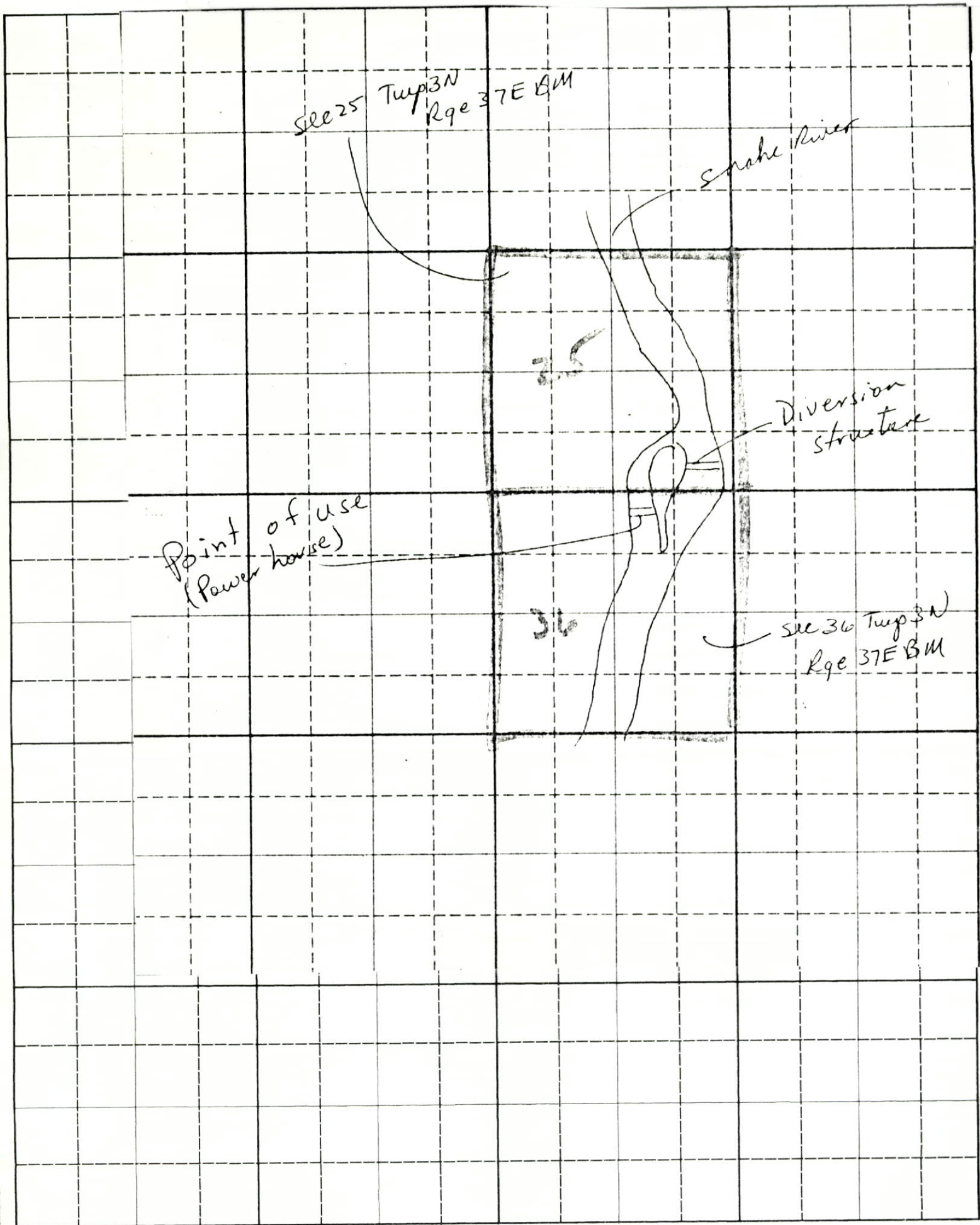


11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



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.

