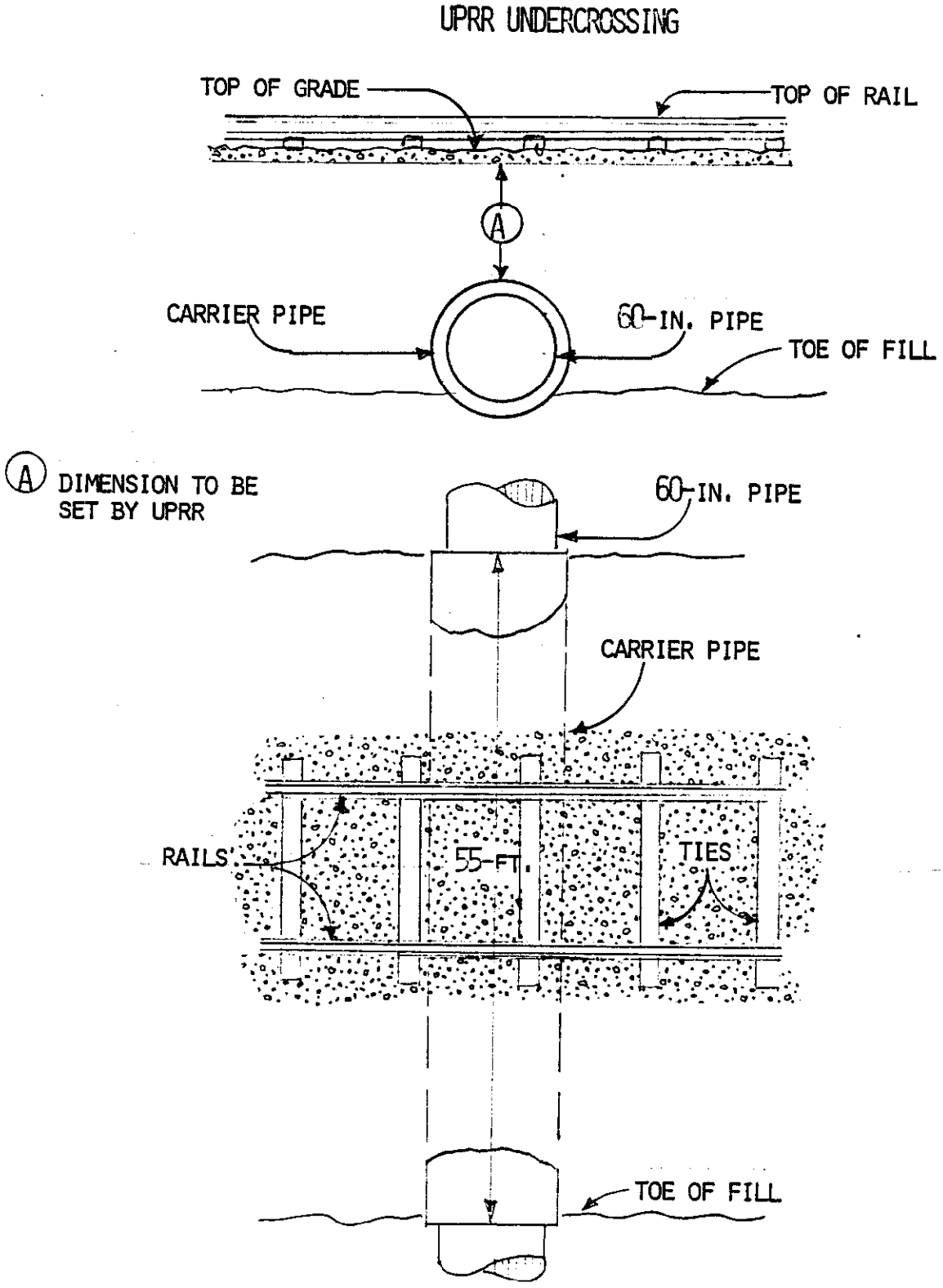

UPRR UNDERCROSSING
TOP OF GRADE
TOP OF RAIL
A
CARRIER PIPE
60-IN. PIPE
TOE OF FILL
A DIMENSION TO BE SET BY UPRR
60-IN. PIPE
CARRIER PIPE
RAILS
55-FT.
TIES
TOE OF FILL

FIGURE 8

C. OVERFLOW STRUCTURE

An overflow structure will be constructed upstream from the selected powerhouse site as shown in Figure 9. The function of this structure is to provide a wasteway for excess water in the canal due to failure of any of the controlling devices or flood water. The proposed structure would be approximately 80 feet in length and could pass 250 cfs with 1.0 feet of head over the spillway.

D. SYSTEM OPERATION

The function of the automatic control system will be to optimize the plant operation to produce the maximum amount of energy from the water available while providing the required amount of water for irrigation. Flow and level sensors will be located at the following locations:

1) irrigation side of irrigation gates (PMV canal and McCammon Ditch);
2) both sides of the trash rack; and,
3) river side of the inlet works.

These level sensors will provide input to the controller such that it can calculate:

1) flow to irrigation
2) water available for generation and differential head across trash racks.

The system will operate as follows: Required irrigation flow will be entered into the programmable controller (PC). The irrigation gates will be on an electronic feedback and control loop that will maintain the irrigation quantity set into the PC. The PC will sense the water level in the forebay and actuate the optimum number of turbine/generator units so that the system is operating under maximum head for the available flow.

This control system could be monitored by a remote computer (RC). In addition to water level data and flows, various other characteristics of the power plant operation would also be monitored including temperature of

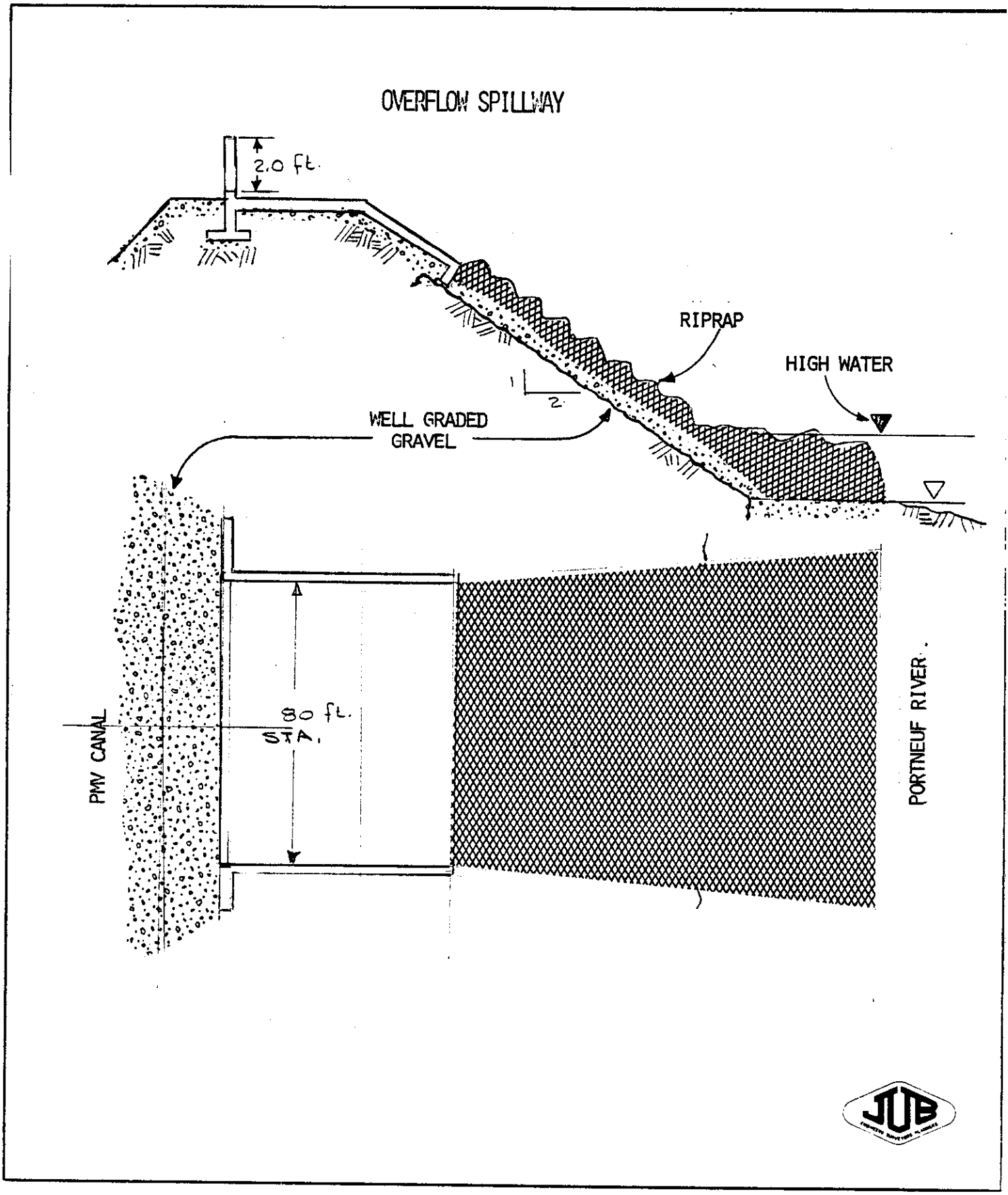

OVERFLOW SPILLWAY
2.0 ft.
RIPRAP
HIGH WATER
1
2
WELL GRADED
GRAVEL
80 ft.
STA.
PMV CANAL
PORTNEUF RIVER

FIGURE 9

bearings in the turbines, power production and outages, generation faults, overloads, and so on. Dedicated data telephone lines are not required for transmission of this type of information to the RC. Standard "touch-tone" grade lines are adequate.

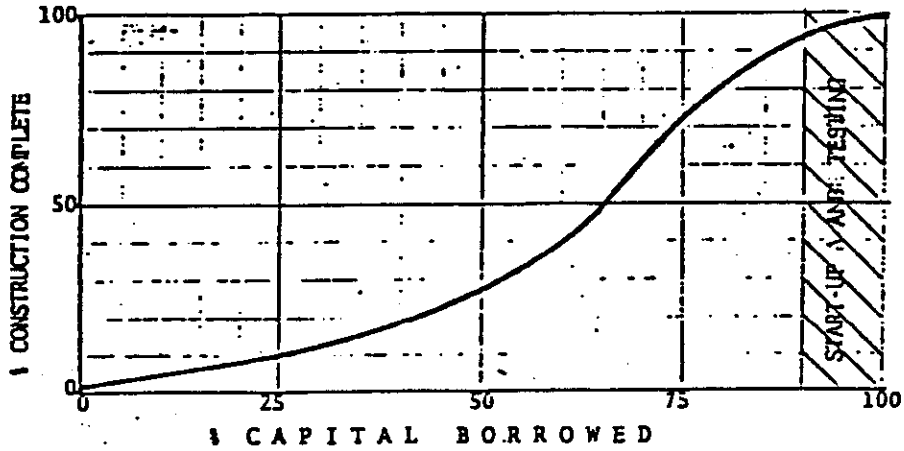
Built-in safety devices would shut down the powerhouse during emergency conditions and restart the generators after conditions are cleared. The PC would also signal the RC to telephone MVH Co. staff and advise them of problems with the system by tone signals. This is in addition to the data print-out connected to the RC unit.

Ice build-up in the canal is not expected to be a major problem. During the 1982-83 winter the lowest temperature of the water in the Portneuf River in the project area was 40° F. Extremly low temperatures for a long period of time will result in an ice cake formed on the surface. This will reduce flow volumes somewhat but will not impede overall operation. When the ice "breaks-up", chunks will accumulate on the trash rack and will have to be removed using hand tools. When the accumulation exceeds the amount that can easily be removed by hand, the excess can be floated over the proposed special section in the emergency overflow structure and directed towards or into the river.

E. PROJECT COST

Project costs include construction, engineering, legal, administration and interest accrued on borrowed capital during construction, as shown on Table 3. Engineering costs include design, geotechnical investigations, government fees and permits, construction inspection during construction, and project management. Administrative costs shown are an estimate of the costs to MVH Co. for coordination efforts, legal fees and other miscellaneous expenses. Interest during construction is an estimate of the cost to MVH Co. for borrowing the necessary capital to build the project. All the money is not borrowed at the start of construction, but is borrowed as needed to meet expenses. This usually follows the curve shown below and averages approximately 40 percent of the total capital borrowed for the full construction period.

Figure 10



For the estimating purposes of this study, an interest rate of 13 percent was selected. Table 3 shows the estimated interest for capital borrowed during the construction period, as well as engineering administration and construction costs. Cost estimates are inflated to allow for increases up to the summer of 1983 and the additional twenty percent contingencies allows for cost increases through 1984.

TABLE 3

MARSH VALLEY HYDROELECTRIC PROJECT
CONSTRUCTION COST ESTIMATE

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
LAND AQUISITION AND RIGHTS-OF-WAY	Acre	9	$ 3,000	$ 27,000
MOBILIZATION & DEMOBILIZATION	L.S.	1	5,000	5,000
CANAL IMPROVEMENTS & STRUCTURES:				
Overflow Structure	L.S.	1	18,500	18,500
Radial Gates & Structure (Inlet)	L.S.	1	49,600	49,600
Road Improvements	L.S.	1	5,000	5,000
Canal Improvements	L.S.	1	108,100	108,100
TOTAL CANAL IMPROVEMENTS & STRUCTURES				$ 213,200
POWERHOUSE & FOREBAY				
Excavation (Rock) Powerhouse	C.Y.	150	55	8,250
Excavation (Common) Powerhouse	C.Y.	2,500	4	10,000
Foundation Preparation - Powerhouse	L.S.	1	6,000	6,000
Concrete (Forebay)	C.Y.	48	350	16,800
Concrete (Powerhouse)	C.Y.	340	350	119,000
Trash Rack, Rake & Walkway	L.S.	1	16,000	16,000
Concrete (Discharge Bay)	C.Y.	20	350	7,000
Radial Gate (Forebay)	L.S.	1	22,500	22,500
Turbine/Generators/Gear Boxes	L.S.	1	390,000	390,000
Installation of Turbine/Generators	L.S.	1	20,000	20,000
Penstock	L.F.	460	175	80,500
Valves and Manifold	L.S.	1	38,500	38,500
Pipe (McCammon Ditch Co.)	L.F.	210	145	30,450
UPRR Undercrossing	L.S.	1	35,000	35,000
Gate (Sluice)	L.S.	1	16,000	16,000
Programmable Control Hardware	L.S.	1	25,000	25,000
Programmable Control Software	L.S.	1	15,000	15,000
Remote Computer System	L.S.	1	6,000	6,000
Transformer	L.S.	1	20,000	20,000
Switchgear	L.S.	1	29,000	29,000
Utility Relay & Metering	L.S.	1	5,000	5,000
Transmission Line	Mile	3	36,666	110,000
Riprap (Tailrace)	C.Y.	600	25	15,000
Powerhouse Building Electrical	L.S.	1	36,000	36,000
Powerhouse HVAC	L.S.	1	15,000	15,000
TOTAL POWERHOUSE AND FOREBAY				$1,103,000
ESTIMATED TOTAL CONSTRUCTION COST				$1,316,200
Contingencies (10% Equipment 20% Engineering)				165,530
		SUBTOTAL		$1,481,730

TABLE 3 (con't.)

ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT
ENGINEERING				
Design			103,750	
Construction Inspection			74,090	
Construction Management			59,280	
Project Administration & Misc. Permits			13,800	
TOTAL ENGINEERING AND ADMINISTRATION			250,920	250,920
ADMINISTRATIVE COSTS				
Interest During Construction			74,040	
Legal Services			7,410	
Administration			12,340	
Sales Taxes - 3%			41,460	
Feasibility Study			12,000	
FERC License Exemption			3,500	
TOTAL ADMINISTRATIVE CODTS AND TAXES			150,750	150,750
TOTAL ESTIMATED PROJECT COST				$1,883,400

F. ANNUAL COSTS (Operation and Maintenance)

Annual costs for this project include operation and maintenance of the facility, a reserve fund for scheduled equipment replacement or major maintenance and, state and local taxes and insurance.

These annual costs are for a remotely monitored, computer controlled and virtually unattended power plant. This remote computer reduces manpower requirements and expenses; however, it does not eliminate them. Trash racks and control gates require periodic checks and will have to be maintained to prevent minor problems from turning into major problems.

Rodent damage to the canal embankment will be a constant concern. Aquatic plant growth control in the canal during the summer months on a regular or even continuous basis will be required. The O&M road should be regraded, filled-in and re-surfaced where needed. Annually, the canal should be checked and dredged out where sediment deposits have accumulated. Water control gate bearings should be lubricated and adjusted and all mechanical control devices should be inspected, cleaned and lubricated.

The trash racks present a variable labor demand. Small items such as algae, leaves, twigs and small branches will not ordinarily cause harm to the turbines and so will be allowed to pass through the rack. Large items will have to be screened out and must be removed manually. Ice chunks from breakup of the ice cake can plug a trash rack and must also be removed manually. Usually the duration of ice flow breakup is short, so manpower expense is not high.

Major maintenance to the equipment of any hydroelectric generating plant of this size should be minimal. The rotating machinery is designed to operate from 30 to 50 years. Regular inspection of runners and draft tubes will be prescribed by the manufacturer and, if followed, should provide sufficient warning to correct problems before major problems develop. Auxiliary equipment such as air compressors, hydraulic pumps, ventilation fans and heaters can be expected to need regular maintenance checks.

To protect against the loss of income resulting from a emergency long-term shutdown, loss of income insurance can be made available. This insurance would ensure the income of the project would be maintained for as long as the turbine was under repair. Also, income loss is further cushioned because 2/3 of the total project income is based on the fixed capacity payment that is paid regardless of temporary shutdowns. The other 1/3 of the payment is based solely on energy produced and so would be affected by a shutdown.

Estimated operation and maintenance costs are presented on Table 4.

TABLE 4

OPERATION AND MAINTENANCE COSTS (1st Year)

O&M MANPOWER	EQUIPMENT REPLACEMENT	INSURANCE	GENERAL EXPENSES	TOTAL
$10,764	$14,742	$4,914	$8,580	$39,000

V·IMPROVEMENTS TO EXISTING FACILITIES

V. IMPROVEMENTS TO EXISTING FACILITIES

A. GENERAL

Two primary improvements to existing facilities were studied for this report. One improvement consisted of the replacement of the existing control gates and the diversion inlet structure to the PMV canal located in the SE 1/5 of the NW 1/5, Section 22, T.9S., R.37E., B.M. The second improvement consisted of sealing the existing canal and raising and widening the existing canal to allow for increased flow. Each of these items is discussed in the following narrative.

