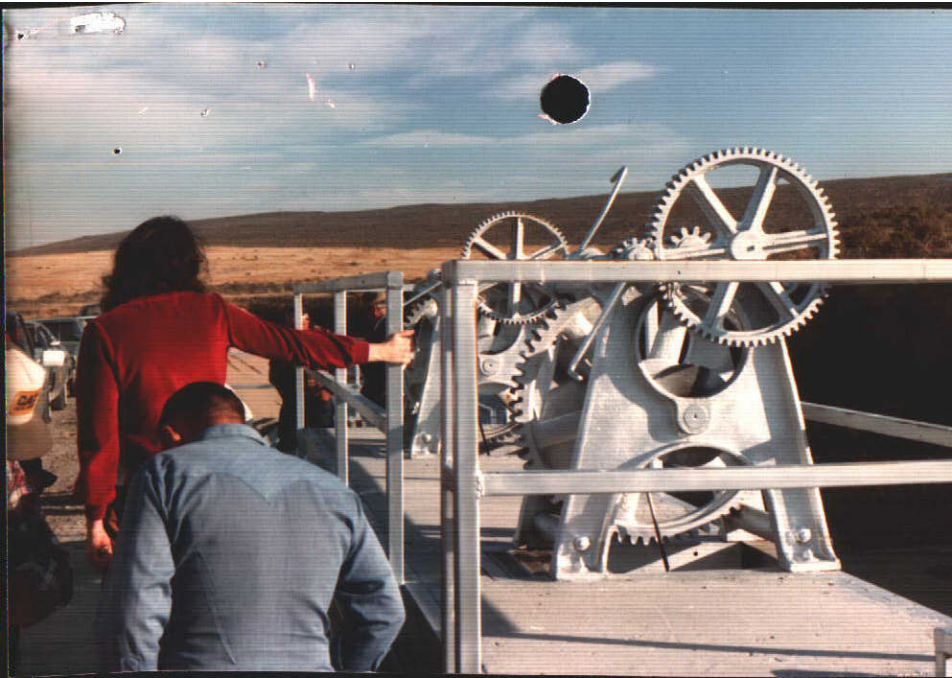
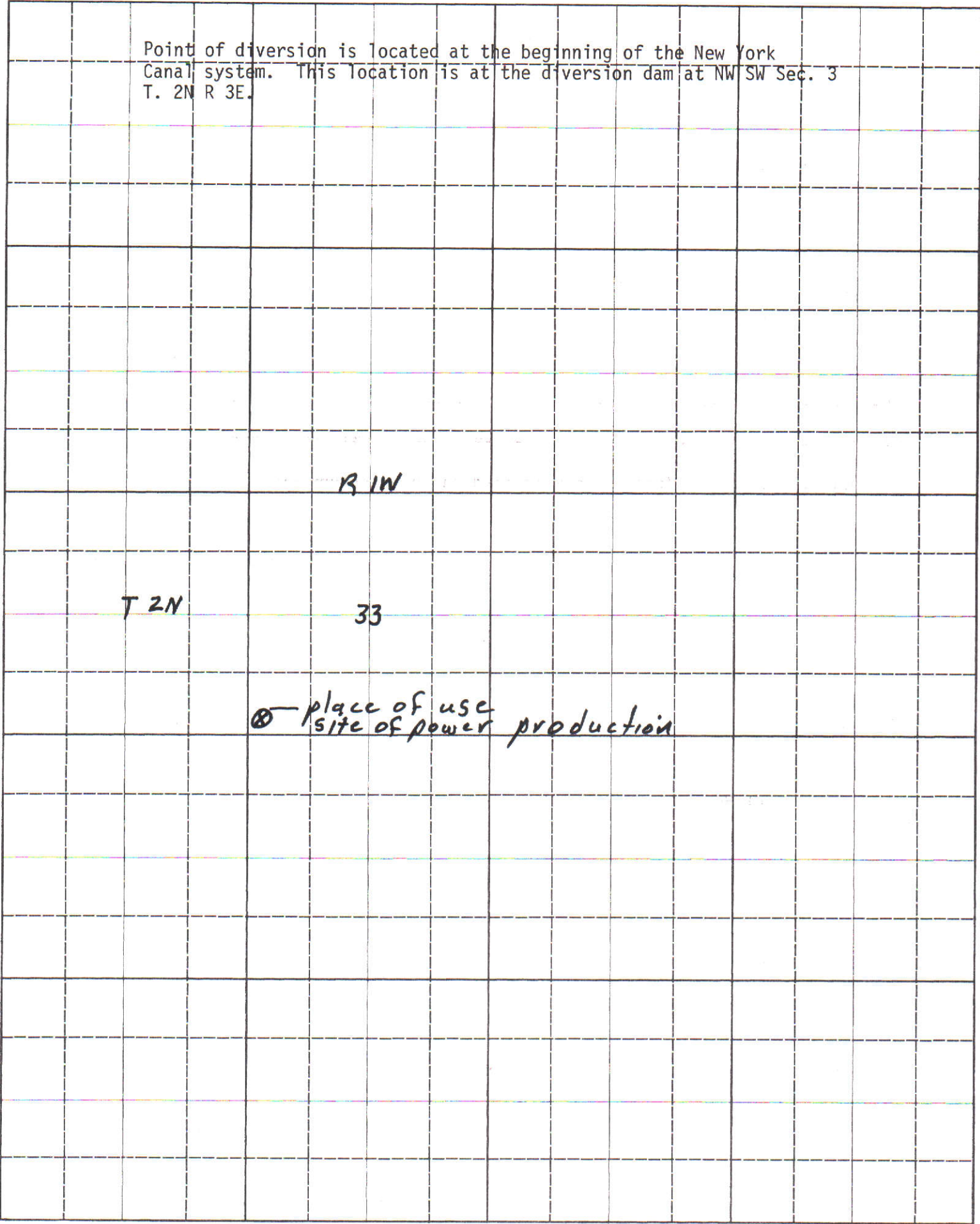




11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.

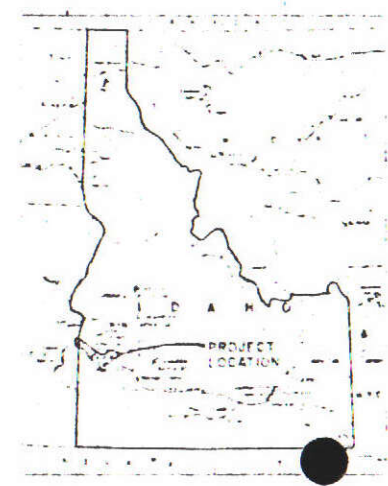
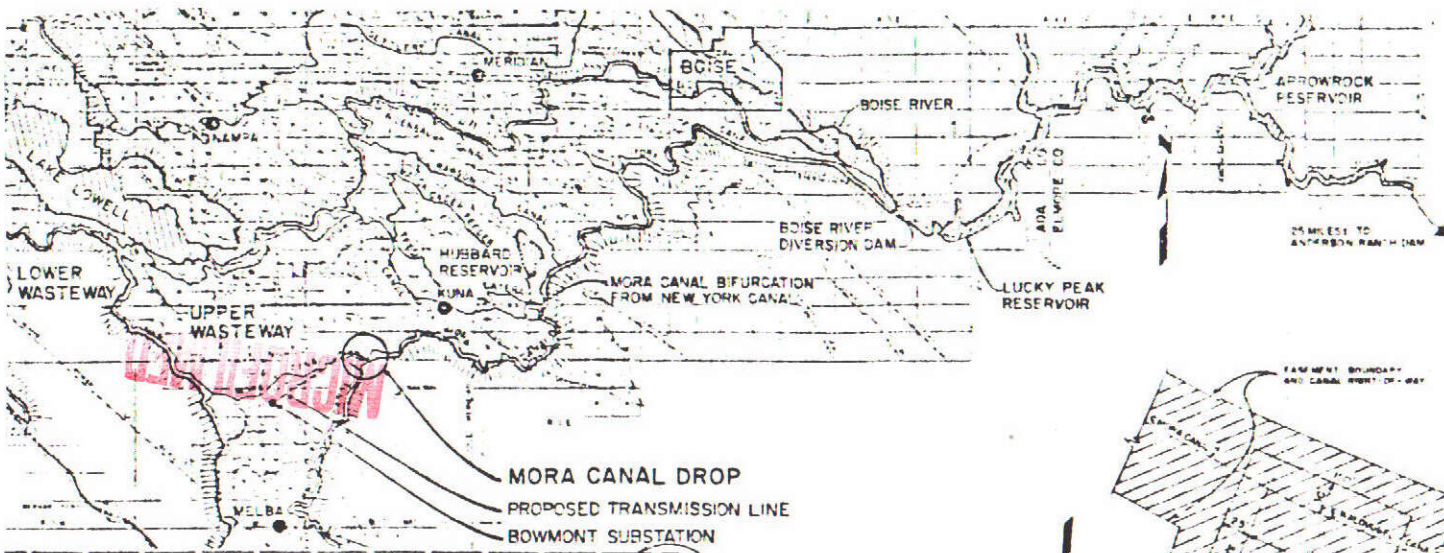


Scale: 2 inches equal 1 mile.

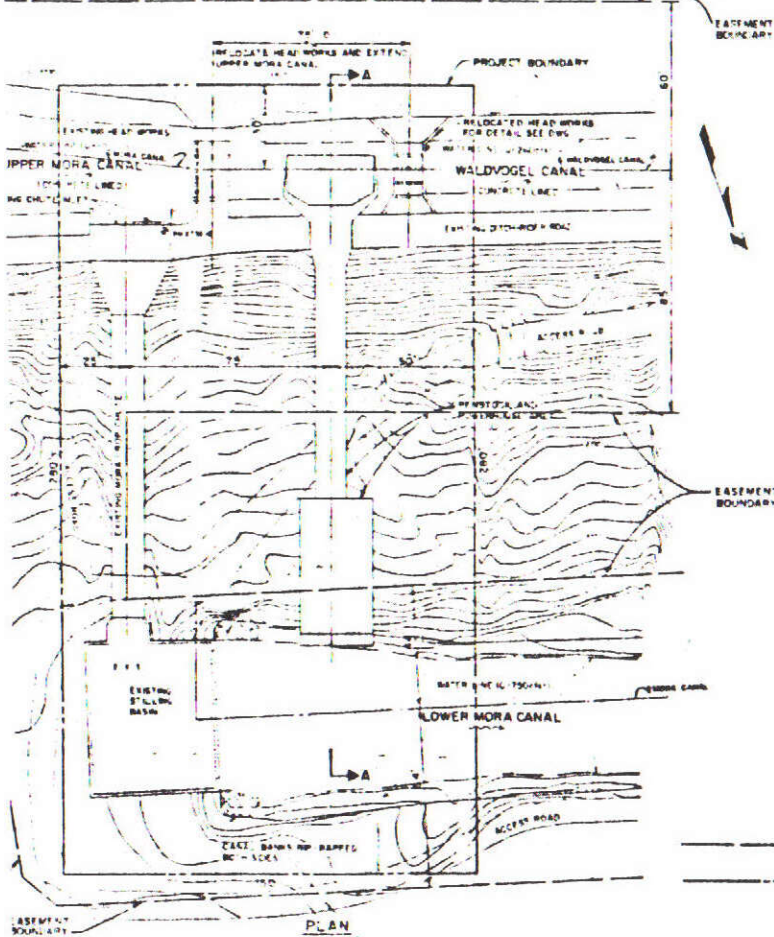
BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

Boise Project Board of Control
(Applicant)

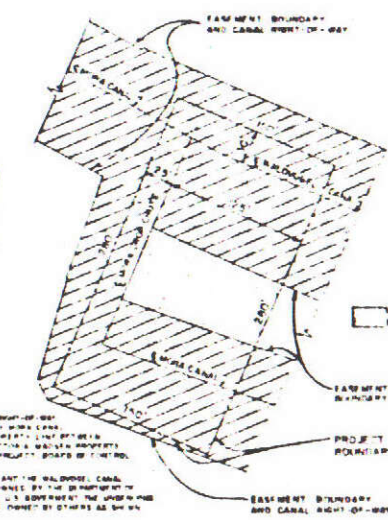
Royce Van Cusen
Project Manager



LOCATION MAP
SCALE 1" = 50 MILES



SITE PLAN
SCALE 1" = 200 FEET



LEGEND

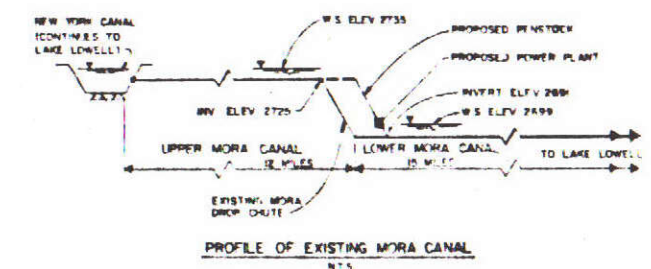
- FEE OWNERS**
BOISE PROJECT BOARD OF CONTROL
- EASEMENT**
DEPARTMENT OF WATER RESOURCES

NOTES

1. THE BOWMONT SUBSTATION IS LOCATED ON THE EASEMENT BOUNDARY OF THE BOISE PROJECT BOARD OF CONTROL. THE EASEMENT BOUNDARY OF THE BOISE PROJECT BOARD OF CONTROL IS SHOWN BY THE DOTTED LINE.
2. THE MORA CANAL AND THE WALDVOGEL CANAL EASEMENTS ARE OWNED BY THE DEPARTMENT OF WATER RESOURCES OF THE U.S. GOVERNMENT. THE UNDERWATER FEE TITLES ARE OWNED BY OTHERS AS SHOWN.

THIS MAP IS PART OF THE APPLICATION FOR EXEMPTION FROM LICENSING MADE BY THE LINEAR PROJECT. THIS PLAN OF EXEMPTION IS NOT A CONTRACT.

BOISE BOARD OF CONTROL
BY CAROL DEAN CHAMBERLAIN



PROFILE OF EXISTING MORA CANAL
NTS

LEGEND

- EASEMENT BOUNDARY
--- PROJECT BOUNDARY

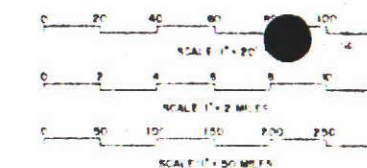


EXHIBIT B

BOISE PROJECT BOARD OF CONTROL
BOISE, IDAHO
MORA CANAL DROP POWER PLANT
GENERAL PLAN, PROJECT BOUNDARIES
AND LOCATION OF PRINCIPAL FACILITIES

TECHNICAL ENGINEERING: SAN FRANCISCO, CALIFORNIA

FERC No. 3403

FINAL REPORT ON

POTENTIAL HYDROELECTRIC POWER

MORA CANAL DROP

*Microfilm Entire book
before file is ever destroyed!*

TO
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
NO. EW-78-F-07-1760



BY
BOISE PROJECT BOARD OF CONTROL
BOISE, IDAHO

TUDOR ENGINEERING COMPANY
SAN FRANCISCO, CALIFORNIA

DECEMBER 1978

MICROFILMED



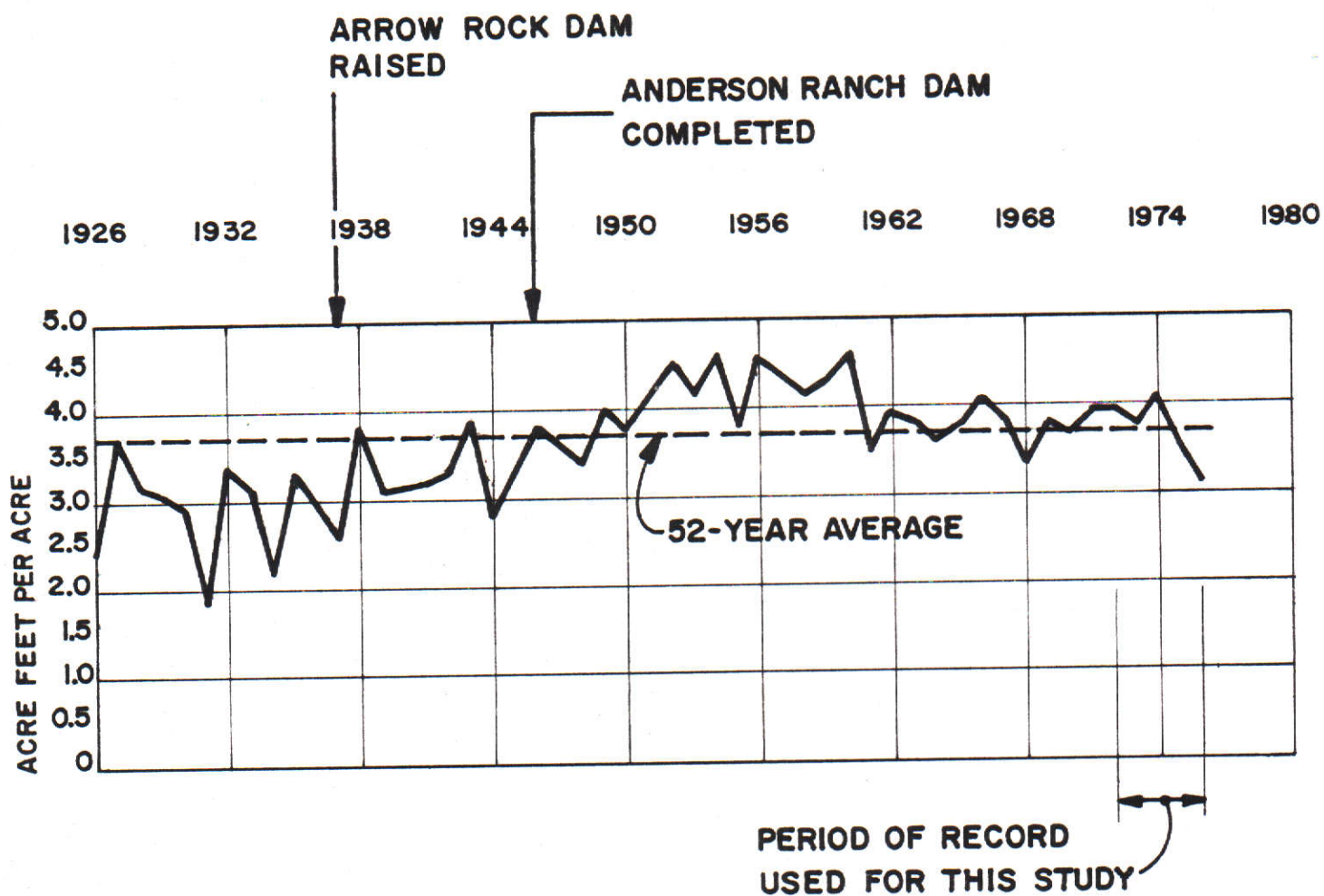
MORA CANAL DROP CHUTE
AND STILLING BASIN



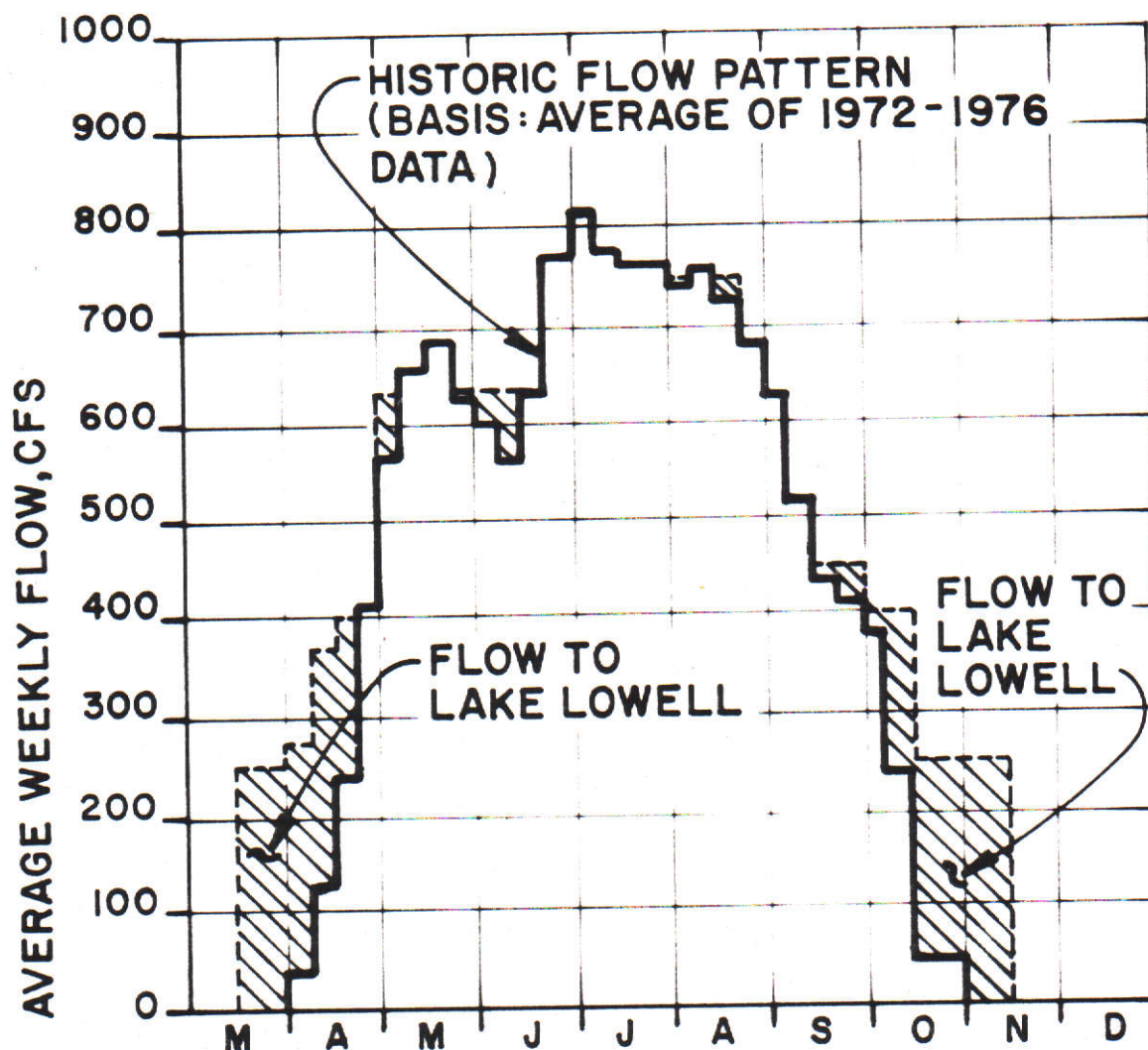
MORA CANAL DROP
STILLING BASIN



WALDVOGEL CANAL HEADWORKS
AND MORA CANAL DROP INLET

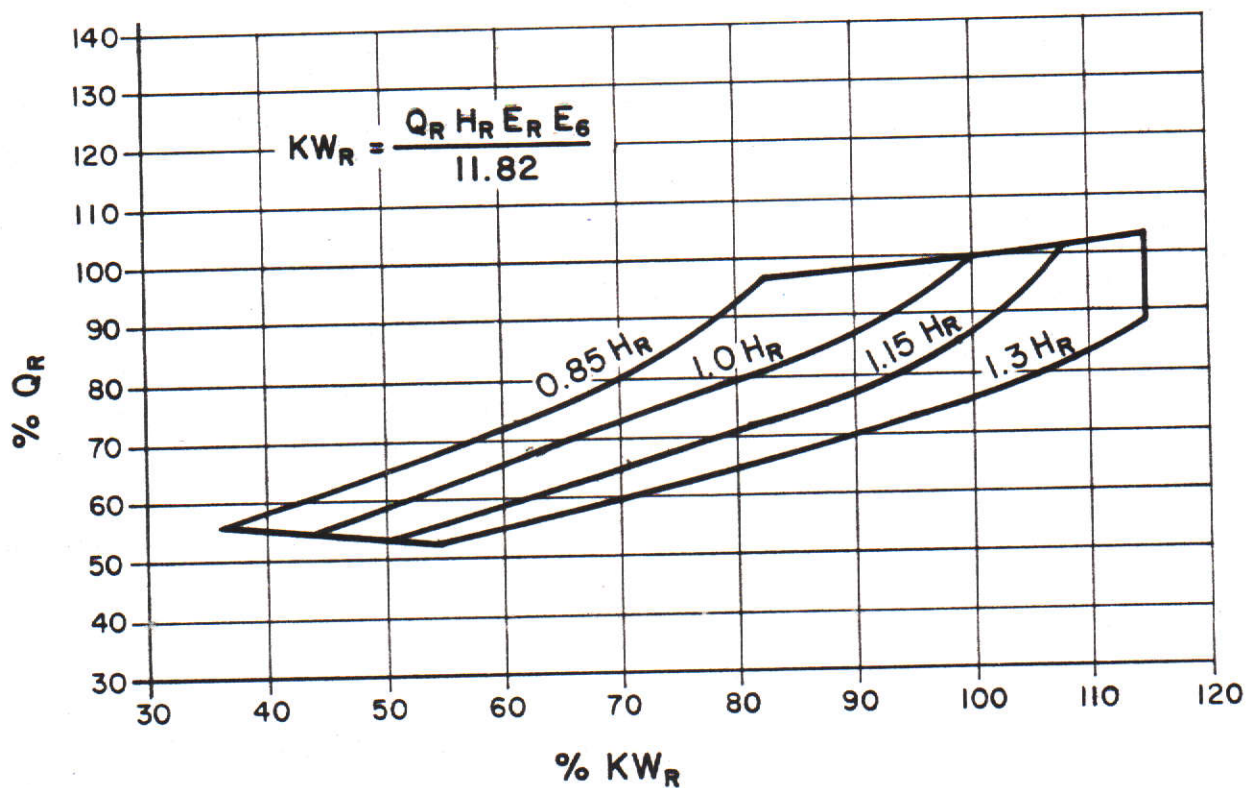


SOURCE:
BOISE PROJECT BOARD OF CONTROL
ANNUAL REPORT FOR 1977



MORA CANAL DROP
HYDRO GRAPH

FIGURE



NOTES:

$N_s = 138$

H_R = SELECTED DESIGN HEAD

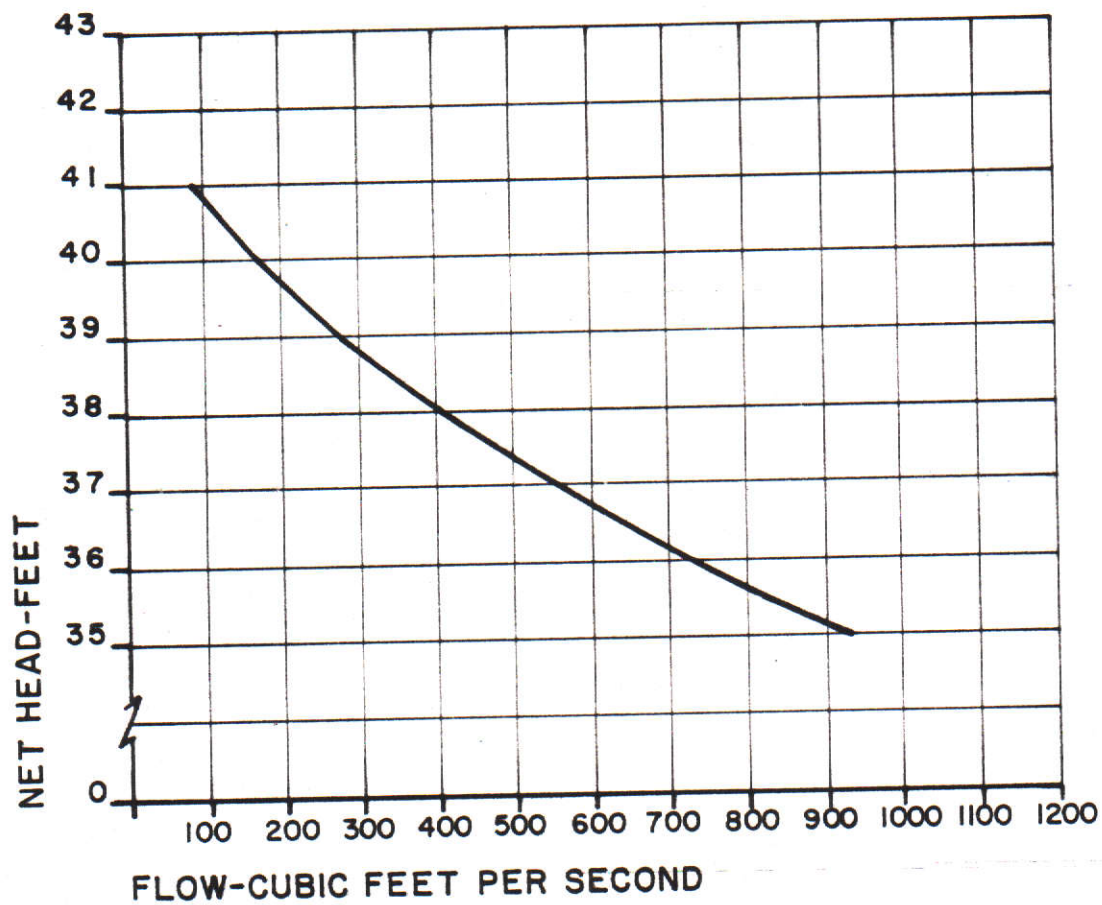
KW_R = RATED CAPACITY AT H_R

Q_R = DISCHARGE AT KW_R AND H_R

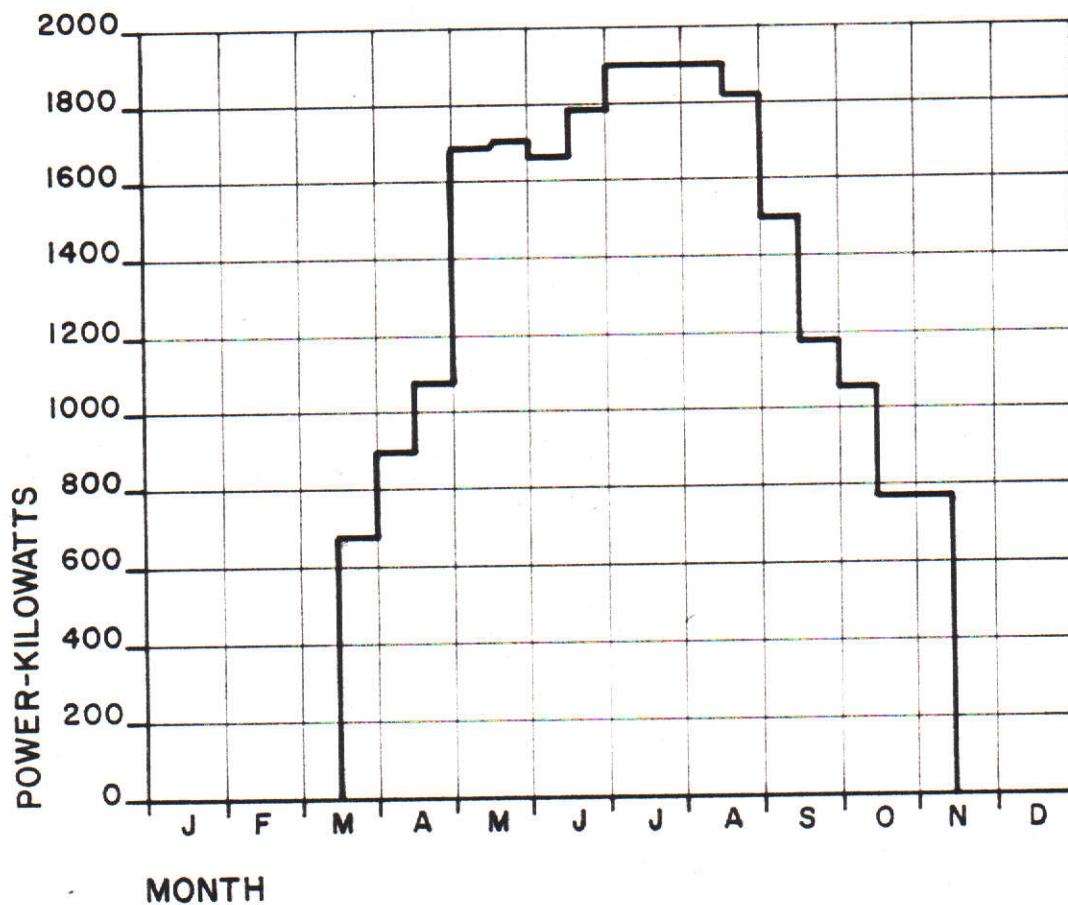
E_R = EFF. AT $KW_R = 1.0\%$ LESS THAN E_P

E_P = PEAK EFF. = EFF. AT $0.80 KW_R$

E_G = GENERATOR EFF.



NOTE:
INCLUDES PENSTOCK LOSSES

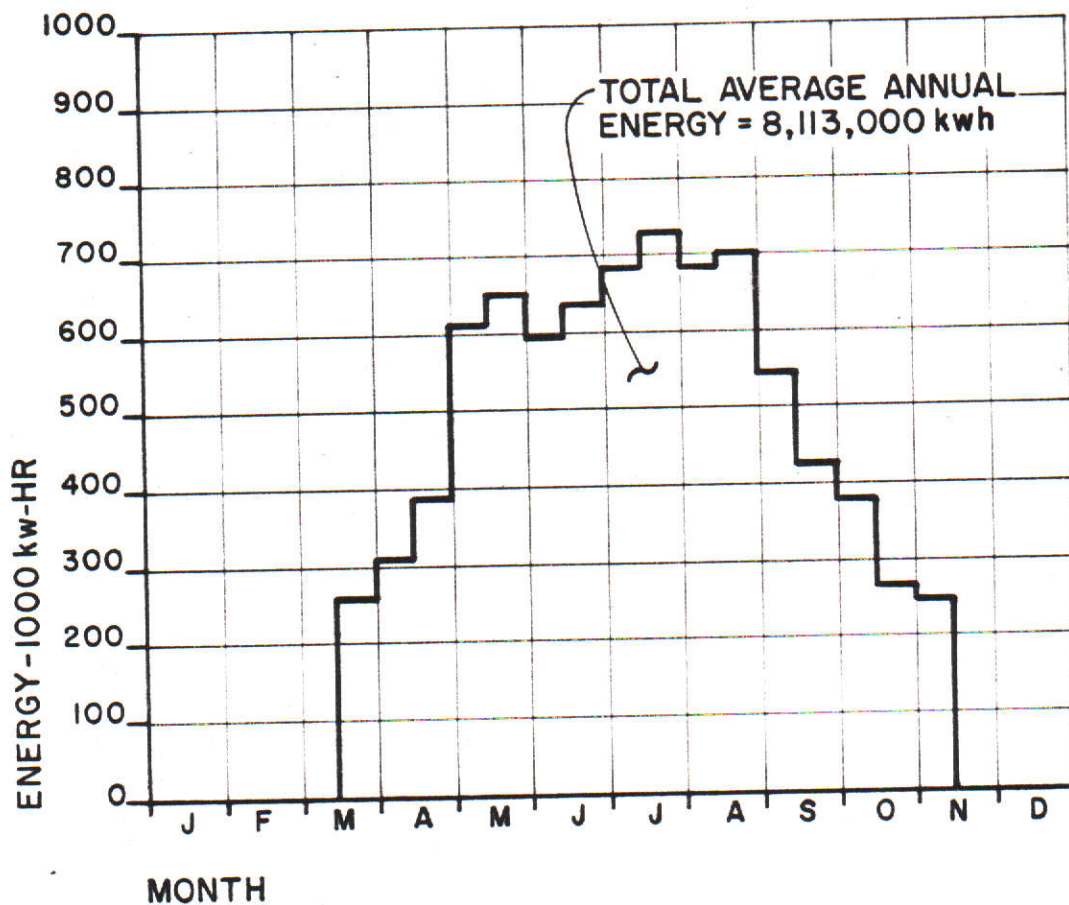


NOTE:
INSTALLED CAPACITY = 1900 kw

MORA CANAL DROP
AVERAGE MONTHLY POWER

FIGURE

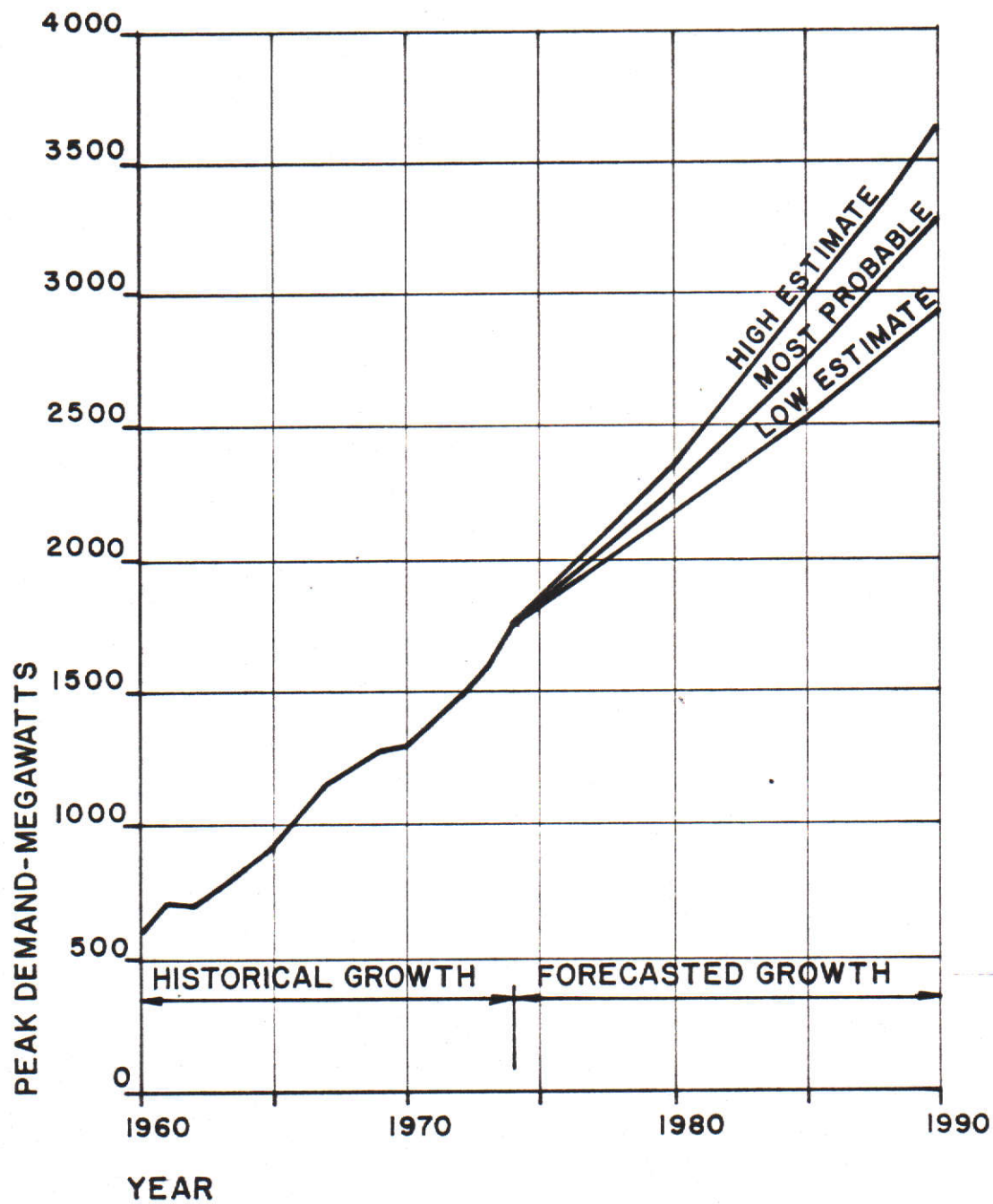
V-5



MORA CANAL DROP
AVERAGE MONTHLY ENERGY

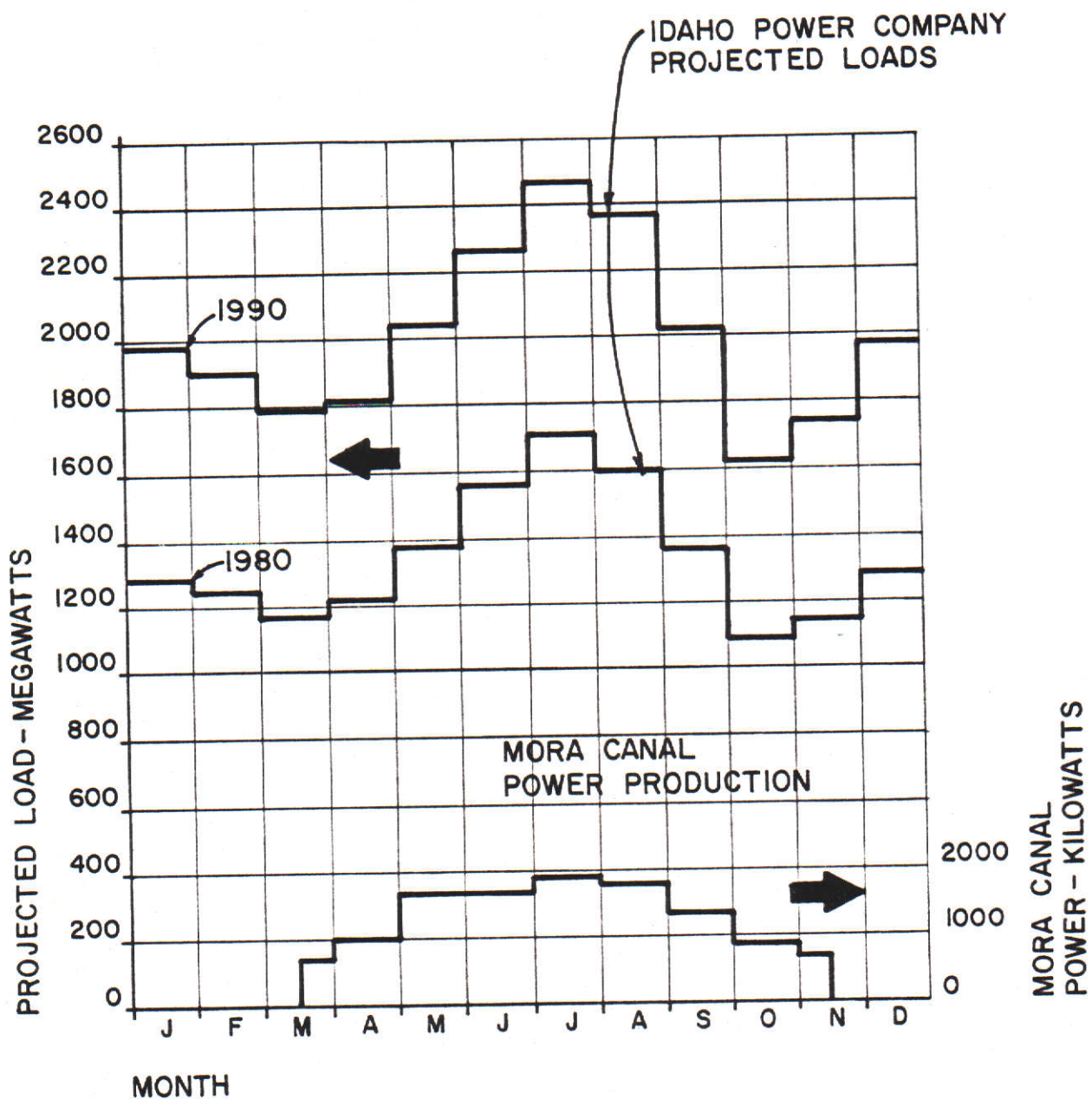
FIGURE

V-6



MORA CANAL DROP
PEAK DEMAND FOR
IDAHO POWER COMPANY

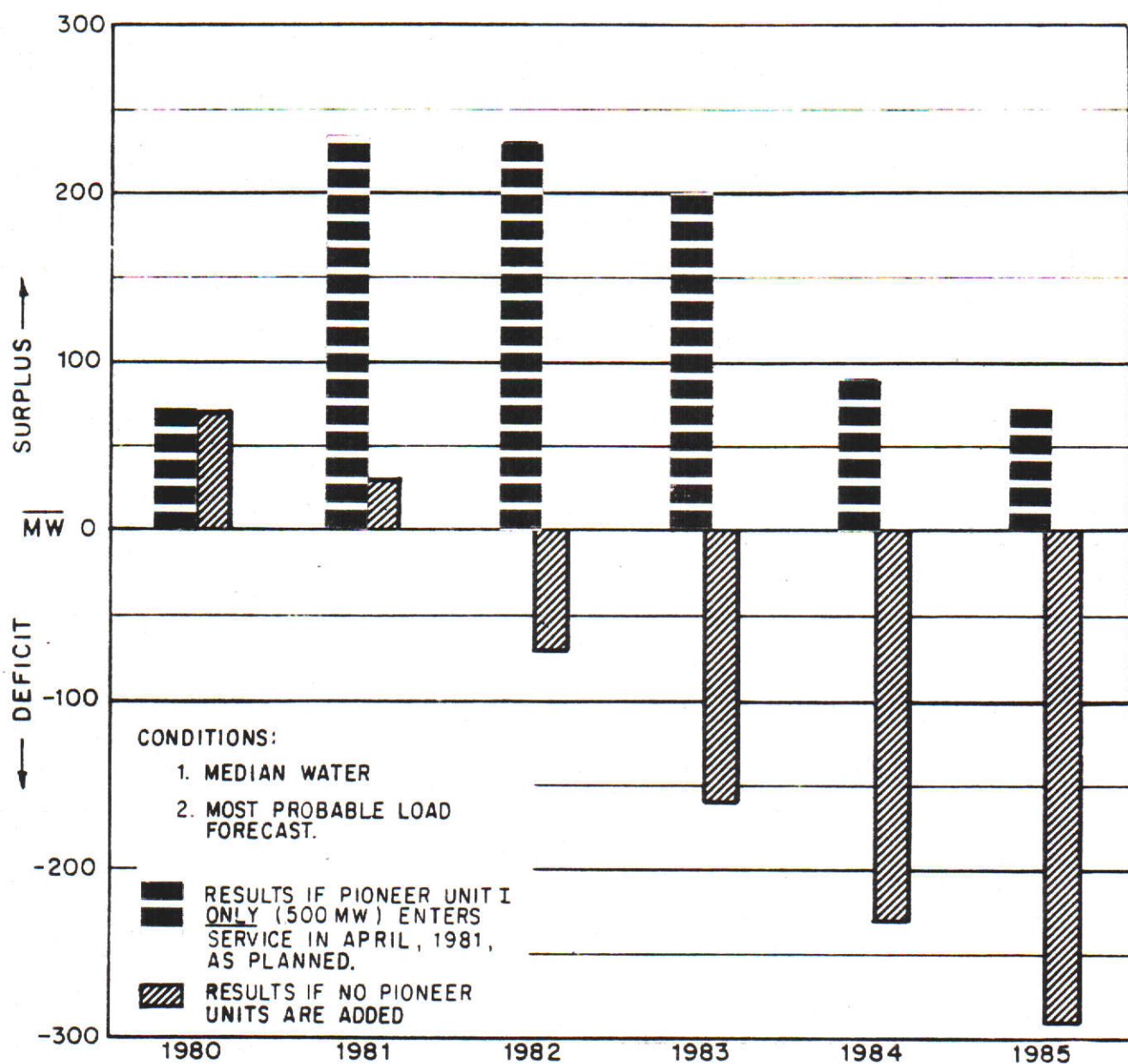
FIGURE



PROJECTED MONTHLY AVERAGE LOADS OF
IDAHO POWER COMPANY AND AVERAGE
MONTHLY POWER GENERATION AT MORA
CANAL DROP

FIGURE

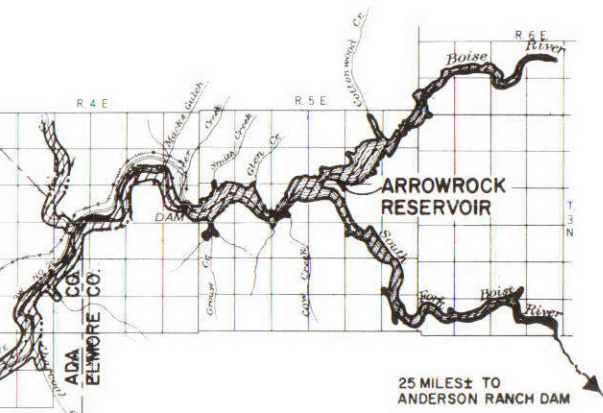
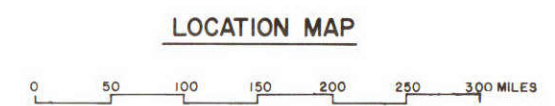
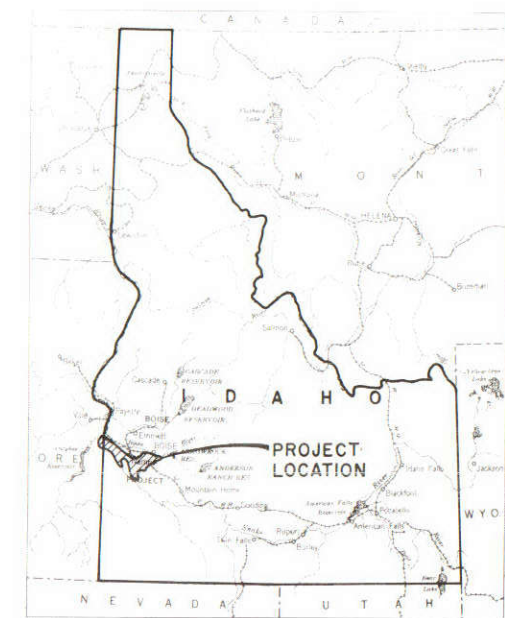
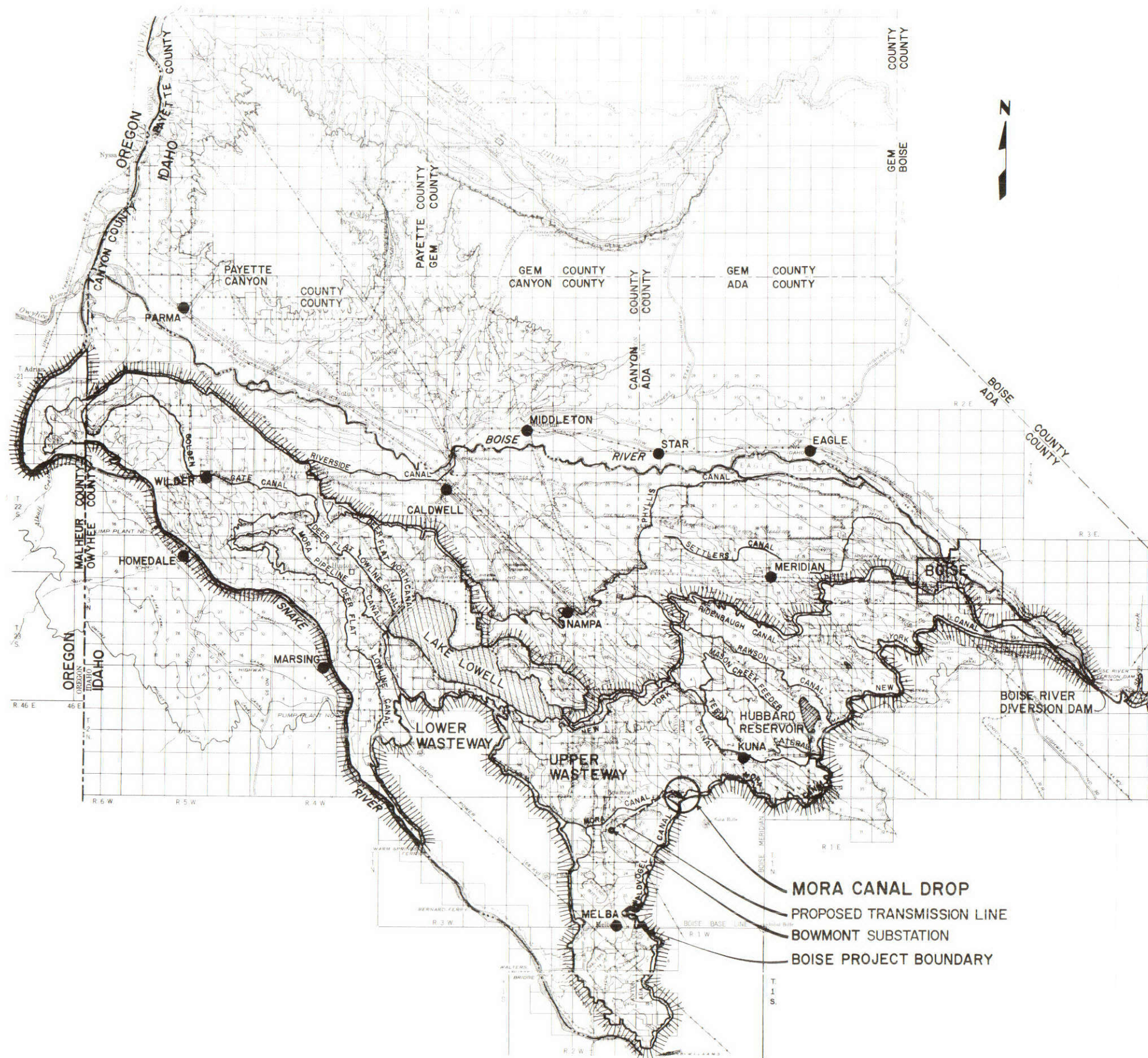
VI-2