Thomas Campbell
(Applicant) MAYOR

Proof of Publication

The Post-Register

State of Idaho, }
County of Bonneville } ss.

I, J. Robb Brady, first being duly sworn, depose and say: That I am the Principal Clerk of The Post Company, a corporation of Idaho Falls, Bonneville County, Idaho, publishers of The Post-Register, a newspaper of general circulation, published daily, except Saturday, at Idaho Falls, Idaho; said Post-Register being a consolidation of the Idaho Falls Times, established in the year 1890, The Idaho Register, established in the year 1880 and the Idaho Falls Post, established in 1903, such consolidation being made on the 1st day of November, 1931, and each of said newspapers having been published continuously and uninterruptedly, prior to consolidation, for more than seventy-eighty (78) weeks and said Post-Register having been published continuously and uninterruptedly from the date of such consolidation, up to and including the last publication of notice hereinafter referred to.

That the notice, of which a copy is hereto attached and made a part of this affidavit, was published in said Post-Register for two consecutive weeks, first publication having been made on the 22nd day of February, 19 79, last publication having been made on the 1st day of March, 19 79, and that the said notice was published in the regular and entire issue of said paper on the respective dates of publication, and that such notice was published in the newspaper and not in a supplement.

Subscribed and sworn to before me, this 8th day of March, 19 79

Karl H. Hare
Notary Public

My commission expires April 5, 19 79

B10, 1M,

**NOTICE OF APPLICATION
FOR WATER RIGHT**
Notice is hereby given that the following application(s) have been submitted to appropriate the public waters of the State of Idaho.
01-7023
CITY OF IDAHO FALLS
C/O G. S. HARRISON, P.O. BOX 220,
IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER.
Date Filed: 02/15/1979
Amount: 1240.00 CFS
Diversion Point: SESE Sec 25 T 03N R
37E, BONNEVILLE Co.
Use: POWER (1240.00 CFS) from 01/01
to 12/31
Place of Use: NWNE Sec 36 T 03N R 37E
Diversion Means: 20' HIGH, 300' LONG
CONCRETE DAM

01-7024
CITY OF IDAHO FALLS
C/O G. S. HARRISON, P.O. BOX 220,
IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER

Date Filed: 05/15/1979
Amount: 1460.00 CFS
Diversion Point: SESE Sec 13 T 02N R
37E SWSW Sec 18 T 02N R 38E NWNW
Sec 19 T 02N R 38E NENE Sec 24 T 02N R
37E SENE Sec 24 T 02N R 37E,
BONNEVILLE Co.
Use: POWER (1460.00 CFS) from 01/01 to
12/31
Place of Use: SENE Sec 24 T 02N R 37E
Diversion Means: CONCRETE DIVER-
SION STRUCTURE 1800' LONG

01-7025
CITY OF IDAHO FALLS, C/O G. S.
HARRISON
P.O. BOX 220, IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER
Date Filed: 02/15/1979
Amount: 900.00 CFS
Diversion Point: SWSW Sec 25 T 02N R
37E, BONNEVILLE Co.
Use: POWER (900.00 CFS) from 01/01 to
12/31
Place of Use: SWSW Sec 25 T 02N R 37E
Diversion Means: CONCRETE STRUC-
TURE UP TO 20' HIGH & 1200' LONG.

If issued, the permit(s) will be subject
to all prior water rights. Protests against
the granting of any permit must be filed
with the Director of the Idaho Depart-
ment of Water Resources, 1515 Lincoln
Rd., Idaho Falls, Idaho 83401 on or before
MARCH 12, 1979.