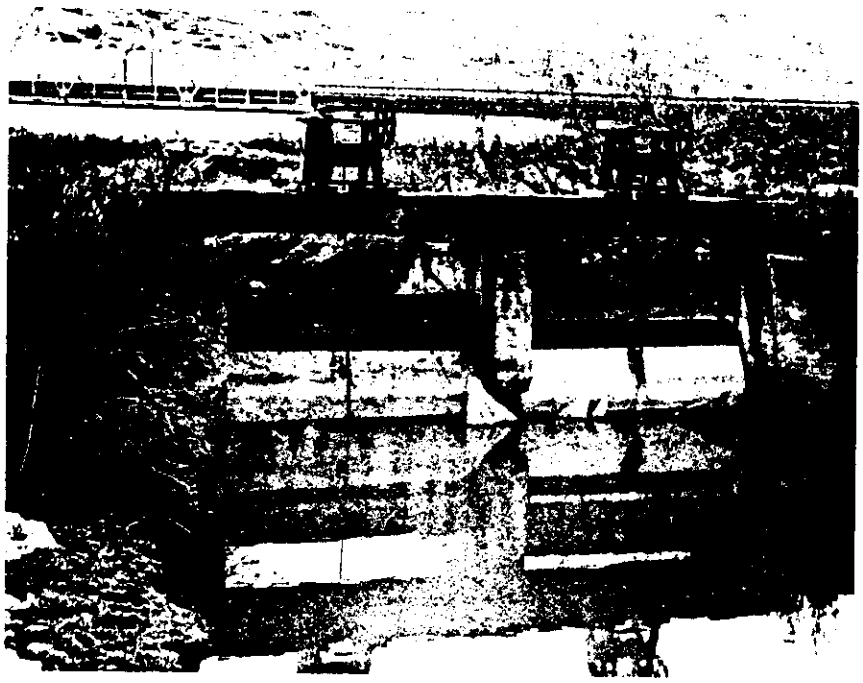


PHOTO 3 - Inlet structure at PMV canal. 12/29/82 ARJ

B. INLET STRUCTURE

The existing radial gates at this structure are in poor condition and must be replaced. Figure 11 shows the relationship of the various structures associated with the PMV inlet works. For the purposes of this study, we have tentatively designed a submerged gate to preclude icing problems during winter operation. Several gate manufactures should be evaluated during design but for this estimate we suggest Waterman Model T-2 gates or similar equipment as shown

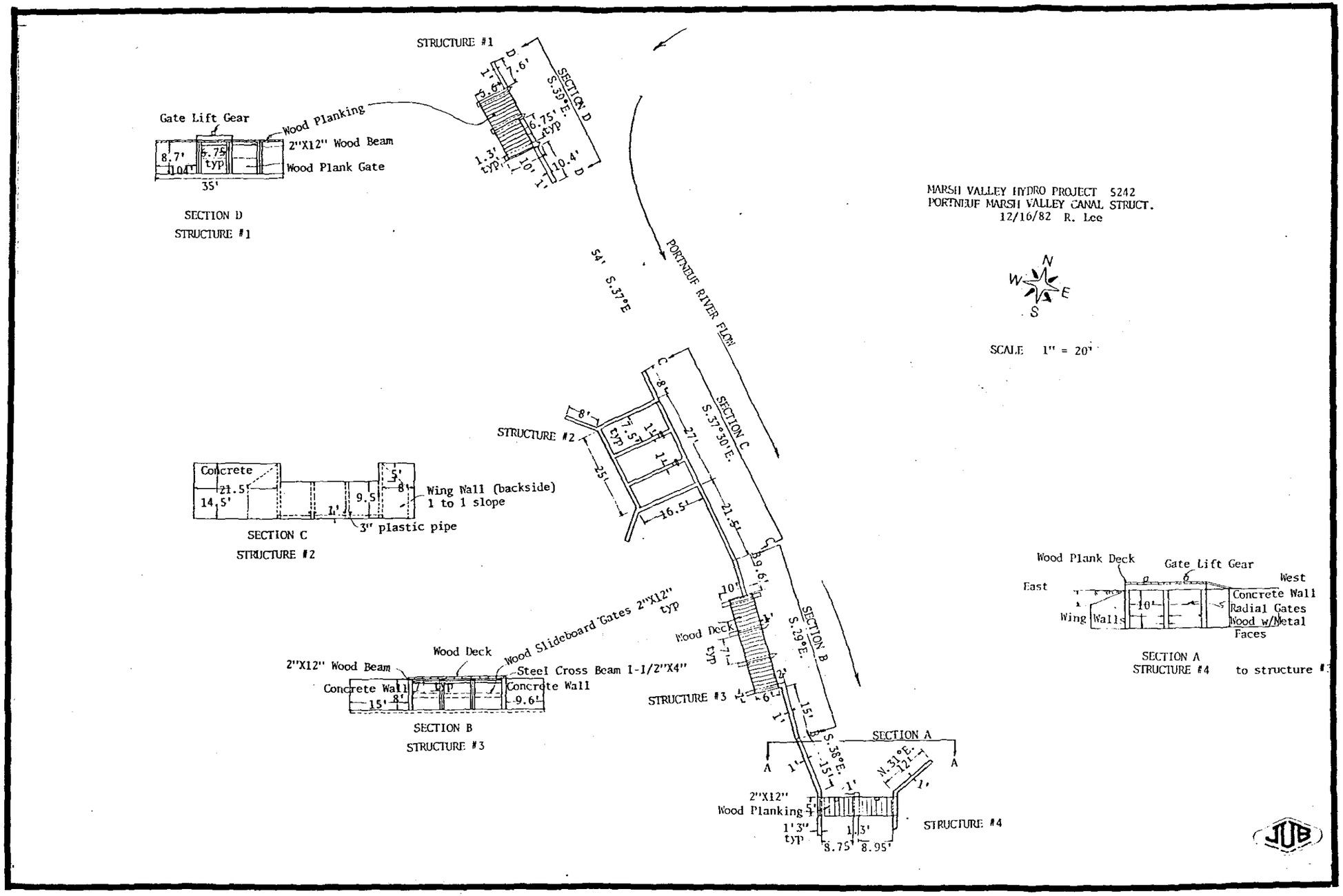

MARSH VALLEY HYDRO PROJECT 5242
PORTNEUF MARSH VALLEY CANAL STRUCT.
12/16/82 R. Lee
SCALE 1" = 20'
N
W
E
S
STRUCTURE #1
SECTION D
S.39°E.
7.6'
5.6'
6.75' typ
1.3' typ
10'
10.4'
Gate Lift Gear
Wood Planking
2"X12" Wood Beam
Wood Plank Gate
8.7'
6.75 typ
35'
SECTION D
STRUCTURE #1
54' S.37°E
PORTNEUF RIVER FLOW
SECTION C
S.37°30'E.
STRUCTURE #2
7.5 typ
25'
27'
16.5'
21.5'
Concrete
21.5'
14.5'
9.5'
5'
8'
Wing Wall (backside)
1 to 1 slope
3" plastic pipe
SECTION C
STRUCTURE #2
SECTION B
S.29°E.
9.6'
10'
Wood Deck
Wood Slideboard Gates 2"X12" typ
2"X12" Wood Beam
Wood Deck
Steel Cross Beam 1-1/2"X4"
Concrete Wall
Concrete Wall
15'
9.6'
SECTION B
STRUCTURE #3
STRUCTURE #3
15'
S.38°E.
SECTION A
A
A
N.31°E.
12'
2"X12"
Wood Planking
1'3" typ
1.3'
8.75'
8.95'
STRUCTURE #4
Wood Plank Deck
Gate Lift Gear
East
West
Concrete Wall
Radial Gates
Wood w/Metal
Faces
Wing Walls
10'
SECTION A
STRUCTURE #4
to structure #3

FIGURE 11

on the following sketch (Figure 12). This type of gate has proved satisfactory for many existing irrigation works. The gate would be approximately 16 feet wide and 5 feet high. The gates would be controlled by an electric drive mechanism or regulated manually (Figure 13).

C. CANAL IMPROVEMENTS

Canal improvements consist of canal enlargement, shaping and sealing. At the design flow of 250 cfs, widening and raising canal banks will be required from the point of its origin to the proposed forebay site. We estimate that 6200 cubic yards of cut and 21,250 cubic yards of fill will be required at an estimated cost of $108,000.

As stated earlier in this report the McCammon Ditch canal will be abandoned from the inlet structure to the discharge bay. No additional fill material is required to obliterate the canal.

PHOTO 4 - McCammon Ditch diversion dam on Portneuf River. 3/3/83 RRU

Topographic sheets of the PMV canal prepared from new field surveys made by J-U-B are not presented in the report owing to the large number of sheets required. The original drawings and field notes are on file at the Pocatello office of J-U-B ENGINEERS, Inc.

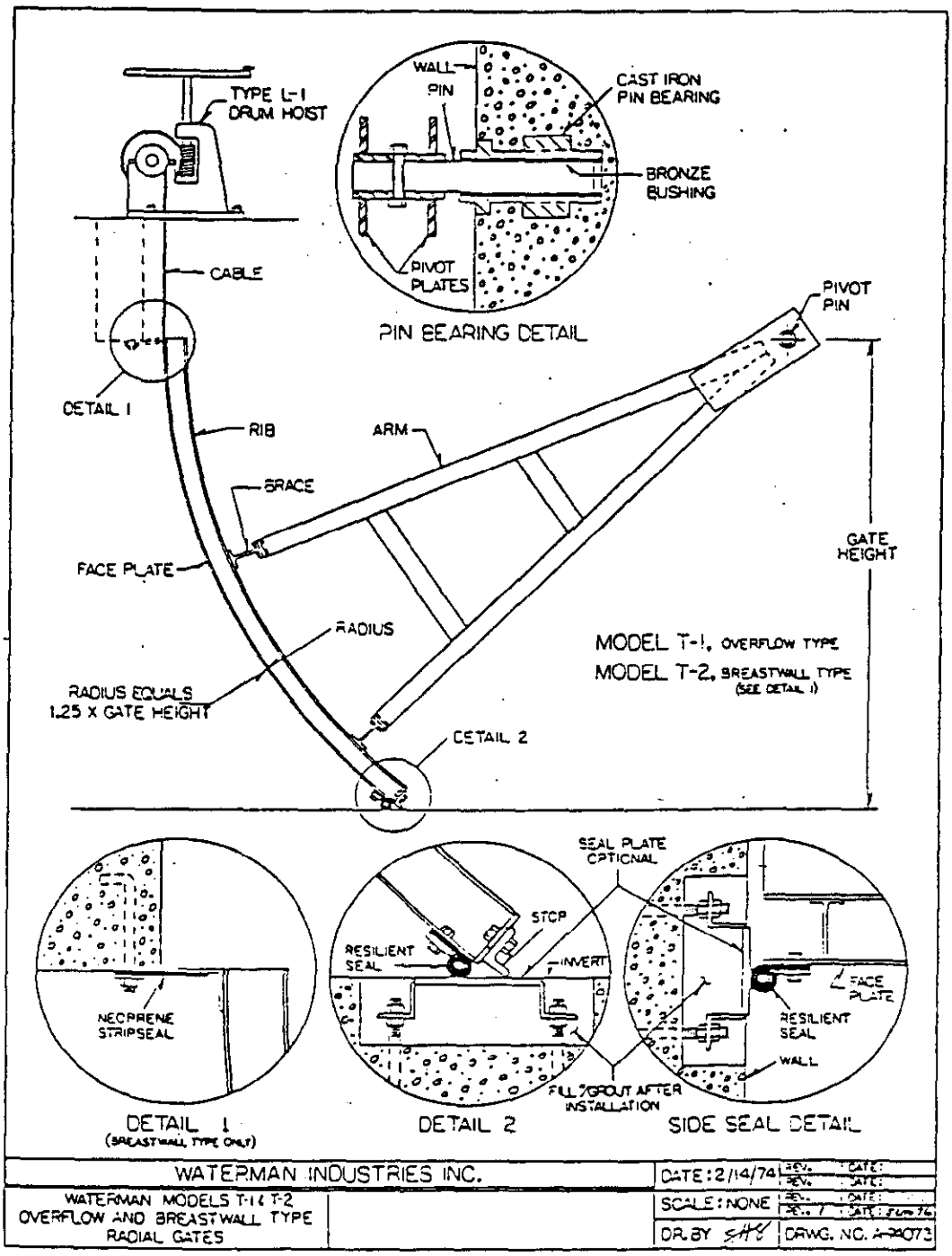
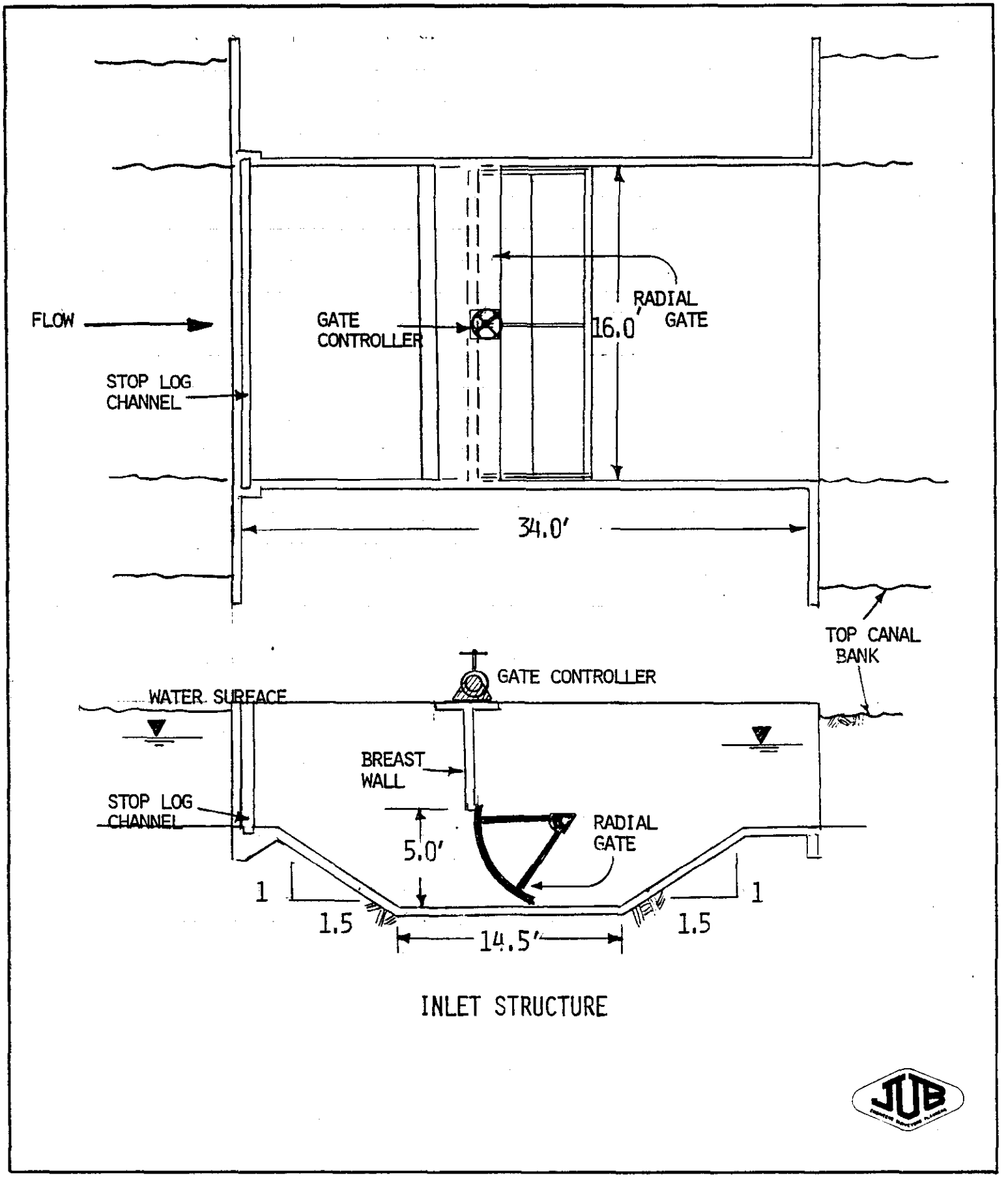

TYPE L-1 DRUM HOIST
CABLE
DETAIL 1
RIB
BRACE
FACE PLATE
RADIUS
RADIUS EQUALS 1.25 X GATE HEIGHT
DETAIL 2
WALL
PIN
CAST IRON PIN BEARING
BRONZE BUSHING
PIVOT PLATES
PIN BEARING DETAIL
PIVOT PIN
ARM
GATE HEIGHT
MODEL T-1, OVERFLOW TYPE
MODEL T-2, BREASTWALL TYPE (SEE DETAIL 1)
NEOPRENE STRIPSEAL
DETAIL 1 (BREASTWALL TYPE ONLY)
SEAL PLATE OPTIONAL
STOP
RESILIENT SEAL
INVERT
FILL/GROUT AFTER INSTALLATION
DETAIL 2
FACE PLATE
RESILIENT SEAL
WALL
SIDE SEAL DETAIL
WATERMAN INDUSTRIES INC.
DATE: 2/14/74
WATERMAN MODELS T-1 & T-2 OVERFLOW AND BREASTWALL TYPE RADIAL GATES
SCALE: NONE
DR. BY
DRWG. NO.

FIGURE 12



INLET STRUCTURE

FIGURE 13

VI·ECONOMIC EVALUATION

VI. ECONOMIC EVALUATION

A. GENERAL

To deomonstrate the economic viability the project must have a positive cash flow over the term of the contract. For the purposes of this report, the financing rate used in the cash flow analysis was estimated at 13 percent interest for a 20 year period.

The cash flows projection presented in this study is intended to present only the general aspects of the project's economic feasibility. The tax relief benefits for this project are potentially very great for a profit based developer of the project. Both the tax incentive and revenue should be integrated into developer's financial structure when financing is considered to determine what type and form of financing best fits his needs. MVH Co. may find that forming a separate corporation for ownership and operation of the hydroelectric plant may be advantageous.

B. ALTERNATIVES

Two cash flow statements are presented. The first statement, Table 5A includes canal improvements and land acquisition as part of the project construction cost. However, these costs may not necessarily be considered as a part of the hydroelectric project only. The PMV canal survey conducted by the engineers showed that the canal improvements required for increasing the flow in the PMV canal could be very minor if the canal were in better condition. Therefore, we prepared a second cash flow (Table 5B) reducing the construction cost by the cost for canal improvements. This, of course, provides only a rather coarse comparison but we feel it is a valuable one.

C. CASH FLOW STATEMENTS

Several assumptions have been made in order to perform the cash flow analysis. Power production is assumed constant from year to year with an escalation factor for energy revenue only, as recommended by the Idaho Public Utilities Commission (IPUC). Because much of the project revenue is levelized by the capacity payment, there is considerable protection from revenue loss due to bad water year or temporary equipment failures.

During each year of operation, the energy portion of the total revenue is expected to escalate at 6 percent per year. This is in accordance with IPUC recommendations as to the rate at which the Commission expects energy costs to escalate over a long period of time. Operation and maintenance costs are expected to increase at a rate equal to the rate of increase in energy costs, or about 6 percent per year, and both quantities are excalated through the anticipated economic life of the project.

The following two tables present estimated cash flow, but no power production losses due to ice problems are included in these tables. However, such losses should not seriously affect these feasibility analyses.

D. NET PRESENT VALUE

Normal net present value analysis compares the present value of the costs of the project to the present value of the income streams over the life of the project. For this analysis, the normal project life was reduced to 35 years, or the life of a typical power purchase contract. Essentially, the analysis weighs the costs of the project heavier than the income and ignores the income the project would be realizing in the last 15 years of its life. With a project life of 50 years, guaranteed income increasing each of the contracted first 35 years, and a loan duration of 20 years, both of the project analyses show a positive net present value over the life of the project.

E. BENEFIT/COST EVALUATION

In order to rate the economic feasibility of the project, an index called a Benefit/Cost Ratio is used. This ratio may be defined as the summation of the present values of the income over a specified period of amortization divided by the summation of the present value costs. For this project the calculated B/C ratio ranges from 1.16:1 to 1.25:1.