**MORA CANAL DROP
ANNUAL ENERGY SURPLUS/DEFICIT,
AVERAGE MW**

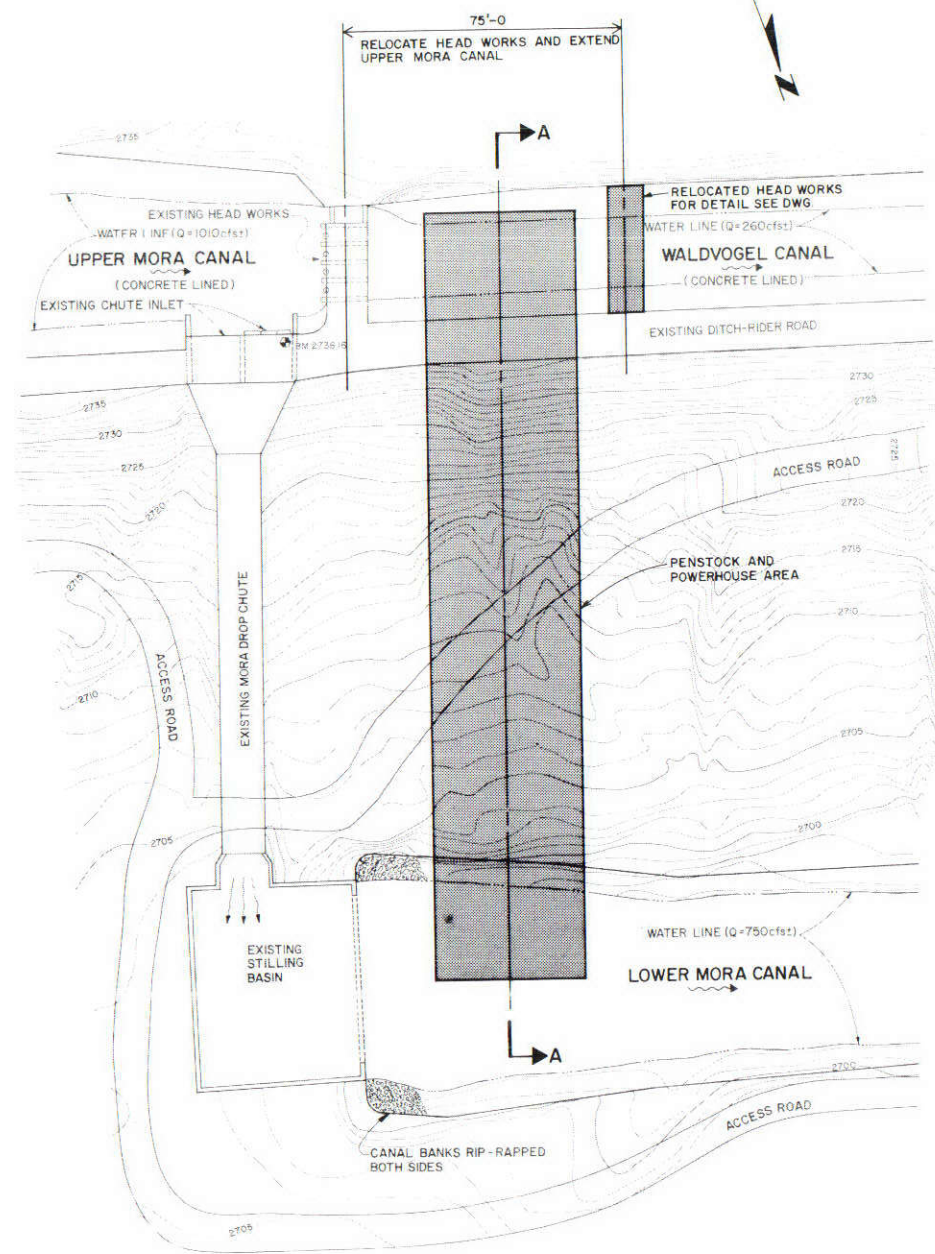
FIGURE

VI-3

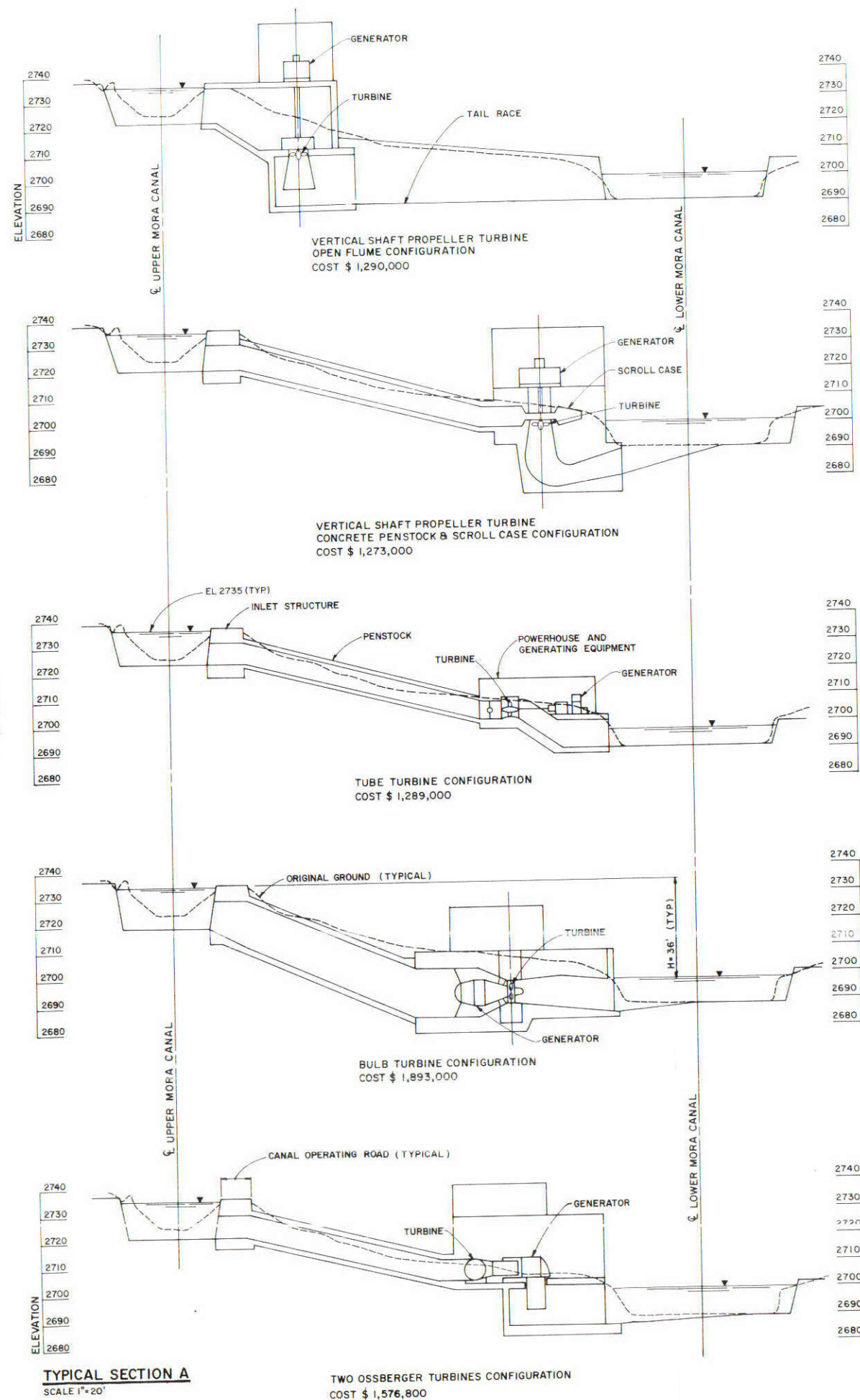


- MORA CANAL DROP
- PROPOSED TRANSMISSION LINE
- BOWMONT SUBSTATION
- BOISE PROJECT BOUNDARY

BOISE PROJECT BOARD OF CONTROL
MORA CANAL DROP
LOCATION MAP

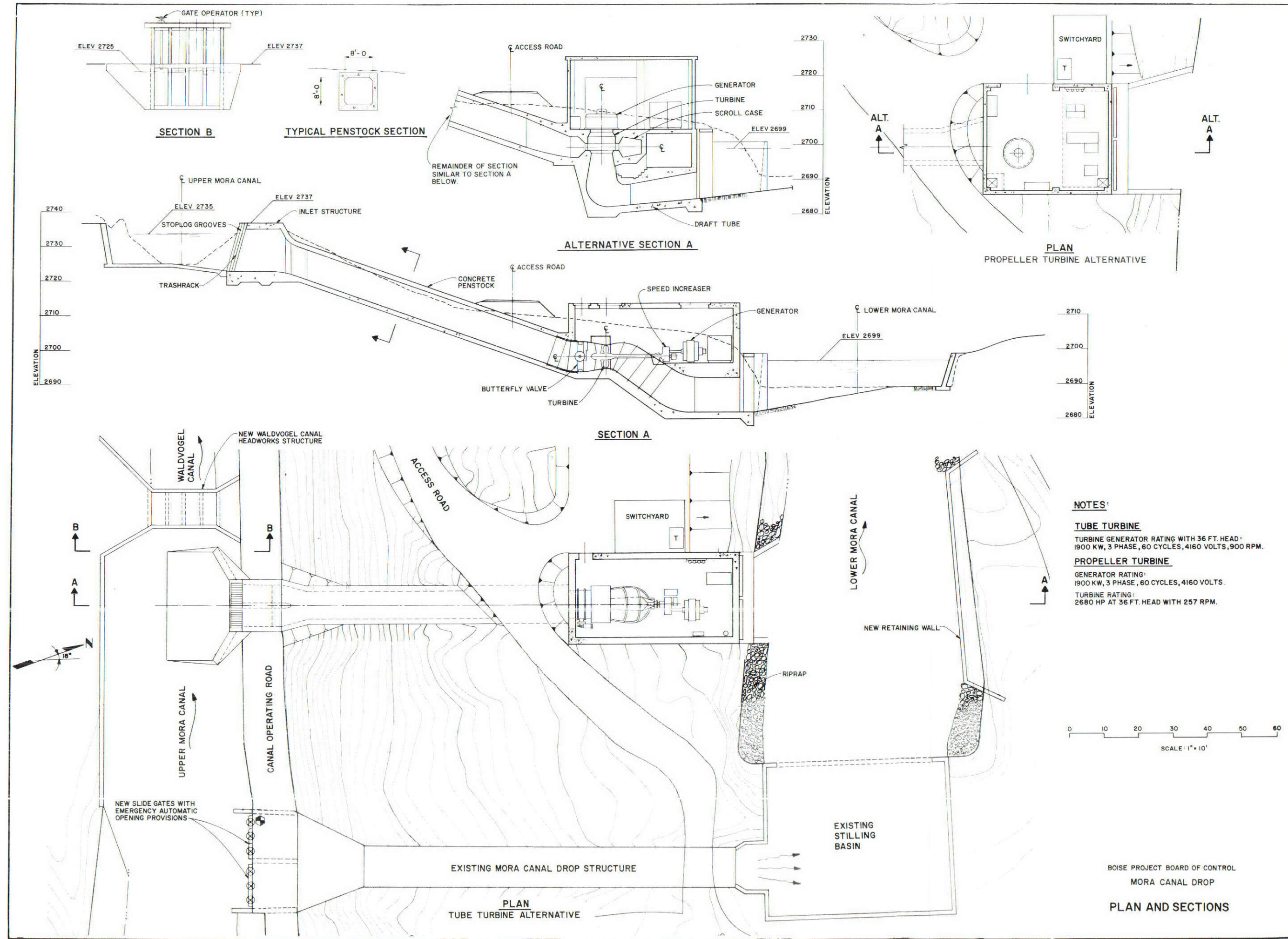


PLAN
SCALE 1"=20'



TYPICAL SECTION A
SCALE 1"=20'

BOISE PROJECT BOARD OF CONTROL
MORA CANAL DROP
ALTERNATIVE INSTALLATIONS



RECEIVED

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

FEB 14 2000

REQUEST FOR EXTENSION OF TIME

Department of Water Resources

TO PROVIDE ADDITIONAL TIME IN WHICH TO SUBMIT PROOF OF
BENEFICIAL USE FOR A WATER RIGHT PERMIT

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code in which to complete development of a water right.

Permit No. 63-09206

Name(s) of Permit Holder: Boise Project Board of Control on behalf of Boise-Kuna, Nampa & Meridian, New York, Wilder, and Big Bend Irrigation Districts
Mailing Address: 2465 Overland Road, Boise, Idaho 83705-3173

Date Proof is Due: March 1, 2000 Telephone No. (208) 344-1141

Describe what work has been completed toward the development of this water right:
(This must be filled out! If no work has been completed, show "none".)

PLEASE SEE ATTACHMENT

Costing \$ _____

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

PLEASE SEE ATTACHMENT

Permit holder(s) request an extension to March 1, ~~19~~20 2005.

FEE: \$50.00

Judith A. Jemmett
(Signature) Judith A. Jemmett, Secretary/Treasurer
*If other than permit holder, Power of Attorney must be supplied.
Boise Project Board of Control

ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be

APPROVED and the time within which to submit proof of beneficial use is extended to March 1, 2005.

Signed this 14 day of March, ~~19~~20 2000

L. Glen Saxton
L. Glen Saxton, Chief
Water Allocation Bureau

MARCH 20 2000

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED
MAR 01 1996

REQUEST FOR EXTENSION OF TIME
TO PROVIDE ADDITIONAL TIME IN WHICH TO SUBMIT PROOF OF
BENEFICIAL USE FOR A WATER RIGHT PERMIT

Department of Water Resources

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code in which to complete development of a water right.

Permit No. 63-09206

Name(s) of Permit Holder: Boise Project Board of Control on behalf of Boise-Kuna, Nampa & Meridian, New York, Wilder, and Big Bend Irrigation Districts
Mailing Address: 2465 Overland Road, Boise, Idaho 83705-3173

Date Proof is Due: March 1, 1996 Telephone No. (208) 344-1141

Describe what work has been completed toward the development of this water right:
(This must be filled out! If no work has been completed, show "none".)

Please see Attachment

Costing \$ _____

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

Please see Attachment

Permit holder(s) request an extension to March 1 ~~1996~~ 2000.

FEE: \$50.00

Kenn Hensley
(Signature)* Manager, Boise Project Board of Control
*If other than permit holder, Power of Attorney must be supplied.

ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be APPROVED and the time within which to submit proof of beneficial use is extended to March 1, 2000.

Signed this 7th day of March, 1996

J. Glen Saxton
Chief, Water Allocation Bureau

ATTACHMENT TO THE BOISE PROJECT BOARD OF CONTROL'S
REQUEST FOR EXTENSION OF TIME ON
PERMIT NO. 63-09206 (MORA DROP)

March 1, 1996

The Boise Project Board of Control requests an extension of time to submit proof of beneficial use for Permit No. 63-09206 (Mora Drop Lowhead Hydroelectric Project). The Project is on one of the canals in the system operated by the Board of Control. The basis for the Board of Control's request is based on Idaho Code 42-204(1) in that there was litigation among the Board of Control's member districts which might have brought the title to the water requested into question.

The Board of Control applied for Permit No. 63-09206 on behalf of its member districts, the Boise-Kuna Irrigation District, the Nampa & Meridian Irrigation District, the New York Irrigation District, the Wilder Irrigation District, and the Big Bend Irrigation District. In an analogous situation, those districts were engaged in litigation during 1989 to 1994 over the Lucky Peak Power Plant Project and the water rights associated with that Project. That litigation was begun in April 1989 (see Exhibit 1, ¶¶ 6, 14, and 17; Exhibit 2, ¶¶ 2, 6, 26, and 43), and not completed until January 1994. See Exhibit 3.

The pendency of that litigation and its possible precedential effects for the interests in Water Permit No. 63-

MAR 28 1996

09206 made it difficult for the Districts to proceed with the development of this Project, although they did make significant development efforts. See below. By the time that litigation was resolved, the Idaho Public Utilities Commission began changing the rules under which small power projects are developed. The PUC issued an order on January 14, 1994, stating that the Idaho Power Company was no longer bound by the published rates for small power projects. See Exhibit 4. The PUC began an extensive rule making process concerning the development of small power projects. That rule making process is still not complete. See Exhibit 5. The Districts have participated in these rule making proceedings. Indeed, the PUC has announced an investigation into fundamental changes which may be occurring in the electrical industry. See Exhibit 6. There is this substantial uncertainty about how small power projects can be developed.

Despite the litigation and the administrative agency proceedings described above, the Board of Control has spent almost \$88,000 on project development since January of 1992. Two pieces of property were purchased for approximately \$18,500. John J. Straubhar, P.E., formerly of Power Engineers, was retained as a consulting engineer. Confirmation was received from the Department of Water Resources that a stream channel alteration permit was not necessary. Discussions occurred with

the Bureau of Reclamation concerning a special use permit and the Army Corps of Engineers concerning a 404 Permit.

The consulting engineer made revised estimates of generation based on a monthly flow analysis. Negotiations began with the Idaho Power Company on a power sales contract. The Districts discussed financing with several financial institutions. It appeared that financing had to be by bonds or a cumbersome process to issue loans. Therefore, the Board of Control and its districts sought amendments to Idaho Code Title 43, Chapter 23. Those amendments were approved in 1993 by the Idaho Legislature. See Exhibit 7. The Board of Control and its member Districts clearly proceeded diligently and in good faith.

Thank you for considering this request for an extension. A \$50 check is enclosed. If the Department needs additional information on these matters, could it please communicate with the Board of Control's attorney, Don A. Olowinski, Hawley Troxell Ennis & Hawley, P. O. Box 1617, Boise, Idaho 83701-1617, Tel: (208) 344-6000, FAX: (208) 342-3829.

STATE OF IDAHO

For Office Use Only
\$15 FEE Receipted by [Signature]
Date 3-3-92
Receipt # C023398

RECEIVED

DEPARTMENT OF WATER RESOURCES

REQUEST FOR EXTENSION OF TIME
TO PROVIDE ADDITIONAL TIME IN WHICH TO SUBMIT PROOF OF
BENEFICIAL USE FOR A WATER RIGHT PERMIT

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time in which to complete development of a water right under the provisions of Section 42-204, Idaho Code.

Permit No. 63-09206

Name(s) of Permit Holder: Boise Project Board of Control acting on behalf of Boise-Kuna, Nampa & Meridian, New York, Wilder, and Big Bend Irrigation District
Post Office Address: 214 Broadway, Boise, Idaho 83702

Telephone No. (208) 344-1141

Date Proof is Due: March 1, 1992

Describe what work has been completed toward the development of this water right: See Attachment No. 1
(This must be filled out! If no work has been completed, show "none".)

Costing \$ 10,410.27

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

Government conduct, see Attachment No. 2

Permit holder(s) request an extension to May 1, 19 96.
(1 yr. minimum)

[Signature: Ronny Henley]
Manager BPRC (Signature)

FEE: \$15.00

*IF OTHER THAN PERMIT HOLDER,
POWER OF ATTORNEY MUST BE SUPPLIED.

ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be APPROVED and the time within which to submit proof of beneficial use is extended to March 1, 1996.

APR 13 1992

IT IS FURTHER ORDERED that the permit be REINSTATED and the priority advanced to January 6, 1979, pursuant to Section 42-218a, Idaho Code.

Signed this 6th day of March, 19 92

[Signature: J. Glen Saylor]
Chief, Water Allocation Bureau

RECEIVED

JAN 30 1987

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

For Office Use Only

\$15 FEE Received by rg
Date 2-2-87
Receipt # 41420

REQUEST FOR EXTENSION OF TIME

To provide additional time in which to submit proof
of beneficial use for a water right permit
Department of Water Resources

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time in which to complete development of a water right under the provisions of Section 42-204, Idaho Code.

Permit No. 63-9206

Name(s) of Permit Holder: Boise Project Board of Control, acting on behalf of
Boise-Kuna, Nampa & Meridian, New York, Wilder and Big Bend Irrigation
Districts
Post Office Address: 214 Broadway, Boise, Idaho 83702

Telephone No. 344-1141Date Proof is Due: March 1, 1987

Describe what work has been completed toward the development of this water right: See Attachment No. 1
(This must be filled out! If no work has been completed, show "none".)

Costing \$

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

See Attachment No. 2

BOISE PROJECT BOARD OF CONTROL on behalf of the Boise-Kuna, the New York
the Nampa & Meridian, the Wilder and the Big Bend Irrigation District.

Permit holder(s) request an extension to March 1, 1992.
(1 yr. minimum)

MANAGER (Signature)*

*IF OTHER THAN PERMIT HOLDER,
POWER OF ATTORNEY MUST BE SUPPLIED.

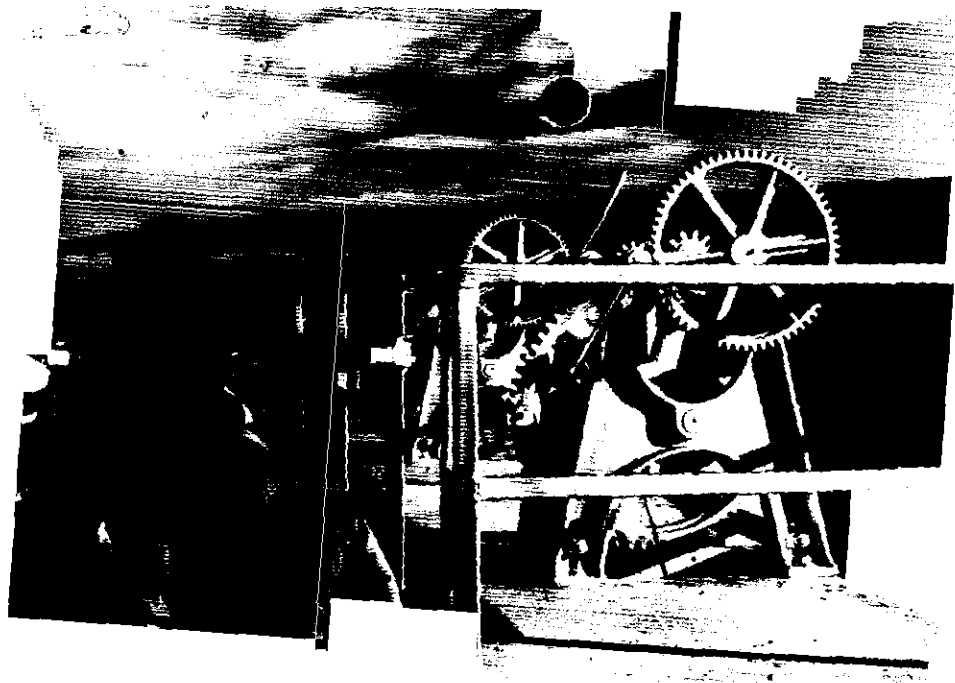
FEE: \$15.00

ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be APPROVED and the time within which to submit proof of beneficial use is extended to March 1, 1992.

Signed this 14th day of December, 19 88.

J. Glen Saxton
Chief, Water Allocation Bureau



For Office Use Only
Fee Received <u>15.00</u>
Date <u>1-12-83</u>
Receipt # <u>25817</u>

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

REQUEST FOR EXTENSION OF TIME
To provide additional time in which to submit
proof of beneficial use on a water right permit

RECEIVED

JAN 11 1983

Department of Water Resources

Boise Project Board of Control of 214 Broadway, Boise
(Name) (Address)

State of Idaho, deposes and says:

That he is the holder, or the duly authorized agent of the holder*, of Permit to Appropriate the Public Water of the State of Idaho No. 63-9206.

That under the terms and conditions of said permit, work thereunder was required to be completed on or before March 1, 19 83.

That he has heretofore performed the following work described under said permit: _____
(This must be filled out! If no work has been completed put none.)

The proper land titles have been acquired and all forebay construction has been
completed. Flow measurement is accomplished with 40 feet of rectangular weir
along with two rectangular rated orifices underneath two radial gates. (See
attached photo) Costing \$ 106,947.00

Completed works

That he is unable to complete the remainder of the work within the required time for the following reasons, to-wit:
Water to wire installation (penstock and machine) has not been completed
because the power sales contract terms are still being debated and the method of
financing has not been determined. Both issues may be nearing a final solution.

Wherefore, he asks that the Department of Water Resources extend the time for the completion of obligations under said permit to March 1, 19 87.
(1 yr. minimum, 5 yrs. maximum)

NOTE
AS OF JULY 1, 1980,
THERE IS A \$15.00
CHARGE FOR REQUESTS
FOR EXTENSION OF
TIME.

Boise Project Board of Control

Nancy L. Oye
(Signature)*

*IF OTHER THAN HOLDER, Power of Attorney must be supplied.

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above application for extension of time be APPROVED and the time within which to submit the statement of beneficial use is extended to March 1, 1987.

Signed this 25th day of February, 19 83.

L. Glen Saxton
Chief, Operations Bureau

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

APPROVED

To appropriate the public waters of the State of Idaho

1. Name of applicant BOISE PROJECT BOARD OF CONTROL Phone 344-1141
Post office address 214 Broadway Avenue, Boise, Idaho 83702
2. Source of water supply Boise River which is a tributary of Snake River
3. Location of point of diversion is NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 3 Township 2N
Range 3E B.M. ADA County, additional points of diversion if any: _____

4. Water will be used for the following purposes:

Amount 900cfs for power purposes from 3/15 to 11/15 (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)

5. Total quantity to be appropriated:

a. 900 cfs cubic feet per second and/or b. _____ acre-feet per annum.

6. Proposed diverting works:

a. Description of ditches, flumes, pumps, headgates, etc. controlled canal flow to penstock
to hydro-turbines

b. Height of storage dam _____ feet, active reservoir capacity _____ acre-feet; total reservoir
capacity _____ acre-feet, materials used in storage dam: _____

Period of year when water will be diverted to storage _____ to _____ inclusive.
(Month/Day) (Month/Day)

c. Proposed well diameter is _____ inches; proposed depth of well is _____ feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial
use is 4 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: SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 33 Township 2N.
Range 1W B.M.

(2) Amount of power to be generated: 1900 kw horsepower under 36 feet of head.

(3) List number of each kind of livestock to be watered _____

(4) Name of municipality to be served _____, or number of families to be
supplied with domestic water _____.

(5) If water is to be used for other purposes describe: _____

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. The water in the Mora Drop has been appropriated for irrigation purposes for lands lying within the Boise Project.

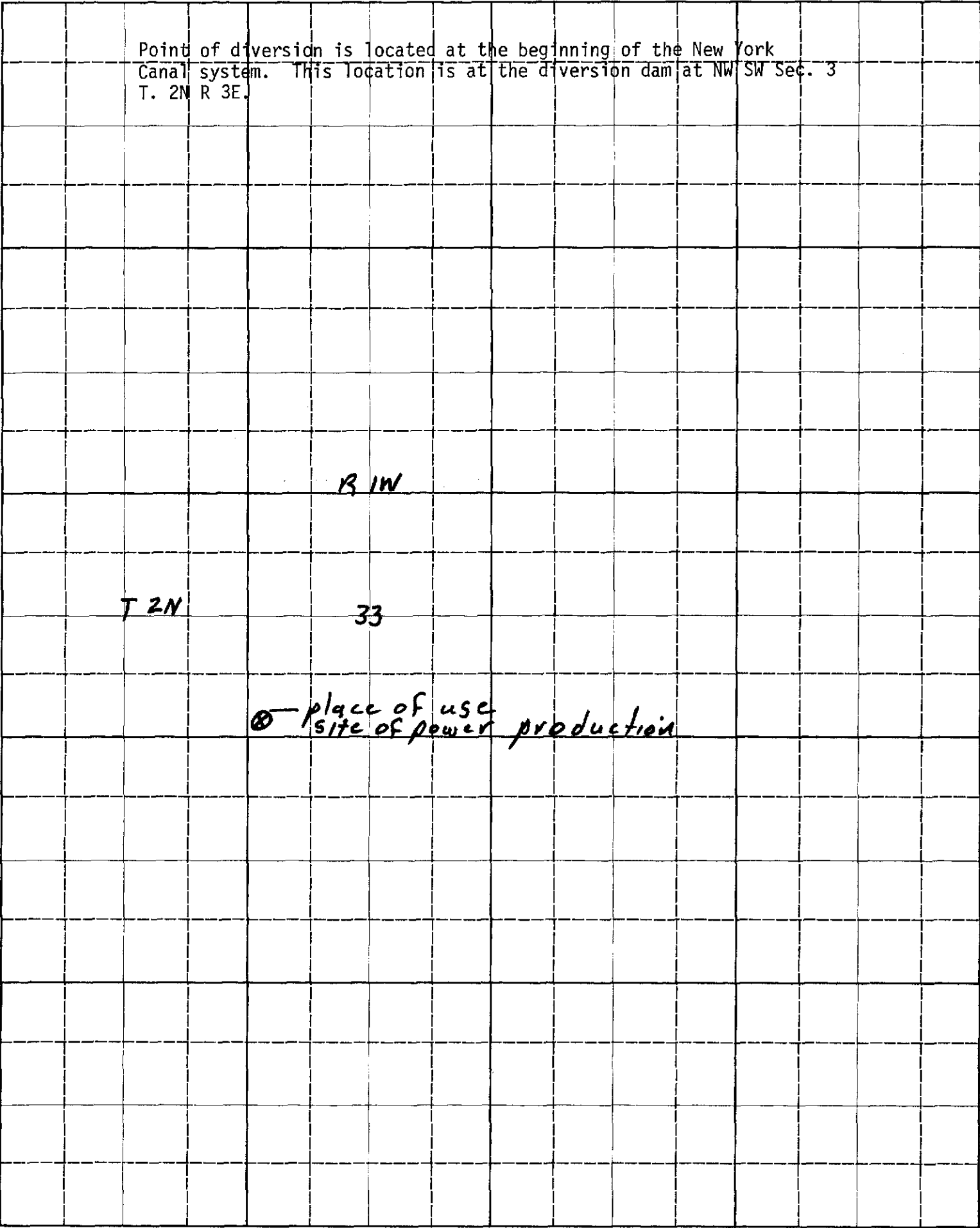
9. a. Who owns the property at the point of diversion U.S. Bureau of Reclamation

b. Who owns the land to be irrigated or place of use U.S. Bureau of Reclamation

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing The site is a part of the works of the Arrowrock Division of the Boise Project which have been transferred to the Board of Control for operation purposes pursuant to contract between the United States Department of

~~10. Remarks~~ the Interior and Boise-Kuna Irrigation District, the Nampa Meridian Irrigation District, the New York Irrigation District, Wilder Irrigation District and the Big Bend Irrigation Districts. The contract contemplates development of power at locations such as the Mora Drop and promises for distribution of power revenues among the contracting parties so it is presumed that adequate arrangements for use of Federal land to the extent not already made, may be achieved.

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.

Boise Project Board of Control

(Applicant)

Royce Van Cusen

Project Manager

Proposed Priority J.J. 1-5-79 1/5/79 4:45 PM
Received by AH Date 12-29-78 Time 12:00
Preliminary check by JJ Fee \$ 1505.00
Receipted by KW Date 1/08/79 # 12538
Publication prepared by KK Date 1-18-79
Published in Statesman
Publication dates 1/25 + 2/1
Publication approved KK Date OK
Protests filed by: _____

Copies of protests forwarded by _____
Hearing held by _____ Date _____
Recommended for approval denial by DBS J.S. Noy

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. 63-9206, and said application is hereby APPROVED.

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 March 1, 19 83.
- 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: (1) A measuring device of a type approved by this Department shall be permanently installed and maintained as part of the diverting works.

(2) The issuance of this permit in no way grants any right-of-way or easement across the land of another. (3) Use of water under this permit is subject to control by the watermaster of State Water District No. 63, Boise River. (4) 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. (5) That this permit is a new use of existing water rights.

Witness my hand this 5th day of March, 1979.

J. Glen Saylor
Chief, Operations Bureau

AFFIDAVIT TO ESTABLISH QUALIFICATION TO
DO BUSINESS UNDER THE LAWS OF THE STATE OF IDAHO.

STATE OF IDAHO)
) ss
County of Ada,)

CLARENCE L. GHARRING, Being first on oath duly sworn,
deposes and says:

That he is the Chairman of the Boise Project Board of Control; that the Boise Project Board of Control is an agency created as a result of contract entered into under the authority of Federal and State statutes, pursuant to which said Board of Control acts as operating agent for the Boise-Kuna Irrigation District, the Nampa-Meridian Irrigation District, the New York Irrigation District and Wilder Irrigation District, all located in the state of Idaho, and the Big Bend Irrigation District, located in the state of Oregon. Under the provisions of an Act of Congress dated June 17, 1902 (32 Stat. 388) and acts amendatory thereof and supplemental thereto, and particularly under the provisions of Section 4 of an Act of Congress dated December 5, 1924 (43 Stat. 672,701, now Sections 500 and 501, Chapter 12, Title 43 U.S.C.A.) and has such statutory recognition as a quasi-municipal corporation, authorized to do business in the state of Idaho pursuant to the provisions of Section 57-104, Idaho Code; that the registered office of the Boise Project Board of Control is 214 Broadway Avenue, Boise, Idaho 83702, wherein are kept all of the records required to be kept under the provisions of Section 30-144 applicable to irrigation districts.

Clarence L. Gharring
Clarence L. Gharring

SUBSCRIBED AND SWORN To before me this 26th day of August, 1977.

Margaret A. Lambert
Notary Public for Idaho
Residence: Boise, Idaho

RECEIVED
AUG 28 1977
IDAHO

**NOTICE OF APPLICATION FOR
WATER RIGHT**

Notice is hereby given that the following application(s) have been submitted for permit to appropriate the public waters of the State of Idaho:

63-9206

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE, BOISE,
ID 83702

Source: BOISE RIVER tributary to
SNAKE RIVER

Date Filed: 01/05/1979

Amount: 900.00 CFS

Diversion Point: NWSW Sec 03 T 02N
R 03E, ADA Co.

Use: POWER (900.00 CFS) from 03/15
to 11/15

Place of Use: SWSW Sec 33 T 02N R
01W

Diversion Means: CANAL & HYDRO
TURBINES

63-9205

BOISE WATER CORPORATION
500 IDAHO STREET, P.O. BOX 7488,
BOISE, ID 83707

Source: GROUNDWATER

Date Filed: 01/09/1979

Amount: 4.00 CFS

Diversion Point: NENW Sec 35 T 04N
R 01E, ADA Co.

Use: MUNICIPAL (4.00 CFS) from
01/01 to 12/31

PLACE OF USE: Within Boise Water
Corp. Service Area

Diversion Means: WELL & TUR-
BINE

63-9204

BOISE WATER CORPORATION
P.O. BOX 7488, BOISE, ID 83707

Source: GROUNDWATER

Date Filed: 01/09/1979

Amount: 4.00 CFS

Diversion Point: NWSW Sec 27 T 04N
R 01E, ADA Co.

Use: MUNICIPAL (4.00 CFS) from
01/01 to 12/31

PLACE OF USE: Within Boise Water
Corp. Service Area

Diversion Means: WELL & TUR-
BINE

63-9201

RISCH, JAMES E.
RT. #3, SOUTH COLE ROAD,
BOISE, ID 83705

Source: GROUNDWATER

Date Filed: 01/15/1979

Amount: 3.20 CFS

Diversion Point: NWNW NENW
SWNW SENW Sec 33 T 02N R 02E, ADA
Co.

Use: IRRIGATION (3.20 CFS) from
03/15 to 11/15

Place of Use: NENW NWNW SWNW
SENW Sec 33 T 02N R 02E FOR 160
ACRES

Diversion Means: WELL & PUMP

63-9200

STAUBER, RICHARD L. &/or RUBY
M.
6099 N. 9TH ST., FRESNO, CA 93710

Source: GROUNDWATER

Date Filed: 01/15/1979

Amount: 0.18 CFS

Diversion Point: NENW NWNE Sec
07 T 04N R 01E, ADA Co.

Use: DOMESTIC (0.08 CFS) from
01/01 to 12/31

IRRIGATION (0.10 CFS) from
03/15 to 11/15

Place of Use: NWNE NENW Sec 07 T
04N R 01E FOR 6 ACRES

Diversion Means: WELL & PUMP

If issued, the permit(s) will be sub-
ject 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, 92 S.
Cole Road, Boise, Idaho 83705 on or be-
fore FEBRUARY 12, 1979.

C. STEPHEN ALLRED
Director

Pub.: January 25; February 1, 1979 1433

OK 2/12/79
STATE OF IDAHO)

) ss.

COUNTY OF ADA)

Nancy Smith, being duly
sworn, deposes and says: That she is the Principal
Clerk of The Idaho Statesman, a daily newspaper
printed and published at Boise, Ada County, State
of Idaho, and having a general circulation therein
and which said newspaper has been continuously and
uninterruptedly published in said County during a
period of twelve consecutive months prior to the
first publication of the notice, a copy of which
is attached hereto; that said notice was published
in the regular edition of The Idaho Statesman for

two insertions, beginning with the
issue of January 25, 1979, and ending with the
issue of February 1, 1979.

Nancy Smith
Subscribed and sworn to before me this 1st
day of February, 1979.

Shirley E. Jensen
Notary Public for Idaho, Residing at Boise, Idaho

RECEIVED

FEB 4 1979

Department of Water Resources
Boise, Idaho



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

March 14, 2000

DIRK KEMPTHORNE
GOVERNOR

KARL J. DREHER
DIRECTOR

JUDITH A JEMMETT
SECRETARY/TREASURER
BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE ID 83705-3173

RE: Permit Nos. 63-09206 and 63-10230

Dear Permit Holder:

Enclosed are copies of the approved requests for extension of time submitted in connection with the above referenced permits which extend the time within which to submit proof of beneficial use to **March 1, 2005**. Please note that the department has granted this extension based on a **delay caused by litigation**. It is important that you work diligently toward the completion of the development during the construction period allowed since the department may not be able to grant additional extensions in connection with these permits.

Section 42-248, Idaho Code, requires you or the owner of the water rights to maintain current ownership and address records on file with the department. Please contact any office of the department for the proper form to file a change of ownership of a water right and/or a change in the address of the owner.

Please contact me at (208)327-7953, if you have any questions regarding this matter.

Sincerely,

Deborah Drew-Ellis
Administrative Assistant
Water Allocation Bureau

Enclosure

c: IDWR - Regional Office

MICROFILMED
MAR 20 2000

ANALYSIS SHEET FOR EXTENSION OF TIME

Permit No. 63-09206 Reviewed by dde Date 3/14/00

BASIC INFORMATION

2/14 Date stamp received
Yes Extension received timely
Yes Fee received and receipted
Yes Name and signature same as permit
No Address Change

BASIS FOR EXTENSION REQUEST

Yes Has adequate work been completed to demonstrate due diligence?
Yes Has the permit been involved in litigation?
Is supporting documentation needed to complete the file? No Requested? _____
Yes Is delay by a government agency?
Is supporting documentation needed to complete the file? No Requested? _____
No Is the project more than 25,000 acre feet for irrigation or 10,000 acre feet for a reservoir?

ACTION TAKEN

Approve & extend proof of beneficial use to 3/1/2005. Extensive Litigation and Gov Agencies have caused delays.

PRIORITY CALCULATION

Date extension received	_____	=	_____
Proof due date	_____	=	_____
Number of days late	_____	=	_____
Priority date	_____	=	_____
New Priority Date	_____	=	_____

DATA ENTRY

New Address No
Change Proof Due Date 3/1/2005
Change Priority Date No

dde
3/14

RECEIPT
For Monies Paid
to the
Idaho Department of Water Resources

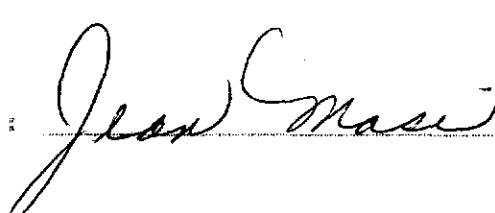
Receipt No: 0048253

Date: 3/ 1/2000
Time: 13:44:21

Received
From: HAWLEY TROXELL ENNIS

Type of Payment	Program Acct	Amount
EXTENSIONS, #63-09206	56103 229 21 1155	50.00
CHECK 56459		
	Total	\$ 50.00

Region: STATE

Signature: 

MICROFILMED
MAR 20 2000

ATTACHMENT TO THE BOISE PROJECT BOARD OF CONTROL'S
REQUEST FOR EXTENSION OF TIME ON
PERMIT NO. 63-09206 (MORA DROP)

March 1, 2000

The Boise Project Board of Control requests an extension of time to submit proof of beneficial use for Permit No. 63-09206 (Mora Drop Lowhead Hydroelectric Project). The Project is on one of the canals in the system operated by the Board of Control. The basis for the Board of Control's request is based on Idaho Code § 42-204(1) in that there was litigation among the Board of Control's member districts, the United States of America and its various agencies, and the Nez Perce Tribe which might have brought the title to the water requested for this Project into question.

The Board of Control applied for Permit No. 63-09206 on behalf of its member districts, the Boise-Kuna Irrigation District, the Nampa & Meridian Irrigation District, the New York Irrigation District, the Wilder Irrigation District, and the Big Bend Irrigation District. The Department granted an extension of time until March 1, 2000, to submit proof of beneficial use because of litigation among these Districts.

The pendency of that litigation and its possible precedential effects for the interests in Water Permit No. 63-09206 made it difficult for the Districts to proceed with the development of this Project, although they did make significant development efforts. By the time that litigation was resolved in 1994, the Idaho Public Utilities Commission began changing the rules under which small power projects are developed. These changes led to substantial uncertainty about how small power projects can be developed.

MICROFILMED

MAR 20 2000

In March 1993, the Nez Perce Tribe filed 1134 claims in the Snake River Basin Adjudication ("SRBA") seeking instream flow claims, both on and off the reservation, including some claims outside even the aboriginal territory of the Nez Perce Tribe. The United States filed 1133 identical claims as Trustee on behalf of the Tribe. The Districts who are Applicants here filed objections to those instream flow claims. On April 1, 1996, the district court entered an Order in the SRBA consolidating all instream flow claims filed by the Nez Perce Tribe and the United States, as Trustee, for the benefit of the Nez Perce Tribe, Subcase No. 03-10022. Between 1997 and 1999, extensive pretrial discovery and preparation took place in this consolidated subcase. On November 10, 1999, the district court issued an Order and Judgment granting Objectors' motions for partial summary judgment, together with an I.R.C.P. 54(b) Certificate. The Judgment was limited to those claims in the consolidated subcases located outside the present boundaries of the Nez Perce Reservation, which include the area where this Project is located. The Tribe filed a Notice of Appeal from this ruling on November 17, 1999. The United States filed its Notice of Appeal on December 21, 1999, and an Amended Notice of Appeal on February 1, 2000. On February 11, 2000, the Tribe filed a pleading in the consolidated subcase asserting, despite prior protestations to the contrary, that these federal and Tribal instream flow claims sought the entire flow of every river in Southern Idaho at the time that the irrigators need the water. On February 27, 2000, the United States joined in this presentation. Thus, if the instream flow claim is as broad as the Tribe contends, it would potentially impact the ability of the Board of Control to divert water into the canals where this Project would be located to generate electricity.

MICROFILMED
MAR 20 2000

In addition to the litigation with the Nez Perce and United States, there are numerous administrative and legal proceedings pending before or against the National Marine Fisheries Service ("NMFS") concerning water use for recovery of listed threatened and endangered species.

NMFS listed Snake River sockeye as an endangered species on November 20, 1991, 56 Fed. Reg. 58619 (Nov. 20, 1991), and the Snake River spring/summer and fall chinook as threatened species on April 22, 1992. 57 Fed. Reg. 14653 (April 22, 1992). On December 28, 1993, NMFS designated critical habitat for the threatened and endangered Snake River sockeye and chinook salmon. 58 Fed. Reg. 68543 (December 28, 1993). The designation for all three species includes the Columbia and Snake Rivers' migratory corridor from the salmon's freshwater spawning grounds through the lower Snake and Columbia Rivers to the Pacific Ocean. *Id.* at 68546. In October 1999, NMFS made revisions to the critical habitat designation for Snake River spring and summer chinook. 64 Fed. Reg. 57399 (October 25, 1999). On August 18, 1997, NMFS listed Upper Columbia River steelhead as endangered and Snake River steelhead as threatened species. 62 Fed. Reg. 43937 (August 18, 1997). On March 18, 1998, NMFS listed Lower Columbia River steelhead as threatened. 63 Fed. Reg. 13347 (March 19, 1998). On March 24, 1999, NMFS listed Upper Columbia River spring-run chinook as endangered and Lower Columbia River chinook as threatened. *See* 64 Fed. Reg. 14308 (March 24, 1999). NMFS had proposed a critical habitat designation for these species in March 1998. *See* 63 Fed. Reg. 11482 (March 9, 1998). On March 24 and 25, 1999, NMFS listed as threatened two additional anadromous fish populations affected by Columbia River Basin flows: the mid-Columbia steelhead and the Columbia chum salmon.

MICROFILMED

MAR 20 2000

64 Fed. Reg. 14517 (March 25, 1999) (middle Columbia steelhead); 64 Fed. Reg. 14507 (March 25, 1999) (Columbia River chum). Critical habitat for the Columbia chum also had been proposed in March 1998. 63 Fed. Reg. 11482 (March 9, 1998). A critical habitat designation for all of the Columbia and Snake steelhead stocks was proposed on February 5, 1999. See 64 Fed. Reg. 5740 (February 5, 1999). On February 16, 2000, NMFS announced a final critical habitat designation for these species. 65 Fed. Reg. 7764 (February 16, 2000).