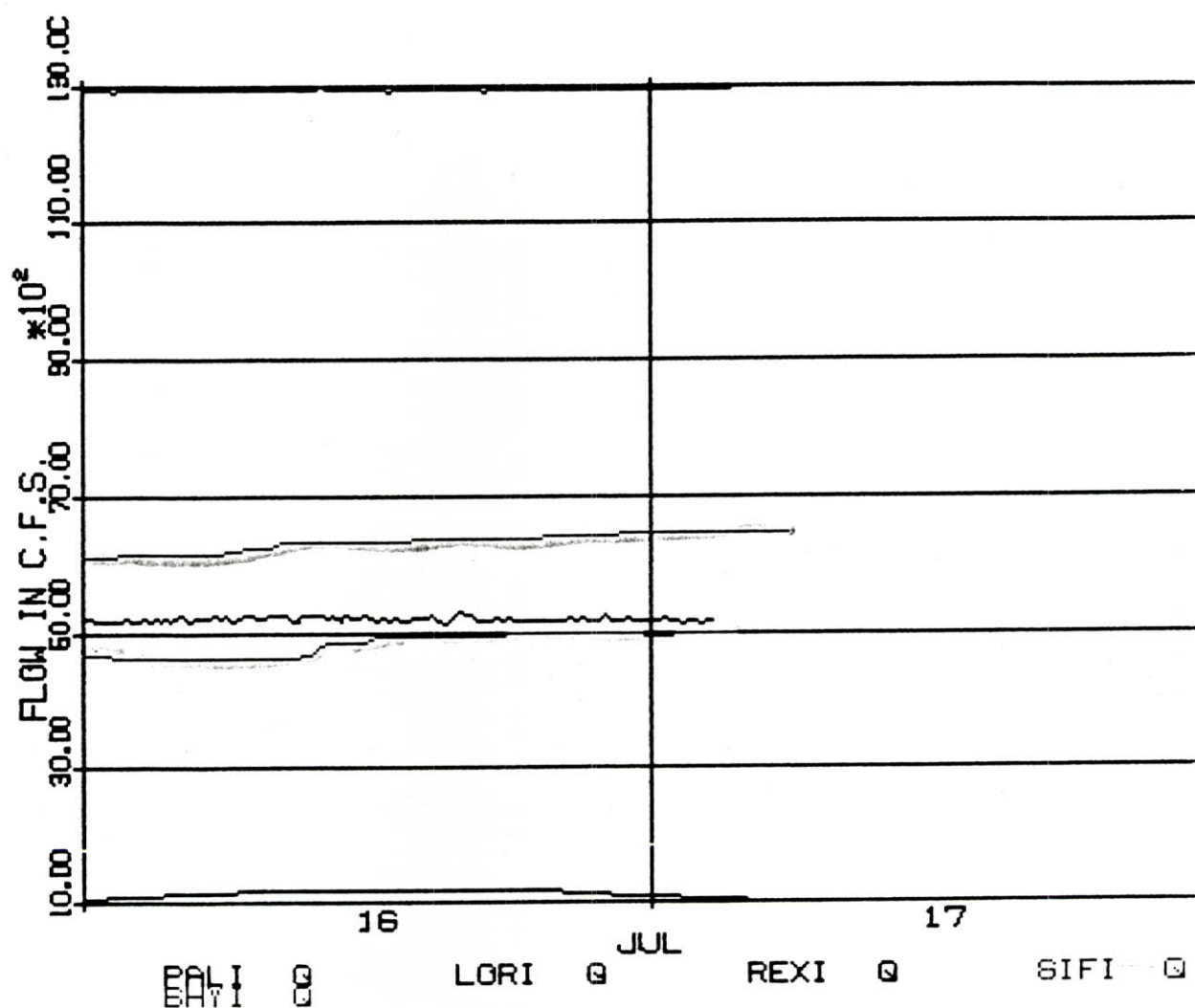
C. STEPHEN ALLRED
Director
Pub.: Feb. 22 & March 1, 1979.