TABLE 5A

HYDROELECTRIC PROJECT CASH FLOW STATEMENT(BEORE TAX)
PROJECT NAME: MARSH VALLEY - FIXED GEOMETRY - 3 UNITS
ANNUAL PRODUCTION: 5600000KWH INSTALLED CAPACITY 1134 KW
PROJECT COST: 1883400 COST PER KILOWATT 1661($/KW)
INTEREST RATE: 13%
LOAN TERM,YEARS 20YRS FIRST YEAR O&M : 39000
DEBT REPAYMENT: 268109($/YEAR)
O&M ESCALATION,%: 6% FOR YRS 0-10; 5% FOR YRS 11-35
EN. INCOME ESCAL,% 6% FOR YRS 0-5; 5% FOR YRS 6-10; 3% FOR YRS 11-35
ENERGY INC.* $/KWH .0143
CAPACITY INC.$/KW 292
ROYALTY PERCENT: 0%
NPV DISCOUNT RATE 13%

YEAR	"	1	2	3	4	5	6	7	8	9	10
ENERGY REVENUE	"	80080	84985	89978	95377	101099	106154	111462	117035	122887	126573
CAPACITY REVENUE	"	248889	248889	248889	248889	248889	248889	248889	248889	248889	248889
ANNUAL REVENUE	"	328969	333774	338867	344265	349988	355043	360351	365924	371776	375462
	"										
DEBT PAYMENT	"	268109	268109	268109	268109	268109	268109	268109	268109	268109	268109
OPERAT. & MAINTEN.	"	39000	41340	43820	46450	49237	52191	55322	58642	62160	65890
STATE TAX	"	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
OTHER	"	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSES	"	309909	312249	314730	317359	320146	323100	326231	329551	333069	336799
INCOME AFTER OPER.	"	19060	21525	24137	26907	29842	31943	34119	36373	38706	38663
ROYALTY PAYMENT	"	0	0	0	0	0	0	0	0	0	0
BALANCE	"	19060	21525	24137	26907	29842	31943	34119	36373	38706	38663
NPV BALANCE'	"	64395	69612	75334	81618	88524	95112	102359	110343	119151	126424
PV BENEFITS	"	291123	261394	234852	211144	189959	170534	153171	137646	123758	110607
PV COSTS'	"	274256	244537	218123	194642	173762	155191	138668	123964	110874	99217

YEAR	"	11	12	13	14	15	16	17	18	19	20
ENERGY REVENUE	"	130370	134282	138310	142459	146733	151135	155669	160339	165149	170104
CAPACITY REVENUE	"	248889	248889	248889	248889	248889	248889	248889	248889	248889	248889
ANNUAL REVENUE	"	379259	383170	387199	391348	395622	400024	404558	409228	414038	418993
DEBT PAYMENT	"	268109	268109	268109	268109	268109	268109	268109	268109	268109	268109
OPERAT. & MAINTEN.	"	69184	72643	76276	80089	84094	88298	92713	97349	102217	107327
STATE TAX	"	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
OTHER	"	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSES	"	340093	343552	347185	350998	355003	359208	363623	368258	373126	378236
INCOME AFTER OPER.	"	39166	39618	40014	40350	40619	40816	40936	40970	40913	40756
ROYALTY PAYMENT	"	0	0	0	0	0	0	0	0	0	0
BALANCE	"	39166	39618	40014	40350	40619	40816	40936	40970	40913	40756
NPV BALANCE'	"	135194	144988	155941	168206	181955	197384	214716	234200	256122	280801
PV BENEFITS	"	98872	88400	79052	70707	63256	56602	50658	45348	40602	36361
PV COSTS'	"	88662	79260	70883	63417	56762	50827	45532	40803	36590	32824

B/C RATIO YEARS 1-35
SUM PV BENEFITS " 2767801
SUM PV COSTS' 2381980
BENEFIT COST RATIO " 1.16

TABLE 5B

HYDROELECTRIC PROJECT CASH FLOW STATEMENT(BEORE TAX)
PROJECT NAME: MARSH VALLEY - FIXED GEOMETRY - 3 UNITS

ANNUAL PRODUCTION: 5600000KWH
PROJECT COST: 1713648
INTEREST RATE: 13%
LOAN TERM.YEARS 20YRS
DEBT REPAYMENT: 243944($/YEAR)
O&M ESCALATION.%: 6% FOR YRS 0-10; 5% FOR YRS 11-35
EN. INCOME ESCAL.% 6% FOR YRS 0-5; 5% FOR YRS 6-10; 3% FOR YRS 11-35
ENERGY INC.* $/KWH .0143
CAPACITY INC.$/KW 292
ROYALTY PERCENT: 0%
NPV DISCOUNT RATE 13%

INSTALLED CAPACITY 1134 KW
COST PER KILOWATT 1511($/KW)
FIRST YEAR O&M : 39000

YEAR	"	1	2	3	4	5	6	7	8	9	10
ENERGY REVENUE	"	80080	84885	89978	95377	101099	106154	111462	117035	122887	126573
CAPACITY REVENUE	"	248889	248889	248889	248889	248889	248889	248889	248889	248889	248889
ANNUAL REVENUE	"	328969	333774	338867	344265	349988	355043	360351	365924	371776	375462
	"										
DEBT PAYMENT	"	243944	243944	243944	243944	243944	243944	243944	243944	243944	243944
OPERAT. & MAINTEN.	"	39000	41340	43820	46450	49237	52191	55322	58642	62160	65890
STATE TAX	"	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
OTHER	"	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSES	"	285744	288084	290565	293194	295981	298935	302067	305386	308904	312634
INCOME AFTER OPER.	"	43225	45689	48302	51072	54007	56108	58284	60538	62871	62828
ROYALTY PAYMENT	"	0	0	0	0	0	0	0	0	0	0
BALANCE	"	43225	45689	48302	51072	54007	56108	58284	60538	62871	62828
NPV BALANCE'	"	64395	69612	75334	81618	88524	95112	102359	110343	119151	126424
PV BENEFITS	"	291123	261394	234852	211144	189959	170534	153171	137646	123758	110607
PV COSTS'	"	252871	225612	201376	179821	160647	143584	128397	114874	102830	92098

YEAR	"	11	12	13	14	15	16	17	18	19	20
ENERGY REVENUE	"	130370	134282	138310	142459	146733	151135	155669	160339	165149	170104
CAPACITY REVENUE	"	248889	248889	248889	248889	248889	248889	248889	248889	248889	248889
ANNUAL REVENUE	"	379259	383170	387199	391348	395622	400024	404558	409228	414038	418993
DEBT PAYMENT	"	243944	243944	243944	243944	243944	243944	243944	243944	243944	243944
OPERAT. & MAINTEN.	"	69184	72643	76276	80089	84094	88298	92713	97349	102217	107327
STATE TAX	"	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
OTHER	"	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSES	"	315928	319388	323020	326834	330838	335043	339458	344093	348961	354072
INCOME AFTER OPER.	"	63331	63783	64179	64515	64784	64981	65100	65135	65077	64921
ROYALTY PAYMENT	"	0	0	0	0	0	0	0	0	0	0
BALANCE	"	63331	63783	64179	64515	64784	64981	65100	65135	65077	64921
NPV BALANCE'	"	135194	144988	155941	168206	181955	197384	214716	234200	256122	280801
PV BENEFITS	"	98872	88400	79052	70707	63256	56602	50658	45348	40602	36361
PV COSTS'	"	82362	73685	65949	59051	52898	47407	42506	38130	34220	30727

B/C RATIO YEARS 1-35
SUM PV BENEFITS " 2767801
SUM PV COSTS' 2212228
BENEFIT COST RATIO " 1.25

VII·PROJECT IMPLEMENTATION

VII. PROJECT IMPLEMENTATION

Information and schedules presented in this section show a realistic but somewhat conservative time schedule for project construction for production by 1984. This schedule is keyed by two critical constraints: (1) lead time to bid, award and manufacture the turbine/generators and large electrical equipment; and (2) construction of the powerhouse forebay and tailrace.

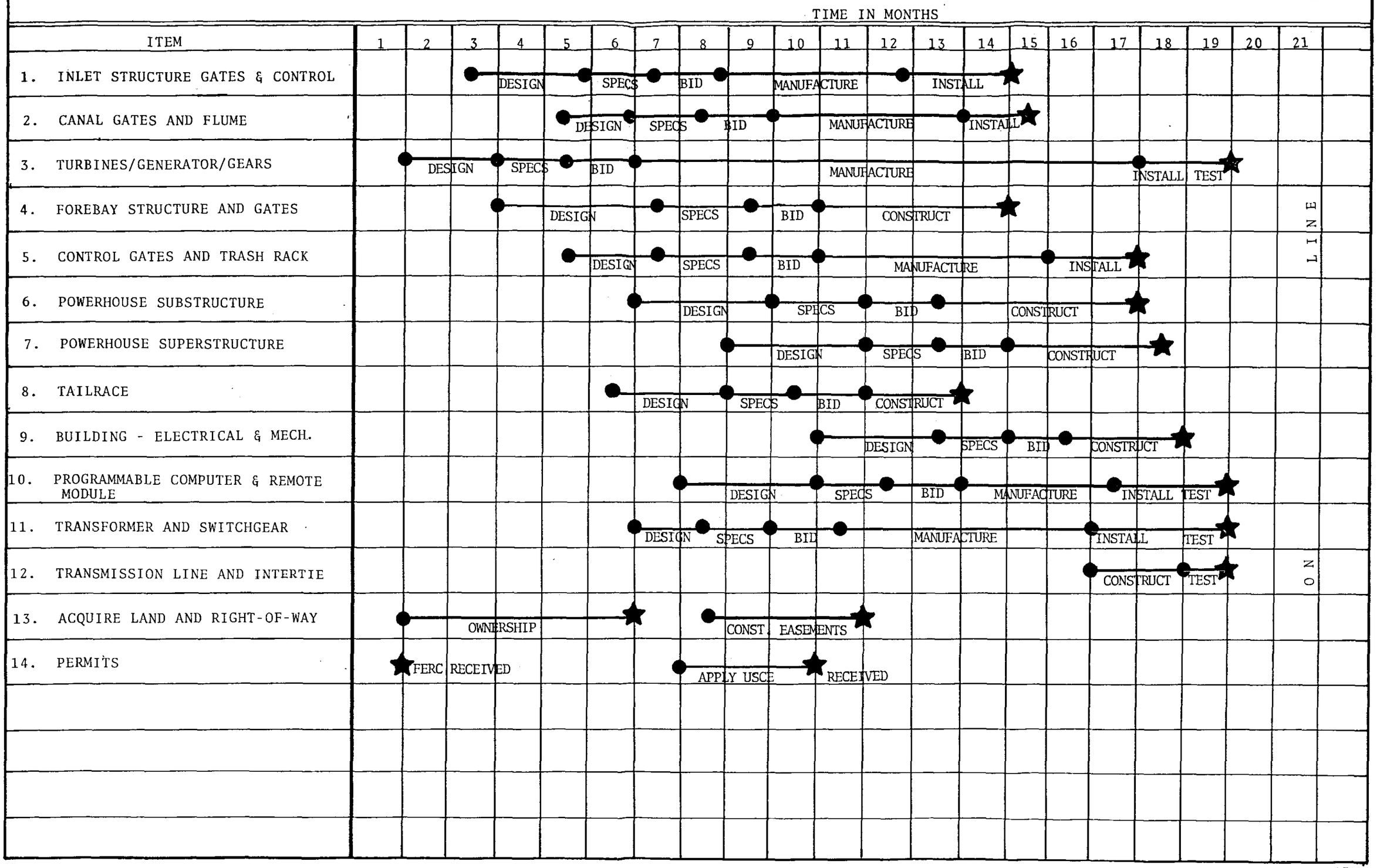
This time schedule does not allow for delays of the critical components if a 1984 start-up is desired. To meet the schedule, engineering on the project must begin as early as possible in 1983. This first work will be to refine and adjust as necessary the data that will influence the bidding of the turbines and generators. Turbine bids must be awarded by the first of September, 1983 in order for the equipment to arrive at the site before August, 1984. Two or three additional months will be needed to perform final erection and testing, which should mean start-up in November, 1984.

Facilities constructed in the Portneuf River, principally the inlet structure and tailrace, should be completed during low flows which occur in September and October. Fortunately, this coincides with the period when irrigation needs are limited. If construction could not occur during the low flow time, it would still be possible to construct these facilities. However, it would be more expensive to build bigger cofferdams and control the higher flows. Also, the State and U.S. Corps of Engineers will probably require more restrictive sediment and turbidity control measures.

Construction of the forebay in the canal is estimated for dry conditions which will occur from October through March. Winter construction in the canal and adjacent right-of-way is possible, but the weather will make construction very difficult or impossible at times, therefore, extra time was allotted for this work in the schedule.

Figure 14 shows a suggested implementation schedule.

MARSH VALLEY HYDROELECTRIC PROJECT
DESIGN AND CONSTRUCTION SCHEDULE



VIII · PROJECT POWER VALUE AND MARKETING

VIII. PROJECT POWER VALUE AND MARKETING

A. MARKET FOR POWER

In 1978, the U.S. Congress passed legislation known as the Public Utility Regulatory Policies Act (PURPA). This legislation essentially guaranteed a market for power produced by small cogenerators and hydroelectric project owners.

The implementing arm of such legislation, the Federal Energy Regulatory Commission (FERC), created rules and regulations by which it would be determined how utility companies would purchase power from small hydroelectric projects. The FERC directed that such rates for purchase be based on the utility's "avoided costs"; that is, the costs a utility would incur if they were to build a new plant using a convential source of power such as gas or coal.

In August, 1980, the Idaho Public Utilities Commission issued Order No. 15746 which established the principles and rules for Idaho utility producers. Pursuant to Commission directives, the Utah Power and Light Company drafted a contract establishing such purchase rates. Appendix F includes a copy of a portion of the power sales agreement between a cogeneration facility and Utah Power and Light Company (UP&L Co.) which states the terms and conditions which are applicable for the sale and purchase of power.

Other purchasers may also be considered. The Bonneville Power Administration and the Idaho Power Company may be interested in purchasing power from MVH Co. However, power would still have to be transmitted through UP&L Co. lines at some small expense. These utilities should be contacted during the design stages of the project.

B. UNIT VALUE OF ENERGY

Factors determining the unit value of energy for this project are the power purchase rate structure which escalates from year to year and the total energy produced. During years that energy produced is low, the unit value of energy will be higher, as the project should receive full credit

for the avoided energy with less energy production. During high water years, just the opposite would be true. For purposes of this study, the 1984 avoided capacity rate of $292.00 per kilowatt for a 35 year contract was used with a 6 percent escalation of the 1984 energy rate of 14.3 mills per killowatt-hour per year. Table 5 shows the power value calculations. (Section VI Economic Evaluation.)

IX·ENVIRONMENTAL, SAFETY AND SOCIO-INSTITUTIONAL ASPECTS

IX. ENVIRONMENTAL SAFETY AND SOCIO-INSTITUTIONAL ASPECTS

A. ENVIRONMENTAL SETTING

1. Vegetative Cover. The Portneuf-Marsh Valley Canal originates from the Portneuf River just upstream from the Highway 30 bridge and generally parallels the river through the project area. There are three types of vegetation within the project area: (1) dryland vegetation dominated by a sagebrush-grass association; (2) riverine vegetation along the Portneuf River and the Portneuf-Marsh Valley Canal; and (3) cultivated crops within the valley area.

Relatively sparse dryland vegetation characterizes the hillsides adjacent to the Portneuf Valley. Sagebrush, cheatgrass, rabbitbrush and wheatgrass are the primary species. Plant density is locally heavy in the numerous small draws that extend down the hillsides to the valley. Sagebrush is also scattered throughout the river valley.

PHOTO 5 - Riverine vegetation along Portneuf River. 3/3/83 RRU

Riverine vegetation predominates along the Portneuf River and the Portneuf-Marsh Valley Canal. (See Photo 5). This riparian vegetation in-

cludes such species as willow, wild rose, currant, sagebrush and a variety of grasses and forbs. Narrow-leaved cottonwood, willow and a few other tree species are generally scattered along the Portneuf River, but occur in significant concentrations in a few areas. The trees occur primarily along the river with the largest stand located upstream from the Portneuf-Marsh Valley Canal diversion structure.

There is some cropland within the general project area. Hay and small grains appear to be the main crops grown on these parcels. All crops are irrigated by the Portneuf River and associated canals.

2. Fish and Wildlife Resources. The 1978 Stream Evaluation Map, State of Idaho classifies the Portneuf River as a Value II stream from the Portneuf-Marsh Valley Canal diversion upstream to Lava Hot Springs. Downstream from the canal diversion the river is classified as a Value Class III stream. The bulk of the project area appears to contain the reach of the Portneuf which has been classed as a Value Class III fishery.

The Portneuf River in the general project vicinity is known to contain rainbow, brown and cutthroat trout. The mixture and number of these trout varies greatly within different reaches of the river. The Idaho Department of Fish and Game has conducted electrofishing surveys on several sections of the Portneuf River, but the reach of the Portneuf within the project area was not included. Surveys were conducted from Lava Hot Springs downstream for a distance of two miles. This section is still several miles upstream from the project area. Trout population estimates based on these 1979-81 surveys are shown below.

TROUT POPULATION ESTIMATES
PORTNEUF RIVER FORM LAVA HOT SPRINGS DOWNSTREAM TWO MILES

Year	Wild Rainbows	Hatchery Rainbows	Brown	Cutthroat	Total*
1979	1,290	----	128	-----	1,418
1980	872	----	28	18	918
1981	2,369	50	112	5	2,536

*The 95 percent confidence interval of the population estimate was ±904 in 1979, ±884 in 1980 and ±1,061 in 1981.

Since the Idaho Department of Fish and Game surveys did not cover the project area, a survey for the affected reach of the Portneuf was conducted, a detailed report of which is included as Appendix C. This survey was conducted during January and February of 1983 and utilized a combination of gillnet, electroshocking and seining. The reach of the river from the canal diversion downstream to the proposed powerhouse site was surveyed.

The survey discovered eight species of fish within the surveyed reach of the Portneuf; brown trout, rainbow trout, Utah sucker, bluehead sucker, Utah chub, speckled dace, redside shiner and mottled sculpin. A total of 139 fish were collected, excluding the sculpin which was relatively abundant in some localities. Most of the fish were suckers and minnows (shiners, dace and chub) were relatively uncommon.

A total of five brown trout and two rainbow trout were collected. All were wild trout and the browns appeared to be in poor condition. The surveyor attributed the poor condition of the brown trout to a lack of forage fish. The total number of trout within the study segment was estiamted to be less than 200.

Wildlife which inhabit the project area include those associated with the riparian habitat and those found on the adjacent dry lands and cultivated areas. Ducks, geese, gulls and other waterfowl are common along the Portneuf River at certain times of the year. Beaver, muskrat and perhaps other aquatic furbearing animals inhabit the river and canals and obtain relatively high populations in a few areas. Other mammals inhabiting the gneeral project area include the mule deer, badger, skunk and ground squirrel.

Some upland game birds inhabit the dryland and cultivated fields in the project area. Gray (Hungarian) partridge, mourning dove, valley quail, a few ring-necked pheasant and perhaps an occassional sage grouse are found within the project area.

A variety of birds-of-prey range along the Portneuf River. Cooper's hawk, sharpshinned hawk, goshawk, red-tailed hawk, golden eagle and several species of owl are common in the general area. In addition to raptors, a variety of small songbirds and other nongame species inhabit the area.

3. Water Quality and Quantity. A gauging station is maintained at Topaz which is approximately 1.5 miles upstream from the Portneuf-Marsh Valley Canal diversion. The average discharge for 61 years of record is 198 cfs. Maximum runoff has historically occurred during May. For the 1978 water year the annual mean was 204 cfs and the mean for May was 429 cfs. A large portion of these flows are diverted into the Portneuf-Marsh Valley Canal.

There is no water quality information for the Portneuf River or the canals within the project area. The Idaho Department of Health and Welfare maintains one trend station on the Portneuf River and it is below Pocatello. Water quality in the tested area is rated as poor. Sources of pollution are agricultural, industrial and urban. Though the water quality in the project area is probably superior to that at the Pocatello trend station, it is also polluted to some degree by irrigation returns and municipal wastes. During the irrigation season, the Portneuf River is almost dewatered; hence low flows combine with high temperatures to produce poor water quality.

4. Land and Water Uses. U.S. Highway 30N and the Union Pacific Railroad are within the narrow Portneuf Valley. Other than these transportation routes and a few irrigated agricultural plots, there is little land use in the area. Some fishing and hunting activity is conducted along the river, but these uses appear to be limited.