NMFS issued its 1995 Biological Opinion on operations of the Federal Columbia River Hydropower System. See NMFS, "Basis for Flow Objectives for Operation of the Federal Columbia River Power System" (Feb. 1995). This 1995 Biological Opinion was the subject of litigation which included questions of delivery of flows from the Upper Snake River Basin. See *American Rivers v. NMFS* (Oregon March 1996). See attached.

In 1999 the Bureau of Reclamation ("BOR") issued its Biological Opinion for activities upstream of the Lower Granite Dam in the Snake River Basin dealing with BOR's actions and the potential to affect listed fish species in the Snake River and its tributaries above the four federal dams on the Lower Snake River. This 1999 Biological Opinion suggests that the BOR's efforts to obtain flow augmentation from the Upper Snake River Basin of 427 thousand acre-feet should be continued. This Biological Opinion is also the subject of litigation which contends that additional flows from the Upper Snake River Basin are necessary beyond those requested in the 1995 and 1999 Biological Opinions. *Trout Unlimited v. NMFS* (D. Oregon, February 23, 2000). See attached.

Despite the extensive litigation and the administrative agency proceedings described above, the Board of Control has spent over \$90,000 on project development since

MICROFILMED

FEB 20 2000

January of 1992. Two pieces of property were purchased for approximately \$18,500. John J. Straubhar, P.E., formerly of Power Engineers, was retained as a consulting engineer. Confirmation was received from the Department of Water Resources that a stream channel alteration permit was not necessary. Discussions occurred with the Bureau of Reclamation concerning a special use permit and the Army Corps of Engineers concerning a 404 Permit.

The consulting engineer made revised estimates of generation based on a monthly flow analysis. Negotiations began with Idaho Power Company on a power sales contract. The Districts discussed financing with several financial institutions. The Board of Control and its Districts obtained amendments to Idaho Code, Title 43, Chapter 23, in 1993 to allow more flexible financing. Since then the Districts have retained a new consulting engineer, C.T. McCreedy, who has been in contract with several potential developers of this Project. The Board of Control and its member Districts clearly have proceeded and are continuing to proceed diligently and in good faith. While the litigation with the United States and Tribe over flows to water in southern Idaho is not yet over, the summary judgment against the Tribe's claims is encouraging news for development of this Project.

Thank you for considering this request for an extension. A \$50 check is enclosed. If the Department needs additional information on these matters, could it please communicate with the Board of Control's attorney, Albert P. Barker, Hawley Troxell Ennis & Hawley LLP, P.O. Box 1617, Boise, Idaho 83701-1617, Tel: (208) 344-6000, FAX: (208) 342-3829.

MICROFILMED
MAR 29 2000

COPY

1 TODD D. TRUE (WSB# 12864)
Sierra Club Legal Defense Fund
2 705 Second Avenue, Suite 203
Seattle, Washington 98104-1711
3 (206) 343-7340

4 DANIEL J. ROHLF
10015 S.W. Terwilliger Blvd.
5 Portland, OR 97219-7799
(503) 768-6707

6 Attorneys for Plaintiffs

7 THANE TIENSON (OSB# 77374)
8 Copeland, Landye, Bennett and Wolf
3500 First Interstate Tower
9 Portland, Oregon 97201
(503) 224-4100

10 Local Counsel for Plaintiffs

11 IN THE UNITED STATES DISTRICT COURT
12 FOR THE DISTRICT OF OREGON

13 AMERICAN RIVERS, IDAHO RIVERS)
14 UNITED, ONRC ACTION, IDAHO)
STEELHEAD AND SALMON UNLIMITED,)
15 NORTHWEST SPORT FISHING INDUSTRY)
ASSOCIATION, PACIFIC COAST)
16 FEDERATION OF FISHERMEN'S)
ASSOCIATIONS, INSTITUTE FOR)
17 FISHERIES RESOURCES, FEDERATION)
OF FLY FISHERS, TROUT UNLIMITED,)
18 and SIERRA CLUB,)

19 Plaintiffs,)

20 v.)

21 THE NATIONAL MARINE FISHERIES)
SERVICE; THE UNITED STATES ARMY)
22 CORPS OF ENGINEERS; and)
THE UNITED STATES BUREAU OF)
23 RECLAMATION,)
Defendants.)

24

25 PRELIMINARY STATEMENT

26 1. This case challenges actions of the United States Army
27 Corps of Engineers, the United States Bureau of Reclamation, and

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF - 1 -

RECEIVED

FEB 14 2000

Department of Water Resources

No. _____
COMPLAINT FOR DECLARATORY
JUDGMENT AND INJUNCTIVE
RELIEF

MICROFILMED

MAR 2 8 2000

1 the National Marine Fisheries Service regarding 1995-1998
2 operations of the Federal Columbia River Power System ("FCRPS")
3 and the adverse impacts of those actions on endangered Snake
4 River sockeye salmon and spring/summer and fall chinook salmon.
5 This case arises under and asserts violations of the Endangered
6 Species Act ("ESA"), 16 U.S.C. § 1531 et seq., and its
7 implementing regulations, 50 C.F.R. Part 400 et seq., and the
8 Administrative Procedure Act ("APA"), 5 U.S.C. § 551 et seq.

9 2. Specifically, the National Marine Fisheries Service
10 ("NMFS") has violated ESA § 7, 16 U.S.C. § 1536, and its
11 implementing regulations by issuing a biological opinion (the
12 "1995 BiOp") under § 7 which fails to provide any rational
13 explanation for NMFS' conclusion that 1995-1998 FCRPS operations,
14 as modified by the "reasonable and prudent alternative" ("RPA")
15 set forth in the 1995 BiOp, will not jeopardize listed salmon or
16 adversely modify the species' critical habitat.

17 3. The United States Army Corps of Engineers ("Corps"),
18 and the United States Bureau of Reclamation ("Bureau") also have
19 violated and are violating ESA § 7 and its implementing
20 regulations by operating the FCRPS in a manner (a) that is
21 inconsistent with the terms of the RPA for 1995-1998 FCRPS
22 operations; and, (b) that fails to ensure against actions which
23 jeopardize the continued existence of the endangered Snake River
24 salmon and result in the adverse modification of the salmon's
25 critical habitat.

26 4. In addition, defendants have violated ESA § 7 and its
27 implementing regulations by failing to seek, or undertake, re-

RECEIVED
MAR 10 2000

1 initiation of consultation on the effects of FCRPS operations on
2 listed salmon in light of the failure of the Corps and Bureau to
3 comply with the terms of the RPA in the 1995 BiOp.

4 5. Finally, defendants have violated ESA §§ 7 and 9, 16
5 U.S.C. §§ 1536, 1538, by, with respect to NMFS, issuing an
6 "incidental take statement" for 1995-1998 FCRPS operations that
7 fails to set forth reasonable and prudent measures that are
8 necessary to minimize incidental taking of listed salmon and,
9 with respect to the Corps and Bureau, by taking listed salmon in
10 violation of the ESA and in excess of the take allowed under
11 NMFS' incidental take statement.

12 6. Plaintiffs ask this Court to remedy defendants'
13 violations of the ESA by enjoining defendants to comply with the
14 terms of the "reasonable and prudent alternative" as set forth in
15 NMFS' biological opinion for 1995-1998 FCRPS operations, or,
16 alternatively, directing defendants to re-initiate consultation
17 on 1995-1998 FCRPS operations in light of defendants' failure to
18 implement the requirements of the RPA. Separately, plaintiffs
19 also seek a declaration that NMFS failed to articulate a rational
20 basis for its conclusion that the RPA in the 1995 BiOp will
21 prevent jeopardy to listed salmon and avoid adverse modification
22 of their critical habitat.

23 7. In addition, plaintiffs seek a declaration that the
24 "incidental take statement" in the 1995 BiOp violates ESA §§ 7
25 and 9 and that defendants, in any event, have failed to comply
26
27

1 with the terms of this incidental take statement.¹¹

2 JURISDICTION AND VENUE

3 8. Jurisdiction over this action is conferred by 16 U.S.C.
4 § 1540(g)(1)(A) (ESA citizens' suit) and 28 U.S.C. §§ 1331
5 (federal question), 2201 (declaratory relief), and 2202
6 (injunctive relief). A copy of plaintiffs' 60-day Notice of
7 Intent to Sue, dated July 11, 1995, is attached hereto as Exhibit
8 A.

9 9. Venue is properly vested in this Court under 28 U.S.C.
10 § 1391(e), as some plaintiffs reside in this district and a
11 substantial part of the events or omissions giving rise to the
12 claims occur in this district. Venue also is properly vested in
13 this Court under 16 U.S.C. 1540(g)(3)(A) as all or part of the
14 violations of the ESA alleged herein occur in this district.

15 PARTIES

16 10. The plaintiffs in this action are:

17 A. American Rivers, a national conservation
18 organization with its principal place of business in Washington,
19 D.C. and a Pacific Northwest office in Seattle, Washington.
20 American Rivers and its approximately 15,000 members are devoted
21 to protecting and restoring the nation's outstanding rivers and
22 their landscapes and are active in pursuing environmental
23 safeguards in national hydropower policy.

24
25 11/ Plaintiffs have alleged in their 60-day notice of intent to
26 sue (a copy of which is attached hereto as Exhibit A) violations
27 of the ESA that may not be specifically addressed in this
complaint. Plaintiffs do not waive these allegations by their
omission from this complaint. Plaintiffs reserve the right, at
any time, to seek to amend this complaint or take other
appropriate steps to pursue these violations.

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF

- 4 -

1 B. Idaho Rivers United ("IRU"), a non-profit
2 corporation organized under the laws of the State of Idaho with a
3 principal place of business in Boise, Idaho. IRU and its
4 approximately 1000 members throughout the State of Idaho are
5 dedicated to the protection and restoration of Idaho's rivers and
6 river resources.

7 C. Pacific Coast Federation of Fishermen's
8 Associations ("PCFFA"), the largest organization of commercial
9 fishermen on the west coast, with member organizations from San
10 Diego to Alaska representing thousands of men and women in the
11 Pacific fleet. Many of PCFFA's members are salmon fishermen
12 whose livelihoods depend upon salmon as a natural resource and
13 who, until recent fisheries closures, generated hundreds of
14 millions of dollars in personal income impacts to the region.
15 PCFFA has its main office in Sausalito, California, and a
16 Northwest regional office in Eugene, Oregon.

17 D. Institute for Fisheries Resources, a nonprofit
18 corporation that constitutes the conservation arm of PCFFA and
19 shares PCFFA's offices in Sausalito, California and Eugene,
20 Oregon.

21 E. ONRC Action ("ONRC"), a registered Oregon non-
22 profit corporation with its principal place of business in
23 Portland, Oregon and 6,000 members throughout the state of Oregon
24 and the Pacific Northwest. ONRC and its members are dedicated to
25 protecting and conserving Oregon's wildlife, lands, waters, and
26 natural resources, including the anadromous fish of the Columbia
27 and Snake Rivers and their tributaries.

1 F. Sierra Club, a national environmental organization
2 founded in 1892 and devoted to the study and protection of the
3 earth's scenic and ecological resources -- mountains, wetlands,
4 woodlands, wild shores and rivers, deserts, plains, and their
5 wild flora and fauna. Sierra Club has some 60 chapters in the
6 United States and Canada, including chapters in Washington,
7 Oregon and Idaho, and a principal place of business in San
8 Francisco, California.

9 G. Federation of Fly Fishers ("FFF"), a national
10 organization with approximately 10,000 members dedicated to
11 promoting fly-fishing as a recreational use of aquatic resources
12 and to preserving, protecting and restoring aquatic resources,
13 including water, fauna and riparian lands. FFF has a principal
14 place of business in West Yellowstone, Montana and regional
15 councils or chapters in Washington, Oregon, Idaho, Montana, and
16 British Columbia.

17 H. Trout Unlimited ("TU"), a non-profit coldwater
18 fisheries conservation organization with national headquarters in
19 Washington, D.C. TU is dedicated to the protection of wild
20 trout, salmon and steelhead fishery resources. TU has
21 approximately 35,000 members nationwide and 8,000 members in the
22 states of Oregon, Washington, Idaho, and Montana. TU's members
23 live and recreate in the Columbia River Basin and TU has long
24 participated in efforts to maintain and restore Snake River and
25 Columbia River Basin anadromous fish.

26 I. Idaho Steelhead and Salmon United ("ISSU"), a
27 registered Idaho non-profit corporation with 2300 members from 31

1 states and a board of directors from Idaho, Washington, and
2 Montana. ISSU's members comprise a diverse group of business
3 people, guides, conservationists, sportsfishers, and concerned
4 citizens formed to protect, preserve and restore Idaho's
5 anadromous resources.

6 J. The Northwest Sportfishing Industry Association
7 ("NSIA"), dedicated to protecting rivers, lakes, and streams,
8 healthy and full of fish. NSIA is a trade association of several
9 hundred sporting goods manufacturers, wholesalers, retailers,
10 marinas, guides, and charter boat operators. About 60 percent of
11 the member businesses are located in Washington, 30 percent in
12 Oregon, and the remainder are national organizations. NSIA's
13 principal place of business is Oregon City, Oregon.

14 11. Plaintiffs and their members use the Columbia and Snake
15 Rivers and their tributaries throughout Idaho, Oregon, and
16 Washington for recreational, scientific, aesthetic, and
17 commercial purposes. Plaintiffs and their members derive or, but
18 for the endangered status of the Snake River salmon, would derive
19 recreational, scientific, aesthetic, and commercial benefits from
20 the existence in the wild of Snake River sockeye and chinook
21 through wildlife observation, study and photography and
22 recreational and commercial fishing within the Columbia and Snake
23 River basins and the Pacific Ocean. The past, present and future
24 enjoyment of these benefits by plaintiffs and their members has
25 been, is being, and will continue to be irreparably harmed by
26 defendants' disregard of their statutory duties, as described
27 below, and by the unlawful injuries imposed on the Snake River

1 salmon by defendants' management of the FCRPS.

2 12. The above-described aesthetic, conservation,
3 recreational, commercial, scientific, and procedural interests of
4 plaintiffs and their respective members have been, are being,
5 and, unless the relief prayed for herein is granted, will
6 continue to be adversely affected and irreparably injured by the
7 failure of defendants to comply with the ESA as described below.
8 Plaintiffs have no adequate remedy at law.

9 13. The defendants in this action are:

10 A. The National Marine Fisheries Service, an agency
11 of the United States Department of Commerce responsible for
12 administering the provisions of the Endangered Species Act with
13 regard to threatened and endangered Snake River salmon.

14 B. The United States Army Corps of Engineers, an
15 agency of the United States Department of the Army that operates
16 federal hydroelectric and flood control projects in the Columbia
17 and Snake River basins.

18 C. The United States Bureau of Reclamation, an agency
19 of the United States Department of the Interior that operates
20 federal water storage and irrigation projects in the Columbia and
21 Snake River basins.

22 FACTS

23 I. GENERAL BACKGROUND

24 14. Snake River sockeye and chinook salmon are anadromous
25 fish. They are born and rear in fresh water, live as adults in
26 the Pacific Ocean, and return to their natal streams and lakes to
27 spawn and die, starting the process anew for the next generation.

1 During the course of their juvenile and adult migrations, these
2 salmon must pass eight of the reservoirs and dams that comprise
3 the Federal Columbia River Power System. The conditions and
4 success of the salmon's migrations are influenced by defendants'
5 decisions regarding operation of these eight projects and storage
6 and release of water from other projects in the FCRPS.

7 15. Populations of Snake River salmon have declined
8 precipitously since the advent of European settlement. Snake
9 River coho are extinct. No adult Snake River sockeye, a species
10 that once sustained an active recreational and commercial
11 fishery, returned to spawn in 1994. Snake River spring and
12 summer chinook, whose population once exceeded 1.5 million adult
13 fish per year, averaged only 9,674 wild fish per year from 1980
14 through 1990. In 1994, a mere 1822 wild spring/summer chinook
15 were estimated to have passed Lower Granite dam, the last FCRPS
16 dam separating these fish from their spawning grounds. The
17 population of Snake River fall chinook, once the most important
18 fall chinook stock in the Columbia River basin, declined to 78
19 wild fish in 1990 and 742 wild adults in 1993.

20 16. The construction and operation of hydroelectric, flood
21 control, and water storage projects in the Snake and Columbia
22 River basins are the primary cause of the Snake River salmon's
23 declines. The projects eliminated access to large areas of
24 spawning and rearing habitat and altered river conditions to the
25 detriment of migrating juvenile and adult salmon.

26 17. The FCRPS projects reduce river velocity during the
27 spring and summer migration periods through a combination of

1 upstream water storage and creation of slackwater reservoirs
2 behind project dams. Reduced river velocities cause direct and
3 indirect mortality to migrating salmon from premature saltwater
4 transformation, residualism (i.e., loss of the migratory urge and
5 permanent residence in the freshwater habitat), increased
6 exposure to predation, disease and elevated water temperatures,
7 and delayed arrival at the estuary. Passage through project
8 turbines and other mechanical structures also increases salmon
9 mortality. For example, NMFS estimates a cumulative annual
10 mortality of 35% to 96% for juvenile Snake River migrants and
11 15.4 to 39.3% for adult migrants, depending on species, from
12 passage through the FCRPS under the Corps and Bureau's proposed
13 1995-1998 FCRPS operations. Actual mortality is likely to be
14 even higher because of defendants' failures to take sufficient
15 compensatory actions, including, but not limited to, the
16 violations of law described herein.

17 18. In 1990, several Native American tribes and
18 conservation groups, including some of the plaintiffs in this
19 case, petitioned for protection of Snake River sockeye and
20 spring, summer and fall chinook under the ESA. NMFS listed the
21 Snake River sockeye as an endangered species on November 20,
22 1991, see 56 Fed. Reg. 53619 (Nov. 20, 1991), and the Snake River
23 spring/summer and fall chinook as threatened species on April 22,
24 1992, see 57 Fed. Reg. 14653 (April 22, 1992).

25 19. On December 28, 1993, NMFS designated critical habitat
26 for the threatened and endangered Snake River salmon. See 58
27 Fed. Reg. 68543 (Dec. 28, 1993). The designation for all three

1 species included the migratory corridor from the salmon's
2 freshwater spawning grounds through the lower Snake and Columbia
3 Rivers to the Pacific Ocean. Id. at 68546. NMFS identified
4 "water velocity" and "migration conditions" as two of the
5 essential features of critical habitat for the species. Id.

6 20. On August 18, 1994, by emergency rule, NMFS
7 reclassified the previously threatened Snake River spring/summer
8 and fall chinook as endangered. 59 Fed. Reg. 42,529 (Aug. 18,
9 1994); see also 59 Fed. Reg. 66,784 (Dec. 28, 1994) (proposed
10 rule making reclassification permanent).

11 II. FCRPS OPERATIONS UNDER THE ESA AND RELATED LITIGATION

12 21. The 1995 BiOp is the fourth biological opinion on FCRPS
13 operations issued by NMFS since listing of the Snake River
14 salmon. Litigation over the first and second FCRPS biological
15 opinions and agency actions has concluded. See, e.g., Pacific
16 Northwest Generating Co-op v. Brown, 822 F.Supp. 1479 (D. Ore.
17 1993), aff'd in part and rev'd in part, 38 F.3d 1058 (9th Cir.
18 1994) (litigation over the 1992 biological opinion); Idaho
19 Department of Fish & Game v. NMFS, 850 F.Supp. 886 (D. Ore.
20 1994) (litigation over the 1993 biological opinion) ("IDFG v.
21 NMFS"). Litigation related to aspects of the later biological
22 opinions is still pending. See, e.g., American Rivers v. NMFS,
23 No. 94-940-MA, Order and Judgment (D. Ore. April 14, 1995),
24 appeal pending, Ninth Cir. No. 95-35462.

25 22. Of these prior cases, the Court's decision in IDFG v.
26 NMFS is most relevant to this case. In IDFG, the Court rejected
27 as arbitrary and capricious NMFS' no-jeopardy biological opinion

1 for 1993 FCRPS operations because, inter alia, the biological
2 opinion

3 (a) arbitrarily analyzed the proposed FCRPS operations
4 under a jeopardy standard that "focuse[d] more upon
5 system capability than upon the needs of the species,"
6 850 F. Supp. at 893 (emphasis in original); and,

7 (b) disregarded, without any rational explanation, the "low
8 end, worst case assumptions" for salmon survival as
9 well as the risks of inbreeding and an "extinction
10 vortex," id. at 893-99.

11 The Court also expressed concern that NMFS had not explained its
12 failure to re-initiate consultation on 1993 FCRPS operations
13 after it receive information about salmon survival that even some
14 of its own scientists describes as "significant" and "new." Id.
15 at 899.

16 23. With regard to all of these problems, the Court
17 observed that NMFS has a "substantive obligation" under the ESA
18 to consider "significant information and data from well-qualified
19 scientists such as the fisheries biologists from the states and
20 tribes." Id. at 900. The Court suggested that this obligation
21 had been shortchanged in the consultation process and,
22 consequently, concluded that the overall process not only
23 violated the ESA but also was

24 too heavily geared towards a status quo that has allowed all
25 forms of river activity to proceed in a deficit situation --
26 that is, relatively small steps, minor improvements and
27 adjustments -- when the situation literally cries out for a
major overhaul. Instead of looking for what can be done to
protect the species from jeopardy, NMFS and the action
agencies have narrowly focussed their attention on what the
establishment is capable of handling with minimal

1 disruption."

2 Id. at 900 (emphasis in original).

3 24. At about the same time the Court issued its opinion on
4 the 1993 BiOp, NMFS released a new no-jeopardy biological opinion
5 on 1994-1998 FCRPS operations that largely repeated the errors
6 identified by the Court in the 1993 opinion. In light of the
7 Court's ruling on the 1993 opinion, NMFS and the action agencies
8 proceeded immediately to reconsider this initial 1994-1998
9 opinion -- without withdrawing it -- and subsequently, on March
10 2, 1995, NMFS issued a new "jeopardy" biological opinion and a
11 new conceptual framework for avoiding jeopardy to the salmon
12 through adoption of a "reasonable and prudent alternative."

13 25. This new 1995 BiOp, which once again repeats the key
14 errors of past opinions, is the subject of this lawsuit.

15 III. THE 1995 BIOP VIOLATES ESA §§ 7 AND 9 AND IS NOT BEING
16 IMPLEMENTED ACCORDING TO ITS TERMS IN ANY EVENT

17 26. ESA § 7(a)(2) requires each federal agency to "insure
18 that any action authorized, funded or carried out by such agency
19 ... is not likely to jeopardize the continued existence of any
20 endangered species or threatened species or result in the
21 destruction or adverse modification of [the designated critical]
22 habitat of such species...." 16 U.S.C. § 1536(a)(2). NMFS has
23 defined "to jeopardize" under § 7(a)(2) as "to engage in an
24 action that reasonably would be expected, directly or indirectly,
25 to reduce appreciably the likelihood of both the survival and
26 recovery of a listed species in the wild by reducing the
27 reproduction, numbers, or distribution of that species." 50

C.F.R. § 402.02. NMFS has defined "destruction or adverse

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF - 13 -

1 modification" to mean "a direct or indirect alteration that
2 appreciably diminishes the value of critical habitat for both the
3 survival and recovery of a listed species." Id.

4 27. To assist the FCRPS operating agencies in complying
5 with the mandates of ESA § 7(a)(2), they must consult with NMFS
6 whenever their actions may affect a listed salmon species or its
7 designated critical habitat. 50 C.F.R. § 402.14. NMFS must then
8 issue a biological opinion that determines if the action is
9 likely to jeopardize the species or result in adverse
10 modification of its critical habitat; if so, NMFS shall suggest,
11 if possible, reasonable and prudent alternatives that it believes
12 will avoid jeopardy and adverse modification and allow the agency
13 to proceed with the action. 16 U.S.C. § 1536(b)(3)(A). In
14 making these determinations, NMFS must consider and rely on "the
15 best scientific and commercial data available." 16 U.S.C. §
16 1536(a)(2).

17 28. Once adopted by NMFS, the terms and conditions of a
18 "reasonable and prudent alternative" issued as part of a § 7
19 biological opinion must be followed by the action agencies. 16
20 U.S.C. § 1536(b)(3)(A); 50 C.F.R. §§ 402.02, 402.14(h)(3); IDFG
21 v. NMFS, 850 F.Supp. at 895.

22 29. In addition, ESA §§ 4(d) and 9(a)(1) and their
23 implementing regulations prohibit any person, including an agency
24 or instrumentality of the federal government, from taking members
25 of any threatened or endangered Snake River salmon species. See
26 16 U.S.C. §§ 1533(d), 1538(a)(1)(B); 50 C.F.R. §§ 17.21,
27 17.31(a). Federal agencies may obtain an exemptions from this

1 prohibition only through ESA § 7(b)(4), see 16 U.S.C. §§
2 1536(b)(4), 1536(o)(2).

3 30. ESA § 7(b)(4), in turn, requires NMFS to issue an
4 incidental take statement whenever a proposed federal agency
5 action will not jeopardize a protected salmon species, but will
6 result in incidental take of members of the species. See 16
7 U.S.C. § 1536(b)(4). The incidental take statement must specify
8 "those reasonable and prudent measures that the Secretary
9 considers necessary or appropriate to minimize such impact" and
10 "the terms and conditions ... that must be complied with by the
11 Federal agency ... to implement the measures." Id. Under §
12 7(b)(4), the action agencies and NMFS must minimize the
13 incidental take of Snake River salmon by FCRPS operations for
14 those operations to be lawful under the ESA.

15 A. The 1995 BiOp And RPA Do Not Avoid Jeopardy To Listed
16 Salmon Or Adverse Modification Of The Salmon's Critical
Habitat.

17 31. The 1995 BiOp (including the RPA) violates the above
18 legal standards in several fundamental and interrelated ways. As
19 it did in the 1993 BiOp, NMFS has both failed to provide a
20 reasoned explanation for its conclusion that the RPA will avoid
21 jeopardy to listed salmon, see IDFG v. NMFS, 850 F.Supp. at 893,
22 898-99, and relied solely on overly optimistic assumptions that
23 are contrary to the best data available and disregard relevant
24 risk factors affecting the status of the salmon and operations of
25 the FCRPS in order to reach a no-jeopardy conclusion, id.
26 Separately, the 1995 BiOp and RPA do not avoid adverse
27 modification of the salmon's critical habitat because the RPA

1 inexplicably fails to protect the critical habitat features
2 identified by NMFS as essential to conservation of the species.

3 (i). *The 1995 BiOp and RPA fail to articulate a*
4 *rational basis for concluding that 1995-1998*
5 *FCRPS operations will not cause jeopardy.*

6 32. The 1995 BiOp appears to set numeric survival and
7 recovery thresholds for spring/summer and fall chinook salmon in
8 line with the recommendations of the inter-agency Biological
9 Requirements Work Group (BRWG). 1995 BiOp at 24-31. However,
10 passage and life-cycle modelling of actions similar to the final
11 RPA demonstrate that the RPA fails to achieve these no-jeopardy
12 thresholds even under the most optimistic assumptions.

13 33. For example, while defendants analyze the RPA primarily
14 under life-cycle models sponsored by the BPA and the state and
15 tribal fish agencies (STFA), under either model, the RPA achieves
16 some of the designated survival standards for spring/summer
17 chinook only if certain favorable assumptions are made regarding
18 predator reduction, transportation survival, absence of low-
19 population effects, reductions in egg-to-smolt and prespawning
20 mortality, and installation and effectiveness of surface
21 collectors. See NMFS, Life-Cycle and Passage Model Analyses
22 Considered in Evaluating Effects of Actions During Reinitiation
23 of Consultation on the Biological Opinion on 1994-1998 Operation
24 of the Federal Columbia River Power System at 27-29, 50-51
25 (hereafter "Modelling App."). The recovery thresholds for
26 spring/summer chinook are not met by the RPA under even
27 optimistic assumptions. *Id.* at 27-30, 50-52.

34. Similarly, NMFS "believes that it is safer to give

1 greater weight to model results that are based on an assumption
2 of depensation at low population levels." Id. at 15. However,
3 the only modelling runs that show attainment of spring/summer
4 chinook survival levels under the RPA assume no depensation at
5 low population levels. Id. at 27-29. Likewise, the only BPA
6 modelling run that achieves survival goals for spring/summer
7 chinook assumes either a virtually 0% harvest rate or freshwater
8 habitat survival improvements that NMFS concludes "do not appear
9 as reasonable as alternative assumptions." 1995 BiOp at 85. All
10 of the optimistic models also assume survival improvements due to
11 predator reduction that are unsupported by the results of the
12 squawfish harvest program to date and, at best, are no more
13 reasonable than the alternate assumptions contained in the model
14 runs that do not attain survival or recovery.

15 35. Finally, the optimistic model runs assume that surface
16 collectors will be installed and providing 80% fish passage
17 efficiency (FPE) at all eight mainstem dams by 2003. The 1995
18 BiOp provides no evidence to suggest that this untested
19 technology, currently in use at only one mid-Columbia River dam,
20 will be operational and effective within this time frame.
21 Moreover, the surface collector that is in operation is used to
22 bypass fish back to the river; there is no evidence that surface
23 collectors would improve transportation benefits as assumed by
24 the models. Should the assumptions about surface collectors
25 prove incorrect, the agencies will not be able to turn back the
26 clock, reverse their no-jeopardy determination, and put in place
27 measures that will actually assure the survival of the salmon.

1 36. Separately, NMFS and the action agencies ignore
2 recognized risks to listed salmon in order to reach a no-jeopardy
3 conclusion on the RPA. For example, as noted above, NMFS seems
4 to account for low-population risks by concluding that it will
5 give greater weight to life-cycle model results that assume
6 depensation. Modelling App. at 14-16. However, the only model
7 runs that achieve survival thresholds under the RPA assume no
8 depensation. Id. at 27-29. As in 1993, NMFS ultimately rejects
9 the results of accounting for low population risks in analyzing
10 the RPA.

11 37. Defendants compound this error by relying on BPA
12 modelling of spring/summer chinook aggregate returns as
13 additional support for their no-jeopardy conclusion on the RPA.
14 Id. at 30-32. As the 1995 BiOp acknowledges, aggregate
15 assessments ignore the risks posed to small and fragmented
16 spring/summer chinook populations by demographic, genetic, and
17 stochastic effects. 1995 BiOp at 75. The BRWG rejected the use
18 of aggregate assessments for jeopardy analysis. Defendants offer
19 no rational explanation for resuscitating this analysis in order
20 to bolster the RPA.

21 38. Defendants disregard low population risks in another
22 respect. In 1994, returns of wild spring/summer and fall chinook
23 were substantially lower than any historic returns and well below
24 the survival and recovery thresholds identified in the 1995 BiOp.
25 NMFS recognizes "that without major modifications to the Snake
26 and Columbia River dams, it is unlikely survivals can be
27 sufficiently improved to ensure that the operation of the FCRPS

1 does not impede the survival and recovery of listed Snake River
2 salmon." 1995 BiOp at 81; see also id. at 33-37 (noting "extreme
3 risks" and "low probability of survival and recovery" for listed
4 stocks under the environmental baseline). Nonetheless,
5 defendants conclude without explanation that the species will
6 survive under virtually status quo operations for at least the
7 next four years until the agencies decide what major alterations
8 to implement for the hydrosystem. Id. at 129, 134-35.
9 Defendants simply ignore the possibility that the salmon may be
10 entering an "extinction vortex" while the government defers the
11 steps necessary to avoid jeopardy.

12 39. Finally, the 1995 BiOp acknowledges that sockeye smolts
13 are more susceptible to physical injury and mortality from
14 project passage and may enjoy fewer benefits from barging than
15 the larger spring/summer chinook smolts. 1995 BiOp at 49-50, 60-
16 61, 68. In fact, there is no evidence that barging benefits
17 sockeye return ratios at all. Nonetheless, the BiOp consistently
18 assumes that sockeye smolts are affected by various actions
19 identically to spring/summer chinook juveniles. Id. at 38, 45,
20 51, 62-63, 68, 135, 159. By failing to connect the data
21 regarding greater sockeye vulnerability with its effects
22 analysis, defendants fail to offer a rational explanation for
23 their no-jeopardy conclusion regarding endangered sockeye
24 salmon.

25 40. Individually and collectively, these flaws in the 1995
26 BiOp constitute arbitrary and capricious decisionmaking that
27 invalidates the opinion.

1 (ii). The 1995 BiOp and RPA do not avoid adverse
2 modification of critical habitat or
3 adequately address the recovery of listed
4 salmon.

5 41. The 1995 BiOp concludes that the RPA is not likely to
6 jeopardize the continued existence of the endangered Snake River
7 salmon. The opinion is silent, however, on whether the RPA
8 avoids the ESA's separate prohibition on destruction or adverse
9 modification of critical habitat. 1995 BiOp at 128-35. This
10 omission violates the ESA for at least two reasons.

11 42. First, to satisfy the adverse modification standard,
12 FCRPS operations under the RPA must provide the habitat features,
13 including water velocity and safe passage, that NMFS has deemed
14 essential to conservation of the Snake River salmon. 58 Fed.
15 Reg. at 68544-45. As noted below, operations under the RPA
16 generally fail to achieve even the minimal flow targets
17 established by NMFS in the Snake River. 1995 BiOp at 41, 96.

18 43. Second, designation and protection of critical habitat
19 serves the purpose of promoting recovery above and beyond the
20 purposes of the jeopardy prohibition. See H.R. Rep. 887, 94th
21 Cong. 2d Sess. (1976). The 1995 BiOp's brief discussion of
22 critical habitat does not mention this distinction and unlawfully
23 equates the adverse modification standard with the jeopardy
24 prohibition. 1995 BiOp at 82. The failure to acknowledge the
25 recovery dimension of critical habitat contributes to defendants'
26 adoption of an RPA which their own modelling demonstrates will
27 not lead to recovery of the species.

44. Separately, in its jeopardy analysis, NMFS considered
the likelihood that actions under the 1995 BiOp and RPA would

1 lead to recovery of listed species as well as their survival.
2 Without explanation, however, NMFS employed a different threshold
3 for determining whether FCRPS operations would assure survival
4 than it did for determining whether these operations would assure
5 recovery. Specifically, NMFS required that 1995-1998 FCRPS
6 operations provide a "high likelihood" of meeting numeric
7 survival standards but only required a "moderate to high"
8 likelihood that operations would assure recovery. 1995 BiOp at
9 14.

10 45. These divergent thresholds for analyzing the two
11 aspects of jeopardy are inconsistent with ESA § 7 and the basic
12 goals of the Act. The regulatory definition of jeopardy requires
13 NMFS to consider "both the survival and recovery" of listed
14 species. 50 C.F.R. § 402.02. Nothing in the ESA or its
15 implementing regulations permits NMFS to set a lower threshold
16 for evaluating recovery than for evaluating survival. On the
17 contrary, since the ESA has as its basic purpose the
18 conservation, i.e., recovery, of listed species, this factor --
19 recovery -- must receive at least equal consideration in
20 determining whether a proposed course of action will jeopardize a
21 listed species. NMFS arbitrary decision to set different
22 thresholds for evaluating survival and recovery violates ESA § 7.

23 B. The 1995 BiOp And RPA Are Not Being Implemented
24 According To Their Terms As Required By The ESA.

25 46. In the 1995 BiOp, NMFS concludes that the historic and
26 proposed 1995-1998 operations of the FCRPS jeopardize the
27 continued existence of listed salmon and adversely modify their
critical habitat. Through the articulation of a "reasonable and

1 prudent alternative" as part of the 1995 BiOp, NMFS identifies
2 changes in hydrosystem operations which it believes will avoid
3 these results. In substance, these changes call for 1995-1998
4 FCRPS operations to produce the "best [in-river] conditions
5 achievable without major structural modifications," primarily by
6 requiring river flow augmentation and spill. 1995 BiOp at 91.
7 According to NMFS, these changes provide an explicit framework
8 for comparing the survival of listed salmon that migrate in the
9 river to the survival of salmon transported around the
10 hydrosystem dams. The purpose of this comparison is to determine
11 whether the long-term strategy for survival and recovery of
12 listed salmon should depend primarily on in-river migration and
13 improved river conditions or continued transportation of most
14 juvenile migrants.

15 47. While acknowledging uncertainty about which river
16 operations to ultimately pursue, the 1995 BiOp recognizes that
17 time is a critical factor because of the already precarious state
18 of the listed salmon. Accordingly, the 1995 BiOp and RPA set out
19 a path to reach a decision by 1999 on a long-term strategy for
20 FCRPS operations. In order to be able to implement a long-term
21 strategy promptly in 1999, the BiOp and RPA also require the
22 Corps and the Bureau to at once begin testing and planning major
23 structural modifications of the FCRPS that are likely to be
24 required to protect listed salmon, including, but not limited to,
25 measures such as dissolved gas abatement structures and reservoir
26 drawdowns.

27 48. As one way to increase the survival of juvenile

1 migrants in the meantime, before 1999, and as a part of the
2 effort to provide a basis for comparison of different river
3 operations, the 1995 BiOp and RPA specify target river flows
4 which NMFS identifies as minimums necessary to prevent
5 substantial mortality of listed salmon. For example, the summer
6 flow target at McNary Dam is 200 kcfs through August 31, which
7 NMFS describes as a "low estimate of flow that is likely to avoid
8 high mortality." See NMFS, Basis for Flow Objectives for
9 Operation of the Federal Columbia River Power System (1995) at 13
10 (hereafter "Flow App.).

11 49. FRCPS operations by the Corps in 1995 failed to meet
12 the flow target of 200 kcfs at McNary during the latter half of
13 July and all of August. Fall chinook migrants therefore suffered
14 substantially increased mortality which, given their already
15 critically low numbers, threatened their very existence. There
16 were similar failures to meet flow targets at other dams and at
17 other times with similar adverse consequences for listed fish.

18 50. Other measures set forth in the RPA likely contributed
19 to the Corps' failure to meet the flow targets in 1995, and will
20 continue to prevent attainment of the specified flows in many
21 water years. NMFS established reservoir operating limits in the
22 RPA which make it impossible to meet the RPA's flow targets in
23 many water years, particularly low flow years when flow
24 augmentation plays a crucial role in enhancing salmon survival.
25 NMFS established these limits to reduce impacts on power
26 generation and protect resident fish and reservoir recreation.

27 51. Additionally, the Corps has virtually abandoned

1 research, design, and testing of reservoir drawdown measures.
2 The RPA requires the Corps to operate John Day at minimum
3 operating pool ("MOP") as soon as possible after March 1996,
4 after taking appropriate mitigation measures. As of March 1996,
5 the Corps has abandoned even baseline studies and design work for
6 this action, and has done nothing toward mitigating potential
7 impacts or actually drawing down the reservoir to MOP. Further,
8 the Corps and NMFS have also abandoned any studies, design work,
9 or other efforts toward planning for spillway crest drawdowns of
10 reservoirs on the lower Snake River, as well as at John Day.
11 This failure to act also directly contravenes the 1995 BiOp and
12 RPA.

13 52. Finally, the Corps has significantly undermined the
14 RPA's spill program, one of the key measures set forth in that
15 document to immediately improve survival of in-river migrants.
16 Specifically, the RPA requires the Corps to implement a gas
17 abatement program to reduce the amount of dissolved gas in the
18 river resulting from spill. The program must include stilling
19 basin and spillway modifications at Ice Harbor and John Day Dams
20 as soon as possible. BiOp at p.124.

21 53. Such structural modifications to reduce gas levels are
22 critical for two reasons. First, dissolved gas at high levels
23 can kill or adversely affect both adult and juvenile salmon.
24 Second, the RPA limits its spill program by setting a dissolved
25 gas limit of 115% saturation. When gas levels reach this point,
26 planned spill operations cease. This reduces fish guidance
27 efficiency (FGE) at the dams far below the RPA's target of 80%,

1 and dramatically increases mortality of juvenile salmon because
2 they are then forced through dam turbines or bypass systems.

3 54. In 1995, dissolved gas limits substantially curtailed
4 spill at all projects except Ice Harbor, preventing the system
5 from consistently achieving FGE targets at any of the dams except
6 Ice Harbor. Despite these demonstrated problems, the Corps has
7 substantially reduced funding for its gas abatement program. The
8 current scaled-back program does not include immediate work on
9 spillways and stilling basins at Ice Harbor and John Day.

10 Problems which occurred in 1995 will continue, threatening the
11 existence of listed salmon and failing to comply with the terms
12 of the 1995 BiOp and RPA.

13 55. The Corps has also begun to scale back its program of
14 monitoring dissolved gas levels in the rivers. The RPA sets
15 forth a minimum gas monitoring plan to track gas levels in order
16 to evaluate the effect of various operations on gas levels and
17 help plan system operations. The states of Oregon, Washington,
18 and Idaho have stressed the importance of this monitoring system
19 as a prerequisite for granting waivers to their water quality
20 standards. These waivers are necessary to allow the Corps to
21 implement the RPA's spill program. The Corps' efforts to cut the
22 required gas monitoring program thus undermine the RPA's entire
23 spill strategy.

24 56. In sum, by its actions and omissions, including, but
25 not limited to those outlined above, the Corps has failed and
26 continues to fail to implement the RPA. The Corps also has
27 failed to provide any rational explanation for its departure from

1 the terms of the RPA and the expert advice of NMFS as set forth
2 in the RPA, and it has not re-initiated consultation with NMFS on
3 its decision to deviate from the RPA. The Corps has therefore
4 violated ESA § 7(a)(2) by putting listed salmon at imminent risk
5 of extinction. Further, by including reservoir draft limits
6 unrelated to salmon protection in the RPA, NMFS has created an
7 operation strategy for salmon which is impossible to implement in
8 many water years. This violates NMFS' duty under § 7(b)(3)(A) to
9 set forth a reasonable and prudent alternative which avoids
10 jeopardy to listed salmon and adverse modification of their
11 critical habitat.

12 C. The Incidental Take Statement That Accompanies The 1995
13 BiOp Violates The ESA.

14 57. As noted above, ESA § 7(b)(4), 16 U.S.C. § 1536(b)(4),
15 requires NMFS to issue an incidental take statement whenever a
16 proposed federal agency action will not jeopardize a protected
17 salmon species, but will result in incidental take of members of
18 the species. See 16 U.S.C. § 1536(b)(4). The incidental take
19 statement must specify "those reasonable and prudent measures
20 that the Secretary considers necessary or appropriate to minimize
21 such impact" and "the terms and conditions ... that must be
22 complied with by the Federal agency ... to implement the
23 measures." Id.

24 58. The incidental take statement for 1995-1998 FCRPS
25 operations is arbitrary and violates the ESA because it indicates
26 that FCRPS operations will take up to 24 to 36% of Snake River
27 sockeye and spring/summer chinook smolts and 62 to 100% of
juvenile Snake River fall chinook passing through the FCRPS.

1 1995 BiOp at 159.

2 59. An incidental take statement that sanctions the death
3 of all members of an endangered species exposed to an agency
4 action completely distorts the intent of § 7(b)(4) and is
5 arbitrary and capricious. At a minimum, an incidental take level
6 of 100% directly undermines the agencies' conclusion that the RPA
7 does not jeopardize the continued existence of the fall chinook
8 or result in adverse modification of the species' critical
9 habitat.

10 60. In addition, the incidental take statement fails to
11 require all reasonable and prudent measures necessary to minimize
12 the extremely high levels of incidental take authorized by the
13 statement, including, but not limited to, measures that would
14 increase the opportunities to meet the flow targets NMFS has set
15 for FCRPS operations. Increased flows increase river velocity
16 and reduce juvenile travel time to the Columbia River estuary.
17 NMFS acknowledges substantially higher juvenile mortalities when
18 flows in both the Snake and Columbia Rivers drop below the flow
19 targets set in the 1995 BiOp. Flow App. at 8-13.

20 61. Nonetheless, rather than establish reasonable and
21 prudent measures to ensure that FCRPS operations have a high
22 probability of providing the flow levels NMFS has identified as
23 necessary to avoid substantial mortality of migrating juveniles,
24 NMFS set reservoir operating criteria in the 1995 BiOp to benefit
25 resident fish and recreation. These operating criteria make it
26 impossible for FCRPS operations to meet summer flow targets in
27 most water years and decrease the number of years the system will

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF - 27 -

1 meet spring flow targets.

2 62. In 1995, flows at McNary Dam did not meet the 1995 BiOp
3 flow targets for the latter half of July and all of August. An
4 agreement between NMFS, the Corps, and the State of Montana to
5 decrease drafts from Libby and Hungry Horse reservoirs
6 exacerbated this shortfall. The elevation of these reservoirs on
7 August 31, 1995, remained 15 and 12 feet, respectively, above the
8 levels specified for that date in the 1995 BiOp. Dworshak
9 Reservoir remained 10 feet above the elevation specified in the
10 1995 BiOp, and thus did not contribute towards meeting the McNary
11 flow target. Currently, the Implementation Team NMFS has
12 established for FCRPS operations is considering proposals by the
13 States of Idaho and Montana to formalize even more restrictive
14 reservoir draft limits than those in the 1995 BiOp. These
15 limits, if adopted, will further reduce flows in the Columbia and
16 Snake Rivers and increase the incidental take of listed salmon.

17 63. In sum, defendants have violated ESA § 9 by failing to
18 adopt an adequate incidental take statement, failing to comply
19 with the terms of even the inadequate incidental take statement
20 actually adopted, and refusing to take measures reasonable,
21 prudent, and necessary to minimize the incidental take of
22 migrating smolts.

23 FIRST CLAIM FOR RELIEF
24 VIOLATION OF ESA § 7 AND THE APA
BY NMFS

25 64. Plaintiffs reassert all allegations contained in
26 paragraphs 1 through 63 above.

27 65. NMFS has violated ESA §§ 7(a)(2) and 7(b)(3):

1 (a) by failing to provide any rational basis for its
2 conclusion that 1995-1998 FCRPS operations, as modified by
3 the RPA set forth in the 1995 BiOp, are not likely to
4 jeopardize the threatened and endangered Snake River salmon
5 or adversely modify the species' critical habitat within the
6 meaning of ESA § 7(a)(2) and its implementing regulations;
7 and,

8 (b) by failing to require the action agencies to comply
9 with the terms and conditions of the RPA, or in light of
10 this failure to comply, seeking re-initiation of
11 consultation on 1995-1998 FCRPS operations.

12 NMFS's actions and omissions are arbitrary, capricious, an abuse
13 of discretion, and otherwise not in accordance with law and are
14 reviewable under the ESA, 16 U.S.C. § 1540(g)(1)(A), and the APA,
15 5 U.S.C. §§ 701-706.

16 SECOND CLAIM FOR RELIEF
17 VIOLATION OF ESA § 7(a)(2) AND THE APA
18 BY THE CORPS AND THE BUREAU

18 66. Plaintiffs reassert all allegations contained in
19 paragraphs 1 through 63 above.

20 67. The Corps and the Bureau are violating ESA § 7(a)(2)
21 and its implementing regulations by adopting and implementing a
22 1995-1998 FCRPS plan of operations that, for at least the reasons
23 described herein:

24 (a) is inconsistent with the terms of the "reasonable and
25 prudent alternative" ("RPA") for 1995-1998 FCRPS operations
26 set forth the 1995 BiOp; and

27 (b) is likely to jeopardize the continued existence of the

1 endangered Snake River salmon and result in the adverse
2 modification of the salmon's critical habitat.

3 The adoption and implementation of the 1995-1998 FCRPS plan of
4 operations by the Corps and the Bureau are arbitrary, capricious,
5 an abuse of discretion, and otherwise not in accordance with law
6 and are reviewable under the ESA, 16 U.S.C. § 1540(g)(1)(A), and
7 the APA, 5 U.S.C. §§ 701-706.

8
0
0

THIRD CLAIM FOR RELIEF
VIOLATION OF ESA §§ 7(b)(4) AND 9(a)(1) AND THE APA
BY NMFS, THE CORPS AND BUREAU

10 63. Plaintiffs reassert all allegations contained in
11 paragraphs 1 through 63 above.

69. NMFS and the action agencies have violated ESA §§ 7(b)(4) and 9(a)(1) by failing to adopt a legally adequate incidental take statement, failing to comply with the terms of the incidental take statement actually adopted, and failing to take measures reasonable, prudent, and necessary to minimize the incidental take of listed salmon. The actions and omissions of NMFS, the Corps, and the Bureau are arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law and are reviewable under the ESA, 16 U.S.C. § 1540(g)(1)(A), and the APA, 5 U.S.C. §§ 701-706.

22 PRAYER FOR RELIEF

23 WHEREFORE, plaintiffs respectfully request that the Court:

24 A. Adjudge and declare that NMFS, the Corps, and the
25 Bureau have violated and are violating ESA § 7(a)(2) by failing
26 to offer any rational basis for their conclusions that 1995-1998
27 FCRPS operations are not likely to jeopardize the continued

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF - 30 -

1 existence of endangered Snake River sockeye salmon and threatened
2 Snake River spring/summer and fall chinook salmon or result in
3 the adverse modification of the species' designated critical
4 habitat.

5 B. Adjudge and declare that NMFS, the Corps, and the
6 Bureau have violated and are violating ESA § 7(a)(2) and 7(b)(3)
7 by failing to comply with, or ensure compliance with the terms of
8 the RPA for the 1995 BiOp or, alternatively, seeking to re-
9 initiation consultation on 1995-1998 FCRPS operations in light of
10 the Corps' and Bureau's failure to comply with the terms and
11 conditions of the RPA.