The Portneuf-Marsh Valley Canal and the McCammon Canal are diverted from the Portneuf River within the project area. These canals carry water to large agricultural areas located downstream from the project. The primary water use of the Portneuf River in the genearal project is for agricultural irrigation.

5. Recreational Uses. Recreational uses of the project area are limited to occasional hunting and fishing activities. The subject reach of the Portneuf is generally regarded as a poor fishery for trout.

6. Historical and Archaeological Resources. There are no recorded historical or archaeological sites within the project area. The proposed project will utilize exiting facilities and will not involve sufficient construction to damage any historical or archaeological resource. According to the State Historic Preservation Officer, the project will have no effect on any archaeological or historical resource. A letter from the Idaho State Historical Society is attached (Appendix C).

7. Scenic and Aesthetic Resources. There are no unusual scenic or aesthetic resources in the project area. Highway 30, the railroad and the canals help create a very mediocre scene. Surrounding hills are generally dry and do not support tree growth.

8. Threatened and Endangered Species. There are no known threatened or endangered species of plants in the project area. A letter from the U.S. Fish and Wildlife Service is attached. (Appendix C).

9. Critical Habitats. The riverine vegetation along the Portneuf River and the Portneuf-Marsh Valley Canal provides habitat for a variety of birds and animals. However, this habitat is not considered critical and similar habitat is found along the waterways outside of the project area.

10. National Register of Historic Places. There are no sites included in or eligible for inclusion in the National Register of Historic Places.

B. EXPECTED ENVIRONMENTAL IMPACTS

1. Construction. The proposed project will require the rehabilitation of the existing canal diversion and the canal and the construction of penstock, powerhouse and appurtenant facilities. Most of the potential adverse impacts will be related to the construction phase. Anticipated impacts from construction activity can be mitigated.

Rehabilitation of the diversion and canal and construction of new facilities will create some potential for increased stream turbidity. Most of the potential would be associated with the Portneuf-Marsh Valley Canal and any increased turbidity would be largely dissipated into the irrigation network.

Construction activity will result in a temporary increase in noise levels in the immediate project area. This increased noise could potentially disrupt the normal activity of wildlife in the project vicinity. Nesting waterfowl would be especially vulnerable if construction is conducted during the nesting season. Since the highway and railroad are in the immediate area at present, wildlife are not likely to be disturbed to any great extent by construction activity. There are no human dwellings in the immediate area.

Construction activity will have the potential to destroy riparian vegetation along the canal and at certain points on the Portneuf River. This vegetation provides habitat for a variety of birds and animals.

2. Operation. The operation of the proposed hydroelectric generating facility will create a potential for some on-going impacts. These long-term impacts include the potential hazard to fish and wildlife, noise, water pollution and degradation of aesthetic quality.

Electrical shock from generating and transmission facilities is a potential hazard to wildlife. Raptors inhabit the project area, and these birds have a natural tendency to perch upon structures. A variety of small mammals in the area could come in contact with electrical components of the facility.

Damage to aquatic life due to turbine ingestion is a hazard with hydropower plants unless precautions are taken to screen the inlet water. Some screening is usually necessary to protect generating equipment as well as fish and aquatic wildlife.

Operation of the generating units will produce some noise on a long-term basis. Noise levels will not be sufficient, however, to be disruptive to wildlife or human activities. Noise from generating equipment will not exceed the 65 decibel level outside of the immediate powerhouse area.

Turbine operation could potentially contribute minute amounts of pollution to the river by releasing grease, oil or metallic particles. These pollutants would not be measurable even in extreme cases. Selection of properly constructed generating equipment will essentially eliminate any potential for water pollution.

3. Agency Concerns.

a. U.S. Fish and Wildlife

(1) Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

(2) The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

(3) Game fish species may be affected by project construction activities, flow flucuations, blockage of upstream passage and nitrogen supersaturation resulting from air entrainment in the penstocks.

4. Mitigation Measures

a. Mitigation Measures Proposed by Agencies

(1) U.S. Fish and Wildlife Service. Based on the information received, the FWS have determined that the following study and preliminary terms and conditions are appropriate. We encouraged the applicant to perform the needed study prior to submitting an application for the FERC since a design change may be required.

- Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG) (Appendix C).

- Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

- Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

- Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

b. Mitigation by MVH Co. Most of the potential adverse envrionmental impacts from the construction and operation of the proposed facility can be mitigated. The following measures are proposed to largely eliminate the potential for adverse environmental effects from the construction and operation of the facility:

(1) Establish standards and procedures in the project bid documents regarding the timing of construction, soil stabilization, construction methods and other efforts required to minimize stream turbidity.

(2) Establish standards and procedures in the project bid documents regarding the use of mufflered equipment, the hours of construction and other requirements to reduce construction noise impact.

(3) Fence the powerhouse area and raptor-proof transmission facilities to minimize the electrocution hazard to wildlife.

(4) Specify fish screens if necessary to prevent fish and wildlife from being ingested into the turbines.

(5) Select turbines which utilize sealed bearings or water-lubricated bearings in order to minimize the potential for water pollution.

(6) Design the total facility to minimize the potential for nitrogen and oxygen problems.

(7) Use appropriate earth tone colors for the powerhouse structure to minimize the potential for adverse visual and aesthetic impacts.

(8) If the existing canal is modified for increased capacity, ensure that dredging and earthwork are completed and disturbed areas stabilized prior to diverting water from the canal through the generating facility.

APPENDIX A · WATER USE APPLICATION

Form 202
3/78

Ident. No. 29-7578

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant McCammon Ditch Company Phone 208-254-3494

   Post office address McCammon, Idaho 83250

2. Source of water supply Portneuf River which is a tributary of Snake River

3. Location of point of diversion is SE ¼ of NE ¼ of Section 21 Township 9S

   Range 37E B.M. Bannock County, additional points of diversion if any: ____

   none-existing diversion structure is rock filled wooden crib.

4. Water will be used for the following purposes:

   Amount 175 (cfs or acre-feet per annum) for hydropower purposes from Jan. 1 to Dec. 31 (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

5. Total quantity to be appropriated:

   a. 175 cubic feet per second and/or b. ----- acre-feet per annum.

6. Proposed diverting works:

   a. Description of ditches, flumes, pumps, headgates, etc. concrete box to divert flow from existing canal thru penstock and hydroelectric plant to be located at edge of Portneuf River.

   b. Height of storage dam N/A feet, active reservoir capacity N/A acre-feet; total reservoir capacity N/A acre-feet, materials used in storage dam: ____

   Period of year when water will be diverted to storage none-run of the river (Month/Day) (Month/Day) inclusive.

   c. Proposed well diameter is N/A inches; proposed depth of well is N/A feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 5 years *(minimum 1 year — maximum 5 years).*

8. Description of proposed uses:

   a. If water is not for irrigation:

      (1) Give the place of use of water: NE ¼ of NW ¼ of Section 21 Township 9S

      Range 37E B.M.

      (2) Amount of power to be generated: 340 horsepower under 52 feet of head.

      (3) List number of each kind of livestock to be watered N/A

      (4) Name of municipality to be served N/A, or number of families to be supplied with domestic water N/A.

      (5) If water is to be used for other purposes describe: water to be diverted from Portneuf River conveved thru existing canal to new spliter box, diverted thru penstock and hydro-generating plant, and returned to river. Total distance of conveyance thru canal 1/2 mile.

b. If water is for irrigation, indicate acreage in each subdivision in the tabulation below:

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

Total number of acres to be irrigated _____

c. Describe any other water rights used for the same purposes as described above. _____

N/A.

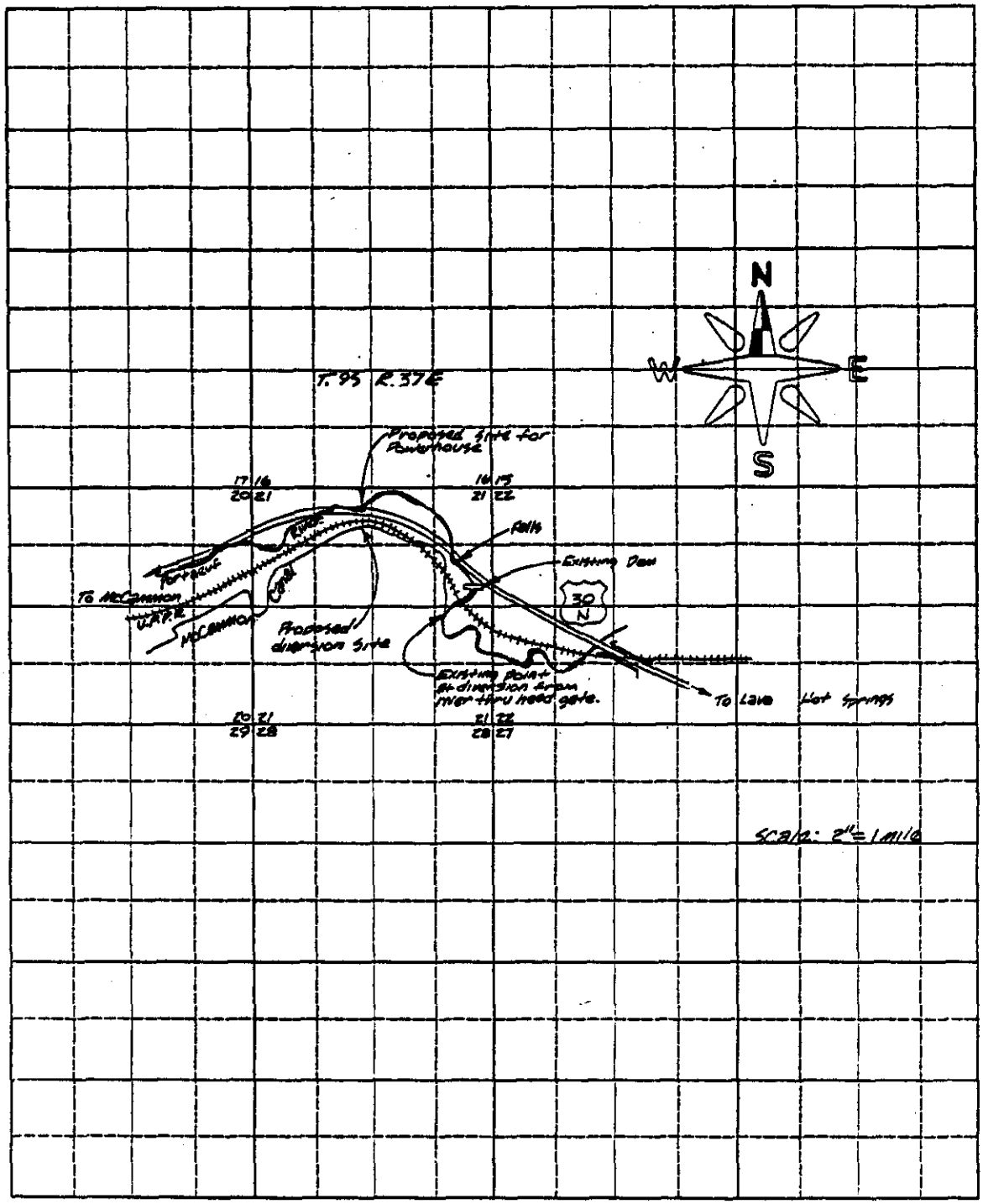
9. a. Who owns the property at the point of diversion McCammon Ditch Company

b. Who owns the land to be irrigated or place of use See below item 10

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing canal company is negotiating necessary agreements or options.

10. Remarks Item 9b. Mary S. Price, Oregon Short Line Railroad, and Constance J. Roberts The above owners hold title to the property between the existing McCammon canal along the proposed route of the penstocks and powerhouse sites.

11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

_____

(Applicant)

Received by Grant Carlson Date 2-2-81 Time 10:30

Preliminary check by _____ Fee $ 16.00

Receipted by Kw. Date 2-2-81 #17014

Publication prepared by _____ Date _____

Published in _____

Publication dates _____

Publication approved _____ Date _____

Protests filed by: _____

Copies of protests forwarded by _____

Hearing held by _____ Date _____

Recommended for approval denial by _____

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. _____, and said application is hereby _____.

1. Approval of said application is subject to the following limitations and conditions:

   a. SUBJECT TO ALL PRIOR WATER RIGHTS.

   b. Proof of construction of works and application of water to beneficial use shall be submitted on or before _____, 19____.

   c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

   d. Other: _____

Witness my hand this _____ day of _____, 19____.

_____
Director

NOTICE OF APPLICATION FOR WATER RIGHT

Notice is hereby given that the following application(s) have been submitted for permit to appropriate the public water of the State of Idaho.

13-7295
U.S. DEPT. OF AGRI. FOREST SERVICE, FEDERAL BLDG., 324 25th ST., OGDEN, UT 84401
Source: SPRING tributary to MARSH CREEK
Date Filed: 01-29-1981
Amount: 0.02 CFS
Diversion Point: NESW Sec 36 T 12S R 37E, BANNOCK Co.
Use: STOCKWATER (0.02 CFS) from 01-01 to 12-31
Place of Use: NESW Sec 36 T 12S R 37E
Diversion Means: HEADBOX, PIPELINE & TROUGH.

29-7578
McCAMMON DITCH COMPANY
McCAMMON, ID 83250
Source: PORTNEUF RIVER tributary to SNAKE RIVER
Date Filed: 02-02-1981
Amount: 175.00 CFS
Diversion Point: SENE Sec 21 T 09S 37E, BANNOCK Co.
Use: POWER (175.00 CFS) from 01-01 to 12-31
Place of Use: NENW Sec 21 T 09S R 37E
Diversion Means: PENSTOCK & POWER PLANT

29-7579
SCHILLER, WILLIAM J. &/or LORRAINE
P.O. BOX 8761, I.S.U., POCATELLO, ID 83209
Source: GROUNDWATER
Date Filed: 02-04-1981
Amount: 0.13 CFS
Diversion Point: SENW Sec 27 T 06S R 36E, BANNOCK Co.
Use: IRRIGATION (0.09 CFS) from 04-01 to 10-15
DOMESTIC: (0.04 CFS) from 01-01 to 12-31
Place of Use: SENW Sec 27 T 06S R 36E FOR 4 ACRES
Diversion Means: WELL & PUMP.

If issued, the permit(s) will be subject to all prior water rights. Protests against the granting of any permit must be filed with the Director of the Idaho Department of Water Resources, 150 Shoup Ave., Idaho Falls, Idaho 83401 on or before MARCH 2, 1981.

S/C. Stephen Allred
Director
Feb. 12, 19, 1981
No. 441

APPENDIX B · COMPUTER GENERATED DATA

PMV CANAL
MARSH VALLEY HYDROELECTRIC PROJECT
ENERGY ANALYSIS
FIXED GEOMETRY TURBINES

Head: 88 feet (net)

Unit 1: 110 cfs @ 648 kW

2: 55 cfs @ 324 kW

3: 27.5 cfs @ 162 kW

Energy Summary (kWh)

Block 1: 331,374

Block 2: 1,051,466

Block 3: 752,785 (8760 x 161.85 x .373) = 223,943

Block 4: 3,997,024

Block 5: 2,139,004 (8760 x 323.69 x .706) = 137,124

Block 6: 1,102,519 (8760 x 161.85 x .755) = 32,075

TOTAL = 5,773,006

Reduce by 1 1/2% transformer loss and 1 1/2% forced outage.

Mean Annual Energy = 5,600,000 kWh

H Y D R O - C A L C

HARSH VALLEY HYDRO

DATE: JANUARY 21

EXCEEDENCE CURVE INPUT

PERCENT	FLOW RATE (CFS)
5	436
10	315
20	199
30	174
40	154
50	139
60	129
70	109
80	1
100	0
90	0

COMMENTS:

LEAST SQUARES FIT OF DATA IS

Y = A + B * LN(X)

WHERE:

A = 14.8939367

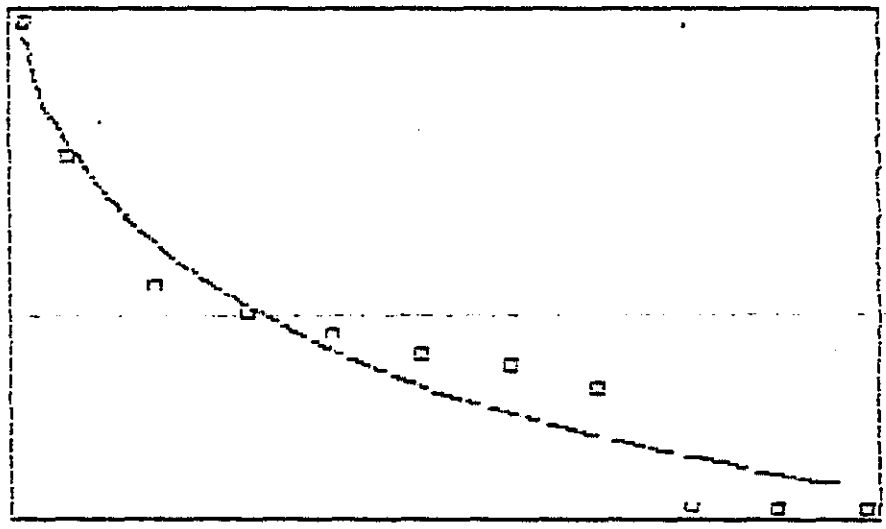
B = -136.314321

R*R = .946974364

SUMMARY FOR Y = A + B * LN(X)

X ACT	Y ACT	Y CALC
.05	436	423.26
.1	315	328.77
.2	198	234.28
.3	174	179.01
.4	154	139.8
.5	138	109.38
.6	128	84.53
.7	108	63.51
.8	1	45.31
1	0	14.89
.9	0	29.26

COMPARISON OF FIT WITH DATA:

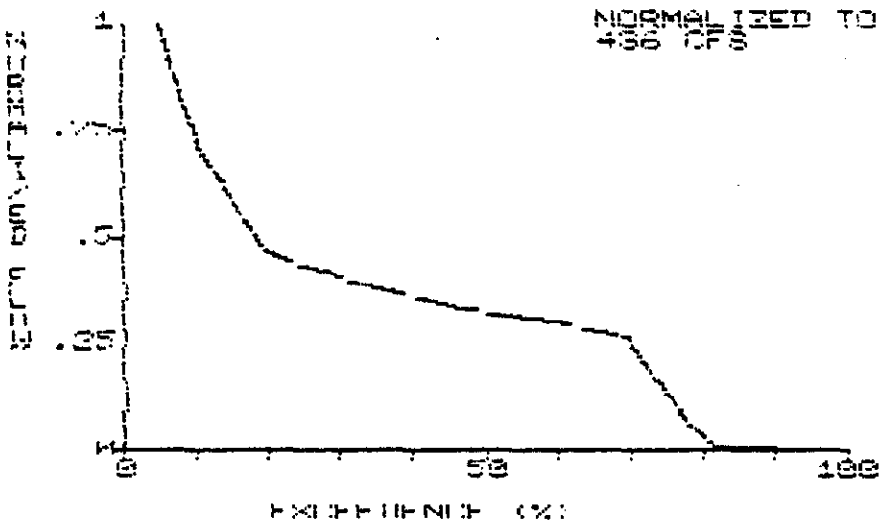


THE INPUT DATA IS USED FOR THIS
ANALYSIS

THE CALCULATED AVERAGE YEARLY FLOW

RATE IS 146.4 CFS.

---NOT MODIFIED.