12 C. Adjudge and declare that NMFS, the Corps and the
13 Bureau have violated ESA §§ 7 and 9 by failing to comply with the
14 incidental take standards established in these sections and their
15 implementing regulations.

16 D. Set aside the March 2, 1995 Biological Opinion on
17 1995-1998 FCRPS operations issued by NMFS to the Corps and the
18 Bureau and any decision made by the Corps or the Bureau on the
19 basis of that Biological Opinion.

20 E. Order defendants to develop and implement a plan
21 of FCRPS operations that does not violate the ESA.

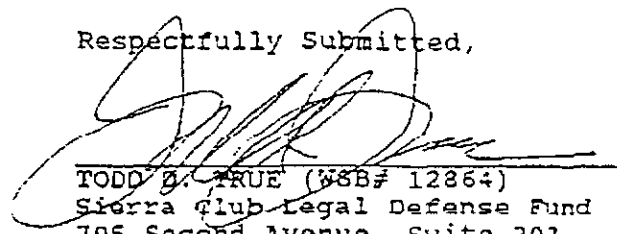
22 F. Enjoin defendants to comply with the terms of the
23 RPA for 1995-1998 FCRPS operations pending completion of a plan
24 of FCRPS operations that complies with the ESA.

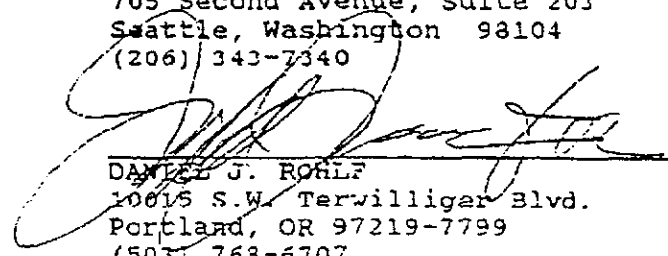
25 G. Award plaintiffs their reasonable fees, costs,
26 expenses, and disbursements, including attorneys' fees,
27 associated with this litigation.

1 H. Grant plaintiffs such further and additional
2 relief as the Court may deem just and proper.

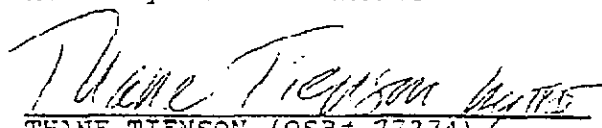
3 DATED this ____ day of March, 1996.

4 Respectfully Submitted,

5
6 
7 TODD B. TRUE (WSB# 12864)
8 Sierra Club Legal Defense Fund
9 705 Second Avenue, Suite 203
10 Seattle, Washington 98104
11 (206) 343-7340

12 
13 DANIEL J. ROHLF
14 10015 S.W. Terwilliger Blvd.
15 Portland, OR 97219-7799
16 (503) 768-6707

17 Attorneys for Plaintiffs

18 
19 THANE TIENSON (OSB# 77374)
20 Copeland, Landye, Bennett and Wolf
21 3500 First Interstate Tower
22 Portland, Oregon 97201
23 (503) 224-4100

24 Local Counsel for Plaintiffs

25 497CNPLT

TODD D. TRUE (WSB #12864)
 JAN E. HASSELMAN (WSB #29107)
 Earthjustice Legal Defense Fund
 705 Second Avenue, Suite 203
 Seattle, WA 98104
 (206) 343-7340
 (206) 343-1526 [FAX]
 ttrue@earthjustice.org
 jhasselman@earthjustice.org

RECEIVED

FEB 14 2000

Department of Water Resources

DAN ROHLF (OSB #99006)
 Pacific Environmental Advocacy Center
 10015 S.W. Terwilliger Boulevard
 Portland, OR 97219
 (503) 768-6707
 (503) 768-6642 [FAX]
 rohlf@lclark.edu

Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT
 DISTRICT OF OREGON

TROUT UNLIMITED, NORTHWEST
 ENVIRONMENTAL DEFENSE CENTER,
 WATERWATCH OF OREGON, PACIFIC COAST
 FEDERATION OF FISHERMEN'S
 ASSOCIATIONS, INSTITUTE FOR FISHERIES
 RESOURCES, OREGON NATURAL
 RESOURCES COUNCIL, and SIERRA CLUB,

) Civ. No.

)

)

)

)

)

)

)

)

)

)

)

)

)

)

)

)

)

Plaintiffs,

v.

NATIONAL MARINE FISHERIES SERVICE,
 UNITED STATES BUREAU OF RECLAMATION,
 and UNITED STATES ARMY CORPS OF
 ENGINEERS,

Defendants.

MICROFILMED

MAR 20 2000

COMPLAINT FOR DECLARATORY
 AND INJUNCTIVE RELIEF

Earthjustice Legal Defense Fund
 705 Second Ave., Suite 203
 Seattle, WA 98104
 (206) 343-7340

Received Time: Feb. 23, 11:08AM

PRELIMINARY STATEMENT

1. This is an action for a declaratory judgment and injunctive relief. It arises under and asserts violations of the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531-1544, and its implementing regulations, 50 C.F.R. Part 400 *et seq.*, and the Administrative Procedure Act ("APA"), 5 U.S.C. § 551 *et seq.* Plaintiffs Trout Unlimited, Northwest Environmental Defense Center, WaterWatch of Oregon, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Oregon Natural Resource Council, and the Sierra Club (collectively, "Trout Unlimited") challenge a December 1999 supplemental biological opinion issued by the National Marine Fisheries Service ("NMFS") under the interagency consultation provisions of the ESA, 16 U.S.C. § 1536(a)(2). The biological opinion concludes that the United States Bureau of Reclamation's ("BOR") water project operation and management activities in the Snake River basin will not jeopardize the continued survival of fish listed as threatened or endangered under the ESA. This action challenges this biological opinion (herein the "1999 BOR BiOp") because NMFS concludes that BOR's activities will not jeopardize listed fish even though: a) BOR has failed to dedicate water for river flow augmentation in the Snake River sufficient to ensure the survival of listed fish; and b) flow targets established by NMFS in 1995 as the minimum necessary to avoid jeopardy to listed fish in the Snake River basin have never been met over the full course of a migration season, leading to significant and unanticipated harm to salmon. As a result of these and other shortcomings, NMFS' conclusion that BOR's Snake River activities will not jeopardize listed fish is arbitrary, capricious, and not in accordance with law in violation of the APA, 5 U.S.C. § 706(2)(A). Plaintiffs seek a declaration that the 1999 BOR BiOp is invalid, and an injunction ordering NMFS to revise its opinion on BOR's Snake River basin operations to comply with the law.

2. This action also challenges the BOR and the United States Army Corps of

1 Engineers' ("COE") actions regarding the operation of federal water management projects in the
2 Snake and Columbia River basins that adversely impact fish species listed as endangered and
3 threatened under the ESA. Ongoing BOR/COE actions that include delivering water to
4 irrigators, managing reservoir space, and general water project management, influence the flow
5 and temperature of the Snake and Columbia Rivers and their tributaries. Thus, the agencies'
6 actions affect listed salmon and steelhead. The agencies have violated Sections 7(a)(1), 7(a)(2)
7 and 9 of the ESA, 16 U.S.C. §§ 1536(a)(1)-(2), 1538, and implementing regulations, as well as
8 the APA by: (1) failing to comply with a range of measures to increase flows in the Columbia
9 and Snake Rivers identified by NMFS as necessary to avoid jeopardy to listed fish; (2) failing to
10 consult with NMFS on the impacts to listed fish of BOR/COE project operations in the Snake
11 and Columbia River basins that affect listed fish; (3) failing to implement programs for the
12 conservation of listed fish; and (4) "taking" species listed as threatened and endangered without a
13 valid incidental take permit.

14 3. Plaintiffs seek a declaration that the agencies, in their management of water
15 storage and release in the Snake and Columbia Rivers and their tributaries, are violating and have
16 violated § 7 of the ESA by failing to consult with NMFS on ongoing actions which affect listed
17 anadromous fish, by failing to implement flow augmentation measures required to avoid
18 jeopardy to listed fish and hence jeopardizing listed fish, and by failing to utilize their authorities
19 for the conservation of listed species. Plaintiffs also seek a declaration that the agencies are
20 violating and have violated § 9 of the ESA by unlawfully taking listed species. Plaintiffs ask this
21 Court to remedy defendants' violations of the ESA by ordering defendants to consult with NMFS
22 on all new and ongoing agency actions that affect the water flow, quantity, and quality of the
23 Snake and Columbia River systems. Plaintiffs also request that this Court remedy defendants'
24

violations of the ESA by ordering defendants to immediately implement the flow augmentation measures called for by NMFS to ensure that defendants' operations do not jeopardize listed fish.

JURISDICTION AND VENUE

4. Jurisdiction over this action is conferred by 16 U.S.C. § 1540 (g)(1)(A) (ESA citizen suit provision) 28 U.S.C. § 1331 (federal question), § 2201 (declaratory relief), and § 2202 (injunctive relief). A copy of plaintiff's 60-day Notice of Intent to Sue, dated November 19, 1999, is attached hereto as Exhibit A.

5. Venue is properly vested in this Court under 28 U.S.C. § 1391(e), as some plaintiffs reside in this district and some of the events or omissions giving rise to the claims occurred in this district.

PARTIES

6. The plaintiffs in this action are:

A. Trout Unlimited ("TU"), a non-profit organization with 100,000 members in over 450 chapters nationwide. TU's mission is to conserve, protect, and restore North America's trout and salmon fisheries and their watersheds. TU has been involved for many years in protecting the Pacific Northwest salmonid populations. TU's efforts include harvest limits on ocean fisheries, as well as addressing habitat and water quantity issues along the Columbia River and its tributaries.

B. WaterWatch of Oregon, a non-profit conservation organization incorporated under the laws of Oregon, with approximately 800 members throughout Oregon and the Pacific Northwest. WaterWatch's mission is to promote water policies and water allocation decisions in Oregon that provide for the quality and quantity of water necessary to support fish, wildlife, recreation, ecological values, public health, and a sound state economy.

WaterWatch and its members work to prevent further withdrawals of water from the Columbia

1 River mainstem and its tributaries in order to protect anadromous and resident fish populations
2 and water quality in the Columbia River basin.

3 C. Northwest Environmental Defense Center ("NEDC"), a non-profit
4 conservation organization incorporated under the laws of Oregon. NEDC is dedicated to the
5 protection of the natural resources of the Pacific Northwest, including the waters of the
6 Columbia River and its tributaries and the adjacent publicly-owned lands. NEDC and its
7 members have worked to protect imperiled salmonid populations that have been and will
8 continue to be adversely affected by low flows in the Snake and Columbia Rivers.

9 D. Pacific Coast Federation of Fishermen's Associations ("PCFFA") is the
10 largest organization of commercial fishermen on the west coast, with member organizations from
11 San Diego to Alaska representing thousands of men and women in the Pacific fleet. Many of
12 PCFFA's members are fishermen whose livelihoods depend upon fish as a natural resource and
13 who, until recent fisheries closures, generated hundreds of millions of dollars in personal income
14 to the region. The interests of PCFFA members will be impaired if salmon and steelhead
15 populations continue to decline as a result of inadequate flow in the Snake and Columbia Rivers.

16 E. Institute for Fisheries Resources ("IFR") is a non-profit corporation that
17 constitutes the conservation arm of PCFFA.

18 F. Oregon Natural Resources Council ("ONRC") is a non-profit corporation
19 with 6,000 members throughout the state of Oregon and the Pacific Northwest. ONRC and its
20 members are dedicated to protecting and conserving Oregon's wildlife, lands, waters, and natural
21 resources, including Columbia/Snake River salmon and steelhead. The interests of ONRC
22 members will be impaired if the federal government continues to ignore demands that it dedicate
23 substantially increased water flow to the Snake and Columbia Rivers.

1 G. Sierra Club, a national environmental organization founded in 1892 and
2 devoted to the study and protection of the earth's scenic and ecological resources -- mountains,
3 wetlands, woodlands, wild shores and rivers, deserts, plains, and their wild flora and fauna.
4 Sierra Club has some 60 chapters in the United States and Canada, including chapters in
5 Washington, Oregon, and Idaho, and a principal place of business in San Francisco, California.
6 The interests of the Sierra Club and its members will be impaired by the continued decline of
7 salmon populations in the Northwest as well as continued inadequate flows in the Snake and
8 Columbia Rivers.

9 7. Plaintiffs and their members use the Columbia and Snake Rivers and their
10 tributaries throughout Idaho, Oregon, and Washington for recreational, scientific, aesthetic, and
11 commercial purposes. Plaintiffs and their members derive or, but for the endangered status of
12 Snake River salmon and Snake and Columbia River steelhead, would derive recreational,
13 scientific, aesthetic, and commercial benefits from the existence in the wild of salmon and
14 steelhead through wildlife observation, study, and photography and recreational and commercial
15 fishing within the Columbia and Snake River systems and the Pacific Ocean.

16 8. The above-described aesthetic, conservation, recreational, commercial, scientific,
17 and procedural interests of plaintiffs and their respective members have been, are being, and,
18 unless the relief prayed for herein is granted, will continue to be adversely affected and
19 irreparably injured by the failure of defendants to comply with their statutory obligations to
20 ensure that the survival of listed species is not further jeopardized by federal action. Plaintiffs
21 have no adequate remedy at law.

22 9. The defendants in this action are:

23 A. National Marine Fisheries Service, an agency of the United States
24

Department of Commerce responsible for administering the provisions of the Endangered Species Act with regard to threatened and endangered salmonids in the Snake and Columbia Rivers.

B. United States Bureau of Reclamation, an agency of the United States Department of the Interior that constructs and operates federal water projects in the Columbia and Snake River basins.

C. United States Army Corps of Engineers, an agency within the United States Army that owns and operates several hydroelectric and flood control projects in the Columbia and Snake River basins, and has discretion over the timing and quantity of water flow releases in the Snake River.

LEGAL BACKGROUND

10. The Administrative Procedure Act authorizes courts reviewing agency action to hold unlawful and set aside agency action, findings, and conclusions that are arbitrary and capricious, an abuse of discretion or otherwise not in accordance with law. 5 U.S.C. § 706(2)(A). Biological opinions issued pursuant to Section 7 of the ESA are reviewed under this provision of the APA. See, e.g., Bennett v. Spear, 117 S. Ct. 1154, 1167 (1997); Pacific Coast Federation of Fishermen's Ass'n v. NMFS, 71 F. Supp. 2d 1063 (W.D. Wash. 1999).

11. Section 7 of the ESA prohibits agency actions that jeopardize the survival of listed species. 16 U.S.C. § 1536(a)(2). Federal agencies have an "independent duty to ensure that any action [they] authorize, fund or carry out does not jeopardize the continued existence of any endangered or threatened species" See Lone Rock Timber Co. v. United States Dep't of the Interior, 842 F. Supp. 433, 440 (D. Or. 1994). Where a consulting agency, such as NMFS, determines that an agency action will jeopardize a listed species unless the agency makes specific modifications to the action, a decision by the action agency to proceed with the action

1 without the modifications is arbitrary and capricious, and contrary to law. See Tennessee Valley
2 Authority v. Hill, 549 F.2d 1064, 1070 (6th Cir. 1977), aff'd, 437 U.S. 153 (1978), cited in Lone
3 Rock Timber, 842 F. Supp. at 440. Moreover, where the best science indicates that certain
4 measures are required to avoid jeopardy to a listed species, agencies may not ignore those
5 measures without running afoul of the ESA's prohibition on jeopardy.

6 12. Section 7 of the ESA establishes an interagency consultation process to assist
7 federal agencies in complying with their duty to ensure against jeopardy to listed species or
8 destruction or adverse modification of critical habitat. A federal agency must initiate
9 consultation with NMFS whenever it takes an action that "may affect" a listed species. 16
10 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). Regulations implementing section 7 broadly define
11 the scope of agency actions subject to consultation. See 50 C.F.R. § 402.02 ("Section 7 [applies]
12 to all actions in which there is discretionary Federal involvement or control") (emphasis added).
13 The Ninth Circuit Court of Appeals and other circuit courts have construed this term to include
14 ongoing agency actions when the federal agency retains discretion over how an action proceeds.
15 Pacific Rivers Council v. Thomas, 30 F.3d 1050, 1053-1056 (9th Cir. 1994); Conservation Law
16 Found. v. Andrus, 623 F.2d 712, 715 (1st Cir. 1979). Whenever new species are listed under the
17 ESA, reinitiation of consultation "is required . . . where discretionary Federal involvement or
18 control over the action has been retained or is authorized by law . . ." 50 C.F.R. § 402.16(d).

19 13. Moreover, the ESA implementing regulations state that consultation must be
20 reinitiated where an action is modified "in a manner that causes an effect to the listed species or
21 critical habitat that was not considered in the biological opinion." 50 C.F.R. § 402.16(c).
22 Ordinarily, an action is modified when the action agency fails to comply with measures listed by
23 NMFS as necessary to avoid jeopardy to a listed species. See, e.g., Sierra Club v. Marsh, 816
24

1 F.2d 1376, 1387-88 (9th Cir. 1987).

2 14. Section 7(a)(1) of the ESA directs federal agencies to use their authorities to
3 further the purposes of the Act by carrying out programs for the conservation of listed species.
4 15 U.S.C. § 1536(a)(1). As defined by the ESA, the term "conservation" means to use all
5 necessary methods and procedures to bring any endangered or threatened species to the point at
6 which the measures provided pursuant to the ESA are no longer necessary. 16 U.S.C. § 1532(3).
7 Section 7(a)(1) "contains a clear statutory directive requiring the federal agencies to consult and
8 develop programs for the conservation of each of the endangered or threatened species listed
9 pursuant to the statute." Sierra Club v. Glickman, 156 F.3d 606, 617 (5th Cir. 1998).

10 15. Section 9 of the ESA prohibits takings of threatened and endangered species,
11 either directly or through habitat modification that kills or injures listed species by significantly
12 impairing essential behavioral patterns. See 16 U.S.C. §§ 1532 (19), 1538 (a)(1)(B); 50 C.F.R. §
13 17.3. Federal agencies may incidentally take listed species only after obtaining authorization
14 from NMFS. 16 U.S.C. § 1536(b)(4).

15 BACKGROUND

16 A. The Status of Salmon and Steelhead in the Columbia and Snake River Basins

17 16. Steelhead and salmon are anadromous fish. They are born and rear in fresh water,
18 migrate to the Pacific Ocean as juveniles where they grow and live as adults, and return to their
19 natal streams and lakes to spawn and die, starting the process anew for the next generation.
20 Historically, salmon and steelhead lived in rivers and streams around much of the northern
21 Pacific Rim, from the Kamchatka Peninsula in Asia to the northern Baja Peninsula in Mexico.
22 The Columbia and Snake Rivers and their tributaries provided habitat for chinook, sockeye,
23 chum, and coho salmon, as well as steelhead.

24 17. During the course of their juvenile and adult migrations, Columbia and Snake

1 River salmon and steelhead must move through hundreds of miles of intensively-managed river
2 systems. Among the numerous artificial obstacles to successful migration and reproduction
3 salmon and steelhead face are: habitat loss and degradation due to human activities such as
4 development, logging, grazing, and mining; pollution and high water temperatures caused by
5 industry, farming, and grazing; increased predation due to low river flow levels; disrupted
6 biological transformation processes due to low river flow levels; competition with hatchery fish
7 for food and shelter; disease and adverse effects to the genetic pool of wild fish caused by
8 hatchery fish; and commercial and recreational harvest for human consumption.

9 18. Populations of salmon and steelhead have declined precipitously since the advent
10 of European settlement. Snake River coho salmon have been considered extinct since 1986, the
11 year that the last adult native coho passed Lower Granite Dam.

12 19. Near the turn of the century, nearly 150,000 sockeye ascended the Wallowa,
13 Payette, and Salmon River basins to spawn in natural lakes, including Redfish Lake. Several
14 sockeye populations have since become extinct due to dams. In the 1950s and 1960s, more than
15 4,000 adults returned annually to Redfish Lake. In contrast, only ten sockeye have returned to
16 Redfish Lake since 1994: one in 1994, one in 1996, one in 1998 and seven in 1999.

17 20. Chinook salmon populations have also greatly declined. Snake River spring and
18 summer chinook, whose return rates once exceeded 1.5 million adult fish per year, averaged only
19 9,674 wild fish per year from 1980 through 1990. In 1994, only 1,822 wild spring/summer
20 chinook were estimated to have passed Lower Granite dam, the last FCRPS dam separating these
21 fish from their spawning grounds. Between 1992 and 1996 the mean was only 3,820 naturally
22 produced spawners, constituting less than 0.3% of the estimated abundance of wild spring and
23 summer chinook. The population of Snake River fall chinook, once the most important fall
24

1 chinook stock in the Columbia River basin with estimated annual returns of 72,000 fish earlier
2 this century, declined to 78 wild fish in 1990 and 742 wild fish in 1993. Between 1992 and
3 1996, the estimated mean of adult spawners returning to Lower Granite Dam was 1,020 per year.
4 The estimated number reaching the Dam in was 797 in 1997 and 306 in 1998.

5 21. Steelhead in the Columbia and Snake Rivers have also declined during this
6 century. Estimates of adult steelhead returning to the Snake River prior to 1962 are limited.
7 However, the run of steelhead in the 1960's is estimated at several times the sportfish take, which
8 ranged from 20,000 to 55,000. The most recent five-year mean, between 1990 and 1994, for
9 escapement below the Lower Granite Dam was approximately 9,400 wild adults and in recent
10 years average densities of wild juveniles have decreased significantly.

11 22. NMFS listed Snake River sockeye as an endangered species on November 20,
12 1991, 56 Fed. Reg. 58619 (Nov. 20, 1991), and the Snake River spring/summer and fall chinook
13 as threatened species on April 22, 1992. 57 Fed. Reg. 14653 (April 22, 1992).

14 23. On December 28, 1993, NMFS designated critical habitat for the threatened and
15 endangered Snake River sockeye and chinook salmon. 58 Fed. Reg. 68543 (Dec. 28, 1993). The
16 designation for all three species includes the Columbia and Snake Rivers' migratory corridor
17 from the salmon's freshwater spawning grounds through the lower Snake and Columbia Rivers
18 to the Pacific Ocean. *Id.* at 68546. In this designation, NMFS explicitly noted that the special
19 management considerations necessary to protect the constituent elements of this critical habitat
20 could implicate federal agency actions which take place outside the geographical area currently
21 occupied by these fish. 58 Fed. Reg. at 68545 (Dec. 28, 1993). In October 1999, NMFS made
22 slight revisions to the critical habitat designation for Snake River spring and summer chinook to
23 exclude waters above the Napias Creek Falls because it constitutes a naturally impassible barrier.

1 64 Fed. Reg. 57399 (Oct. 25, 1999).

2 24. On August 18, 1997, NMFS listed Upper Columbia River steelhead as
3 endangered and Snake River steelhead as threatened species. 62 Fed. Reg. 43937 (Aug. 18,
4 1997). On March 18, 1998, NMFS listed Lower Columbia River steelhead as threatened. 63
5 Fed. Reg. 13347 (March 19, 1998).

6 25. On March 24, 1999, NMFS listed Upper Columbia River spring-run chinook as
7 endangered and Lower Columbia River chinook as threatened. See 64 Fed. Reg. 14308 (March
8 24, 1999). NMFS had proposed a critical habitat designation for the species in March 1998. See
9 63 Fed. Reg. 11482 (March 9, 1998).

10 26. On March 24 and 25, 1999, NMFS listed as threatened two additional
11 anadromous fish populations affected by Columbia River basin flows: the mid-Columbia
12 steelhead and the Columbia chum salmon. 64 Fed. Reg. 14517 (March 25, 1999) (middle
13 Columbia steelhead); 64 Fed. Reg. 14507 (March 25, 1999) (Columbia River chum). Critical
14 habitat for the Columbia chum also had been proposed in March 1998. 63 Fed. Reg. 11482
15 (March 9, 1998). A critical habitat designation for all of the Columbia and Snake steelhead
16 stocks was proposed on February 5, 1999. See 64 Fed. Reg. 5740 (Feb. 5, 1999). On February
17 16, 2000, NMFS announced a final critical habitat designation for these species. 65 Fed. Reg.
18 7764 (Feb. 16, 2000).

19 B. The Importance of Adequate River Flows for Listed Fish Species

20 27. Salmon and steelhead depend upon sufficient river flows and cold water
21 temperatures to successfully complete their life cycle. When designating critical habitat for
22 listed salmon, NMFS identified "water velocity" and "migration conditions" as two of the
23 essential features of critical habitat that need improvement for species survival. 58 Fed. Reg.
24 68543 (Dec. 28, 1993). Similarly, when proposing critical habitat for steelhead, NMFS

identified water quality, quantity, and velocity as essential features for the species' conservation. 64 Fed. Reg. 5743 (February 5, 1999). The management requirements for salmon survival articulated in NMFS' 1995 Biological Opinion on operations of the Federal Columbia River Hydropower System (the "1995 FCRPS BiOp") were partly based on a simple truth: low river flows decrease salmon survival. See NMFS, "Basis for Flow Objectives for Operation of the Federal Columbia River Power System" (Feb. 1995). Among a host of adverse effects, insufficient flows cause juvenile salmon and steelhead to undergo physiological adaptations to salt-water prematurely; cause increased predation of juvenile salmon and steelhead because of greater exposure time to predators such as squawfish; cause juvenile salmon to reach slack-water reservoirs behind dams at a later point in the season when waters are warmer and predator activity increases; make adult salmon and steelhead migrations more difficult by reducing attraction flows; and increase river temperatures subjecting adult and juvenile salmon and steelhead to a higher risk of disease and death.

28. In the 1995 FCRPS BiOp, NMFS established target flows in the mainstem Snake and Columbia Rivers. See 1995 FCRPS BiOp at 104. NMFS stated that the target flows presented in the 1995 FCRPS BiOp were low estimates of flows that are likely to avoid high mortality. See NMFS, "Basis for Flow Objectives for Operation of the Federal Columbia River Power System" (Feb. 1995). However, actual flows in the rivers consistently have failed to meet these flow targets, particularly in the Snake River. In fact, the targets have never been met over the course of any salmon migration season since 1995. This is true even though several years since 1995 have been characterized by above average precipitation in the Snake River Basin. NMFS's own analysis indicates that the failure to meet these target flows has had effects on listed species not considered or addressed in the 1995 FCRPS BiOp.

1 29. In 1998, NMFS issued a biological opinion to determine whether FCRPS
2 operations would jeopardize three recently listed species of steelhead ("1998 Steelhead BiOp.").
3 In that opinion, NMFS concluded that, like previously listed salmon, all three species require
4 adequate water quality, quantity, and velocity to survive, *id.* at V-2, and reiterated that "low
5 river flows result in reduced survival of listed juvenile Upper Columbia River steelhead"
6 *Id.* at III-2. NMFS also concluded that these biological requirements are not currently being met,
7 as evidenced by declining status. *Id.* at V-9. Finally, NMFS found that efforts by FCRPS
8 agencies to stem the slide towards extinction had not yielded any benefits for these species. *Id.*
9 Indeed NMFS concluded flow augmentation that meets the 1995 FCRPS BiOp flow objectives
10 would only "partially mitigate the effects of federal water regulation and impoundments" on
11 listed species. VI-2.

12 30. Recent science demonstrates that the need for flow augmentation is greater now
13 than ever before and that the relationship between flow and survival is beyond scientific dispute.
14 A white paper by NMFS observed that there is "direct evidence" linking flow management with
15 fall chinook survival, and concludes that "additional flow augmentation to benefit Snake River
16 fall chinook would likely increase survival." *See* Salmonid Travel Time and Survival Related to
17 Flow Management in the Columbia River Basin, NMFS 1999, at 44-46. The Director of the
18 Idaho Department of Water Resources estimated that 2.2 million acre-feet in flow augmentation
19 is required to meet summer flow objectives in an average water year, several times the quantity
20 currently being provided. *See* Karl Dreher, *Competing for the Mighty Columbia River – Past*
21 *Present and Future: The Role of Interstate Allocation* (1998). Similarly, the Fish Passage Center
22 estimates that additional flow augmentation of some 1 to 1.5 million acre feet of water is needed,
23 above quantities currently provided, to meet the NMFS summer flow targets.

1 B. Defendants' Control Over Water Flow Volumes in the Snake and Columbia
2 Rivers

3 31. The construction and operation of federal irrigation projects, including water
4 storage, delivery, and flow manipulation in the Snake and Columbia Rivers and their tributaries,
5 have significantly altered river and tributary conditions in the basins. The BOR and COE
6 projects eliminate large areas of actual and potential spawning and rearing habitat in tributary
7 streams as well as the main river. The projects also negatively impact water quantity and quality
8 and the timing of water flows to the detriment of migrating juvenile and adult salmon.
9 Specifically, the projects impound and distribute water that would otherwise naturally flow
10 downstream thereby increasing river flows and aiding juvenile anadromous fish migration. The
11 projects decrease flow volume due to water loss caused by evaporation behind impoundments,
12 crop consumption (evapo-transpiration), percolation below irrigated fields, and inefficiencies in
13 delivery systems. The projects increase water temperature by spreading water across large areas
14 behind impoundments, allowing the water to heat up quickly in warm weather. Agricultural
15 return flows are particularly warm and can contain high levels of pollutants such as silt, salts,
16 chemical pollutants and nitrogen-based fertilizers. Defendant's decisions regarding operations of
17 these storage and diversion projects greatly influence the conditions described above and the
18 success of fish migrations. The agencies' decisions affecting the operation of these projects
19 significantly reduce the volume of water available for flow augmentation, significantly degrade
20 water quality, and significantly alter the timing of river flows that historically supported salmon
21 and steelhead. The agencies have the discretion to increase and otherwise alter the timing and
22 quantities of releases of water from these projects, and thereby directly improve tributary and
23 mainstem habitat and migration conditions for anadromous fish.

24 32. Dozens of water storage and diversion projects controlled by defendants in the

1 Snake and Columbia River basins divert, restrict, and otherwise alter river flows. As such, the
2 projects influence the quantity, quality, and timing of the waters flowing in these rivers. The
3 projects vary in size, some containing several reservoirs impounding hundreds of thousands of
4 acre-feet of water. The projects were primarily built to enhance irrigation of otherwise arid
5 lands. In addition to decisions affecting irrigation of these lands, the agencies also manage the
6 projects and make discretionary decisions relating to recreation, flood control, and hydropower
7 interests.

8 33. Defendant BOR owns or operates storage or diversion projects on the Snake River
9 and tributaries thereto, including: Jackson Lake (Snake River, storing 847 thousand acre-feet
10 (KAF)), Palisades (Snake River, storing 1200 KAF), Grassy Lake (Grassy Creek storing 15.2
11 KAF), Island Park (Henry's Fork, storing 135.2 KAF), Ririe (Willow Creek, 100.5 KAF),
12 American Falls (Snake River, storing 1,672 KAF), Minidoka (Snake River, storing 95.2 KAF),
13 Little Wood River (storing 30 KAF), Boise River (storing 869.2 KAF in 2 reservoirs), Payette
14 River (storing 815.1 KAF in 2 reservoirs), Owyhee River (storing 715 KAF), Malheur River
15 (storing 280.9 KAF in 3 reservoirs), Mann Creek (storing 10.9 KAF), Powder River (storing
16 103.8 KAF in 2 reservoirs), Burnt River (storing 25 KAF), and Lewiston Orchards project
17 (Clearwater River, storing 4.4 KAF). Defendant BOR also owns or operates storage or diversion
18 projects on the Columbia River and tributaries thereto, including: Hungry Horse (on the Flathead
19 River, storing 2981 KAF); Grand Coulee (on the Columbia River, storing 5185 KAF); Yakima
20 River (storing 1066 KAF in five reservoirs); Umatilla Basin Project (storing 104 KAF in two
21 reservoirs); Upper Deschutes Projects (storing 198 KAF in 2 reservoirs on the Crooked River,
22 and 348 KAF in 4 reservoirs on the Deschutes River); and Henry Haag Lake (Tualatin River,
23 53.6 KAF).

1 34. BOR officials have acknowledged that "Reclamation's irrigation water storage
2 projects located upstream of the salmon migration corridor have the potential to significantly
3 enhance streamflows to the extent water is available." Letter of Daniel P. Beard, BOR
4 Commissioner, to Pacific Northwest Regional Director (July 1993). BOR has discretion to take
5 actions and change management of its projects in the Snake and Columbia River basins to
6 improve salmon and steelhead survival.

7 C. The Agencies' Obligation to Augment Flows in the Snake and Columbia River
8 Basins for Listed Fish

9 35. In March 1995, NMFS issued its Biological Opinion on the operation of the
10 Federal Columbia River Power System for 1994 and subsequent years. All defendants in this
11 action were parties to that consultation. In the 1995 FCRPS BiOp, NMFS determined that
12 FCRPS operations, as proposed, would jeopardize the survival of listed fish species in the
13 Columbia basin. In setting out the "reasonable and prudent alternative" ("RPA") to the proposed
14 action, NMFS outlined a range of measures that the agencies must take to ensure that these
15 species were not jeopardized by federal hydropower operations in the Columbia and Snake
16 basins. Specifically, NMFS required defendants to identify and deliver water from various
17 projects as the Columbia and Snake Rivers and their tributaries for fish flow augmentation. The
18 focal points of the augmentation program were specific spring and summer flow objectives,
19 measured in cubic feet per second, in the Snake River (at Lower Granite dam) and the Columbia
20 River (at McNary dam). 1995 FCRPS BiOp at 104.

21 36. In March of 1996, several environmental and fishing groups, including many of
22 the plaintiffs in this action, filed suit against NMFS, BOR, and COE challenging the 1995
23 FCRPS BiOp and the BOR and COE's failure to implement certain elements of the RPAs
24 outlined in the document. The United States District Court for the District of Oregon upheld

1 NMFS' conclusion that FCRPS operations, as modified by the RPA, would not jeopardize listed
2 fish and that the defendants had adhered to the relevant RPA provisions in accordance with the
3 requirements of the law up to that time. This ruling was affirmed by the Ninth Circuit in an
4 unpublished opinion. Since the Court heard the challenge to the 1995 FCRPS BiOp, BOR and
5 COE have failed to implement a range of measures called for in the RPA, each of which involves
6 increased water flow to aid salmon. These actions were not before the courts in the previous
7 litigation, nor could they have been because they occurred after the earlier case was decided.

8 37. The 1995 FCRPS BiOp states that the BOR "shall continue" to provide the
9 427,000 acre-feet per year of annual flow augmentation identified by the Northwest Power
10 Planning Council as the minimum volume BOR must provide for listed fish species. See 1995
11 FCRPS BiOp at 99. The BiOp clearly states, however, that after 1998 "BOR shall subsequently
12 secure an additional amount of water . . . as may be necessary to further reduce human caused
13 mortality of endangered salmon in the Snake River." *Id.* The BiOp identified as "essential" the
14 release of additional water volumes for flow augmentation from the upper Snake River
15 exceeding 427,000 acre-feet. *Id.* at 100. The BiOp emphasizes that "additional stored water is
16 needed for fish flow augmentation, particularly in the Snake River, in low flow years when flow
17 objectives cannot be achieved with presently available storage volumes." *Id.* at 100 (emphasis
18 added). Although the BiOp did not directly quantify the amount of water that would be
19 necessary for flow augmentation to avoid jeopardy, the Northwest Power Planning Council, and
20 the state and tribal Detailed Fisheries Operation Plan ("DFOP") have called for additional flow
21 volumes of between 1 and 1.5 million acre-feet annually from the upper Snake basin for flow
22 augmentation to ensure the survival and recovery of listed fish. See 1995 FCRPS BiOp at 99-
23 100. Similarly, the Fish Passage Center and others have calculated the additional flow
24

1 augmentation volume necessary in an average water year to meet flow targets and avoid salmon
2 mortality in the range of 1 to 1.5 million acre feet in addition to the flow augmentation water the
3 agencies currently provide.

4 38. The 1995 FCRPS BiOp suggests possible actions BOR could take for flow
5 augmentation, including dry year leases, land fallowing, and purchases of water rights. Id. at 99.
6 Other measures BOR could take to secure additional water for flow augmentation include, but
7 are not limited to, participating in rental water banks, releasing water in uncontracted rental
8 space, buying back contracted reservoir space, altering current practices of maintaining reservoir
9 water levels for recreation, ensuring that delivered federal water is applied to lands eligible to
10 receive federal water, and rescinding or altering its agreement with Idaho Power to restrict flows
11 at Milner dam. Additionally, NMFS's Draft Snake River Salmon Recovery Plan highlighted the
12 need to study and possibly change existing water withdrawal practices. See Proposed Recovery
13 Plan for Snake River Salmon at V-1-54 to 55. Despite these recommendations, to date BOR has
14 not secured any additional water for flow augmentation, beyond the minimum 427 KAF, from
15 these or any other sources as the Snake, Columbia or their tributaries.

16 39. In setting out the RPA, NMFS further directed COE and BOR to take specific
17 steps to augment river flows. The 1995 FCRPS BiOp called upon COE and BOR jointly to
18 evaluate opportunities to augment water flows through changes to flood control operations.
19 Optimization of operations could be expected to yield additional volumes that could be dedicated
20 to river flow augmentation. BOR and COE were directed to report the results of this evaluation
21 to NMFS and, where feasible, begin implementation by December 1996. However, to the best of
22 plaintiffs' knowledge, the evaluation, the report, and the implementation have not taken place.
23 Moreover, under the 1995 BiOp, the COE was separately directed to implement a reallocation of
24

1 1.5 million acre-feet ("MAF") of flood control space from Arrow Reservoir to Mica Reservoir,
2 and NMFS directed both COE and BOR to add new flood control operating rule curves for river
3 flows in the 70-95 MAF range of forecasted unregulated runoff at The Dalles. The 1998
4 Steelhead BiOp reinforced that flood control operations should include shifts for flows in the
5 Columbia River. See 1998 Steelhead BiOp at III-4. As the 1999 BOR BiOp confirms, none of
6 the agencies have taken these steps even though the science that supports the need for adequate
7 flow augmentation is now even more compelling.

8 40. The 1995 FCRPS BiOp further directed the agencies to expand storage
9 arrangements in Canadian reservoirs in the upper Columbia to allow additional storage for fish
10 flow enhancement, above and beyond the 1 MAF realized under current operational agreements.
11 To date, they have not obtained this additional storage, nor is there any indication that they have
12 made significant progress or even tried. The 1998 Steelhead BiOp reiterated that the agencies'
13 must continue to try to obtain additional water from Canadian reservoirs as well as other sources.
14 See 1998 Steelhead BiOp at III-6.

15 41. Throughout NMFS' extended discussion about the agencies' obligations to secure
16 additional water for fish flow augmentation, the 1995 FCRPS BiOp repeatedly states that if the
17 agencies are unsuccessful in obtaining additional water, they need to reinitiate formal
18 consultation with NMFS. See, e.g. 1995 FCRPS BiOp at 99. Although the agencies have failed
19 to secure additional water as described in the 1995 FCRPS BiOp, no reinitiated consultation
20 regarding the effects of these failures on listed salmon has occurred.

21 D. The NMFS 1999 BOR BiOp

22 42. In response to a 60-day notice of intent to sue sent by many of the plaintiffs in this
23 action in 1997, BOR initiated consultation with NMFS on a narrow range of management
24 activities in the Snake River basin. The consultation is limited to a discrete set of management

activities upstream of the Lower Granite Dam in the Snake River basin and does not address all of BOR's actions impacting listed fish species in the Snake River or its tributaries. Moreover, the 1999 BOR BiOp does not address any of BOR's water management and diversion actions in the Columbia River basin or its tributaries, for which consultation has not been initiated. In other words, the 1999 BOR BiOp does not fulfill BOR's obligations to consult with NMFS on all of its activities that "may affect" listed fish.

43. Moreover, the 1999 BOR BiOp itself is fundamentally flawed for several reasons. The 1999 BiOp focuses primarily on BOR's failed efforts to meet some of the RPA conditions designed to increase flow augmentation so that Snake and Columbia River flow targets can be met. NMFS concludes that BOR has, at most, successfully augmented Snake River flows by 427 thousand acre-feet ("KAF"), a quantity of water that NMFS earlier deemed to be only one of several distinct flow augmentation obligations under the RPA. See 1999 BOR BiOp at III-6. The 1999 BiOp indirectly acknowledges that BOR has failed to comply with other RPA measures outlined in the 1995 FCRPS BiOp yet it does not take steps to remedy these failures, placing the additional risk on the listed salmon. Moreover, the 1999 BOR BiOp indicates that BOR may not be able to provide even the 427 KAF of augmentation volume in some years. *Id.* at VIII-1. The 1999 BOR BiOp also fails to acknowledge that the Snake River summer flow target established by NMFS in its 1995 BiOp has never been met for a single salmon migration season. Despite BOR's failure to secure adequate water for flow augmentation, and the clear harm arising to listed fish as a result, NMFS concludes without explanation that BOR's continued status quo operations will not jeopardize listed fish.

E. BOR's Failure to Identify and Halt Illegal Water Diversions

44. While it stores and manages water for irrigation and other uses throughout the region, BOR continues to allow irrigators to apply federal water to lands that are not authorized

1 to receive it. Lands may lack authorization to receive federal water (water delivered from a
2 federally constructed and managed project) because of (1) legislative provisions authorizing the
3 project, (2) water user's contract provisions, (3) the statutory requirement that lands be classified
4 by the Bureau as irrigable, or (4) state law requirements. Allowing lands which lack proper
5 authorization to use federal water is illegal as a matter of water law. The illegal practice is
6 termed "water spreading." Water spreading negatively impacts anadromous fish by decreasing
7 water available for flow augmentation.

8 45. BOR recognized in 1983 that 662,000 acres of irrigated lands in the West illegally
9 used federal water. Approximately two-thirds of that acreage, or about 420,000 acres, was in the
10 Pacific Northwest Region. U.S. BOR, "Report of the Task Force on Land Classification and
11 Equivalency," 3-4 (1983). In 1994, BOR reduced its estimate to 154,000 acres of illegal
12 irrigation in the Northwest, mostly in Oregon and Washington. U.S. BOR, "Irrigation of
13 Ineligible Lands," Audit Report # 94-I-930 (1994). Between 42,000 and 53,000 acres were
14 illegally irrigated in Eastern Washington, using deliveries from BOR's Columbia Basin Project.
15 Id. In 1993, the BOR also noted that federal water was then illegally used on 17,000 acres of
16 land under the Umatilla Project. See Memorandum of Douglas James, Regional Environmental
17 Officer, BOR, Pacific Northwest Region (Nov. 1993). Although the numbers do not indicate the
18 actual amount of water illegally used, they indicate that large volumes of water, which could be
19 used for flow augmentation, are diverted annually to support illegal irrigation practices. BOR
20 has the discretion and the legal duty to prevent illegal water use and to convert the water being
21 illegally used into flow augmentation water for salmon. BOR has neither acted to identify and
22 halt this illegal water usage, nor engaged in adequate consultation with NMFS on the impacts of
23 these withdrawals on listed fish.

1 46. In the 1999 BOR BiOp, NMFS concluded that "the scale of water spreading at
2 [BOR's] projects covered by this Opinion is unknown." BiOp at 25. Nonetheless, NMFS
3 concludes without explanation that "the scale of water spreading is sufficiently small that it does
4 not adversely affect [BOR's] ability to supply the current program needs." *Id.* This conclusion
5 is irrational because BOR has failed to implement the RPA measures on flow augmentation, flow
6 targets are not being met, and NMFS itself concluded that BOR would not be able to meet even
7 the minimal augmentation volume of 427 KAF in all circumstances. In light of the alleged
8 uncertainty regarding the amount of potential flow augmentation water lost to spreading,
9 NMFS's conclusion that BOR need not address the problem is arbitrary.

10 E. BOR's Agreement With Idaho Power to Limit Flows at Milner Dam

11 47. In June 1996, BOR signed an agreement with Idaho Power that has a significant
12 effect on flows in the Snake River and consequently has an adverse effect on listed salmon and
13 steelhead. BOR promised to coordinate and shape water releases from its projects in the upper
14 Snake Basin through 1999 so that under most circumstances the Snake River's flow will not
15 exceed 1,500 cubic feet per second ("cfs") at Milner Dam. BOR did not consult on the impacts
16 to listed fish of this agreement to limit flows even though consultation about such agreements
17 was contemplated by NMFS in the 1995 FCRPS BiOp. Further, BOR has not consulted on any
18 portion of the agreement that remains in force after 1999 or any new agreement that may have
19 been reached.

20 CLAIMS FOR RELIEF

21 FIRST CLAIM FOR RELIEF
22 VIOLATION OF APA BY NMFS

23 48. Plaintiffs incorporate by reference all preceding paragraphs.

24 49. NMFS' determination in the 1999 BOR BiOp that BOR operations in the Snake

1 River and its tributaries do not jeopardize listed fish is arbitrary, capricious, and not in
2 accordance with law, in violation of the Administrative Procedure Act, 5. U.S.C. § 706.
3 Specifically, NMFS has failed to explain why its 1995 conclusion that BOR must augment Snake
4 River flows to meet stated flow targets through substantial flow augmentation in order to avoid
5 jeopardy to listed fish is no longer valid or required. Although BOR has not provided and
6 maintains that it will not be able to provide additional flow augmentation above the 427 KAF,
7 and actual summer flows in the Snake are consistently below target levels, NMFS in the 1999
8 BOR BiOp determined that no further flow augmentation is necessary beyond the limited
9 quantity that BOR already provides. NMFS provides no explanation for the conflict between
10 this conclusion and NMFS's prior jeopardy determination for FCRPS operation. Likewise,
11 NMFS provides no explanation for its conclusion that other measures designed to improve river
12 flows, such as altering the flood control rule curves, are no longer required to avoid jeopardy.
13 NMFS' violation of the APA is subject to judicial review under 5 U.S.C. § 701 et seq.

14 SECOND CLAIM FOR RELIEF
15 VIOLATION OF ESA § 7(A)(2) AND APA BY BOR

16 50. Plaintiffs incorporate by reference all preceding paragraphs.

17 51. BOR has violated, and continues to violate ESA § 7(a)(2) by failing to consult
18 with NMFS on the impact to endangered and threatened anadromous fish of at least the
19 following discretionary management actions and decisions:

20 (a) the operation of federal water storage and diversion projects in the Snake
21 and Columbia River basins,

22 (b) the failure to prevent illegal diversions of water delivered from federal
23 water projects managed by BOR in the Snake and Columbia River Basins, and

24 (c) its agreement with Idaho Power to restrict the Snake River's flow at

1 Milner Dam to 1,500 cubic feet per second.

2 52. Each of these failures and actions detrimentally impacts endangered and
3 threatened anadromous fish by reducing flows, increasing temperatures, and altering flow timing
4 in the Snake and Columbia River basins. Because these actions "may affect" endangered and
5 threatened anadromous fish, BOR must engage in consultation with NMFS pursuant to ESA §
6 7(a)(2) and implementing regulations. 16 U.S.C. § 1536 (a) (2); 50 C.F.R. § 402.14 (a). To the
7 extent that BOR has consulted with NMFS on some of these activities, namely selected water
8 management activities in part of the Snake River, that consultation is fundamentally flawed and
9 inadequate. BOR's compliance with ESA § 7(a)(2) is reviewable by the Court under 16 U.S.C. §
10 1540 (g)(1)(A) (ESA citizen suit provision).

11 53. The agencies' failure to consult with NMFS on operations that may affect listed
12 species in the Snake and Columbia Rivers is also arbitrary, capricious, and not in accordance
13 with law, in violation of the Administrative Procedure Act, 5. U.S.C. § 706. The agencies'
14 violation of the APA is subject to judicial review under 5 U.S.C. § 701 et seq.

15 THIRD CLAIM FOR RELIEF
16 VIOLATION OF ESA § 7(A)(2) AND APA BY BOR AND THE COE

17 54. Plaintiffs incorporate by reference all preceding paragraphs.

18 55. Defendants BOR and the COE have violated, and continue to violate, ESA §
19 7(a)(2) by failing to reinitiate consultation with NMFS on the impact to endangered and
20 threatened anadromous fish of, at least, the following actions:

21 (a) failure to secure additional water for flow augmentation as called for in the
22 1995 FCRPS BiOp,

23 (b) failure to evaluate and implement flood control operation rule changes to
24 increase availability of water for flow augmentation,

1 (c) failure to improve operations at Arrow Reservoir to provide water for fish
2 flow augmentation, and

3 (d) failure to secure additional storage space for fish flow augmentation from
4 Canadian reservoirs.

5 56. The agencies' obligation to secure additional water for fish flow augmentation
6 arises from NMFS' 1995 FCRPS BiOp on the agencies' hydropower operations in the Snake and
7 Columbia Rivers. NMFS specifically stated that the agencies' failure to secure additional water
8 for fish flow augmentation would require reinitiation of consultation. Although the agencies
9 have not met flow targets and have not made significant progress on flow augmentation
10 measures, that consultation has not occurred. The agencies' compliance with ESA § 7(a)(2) is
11 reviewable by the Court under 16 U.S.C. § 1540 (g)(1)(A) (ESA citizen suit provision).

12 57. The agencies' failure to consult with NMFS on operations that may affect listed
13 species in the Snake and Columbia Rivers, under circumstances in which NMFS has specifically
14 stated that consultation is required, is arbitrary, capricious, and not in accordance with law, in
15 violation of the Administrative Procedure Act, 5 U.S.C. § 706. The agencies' violation of the
16 APA is subject to judicial review under 5 U.S.C. § 701 *et seq.*

17 FOURTH CLAIM FOR RELIEF
18 VIOLATION OF ESA § 7(a)(2) AND APA BY BOR AND THE COE

19 58. Plaintiffs incorporate by reference all preceding paragraphs.