EXCEEDENCE		FLOW	
0	%	436	CFS
5	%	436	CFS
10	%	322.6	CFS
15	%	256.5	CFS
20	%	200.9	CFS
25	%	186	CFS
30	%	174.3	CFS
35	%	164	CFS
40	%	154.1	CFS
45	%	146	CFS
50	%	138.4	CFS
55	%	133	CFS
60	%	127.5	CFS
65	%	118	CFS
70	%	104.3	CFS
75	%	54.5	CFS
80	%	8.6	CFS
85	%	.7	CFS
90	%	.5	CFS
95	%	.3	CFS
100	%	0	CFS

TURBINE #1

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 88 FT

	EXC. %	TURB. CFS	RIVER CFS
RATED	69	110	110
CUTOFF	70.6	99	99
MINIMUM	100	---	0

GENERATOR EFF. 93 %

RATED POWER 647.38 KW

ANNUAL ENERGY 3997024 KWH

PLANT FACTOR 70.5 %

TURBINE #2

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 88 FT

	EXC. %	TURB. CFS	RIVER CFS
RATED	34.5	55	165
CUTOFF	37.3	49.5	159.5
MINIMUM	69	---	110

GENERATOR EFF. 93 %

RATED POWER 323.69 KW

ANNUAL ENERGY 1051466 KWH

PLANT FACTOR 37.1 %

TURBINE #3

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 88 FT

	EXC. %	TURB. CFS	RIVER CFS
RATED	22.4	27.5	192.5
CUTOFF	23.4	24.8	189.8
MINIMUM	34.5	---	165

GENERATOR EFF. 93 %

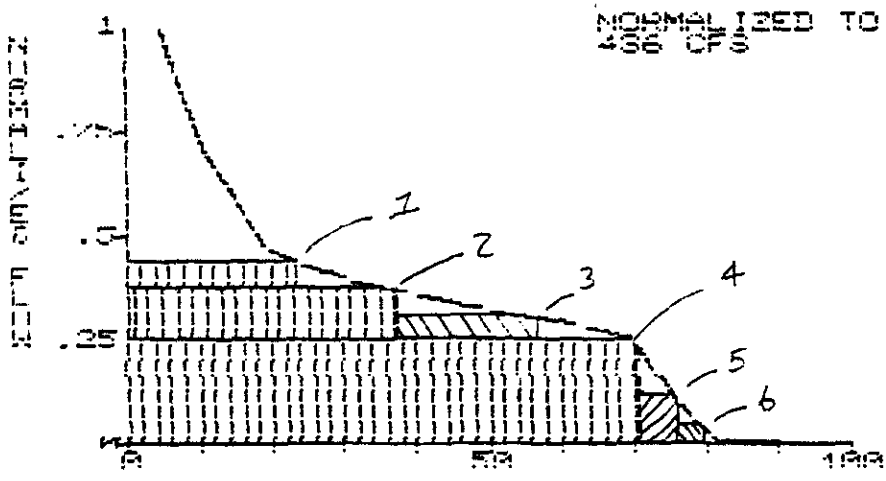
RATED POWER 161.85 KW

ANNUAL ENERGY 331374 KWH

PLANT FACTOR 23.4 %

TOTAL ENERGY 5379865 KWH

OVERALL P.F. 54.2 %



TURBINE #1

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 88 FT

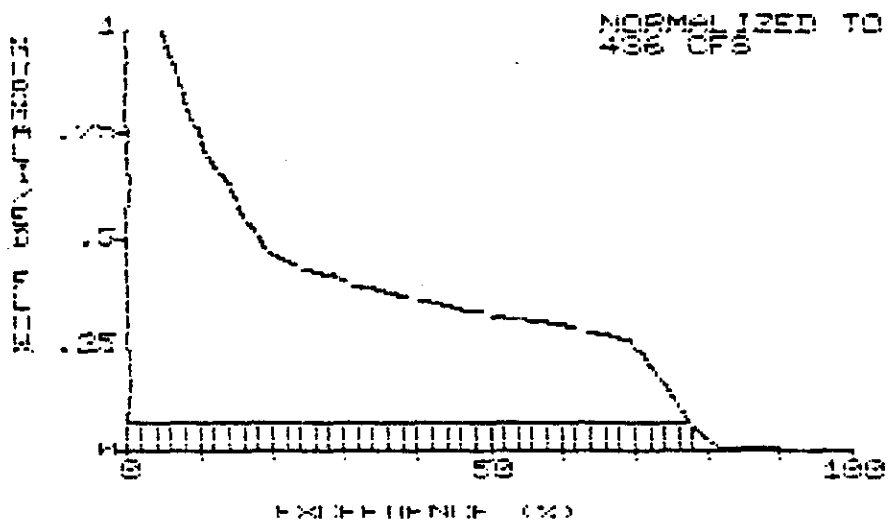
	EXC. %	TURB. CFS	RIVER CFS
RATED	77.5	27.5	27.5
CUTOFF	77.8	24.7	24.7
MINIMUM	100	---	0

GENERATOR EFF. 93 %

RATED POWER 161.85 KW

ANNUAL ENERGY 1102519 KWH

PLANT FACTOR 77.8 %



TURBINE #1

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 89 FT

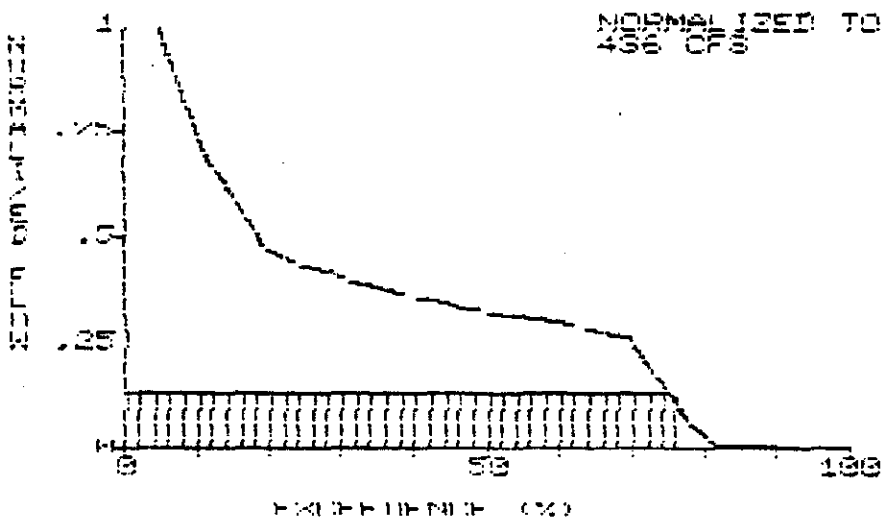
	EXC. %	TURB. CFS	RIVER CFS
RATED	75	55	55
CUTOFF	75.5	49.5	49.5
MINIMUM	100	---	0

GENERATOR EFF. 93 %

RATED POWER 323.69 KW

ANNUAL ENERGY 2139001 KWH

PLANT FACTOR 75.4 %



TURBINE #1

FIXED GEOMETRY (60 FT - 200 FT)

AVAILABLE HEAD 99 FT

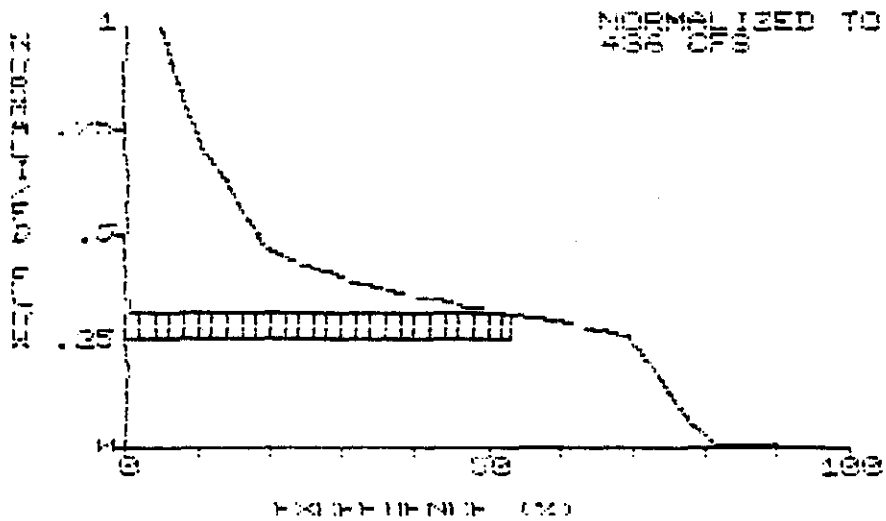
	EXC. %	TURB. CFS	RIVER CFS
RATED	50.7	27.5	137.5
CUTOFF	53.3	24.8	134.8
MINIMUM	69	---	110

GENERATOR EFF. 93 %

RATED POWER 161.85 KW

ANNUAL ENERGY 752785 KWH

PLANT FACTOR 53.1 %



MARSH VALLEY HYDROELECTRIC PROJECT
McCAMMON CANAL
ENERGY ANALYSIS
FIXED GEOMETRY TURBINE

Head: 20 feet (net)

Unit 1 - 55 cfs @ 74 kW

Energy Summary (kWh)

Block 1	190,071
Total =	190,071

Reduce by 1 1/2% transformer loss and 1 1/2% forced outage

Mean Annual Energy = 184,500 kWh

JFR#8

H Y D R O - C A L C

MCCAMMON CANAL HYDRO

DATE: 1/24/83

EXCEEDENCE CURVE INPUT

PERCENT	FLOW RATE (CFS)
11.1	68
15.3	65
18.8	60
20.2	58
23	55
24.4	53
30	50
31.4	40
33.5	35
34.2	30
35	1

COMMENTS:

LEAST SQUARES FIT OF DATA IS

Y = A * X + B

WHERE:

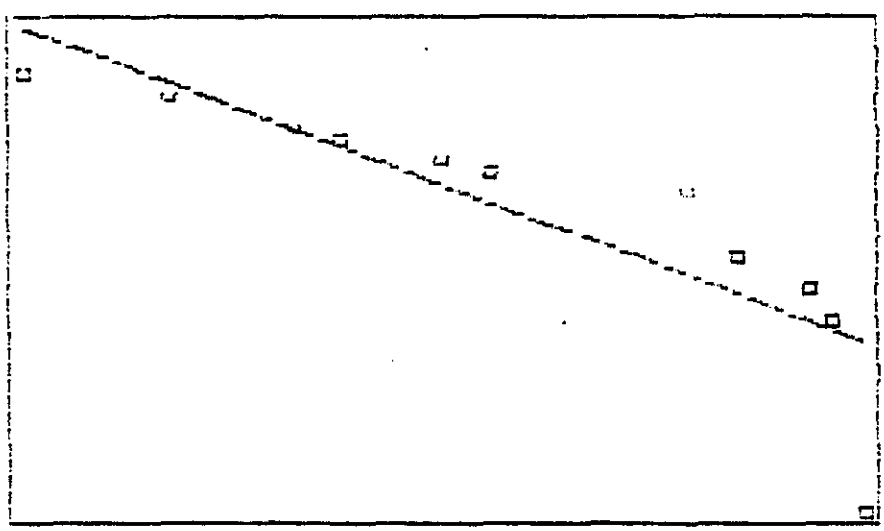
A = -201.912933
B = 97.6249828

R*R = .73525235

SUMMARY FOR Y = A * X + B

X ACT	Y ACT	Y CALC
.11	68	75.31
.15	65	66.73
.19	60	59.73
.2	58	56.88
.23	55	51.25
.24	53	49.4
.3	50	37.05
.31	40	34.18
.34	35	29.94
.34	30	29.57
.35	1	26.96

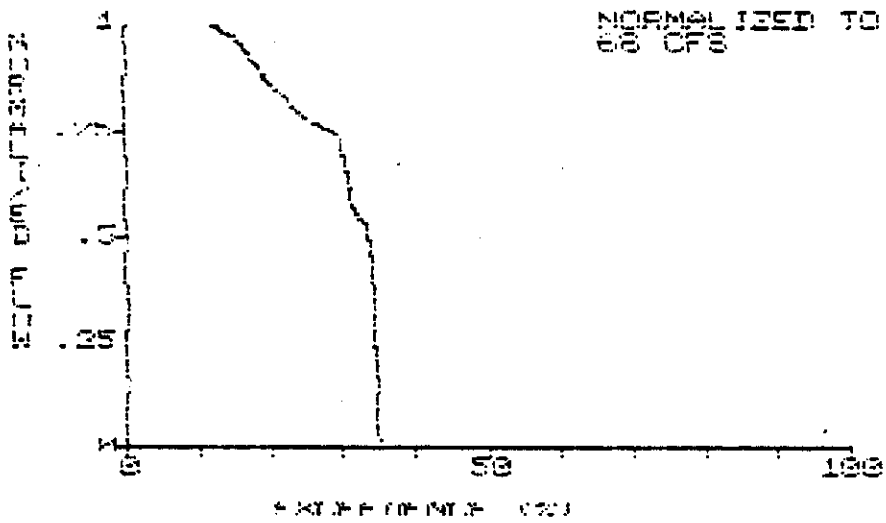
COMPARISON OF FIT WITH DATA:



THE INPUT DATA IS USED FOR THIS
ANALYSIS

THE CALCULATED AVERAGE YEARLY FLOW
RATE IS 20.7 CFS

---NOT MODIFIED.



EXCEEDENCE		FLOW	
0	%	68	CFS
5	%	68	CFS
10	%	68	CFS
15	%	65.2	CFS
20	%	58.3	CFS
25	%	52.7	CFS
30	%	49.7	CFS
35	%	1	CFS
40	%	-175.7	CFS
45	%	-352.5	CFS
50	%	-529.2	CFS
55	%	-705.9	CFS
60	%	-882.6	CFS
65	%	-1059.4	CFS
70	%	-1236.1	CFS
75	%	-1412.8	CFS
80	%	-1589.5	CFS
85	%	-1766.3	CFS
90	%	-1943	CFS
95	%	-2119.7	CFS
100	%	-2296.4	CFS

TURBINE #1

FIXED GEOMETRY (BELOW 60 FT)

AVAILABLE HEAD 20 FT

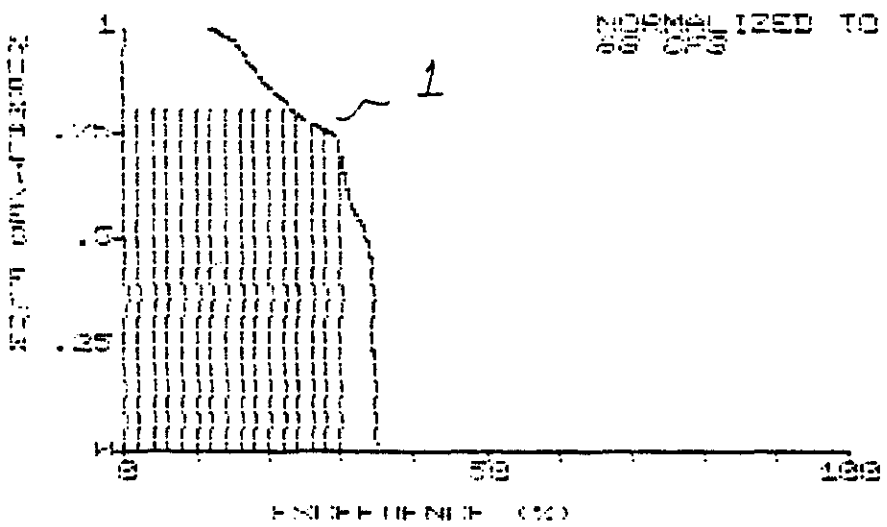
	EXC. %	TURB. CFS	RIVER CFS
RATED	22.9	55	55
CUTOFF	30.1	49.5	49.5
MINIMUM	33	---	0

GENERATOR EFF. 93 %

RATED POWER 73.57 KW

ANNUAL ENERGY 190071 KWH

PLANT FACTOR 29.5 %



Job # 14347-04

13073000 Portneuf River at Topaz, Idaho

LOCATION.--Lat 42°37'30", long 112°05'20", in SE¼ sec.23, T.9 S., R.37 E., Bannock County, on right bank 200 ft (60 m) upstream from Bob Smith Creek, 800 ft (240 m) downstream from Topaz siding, 1.5 mi (2.4 km) upstream from diversion dam of Portneuf-Marsh Valley Canal Co., 4 mi (6 km) west of Lava Hot Springs, and at mile 47.3 (76.1 km).

DRAINAGE AREA.--570 sq mi (1,480 sq km), approximately (includes that of Bob Smith Creek). Mean altitude, 6,080 ft (1,850 m).

PERIOD OF RECORD.--January 1913 to September 1915, July 1919 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Datum of gage is 4,918.00 ft (1,499.006 m) above mean sea level, preliminary, unadjusted. Prior to July 20, 1919, nonrecording gage at site 0.3 mi (0.5 km) downstream at datum 3.0 ft (0.91 m) lower. July 20, 1919, to June 22, 1954, nonrecording gage at site 0.3 mi (0.5 km) downstream at datum 2.00 ft (0.610 m) lower than present datum.

AVERAGE DISCHARGE.--57 years, 196 cfs (5.551 cu m/s), 142,000 acre-ft/yr (175 cu km/yr); 15-year base period (1952-67), 169 cfs (4.786 cu m/s).

EXTREMES.--Current year: Maximum discharge, 755 cfs (21.4 cu m/s) May 10 (gage height, 4.64 ft or 1.414 m); minimum daily, 138 cfs (3.91 cu m/s) Sept. 30.
Period of record: Maximum discharge, 7,120 cfs (202 cu m/s) Feb. 1, 1963 (gage height, 8.22 ft or 2.505 m), result of highway fill failure 2 mi (3 km) upstream; minimum, 64 cfs (1.81 cu m/s) Sept. 23, 1966 (gage height, 2.27 ft or 0.692 m).

REMARKS.--Records good. Flow regulated by Portneuf Reservoir (capacity, 23,695 acre-ft or 29.2 cu hm) and Chesterfield Reservoir on Twenty-Four Mile Creek (capacity, 685 acre-ft or 0.845 cu hm). Diversions above station for irrigation of about 29,000 acres (12,000 sq hm) of which about 7,400 acres (3,000 sq hm) are by withdrawals from ground water (1966 determination). Records of chemical analyses for the water year 1974 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WSP 1347: 1920-22, 1924-25(M). WSP 1567: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
								IRRIG.	233	223	200	185
1	156	155	185	163	194	184	424	560	494 261	212 0	209 8	207 22
2	153	155	190	160	181	236	406	587	476 243	216 0	213 13	209 24
3	149	160	190	160	180	236	388	600	463 230	212 0	219 19	216 27
4	150	165	180	168	180	208	371	609	448 215	211 0	230 30	207 22
5	150	175	172	177	186	194	356	616	401 168	235 12	229 29	201 16
6	153	180	173	176	178	205	353	636	366 133	218 8	228 28	200 15
7	157	185	176	175	178	211	343	653	334 103	221 0	230 30	198 13
8	165	195	177	173	174	272	337	680	314 83	215 0	236 26	195 10
9	169	190	170	174	178	287	344	720	297 69	213 0	231 31	192 7
10	163	165	172	171	173	332	370	744	280 47	226 3	219 19	191 6
11	159	185	177	172	173	333	393	714	272 39	239 16	214 14	191 6
12	162	195	179	171	176	310	392	674	278 45	243 20	205 5	190 5
13	161	210	178	173	177	377	384	633	278 45	246 23	201 1	186 1
14	157	200	179	172	171	354	370	596	277 44	225 3	202 2	185 0 -2
15	156	195	177	177	172	323	371	563	272 39	220 0	202 2	182 0
16	157	190	177	167	173	374	383	533	269 63	228 5	202 2	176
17	160	195	179	167	176	454	402	507	264 31	224 1	202 2	173
18	158	205	183	196	170	450	428	488	256 23	219 0	200 0	170
19	156	220	168	204	175	454	458	477	246 13	210 0	207 7	169
20	156	205	170	196	171	389	463	489	234 1	211 0	209 9	159
21	160	190	178	168	161	363	450	525	226 0	219 0	215 15	153
22	163	185	183	162	169	350	449	507	222 0	219 0	216 16	150
23	165	185	182	165	159	330	442	479	208 0	216 0	216 16	155
24	175	185	178	163	156	320	521	459	203 0	219 0	216 16	154
25	172	180	177	156	157	328	569	452	218 0	212 0	215 15	153
26	170	175	168	158	160	367	625	467	215 0	197 0	222 22	154
27	169	170	177	146	160	429	611	496	218 0	202 0	214 14	156
28	169	170	183	156	171	487	579	521	217 0	203 0	208 8	156
29	165	170	182	165	------	495	548	536	214 0	202 0	207 7	142
30	160	175	178	163	------	474	542	536	213 0	203 0	213 13	136
31	158	------	166	190	------	465	------	517	------	199 0	211 11	------
TOTAL	4,970	5,530	5,503	5,564	4,629	10,591	13,114	17,576	8,677	6,736	6,640	5,306
MEAN	160	184	178	160	172	342	437	567	289	217	214	177
MAX	175	220	190	204	194	495	625	744	494	246	236	212
MIN	149	155	166	160	156	184	337	452	203	197	200	136
AC-FT	9,860	10,970	10,920	11,030	9,580	21,010	26,010	34,870	17,210	13,360	13,170	10,520

CAL YR 1973 TOTAL 83,960 MEAN 230 MAX 545 MIN 145 AC-FT 166,500
WTR YR 1974 TOTAL 95,058 MEAN 260 MAX 744 MIN 138 AC-FT 188,500

13073000 Portneuf River at Topaz, Idaho

LOCATION.--Lat 42°37'30", long 112°05'20", in SE¼ sec.23, T.9 S., R.37 E., Bannock County, on right bank, 200 ft (60 m) upstream from Bob Smith Creek, 800 ft (240 m) downstream from Topaz siding, 1.5 mi (2.4 km) upstream from diversion dam of Portneuf-Marsh Valley Canal Co., 4 mi (6 km) west of Lava Hot Springs, and at mile 47.3 (76.1 km).