20 59. BOR and the COE have violated, and continue to violate ESA § 7(a)(2) by taking
21 actions that jeopardize the survival of listed species. NMFS concluded that only by
22 implementing a range of flow augmentation measures could the agencies continue to operate in
23 the Snake and Columbia River basins without jeopardy to listed salmon and steelhead species.
24 The agencies have failed to implement these measures – outlined in the “reasonable and prudent

1 alternative" of the 1995 FCRPS BiOp – and consequently are jeopardizing listed species in
2 violation of the ESA. This action also represents a failure to use the best scientific data available
3 as required by the ESA. The agencies' compliance with ESA § 7(a)(2) is reviewable by the
4 Court under 16 U.S.C. § 1540 (g)(1)(A) (ESA citizen suit provision).

5 60. The agencies' actions that jeopardize listed fish in the Snake and Columbia Rivers
6 are arbitrary, capricious, and not in accordance with law, in violation of the Administrative
7 Procedure Act, 5 U.S.C. § 706. The agencies' violation of the APA is subject to judicial review
8 under 5 U.S.C. § 701 ~~et seq.~~

9 **FIFTH CLAIM FOR RELIEF**
10 **VIOLATION OF ESA § 7(A)(1) AND APA BY BOR AND THE COE**

11 61. Plaintiffs incorporate by reference all preceding paragraphs.

12 62. Section 7(a)(1) of the ESA mandates that federal agencies shall utilize their
13 authorities in furtherance of the purposes of the ESA and "carry out programs for the
14 conservation of" species listed under the ESA. 16 U.S.C. § 1536(a)(1). BOR and the COE are
15 violating their duty under § 7(a)(1) by proceeding with water management and diversion
16 operations in the Snake and Columbia basins and their tributaries that limit water flows so
17 drastically that the very survival of listed species is in question, let alone their conservation and
18 recovery. The agencies are further violating their duties under this section by their failure to
19 adhere to the requirements set forth by NMFS that they take steps to augment water flows in the
20 Snake and Columbia Rivers for the benefit of listed fish. Finally, BOR and the COE are
21 violating their duties under section 7(a)(1) by failing to develop, in consultation with NMFS,
22 programs to use their authorities to conserve listed salmon and steelhead. Such programs could
23 include measures such as use of agency enforcement authority to eliminate illegal water use, and
24 initiatives to promote water conservation and efficiency. These violations are subject to judicial

review under 16 U.S.C. §1540(g)(1)(A) (ESA citizen suit).

63. The agencies' failure to utilize their authorities in furtherance of the purposes of the ESA regarding low flows in the Snake and Columbia Rivers is arbitrary, capricious, and not in accordance with law, in violation of the Administrative Procedure Act, 5. U.S.C. § 706. The agencies' violation of the APA is subject to judicial review under 5 U.S.C. § 701 et seq.

SIXTH CLAIM FOR RELIEF
VIOLATION OF ESA § 9 BY BOR

64. Plaintiffs incorporate by reference all preceding paragraphs.

65. Section 9 of the ESA prohibits "take" of listed species, either directly or through habitat modification that kills or injures listed species by significantly impairing essential behavioral patterns. See 16 U.S.C. §§ 1532 (19), 1538 (a)(1)(B); 50 C.F.R. § 17.3. Federal agencies may incidentally take listed species only after obtaining authorization from NMFS. 16 U.S.C. § 1536 (b)(4). The agencies have violated ESA § 9 by making discretionary decisions that reduce and otherwise alter the flows of the Columbia and Snake Rivers and their tributaries. The agencies' actions actually kill or injure threatened and endangered anadromous fish by modifying fish habitat, and thereby significantly impairing essential behavioral patterns. 16 U.S.C. §§ 1532 (19) 1538 (a)(1)(B); 50 C.F.R. § 17.3. The agencies have not obtained authorization from NMFS to incidentally take listed species under the circumstances. 16 U.S.C. § 1536 (b)(4). This action is unlawful and reviewable by the Court pursuant to 16 U.S.C. § 1540 (g)(1)(A) (ESA citizen suit provision).

66. The agencies' take of listed species in violation of the ESA is arbitrary, capricious, and not in accordance with law, in violation of the Administrative Procedure Act, 5. U.S.C. § 706. The agencies' violation of the APA is subject to judicial review under 5 U.S.C. § 701 et seq.

PRAYER FOR RELIEF

WHEREFORE, plaintiffs respectfully request that the Court:

1. Adjudge and declare that the 1999 BOR BiOp violates the APA and is arbitrary and capricious and not in accordance with law, vacate the opinion, and order BOR and NMFS to reinitiate consultation on BOR's Snake River operations that may affect listed fish.

2. Adjudge and declare that BOR has violated and is violating ESA § 7(a)(2) and implementing regulations by failing to consult with NMFS regarding the effects of BOR management of federal water projects on the Columbia and Snake Rivers and their tributaries on endangered and threatened anadromous fish.

3. Adjudge and declare that BOR and the COE have violated and are violating ESA § 7 (a)(2) and implementing regulations by failing to adhere to the reasonable and prudent alternative to FCRPS operations pertaining to fish flow augmentation outlined in the 1995 FCRPS BiOp, and by failing to reinitiate consultation on that failure.

4. Adjudge and declare that BOR has violated and is violating ESA § 7(a)(2) and implementing regulations by failing to identify and halt the illegal use of water delivered from federal water projects in the Columbia and Snake River basins, and by failing to consult with NMFS on the effects of continued illegal water use on endangered and threatened anadromous fish.

5. Adjudge and declare that BOR has violated and is violating ESA § 7(a)(2) and implementing regulations by entering into an agreement with Idaho Power to restrict flows at Milner Dam, and by failing to consult with NMFS on the effects on endangered and threatened anadromous fish of that agreement.

6. Adjudge and declare that BOR and the COE have violated and are violating ESA § 7(a)(1) and implementing regulations by failing to utilize their authorities to conserve listed

1 fish species.

2 7. Adjudge and declare that BOR and the COE have violated and are violating ESA
3 § 9 and implementing regulations by taking, killing and injuring endangered and threatened
4 anadromous fish by reducing flows in the Columbia and Snake Rivers and their tributaries, by
5 modifying fish habitat and significantly impairing essential behavioral patterns.

6 8. Order BOR to engage in formal consultation with NMFS under ESA § 7
7 regarding water management operations in the Snake and Columbia Rivers and their tributaries,
8 and thereby develop a plan of operations in these basins that will enhance the recovery of
9 endangered and threatened anadromous fish.

10 9. Order BOR and the COE to engage in formal consultation with NMFS under ESA
11 § 7 regarding their failure to implement the flow augmentation measures called for by NMFS in
12 the 1995 FCRPS BiOp.

13 10. Order BOR and the COE to immediately begin implementing the flow
14 augmentation measures described by NMFS in the 1995 FCRPS BiOp as necessary to avoid
15 jeopardy to listed species, and/or additional flow augmentation measures necessary to protect
16 these species.

17 11. Order BOR to halt immediately the delivery of water from federal projects to
18 users illegally applying federal water.

19 12. Order BOR to rescind or modify its agreement with Idaho Power until formal
20 consultation with NMFS is completed.

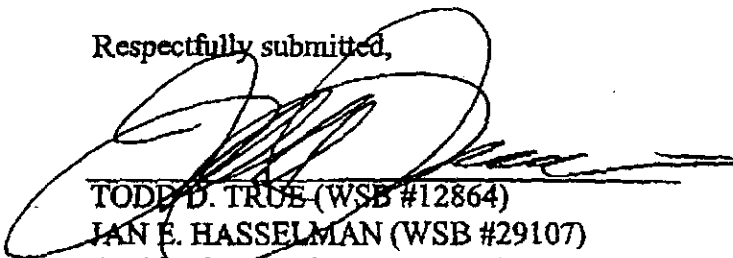
21 13. Award plaintiffs their reasonable fees, costs, expenses, and disbursements,
22 including attorneys' fees associated with this litigation.

23 14. Grant plaintiffs such further and additional relief as the Court may deem just and
24

proper.

Dated this 17th day of February, 2000.

Respectfully submitted,



TODD D. TRUE (WSB #12864)

IAN E. HASSELMAN (WSB #29107)

Earthjustice Legal Defense Fund

705 Second Avenue, Suite 203

Seattle, WA 98104

(206) 343-7340

(206) 343-1526 [FAX]

ttrue@earthjustice.org

jhasseلمان@earthjustice.org

DANIEL J. ROHLF (OSB #99006)

Pacific Environmental Advocacy Center

10015 S.W. Terwilliger Boulevard

Portland, OR 97219

(503) 768-6707

(503) 768-6642 [FAX]

rohlf@lclark.edu

Attorneys for Plaintiffs

December 31, 1999

BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE ID 837053173

PROOF DUE NOTICE

RE: PERMIT NO. 63-09206

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 March 1, 2000.

(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.

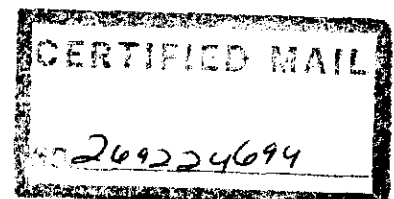
Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the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

SINCERELY,

JULIE L. YARBROUGH
Senior Secretary

Enclosures

MICROFILMED
MAR 20 2000



ANALYSIS SHEET FOR EXTENSION OF TIME

Permit No. 03-09206 Reviewed by ay Date 3-7-96

BASIC INFORMATION

3-1-96 Date stamp received
yes Extension received timely
yes Fee received and receipted
yes Name and signature same as permit
yes Address Change

Please Microfilm
This page!

BASIS FOR EXTENSION REQUEST

_____ Has adequate work been completed to demonstrate due diligence?

yes Has the permit been involved in litigation?
Is supporting documentation needed to complete
the file? yes Requested? _____

~~yes~~ Is delay by a government agency?
Is supporting documentation needed to complete
the file? yes Requested? _____

_____ Is the project more than 25,000 acre feet for
irrigation or 10,000 acre feet for a reservoir?

ACTION TAKEN

Recommended extend to March 1, 2000,
based on litigation

Evidence of
Litigation is
REFERENCED AS
CASE NO. 92462
IN ADA COURT
Jim
3-28-96

PRIORITY CALCULATION

Date extension received	_____	=	_____
Proof due date	_____	=	_____
Number of days late	_____	=	_____
Priority date	_____	=	_____
New Priority Date	_____	=	_____

DATA ENTRY

New Address 2465 Overland Rd., 83705-3173

Change Proof Due Date 3-1-2000

Change Priority Date X

MAR 28 1996



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

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

March 7, 1996

Boise Project Board of Control
2465 Overland Rd.
Boise, ID 83705-3173

RE: Permit No. 63-09206

Dear Permit Holder:

Enclosed is a copy of the approved request for extension of time. The time within which to submit proof of beneficial use is extended to **March 1, 2000**. Please note that the department has granted this extension based on litigation. It is important that you work diligently toward the completion of this project during the construction period allowed. The department may not be able to grant additional extension requests.

If you have any questions or if I can be of any further assistance, please feel free to contact this office.

Sincerely,

JULIE L. YARBROUGH
Senior Secretary

Enclosure

C: IDWR - Regional Office

MAR 8 1996

December 31, 1995

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE
BOISE ID 83702

PROOF DUE NOTICE

RE: PERMIT NO. 63-09206

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 March 1, 1996.

(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.

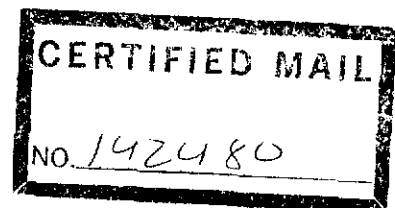
If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental 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





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

March 10, 1992

Boise Project Board of Control
214 Broadway
Boise, ID 83702

Re: Permit No. 63-09206

Dear Permit Holder:

Enclosed is a copy of your approved Request for Extension of Time submitted in connection with the above referenced permit. The time within which to submit proof of beneficial use is extended to March 1, 1996.

Please note that the department has granted this extension based upon governmental agency delay. It is important that you work diligently toward the completion of this project during the construction period allowed. The department may not be able to grant additional requests.

If you have any questions or if I can be of any further assistance, please feel free to contact me.

Sincerely,

Karen L. Gustafson
Karen L. Gustafson
Secretary/Records Manager

Enclosure

c: IDWR-Regional Office

MICROFILMED

APR 13 1992

ANALYSIS SHEET
FOR
EXTENSION OF TIME

Permit No. 63-09206 Reviewed by Klg Date 3/6/92

BASIC INFORMATION

3/2/92 Date stamp received
no Extension received timely
yes Fee received and receipted
yes Name and signature same as permit
no Address Change

BASIS FOR EXTENSION REQUEST

_____ Has adequate work been completed to demonstrate due diligence?
_____ Has the permit been involved in litigation?
_____ Is supporting documentation needed to complete the file? _____ Requested?
✓ Is delay by a government agency?
_____ Is supporting documentation needed to complete the file? no Requested?
_____ Is the project more than 25,000 acre feet for irrigation or 10,000 acre feet for a reservoir?

ACTION TAKEN

*extension approved Based on govt delay
extend to March 1, 1996*

PRIORITY CALCULATION

Date extension received	<u>3/2/92</u>	=	<u>61</u>
Proof due date	<u>3/1/92</u>	=	<u>60</u>
Number of days late		=	<u>1</u>
Priority date	<u>1/5/79</u>	=	<u>5</u>
New Priority Date	<u>1/6/79</u>	=	<u>6</u>
	<u>3/16/92</u>		

DATA ENTRY

New Address _____
Change Proof Due Date 3/16/92 Klg

ATTACHMENT NO. 1 TO THE DISTRICTS REQUEST FOR EXTENSION OF TIME

The Boise-Kuna Irrigation District Nampa & Meridian Irrigation District, New York Irrigation District Wilder Irrigation District and Big Bend Irrigation District (the "Districts") have spent a total of \$10,410.27 on the development of the Mora Drop Hydroelectric Project (the "Project") since March of 1987. See attached. The bulk of these expenses have been for the legal and consultation services of Hawley Troxell Ennis & Hawley and for the legal and consultation services of Givens Pursley Webb & Huntley. These firms have been actively engaged in the negotiations with potential power developers, including Ida West, a subsidiary of Idaho Power Company. In addition, these firms engaged in negotiations and consultations with various engineering firms for the construction of the Project including Morrison Knudsen Engineers, Inc. and Power Engineers, Inc. of Hailey, Idaho.

The Districts retained Power Engineers, Inc. to prepare a preliminary report for the Mora Drop project as well as the Main Canal No. 6 Hydroelectric project. This Preliminary Report was finalized on December 23, 1991. Pursuant to this report, construction on the Project is scheduled to commence October 1, 1992 to be completed by April 1, 1993. In this fashion, there will be minimal interference with the delivery of water through the canal systems during the irrigation season. The projects are scheduled to be on-line by April 15, 1993. It is possible,

APR 13 1992

however, that construction will commence in the fall of 1993 with the Project coming on-line in the spring of 1994.

Additional costs have been incurred with regard to administrative functions concerning the Mora Drop Hydroelectric Project.

RECEIVED
MAY 19 1994

APR 19 1994

LOU L. MURGOITIO
CHAIRMAN OF THE BOARD

DONALD R. LENZ
VICE CHAIRMAN OF THE BOARD

KENNETH HENLEY
PROJECT MANAGER

PAUL J. DEVEAU
ASSISTANT PROJECT MANAGER

JUDITH A. SCHOLL
SECRETARY-TREASURER

ELVA FISCHER
ASSISTANT SECRETARY-TREASURER

BOISE PROJECT BOARD OF CONTROL

(FORMERLY BOISE U. S. RECLAMATION PROJECT)

214 BROADWAY
BOISE, IDAHO 83702

OPERATING AGENCY FOR 167,000
ACRES FOR THE FOLLOWING
IRRIGATION DISTRICTS

NAMPA-MERIDIAN DISTRICT
BOISE-KUNA DISTRICT
WILDER DISTRICT
NEW YORK DISTRICT
BIG BEND DISTRICT

TEL: (208) 344-1141

FAX: (208) 344-1437

MARCH 2, 1992

EXPENSES FOR MORA DROP HYDRO DEVELOPMENT JANUARY 1987 TO MARCH 1992

FEB 1987	Givens, Pursley, Webb & Huntley	\$ 1,000.00
APR 1987	Idaho Power (reimbursement for interconnect fee)	< 1,000.00>
JUN 1987	Givens, Pursley, Webb & Huntley	300.00
NOV 1989	Director's fees	160.28
MAR 1990	Hawley, Troxell, Ennis & Hawley	142.23
AUG 1990	Director's fees	125.86
SEP 1990	Hawley, Troxell, Ennis & Hawley	110.00
OCT 1990	Hawley, Troxell, Ennis & Hawley	157.50
NOV 1990	Hawley, Troxell, Ennis & Hawley	10.00
	Givens, Pursley, Webb & Huntley	112.50
DEC 1990	Director's fees	163.10
	Hawley, Troxell, Ennis & Hawley	135.00
JAN 1991	Hawley, Troxell, Ennis & Hawley	933.71
FEB 1991	Director's fees	54.27
	Hawley, Troxell, Ennis & Hawley	950.90
MAR 1991	Hawley, Troxell, Ennis & Hawley	321.39
APR 1991	Director's fees	617.55
MAY 1991	Director's fees	328.50
	Hawley, Troxell, Ennis & Hawley	1,526.19
JUN 1991	Givens, Pursley, Webb & Huntley	105.00
	Hawley, Troxell, Ennis & Hawley	388.96
JUL 1991	Director's fees	150.60
	Hawley, Troxell, Ennis & Hawley	196.81
AUG 1991	Hawley, Troxell, Ennis & Hawley	411.15
SEP 1991	Director's fees	163.10
	Hawley, Troxell, Ennis & Hawley	329.55
OCT 1991	Hawley, Troxell, Ennis & Hawley	485.05
NOV 1991	Hawley, Troxell, Ennis & Hawley	123.86
DEC 1991	Hawley, Troxell, Ennis & Hawley	314.26
JAN 1992	Director's fees	487.27
	Givens, Pursley, Webb & Huntley	243.75
	Hawley, Troxell, Ennis & Hawley	861.93
TOTAL		\$10,410.27

APR 13 1992

ATTACHMENT NO. 2 TO THE DISTRICTS REQUESTS FOR EXTENSION OF TIME

The Boise-Kuna Irrigation District, Nampa & Meridian Irrigation District, New York Irrigation District, Wilder Irrigation District and Big Bend Irrigation District (the "Districts") request an extension pursuant to I.C. § 42-204(1) for delay caused by the conduct of the federal government regarding right of access.

The Districts applied to the Federal Energy Regulatory Commission ("FERC") for an exemption of the proposed Mora Drop Hydroelectric Project. On December 18, 1980, FERC granted to the Districts an exemption (FERC No. 3403) from the Federal Power Act licensing requirements for the Mora Drop Project.

The purpose of the Mora Drop Project is to take advantage of the water flows diverted from the Boise River to downstream District members for consumptive agricultural use. An intake structure, parallel penstocks and a powerhouse will be constructed as part of the Project to take advantage of the natural drop from the upper Mora Canal to the lower Mora Canal. All existing facilities will be retained in their original condition to utilize water flow during periods when the turbines of the Project are not in use.

Although the new construction will be within the Districts easements boundaries, the Districts are obligated to enter into a Memorandum of Understanding ("MOU") with the U.S. Bureau of Reclamation. The Bureau of Reclamation is the holder

APR 13 1982

of the right-of-way for the canal system that comprises the Boise Project. Before the Districts are permitted to construct projects such as the Mora Drop Project, they must obtain the necessary access rights from the Bureau of Reclamation. Access rights will permit the Districts to enter the government right-of-way to construct, operate and maintain the Project.

To obtain the necessary access right the Districts commenced negotiations with the Bureau of Reclamation in or about April of 1985. On December 27, 1990, the Districts requested approval of an MOU to utilize the Bureau of Reclamation's property for power purposes. The request was directed both at the MC#6 Project and the Mora Drop Project. Although a MOU for the MC#6 was entered into shortly thereafter, the Bureau of Reclamation did not grant the request with regard to the Mora Drop Project. The Districts renewed their request indicating that the Projects were to be developed together. The Bureau of Reclamation is currently reconsidering the requested MOU on the Mora Drop Project.

The Districts do not anticipate that the Bureau of Reclamation will refuse to enter the MOU and, through informal contact, have been led to believe that the Bureau will execute the MOU shortly. Nevertheless, absent an approved and signed MOU, the Districts were unable to proceed with any ground work on the Mora Drop Project. Although the MOU has not yet been executed, the Districts fully expect to meet their proposed construction schedule.

APR 13 1992

With regard to the timing of the extension, the Districts request that the permit be extended until May 1, 1996 to correspond with the permit period for the MC#6 Project, Permit No. 63-10230. Although the Districts intend to have both projects on line by Spring of 1993 or 1994, the same permit period will be beneficial in the administration of the Projects.

APR 13 1992

March 5, 1992

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE
BOISE ID 83702

LAPSE NOTICE

RE: PERMIT NO. 63-09206

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 December 31, 1991. 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 fifteen dollar (\$15) 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

LGS:rf

Enclosures

RECEIVED

APR 13 1992

CERTIFICATION OF MAILING

I hereby certify that on 3/5/92
a ~~copy~~/an original of this document was
deposited in the United States mail,
postage prepaid addressed to the
individual(s) named above.

KLy

136373

December 31, 1991

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE
BOISE ID 83702

PROOF DUE NOTICE

RE: PERMIT NO. 63-09206

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 March 1, 1992. (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,

Karen L. Gustafson
Secretary/Records Manager

Enclosures

APR 13 1992

December 15, 1988

Boise Project Board of Control
214 Broadway
Boise, ID 83702

Gentlemen:

Re: Permit No. 63-9206

Enclosed is a copy of the approved request for extension of time. The time within which to submit the proof of beneficial use form is extended to March 1, 1992.

If you have any questions or concerns regarding the permit, please feel free to contact this office.

Sincerely,

RITA I. FLECK
Secretary/Records Manager

Enclosure

MICROFILMED

MAR 02 1989

LAW OFFICES
GIVENS, McDEVITT, PURSLEY, WEBB & BUSER

ELEANORE S. BAXENDALE*
CHRISTOPHER J. BEESON
PAUL J. BUSER
JEFFREY C. FEREDAY**
RAYMOND D. GIVENS
JAMES D. HANSEN
JUDITH K. HOLCOMBE
KENNETH R. MCCLURE
CHAS. F. McDEVITT
LEO EDWARD MILLER
PATRICK J. MILLER
TERRY L. MYERS
KENNETH L. PURSLEY
MICHAEL T. SPINK
CONLEY WARD
JAY L. WEBB

*ALSO ADMITTED IN OREGON
**ALSO ADMITTED IN COLORADO
AND WASHINGTON

SUITE 200, PARK PLACE
277 NO. 6TH STREET
POST OFFICE BOX 2720
BOISE, IDAHO 83701

DEC 12 1988 PHONE
(208) 342-6571

Department of Water Resources

TELECOPIER
(208) 343-9492

December 9, 1988

Mr. L. Glenn Saxton
Chief, Operations Bureau
Department of Water Resources
450 W. State Street
Boise, Idaho 83720

Dear Glenn:

Re: Permit No. 63-9206

Thank you for your letter of October 12th, to which I belatedly respond.

You are correct that in the proceedings to cancel Permit No. 63-9019, the Department entered its order which disposes of the issues so far as the Department is concerned, and from that order no appeal has been taken.

Our remaining problem is that in the proceedings before the Federal Energy Regulatory Commission under Project No. 2832, the Lucky Peak project, and also under Project No. 4656, the Arrowrock Proceedings, Pioneer and Settlers have raised the same issues. FERC has not decided either of those matters as yet and until a decision has been reached in those pending cases, the Districts are reluctant to proceed with the Mora Drop project. The pendency of those actions until resolved, will most likely adversely effect any arrangements necessary to fund the construction of the facility at the Mora Drop.

I might also mention that to some degree the proceedings in the United States District Court, Case No. 86-145, a portion of the same issues have also been raised.

If you wish, I would be happy to supply you with copies of the proceedings in each of those cases which demonstrate the reluctance of the Districts to proceed with the construction at the Mora Drop.

Yours very truly,

GIVENS, McDEVITT, PURSLEY, WEBB & BUSER

Ray
Raymond D. Givens

MICROFILMED

MAR 02 1989

ATTACHMENT NO. 1

The water right sought herein is one to generate power at a point known as the Mora Drop on the Mora Canal of the Boise Project.

In order to develop power at that point the diversion structures on the canal at the point the Waldvogel canal originates required modification. This work was completed in October, 1984, at a cost of \$99,153.28. Since that date additional engineering and other studies have been completed at an additional cost of \$9,004.82.

The rights of way held in the name of the United States, Department of Interior, Bureau of Reclamation for the Main Canal, Waldvogel and the Mora Canal are limited to rights of way for such canals and does not include the right to use any portion of Section 33, T. 2 North, R. 1 West, Boise Meridian for power plant sites, etc. The Boise Project Board

of Control acting on behalf of the above named irrigation districts

required title to the underlying fee for the following described property:

That part of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$, Section 33, Township 2 North, Range 1 West, described as follows:

Commencing at the SW corner of said Section 33, thence North along the Westerly section line of said Section 33, a distance of 517.00 feet, more or less, to the point of intersection with the northerly

MAR 02 1989

boundary line of the right of way of the Mora Canal, thence Easterly along the Northerly boundary of the right of way of the Mora Canal to the point of intersection of such right of way boundary with the Westerly 1/16th line of Section 33, T2N, R1W, which point lies approximately 295 feet Northerly of the Southeast corner of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$, Section 33, T2N, R1W, , thence Southerly along said 1/16th line to the Southeast corner of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of said Section 33, thence Westerly along the Southerly boundary of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of said Section 33, to the place of beginning.

in order to provide a suitable location for a power house,
at a cost of \$28,805.00.

ATTACHMENT 1

MAY 02 1989

ATTACHMENT 2

On August 7, 1980, the Boise-Kuna Irrigation District, the New York Irrigation District, the Nampa & Meridian Irrigation District, the Wilder Irrigation District and the Big Bend Irrigation District applied to the Federal Energy Regulatory Commission for an exemption of the hydroelectric project, which exemption was granted December 18, 1980.

The Boise-Kuna, the New York, the Nampa & Meridian, the Wilder and the Big Bend Irrigation Districts had earlier filed with the Department of Water Resources of the State of Idaho, Application No. 63-9019 for power production at Lucky Peak Dam, which was tentatively approved December 7, 1977 and finally approved on May 30, 1984.

These irrigation districts in December, 1978 sought a license from Federal Energy Regulatory Commission for power production at Lucky Peak which was granted the 10th day of June, 1980.

The Pioneer Irrigation district has filed with the Department of Water Resources a petition to cancel Permit No. 63-9019, upon grounds which could impact Permit No. 63-9206.

No. 1 724
The Department has held a hearing upon the petition to cancel Permit No. 63-9206, but the matter has not yet been resolved.

RECORDED

MAR 02 1989

ATTACHMENT 2

The Pioneer Irrigation District has filed a similar petition with the Federal Energy Regulatory Commission, but that matter is also unresolved.

The Pioneer District and the Settlers Irrigation District have also filed an action in the United States District Court, No. Civ. 86-1455, entitled Settlers and Pioneer Irrigation District vs United States of America, Donald P. Hodel et al, which may also impact⁺ the hydroelectric projects of irrigation districts which the real permit holders herein. ? ← ?

The pleadings in the actions filed with FERC and the U. S. District Court are somewhat voluminous but if they would be of use to the Department, copies thereof will be filed herein. The Department already has copies of the pleadings before it.

The various administrative proceedings plus the litigation the permit holder asserts are good cause for granting the requested extension of time.

ATTACHMENT 2

MAR 02 1987

November 15, 1988

Raymond D. Givens
GIVENS, MCDEVITT, PURSLEY, WEBB & BUSER
P.O. Box 2720
Boise, ID 83701

RE: PERMIT NO. 63-9206 - MORA DROP PROJECT

Dear Mr. Givens:

Enclosed is a copy of my October 12, 1988 correspondence to you to which I received no response.

Please respond and provide the information at your earliest convenience.

Sincerely,

L. GLEN SAXTON, Chief
Water Allocation Bureau

Encl: 1

c: W. Region

MICROFILMED

MAR 02 1989

October 12, 1988

Raymond D. Givens
GIVENS, MCDEVITT, PURSLEY, WEBB & BUSER
P.O. Box 2720
Boise, ID 83701

RE: PERMIT NO. 63-9206 - MORA DROP PROJECT

Dear Mr. Givens:

On January 30, 1987, you submitted a request for an extension of time in which to submit proof of beneficial use in connection with the above referenced permit. In my March 30, 1987 letter to you, I advised the department would withhold action on the extension request until the questions raised by Pioneer Irrigation District in connection with Permit No. 63-9019 (Lucky Peak) had been resolved.

On March 17, 1988, the department issued a final decision in connection with the petition of Pioneer Irrigation District to cancel Permit No. 63-9019. The file indicates the issue is resolved with no further pending matters or appeals.

Department action on the pending extension request now appears to be appropriate. The issue to be addressed is how much additional time can be allowed for the proof submittal, since the department has already granted an extension of time based on due diligence.

As you know, additional time can be granted under terms of Section 42-204, Idaho Code, based on past litigation. Please provide evidence (dates) in connection with the Lucky Peak matter in order that the department can determine the time which can be allowed.

It is possible, however, that at this point it is appropriate to submit the proof of beneficial use in lieu of the extension request if the development is complete.

Please advise me soon in this matter.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

c: W. Region

MICROFILMED

MAR 02 1989

March 30, 1987

Raymond D. Givens
GIVENS, MCDEVITT, PURSLEY, WEBB, BUSER
P. O. Box 2720
Boise, ID 83701

Dear Mr. Givens:

Re: Permit No. 63-9206 - Mora Drop Project

I have received and reviewed your letter of March 18, 1987 in connection with the above-referenced permit.

The department will hold the request for extension of time for Permit No. 63-9206 without action until the question related to ownership of Permit No. 63-9019 (Lucky Peak) has been resolved.

If you have question, please feel free to contact me.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

LGS:rf

c: Western Region

MICROFILMED

MAR 02 1989

LAW OFFICES

GIVENS, McDEVITT, PURSLEY, WEBB & BUSER

RAYMOND D. GIVENS
CHAS. F. McDEVITT
KENNETH L. PURSLEY
JAY L. WEBB
PAUL J. BUSER
LEO EDWARD MILLER
CHRISTOPHER J. BEESON
CELESTE KIM VERNETTI
TERRY L. MYERS
KENNETH R. McCLURE
JEFFREY C. FEREDAY
JUDITH K. HOLCOMBE

SUITE 200, PARK PLACE
277 NO. 6TH STREET
POST OFFICE BOX 2720
BOISE, IDAHO 83701

TELEPHONE
(208) 342-6571

TELECOPIER
(208) 343-9492

March 18, 1987

RECEIVED
MAR 20 1987

Department of Water Resources

WES
Mr. L. Glenn Saxton
Chief, Operations Bureau
Department of Water Resources
450 W. State Street
Statehouse
Boise, Idaho 83720

Dear Glen:

Re: Permit Number 63-9206

Thank you for your letter of February 23rd.

You are correct in that on attachment 2, by inadvertence we referred to Permit No. 63-9206 when we should have referred to Permit No. 63-9019.

You stated in your letter that the Department does not see the connection between the litigation involving Permit No. 63-9019, Lucky Peak, and Permit No. 63-9206, Mora Drop.

The principal point is that in the Lucky Peak matter the Pioneer Irrigation District has asserted that neither the Board of Control, acting for its 5 constituent districts, nor the districts acting in their own name is an appropriate applicant, and therefore, Permit No. 63-6019 should be cancelled.

⁹
The Pioneer Irrigation District asserts in 63-9019 that the Boise Project Board of Control is not a statutorily defined applicant, and further asserts that the Big Bend Irrigation District, being located in the State of Oregon, is not an appropriate applicant. The Department has not yet ruled on the question in relation to whether or not to cancel Permit No. 63-9019, and the Bond Counsel as a potential purchaser of any power produced under Permit 63-9206, has expressed hesitation about proceeding, at least until such time as the Department has ruled as to whether the Board, acting for the 5 constituent irrigation districts, or all 5 acting in concert on the matter are proper

MAR 02 1989

Page -2-

March 18, 1987

Mr. L. Glenn Saxton
Boise, Idaho 83720

applicants and do not wish to take any formal action until the Department has resolved the question.

Obviously if neither the Boise Project, acting for the 5 districts, or the 5 districts on their own cannot hold the permit at Lucky Peak, they could not hold it at Mora.

If you wish anything further at this point in regard to the Mora Drop, please advise me and I will try to supply it.

Yours very truly,

GIVENS, McDEVITT, PURSLEY, WEBB
& BUSER


Raymond D. Givens

RDG:ph

RECEIVED
MAR 22 1987

MAR 22 1987

February 23, 1987

Ray Givens
GIVENS, MCDEVITT, PURSLEY, WEBB & BUSER
P. O. Box 2720
Boise, ID 83701

Dear Mr. Givens:

Re: Permit No. 63-9206 - Mora Drop

The department has received and reviewed the request for extension of time you submitted in connection with the above referenced permit.

Attachment 2 submitted with the extension request states that the department held a hearing upon the petition to cancel Permit No. 63-9206. I think you intended to refer to Permit No. 63-9019, the Lucky Peak Power filing instead of Permit No. 63-9206, the Mora Drop permit. Please clarify this.

A review of permit file 63-9206 (Mora Drop) shows that on February 25, 1983, the department granted an extension of time based on due diligence. Additional extensions may only be allowed based on litigation which might bring the title to the water in question (Sec. 42-204, paragraph 1., Idaho Code). The department does not see the connection between the litigation involving Permit No. 63-9019, Lucky Peak as related to Permit No. 63-9206, Mora Drop. If you have evidence showing that Permit No. 63-9206, in fact, is involved in the Lucky Peak matter, please provide it for the department's further consideration of the pending extension request.

If you have any questions, please feel free to contact the department.

Sincerely,

L. GLEN SAXTON
Chief, Operations Bureau

cc: W. Region
Boise Project Board of Control

UNRECORDED

MAR 02 1989



State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

CECIL D. ANDRUS
Governor

A. KENNETH DUNN
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

EXTENSION OF TIME

February 4, 1987

Givens, McDevitt, Pursley, Webb & Buser
P. O. Box 2720
Boise, ID 83701

PERMIT NO. 63-9206, Boise Project Board of Control

We are in receipt of the \$15 extension fee for Extension(s) of Time to provide additional time in which to submit proof of beneficial use on a water right permit.

Your request for extension(s) of time is being reviewed by staff. You will be informed of our decision when review has been completed.

Enclosed is our receipt No. 41420.

Roberta Garrett
Records Supervisor

Enclosure

cc Boise Project Board of Control

MICROFILMED

MAR 02 1989

LAW OFFICES

GIVENS, McDEVITT, PURSLEY, WEBB & BUSER

RAYMOND D. GIVENS
CHAS. F. McDEVITT
KENNETH L. PURSLEY
JAY L. WEBB
PAUL J. BUSER
LEO EDWARD MILLER
CHRISTOPHER J. BEESON
CELESTE KIM VERNETTI
TERRY L. MYERS
KENNETH R. McCLURE
JEFFREY C. FEREDAY
JUDITH K. HOLCOMBE

SUITE 200, PARK PLACE
277 NO. 6TH STREET
POST OFFICE BOX 2720
BOISE, IDAHO 83701

TELEPHONE
(208) 342-6571

TELECOPIER
(208) 343-9492

January 29, 1987

State of Idaho
Department of Water Resources
Towers Building
Boise, Idaho *3720

Gentlemen:

We enclose herewith the Request for Extension of Time in the matter of Permit 63-9206, held by the Boise Project Board of Control on behalf of the Boise Kuna, the New York, the Nampa & Meridian, the Wilder and the Big Bend Irrigation Districts in response to your letter of December 31, 1986.

Yours very truly,

GIVENS, McDEVITT, PURSLEY, WEBB & BUSER


Raymond D. Givens

RDG:ph
Enc.

RECEIVED
JAN 30 1987
and delivered
Department of Water Resources

MICROFILMED

MAR 02 1989

P A Y E E: DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

RAYMOND D. GIVENS - Attorney at Law - Boise, Idaho 83701

DATE	INVOICE NO.	DESCRIPTION	AMOUNT	DISCOUNT OR DEDUCTION	NET AMOUNT
1/39/87	6861 20 44W MAILED MAR 07 1987	Filing fee-- Request for for Extension of Time - 63-9206			\$15.00

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

- - - - -

STATEHOUSE
BOISE, IDAHO 83720
(208) 334-4440
CERTIFIED MAIL
DECEMBER 31, 1986

138599

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE
BOISE, ID 83702

PROOF DUE NOTICE

RE: PERMIT NO. 63-9206

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 MARCH 1, 1987. (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 COMPLETED 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,

RITA FLECK
SECRETARY/RECORDS MANAGER

ENCLOSURES

MICROFILMED

MAR 02 1989

63-9206
Approved

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Boise-Kuna Irrigation District	)	Project No. 3403
Nampa and Meridian Irrigation District	)	
New York Irrigation District	)	
Wilder Irrigation District	)	
Big Bend Irrigation District	)	

NOTICE OF APPLICATION FOR EXEMPTION FOR
SMALL CONDUIT HYDROELECTRIC FACILITY

(October 7, 1980)

Take notice that on August 27, 1980, the Boise-Kuna Irrigation District, Nampa and Meridian Irrigation District, New York Irrigation District, Wilder Irrigation District, and Big Bend Irrigation District, collectively known as the Boise Project Board of Control (Applicant) filed an application under Section 30 of the Federal Power Act (Act) [16 U.S.C. Section 823(a)] for exemption of a proposed hydroelectric project from requirement of Part I of the Act. The proposed Mora Canal Drop Power Plant (FERC Project No. 3403) would be located on the Applicant's Mora Canal approximately 38 miles downstream of the Boise River Diversion Dam in Ada County, Idaho. The water is diverted, for irrigation purposes, at the Boise River Diversion Dam into the New York Canal; the Mora Canal branches from the New York Canal 26 miles downstream of the diversion point. The Mora Canal drop structure is located 12 miles below the branch point. Correspondence with the Applicant should be directed to: Mr. Royse VanCuren, Project Manager, Boise Project Board of Control, 214 Broadway, Boise, Idaho 83702.

Purpose of Project - It is anticipated that project energy would be sold to the Idaho Power Company for use within its electric service area.

Project Description - The proposed project would consist of: (1) an inlet structure; (2) a 150-foot long penstock consisting of an 8-foot cast-in-place concrete box serving; (3) a powerhouse to be operated under a head of 37 feet and to contain a turbine-generator unit with a rated capacity of 1,900 kW; and (4) a substation adjacent to the powerhouse. The power plant would be remotely controlled and would produce approximately 8.1 million kwh of energy per year.

Agency Comments - The U. S. Fish and Wildlife Service and the Idaho Department of Fish and Game are requested, pursuant to Section 30 of the Federal Power Act, to submit appropriate terms and conditions to protect any fish and wildlife resources. Other Federal, State, and local agencies that receive this notice through direct mailing from the Commission are requested to provide any comments they may have in accordance with their duties and responsibilities. No other formal requests for comments will be made. Comments should be confined to substantive issues relevant to the granting of an exemption. If an agency does not file comments within the time set below, it will be presumed to have no comments.

Comments, Protests, or Petitions to Intervene - Anyone desiring to be heard or to make any protest about this application should file a petition to intervene or a protest with the Federal Energy Regulatory Commission, in accordance with the requirements of the Commission's Rules of Practice and Procedure, 18 CFR, §1.8 or §1.10 (1979). Comments not in the nature of a protest may also be submitted by conforming to the procedures specified in §1.10 for protests. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but a person who merely files a protest or comments does not become a party to the proceeding. To become a party, or to participate in any hearing, a person must file a petition to intervene in accordance with the Commission's Rules. Any comments, protest, or petition to intervene must be filed on or before November 13, 1980. The Commission's address is: 825 North Capitol Street, NE., Washington, D.C. 20426. The application is on file with the Commission and is available for public inspection.

Kenneth F. Plumb
Secretary

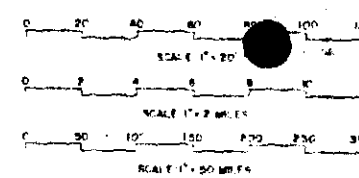
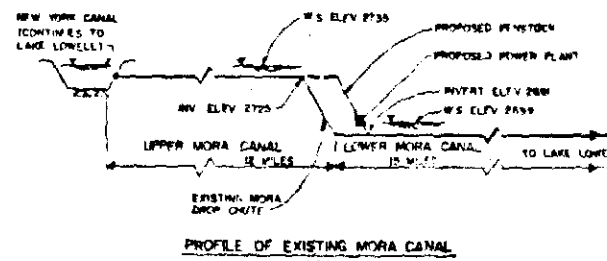
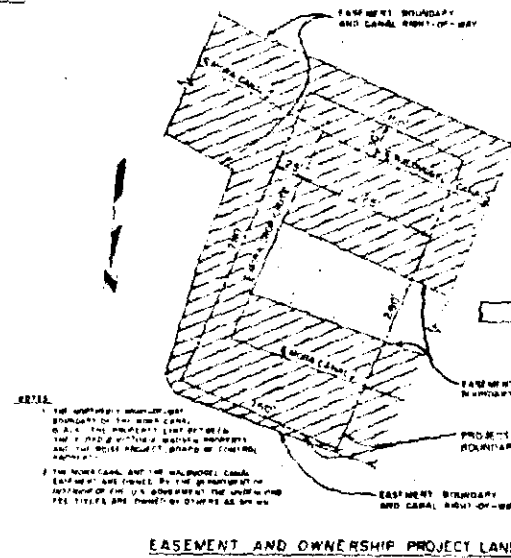
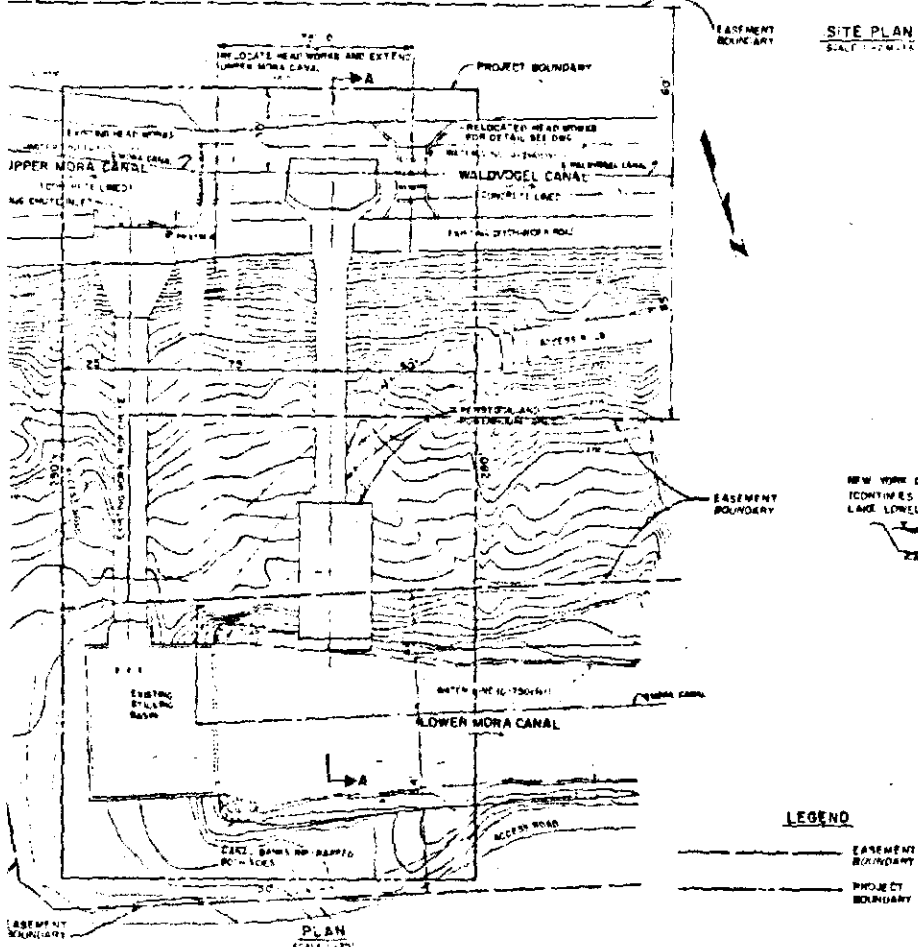
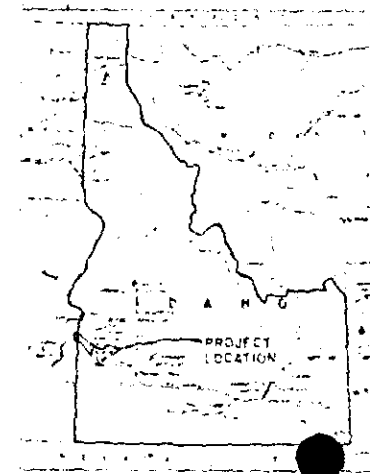
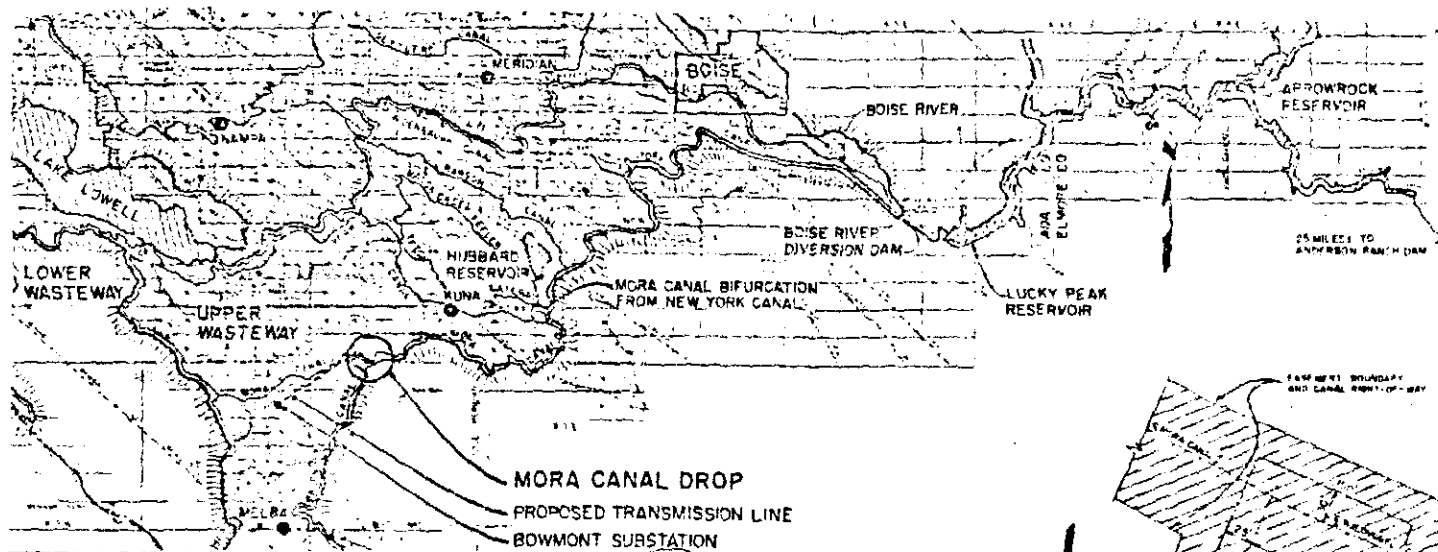


EXHIBIT B

BOISE PROJECT BOARD OF CONTROL
MORA CANAL DROP POWER PLANT
GENERAL PLAN, PROJECT BOUNDARIES
AND LOCATION OF PRINCIPAL FACILITIES

TUDOR ENGINEERING, INC. SAN FRANCISCO, CALIF.

FERC No. 3403

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D. C. 20426

EQUAL OPPORTUNITY EMPLOYER

RECEIVED

OCT 14 1980

POSTAGE AND FEES PAID

FEDERAL ENERGY REGULATORY COMMISSION

FERC-351

FIRST CLASS MAIL



State of Idaho P-2503
Dept. of Water Resources
State House
Boise, Idaho 83720

WATER RIGHT NUMBER 63-9206

OWNER LAST NAME - BOISE PROJECT BOARD OF CONTROL FIRST NAME - ORIG OWNER -
ADDRESS LINE 1 - 214 BROADWAY AVENUE ADDRESS LINE 2 -
ADDRESS LINE 3 - CITY - BOISE STATE - ID ZIP CODE - 83702
SOURCE - BOISE RIVER TRIBUTARY OF - SNAKE RIVER
STAGE - PERMIT STATUS - PRIORITY - 01-05-1979 COUNTY - ADA TOTAL DIV. RATE - 900.0000 -CFS
TOTAL DIV. VOLUME - .00 AFA TRFR/AMEND - WATER DIST. - 63 DLE/CAREY ACT - RIGHT BASIS -
DIVERSION POINT - NWSW 03 02N 03E LOT REDIV - 272.0 312.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 61.3
FROM - 03-15 TO - 11-15 USE - POWER USE DIV. RATE - 900.0000 CFS USE DIV. VOLUME - .00 AFA
USE - POWER PLACE OF USE - TWN 02N RNG 01W SEC 33 TRACT SWSW LOT AC
DECREE NAME - DATE - TOTAL ACRES 0
REMARKS - THIS PERMIT IS A NEW USE OF EXISTING WATER RIGHTS.
NON IRRIG USE -
OTHER RIGHTS FOR SAME USE -
PROOF DUE - 03-01-1987 PERMIT/DENIED - 03-05-1979 PROTESTED - HEARING - OLD NO. -
PROOF MADE - FLD EXAM - COND. OF APPROVAL - 04 05 08 16
DIVERSION MEANS - CANAL & HYDRO-TURBINES

March 1, 1983

Boise Project Board of Control
214 Broadway
Boise, ID 83702

Gentlemen:

Re: Permit No. 63-9206

Enclosed is a copy of the approved request for extension of time. The time within which to submit the statement of beneficial use postcard is extended to March 1, 1987.

Sincerely,

RITA I. FLECK
Sr. Secretary

Enc: Extension of Time

MICROFILM



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

EXTENSION OF TIME

January 12, 1983

Boise Project Board of Control
214 Broadway
Boise, ID 83702

PERMIT NO. 63-9206

We are in receipt of the \$15 extension fee for Extension(s) of Time to provide additional time in which to submit proof of beneficial use on a water right permit.

Your request for extension(s) of time is being reviewed by staff. You will be informed of our decision when review has been completed.

Enclosed is our receipt No. **25817.**

Roberta Garrett
Records Supervisor

Enclosure

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

STATEHOUSE
BOISE, IDAHO 83720
(208) 334-4440
CERTIFIED MAIL

138075

BOISE PROJECT BOARD OF CONTROL
214 BROADWAY AVENUE
BOISE, ID 83702

DECEMBER 31, 1982

DEAR PERMIT HOLDER:

ONE OF THE CONDITIONS OF APPROVAL OF YOUR WATER PERMIT NO. 63-9206 WAS THAT EVIDENCE OF THE EXTENT OF DEVELOPMENT MUST BE SUBMITTED TO THIS OFFICE ON OR BEFORE MARCH 01, 1983. (SEE LAST PAGE OF YOUR APPROVED PERMIT). ENCLOSED IS A POST CARD WHICH MAY BE USED TO SUBMIT THE REQUIRED PROOF OF BENEFICIAL USE.

IF YOU HAVE NOT FULLY COMPLETED YOUR PROJECT, AND YOU HAVE NOT PREVIOUSLY RECEIVED AN EXTENSION OF TIME, YOU MAY REQUEST AN EXTENSION OF TIME PROVIDED THE DELAY IS FOR REASONABLE CAUSE AS INDICATED IN SECTION 42-204, IDAHO CODE, AMENDED. IF YOU HAVE BEEN PREVENTED FROM PROCEEDING BY A GOVERNMENTAL AGENCY OR BY LITIGATION, MORE THAN ONE EXTENSION OF TIME CAN BE GRANTED.

EITHER THE BENEFICIAL USE POST CARD OR A REQUEST FOR AN EXTENSION OF TIME MUST BE RECEIVED BY THIS DEPARTMENT ON OR BEFORE THE ABOVE MENTIONED DATE, OTHERWISE, THE PERMIT WILL LAPSE AND BE OF NO FURTHER FORCE OR EFFECT WITHIN 60 DAYS.

SINCERELY,

RITA FLECK
SR. SECRETARY

ENC: 1

9/78

IDENT. NO. 63-9206

I D A H O D E P A R T M E N T O F W A T E R R E S O U R C E S

WATER RIGHT
DATA ENTRY LOG

[illegible]



State of Idaho

DEPARTMENT OF WATER RESOURCES

STATE OFFICE, 373 W. Franklin Street, Boise, Idaho

JOHN V. EVANS

Governor

C. STEPHEN ALLRED

Director

Mailing address:

Statehouse

Boise, Idaho 83720

(208) 384-2215

March 7, 1979

Re: Permit No. 63-9206

Boise Project Board of Control
214 Broadway Avenue
Boise, Idaho 83702

Gentlemen:

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

Be sure to note the special condition requiring you to install and maintain a measuring device at your point of diversion prior to submitting proof of beneficial use of water. We have enclosed a letter describing the different types of measuring devices accepted by this office.

Sincerely,

David R. Tuthill Jr.

DAVID R. TUTHILL, JR.
Supervisor, Water Allocations Section

DRT:lr

Enclosure

MICROFILMED

STAFF REVIEW - STATE OFFICE

1. ✓ Name vs. Signature
2. B.R. Source
3. ✓ Point of Diversion
4. 900 Amnt. & Period of Use
5. ✓ Descrip. of Diverting Wrks.
6. A Time req. for Proof of B/U
7. ✓ Place of Use for other than irrig.
8. N/A Place of Use for irrigation (add acres)
9. A Property Owner at Pt. of Div. & Pl. of Use
10. ✓ Map
11. 1505 Fee & Rec't. No.

Copies Sent To:

NO Idaho Health Department
7 Idaho Fish & Game Dept.
7 Bureau of Land Management

NO U.S.F.S.
7 Dept. of Lands
7 Other

Dam Safety Information N/A (Goes to Permit Section)

Check:

Critical G.W. Area yes ✓ no

Other rights on same land N/A

Withdrawals of all protests received N/A yes no

Conditions:

ID Power Co. Letter - Snake R. No

ID Power Co. Letter - G.W. & Tribs. No

Snake River Condition No

Payette River Letter No

Priority Date 1/5/79

Water Quality #16 NO
7
 Water Quality #10 7
 intrastate interstate

Add condition # 20

Meas. Dev. or Sc. Meas. ✓

Totalizing meter No

Supplemental No

Right-of-Way Cond. Yes

Watermaster Cond. Yes
 Wtr. Dist No. 63

Meas. Dev. Cond. for apps within a Water Dist. Yes

Jim
 Reviewer
2/23/79
 Date

RECEIVED

DEPARTMENT OF WATER RESOURCES
- STAFF ANALYSIS -

Item Initial Date

Application No. 63-9206

Note! Application should show the Point of diversion at the head of Mora Canal where it diverts from the Boise R. This should be done before it is advertised.

J.J. ✓ Source
✓ Point of Diversion
✓ County
✓ Quantity of Water and Period of Use
✓ Description of Diverting Works
✓ Time required for B/U of water
✓ Place of Use or Acres Irrigated
✓ Map
✓ Signature
✓ Fee

AFF. to Establish Res. form has been submitted with APP #63-9019 please check Yes + this file if there are any questions.

(1) J.J. 1/5/79

In form to receipt

(2) _____

Send Copies to:

_____ Idaho State Health Department
_____ Idaho Fish and Game Department
_____ Bureau of Land Management

(3) _____

_____ Request Special Use Permit from U.S.F.S.
_____ Request Easement from B.L.M.
_____ Request Information from Applicant
_____ Request Dam Safety Information

(4) 6h5 1/11/79

In form for advertising

(5) _____

Platted on Map No. _____

(6) _____

Located within Water District No. 63

(7) _____

Critical groundwater area: yes _____ no _____

(8) _____

Groundwater levels:

_____ Declining, _____ Stable, _____ Increasing

(comment) _____

(9) _____

Other rights on the same place of use

(10) _____

Comments: _____

(11) KK OK

Affidavit of Publication received(date) 2/12/79

(12) _____

Final date for protests 2/12/79
Protests received: yes _____ no ✓

(13) _____

All requested information received from agencies or applicant: yes _____ no _____

(14) _____

Action recommended:

✓ Approve _____ Deny

1-5-79 Proposed Priority

_____ Reason for Reduction _____

✓ Measuring device required

_____ See attached sheet for other conditions of approval

_____ No special conditions for approval

(15) District W

By dkm Date 2-25-79

I.P. letter
w.m. condition
RECEIVED

FEB 16 1979

Department of Water Resources

RECEIVED

NOTICE OF APPLICATION FOR WATER RIGHT

Notice is hereby given that the following application(s) have been submitted for permit to appropriate the public waters of the

MAX B. SCHLOTTMAN
CHAIRMAN OF THE BOARD

GAYLE JOHNSON
VICE CHAIRMAN OF THE BOARD

ROYSE VAN CUREN
PROJECT MANAGER

CARL PADOUR
ASSISTANT PROJECT MANAGER

NORLYN F. POPE
SECRETARY-TREASURER

PHEBE M. MORRIS
ASSISTANT SECRETARY-TREASURER

REFERENCE—FIRST SECURITY BANK OF IDAHO—BOISE
THE IDAHO FIRST NATIONAL BANK—BOISE
BUREAU OF RECLAMATION—BOISE, IDAHO; WASHINGTON, D.C.

BOISE PROJECT BOARD OF CONTROL

(FORMERLY BOISE U. S. RECLAMATION PROJECT)

214 BROADWAY

BOISE, IDAHO 83702

December 31, 1978

OPERATING AGENCY FOR 167,000
ACRES FOR THE FOLLOWING
IRRIGATION DISTRICTS:

NAMPA-MERIDIAN DISTRICT
BOISE-KUNA DISTRICT
WILDER DISTRICT
NEW YORK DISTRICT
BIG BEND DISTRICT

Mr. C. Stephen Allred, Director
Idaho Department of Water Resources
Statehouse
Boise, Idaho 83720

RE: Hydro Power - Lucky Peak Dam
Low Head Hydro - Mora Drop

Dear Mr. Allred:

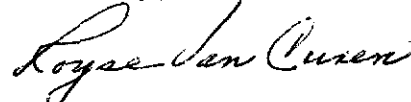
This letter is designed to serve two purposes which are, a status report on the Lucky Peak hydro application and to make application to use in-stream (canal) flow for low-head hydro-power production at Mora Canal Drop.

The full application document as prepared by "International Engineering Company" for Lucky Peak was approved in draft by the Boise Project Board of Control in meeting January 28, 1978. The application is to be filed with the "Federal Energy Regulatory Commission" as soon as possible, which should be a few days at the most.

Enclosed with this letter is an application to use in-stream (canal) flow in the Mora Canal for a low-head hydro-power plant. We understand that an application to your office is a part of the full procedure required. To expedite your examination of the application, a copy of the final report to the "Department of Energy" in Idaho Falls is also enclosed.

Should you need further information, please contact this office.

Sincerely,



Royse Van Curen
Project Manager

RVC:bg

Enclosures: 2

RECEIVED
DEC 29 1978
Department of Water Resources

BOISE PROJECT BOARD OF CONTROL

214 BROADWAY AVENUE, BOISE, ID 83702

Source: BOISE RIVER tributary to SNAKE RIVER

Date Filed: 01/05/1979

Amount: 900.00 CFS

Diversion Point: NWSW Sec 03 T 02N R 03E, ADA Co.

Use: POWER (900.00 CFS) from 03/15 to 11/15

Place of Use: SWSW Sec 33 T 02N R 01W

Diversion Means: CANAL & HYDRO-TURBINES

MICROFILMED
1980

FINAL REPORT ON

POTENTIAL HYDROELECTRIC POWER

MORA CANAL DROP

*Microfilm Entire book
before file is ever destroyed!*

TO
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
NO. EW-78-F-07-1760

BY
BOISE PROJECT BOARD OF CONTROL
BOISE, IDAHO

TUDOR ENGINEERING COMPANY
SAN FRANCISCO, CALIFORNIA

DECEMBER 1978

MICROFILMED



LOUIS W. RIGGS
STANLEY H. FROID
ROBERT N. JANOPPAUL
DAVIS C. TOOTHMAN
PAUL E. POTTER
KEITH D. BULL
DOUGLAS J. MANSFIELD
HERBERT H. LA VIGNE
WILLIAM W. DAVIS
ORAL J. CONYERS

TUDOR ENGINEERING COMPANY
CONSULTING ENGINEERS AND PLANNERS
149 NEW MONTGOMERY STREET
SAN FRANCISCO, CALIFORNIA 94105

TELEPHONE (415) 982-8338 CABLE "TENGCO"

RALPH A. TUDOR (1902-1963)
DONALD J. CROFT
ROBERT W. GANSE
KENNETH W. HEILIG
ROBERTO E. INIGUEZ
GRANT A. LARSEN
JAMES W. MEYER
ROBERT W. MYRDAL
RAINER RUNGALDIER
TEVIS T. THOMPSON, JR.
DAVID C. WILLER

Boise Project Board of Control
214 Broadway
Boise, Idaho 83702

December 12, 1978

Subject: Mora Canal Drop Feasibility Study

Gentlemen:

We are pleased to present this report on the hydro-electric power potential of the Mora Canal Drop.

The recommended project would consist of the installation of a 1900 kilowatt turbine and generator at the drop site. The Average Annual Energy generated would be 8,113,000 kilowatt hours.

The initial cost of the project would be approximately \$1,800,000. The annual cost, including amortization, would range between \$165,000 and \$180,000, depending on the financing methods adopted.

The cost of producing the power at the Mora Canal Drop would range between 20.3 mills/kwhr and 22.2 mills/kwh. The final figure will depend on the financing methods adopted.

The energy production curve closely matches the energy demand curve for the surrounding area. The Idaho Power Company has indicated a need for the power and has offered to purchase all power produced at the Mora Canal Drop for 26 mills/kwh, thus making the project feasible under any financing method adopted.

We therefore recommend that the Boise Project Board of Control proceed with the project and that discussions be initiated with potential power purchasers as soon as possible.

TUDOR ENGINEERING COMPANY

Tudor Engineering Company sincerely appreciates the opportunity to prepare this study. We believe that it is important to develop all economical small-scale hydro-electric sites where energy is presently being wasted. The Boise Project Board of Control should be commended for their action in initiating this study.

Very truly yours,
TUDOR ENGINEERING COMPANY

David C. Willer

David C. Willer
Principal Investigator

FINAL REPORT

MORA CANAL DROP

COOPERATIVE AGREEMENT

NO. EW-78-F-07-1760

TO
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

BY
BOISE PROJECT BOARD OF CONTROL

NEW YORK IRRIGATION DISTRICT - BOISE, IDAHO
NAMPA AND MERIDIAN IRRIGATION DISTRICT - NAMPA, IDAHO
BOISE - KUNA IRRIGATION DISTRICT - KUNA, IDAHO
WILDER IRRIGATION DISTRICT - CALDWELL, IDAHO
BIG BEND IRRIGATION DISTRICT - NYSSA, OREGON

PREPARED BY
TUDOR ENGINEERING COMPANY
SAN FRANCISCO, CALIFORNIA

TABLE OF CONTENTS

	PAGE
I. INTRODUCTION	1
A. PURPOSE	1
B. AUTHORITY	1
C. SCOPE OF STUDY	1
D. REPORT FORMAT	2
E. ACKNOWLEDGEMENTS	3
II. EXISTING FACILITIES	4
A. GENERAL	4
B. SYSTEM DESCRIPTION	5
C. SYSTEM OPERATION	7
D. SITE DESCRIPTION	7
E. BOISE PROJECT HISTORY	8
F. WATER RIGHTS	9
III. CONCEPTUAL DEVELOPMENT	11
A. GENERAL	11
B. OVERALL FACILITIES AND ALTERNATIVE OPTIONS	11
C. DESCRIPTION OF AVAILABLE TURBINES	12
D. DESCRIPTION OF AVAILABLE GENERATORS	16
E. SELECTION OF TURBINE	17
F. SELECTION OF RECOMMENDED PLANT CONFIGURATION	18
IV. RECOMMENDED DEVELOPMENT	21
A. GENERAL	21
B. DESCRIPTION	21
C. FLOW CONTROL AND OPERATING MODES	24
V. PROJECT ENERGY PRODUCTION	26
A. GENERAL	26
B. DEFINITIONS	26
C. HYDROLOGY	28
D. STUDY METHODOLOGY	31
E. STUDY RESULTS	33

	PAGE
VI. VALUE OF HYDROELECTRIC POWER	34
A. GENERAL	34
B. MARKETING POTENTIAL OF POWER PRODUCED	34
C. UNIT VALUE OF POWER	37
D. PROJECT POWER VALUE	38
VII. PROJECT COSTS	39
A. GENERAL	39
B. INITIAL CAPITAL COSTS	39
C. ANNUAL COSTS	40
VIII. FINANCIAL ANALYSIS AND ENERGY COSTS	41
A. GENERAL	41
B. FINANCIAL ALTERNATIVES	41
C. ENERGY PRODUCTION COST	43
IX. ECONOMIC EVALUATION	45
A. GENERAL	45
B. PROJECT LIFE	45
C. COST AND BENEFIT STREAMS	45
D. BENEFIT COST RATIOS	46
E. CONCLUSIONS AND RECOMMENDATIONS	48
X. DEVELOPMENT PLAN	49
A. GENERAL	49
B. DETAILED PLAN	49
XI. ENVIRONMENTAL, SAFETY AND SOCIO-INSTITUTIONAL ASPECTS	51
A. GENERAL	51
B. ENVIRONMENTAL IMPACT	51
C. SAFETY ASPECTS	54
D. SOCIO-INSTITUTIONAL IMPACT	54
LISTS OF TABLES	
LISTS OF FIGURES	
LISTS OF PLATES	
LISTS OF APPENDICES	

LIST OF TABLES

TABLE III-1	COST COMPARISON OR ALTERNATIVE POWER PLANT CONFIGURATIONS
TABLE V-1	AVERAGE MONTHLY POWER AND ENERGY
TABLE VII-1A	CONSTRUCTION COST SUMMARY PROPELLER TURBINE ALTERNATIVE
TABLE VII-1B	CONSTRUCTION COST SUMMARY TUBE TURBINE ALTERNATIVE
TABLE VII-2	ENGINEERING AND ADMINISTRATIVE COSTS
TABLE VII-3	INITIAL COST SUMMARY
TABLE VII-4	ANNUAL OPERATION AND MAINTENANCE COSTS
TABLE VIII-1A	ENERGY PRODUCTION COST WITH D.O.E. LOAN OPTION
TABLE VIII-1B	ENERGY PRODUCTION COST WITH CONVENTIONAL FUNDING OPTION
TABLE IX-1	COST AND BENEFIT STREAMS
TABLE IX-2A	BENEFIT COST RATIOS WITH D.O.E. LOAN OPTION
TABLE IX-2B	BENEFIT COST RATIOS WITH CONVENTIONAL FUNDING OPTION

LIST OF FIGURES

FIGURE II-1	MORA CANAL PHOTOGRAPHS
FIGURE V-1	BOISE PROJECT WATER DELIVERIES
FIGURE V-2	HYDROGRAPH
FIGURE V-3	TYPICAL PROPELLER TURBINE PERFORMANCE CURVE
FIGURE V-4	NET HEAD VS. FLOW
FIGURE V-5	AVERAGE MONTHLY POWER
FIGURE V-6	AVERAGE MONTHLY ENERGY
FIGURE VI-1	PEAK DEMAND FOR IDAHO POWER COMPANY
FIGURE VI-2	PROJECTED MONTHLY AVERAGE LOADS OF IDAHO POWER COMPANY AND AVERAGE MONTHLY POWER GENERATION AT MORA CANAL DROP
FIGURE VI-3	ANNUAL ENERGY SURPLUS/DEFICIT AVERAGE MW
FIGURE X-1	PROJECT DEVELOPMENT PLAN

LIST OF PLATES

PLATE I	LOCATION MAP
PLATE II	ALTERNATIVE INSTALLATIONS
PLATE III	PLAN AND SECTIONS

LIST OF APPENDICES

APPENDIX A	LETTER FROM IDAHO POWER COMPANY
APPENDIX B-1	DETAILED COST ESTIMATE PROPELLER TURBINE ALTERNATIVE
APPENDIX B-2	DETAILED COST ESTIMATE TUBE TURBINE ALTERNATIVE

I. INTRODUCTION

I. INTRODUCTION

A. PURPOSE

The purpose of this report is to present the results of a study to investigate the feasibility of developing hydroelectric power at an existing canal drop structure on the Boise Project in Southwestern Idaho. It is intended that the information contained herein will form the basis of a decision whether or not to proceed with construction of the power facilities.

B. AUTHORITY

The study was authorized by an agreement between the Boise Project Board of Control ^{1/} and Tudor Engineering Company dated July 31, 1978. The majority of the funding for the report was provided by the United States of America acting through the Department of Energy under Cooperative Agreement No. EW-78-F-07-1760 with the Boise Project Board of Control.

C. SCOPE OF STUDY

This study covers the following primary objectives:

1. The recommended configuration and capacity of the hydroelectric facility.

^{1/} The Boise Project Board of Control is an entity formed under contracts between the United States of America, Department of Interior and five irrigation districts who are separate agencies of the state of Idaho and Oregon. The Districts are the New York Irrigation District, the Nampa and Meridian Irrigation District, the Boise-Kuna Irrigation District, the Wilder Irrigation District and the Big Bend Irrigation District.

2. The expected performance characteristics of the facility, including its peak power production, annual energy production and the anticipated project life.
3. The estimated capital cost and annual operation and maintenance costs of the facility.
4. The marketing potential for power produced at the site, and an estimated value of the power produced.
5. A financial and economic analysis of the project facilities including funding alternatives and benefit-cost ratios.
6. An initial assessment of the environmental and social impacts of the project, including the expected effect of the plant on operation of the canal system.
7. A description of necessary licensing requirements of local, State and Federal agencies.
8. A development schedule for putting power on line.

D. REPORT FORMAT

This report is presented in 11 chapters which contain discussions and present the data used and the results of the study. The discussion for each chapter is immediately followed by the related Tables and Figures. Plates are contained at the end of the report prior to the appendices.

E. ACKNOWLEDGEMENTS

Tudor Engineering Company is very appreciative of the assistance and cooperation extended by Mr. Ottis Peterson, Chairman, Power Supply Committee and by Mr. Royse Van Curen, Manager, Boise Project, and his staff during the preparation of this report. Without their timely assistance in conducting field surveys and collecting data, this report could not have been prepared.

II. EXISTING FACILITIES

II. EXISTING FACILITIES

A. GENERAL

The Mora Drop structure is located in southwestern Idaho approximately 20 miles southwest of Boise on the Mora Canal. The general location is shown in Plate I. The purpose of the existing facility is to drop the flows of the Mora Canal a vertical distance of 36 feet, from the northern slope of Kuna Butte to the valley below. The canal flows range between 200 and 800 cubic feet per second (cfs) and provide irrigation water for approximately 70 square miles of farm land. The canal and existing drop structure are shown in Plate II.

The Mora Canal is part of a large canal system known as the Arrowrock Division of the Boise Project, a development of the U.S. Bureau of Reclamation (U.S.B.R.). The Arrowrock Division provides for irrigation of approximately 200,000 acres of farm lands located to the west of Boise between the Boise and Snake Rivers. Of this total, the Boise Project Board of Control operates and maintains the canal system for 167,500 acres. The jurisdictional area boundary of the Boise Project Board of Control is identified in Plate I as "Boise Project Boundary". Most of the Board of Control land is located in Ada and Canyon counties, Idaho, but 1700 acres are located in extreme eastern Oregon.

The five irrigation districts comprising the Boise Project Board of Control have nearly repaid the entire cost of the Boise Project to the United States of America through the collection of water tolls on the land.

Farm lands within the Arrowrock Division produce most of the Nation's requirements for sweet corn seed. Other important farm products include sugar beets, corn, potatoes, onions, apples, hay, and range and dairy cattle.

B. SYSTEM DESCRIPTION

The overall system is composed of three upstream reservoirs on the Boise River, a downstream diversion dam, a canal network and one off-channel reservoir located within the Boise Project boundaries. The system layout is shown on Plate I.

Uppermost in the system is Anderson Ranch Dam and Reservoir on the South Fork of the Boise River approximately 60 miles upstream from Boise, Idaho. The earth fill dam is approximately 1,350 feet long at the crest with a maximum height of about 456 feet and a total active capacity of 464,200 acre feet.

Arrowrock Dam is located on the Boise River about four miles below the junction of the North and South Forks, and about twenty-two miles upstream from Boise, Idaho. This dam is a gravity arch structure having a height of 350 feet and a crest length of 1150 feet. The reservoir has a total capacity of 286,600 acre feet.

Lucky Peak Dam is located on the Boise River downstream from Arrowrock Dam approximately ten miles above Boise, Idaho. It is a project of the U. S. Army Corps of Engineers, primarily for control of destructive floods occurring along the main stem of the Boise River. Lucky Peak Dam is a rolled earthfill dam with a maximum height of 340 feet and an active storage of 280,000 acre feet.

The total storage rights to the districts comprising the Boise Project Board of Control in the three upstream reservoirs are 631,000 acre feet.

Two miles downstream of Lucky Peak Dam the 68 foot high rubble concrete Boise River Diversion Dam diverts the project flows into the Boise project canal system.

The New York Canal flows southwesterly from this point, eventually ending at Lake Lowell.

The Mora Canal branches from the New York Canal 26 miles downstream of the diversion point and the Mora Canal Drop is located twelve miles below the branch. The Mora Canal continues from this point towards Lake Lowell and the intermediate and surrounding farm land. The distance from the Mora Canal Drop to Lake Lowell is approximately 15 miles.

Below the Mora Canal Drop the canal continues to the west for 15 miles to the south side of Lake Lowell. The canal capacity decreases gradually from about 850 cfs just below the Mora Drop to around 250 cfs near Lake Lowell. Wasteways located at the southeast and southwest end of the lake (indicated in figure III as the "upper" and "lower" wasteway, respectively) can each divert up to 100 cfs from the Mora Canal. These flow into Lake Lowell, thus providing a supplementary means of conveying water to the lake.

Lake Lowell itself is an offstream storage reservoir with a capacity of 177,000 acre feet. It is formed by three earth fill dams ranging in height from 16 to 74 feet. The reservoir receives all of its water supply through the canal system.

Irrigation of farm land west of Lake Lowell is made possible by two canals which originate at the northwest end of the lake.

In total the Arrowrock Division includes a total of 677 miles of canals and laterals and 197 miles of drains. The larger canals of the system are shown on Plate I.

C. SYSTEM OPERATION

The three upstream reservoirs are filled during the spring period through operations based on runoff forecasts. Releases from storage for the downstream irrigation season are made primarily from May through September.

During the off season periods of March and April in the spring and October and November in the fall up to 1000 cubic feet per second is diverted via the New York Canal to fill Lake Lowell for the following irrigation season. Some of these Lake Lowell flows can also be diverted through the Mora Canal to augment the irrigation flows and gain additional power generation at the site. This capability will be discussed in more detail in Chapter V "Project Energy Production".

D. SITE DESCRIPTION

The existing facilities comprising the Mora Canal Drop are shown graphically on Plate II and in photographs on Figure II-1.

They consist of the Upper Mora Canal with an approximate capacity of 1100 cfs, a headworks structure with four gates and a weir that controls the flow of up to 300 cfs into the Waldvogel Canal, the Mora Canal Drop structure, a downstream stilling basin and the Lower Mora Canal with a capacity of 850 cfs.

The drop structure is composed of an inlet structure with three operating gates and three abandoned gate slots and a covered 13 foot by 6 foot rectangular drop structure 140 feet in length.

E. BOISE PROJECT HISTORY

The first farming activity in the Boise Valley began in the 1880 period, with the construction of numerous small private irrigation schemes. Among these was a small canal which was the predecessor of the New York Canal. The Boise Project had its beginning with the passage of the Reclamation Act of 1902, which enabled land owners to organize and petition for Federal assistance in developing irrigation systems. Initial Federal investigations began in 1902, and by 1906 construction of the Arrowrock Division of the Boise Project began. The Boise River Diversion Dam was completed in 1908, the New York Canal by 1909 and the Deer Flat Dams for Lake Lowell in 1911. Arrowrock Dam was completed in 1916, and at that time was the highest dam in the world. The structure was raised five feet to its current height in 1937 and the cost of this dam has now been entirely repaid by the water users. Anderson Ranch Dam was completed by the U.S.B.R. in 1946, and Lucky Peak Dam by the U.S. Army Corps of Engineers in 1955. The five irrigation districts in the Boise Valley, which form the Boise Project Board of Control were initially involved with this project, and have retained their interest to this day.

These are the Big Bend, the Boise-Kuna, the Nampa-Meridian, the New York and the Wilder Irrigation Districts.

Following construction of the irrigation system, the U.S.B.R. maintained control over the Arrowrock Dam and Reservoir and the Diversion Dam (as "reserved works"). Operations of Lake Lowell, the New York Canal and all other canals and laterals constructed by the Federal Government were turned over to the five irrigation districts, and agreements were made providing for repayment of construction costs to the Government for these "transferred works". In 1926, an organization was formed to operate and maintain the canal system for the five districts. This organization, which continues to operate the system today, is known as the Boise Project Board of Control. Board members are selected from each of the five districts from within their own organizations, and these directors constitute the Board of Control. The Board elects a Project Manager, who has charge of the operation and maintenance of the project and is responsible to the Board.

F. WATER RIGHTS

The Boise Project Board of Control has obtained appropriative rights for consumptive use to direct diversion of 265 CFS of Boise River water through a series of decrees ranging in priority date from 1864 to 1900. An additional 10,640 cfs of primarily flood flow rights was obtained through a number of later decrees by the U.S.B.R. for the project ranging in priority from 1900 to 1924. Through contracts with the USBR, storage rights in Arrowrock and Anderson Ranch Reservoirs total 631,000 acre feet, which coupled with natural flow rights, provide sufficient volume for just over one full year of normal canal deliveries.

The Boise Project Board of Control is currently preparing an application to the State of Idaho for non-consumptive use of water for development of power at the Mora Canal Drop.



MORA CANAL DROP CHUTE
AND STILLING BASIN



MORA CANAL DROP
STILLING BASIN



WALDVOGEL CANAL HEADWORKS
AND MORA CANAL DROP INLET

III. CONCEPTUAL DEVELOPMENT

III. CONCEPTUAL DEVELOPMENT

A. GENERAL

This chapter discusses the general development concept for the site and describes commercially available generating equipment that could be used for the plant. The installed capacity of the turbines and generators is determined and the most optimal configuration and type of equipment is selected.

B. OVERALL FACILITIES AND ALTERNATIVE OPTIONS

Hydroelectric power plants transform the energy of falling water into electrical energy. In general, a hydroelectric power plant consists of a dam or canal for producing the head (and often storage of water); an intake and penstock or flume for conveying the water to the hydraulic turbine; the turbine itself which is coupled to a generator; and the accessory electrical equipment required to provide the power to a transmission system.

Specifically, at the Mora Drop, the facilities will consist of a new headgate structure for the Waldvogel Canal to be located downstream of its present location; new gates for the existing chute, which will remain in place as an emergency bypass of the turbines; the power plant intake works with a conduit connecting to the turbine; the power plant itself; and outlet works that tie into the Mora Canal just downstream of the existing stilling basin.

Within this general conceptual development, the type of turbine and generator, the size and number of units and the configuration of the power plant and penstock still remain to be determined. Those items are covered below.

C. DESCRIPTION OF AVAILABLE TURBINES

Conventional turbine equipment which is commercially available is classified either as impulse or reaction turbines.

An impulse turbine is one having one or more free jets discharging into an aerated space and impinging on the buckets of the runner. The jet size increases as the head on the turbine decreases and for low head application the cost of the impulse turbines are not competitive with the reaction type. Impulse turbines generally become competitive with reaction turbines at heads above 1000 ft. The head range of this study is such that impulse turbines have been eliminated as a practical selection.

A reaction turbine is one which passes water under pressure over the fixed angular vanes of the runner, imparting rotation and torque to the generator shaft. The configuration of a reaction turbine consists of a water case, a mechanism for controlling the quantity of water and distributing it equally over the runner intake, and a draft tube.

There are two principal types of reaction turbines; Francis turbines and propeller turbine. The propeller turbines may have either fixed or adjustable blades and several different configurations of propeller turbines are commercially available.

A Francis turbine is one having a runner with a large number of fixed blades attached to a crown (top) and a band (bottom). The dimensional configuration of the runner is designed to suit the head conditions of the application. Designs are commercially available to suit head conditions ranging from 15 to 1500 ft. In general the Francis turbine is not competitive with the Propeller type below a head of about 60 ft. The head range of this study is such that Francis turbines have been eliminated as an economic selection.

A Propellor turbine is one having a runner resembling a propeller with a small number of blades, usually 4, 5 or 6, to which water is supplied in an axial direction. The blades are attached to the hub of the runner. The blade angle is adjusted to suit the head conditions of the application. Runners are available in either Fixed Blade or Adjustable Blade designs. The suitable head range of Propeller turbines is from 15 to 110 ft. This type of turbine is therefore economically suitable for this study.

Propeller turbines are available for vertical, slant or horizontal mounting. The vertical mounted configuration is known simply as a conventional propeller turbine. The horizontal and slant mounted units have been given trade names which describe the mechanical design such as Tube, Bulb and Straflo. These various types have certain differences both in performance, cost and civil construction costs.

The configuration of a vertical shaft propeller turbine in an open flume configuration and a scroll case configuration are shown on Plate II.

The conventional vertical Propeller turbine is historically the most widely used of the types considered by this study. These units are available with either fixed or adjustable blades. The adjustable blades permit higher efficiencies when operating above or below design head and when operating below full gate capacity. The propeller Turbine may have an open flume or a penstock and steel spiral case construction. In open flume construction, the wicket gate mechanisms are located within the water passageways and are water lubricated. This is sometimes the most economical configuration but the maintenance requirements are high. When a penstock is utilized rather than the open flume, a concrete or spiral scroll case under pressure is used to direct the water flow to the turbine blades. Both the open flume and scroll case configurations are shown on Plate II.

The "Tube" turbine consists of a propeller-type runner mounted in a circular water passage. Downstream of the runner, the turbine shaft passes through the wall of the draft tube at a shallow elbow, and is connected to the generator. The turbine drives the generator through a gearbox, by means of a long downstream shaft. The generator is thus located outside the water passages so that sealing arrangements are simple. The costs of civil/structural work for tube turbines tends to be greater than vertical shaft installation because of the requirement of separate main areas for turbines and generator. A tube turbine configuration is shown on Plate II.

For a "Bulb" turbine configuration the water passage and turbine runner are similar to those of the "Tube" turbine. However, the "Bulb" turbine differs from the "Tube" turbine in that the generator is integrally housed in a "Bulb" within the turbine passageway. The generator is thus situated in the

immersed upstream cone and is driven by a shaft from the turbine runner directly. The operating characteristics of the "Bulb" turbine are similar to the Vertical Propeller Turbine and efficiencies are approximately equal to the vertical unit. Powerhouse size requirements of the Bulb turbine offers a smaller plan area but a larger depth than the Tube turbine. Maintenance accessibility of the Bulb turbine is less convenient than that of both the Vertical and Tube Turbines. Down time for major repair would probably be greater. A Bulb Turbine configuration is also shown on Plate II.

The Stra-flow type of turbine is the development of Sulzer Bros. Ltd. of Switzerland. The turbine characteristics are similar to the Bulb turbine discussed above. The mechanical arrangement differs in that the rotor of the generator is attached to the rim of the runner. The rim of the runner has a seal which uses filtered water at a higher pressure than the turbine effective head. The generator operates in air outside of the passageway. The design has been successfully operated in Europe and would appear to offer cost benefit for certain size units. To date, none have been installed in the United States.

In addition to the impulse and reaction turbine, a proprietary design called the Ossberger Turbine is available for head ranges from 15 to 550 ft. The runner design is classified as a cross flow which derives energy from both impulse and reaction turbine principles. Water is forced through a rectangular cross-section and guide vane system and then through the horizontal runner blades. This flow pattern has a unique advantage of working out refuse such as grass and leaves and melting snow and ice which may be forced between the blades of the runner as the water enters. Any quantity

of water from 16 percent to 100 percent of the design flow is usable with optimum efficiency. The cost at lower heads is generally higher than Propeller Turbines. An Ossberger configuration is shown on Plate II.

D. DESCRIPTION OF AVAILABLE GENERATORS

Generators can either be of the synchronous or induction type. Induction generators are often considered more practical for the smaller turbine-generator installations because they cost less and require less maintenance. They require no excitation and need only a squirrel-cage rotor which uses no wire windings or brushes. Furthermore, they do not run at exact synchronous speed, and complex equipment is not needed to bring them on line. They cannot be used to establish frequency, however, and must be connected to a system with synchronous generators, as they take their excitation from system current. The generators produce kilowatt-hours with a high degree of efficiency.

Synchronous generators are usually three-phase star or Y-connected machines with one end of each winding connected together in common, the other ends being used as line terminals. The alternating-current synchronous generator, or alternator, delivers its induced alternating current directly to the external circuit and is used where transmission is to be sent over long lines. The alternating current can be transformed to the desired transmission voltage.

For the purpose of this study, the generators considered are the more costly synchronous type because it is thought that the Idaho Power Company, the potential power purchaser, may not desire an induction-type generator. The use of an induction generator, if it meets the approval of all parties, should be reconsidered in final design studies.

E. SELECTION OF TURBINE

In selecting the turbine for a potential site, the size and number of units must be determined along with the use or non-use of adjustable blades for the turbine runner.

The selection of turbine size is primarily a matter of economics. The larger the turbine size, the larger the flow that can be accommodated and the more energy that can be generated but the higher the cost. A series of marginal cost comparisons between alternative turbine sizes are therefore made in selecting the turbine size. This is based on the design hydrograph (see Figure V-2) and the hydraulic head.

A similar process is used in selecting the number of units. Every turbine is most efficient within a certain range of flows, with decreasing efficiency occurring beyond this range. Consequently, more power can usually be generated if two or more small turbines rather than one larger turbine are selected. For example, two turbines, each rated for 50 percent of the design flow, may produce more power throughout the season than one turbine rated at 100 percent of the design flow but will generally have a higher installed initial cost.

An additional turbine alternative to be investigated is the use of a fixed blade propeller runner versus an adjustable propeller blade runner. Adjustable runners are able to vary the angle of the propeller elements to the flow, while the fixed blades cannot. Fixed blade runners are much more economical than an adjustable blade runner but operate over a much narrower range of efficiency than adjustable blade units. The principle is similar to comparing the power output and operating efficiency of a machine such as an automobile with

and without a gear shift. Again, the comparison is a matter of economics and is accomplished by a series of marginal cost comparisons.

In assessing the number and size of units, and the use of adjustable or fixed runners for the Mora Canal Drop, the results indicated that the optimal installation for the site would be one unit of 1900 kw with adjustable blades. This criterion was then adopted in comparing the various types of turbines as will be covered below.

F. SELECTION OF RECOMMENDED PLANT CONFIGURATION

In selecting the type of turbine and corresponding plant configuration, the general methodology used was to first solicit estimates for a single 1900 kw turbine and generator from the various manufacturers. After the estimates were received, a preliminary design of the required civil and structural works for each was then performed. The total cost was then determined by adding the mechanical and electrical cost to the corresponding civil and structural costs and the totals were then compared.

Letters of inquiry were initially sent to the following manufacturers:

- 1- James Leffel Co. - Vertical Shaft Propeller Turbine
(U.S.A)
- 2- Allis Chalmers Co. - Tube Turbine
(U.S.A.)
- 3- Sanden Co. - Tube Turbine
(Norway)

- 4- Charmilles Corp. - Bulb Turbine
(Switzerland)
- 5- Stappenhorst Corp. - Ossberger Turbine
(Canada/Germany)
- 6- Escher Wyss - Straflo Turbine
(Austria)

Reply letters with estimates were then received from the James Leffel Co, Allis Chalmers, Sanden, and Charmilles. A telephone estimate was later received for two 1000 kw Ossberger units (rather than a single 1900 kw unit) from the Stappenhorst Corp. No reply was received from Escher Wyss for a Straflow turbine.

Civil and structural designs were then prepared for each estimate received. The James Leffel Co. submitted estimates for vertical shaft propeller turbines in both the open flume and concrete scroll case configuration. Tube turbine estimates were received from both Allis Chalmers and Sanden.

In an additional alternative comparison in the selection process, a steel penstock was compared with a cast-in-place concrete conduit. Since the hydraulic head is very low in this instance a cast-in-place concrete conduit proved to be the most economical configuration and was therefore used for all configurations where a penstock was necessary.

The results of the cost comparison for the various turbine configurations are shown in Table III-1 where the civil and mechanical/electrical costs are summarized and compared. The corresponding configurations are shown on

Plate III. The costs shown do not include other costs which would be common to all installations such as transmission line, engineering or administration costs. These are covered in Chapter VII where the total estimated project costs are presented.

The results of the cost comparison showed that the vertical shaft propeller with concrete penstock and scroll case had the lowest overall cost. However, the open flume vertical shaft propeller turbine and the tube turbine configuration were both very close (1.2 percent and 1.3 percent higher respectively).

It should be noted at this point that one unknown factor is the amount of rock excavation associated with open flume configuration. Outcroppings of basalt exist in the general vicinity and if basalt is encountered in the larger excavation associated with this configuration, the estimated cost would be considerably increased.

It was therefore judged that the vertical shaft propeller turbine configuration and the tube turbine were effectually equal and it would not be known until actual firm bids were received which configuration was actually lower in cost.

The original intent of this section had been to determine the most economical configuration and then to proceed with a more detailed layout and cost estimate for the selected configuration.

Since the cost results were effectually equal, and since the efficiencies and power outputs are the same, it was decided that both detailed configurations of the two would be presented. The details are covered in the following chapter.

TABLE III - 1
COST COMPARISON OF ALTERNATIVE
POWER PLANT CONFIGURATIONS

CONFIGURATION	COSTS		
	CIVIL	MECH/ELEC	TOTAL
-Vertical Shaft Propeller w/Open Flume Design	\$460,000	830,000	1,290,000
-Vertical Shaft Propeller w/Conc. Penstock & Scroll Case	474,000	799,000	1,273,000
-Tube Turbine	434,000	855,000	1,289,000
-Bulb Turbine	519,000	1,374,000	1,893,000
-Ossberger Turbine	524,000	853,000	1,576,800

IV. RECOMMENDED DEVELOPMENT

IV. RECOMMENDED DEVELOPMENT

A. GENERAL

This chapter presents a detailed discussion of the proposed powerplant configuration for the tube turbine and the vertical shaft propeller turbine alternatives and the various new features to be constructed. The anticipated operating modes (or conditions) are described and pertinent design assumptions are presented.

B. DESCRIPTION

The recommended project development is presented on Plate III. As shown and as briefly described in the previous chapter, the development would consist of the installation of a 1900 kilowatt generator and the necessary modifications and new construction of control and conveyance facilities to accomplish this installation. This would consist of a new headworks structure for the Waldvogel Canal, new gates on the existing Mora Canal Drop, an inlet structure for the penstock, a concrete penstock and a powerhouse with the turbine generating and station electrical equipment. More detailed descriptions of these features are presented below.

1. Waldvogel Canal Headworks Structure

The existing headworks structure will be removed and replaced with a new structure located approximately 75 feet downstream of the existing structure. The new structure will serve both as a canal headworks structure to control flows into the Waldvogel Canal and as a check

structure to divert the Mora Canal flows into the power facilities of the existing Mora Canal Drop.

2. Existing Mora Canal Drop

The existing Mora Canal Drop will remain to serve as an emergency bypass of the proposed power generating facilities. However, to accomplish this purpose some modifications will be necessary. The drop structure itself is presently in fair condition but six new slide gates with both manual and automatic opening features will be installed.

3. Penstock Inlet Structure

The Penstock Inlet Structure will be installed approximately 40 feet downstream of the existing Waldvogel Canal Headwork Structure. A trash rack and stop log grooves will be provided. Gates will not be necessary since the flow through the power plant will be controlled by the adjustable propeller blades, and /or wicket gates or butterfly valve located at the turbine. Should it become necessary to repair the penstock during the period of the canal irrigation season, the penstock and power production facilities can be isolated from the canal flows by installing stoplogs in the grooves provided. Such use is, however, expected to be infrequent.

4. Concrete Penstock

The penstock will consist of a square cast-in-place concrete box 8 feet by 8 feet. As previously mentioned, a concrete penstock was compared with a steel penstock

and was found to be considerably less expensive. A circular penstock would have less volume and would be slightly more hydraulically efficient but would require more costly forming.

5. Powerhouse and Generating Facilities

As shown on Plate III, two alternate powerhouse configurations are presented, a tube turbine alternate and a vertical shaft propeller turbine alternative. The alternative generating equipment has been described in the previous chapter and will not be further covered.

Either alternate will be installed in an enclosed powerhouse. The plant will be unattended and will run automatically with only periodic maintenance required. Remote monitoring of power output and facility status will occur at the power purchasers' operating center. Alarms will be rerouted to an operator's center or residence for action in an emergency situation.

6. Station Electrical Equipment

Station electrical equipment will include controls, switch gear, circuit breakers, a transformer, battery equipment and lights. The batteries and battery charger and the main control board will be installed inside the plant. All other equipment will be installed in a substation area located adjacent to the plant.

7. Transmission Line

A transmission line will be constructed to convey the electrical energy to Idaho Power Company's Bowmont

substation which is located approximately 5 miles southwest of the Mora Canal Drop. (see Plate I). The configuration will be a single pole, three wire line on 200 foot centers. The transmission will be at 69 kv.

C. FLOW CONTROL AND OPERATING MODES

Provisions for several operating conditions were considered during the conceptual design phase. These were the normal, emergency, and repair conditions. Details of these conditions are presented below:

1. Normal Operating Conditions

During the normal operating mode of the facilities all Mora Canal flows, down to a minimum of 250 cfs, will pass through the power plant. If conditions such as an extremely low water year or when long-term irrigation flows would drop below 250 cfs, the plant would be shut down and the flow would be diverted through the existing Mora Canal Drop.

2. Emergency Operating Conditions

During the normal operating condition described above when the plant is operating at full capacity, an instantaneous plant outage could occur. This would be an "emergency" condition where the generator output would be rejected by the system grid and the wicket gates (for the propeller turbine) would automatically close. At the same time the gates at the Mora Canal Inlet structure would automatically open and the flow would thus bypass the power plant. While this condition is possible and must therefore be anticipated, it will be of very short duration and would occur very infrequently.

3. Repair Condition

During the normal operating season, repairs could be necessary for some power plant facilities. In this case the plant would be normally shut down and the Mora Canal Drop would be normally opened and the plant would be bypassed as in the emergency condition described above. This condition also is expected to occur only very infrequently. All normal maintenance would be performed in the off-irrigation season (mid November to mid March) when all facilities were shut down. It is anticipated that preventive maintenance procedure will make unanticipated breakdowns unlikely.

V. PROJECT ENERGY
PRODUCTION

V. PROJECT ENERGY PRODUCTION

A. GENERAL

Determination of the energy production of a hydroelectric plant first involves determining the annual flow pattern at the site and secondly, performing computations to determine how much power a given turbine can generate from that flow. In this chapter, the basic hydrology of the Mora Canal is described, and an average flow pattern for the Mora Drop is presented. The energy and power computations are then described and the power study results tabulated.

B. DEFINITIONS

Several terms commonly used in power studies need to be explained, since they are necessary for the discussion which follows. These terms, which are defined below, include energy, power load curve, base load, peak demand, firm and secondary power, hydraulic head and turbine efficiency.

1. Energy

The classical definition of energy is the ability to do work. Both energy and work are measured in foot pounds; electrical generation and usage is measured in kilowatt-hours.

2. Power

The classical definition of power is rate of work or work done in a specified time. In electrical gen-

eration and usage the usual units of power are kilowatts or megawatts (1000 kilowatts).

3. Load Curve

The load curve for an electric utility is a plot of power demand versus time in hours, days, weeks or months of the year.

4. Base Load

Base load is that portion of the load curve where demand is continuous or nearly continuous 100 percent of the time.

5. Peak Demand

Peak demand is the maximum demand in kilowatts for a given period. For example, the annual peak demand is the maximum demand in kilowatts that occurs within a given year; the daily peak demand is the maximum demand in kilowatts that occurs within a given day.

6. Firm Power

In marketing the energy from a hydroelectric project, the seller cannot assume delivery of any more power than is continuously available in minimal or critical water years. This power on which delivery can be assumed, even under worst-case circumstance, is called firm power.

7. Secondary (Non-Firm) Power

Power other than firm power produced by a particular installation is called non-firm (or secondary) power.

8. Hydraulic Head

The total hydraulic head available to a turbine refers to the difference in elevation between the water surface in the reservoir or forebay and that of the downstream tailwater. In this report "hydraulic head" will be shortened to "head".

9. Turbine Efficiency

Turbine efficiency refers to the ratio between the actual power output of the turbine and the theoretical power output for a "perfect" turbine. Efficiency can refer to the turbine by itself, or to the plant as a whole, including the generator and any gear box, clutch or similar unit. In this report, efficiency refers to the power production of the plant as a whole.

C. HYDROLOGY

In power studies for hydroelectric projects, the accuracy and dependability of the study ultimately rests on the hydrologic data used and how well this data is likely to indicate the future conditions which can reasonably be expected. Ideally, a long term record (25 to 50 years) is available, and, while the future cannot be predicted for any given years, the future average can reasonably be expected to be close to the long-term past average.

In the case of the Mora Canal, detailed flow records are available only for the period of 1972 to 1977. However,

long term average data is available for the total area water supplies and this data indicates that the five-year period of 1972 through 1976 is very close to the long-term average. It is therefore felt that using this period of record would be indicative of the long-term average values which could reasonably be expected to occur in the future.