DRAINAGE AREA.--570 sq mi (1,480 sq km), approximately (includes that of Bob Smith Creek). Mean altitude, 6,080 ft (1,850 m).

PERIOD OF RECORD.--January 1913 to September 1915, July 1919 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Datum of gage is 4,918.00 ft (1,499.006 m) above mean sea level, preliminary, unadjusted. Prior to July 20, 1919, nonrecording gage at site 0.3 mi (0.5 km) downstream at datum 3.0 ft (0.91 m) lower. July 20, 1919, to June 22, 1954, nonrecording gage at site 0.3 mi (0.5 km) downstream at datum 2.00 ft (0.610 m) lower than present datum.

AVERAGE DISCHARGE.--58 years, 197 cfs (5.579 cu m/s), 142,700 acre-ft/yr (176 cu km/yr); 15-year base period (1952-67), 169 cfs (4.786 cu m/s).

EXTREMES.--Current year: Maximum discharge, 728 cfs (20.6 cu m/s) June 5 (gage height, 4.83 ft or 1.472 m); minimum, 121 cfs (3.43 cu m/s) Oct. 6, 7 (gage height, 2.23 ft or 0.680 m).
Period of record: Maximum discharge, 7,120 cfs (202 cu m/s) Feb. 1, 1963 (gage height, 8.22 ft or 2.505 m), result of highway fill failure 2 mi (3 km) upstream; minimum, 64 cfs (1.81 cu m/s) Sept. 23, 1966 (gage height, 2.27 ft or 0.692 m).

REMARKS.--Records good. Flow regulated by Portneuf Reservoir (capacity, 23,695 acre-ft or 29.2 cu hm) and Chesterfield Reservoir on Twenty-Four Mile Creek (capacity, 685 acre-ft or 0.845 cu hm). Diversions above station for irrigation of about 29,000 acres (12,000 sq hm) of which about 7,400 acres (3,000 sq hm) are by withdrawals from ground water (1966 determination). Records of chemical analyses for the water year 1975 are published in section 2 of this report.

REVISIONS (WATER YEARS).--WSP 1347: 1920-22, 1924-25(M). WSP 1567: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
								12816	233	220	200	175
1	137	196	175	166	170	185	200	248	624 391	314 94	283 83	190 15
2	131	190	174	169	170	194	198	247	653 420	291 71	248 48	189 14
3	130	185	176	172	180	217	198	254	684 451	275 55	242 42	190 15
4	132	184	179	172	178	209	204	272	717 484	267 47	232 32	189 14
5	133	187	182	175	176	205	208	275	721 488	261 41	220 20	186 11
6	124	182	179	171	170	224	225	275	696 463	258 38	209 9	189 14
7	125	181	183	166	176	238	245	289	710 477	248 28	201 1	189 14
8	130	180	175	173	171	232	244	299	700 467	239 19	198 0	189 14
9	134	176	170	179	176	228	227	310	662 429	234 14	203 3	190 15
10	138	176	168	170	162	227	221	314	611 378	229 9	203 3	197 22
11	143	178	171	160	173	232	223	343	560 327	240 20	202 2	203 28
12	146	181	175	155	175	228	240	378	527 294	236 16	204 4	200 25
13	145	179	184	160	195	226	260	405	515 282	230 10	201 1	192 17
14	146	179	178	165	191	224	281	464	528 295	224 4	201 1	194 19
15	148	178	177	168	181	225	288	513	522 289	218 0	209 9	194 19
16	145	175	175	168	176	234	307	568	513 280	216 0	187 0	201
17	146	173	178	168	173	223	316	609	505 272	213 0	182 0	201
18	146	184	172	168	175	223	312	650	510 277	232 12	204 4	205
19	149	173	175	168	175	226	289	692	494 261	219 0	204 4	205
20	151	170	183	170	179	276	281	688	467 234	219 0	202 2	208
21	163	176	181	170	166	296	273	601	459 226	228 8	203 3	207
22	159	184	167	170	160	286	268	539	451 218	199 0	202 2	207
23	162	178	158	170	164	256	272	537	448 215	187 0	203 3	207
24	163	175	155	175	163	246	256	528	435 202	185 0	202 2	207
25	160	178	165	230	163	259	270	531	422 189	187 0	192 0	207
26	163	181	167	225	162	250	268	531	407 174	190 0	187 0	209
27	164	182	159	220	165	206	253	533	380 147	190 0	189 0	208
28	164	186	162	200	176	208	240	543	362 129	188 0	190 0	212
29	165	174	160	190	---	209	237	555	345 112	206 0	189 0	211
30	162	174	165	180	---	211	243	573	334 101	281 61	190 0	211
31	141	---	166	170	---	208	---	598	---	317 97	192 0	---
TOTAL	4617	5395	5334	5463	4861	7111	7547	14162	15962	7221	6374	5987
MEAN	148	179	172	176	173	229	251	456	532	232	205	199
MAX	191	196	184	230	195	296	316	692	721	317	283	212
MIN	124	170	155	155	160	185	198	247	334	185	182	186
AC-FT	9160	10700	10580	10840	9640	14100	14970	28090	31660	14320	12640	11880

CAL YR 1974 TOTAL 94401 MEAN 258 MAX 744 MIN 124 AC-FT 187200
WTR YR 1975 TOTAL 90034 MEAN 246 MAX 721 MIN 124 AC-FT 178600

STATION NUMBER 13073000 PORTNEUF RIVER AT TOPAZ, IDAHO STREAM SOURCE AGENCY USGS
LATITUDE 423730 LONGITUDE 1120520 DRAINAGE AREA 570.00 DATUM 4918.00 STATE 16 COUNTY 005

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
								IRRIG.	243	243	215	213
1	109	128	141	120	128	146	450	358	397 /154	189 0	201 0	169 0
2	106	126	198	100	131	146	465	373	380 /137	186 0	204 0	169 0
3	106	123	270	103	136	144	373	390	369 /126	192 0	204 0	166 0
4	104	123	198	112	138	146	320	394	369 /126	201 0	198 0	166 0
5	104	126	152	118	138	161	309	380	380 /137	213 0	201 0	172 0
6	106	133	152	128	152	175	284	358	387 /144	201 0	198 0	178 0
7	106	128	146	138	149	172	313	328	390 /147	192 0	192 0	172 0
8	104	128	131	150	146	178	428	305	394 /151	189 0	192 0	169 0
9	106	121	133	152	141	178	404	291	390 /147	195 0	192 0	152 0
10	106	121	133	138	141	189	362	309	390 /147	198 0	195 0	149 0
11	104	121	137	135	146	192	358	362	387 /144	204 0	195 0	141 0
12	104	123	142	133	141	198	339	425	350 /107	192 0	192 0	139 0
13	106	121	158	130	138	184	328	448	281 38	169 0	207 0	131 0
14	113	123	175	130	138	175	320	465	277 34	161 0	216 1	129 0
15	113	131	193	130	141	169	313	502	257 14	152 0	192 0	129 0
16	113	128	180	130	133	169	387	536	240 0	161 0	184 0	130
17	116	131	150	130	128	172	373	552	229 0	186 0	181 0	133
18	118	128	143	130	133	178	313	548	213 0	181 0	175 0	134
19	109	128	136	130	136	186	291	533	210 0	184 0	175 0	132
20	111	126	131	128	136	201	288	506	207 0	186 0	164 0	138
21	111	128	126	131	136	219	295	487	201 0	189 0	152 0	142
22	111	138	128	131	136	246	281	483	195 0	189 0	152 0	139
23	113	136	131	128	136	288	270	480	192 0	166 0	152 0	138
24	116	141	133	121	138	354	260	470	184 0	186 0	149 0	137
25	113	149	132	131	141	354	263	465	184 0	189 0	152 0	137
26	116	201	131	133	144	350	313	450	181 0	189 0	152 0	136
27	121	181	131	131	152	350	350	434	184 0	186 0	152 0	133
28	123	169	132	128	144	331	347	417	189 0	192 0	152 0	131
29	128	155	135	131	---	320	350	414	192 0	198 0	155 0	130
30	131	141	139	126	---	316	358	422	189 0	201 0	158 0	130
31	128	---	134	128	---	335	---	419	---	201 0	159 0	---
TOTAL	3475	4056	4651	3984	3897	6922	10105	13304	8388	5818	5553	4350
MEAN	112	135	150	129	139	223	337	429	280	188	179	145
MAX	131	201	270	152	152	354	465	552	397	213	216	178
MIN	104	121	126	100	128	144	260	291	181	152	149	129
AC-FT	5890	8050	9230	7900	7730	13730	20040	26390	16640	11540	11010	8630

WTR YR 1978 TOTAL 74503 MEAN 204 MAX 552 MIN 100 AC-FT 147800

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE IS 01-10-83

STATION NUMBER 13073000 PORTNEUF RIVER AT TOPAZ, IDAHO STREAM SOURCE AGENCY USGS
LATITUDE 423730 LONGITUDE 1120520 DRAINAGE AREA 570.00 DATUM 4918.00 STATE 16 COUNTY 005

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

IRRIG. 243 225 210 130

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT
1	133	121	166	130	144	145	195	222	243 O	195 O	184 O	121 O
2	133	123	155	135	141	145	198	222	229 O	195 O	181 O	113 O
3	131	128	149	141	138	140	198	226	210 O	195 O	184 O	113 O
4	133	128	155	141	138	140	189	233	229 O	192 O	158 O	118 O
5	143	133	161	144	138	138	184	246	246 3	198 O	175 O	118 O
6	142	133	144	136	138	144	210	267	253 10	192 O	178 O	118 O
7	133	136	136	128	138	169	257	257	253 10	184 O	178 O	113 O
8	133	136	136	125	136	172	270	247	250 7	181 O	196 O	121 O
9	135	138	138	135	133	155	302	226	236 O	175 O	192 O	121 O
10	133	138	144	141	133	149	260	207	226 O	172 O	190 O	111 O
11	133	149	141	144	131	149	240	195	219 O	172 O	192 O	106 O
12	130	161	144	149	133	149	233	186	213 O	155 O	171 O	109 O
13	129	155	141	138	166	155	229	181	213 O	146 O	167 O	109 O
14	128	146	141	138	146	155	226	178	216 O	158 O	156 O	106 O
15	127	141	141	141	141	158	233	184	216 O	166 O	151 O	116 O
16	128	141	141	141	136	158	222	204	210 O	164 O	159 O	111
17	129	144	144	138	138	158	222	229	210 O	164 O	153 O	104
18	128	149	152	138	136	155	222	240	213 O	164 O	152 O	100
19	128	149	149	141	141	158	207	246	226 O	178 O	154 O	97
20	128	155	146	138	138	158	192	246	226 O	181 O	155 O	92
21	128	155	144	138	138	161	189	246	226 O	184 O	144 O	92
22	118	158	149	141	136	164	192	253	226 O	207 O	141 O	92
23	116	158	149	136	138	164	201	260	213 O	201 O	136 O	95
24	121	149	146	138	138	169	201	270	204 O	195 O	126 O	95
25	126	146	146	141	136	175	198	281	201 O	192 O	128 O	92
26	128	149	141	138	136	181	195	270	198 O	184 O	128 O	100
27	111	146	144	136	138	186	198	253	201 O	181 O	128 O	100
28	111	149	141	136	139	204	204	250	201 O	184 O	131 O	95
29	116	149	144	133	---	195	216	253	195 O	186 O	128 O	97
30	116	158	136	130	---	195	222	257	195 O	186 O	126 O	97
31	121	---	158	135	---	195	---	246	---	186 O	123 O	---
TOTAL	3949	4321	4522	4264	3882	5039	6505	7281	6597	5613	4855	3177
MEAN	127	144	146	138	139	163	217	235	220	181	157	106
MAX	143	161	166	149	166	204	302	281	253	207	192	121
MIN	111	121	136	125	131	138	194	178	195	146	123	92
AC-FT	7830	8570	8970	8460	7700	9990	12900	14440	13090	11130	9650	6300

WTR YR 1979 TOTAL 60015 MEAN 164 MAX 302 MIN 92 AC-FT 119000

STATION NUMBER 13073000 PORTNEUF RIVER AT TOPAZ, IDAHO STREAM SOURCE AGENCY USGS
LATITUDE 423730 LONGITUDE 1120520 DRAINAGE AREA 570.00 DATUM 4918.00 STATE 16 COUNTY 005

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
								IRRIG.	198	225	225	215
1	100	125	125	110	105	210	165	357	466 268	171	174	143
2	104	129	128	111	104	192	165	338	488 290	176	172	139
3	105	132	128	111	105	178	165	318	474 276	176	172	140
4	105	137	127	112	107	178	165	305	426 228	179	170	139
5	106	138	128	109	105	201	175	290	416 218	181	172	138
6	108	139	129	109	106	195	175	300	417 219	184	174	139
7	108	138	130	109	106	184	165	305	396 198	184	174	142
8	108	137	131	111	103	172	160	315	351 153	186	171	146
9	107	137	130	111	102	164	155	330	337 139	186	168	141
10	108	135	131	110	103	175	155	350	317 119	186	168	133
11	108	139	124	95	103	222	155	370	304 106	185	157	138
12	100	133	122	201	103	213	160	400	307 109	185	157	147
13	102	133	124	515	103	178	160	440	297 99	186	156	148
14	101	132	122	509	107	175	160	447	286 88	192	156	135
15	100	132	119	426	109	210	160	410	283 85	192	175	137
16	103	131	121	250	110	175	161	420	269 71	192	182	132
17	103	136	120	183	116	172	164	425	259 61	193	180	117
18	106	142	119	155	336	175	170	425	244 46	191	179	113
19	128	140	120	131	818	178	195	428	242 44	195	176	115
20	131	130	120	123	1030	175	213	428	239 41	193	169	114
21	125	128	121	123	922	189	255	428	229 31	187	156	120
22	123	126	121	117	525	184	294	431	217 19	186	153	121
23	121	129	118	116	320	166	298	431	211 13	187	152	121
24	119	132	118	115	213	184	336	431	204 6	192	152	122
25	119	132	118	115	172	180	334	434	191	190	151	117
26	120	134	115	113	164	180	333	434	183	185	149	120
27	120	129	111	112	169	175	312	436	174	186	133	120
28	122	120	109	107	184	160	304	436	173	186	133	117
29	124	116	106	109	219	165	330	436	174	184	133	115
30	125	123	108	108	---	170	385	447	173	180	137	113
31	125	---	108	105	---	165	---	457	---	178	142	---
TOTAL	3484	3964	3751	4931	6869	5560	6514	12202	8747	5754	5083	3882
MEAN	112	132	121	159	237	183	217	394	292	186	164	129
MAX	131	142	131	515	1030	222	385	457	488	195	182	148
MIN	100	116	106	95	102	160	155	290	173	171	133	113
AC-FT	6910	7860	7440	9780	13620	11230	12920	24200	17350	11410	10080	7700

WTR YR 1980 TOTAL 70841 MEAN 194 MAX 1030 MIN 95 AC-FT 140500

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 15 94-10-33

STATION NUMBER 13073000 PORTNEUF RIVER AT TOPAZ, IDAHO STREAM SOURCE AGENCY USGS
LATITUDE 423730 LONGITUDE 1120520 DRAINAGE AREA 570.00 DATUM 4918.00 STATE 16 COUNTY 005

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
								IRRIG.	220	215	185	170
1	110	145	141	131	128	138	144	151	347 127	200 0	138 0	159 0
2	112	147	141	131	123	138	146	162	317 97	202 0	140 0	159 0
3	111	150	141	131	122	138	149	163	358 138	205 0	149 0	154 0
4	112	150	141	133	123	137	148	153	312 92	205 0	146 0	150 0
5	110	150	141	131	123	136	143	145	265 45	206 0	141 0	154 0
6	108	145	141	131	123	136	140	144	243 23	209 0	140 0	155 0
7	109	147	140	128	123	135	140	144	236 16	179 0	148 0	151 0
8	109	149	134	126	120	134	139	141	227 7	202 0	151 0	151 0
9	106	148	128	129	115	135	140	133	218 0	205 0	149 0	145 0
10	110	145	126	122	110	135	141	128	211 0	209 0	150 0	143 0
11	112	144	128	121	120	135	141	138	201 0	211 0	151 0	136 0
12	113	144	128	120	125	135	144	137	195 0	204 0	158 0	133 0
13	115	144	126	120	128	136	143	127	193 0	201 0	149 0	133 0
14	120	144	126	120	130	136	140	126	190 0	204 0	149 0	136 0
15	125	143	126	120	140	135	142	140	186 0	204 0	151 0	135 0
16	142	143	128	119	150	135	145	160	184 0	203 0	149 0	128
17	160	139	128	121	165	135	148	182	185 0	201 0	144 0	108
18	175	140	128	121	185	135	143	202	185 0	198 0	143 0	96
19	183	140	128	121	175	136	148	192	185 0	194 0	148 0	91
20	179	140	128	120	170	140	165	187	185 0	189 0	149 0	90
21	175	140	128	120	160	150	230	204	187 0	187 0	153 0	90
22	165	141	136	121	150	150	220	391	189 0	186 0	156 0	94
23	160	141	136	120	145	145	205	553	190 0	189 0	152 0	93
24	160	141	133	122	143	138	190	531	192 0	186 0	157 0	93
25	165	138	136	125	145	140	180	508	192 0	180 0	156 0	97
26	170	141	136	124	150	145	180	551	193 0	169 0	155 0	96
27	170	140	136	127	145	150	170	561	194 0	170 0	157 0	97
28	170	141	136	129	142	151	165	504	198 0	170 0	158 0	83
29	160	141	136	130	---	150	155	445	199 0	159 0	158 0	81
30	150	141	131	131	---	149	154	401	200 0	149 0	154 0	80
31	145	---	131	128	---	146	---	389	---	138 0	150 0	---
TOTAL	4311	4302	4123	3873	3878	4334	4738	8093	6557	5914	4679	3513
MEAN	139	143	133	125	139	140	158	261	219	191	151	120
MAX	183	150	141	133	185	151	230	561	358	211	154	159
MIN	106	138	126	119	110	134	139	126	184	138	138	80
AC-FT	8550	8530	8180	7680	7690	8600	9400	16050	13010	11730	9280	7170

WTR YR 1981 TOTAL 58415 MEAN 160 MAX 561 MIN 80 AC-FT 115900

APPENDIX C · LETTERS FROM REGULATORY AGENCIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
4620 Overland Road, Room 209
Boise, Idaho 83705

February 11, 1983

Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Avenue
Suite 1
Boise, Idaho 83709

Dear Mr. Auth:

Thank you for your letter of January 11 regarding the proposed hydroelectric project. In accordance with 18 CFR consultation requirements, we have reviewed your license exemption project on Portneuf River in Bannock County, Idaho.

We understand that the proposed project would consist of the following: (1) an automatically controlled diversion in the Portneuf-Marsh Valley Canal, (2) two steel penstocks, 400 feet long and 125 feet long, (3) a powerhouse with an estimated installed capacity of 1,200 kW, and (4) a three-phase transmission line about 2 miles long.

Water quality degradation caused by construction or operation of the project could harm downstream fish and wildlife populations.

The project could kill or cripple raptors through electrocution from improperly designed or located powerlines and poles.

Game fish species may be affected by project construction activities, flow fluctuations, blockage of upstream passage, and nitrogen supersaturation resulting from air entrainment in the penstocks.

No listed or proposed threatened or endangered species are known to occur within the project area.

Based on the present information, we have determined that the following study and preliminary terms and conditions are appropriate. We encourage the applicant to perform the needed study prior to submitting an application to the FERC since a design change may be required.

Needed Study:

Survey the project-affected area including upstream of the diversion and downstream of the powerhouse to estimate the abundance and distribution of fish species. Survey methods shall be approved by the Idaho Department of Fish and Game (IDFG).

Preliminary terms and conditions:

1. Design the project to be compatible with maintaining the existing fish resources and riparian habitat. Bypass flows for the diverted reach may be set by the IDFG.

2. Revegetate all areas disturbed during project construction to reduce soil erosion into the drainage.

3. Design and construct power transmission lines to prevent the loss of raptors and other birds from electrocution or collision. A possible reference is entitled, Suggested Practices for Raptor Protection on Powerlines, published by the Edison Electric Institute, 1981.

When you file the application with FERC, please provide complete copies to us and IDFG for our review. If deemed necessary after further analysis of the project, we shall stipulate new or revised terms and conditions in our response to FERC's public notice of the proposed exemption. Please let us know if we can be of further assistance.

Sincerely yours,

Walter D. Ray

for John P. Wolflin
Acting Field Supervisor

cc: IDFG, Hdqtrs, Boise
IDFG, Region 5, Pocatello
BIA, Portland
FWS, AE-LWD, Portland
FWS, SE, Boise
Sho-Ban Tribes, Ft. Hall (Christoferson)

IDAHO STATE HISTORICAL SOCIETY
610 NORTH JULIA DAVIS DRIVE BOISE, 83702

J-U-B Engineers
RECEIVED
JAN 2 3 1983
BOISE, IDAHO

January 25, 1983

Mr. Marc A. Auth
J-U-B Engineers, Inc.
250 S. Beechwood Avenue
Suite 1
Boise, ID 83709

Dear Mr. Auth:

Thank you for informing us of the proposed Portneuf - Marsh Valley hydroelectric project. This project will have no effect on any archaeological or historic properties.

Sincerely,

Thomas J. Green
State Archaeologist
State Historic Preservation Office

TG/kh

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

January 19, 1983 F/NWR5:CRB

Mr. Marc A. Auth
Project Coordinator
J-U-B Engineers, Inc.
250 South Beechwood Ave., Suite 1
Boise, Idaho 83709

Re: Portneuf - Marsh Valley Hydroelectric Project - Application for Exemption from Licensing

Dear Mr. Auth:

The National Marine Fisheries Service has received your letter requesting our views and recommendations concerning the development of the subject project.

Since there are no anadromous fish in the area, we have no comments to offer.

Sincerely,

Dale R. Evans
Division Chief

cc: Federal Energy Regulatory Commission, Washington, D.C.

FISH POPULATIONS IN THE VICINITY OF

THE

PROPOSED MARSH VALLEY HYDRO PROJECT

Report To:

J-U-B Engineers, Inc.
and
The Marsh Valley Hydro Electric Company

22 February 1983

By:

J. S. Griffith, Ph.D.
2055 Kenneth Place
Pocatello, ID 83201

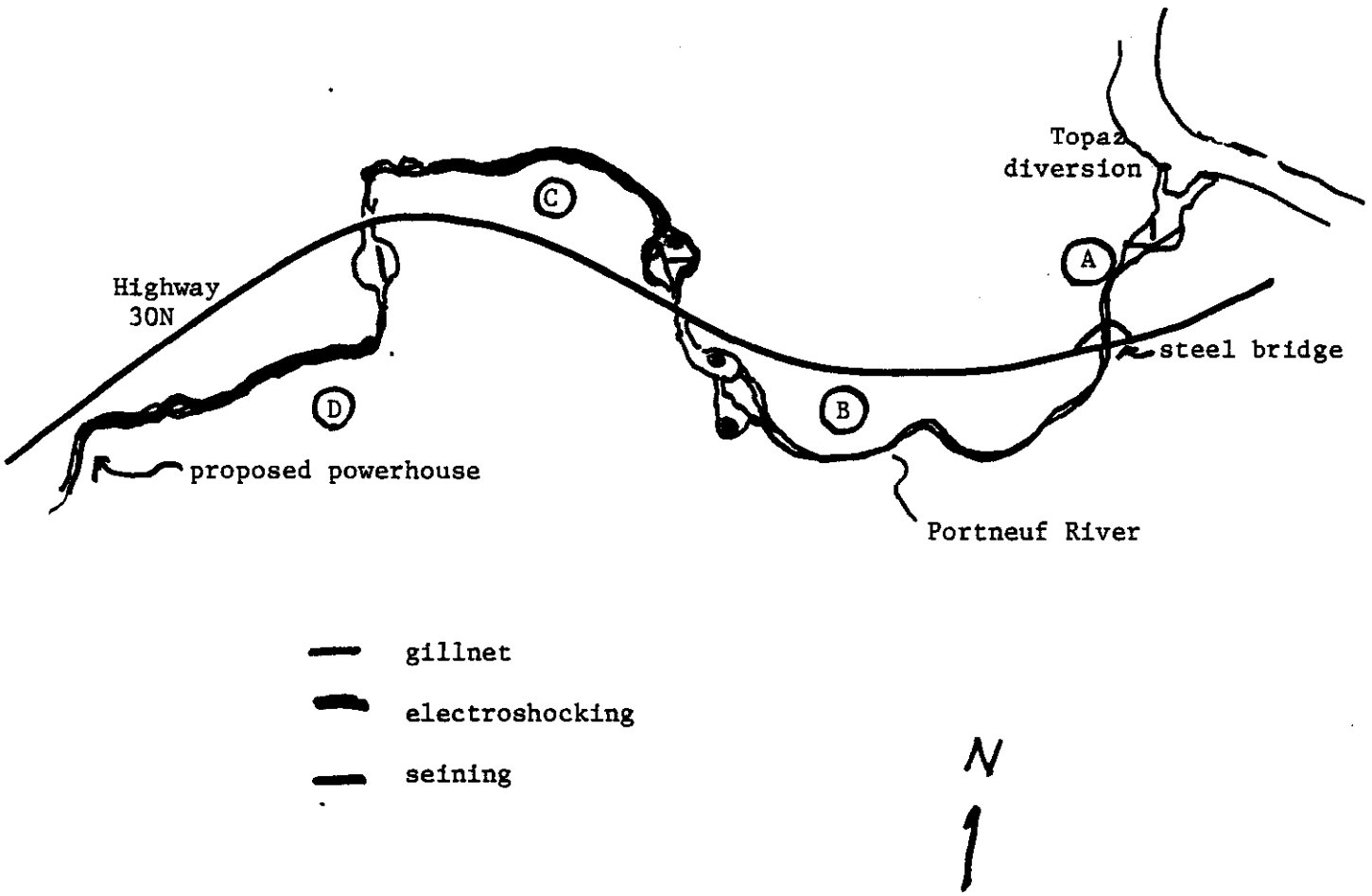
Introduction

Field data were gathered in January and February 1983 to characterize fish populations in a portion of the Portneuf River between McCammon and Lava Hot Springs (Bannock County, Idaho) that would be impacted by the proposed hydro project. The project would divert approximately 250 cfs at the existing Topaz Diversion during the non-irrigation season and return that flow through a powerhouse to the river at a point adjacent to Highway 30N approximately 1.3 road miles west of the highway bridge at Topaz (Figure 1). Flows in approximately 15,000 feet of the river would thus be substantially reduced, in a manner similar to that in which it (and a longer reach downriver) is presently dewatered during the irrigation season. During peak runoff (typically at 500 - 700 cfs in April), flow would resume in the natural channel.

Site Description

From the Topaz Diversion to the site of the proposed powerhouse, the river is dissected into four segments as it is passed in culverts under Highway 30N (Figure 1). It is impossible to drift a boat equipped with sampling gear from one segment to the next. River segment A, at the head of the section studied, extends approximately 500 feet and is characterized by a steep cascade over a lava sill, a deep plunge pool, and a short run. Segment B, approximately 8,700 feet long, is low-velocity water (possibly channelized along the Union Pacific rail line) followed by two waterfalls and plunge pools. Segment C, approximately 3,500 feet in length, consists of a large pool (the largest in the area studied)

Figure 1. Sampling locations and gear types used to sample fish populations in the Portneuf River below Topaz Diversion.



and a low-velocity run, with the lower quarter being a series of short drops over lava sills, and small pools. Segment D is 2,300 feet in length, with a pool at its head and then a series of drops (some to 3 feet) and pools. In all, there were five major pools in the 15,000-foot section, all deeper than 10 feet.

During our sampling in January an February of 1983, flows were estimated at approximately 150 cfs. Water levels, as shown on a gage near the powerhouse site, were 1 foot, 1 inch on 29 January and 1 foot, 2 inches on 20 February. Water clarity was about 12-16 inches at the end of January and improved to approximately twice that by mid-February. Water temperature was 39°F on 29 January and 45°F on 20 February.

Sampling Methods

The area was difficult to sample because of physical conditions (depth, velocity, turbidity) and lack of boat access. A combination of electroshocking and gillnetting was utilized and a few seine hauls were made.

A portion of each of the four river segments was sampled. An effort was made to concentrate on the areas of habitat that appeared most likely to hold game fish. Nearly all of Segments C and D were sampled. About half of Segment A was sampled, and Segment B received the least effort.

Electroshocking was done from a 16-foot aluminum drift boat with a 2,500-watt generator producing 300 volts D.C. and using the boat hull as the negative electrode. Two sizes of bottom-set gillnets were used. One was 1½ inch square mesh X 4-feet high X 60 -feet long, and the other was graded in mesh size from 3/4 inch to 1-3/4in five increments, 4-feet

high and 125-feet long. Nets were set for 1-2 hours during the day, or, in one case, overnight. The seine utilized was a 50-foot bag seine.

The only pool that would be sampled by electroshocking was that in Segment C. The rest of that segment was also electroshocked to the beginning of the lava falls at the downstream end. The pool in Segment D was inaccessible to the electroshocking boat, but the portion of the segment beginning approximately 250 feet below the tail of the pool was shocked. The pools in Segments A and B were inaccessible to the shocker.

Gillnetting was feasible only in the pools and was used in Segments A, C and D. The pools in Segment B were too small and water was too swiftly-flowing to enable the nets to be effectively used. The bag seine could only be used where water was shallow and free of submerged obstructions.

Fish Populations

Eight species of fish were collected, probably all of those that are present in the section of river. They were:

brown trout ... *Salmo trutta*
rainbow trout...*Salmo gairdneri*
Utah sucker ... *Catostomus ardens*
bluehead sucker... *Catostomus discobolus*
Utah chub.....*Gila atraria*
speckled dace...*Rhinichthys osculus*
redside shiner..*Richardsonius balteatus*
mottled sculpin.*Cottus bairdi*

All are common in southeast Idaho with the exception of the bluehead sucker, which is relatively uncommon but is not considered to be a species of special concern at this time.

A total of 139 fish were collected (Table 1), excluding mottled sculpin which were abundant in some areas of rocky substrate but were not collected. The bulk of the fish collected, both by weight and by numbers, were suckers. Most suckers were 10-14 inches in length, with none smaller than 8 inches taken.

Minnows (shiners, dace and chub) were relatively uncommon. Therefore the forage base of small fish available as food for predatory brown trout was very limited.

Only seven trout (5% of all fish collected) were captured. Brown trout were more numerous than rainbow trout. Sizes of the trout were:

	total length, cm	weight, grams
Browns:	48.3	822
	38.7	482
	29.9	229
	33.1	325
	29.5	226
Rainbows:	25.8	255
	19.8	162

All were wild trout. Scales were analyzed, and the oldest rainbow was in its third year of life. The two largest browns, both captured in the pool in Segment D, were both aged seven years. The smaller browns were ages 4 and 5. All browns were in noticeably poor condition (see photos), probably due to a lack of forage fish.

Due to the small sample size, it was not possible to obtain a quantative estimate of trout abundance. Trout are certainly not abundant in the area examined, and I would estimate the total population to be

less than 200 trout, mostly inhabiting the pools.

No anglers were observed in the area examined on any of the occasions we sampled. One local resident reported taking a few trout from the pool in Segment C over the last few years.

Physically, the section of river appears to provide fair habitat for trout. There is good water depth and bank cover. The substrate was very heavily sedimanted. No spring areas nor areas offering spawning habitat for trout were observed.

Brown trout 48.3cm
Segment D below Topaz
Portneuf R. 21 Feb 1983

POOL C 19 Jan. 1983
Utah Suckers in gill net

POOL C 19 Jan. 1983 Brown trout

Table 1. Numbers of fish collected in the vicinity of the proposed Marsh Valley Hydro Project on the Portneuf River below the Topaz Diversion, 1983.

Stream segment	Date	Gear	Effort, hours	trout		suckers		Utah chub	speckled dace	redside shiner	mottled sculpin
				brown	rainbow	Utah	bluehead				
A - pool	19 Feb	1½" gillnet	2.0	no fish collected							
		graded "	2.0	no fish collected							
B - pool	19 Feb	bag seine	0.5							26	
C - pool	29 Jan	shocker	0.7	2	2	3	0	0	4	4	2
"	" "	1½ gillnet	1.0	0	0	15	0	1	0	0	0
"	" "	graded "	1.0	0	0	18	1	0	0	0	0
"	" "	bag seine	1.0	no fish collected							
C - middle	29 Jan	shocker	0.6	no fish collected							
"	" "	1½ gillnet	1.0	no fish collected							
D - all except pool	29 Jan	shocker	1.2	1	0	23	4	0	0	0	common
D - pool	20-21 Feb	graded gill.	16.0	2	0	28	5	0	0	0	0
TOTAL				5	2	87	10	1	4	30	

APPENDIX D · DRAFT UTILITY CONTRACT

POWER PURCHASE AGREEMENT

BETWEEN

LAST CHANCE HYDRO ELECTRIC COMPANY

AND

UTAH POWER & LIGHT COMPANY

THIS AGREEMENT is entered into this _____ day of _____, 19 , by and between

, hereinafter referred to as "Seller," a corporation organized and existing under the laws of the State of Idaho, and UTAH POWER & LIGHT COMPANY, hereinafter referred to as "Buyer," a corporation organized and existing under the laws of the State of Utah. Seller and Buyer, are sometimes referred to hereinafter collectively as "Parties" and individually as "Party."

WITNESSETH:

WHEREAS, Seller agrees to construct, own, operate and maintain a hydro-electric power plant with a capacity of 1.4 megawatts, hereinafter referred to as Facility*; and

WHEREAS, Seller wishes to sell to Buyer and Buyer wishes to purchase all electric energy from the Facility.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

---

* Initial capitalization of words and phrases other than proper names indicates that these terms are defined in Appendix A hereof.

ARTICLE 1

TERM OF AGREEMENT

Subject to the terms and conditions hereof, this Agreement shall be binding upon execution and shall remain in effect for a term of thirty-five (35) years from the date energy is first delivered by Seller to Buyer. It is anticipated that testing of the Facility will take place in late 19 with in-service generation to commence in January of 19 .

ARTICLE 2

SALE OF POWER

A. Seller agrees to sell and deliver and Buyer agrees to purchase and accept all energy generated from the subject Facility in accordance with Appendix A.

B. Seller's proposed Facility shall be located on Seller's irrigation canal northeast of the City of Grace, Caribou County, Idaho, and shall provide energy as set forth herein.

ARTICLE 3

PURCHASE PRICE AND METHOD OF PAYMENT

A. Buyer shall pay Seller, for energy delivered at the point specified herein, the sum of:

1. A fixed rate of 40 mills per kilowatt-hour, reflecting a 1983 scheduled in-service date and a thirty-five (35) year term as shown in Appendix B. This

rate shall not change due to a delay in completion of construction nor shall it be subject to escalation.

2. A variable rate of 12 mills per kilowatt-hour, updated annually as specified in Appendix B, to reflect the current average price of coal to Buyer with the base at 1981 being 12 mills per kilowatt-hour.

B. Buyer's obligation to pay Seller for energy furnished to Buyer shall commence on the date Seller first delivers energy to Buyer from the Facility.

ARTICLE 4

APPENDICES

This Agreement includes Appendices A, B, C, D, E, and F, all of which are attached and incorporated herein by reference.

ARTICLE 5

NOTICES

All written notices shall be addressed as follows:

To Buyer: Secretary, Legal Department
Utah Power & Light Company
P.O. Box 899
Salt Lake City, Utah 84110

To Seller: President

Secretary

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the first date hereinabove set forth.

SELLER:

By_____
President

ATTEST:

_____
Secretary

BUYER:

UTAH POWER & LIGHT COMPANY

ATTEST:

APPENDIX A

POWER PURCHASE GENERAL TERMS AND CONDITIONS

A. DEFINITIONS

Whenever used in this Agreement and/or Appendices, the following terms shall have the following meanings:

1. Buyer's Review and/or Acceptance - Buyer's review and/or acceptance, or failure to review or accept Seller's specifications and/or equipment shall not constitute nor be construed as approval or endorsement or as a warranty of safety, durability, strength, adequacy, or reliability thereof.

2. Designated Dispatch Facility - Buyer's System or local dispatching operators with whom all operating communications and required reports will be made by Seller.

3. Facility - The hydro-electric generation facility and appurtenent facilities constructed, owned, operated, and maintained by Seller.

4. Interconnection Facilities - All facilities required by Appendix D to be installed solely to interconnect and deliver power from Seller's Facility to Buyer's system.

5. Prudent Electrical Practices - The practices and methods, as changed from time to time, that are commonly used in the electrical industry to operate electric equipment lawfully and with safety, dependability, efficiency, and

6. Special Facilities - Facilities supplied, purchased, and owned by Buyer at Seller's request, or because such facilities are necessary additions and/or reinforcements to Buyer's system, all as set forth in Exhibit E.

B. CONSTRUCTION

1. Land Rights: Seller, at its sole expense, shall, for the term of this Agreement, grant

to Buyer, or acquire instruments of grant for Buyer in recordable form, conveying all necessary rights of way and easements, both on and off Seller's real and personal property, to install, operate, maintain, replace and remove Buyer's Special Facilities.

2. Facility and Equipment Design and Construction: Except for Special Facilities, Seller shall design, construct, install, own, operate, and maintain the Facility and all equipment needed to generate and deliver energy in accordance with Appendix D. Seller agrees to meet the requirements established by Buyer in Appendix D for those portions of Seller's Facility and equipment producing or transmitting electrical power and such other equipment which directly or indirectly affect Buyer's system. To aid in determination of compliance with Buyer's requirements, Seller shall submit the Facility and equipment specifications to Buyer for review prior to Seller's purchase of equipment.