Figure V-1 indicates the project water deliveries in acre feet per season for the entire Boise Project service area for the Period of 1926 to 1977. Examination of this graph shows that annual diversions have varied greatly during the period 1926 to 1961, but since that time have steadied considerably. This steadying effect is partly due to completion of Anderson Ranch Dam in 1946, which produced a significant volume of additional storage for the project and partly due to more efficient operation of the reservoir system by the agencies involved, as spring runoff forecasting procedures have greatly improved. Also, application by the Boise Valley farmers has smoothed out over the years, reflecting more efficient irrigation practices.

This figure indicates that the period 1972 through 1976 was very close to the long-term average project water deliveries and can therefore be reasonably expected to indicate future average deliveries as well. Calculations indicate that the annual Mora Canal diversion during the period 1972 to 1976 period averaged three percent over the 51 year median flow from 1928 to 1978.

It should be noted that the severe drought year of 1977 was not used in the five year "average" period. During 1977 Mora Canal Diversions were only 71 percent of the Long-term (51 year) median flow. According to an examination of the data available for the Boise River Twin Springs gauge,

1977 was by far the lowest of any year on a record dating back to 1912. A frequency analysis of the data indicates that the return interval of this drought is approximately 200 years.

From the available daily flow records for the Mora Canal and Waldvogel Canal, average flows through the Mora Canal Drop were computed for each week for the year 1972 through 1976.

Based on discussions with the Boise Project Board of Control, it was determined that by a modest change in canal operating practice, more than historic flows can be conveyed in the Mora Canal. On the average, 250,000 AF of irrigation water per year is delivered to Lake Lowell through the New York Canal during the period of March through November. Because of the two Mora Canal wasteways that discharge into Lake Lowell, some of this New York Canal flow could be diverted into the Mora Canal at its headgates. This water would then flow through the Mora Drop turbine, continue in the canal to near Lake Lowell, and be diverted into Lake Lowell through the two wasteways. Since the canal itself has a capacity of only 250 cfs near the upper wasteway, this figure represents the greatest amount of water that may be conveyed to Lake Lowell through the Mora Canal. During the peak irrigation period of July through late August, the full 250 cfs capacity of the Mora Canal near Lake Lowell is needed to deliver water to irrigators along the canal and therefore no additional flow to Lake Lowell is possible during this period. Thus, Mora Canal flows could be increased by up to 250 cfs in spring and fall, ranging down to near zero during July through mid-August. The total annual flow over the Mora Drop could be

this change in system operation be increased by 15-20 percent each year, extending the length of the power generation season.

If the Mora Drop power plant is constructed, the Board of Control intends to change their operating practice to take advantage of this additional flow. Consequently, the flow schematics used for the power studies in this report assumes this change will be made. The modified flow pattern is shown in figure V-2 along with the historical average flows. The outer limits of this curve were therefore utilized for the flows to calculate the power production of the Mora Canal Drop.

D. STUDY METHODOLOGY

Power production by any hydraulic turbine is a function of the installed capacity, the turbine and generator operating characteristics, the flow passing through the turbine, and the net head through which the flow passes.

As previously discussed, the installed capacity of the installation was assumed to be a 1900 kw tube or vertical shaft propeller turbine.

The operating characteristics of the turbine and generator are expressed in terms of efficiencies. At flows below the design value for the unit, the efficiency of the turbine and generator is relatively low. Efficiency climbs as the flow increases, reaching its peak at a flow rate slightly below the design discharge. For flows higher than this peak efficiency point, the turbine-generator efficiency drops. Efficiency also varies somewhat with the hydraulic head available: it decreases rapidly for heads below 50 percent of the

design value, increases slowly as the head rises from 50 percent to the design head, and remains fairly constant above the design head.

The power output of each size and type of turbine for varying hydraulic head and flow conditions can be plotted on graphs known as performance curves. By comparing these curves, it can be seen that performance differences are fairly minor for different turbines of the same general design. All variable-pitch propeller turbines, for example, including both vertical shaft and tube turbines, have very similar performance characteristics. For this reason, feasibility-level power studies can be conducted using a typical performance curve for the type of turbine considered, rather than running separate power studies for each turbine to be evaluated.

The performance curve used to evaluate power production of the tube and vertical shaft turbines for the Mora Drop site is shown in Figure V-3. This curve was plotted from data compiled by the I.P. Morris Hydraulic Laboratory in Eddystone, Pennsylvania, based on the performance of a number of variable-pitch propeller turbines.

The flows assumed to pass through the turbine and generator are shown as the outer limits of the graph presented on Figure V-2. This figure was discussed earlier in the chapter. The turbine efficiencies are such that no generation was assumed for flows less than 250 cfs or greater than 750 cfs. When flows greater than 750 cfs occur, it was assumed that the excess would bypass the power plant through the existing Mora Canal Drop Structure.

The net hydraulic head is obtained by assuming a constant upper water level in the upper Mora Canal, a friction loss as a function of flow through the penstock and powerplant and a tail water elevation which is a function of the Lower Mora Canal discharge. The resulting graph of net head versus flow is presented on figure V-4.

The power and energy production for the Mora Canal Drop was then computed using the 1900 kw of installed capacity, the performance curve of Figure V-3, the flow of Figure V-2 and the net head of Figure V-4.

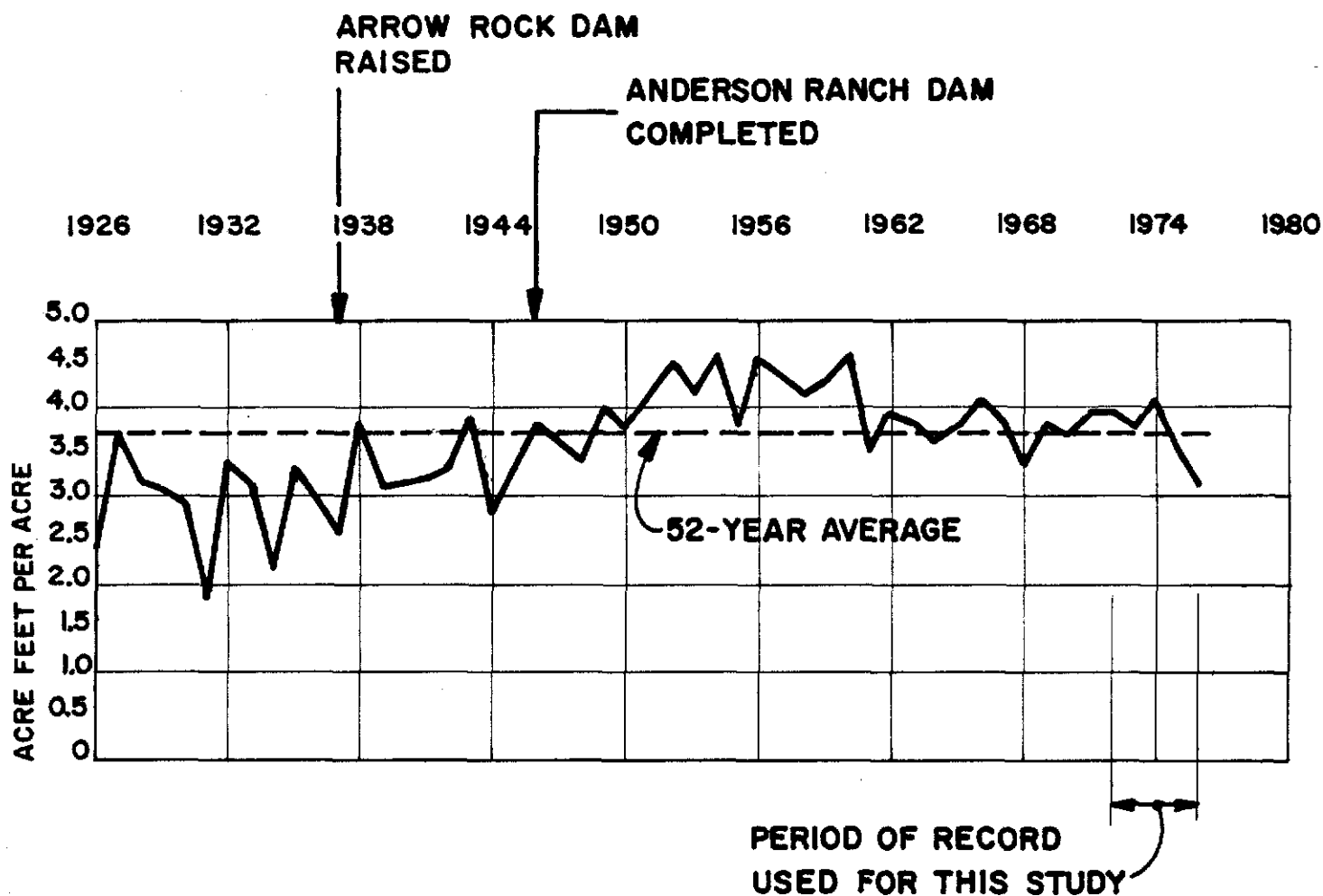
E. STUDY RESULTS

The average monthly power and energy production for the operating season are shown by two-week periods in Table V-1 and are plotted on Figure V-5 and V-6 respectively. Total annual energy production is expected to average 8,113,000 kwh based on an average operating season from March 16 through November 15 using the historical average flows and the additional flow to Lake Lowell. Average weekly power production will range from 638 kw in March and November to 1900 kw during the peak irrigation season in July and August. Using the historical flows only, the average annual energy production is 6,612,000 kwh based on an operating season of April 16 through October 15.

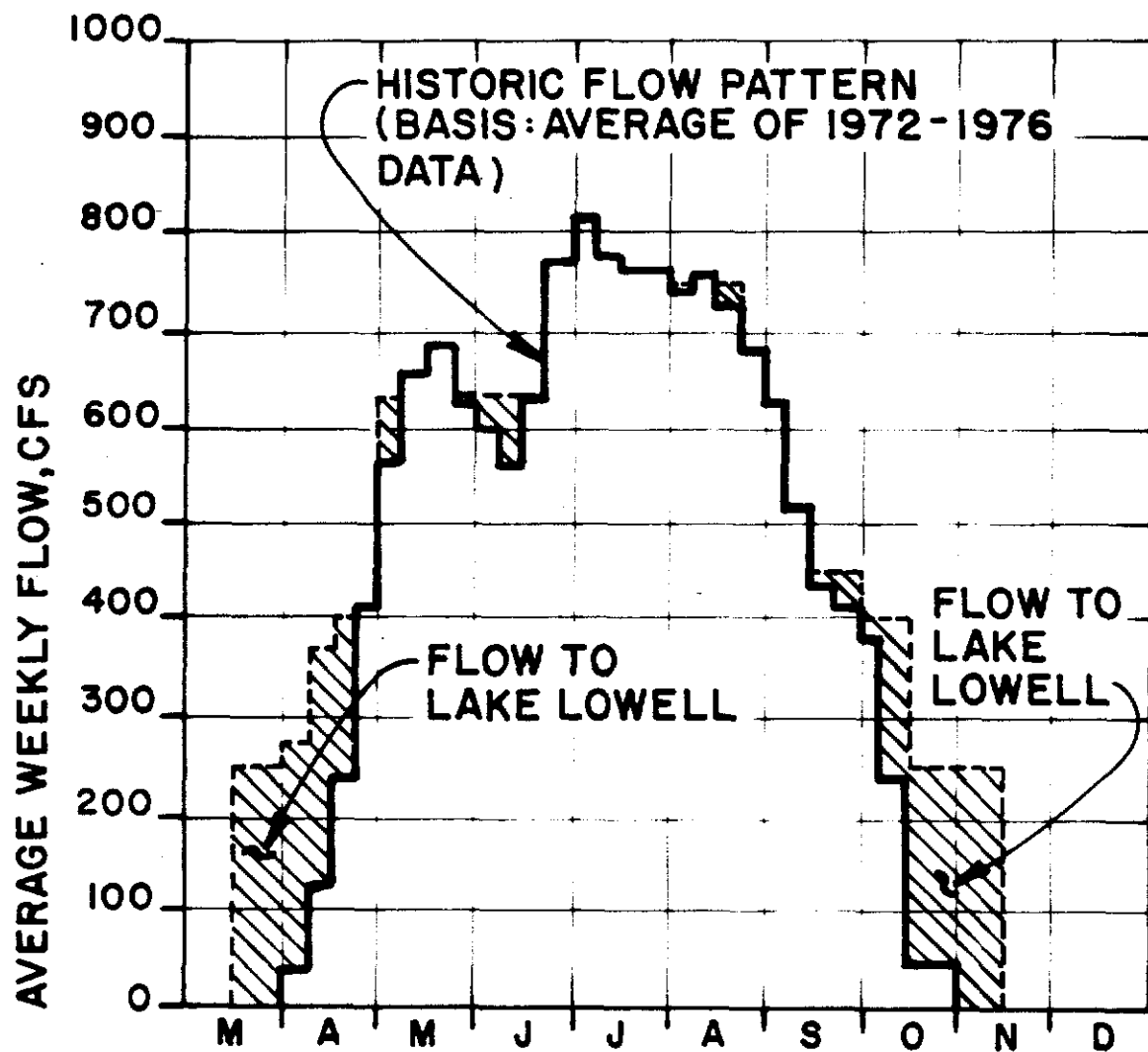
The results of a power study, conducted for the 1977 irrigation season indicates that during any rare drought of this magnitude, annual energy production will total about 4,100,000 kwh or 57 percent of the average production. However, it is not likely that another drought as severe as the 1977 season will occur within the economic lifetime of the Mora Drop power plant.

TABLE V - 1
AVERAGE MONTHLY POWER AND ENERGY

Period	<u>Historical Flows Only</u>		<u>Historical Flows w/Lake Lowell Flows</u>	
	Average Power (kw)	Average Energy (kwh)	Average Power (kw)	Average Energy (kwh)
3/16 - 3/31	0	0	684	263,000
4/1 - 4/15	0	0	905	309,000
4/15 - 4/30	902	324,000	1083	389,000
5/1 - 5/15	1610	578,000	1691	607,000
5/16 - 5/31	1687	648,000	1700	653,000
6/1 - 6/15	1559	562,000	1653	596,000
6/16 - 6/30	1777	636,000	1777	636,000
7/1 - 7/15	1900	684,000	1900	684,000
7/16 - 7/31	1900	730,000	1900	730,000
8/1 - 8/15	1900	684,000	1900	684,000
8/16 - 8/31	1824	701,000	1824	701,000
9/1 - 9/15	1501	544,000	1501	544,000
9/16 - 9/30	1111	400,000	1178	424,000
10/1 - 10/15	336	121,000	1064	383,000
10/16 - 10/31	0	0	684	263,000
11/1 - 11/15	0	0	684	<u>247,000</u>
TOTAL		6,612,000 kwh		8,113,000 kwh



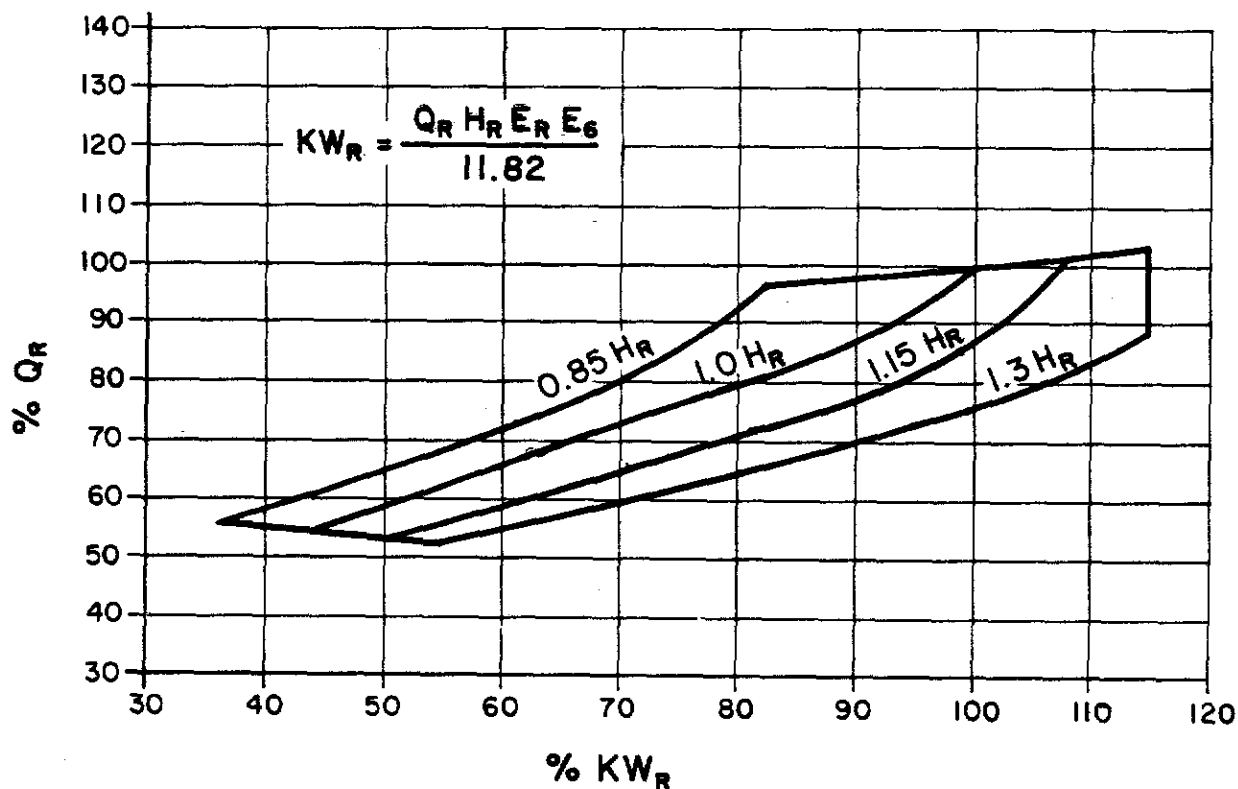
SOURCE:
BOISE PROJECT BOARD OF CONTROL
ANNUAL REPORT FOR 1977



MORA CANAL DROP
HYDRO GRAPH

FIGURE

V-2



NOTES:

$N_s = 138$

H_R = SELECTED DESIGN HEAD

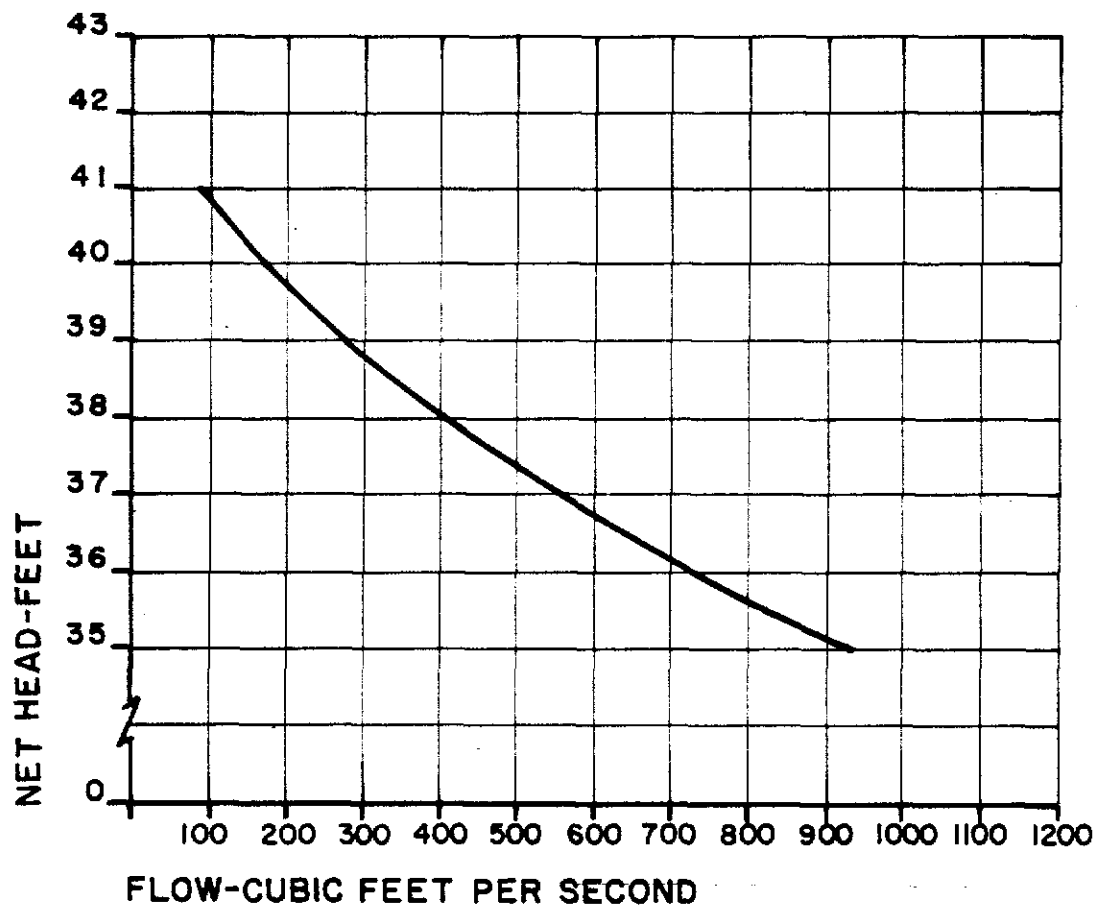
KW_R = RATED CAPACITY AT H_R

Q_R = DISCHARGE AT KW_R AND H_R

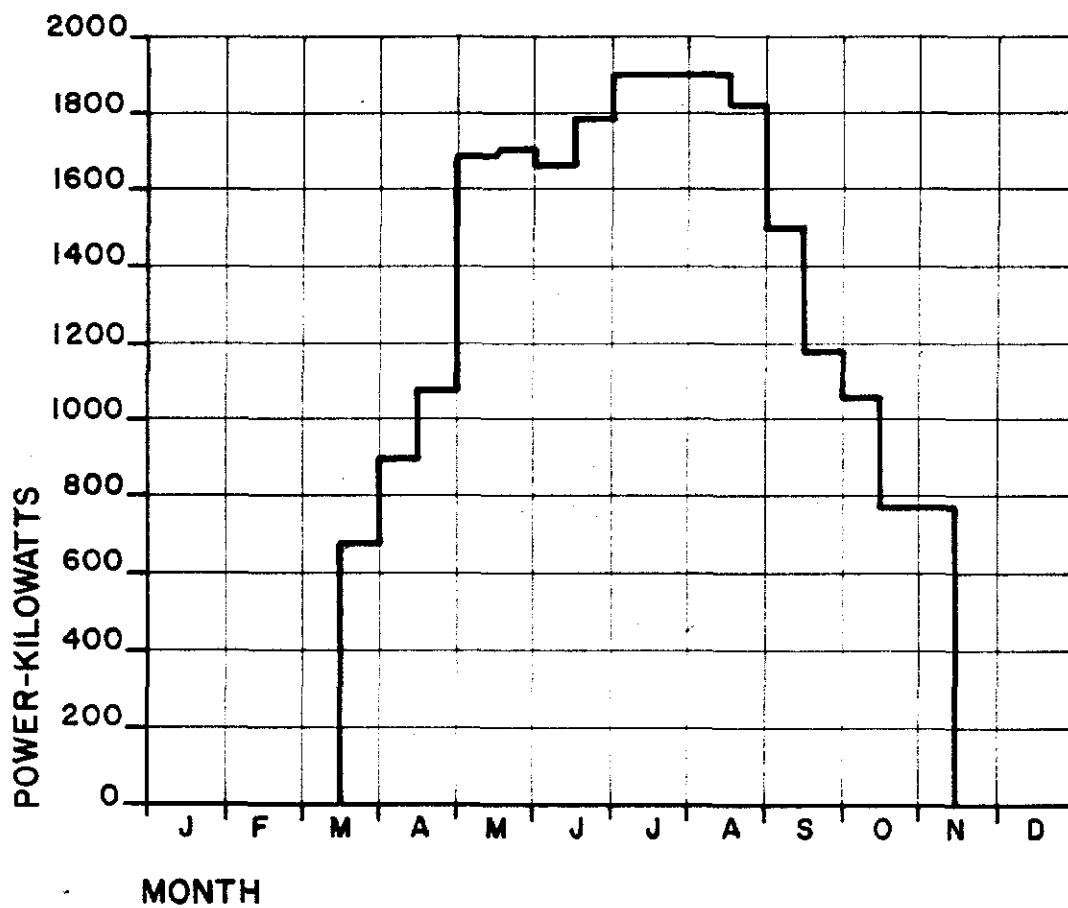
E_R = EFF. AT $KW_R = 1.0\%$ LESS THAN E_P

E_P = PEAK EFF. = EFF. AT $0.80 KW_R$

E_G = GENERATOR EFF.



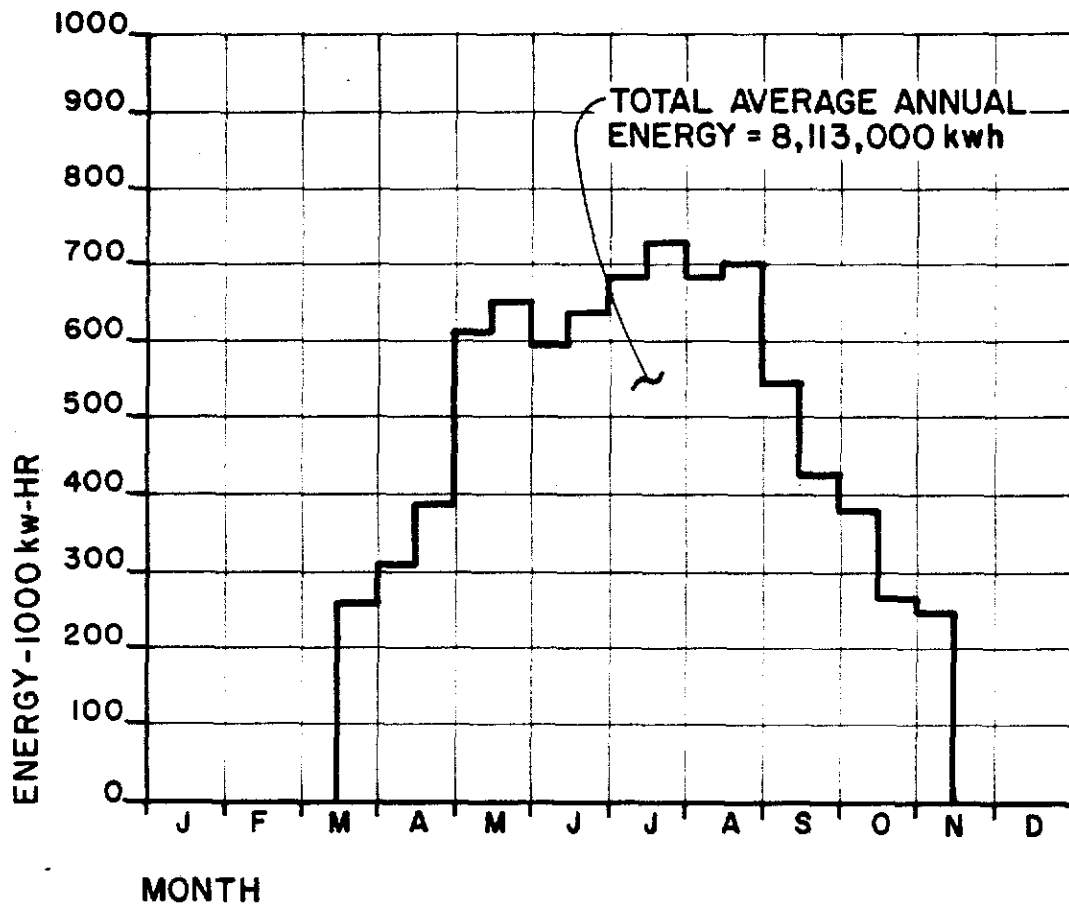
NOTE:
INCLUDES PENSTOCK LOSSES



NOTE:
INSTALLED CAPACITY = 1900 kw

MORA CANAL DROP
AVERAGE MONTHLY POWER

FIGURE



MORA CANAL DROP
AVERAGE MONTHLY ENERGY

FIGURE

V-6

VI. VALUE OF
HYDROELECTRIC POWER

VI. VALUE OF HYDROELECTRIC POWER

A. GENERAL

Having established the amount and pattern of the hydroelectric power production at the Mora Canal Drop, it now remains to determine the value of that power. This chapter demonstrates the area-wide need for additional future power supplies and identifies the potential power customer. The unit value of the power is discussed and using this value and the information concerning average annual power production, the value of the average annual power production is determined.

B. MARKETING POTENTIAL OF POWER PRODUCED

The power purchaser for the project is expected to be the Idaho Power Company, an investor-owned utility. Appendix A contains a letter from Idaho Power indicating their firm interest in purchasing the power to be generated at the Mora Canal Drop.

The Idaho Power Company serves much of southwest and south central Idaho, a small portion of eastern Oregon and a very small area in northern Nevada. In 1975, the Company's system, a combined hydro-thermal base, consisted of 16 hydro plants, a combustion turbine plant, and a share in the ownership in a coal-fired plant located in Wyoming. The total installed capacity in 1975 was 2,044,000 kw.

Consumption trends within the service area of the Idaho Power Company have been marked by rapid growth in the recent past and similar growth is expected to continue in the future. Figure VI-1 shows the forecasted load growth

from 1974 for the high, most probable, and the low estimate growth expected. ^{1/}

The monthly demand pattern is presented on Figure V-2 which shows the estimated monthly loads for 1980 and 1990. The estimated average annual Mora Canal Drop power production is also plotted on Figure VI-2 to show the close match between the production pattern and the demand pattern.

Idaho Power Company is attempting meet their expected growth in demand by new construction and participation in several different projects. For several years it has been seeking authorization to construct a 500,000 kw coal-fired plant in Southern Idaho. A request to construct the Pioneer Unit near Boise was turned down by the Idaho State PUC due to environmental considerations in 1976. A new application is currently pending for a site near the southern Oregon-Idaho border.

In Wyoming, at the Jim Bridger Power Plant, approval of a proposed fourth generating unit has been granted and will increase their one-third share of the plant's production from 500,000 to 667,000 kw. In Nevada they will soon be getting 125,000 kw from the coal-fired Valmy Plant.

The Company is also seeking to expand their capacity by adding several new hydroelectric facilities. An expansion of peaking capacity by adding a fifth unit at Brownlee Dam is

^{1/} Arthur D. Little, Inc. "Idaho Power Company's Need For Additional Generating Capacity" Final Report to Idaho Public Utilities Commission, February 1976.

now under construction. This unit will add approximately 290,000 kw of peaking capacity throughout the year. Other hydro projects being considered currently include construction of a series of run-of-the river dams along the Snake River in south central Idaho, with total installed power capacity totalling around 250,000 kw. Much of this capacity, however, would not be available during the summer. They are also negotiating with the State of Idaho to purchase the power to be generated by adding a 3000 kw generator at Barber Dam in Southern Idaho.

A comparison of future energy supply and demand is somewhat difficult since it cannot be predicted with certainty either how much new generating capacity will be brought on line or exactly what the demand will be. However, some estimates using reasonable assumptions can be made.

Figure VI-1 shows the annual forecasted energy supplies with and without a new 500,000 kw plant in Southern Idaho but with the thermal plants and hydroelectric plants mentioned alone. The graph shows substantial deficits beginning in 1982 if such a plant is not on line by April 1981. Since a plant of this type and size requires a lead time of about 5 years from the time of approval to facility completion, and since no approval has yet been granted, it can be reasonably be concluded that some energy deficits may well occur in the 1980's in the Idaho Power Company's Service Area.

In summary, there is a documented need for additional power in Southern Idaho in the future, particularly during the summer peaking period when power from the Mora Drop will be available. While a 1900 kw power plant at the Mora Drop will not by itself make much of an impact in the forecasted power deficits, a number of small plants such as the Mora Canal Drop Plant could have a noticeable effect.

C. UNIT VALUE OF POWER

The "economic value" of hydroelectric power can be taken to be the least cost of alternative power. Since the power produced at Mora Canal is not firm power in the traditional definition (since it cannot be guaranteed to be available 100 percent of the time) it has a value only as non-firm or secondary hydroelectric energy. However, as shown on Figure VI-2, the production pattern closely matches the peak area demand pattern and a case can therefore be made that the energy from the Mora Canal Drop is a form of firm energy since equivalent firm energy would have to be supplied if the Mora Canal Drop energy was not utilized. A very conservative approach would be to consider that the economic value of this energy is equal at a minimum to the cost of fuel oil utilized to generate power at a conventional oil-fired generating station.

The selling price, or "financial value", of the power is also important. The financial value is the price at which the developer of the power source would sell the power to a power purchaser. The financial value must be greater than the development cost, or the project is economically unfeasible. Similarly, the selling price must be less than the economic value, or the purchaser would have no incentive to buy the power. Thus, if the power is to be sold to a power purchaser, the financial value must be less than the economic value.

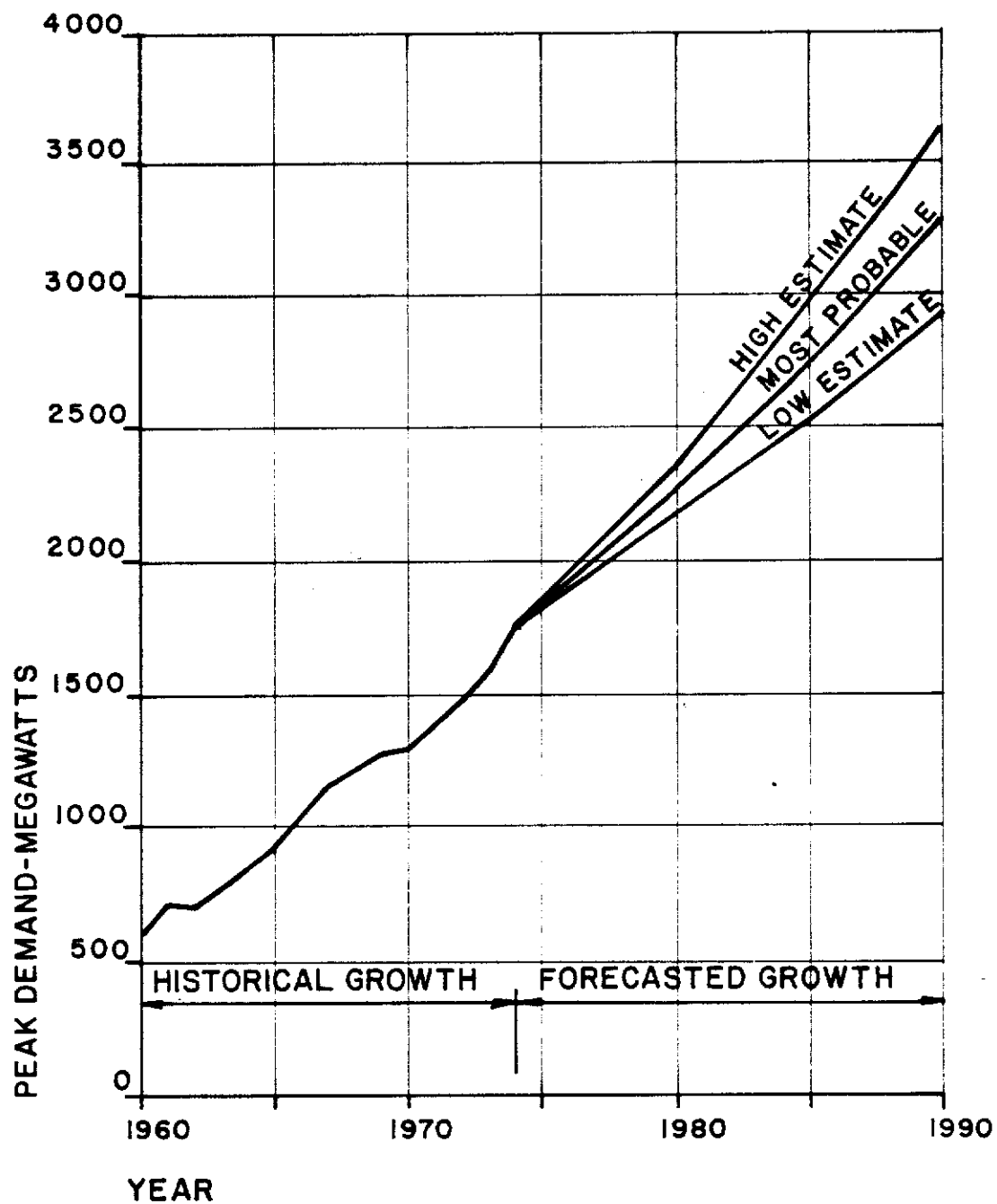
Initial discussions have been held with the Idaho Power Company regarding purchase of the Mora Canal Drop power production. They have indicated their firm interest in the project in a letter to the Board offering to purchase all the power produced at a price of 26 mills per kwh. A copy of this letter is included as Appendix A.

Experience on similar projects throughout the western states indicates that 26 mills/kwh is a reasonable financial value for the project power. Tudor Engineering Company has recommended to the Boise Board that this is a fair price around which to structure a power purchase agreement.

The unit value of power for the Mora Canal Drop will therefore be taken as 26 mills per kwh for all economic and financial analyses.

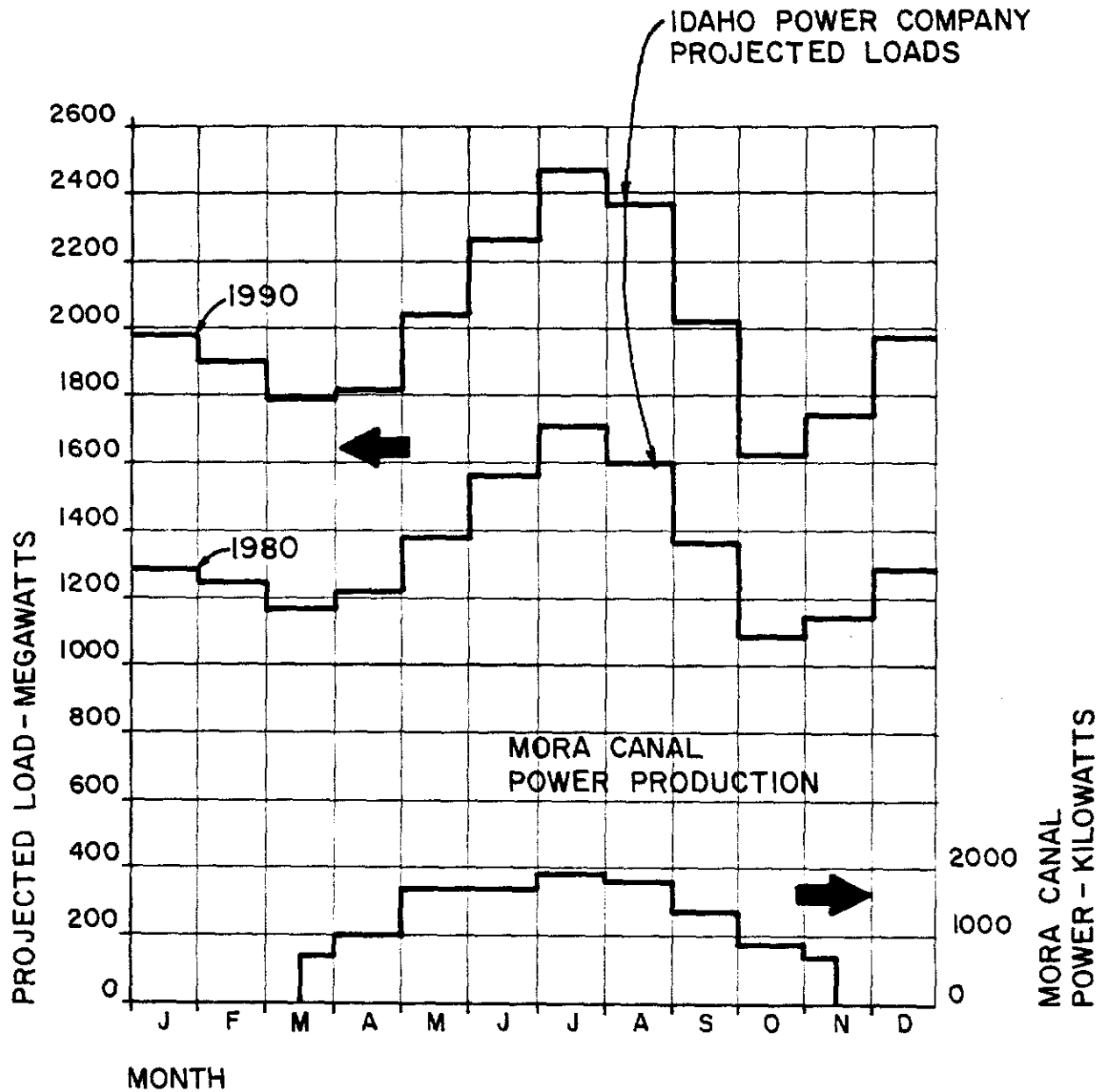
D. PROJECT POWER VALUE

In Chapter VI, it was shown that the average annual energy production at the Mora Canal Drop was estimated to be 8,113,000 kwh. Combining this figure with the financial value of 26 mills per kwh yields an estimated average annual Project Power Value of \$210,938.



MORA CANAL DROP
PEAK DEMAND FOR
IDAHO POWER COMPANY

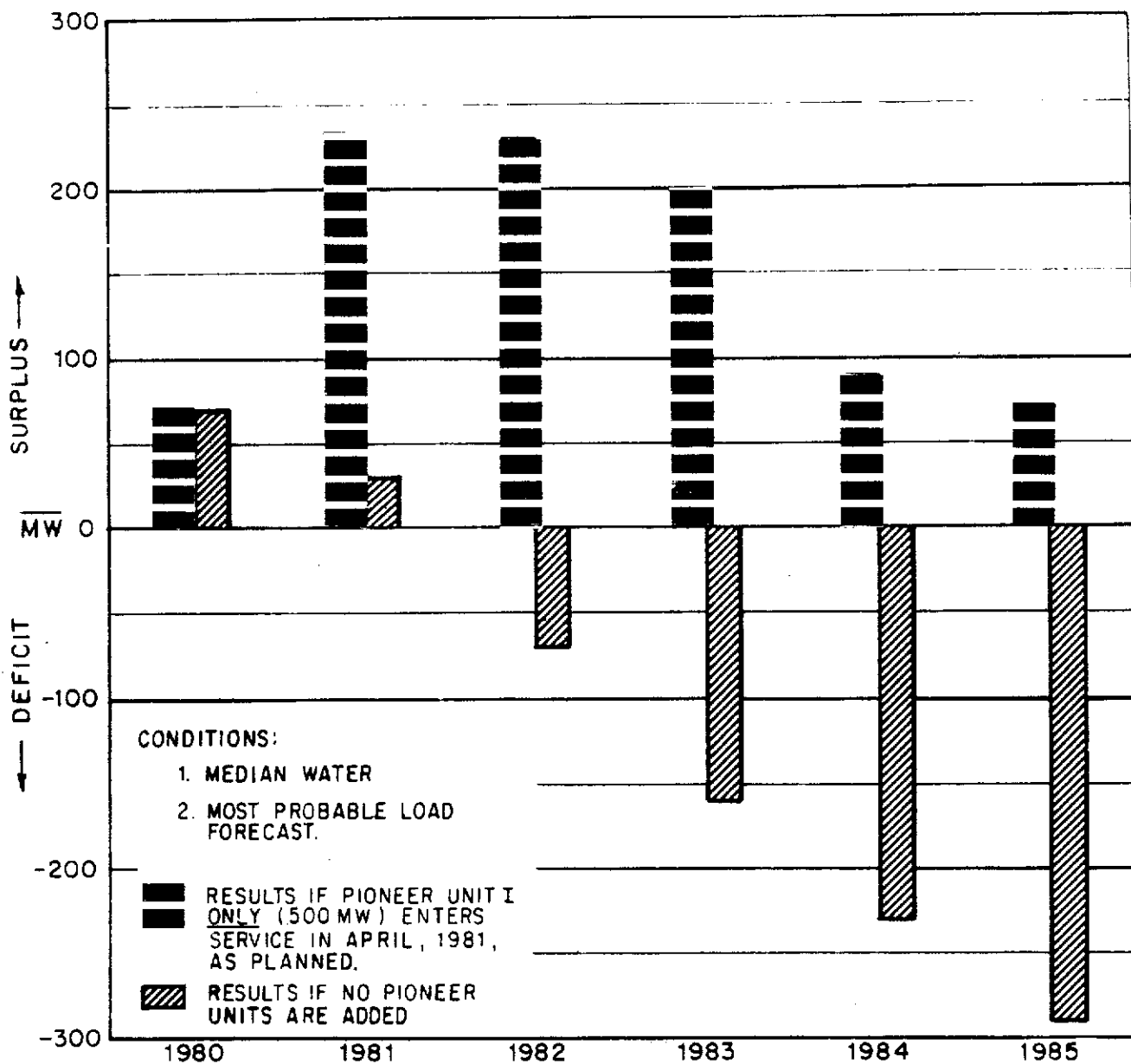
FIGURE



PROJECTED MONTHLY AVERAGE LOADS OF
IDAHO POWER COMPANY AND AVERAGE
MONTHLY POWER GENERATION AT MORA
CANAL DROP

FIGURE

VI-2



**MORA CANAL DROP
ANNUAL ENERGY SURPLUS/DEFICIT,
AVERAGE MW**

FIGURE

VI-3

VII. PROJECT COSTS

VII. PROJECT COSTS

A. GENERAL

The project costs consist of the initial capital costs and continuing annual costs. This chapter presents those estimated costs and the underlying assumptions.

B. INITIAL CAPITAL COSTS

The initial capital costs consist of construction costs and the interest during construction.

The construction costs are summarized in Table VII-1A for the vertical shaft propeller turbine alternative and Table VII-1B for the alternative tube turbine. The detailed cost estimate from which the summaries were derived are presented in Appendix B-1 and B-2. These cost estimates are based on recent bid prices for similar construction work and direct quotes from various equipment manufacturers. In addition, since it is the intent of the Boise Board to construct as much of the project as possible with their own work force, the concrete price used in the estimate of \$70 per cubic yard was furnished by Mr. Royse Van Curen, the Boise Board Project Manager.

The costs for the vertical shaft propeller turbine and the tube turbine are both presented because the total costs were extremely close and the purpose is to illustrate both the closeness and the differences in the two cost estimates. However, on all further analyses, the cost estimates for the lowest cost alternative, the vertical shaft propeller alternative will be used.

The engineering costs are presented in Table VII-2. The necessary engineering activities consist of an environmental impact assessment, the final FERC application, surveys and soils investigations, miscellaneous permits, contract plans and specifications and construction management.

The administrative costs are also shown on Table VII-2. They consist of administrative efforts by the Boise Board staff, and fees for the financial consultant and the bond counsel.

The total initial costs are summarized in Table VII-3 which also indicates the interest during construction. As shown, the total initial cost is estimated to be \$1,783,750.

C. ANNUAL COSTS

The annual costs for the project will consist of a bond or loan repayment cost and the operation and maintenance costs.

The bond or loan repayment costs depend on the source of the funds, the length of repayment time and the interest rate. These are financial matters and will be discussed in the following chapter.

The estimated annual operation and maintenance costs are shown in Table VII-4. They include insurance, manpower costs, interim replacement costs (for miscellaneous repairs during the life of the facility) and general expenses. As shown, the Annual Operation and Maintenance Costs will total \$24,700 per year.

TABLE VII - 1A
CONSTRUCTION COST SUMMARY ^{1/}
PROPELLER TURBINE ALTERNATE

<u>Acct. No.</u> ^{2/}	<u>Cost Item</u>	<u>Amount</u>
330	Land & Land Rights	\$ 2,000
331	Structures & Improvements	166,750
332	Reservoir, Dams and Waterways	226,000
333	Waterwheels, Turbines and Generators	568,000
334	Accessory Electrical Equipment	105,000
335	Miscellaneous Power Plant Equipment	53,000
355	Transmission Line	<u>100,000</u>
	Subtotal	1,220,750
	Contingencies	<u>153,000</u>
	Total Construction Cost	\$ 1,373,750

^{1/} See appendix B-1 for detailed construction estimate
^{2/} FERC cost account no.

TABLE VII - B
CONSTRUCTION COST SUMMARY ^{1/}
TUBE TURBINE ALTERNATE

<u>Acct. No.</u> ^{2/}	<u>Cost Item</u>	<u>Amount</u>
330	Land & Land Rights	\$ 2,000
331	Structures & Improvements	145,700
332	Reservoirs, Dams and Waterways	214,000
333	Waterwheels, Turbines and Generators	629,000
334	Accessory Electrical Equipment	95,000
335	Miscellaneous Power Plant Equipment	53,000
355	Transmission Line	<u>100,000</u>
	Subtotal	\$ 1,238,700
	Contingencies	<u>141,300</u>
	Total Construction Cost	\$ 1,380,000

^{1/} See appendix B-2 for detailed construction estimate
^{2/} FERC cost account no.