Seller agrees to change, at Buyer's expense its Facility and equipment as may be required by Buyer to meet changing requirements of Buyer's system except Seller, at its sole expense, will make those alterations to protective equipment as specified in Appendix D, Subpart B. 3. h.

Seller shall ensure that wave forms, voltage flicker, power factor, and inverter techniques conform with criteria established by Buyer as set forth in Appendix D.

C. OPERATION

1. Point of Delivery: Seller shall deliver the energy designated in Article 1 at the point of delivery more specifically described as follows:

(Description to be Supplied by)

2. Communications: Buyer and Seller shall maintain operating communications through Buyer's Designated Dispatch Facility in accordance with Appendix D.

3. Facility and Equipment Operations and Maintenance: Seller shall operate and maintain its Facility and equipment according to Prudent Electrical Practices.

Seller's scheduled outages shall be performed between March 1 and May 31 unless otherwise agreed to by Buyer.

Buyer shall not be obligated to accept, and Buyer may require Seller to curtail, interrupt or reduce deliveries of energy if Buyer determines that curtailment, interruption or reduction is necessary because of emergencies, operating conditions on its system or as otherwise required by Prudent Electrical Practices.

Except in case of emergency, in order not to interfere unreasonably with the other Party's operations, the curtailing, interrupting or reducing Party shall give the other Party reasonable prior notice of any curtailment, interruption or reduction, the reason for its occurrence and its probable duration. Seller shall notify Buyer within two hours of any Facility outage.

4. Meters: All meters used to determine the billing hereunder shall be as specified by Buyer and shall be sealed and the seals shall be broken only upon occasions when the meters are to be inspected, tested or adjusted.

Buyer shall, at Seller's expense inspect and test all meters upon their installation and at least once every two years thereafter. If requested to do so by Seller, Buyer shall inspect or test a meter more frequently than every two years, but the expense of such inspection or test shall be paid by Seller unless upon being inspected or tested the meter is found to register inaccurately by more than two percent of full scale, in which case Buyer shall pay the

expense of the test. Each Party shall give reasonable notice of the time when any inspection or test shall take place to the other Party, and that Party may have representatives present at the test or inspection. If a meter is found to be inaccurate or defective, it shall be adjusted, repaired or replaced, at Seller's expense, in order to provide accurate metering.

If a meter fails to register, or if the measurement made by a meter during a test varies by more than two percent from the measurement made by the standard meter used in the test, adjustment shall be made correcting all measurements made by the inaccurate meter for:

a. the actual period during which inaccurate measurements were made, if the period can be determined, or if not,

b. the period immediately preceding the test of the meter equal to one-half the time from the date of the last previous test of the meter; provided, that the period covered by the correction shall not exceed six months.

Each Party, after reasonable notice to the other Party, shall have the right of access to all metering and related records.

D. BILLING

Buyer shall send a statement to the Seller on or after the 20th day of the monthly billing period showing the kilowatt-hours, kilovar-hours, the applicable rates for all energy received from Seller, the kilovar-hours received from Buyer, the expenses incurred pursuant to Appendix E, and the expected payment to Seller. If the statement is acceptable, Seller shall sign and return it to Buyer.

E. PAYMENT

Buyer shall make payment to Seller on or before the 15th day after the approved billing statement is received by Buyer. Where the 15th day falls on a Saturday, Sunday or holiday, the payment shall be due on the next following business day.

F. FORCE MAJEURE

The term "force majeure" as used herein, means unforeseeable causes beyond the reasonable control of, and without the fault or negligence of, the Party claiming force majeure. If either Party because of force majeure is rendered wholly or partly unable to perform its obligations under this Agreement, that Party shall be excused from whatever performance is affected by the force majeure to the extent so affected provided that:

1. The non-performing Party, within two weeks after the occurrence of the force majeure, gives the other Party written notice describing particularly the nature of the occurrence;

2. The suspension of performance is of no greater scope and of no longer duration than is required by the force majeure;

3. No obligations of either Party which arose before the occurrence causing the suspension of performance are excused as a result of the occurence; and

4. The non-performing Party uses its best efforts to remedy its inability to perform. This subparagraph shall not require the settlement of any strike, walkout, lockout or other labor dispute on terms which, in the sole judgement of the Party involved in the dispute, are contrary to its interest. It is understood and agreed that the settlement of strikes, walkouts, lockouts or other labor disputes shall be entirely within the discretion of the Party involved.

5. Failure, however, to remedy any event of force majeure within two (2) years after its occurrence shall constitute termination of this Agreement and the provisions of Appendix C, Subpart B shall apply.

G. INDEMNITY

Each Party shall indemnify the other Party, its officers, agents, and employees against all loss, damage, expense and liability to third persons for injury to or death of person or injury to property, proximately caused by the indemnifying Party's construction, ownership, operation, or maintenance of, or by failure of, any of such Party's works or facilities used in connection with this Agreement. The indemnifying Party shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying Party shall pay all costs that may be incurred by the other Party in enforcing this indemnity clause.

H. SEVERAL OBLIGATIONS

Except where specifically stated in this Agreement to be otherwise, the duties, obligations and liabilities of the Parties are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture or impose a trust or partnership duty, obligation or liability on or with regard to either Party. Each Party shall be individually and severally liable for its own obligations under this Agreement.

I. WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement, or with respect to any other matters arising in connection with this Agreement, shall not be deemed a waiver with respect to any subsequent default or other matter.

J. ASSIGNMENT

Neither Party shall voluntarily assign its rights nor delegate its duties under this Agreement, or any part of such rights or duties, without the written consent of the other Party, except in connection with the sale or merger of a substantial portion of its properties including Interconnection Facilities which it owns, and any such assignment or delegation made without such written consent shall be null and void. Consent for assignment shall not be withheld unreasonably.

K. CHOICE OF LAWS

This Agreement shall be construed and interpreted in accordance with the laws of the State of Idaho, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

L. GOVERNMENTAL JURISDICTION AND AUTHORIZATION

This Agreement is subject to the approval of those governmental agencies having control over the Parties hereto and shall not become effective until all required authorizations and permits are first obtained. Further, this Agreement shall not become effective unless it is approved in its entirety by such governmental agencies without change in terms or conditions.

It is understood by and between the Parties that this Agreement is entered into and the rates paid for generation supplied to Buyer hereunder are based upon the Idaho Public Utility Commission Order No. _____ (a copy of which is attached hereto as Appendix F). In the event this Order is subsequently amended or altered in any way, this Agreement shall terminate and the provisions of Appendix C, Subpart B shall apply.

APPENDIX B

SCHEDULE OF ENERGY PURCHASED RATES

Fixed Energy Rates

Scheduled Commencement of Service	Term of Agreement							
	4 Yrs	6 Yrs	10 Yrs	15 Yrs	20 Yrs	25 Yrs	30 Yrs	35 Yrs
1981-$/kW-Yr	88	95	112	133	155	177	199	220
-Mills/kWh*	13	14	17	20	24	27	30	33
1982-$/kW-Yr	96	105	123	146	171	195	219	242
-Mills/kWh*	15	16	19	22	26	30	33	37
1983-$/kW-Yr	106	115	133	161	188	215	241	266
-Mills/kWh*	16	18	20	25	29	33	37	40

The fixed energy rate figures shall not be subject to escalation.

Variable Energy Rate

(Mills/kWh)

1981	12.0

The variable energy rate figure shall be updated annually to reflect the current average price of coal to Buyer with the base at 1981 being 12 Mills/kWh. This adjustment may be up or down.

*Based on a 75 percent capacity factor.

APPENDIX C

ADJUSTMENT OF PAYMENTS

IN THE EVENT OF TERMINATION

A. GENERAL PROVISIONS

1. The Parties understand and agree that the Seller may terminate this Agreement at any time. The Parties further understand and agree that the payment Buyer makes to Seller for power generated is based on Seller's performance during the full term of this Agreement and that in the event Seller does not perform during the full term:

a. Buyer shall be deemed damaged by reason thereof,

b. It would be impracticable or extremely difficult to fix the actual damages to Buyer resulting therefrom,

c. The refund and payments as provided in Appendix C, Subpart B. are in the nature of adjustments in power purchase prices and liquidated damages, and not a penalty, and are fair and reasonable, and

d. Such refunds and payments represent a reasonable endeavor by the Parties to estimate a fair compensation for the reasonable losses that result from such termination.

2. Seller shall be invoiced by Buyer for all refunds and payments due under this Appendix and shall pay such amounts to Buyer within 30 days after receipt of said invoice.

3. Buyer shall have the right to offset any amounts due it against any present or future payments due Seller.

B. ADJUSTMENT UPON TERMINATION OF CONTRACT

In the event this Agreement is terminated, Seller shall refund to Buyer an amount equal to one-half the difference between:

1. The sum of the fixed energy payments paid to Buyer pursuant to Article 3 to the date of termination, and;

2. The sum of the fixed energy payments which would have been paid by Buyer based on a term of agreement extending to the date of termination, as derived or interpolated from Appendix B.

Example

Assuming this Agreement was terminated at the end of ten (10) years, and the annual generation from the Facility had been 1000 kWh for each year of the ten-year period, then the refund to Buyer would be calculated as follows:

Total Ten Year Generation	= 10,000 kWh	
Total Payment to Seller	= 10,000 kWh x 40 Mills/kWh	= $400
Total Payment if Seller had Contracted for Ten Years	= 10,000 kWh x 20 Mills/kWh*	= $200
Refund to Buyer	= $\frac{\$400 - \$200}{2}$	= $100

*Rate from Appendix B for a Ten Year Contract Term in 1983.

APPENDIX D

Parallel Generation Interconnection Requirements for Single and Three Phase Generation

A. GENERAL REQUIREMENTS FOR ALL GENERATORS

1. All installations made for the purpose of interconnection with Buyer's system shall comply with Buyer's requirements, the National Electrical Code, and the National Electrical Safety Code.

2. Seller shall provide at its sole cost an accessible, visible, lockable disconnect switch in the generator circuit. This switch is to be identified by Seller as the Generator Disconnect switch. This switch may be locked in the open position by Buyer's personnel under the following conditions:

a. For the protection of line crews while doing any work on Buyer's lines or equipment.

b. If inspection of Seller's equipment reveals hazardous conditions or a lack of proper maintenance.

c. If Seller's generating equipment interferes with Buyer's customers, or with the operation or integrity of Buyer's system.

3. Seller's Protective System shall be designed to automatically disconnect from Buyer's system when Buyer's service is interrupted.

4. Seller shall maintain its equipment (generator, protective equipment, and other associated equipment) in good

working order. The equipment shall be subject to Buyer's inspection.

5. Seller's Facility shall be interconnected only after all legally required inspections and written approvals are completed and when such interconnection shall not reduce the integrity of Buyer's system. As a guide, total harmonic distortion introduced into Buyer's system shall not exceed five (5) percent with no single harmonic contribution of more than three (3) percent. However, in no case shall interconnection be allowed to produce abnormal voltages or voltage fluctuations, or harmonic content that would cause undue interference with Buyer's customer loads or Buyer's equipment.

6. Metering Equipment:

a. The Seller shall provide adequate space for Buyer's metering equipment including but not limited to billing meters, current and voltage transformers, test switches, and modems in accordance with Buyer's requirements.

b. Seller shall pay all costs of metering equipment in excess of those which would ordinarily be required to meter Seller's load; however, Seller shall have no ownership in meters, instrument transformers, and associated revenue metering equipment.

c. Metering will be installed to measure the reactive power and energy supplied from Buyer's system to the Facility

hour or kilovar-hour input to Seller shall be paid for in accordance with the applicable rate schedule.

7. Seller shall provide adequate space to Buyer to install a third meter in the generator circuit for the measurement of the generator output for research studies as may be deemed necessary by Buyer.

8. Hydro Generation:

a. DC Generators with Synchronous Inverter:

1) The total harmonic distortion introduced onto Buyer's system by an inverter shall not be more than 5%.

2) No single harmonic produced by the inverter shall contribute more than 3% distortion onto Buyer's system.

b. Induction Generators:

1) The generators shall be equipped with an over frequency or speed relay set such that frequency cannot exceed 64 Hertz, and under voltage relays set no lower than 90% of nominal voltage and over voltage relays set no higher than 110% of nominal voltage in order to automatically disconnect the generator when Buyer's service is interrupted.

2) The generators shall be equipped with reverse current (or power) relays to prevent the generators from acting as a motor.

3) The generators shall be within + or - 5% of synchronous speed before being automatically connected onto the Buyer's system.

c. Synchronous Generators:

Synchronous generator installations shall require special approval by Buyer's Engineering and Relaying Departments due to the complexity of designing appropriate relaying and switching devices to automatically disconnect the generator from the utility system under all necessary conditions.

d. AC Generators with Static Frequency Changer:

1) Static frequency changers shall be of the type that utilizes Buyer's frequency to trigger the output frequency to insure frequency compatibility, and to insure no output when Buyer's system is out of service.

2) The total harmonic distortion introduction into Buyer's system by a static frequency changer shall be no more than 5%.

3) No single harmonic distortion by the static frequency changer shall contribute more than 3% distortion onto Buyer's system.

B. ADDITIONAL GENERAL REQUIREMENTS FOR THREE-PHASE GENERATORS

1. It is the sole responsibility of Seller to provide for the safe and effective operation of its generators even though most commercially available three-phase generators will be equipped with appropriate protection and governor control systems, and in the case of synchronous machines, proper

excitation and voltage control equipment. Buyer may require protection and control systems in addition to that supplied with the generators.

2. Prior to initial energizing of Seller's generating system, inspection and/or tests shall be jointly performed by both Seller and Buyer to verify the proper operation of such generators and related equipment.

3. Seller is fully responsible for the protection of all generators and all of their associated equipment. Protection shall be provided for Seller's own equipment failures and for fault and other disturbance on Buyer's system.

a. Each location's protection arrangements and design drawings shall be reviewed by Buyer's Engineering Department and accepted in writing prior to installation. The completed installation is subject to a final inspection and tests by Buyer personnel before commencement of parallel generation is permitted.

b. Seller shall provide automatic equipment suitable to Buyer to disconnect Seller's generators from Buyer's system in the event of a power outage or a fault on Buyer's system. The relays used to control the automatic disconnect device shall be so engineered, designed, and set that they can detect the loss of voltage or fault occurring on Buyer's system.

As a minimum requirement, the protective relays shall include over/under voltage and over/under frequency relays

for sensing abnormal voltage and/or system disturbances. Additions to the minimum requirement may be necessary for certain system arrangements and installations. Buyer reserves the right to determine the adequacy of relaying, and if additional relaying will be required. For synchronous machines a voltage restrained over current-type or impedance-type relay shall be provided to detect a phase fault and an over current or ground fault voltage detector relay for sensing a ground fault.

c. Recommended relay settings:

Over frequency:	64 Hertz	10 cycle time delay
Under frequency:	59 Hertz	10 cycle time delay
Over voltage:	110 Percent	No time delay
Under voltage:	90 Percent	No time delay

Fault detecting relay to be provided after consultation with Buyer's Engineering Department.

d. Seller understands that a phase unbalance disturbance on Buyer's system can result in over heating of the Seller's generators. A negative sequence-type relay (current or voltage) is necessary to initiate tripping under phase unbalanced conditions, and may also be used to block closing of the automatic disconnecting device if Buyer's system is single phased.

e. Seller shall be fully responsible for the routine maintenance of the generators and protecting equipment and the keeping of records of such maintenance. These records shall be available to Buyer for inspection at all times.

f. Seller is solely responsible for the protection of his equipment from transient surges initiated by lightning, switching or other system disturbances.

g. Any modification of Seller's equipment shall require an engineering review and written acceptance by Buyer's Engineering Department.

h. Seller, at its sole expense, shall modify existing protective equipment in the event such modifications are required by government or industry regulations and/or standards.

4. The generator nameplate voltage shall be the same as the nominal voltage supplied by Buyer. If generation occurs at voltages other than the nominal voltages supplied by Buyer, Seller shall supply a dedicated generator transformer to transform the total capacity of the generator to the nominal voltage supplied by Buyer. The transformer configuration shall be specified by Buyer. Connections shall be ungrounded Wye-Delta or Delta-Delta with the generator connected to the Delta side. (The grounded Wye-grounded Wye connection will allow generator harmonic currents to flow into Buyer's system which may cause interference with Buyer's customers and/or communications equipment.) The transformer connection shall provide for relay protection to Buyer's system.

C. SPECIFIC REQUIREMENTS FOR THREE-PHASE GENERATORS

1. Sychronous Generators

Seller shall provide either automatic synchronizing or manual synchronizing, supervised by a synchronism check relay.

2. Induction Generators

None

3. DC Generators with Inverters

The AC output of the synchronous inverter shall be compatible with Buyer's system voltage and frequency.

4. AC Generators with Static Frequency Changer

The AC output of the static frequency changer shall be compatible with Buyer's voltage and frequency.

APPENDIX E

SPECIAL FACILITIES

A. The Special Facilities required under this Agreement are described as follows:

1. Approximately 4,160 feet of 12.5 kV three-phase distribution line with 35-foot poles.

2. One set of 12.5 kV fuse disconnects to be located at the point the above-described distribution connects with Buyer's existing facilities.

The cost of the aforementioned facilities including installation will be approximately $15,000.

B. PAYMENT FOR SPECIAL FACILITIES

Seller shall reimburse Buyer, for the Special Facilities described herein, within thirty (30) days of receipt of bill from Buyer. Thereafter, Seller shall pay Buyer monthly, within fifteen (15) days of receipt of bill from Buyer, for all the annual expenses including but not limited to Operation and Maintenance, Advalorem Taxes, Administrative and General, and Working Capital expense.

C. SALVAGE VALUE

Within 60 days of the termination of this Agreement, Buyer shall prepare and forward to Seller an estimate of the [illegible] of the Special Facilities described in this

Appendix, Subpart A., less the cost of removal and transfer to Buyer's nearest warehouse. Buyer shall then be invoiced by Seller for the net salvage value estimated by Buyer for the Special Facilities and shall pay such amount to Seller within 30 days after receipt of said invoice. Seller shall have the right to offset any amounts due it against any present or future payments due Buyer.

APPENDIX 1

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF RULEMAKING PROCEEDINGS AS REQUIRED BY THE PUBLIC UTILITY REGULATORY ACT OF 1978 FOR THE CONSIDERATION OF CO-GENERATION AND SMALL POWER PRODUCTION	:	MOTION Case No. P-300-12

Comes now Utah Power & Light Company ("Utah Power") and moves the Commission for an Order:

1. Approving that certain contract between Utah Power & Light Company and the

, a copy of which is attached hereto and by this reference made a part hereof;

2. Ordering that all costs Utah Power incurs in connection with the Contract, together with all kilowatt hours and capacity generated thereunder shall be assigned directly to Utah Power's Idaho service territory for purposes of interstate allocation; and

3. That for the purposes of interstate allocation for the State of Idaho, the capacity contribution of a small hydro plant in any month shall be the average kilowatt output during "heavy load hours" in such month; provided that, in any summer season such amount in any month shall not exceed the amount determined for July of that summer season and the amount in any winter month shall not exceed the amount determined for December in that winter season. In such determination, "heavy load hours" are defined as:

> Those hours each day between 9:00 a.m. and 9:00 p.m., Mountain Standard Time, except Saturdays, Sundays and the following holidays: January 1, Presidents Day, Memorial Day, July 4, July 24, Labor Day, Thanksgiving Day and Christmas Day; provided, however, that in the event any such holiday, except July 24, occurs on Sunday, the following Monday will be considered a holiday.

Summer season shall be defined as the months April through September and winter season shall be defined as the months October through March.

The capacity and energy contributions of such small hydro plant shall be subtracted from the Company's Idaho jurisdiction loads prior to the interstate allocation.

DATED this _____ day of _____, 1982.

THOMAS W. FORSGREN
Attorney for Utah Power & Light Company
1407 West North Temple
Salt Lake City, Utah 84116