TABLE VII - 2
ENGINEERING AND ADMINISTRATIVE COSTS

ENGINEERING COSTS*

Environmental Impact Assessment	\$ 20,000
Final FERC Application/Approval(Minor)	15,000
Surveys and Soil Investigation	10,000
Miscellaneous Permits	5,000
Contract Plans and Specifications	125,000
Construction Management ^{1/}	<u>101,000</u>
Total Engineering Costs	\$276,000

ADMINISTRATIVE COSTS (BOISE BOARD)

Administration	\$ 14,000
Financial Consultants	25,000
Bond Counsel	<u>30,000</u>
Total Administrative Costs	\$ 69,000

1/ One Resident Engineer and office support for shop drawings

TABLE VII - 3
INITIAL COST SUMMARY

Construction Cost	\$ 1,373,750
Engineering Cost	276,000
Administrative Cost	<u>69,000</u>
Subtotal	\$ 1,718,750
Interest During Construction	<u>65,000</u>
Total Initial Cost	\$ 1,783,750

TABLE VII - 4
ANNUAL OPERATION AND MAINTENANCE COSTS

Insurance	\$ 3,500
O&M Manpower	12,000
Interim Replacement	4,000
General Expenses	<u>5,200</u>
Total Annual O&M Cost	\$ 24,700

VIII. FINANCIAL ANALYSIS
AND ENERGY COSTS

VIII. FINANCIAL ANALYSIS AND ENERGY COSTS

A. GENERAL

The costs of producing energy are directly related to the method of financing employed. This will determine the interest rate and the repayment period and will therefore directly influence the annual expenses and the energy costs. This chapter presents the financial alternatives available to the Boise Board of Control for the project and presents the cost per kilowatt hour and the cost per installed kilowatt.

B. FINANCIAL ALTERNATIVES

There are two potential sources of funding open to the Boise Project Board of Control to finance the Mora Canal Drop Project. These are government loans through the Department of Energy (D.O.E) and the direct sale of general obligation or revenue bonds.

The D.O.E. loans are made possible by recently enacted legislation known as the "Public Utility Regulation Policies Act of 1978". This act authorizes the Secretary of Energy to make loans to any municipality, electric cooperative, industrial development agency, nonprofit organization, or other person of up to 75 percent of the project costs of small hydroelectric projects. The terms of the loan would be for up to 30 years and the interest rate would be the discount rate or interest rate used at the time the loan is made for water resource planning projects under section 80 of the Water Resources Development Act of 1974. This rate is currently 6 7/8 percent. The act further authorizes the appropriation of

\$100,000,000 per year for each of three years to fund these loans. The loans would be paid by power sale revenues derived from the project.

This act became effective in November 1978 and the Congress has not as yet actually appropriated any funds nor has the D.O.E. drawn up rules and regulations concerning application and granting of such loans. Conversations with D.O.E. officials indicate that the earliest such funds would be available would be late in 1979 or mid-1980. However, it would appear that when funds are available that the Mora Canal Drop Project would be eligible for such a loan.

The second source of funding would be by the sale of revenue bonds. This is the "conventional" source of funding which has most commonly been used on previous projects similar to the Mora Canal Drop. Federal tax laws currently provide that if the power from the project is purchased, as assumed, by an investor-owned utility (such as Idaho Power Company) bonds up to \$1,000,000 could be sold exempt from federal income tax. Under this condition it is currently estimated that such bonds could be sold at an interest rate of 7.0 percent. Bonds in an amount in excess of \$1,000,000 would be subject to federal income tax provision and would most likely carry an interest rate of 10 percent at this time. The term of both the tax exempt and taxable bonds would be for 40 years. To be sold as revenue bonds the power purchaser must pledge to retire the bonds. This would be provided for in the power purchase agreement which would be negotiated with the purchaser prior to the bond sale.

Using those two sources of funds, two primary financing options for the project can be identified. These

would be:

1. Obtain a loan from D.O.E. for the first 75 percent of the project cost at an interest rate of 6 7/8 percent and a term of 30 years. Sell tax exempt revenue bonds for the remaining 25 percent of the project cost at an interest rate of 7 percent and a term of 40 years. This funding method will be called the "D.O.E Loan Option" in the ensuing discussions.
2. Sell tax exempt revenue bonds in the amount of \$1,000,000 at a non-taxable interest rate of 7 percent. Sell bonds sufficient to cover the remaining project cost at a taxable rate of 10 percent. The term of both bond issues would be for 40 years. This funding method will be called the "Conventional Funding Option" in the ensuing discussion.

C. ENERGY PRODUCTION COST (E.P.C.)

With the project costs, financing options, and power production established, the project Energy Production Cost (E.P.C.) and the cost per installed kilowatt can now be determined.

Table VIII-1A presents the E.P.C. for the Mora Canal Drop using the "D.O.E. Loan Option". As shown, the annual expense of \$164,607 is a combination of bond and loan payments and the annual operation and maintenance cost. Under this financial option, the Energy Production Cost would be 20.3 mills/kwh with an average annual energy production figure of 8,113,000 kwh (with Lake Lowell flow) and 24.9 mills/kwh with an average annual energy production of 6,612,000 kwh

(using historical flows only).

Table VIII-1B presents the E.P.C for the Mora Canal Drop using the "Conventional Funding Option". As shown, the annual expenses are a combination of two bond payments and the annual operation and maintenance cost. Under this option the E.P.C. would be 22.2 mills/kwh with an average annual energy production of 8,113,000 kwh and 27.3 mills/kwh with an average annual energy production of 6,612,000 kwh.

As can be seen, the lowest E.P.C. is 20.3 mills/ kwh using the D.O.E. Loan Option and assuming that the historical Mora Canal Drop flows are augmented as previously discussed in Chapter V with water for Lake Lowell.

With an installed capacity of 1900 kw, and an initial cost of \$1,783,750, the project has a cost per installed kw of \$937. This figure is independent of the financing option used.

TABLE VIII - 1A
ENERGY PRODUCTION COST
w/ D.O.E. LOAN OPTION

<u>INITIAL COST</u>	\$1,783,750
---------------------	-------------

ANNUAL EXPENSES

Repayment: .75 x \$1,783,750 @ 6 7/8%, 30 years	106,458
--	---------

.25 x \$1,783,750 @ 7%, 40 years	33,449
-------------------------------------	--------

Operation and Maintenance:	24,700
----------------------------	--------

Total Annual Expenses	\$ 164,607
-----------------------	------------

ENERGY PRODUCTION COST (E.P.C.)

a) Average Annual Energy = 8,113,000 kwh

$$\text{E.P.C.} = \frac{164,607 \times 1000}{8,113,000} = \underline{\underline{20.3 \text{ mills/kwh}}}$$

b) Average Annual Energy = 6,612,000 kwh

$$\text{E.P.C.} = \frac{164,607 \times 1,000}{8,612,000} = \underline{\underline{24.9 \text{ mills/kwh}}}$$

TABLE VIII - 1B
ENERGY PRODUCTION COST
w/ CONVENTIONAL FUNDING OPTION

<u>INITIAL COST</u>	\$1,787,750
---------------------	-------------

ANNUAL EXPENSES

Repayment: \$1,000,000 @ 7%, 40 years	75,091
--	--------

\$ 787,750 @ 10 % 40 years	80,555
-------------------------------	--------

Operation and Maintenance	<u>24,700</u>
---------------------------	---------------

Total Annual Expenses	\$ 180,346
-----------------------	------------

ENERGY PRODUCTION COST (E.P.C.)

a) Average Annual Energy = 8,113,000 kwh

$$\text{E.P.C} = \frac{180,346 \times 1000}{8,113,000} = \underline{\underline{22.2 \text{ mills/kwh}}}$$

b) Average Annual Energy = 6,612,000 kwh

$$\text{E.P.C.} = \frac{180,346 \times 1000}{6,612,000} = \underline{\underline{27.3 \text{ mills/kwh}}}$$

IX. ECONOMIC EVALUATION

IX. ECONOMIC EVALUATION

A. GENERAL

The economic evaluation of the project is basically a comparison of the benefits and costs over the life of the project. The method of comparison used in this report will be the benefit cost ratio. Private utilities generally use the rate of return on investment but public agencies generally utilize the B/C ratio.

B. PROJECT LIFE

The economic life will be taken as 50 years. This is the estimated length of time the project will be in service producing power and accruing benefits.

Hydroelectric generating equipment often has a service life well beyond 50 years when the equipment is properly maintained. Typical maintenance procedure consists of yearly repair of the runner, shaft seal and inspection of moving parts, refurbishing of bearings every 5 to 10 years and stator rewinding every 15 to 20 years.

It is assumed that an effective O&M program will be adopted that will incorporate periodic inspection and preventive maintenance procedures. A 50 year life can therefore reasonably be expected.

C. COST AND BENEFIT STREAMS

As previously covered, the project costs depend on the method of financing employed. Table IX-1 presents the

annual costs over the 50 year project life for the "D.O.E. Loan" and "Conventional Financing" methods of financing. These cost streams show the repayment costs ending after 30 or 40 years when complete repayment has been made, but with the annual O&M costs continuing over the entire 50 year project life.

The project benefits depend on the average annual energy generated. Table IX-1 also shows the annual project benefits with 6,612,000 kwh annually (historical flows only) and 8,113,000 kwh annually (historical flows augmented with Lake Lowell flows). It is assumed that the added Lake Lowell flows would also be available under normal conditions but for comparative purposes, both conditions are presented.

D. BENEFIT COST RATIOS

The Benefit Cost Ratio is derived by dividing the present worth of the project benefit stream by the present worth of the project cost stream.

The present worth of both the benefits and costs depend on the discount rate employed. This is generally taken as the cost of money to the borrowing agency, in this case the Boise Project Board of Control. Since interest rates are currently in a considerable state of flux, the present worth for the benefits and costs have been computed using discounts rates of 6 percent, 8 percent and 10 percent.

The resulting Benefit Cost Ratios for the D.O.E. Loan option are shown in Table IX-2A. With average annual energy of 8,113,000 kwh the B/C ratio ranges from 1.41 to 1.33 depending on the discount rate. With average annual energy of

6,612,000 kwh the B/C ratio ranges from 1.15 to 1.08.

The B/C ratios for the Conventional funding option are shown in Table IX-2B. With average annual energy of 8,113,000 kwh the B/C ratio ranges from 1.21 to 1.18 and with an average annual energy of 6,612,000 kwh, the B/C ratio ranges from 0.99 to 0.96.

Tables IX-2A and IX-2B show that the B/C ratios are not very dependent on the discount rate used, but are quite sensitive to the average annual energy value used and the method of financing chosen.

It should be noted that inflation has not been taken into account in the analysis and the results are therefore very conservative. The only component of the annual costs that can escalate is the \$24,700 O&M component since the bond or loan repayment costs of \$139,907 or \$155,646 will be fixed. However, the annual benefits of \$171,912 and \$210,938 will almost certainly increase since part of the power sales agreement will provide for the selling price of the project power to be tied to a fuel cost index, and increased fuel costs will certainly occur.

To illustrate the effect of a very mild inflation rate of 3 percent, a B/C computation was made using the Conventional Funding option with average annual energy of 6,612,000 kwh and a discount rate of 8 percent. As shown in Table IX-2B, the B/C ratio for this case is 0.97. If it is assumed that the bond repayment costs of \$155,646 remain fixed, the O&M cost of \$24,700 increases at 3 percent per year and the benefits of \$171,912 increases at 3 percent per year, the B/C ratio changes from 0.97 to 1.68. A similar analysis of the other non-inflation B/C ratio would show similar results.

E. CONCLUSIONS AND RECOMMENDATIONS

From the above data and analysis it can be concluded that the Mora Canal Drop is an economically feasible project. It is recommended therefore that the Boise Project Board of Control proceed with negotiation for a power sales agreement with the Idaho Power Company. Assuming that a satisfactory agreement can be reached, it is further recommended that financing under the D.O.E. Loan option be pursued when monies for such funding become available.

TABLE IX - 1
COST AND BENEFIT STREAMS

<u>YEAR</u> mkwh	<u>COST STREAM</u>		<u>BENEFIT STREAM</u>	
	w/DOE Loan	w/Conv. Fin	@6.6 mkwh	@8.1
1	\$164,607	\$180,346	\$171,912	\$210,938
↓	↓	↓	↓	↓
30	164,607			
31	58,149			
↓	↓	↓	↓	↓
40	58,149	180,346		
41	24,700	24,700		
↓	↓	↓	↓	↓
50	24,700	24,700	171,912	210,938

TABLE IX - 2A
BENEFIT COST RATIOS
w/ D.O.E. LOAN OPTION

	Discount Rate		
	6%	8%	10%
<u>Energy = 8,113,000 kwh/yr.</u>			
Present Worth Benefits	\$3,324,784	2,580,510	2,091,408
Present Worth Costs	2,357,964	1,899,520	1,575,560
Benefit Cost Ratio	1.41	1.36	1.33

Energy = 6,612,000 kwh/yr.

Present Worth Benefits	\$2,709,660	2,103,085	1,704,473
Present Worth Costs	2,357,964	1,899,520	1,575,560
Benefit Cost Ratio	1.15	1.11	1.08

TABLE IX - 2B
BENEFIT COST RATIOS
w/CONVENTIONAL FUNDING OPTION

	Discount Rate		
	6%	8%	10%
<u>Energy = 8,113,000 kwh/yr.</u>			
Present Worth Benefits	\$3,324,784	2,580,510	2,091,408
Present Worth Costs	2,745,190	2,158,178	1,766,975
Benefit Cost Ratio	1.21	1.20	1.18

Energy = 6,612,000 kwh/yr.

Present Worth Benefits	\$2,709,660	2,103,085	1,704,473
Present Worth Costs	2,745,190	2,158,178	1,766,975
Benefit Cost Ratio	0.99	0.97	0.96

X. DEVELOPMENT PLAN

X. DEVELOPMENT PLAN

A. GENERAL

This chapter presents a development plan to initiate project construction, implement all activities and bring power on line.

B. DETAILED PLAN

The general plan to implement the Mora Canal Power Project is shown graphically in Figure X-1.

The first activity involves negotiations with a power purchaser. The end result of the negotiations will be a "Memorandum of Understanding" in which the Boise Project Board of Control will pledge to sell and the power purchaser will pledge to buy all power produced at the Mora Canal site. This document will stipulate all details, including a clause in which the selling price of the electric energy will be tied to a suitable escalation index. Following the final design of the project when all costs are known, the document will be revised as required to form the final power purchase contract.

The other activities follow the start of power negotiations. Assuming some bond sales will be necessary, legal services and professional advice regarding financial assistance is obtained during the power sales agreement and continue until all bonds are sold or until the necessary loans are obtained from D.O.E.

The FERC application and design and construction activities will immediately start after the conclusion of the power negotiations. The recently passed energy bill directed the FERC to prepare some revised and simplified guidelines for small hydroelectric projects. However, no revised instructions concerning this matter are as yet available. On the schedule, one year has been allowed for the FERC license application approval process. However, this time may later be considerably shortened. Shown on the schedule but actually a part of the FERC application is the preparation of Exhibit W, an Environmental Impact Statement. It is shown separately since it is a major activity and is often also required by other agencies as well.

It has been assumed that the civil features will be primarily constructed by the construction and maintenance staff of the Boise Project Board but that the mechanical/electrical equipment would be installed by a contractor.

The process to obtain all other necessary permits and agreements will also be initiated following the completion of the power negotiations. In the case of the Mora Canal Power Project, an agreement between the U.S. Bureau of Reclamation for the use of Boise Project lands and facilities must be completed. Also, a water use permit for power generation must be obtained from the Idaho Department of Water Resources. Both activities have already been initiated by the Boise Board of Control.

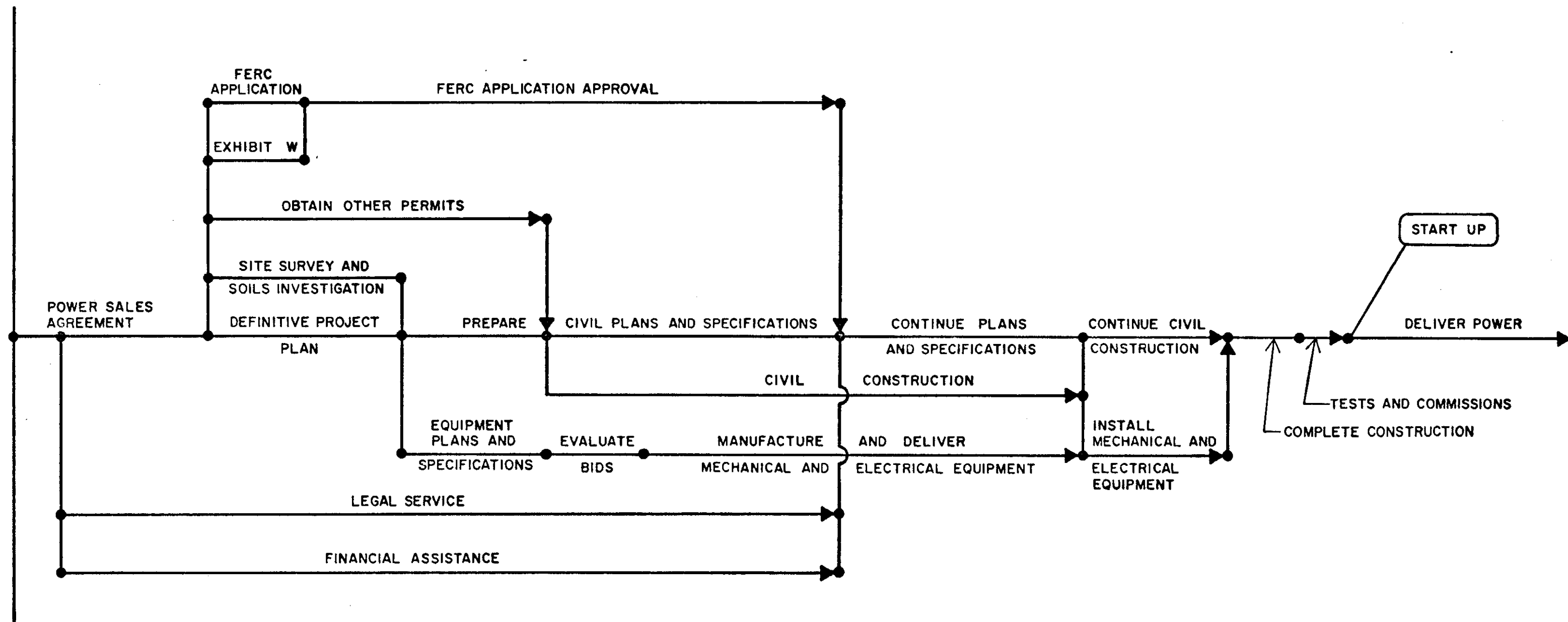
As shown, the proposed Development Plan would bring power on line at the beginning of the 1982 irrigation season.

1980

1981

1982

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S



MORA CANAL DROP
PROJECT DEVELOPMENT
PLAN

FIGURE

X-1

XI. ENVIRONMENTAL, SAFETY
AND SOCIO-INSTITUTIONAL
ASPECTS

XI. ENVIRONMENTAL, SAFETY AND SOCIO-INSTITUTIONAL ASPECTS

A. GENERAL

This chapter presents an initial assessment of the environmental safety and socio-institutional aspects of the project. As described below, these impacts are expected to be minor.

B. ENVIRONMENTAL IMPACT

The Mora Drop is located at the northwest edge of a highlands area that extends to near the Snake River 12 miles to the south. The summit of Kuna Butte, 500 feet in elevation above the valley is located 1.5 miles southeast of the drop. The valley areas to the north and west of the drop are quite flat, sloping gently toward the northwest.

The highlands area has remained largely in its natural state, with only limited disturbance by human activity. The area is covered with the sage-grassland association that once extended over most of the valleys of southern Idaho. Principal floral species include Big Sagebrush, several species of perennial bunch grasses, with incursions by the annual cheat grass. A number of upland game birds occupy the area, including Bobwhite, Ring-necked pheasant, Chukar partidge, and Hungarian partridge. Several families of small rodents are common in the sage grasslands, including rabbits, gophers, ground squirrels and field mice. A few predators inhabit the area, including the coyote, red fox, an occasional Golden eagle, and several species of hawks and owls. The highlands area is little used by Boise Valley residents, other

than for some recreation vehicle travel and small game and upland bird hunting.

The valley land use near the drop site is typical of rural farm areas, with between five and ten homes per square mile, and with an almost unbroken crop cover between houses. The nearest community is the city of Kuna, a rural farm town of 1500 people, which is located three miles northeast of the Mora Drop.

Kuna is now beginning to serve as a "bedroom community" for commuters to the Boise area, 16 miles further to the northeast; so subdivisions are now beginning to appear within and near the town, and the population is beginning to climb.

Aquatic life in the Mora Canal is limited, since it remains dry between four and six months each year. A few rainbow and brown trout are introduced each year from the Boise River, but there are no pools in which they might remain during the dry season.

Construction and operation of a hydroelectric plant at the Mora drop is not expected to have any significant impact on the highland or farmland environment. Since little or no modification of existing canal flow patterns are anticipated, operation of this plant will not have any effect on the Deer Flat Wildlife Refuge.

No water pollutants will be released by the facility. The only effect of the installation on the Mora Canal water quality is likely to be some silt and turbidity from construction-related activities. If most work is done during

the winter season when the canal is dry, silting is likely to be quite minor.

The only impact of the plant on air quality of the region is likely to be dust from construction activities, some construction vehicle emissions and minor amounts of ozone released by the generators during operation of the plant. On the other hand, to the extent that use of this generating facility will reduce power production at coal-fired thermoelectric plants elsewhere, a slight improvement in air quality at the latter sites may be expected.

Noise attributable to construction of the plant may cause some reduction in bird and mammal activity in the immediate vicinity of the Drop. However, noise levels will be low when the plant is in operation, so this is expected to be a temporary condition. Construction vehicle usage is likely to increase traffic density on nearby rural roads, which may disturb residents located near the Drop. However, only five to ten homes will be affected, and this traffic will decrease to present levels once the plant is in operation.

The power plant will require a concrete building measuring approximately 30 feet wide by 30 to 50 feet long by 25 to 50 feet high. Approximately 10 feet of the height would be underground, so the top of the structure would not extend far above the top of the canal. The structure will have some visual impact when viewed from the valley. It will be nearly invisible from the north slopes of Kuna Butte. Due to the low population density of the valley areas near the site, this visual impact is not expected to be significant. A second visual impact will develop with construction of a transmission line by Idaho Power Company. This line will need to extend

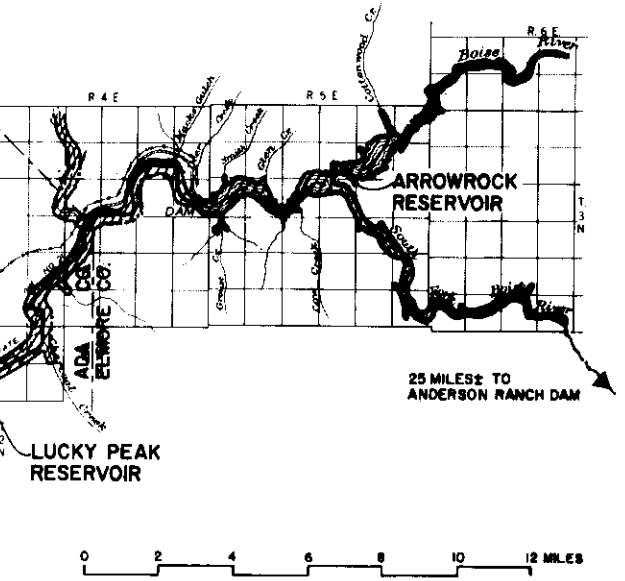
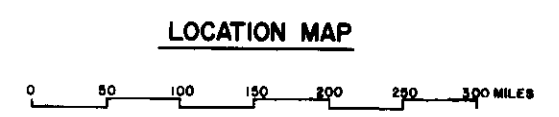
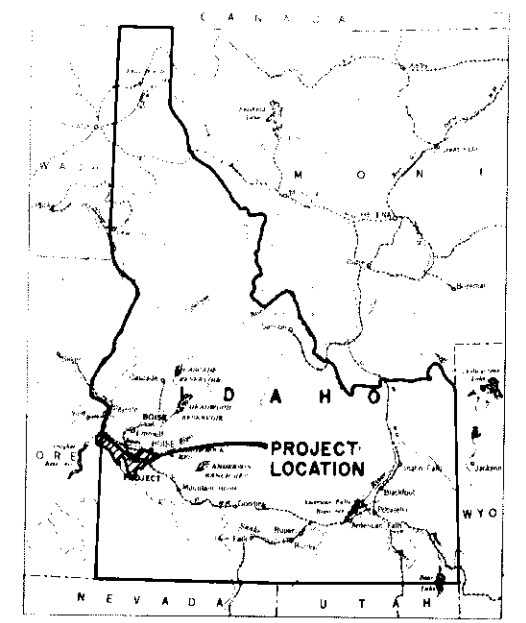
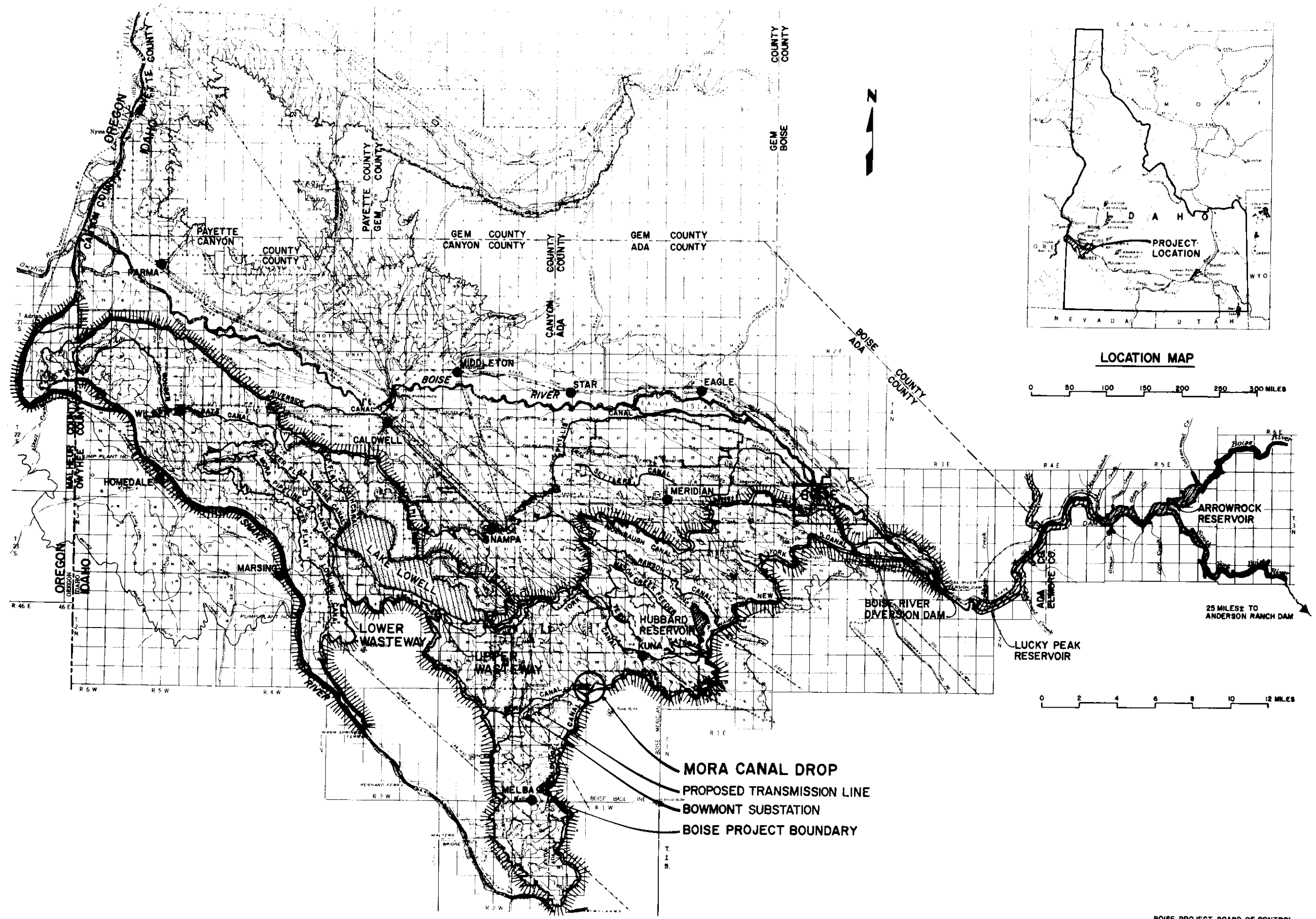
approximately 4.5 miles, primarily along existing roadways in the valley. It is possible that an existing pole line could be utilized for part of the transmission line, to reduce the significance of this impact.

C. SAFETY ASPECTS

No major safety hazards are expected as a result of power plant operations. The plant will be fully enclosed, so there will be no electric shock hazard to casual site visitors. No moving parts of the plant will be exposed. Some increase in flows through the two wasteways at Lake Lowell is likely in spring and fall. At the Mora Drop, the existing drop chute will normally be dry when the power plant is on line. The hazard of this structure to site visitors will consequently decrease with construction of the facility.

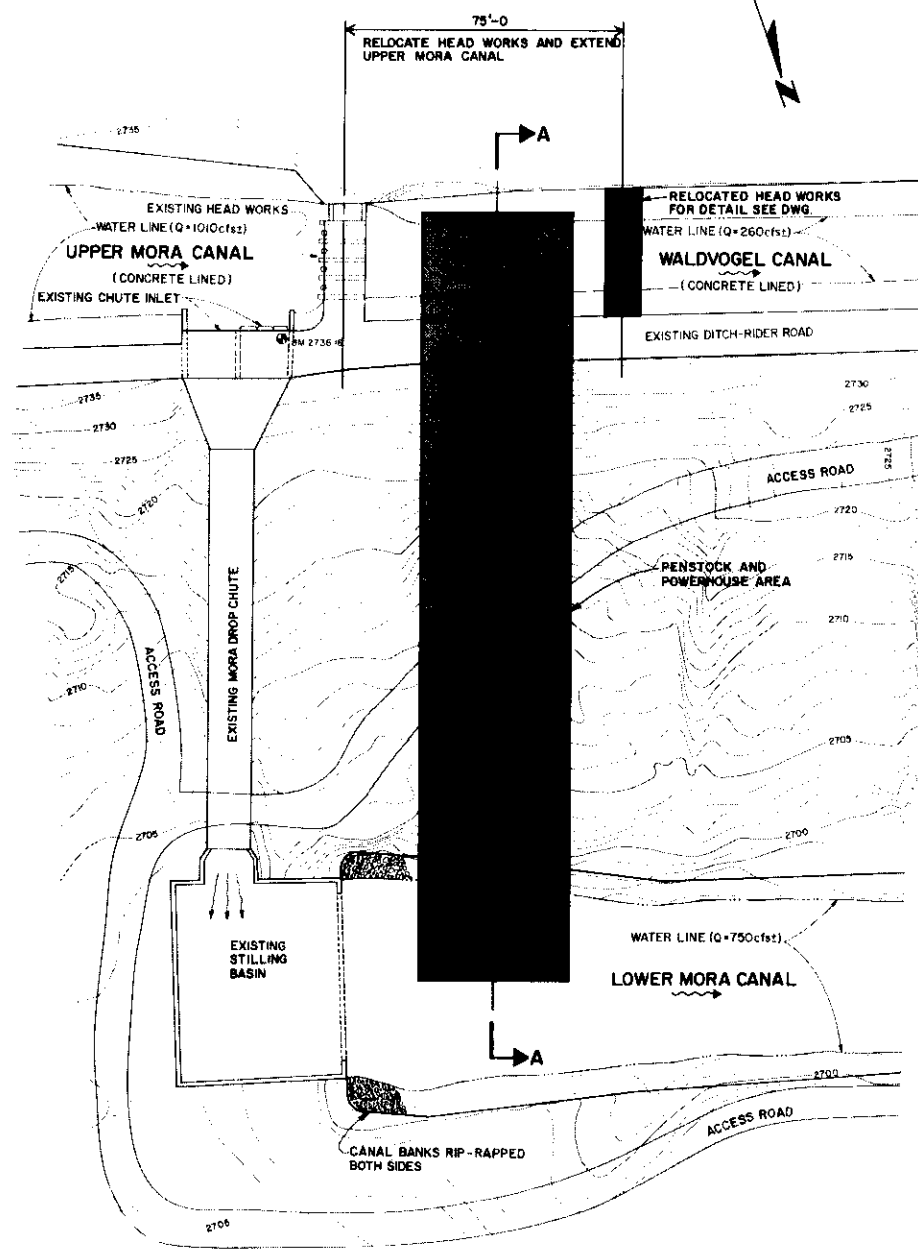
D. SOCIO-INSTITUTIONAL IMPACT

Construction and operation of a power plant at the Mora Drop should have a slightly beneficial impact on the regional and national economy. The power cost will be cheaper than most other options for future power that Idaho Power Company is considering. The Mora power plant thus will help hold down the cost of power for all consumers. Since most construction work on the plant will be done by Boise Project Board of Control personnel, its impact on the local job market will be minor. In the long run, however, a successful power plant at the Mora Drop is likely to spark greater interest in construction of hydroelectric plants at similar sites throughout the region. Future construction projects of this type will directly benefit the local construction economy, and indirectly benefit the regional economy by helping to hold down power rates.

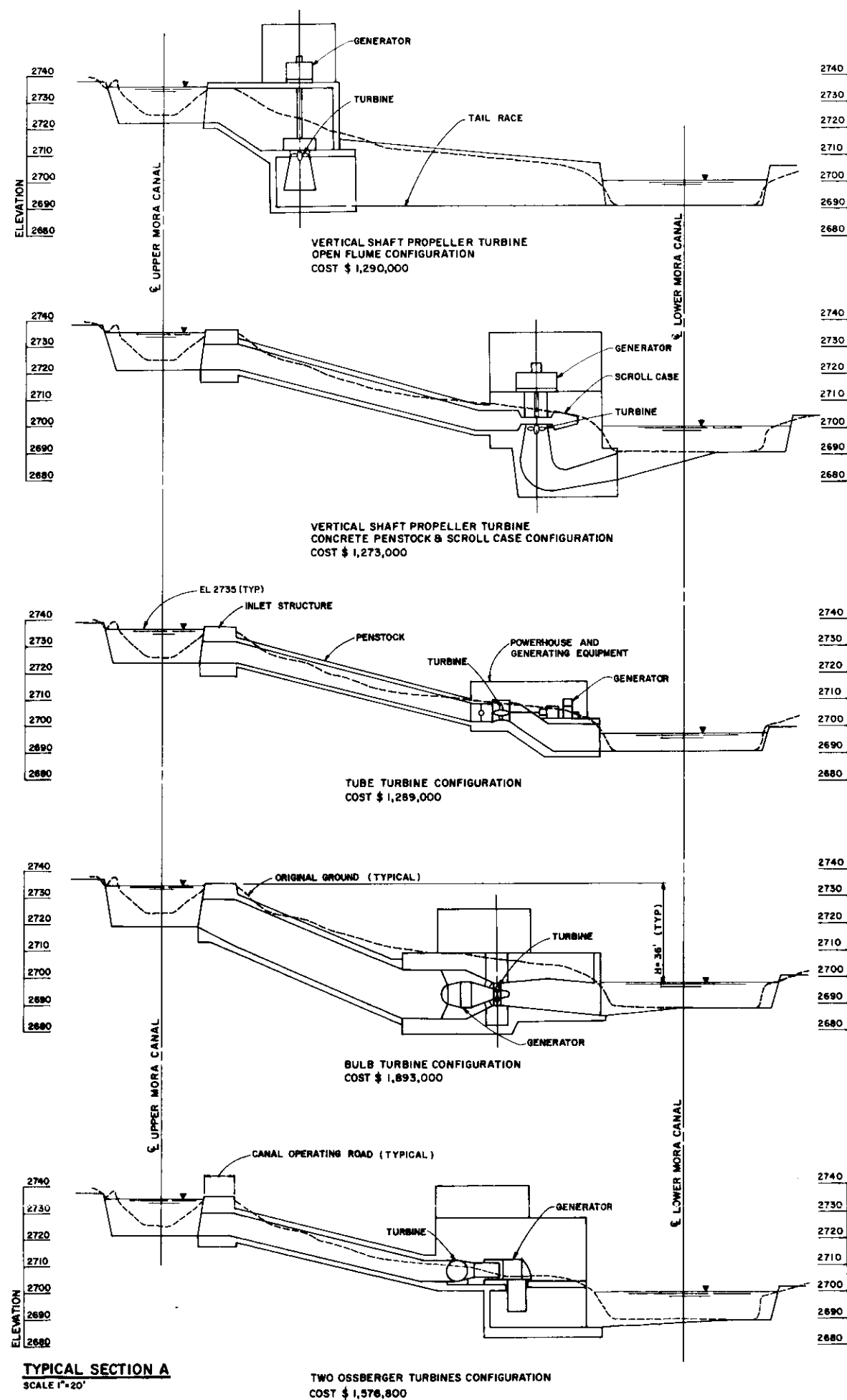


- MORA CANAL DROP
- PROPOSED TRANSMISSION LINE
- BOWMONT SUBSTATION
- BOISE PROJECT BOUNDARY

BOISE PROJECT BOARD OF CONTROL
MORA CANAL DROP
LOCATION MAP

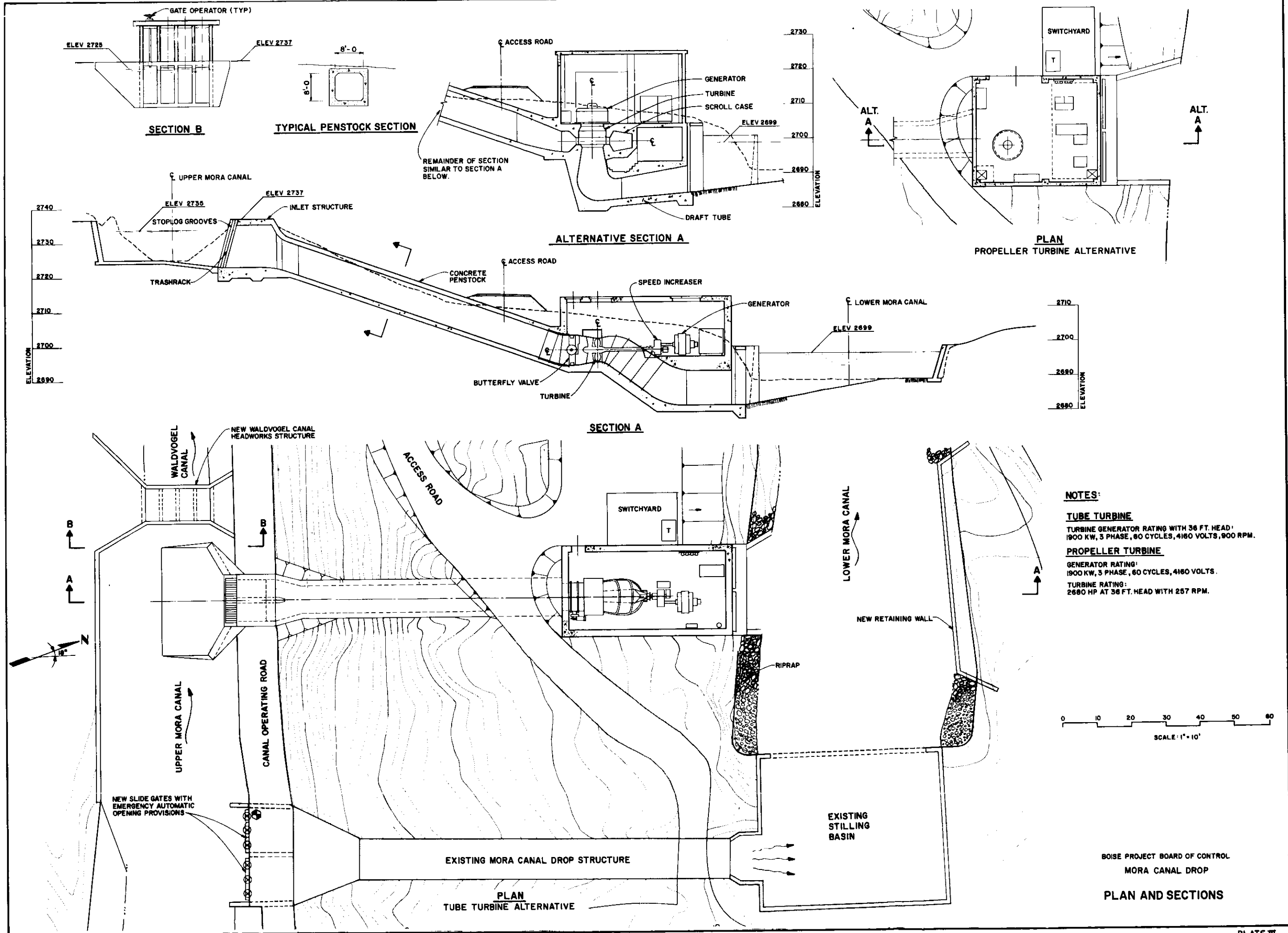


PLAN
SCALE 1"=20'



TYPICAL SECTION A
SCALE 1"=20'

BOISE PROJECT BOARD OF CONTROL
MORA CANAL DROP
ALTERNATIVE INSTALLATIONS



PLATES

APPENDIX A

SNAKE RIVER



HYDRO POWER

IDAHO POWER COMPANY

BOX 70 BOISE, IDAHO 83707

November 22, 1978

JAMES E. BRUCE
PRESIDENT &
CHIEF EXECUTIVE OFFICER

Mr Ottis Peterson
Chairman of Power Committee
Boise Project Board of Control
2908 Alamo Road
Boise, Idaho 83704

Dear Mr Peterson:

You have asked the Idaho Power Company to indicate its interest in purchasing the energy which might be generated by a small power plant constructed on the canal system under control of the Boise Project Board of Control Board at a location described as the Mora Drop. It is our understanding that the power plant would be constructed, owned and operated by the Board.

The Company does have a continuing and increasing need for electric energy when the energy has some degree of reliability or in the alternate, has a value as fuel replacement. The illustration of the expected generation from the Mora site shows that some of the energy would be adaptable to an irrigation load and the remainder would need to be used for fuel replacement.

The basis upon which the Company would be interested in purchasing the energy from the Mora site is generally described as follows:

1. The Company would agree to purchase all energy generated by the plant.
2. Idaho Power Company will construct, own, operate and maintain a 34.5 kV transmission line and the new circuit bay in its existing Bowmont Substation to interconnect the Mora generating plant to the Company's existing transmission system. The preliminary estimate for the cost of this interconnection is approximately \$90,000. The Company's annual costs relating to this investment will be deducted from the energy payment. The Board would own the step-up transformer and generator circuit breaker located at the power plant.
3. The Company would expect the installations in the power plant to provide for startup and shutdown control from the Boise Bench Substation and be provided with the normal protection equipment.

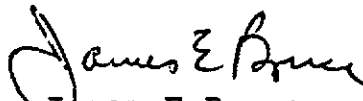
4. The Company would be willing to operate and maintain the power plant but would expect the Board to require a daily walk-through by a Board employee and have an annual shutdown for cleaning, inspection and preventive maintenance either by its own employees or by the Company. Any work performed by the Company would be on a time and materials basis. The final design of the controls would be reviewed by the Company to see that they are compatible with the Company's system.

5. Payment for the energy would be based on the metered amount received at 34.5 kV at the Bowmont Substation.

6. The energy payment will be 26 mills per kilowatt-hour.

This sets forth in preliminary form our idea of the possible arrangements under which the Mora energy could be purchased by the Company. Please call Mr Hogg to arrange for discussion of this program.

Sincerely,


James E Bruce
President & CEO

RAH:JEB:mlm

APPENDIX B

DETAILED COST ESTIMATE

OCTOBER 1978 PRICES

PROPELLER TURBINE ALTERNATIVE

<u>Acct</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
330	LAND & LAND RIGHTS	LS			2,000	\$ 2,000
331	STRUCTURES AND IMPROVEMENTS					
331.01	Mobilization & Demobilization	LS			20,000	
331.02	Common Excavation	CY	2,500	2.50	6,250	
331.03	Rock Excavation	CY	2,500	10.00	25,000	
331.04	Foundation Preparation	SF	3,000	2.00	6,000	
331.05	Grouting and Sealing	LS			5,000	
331.06	Power Plant Concrete	CY	750	70.00	52,500	
331.07	Reinforcing Steel	LB	93,250	0.40	37,500	
331.08	Compacted Backfill	CY	1,500	3.00	4,500	
331.09	Access Road & Site Work	LS			10,000	
	TOTAL ACCOUNT 331					\$166,750
332	RESERVOIR DAM AND WATERWAYS					
332.01	Concrete, Forebay Improvements	CY	150	70.00	10,500	
332.02	Concrete, Inlet Works	CY	200	70.00	14,000	

DETAILED COST ESTIMATE

OCTOBER 1978 PRICES

PROPELLER TURBINE ALTERNATIVE

<u>Acct</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
332.03	Concrete, Penstock	CY	250	70.00	10,500	
332.04	Concrete, Tailrace	CY	200	70.00	14,000	
332.05	Concrete, Misc.	CY	150	70.00	10,500	
332.06	Reinforcing Steel	LB	118,750	0.40	47,500	
332.07	Misc. Metalwork	LB	50,000	1.20	60,000	
332.08	Gates, Guides & Appurt.	LS	25,000	1.50	37,500	
332.09	Compacted Backfill	CY	1,500	3.00	4,500	
332.10	Miscellaneous Items	LS			10,000	

TOTAL ACCOUNT 332

\$226,000

333 WATERWHEELS, TURBINES & GENERATORS

333.01	Turbine	LS			164,000	
333.02	Generator	LS			340,000	
333.03	Governor	LS			35,000	
333.04	Freight & Installation	LS			29,000	

TOTAL ACCOUNT 333

\$568,000

DETAILED COST ALTERNATIVE

OCTOBER 1978 PRICES

PROPELLER TURBINE ALTERNATIVE

<u>Acct</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
334	ACCESSORY ELECTRICAL EQUIPMENT					
334.01	Transformer	LS			14,000	
334.02	Circuit Breaker & Switchgear	LS			26,000	
334.03	Control Equipment	LS			25,000	
334.04	Bus, Cable, Conduit & Grounding	LS			10,000	
334.05	Misc. Equipment	LS			9,000	
334.06	Freight & Installation	LS			21,000	
	TOTAL ACCOUNT 334					\$105,000
335	MISCELLANEOUS POWER PLANT EQUIPMENT					
	Communication System	LS			30,000	
	Misc. Equipment	LS			15,000	
	Freight & Installation	LS			8,000	
	TOTAL ACCOUNT 335					53,000
355	TRANSMISSION LINE	LS				100,000
	GRAND TOTAL ALL ACCOUNTS					\$ 1,220,750

DETAILED COST ESTIMATE

OCTOBER 1978 PRICES

TUBE TURBINE ALTERNATIVE

<u>Acct.</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
330	LAND & LAND RIGHTS	LS			2,000	\$ 2,000
331	STRUCTURES AND IMPROVEMENTS					
331.01	Mobilization & Demobilization	LS			20,000	
331.02	Common Excavation	CY	2,200	2.50	5,500	
331.03	Rock Excavation	CY	2,200	10.00	22,000	
331.04	Foundation Preparation	SF	2,650	2.00	5,300	
331.05	Grouting & Sealing	LS			5,000	
331.06	Power Plant Concrete	CY	600	70.00	42,000	
331.07	Reinforcing Steel	LB	75,000	0.40	30,000	
331.08	Compacted Backfill	CY	1,300	3.00	3,900	
331.09	Access Road & Site Work	LS			12,000	
	TOTAL ACCOUNT 331					\$ 145,700
332	RESERVOIR DAM AND WATERWAYS					
332.01	Concrete, Forebay Improvement	CY	150	70.00	10,500	
332.02	Concrete, Inlet Works	CY	150	70.00	10,500	

DETAILED COST ESTIMATE

OCTOBER 1978 PRICES

TUBE TURBINE ALTERNATIVE

<u>Acct</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
332.03	Concrete, Penstock	CY	250	70.00	17,500	
332.04	Concrete, Tailrace	CY	150	70.00	10,500	
332.05	Concrete, Misc.	CY	150	70.00	10,500	
332.06	Reinforcing Steel	LB	106,250	0.40	42,500	
332.07	Misc. Metalwork	LB	50,000	1.20	60,000	
332.08	Gates, Guides & Appurt.	LB	25,000	1.50	37,000	
332.09	Compacted Backfill	CY	1,500	3.00	4,500	
332.10	Miscellaneous Items	LS			10,000	
TOTAL ACCOUNT 332						\$ 214,000
333	WATERWHEELS, TURBINES & GENERATORS					
333.01	Turbine & Generator	LS			579,000	
333.02	Freight & Installation	LS			29,000	
TOTAL ACCOUNT 333						\$ 629,000

DETAILED COST ESTIMATE

OCTOBER 1978 PRICES

TUBE TURBINE ALTERNATIVE

<u>Acct</u>	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>	<u>Acct. Total</u>
334	STATION EQUIPMENT					
334.01	Transformer	LS			14,000	
334.02	Circuit Breaker & Switchgear	LS			26,000	
334.03	Control Equipment	LS			15,000	
334.04	Bus, Cable, Conduit & Grounding	LS			10,000	
334.05	Miscellaneous Equipment	LS			9,000	
334.06	Freight & Installation	LS			21,000	
	TOTAL ACCOUNT 334					\$ 95,000
335	MISCELLANEOUS POWER PLANT EQUIPMENT					
	Communication System	LS			33,000	
	Miscellaneous Equipment	LS			12,000	
	Freight & Installation	LS			8,000	
	TOTAL ACCOUNT 335					\$ 53,000
335	TRANSMISSION LINE	LS				\$ 100,000
	GRAND TOTAL ALL ACCOUNTS					\$ 1,238,700