RECEIVED

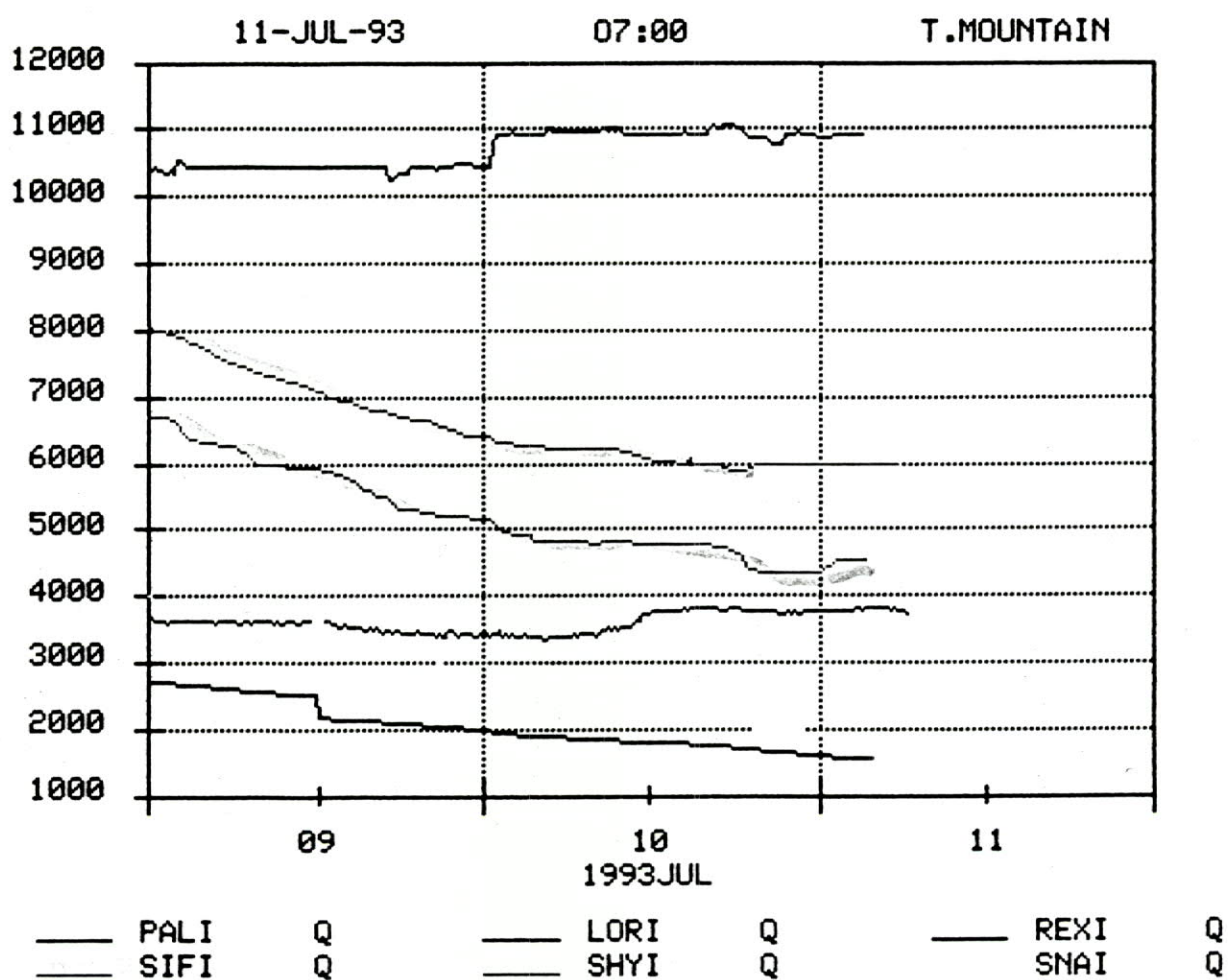
MAR 13 1979

Department of Water Resources
Eastern District Office

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EXPER. DATA
DEC 0 4 1957

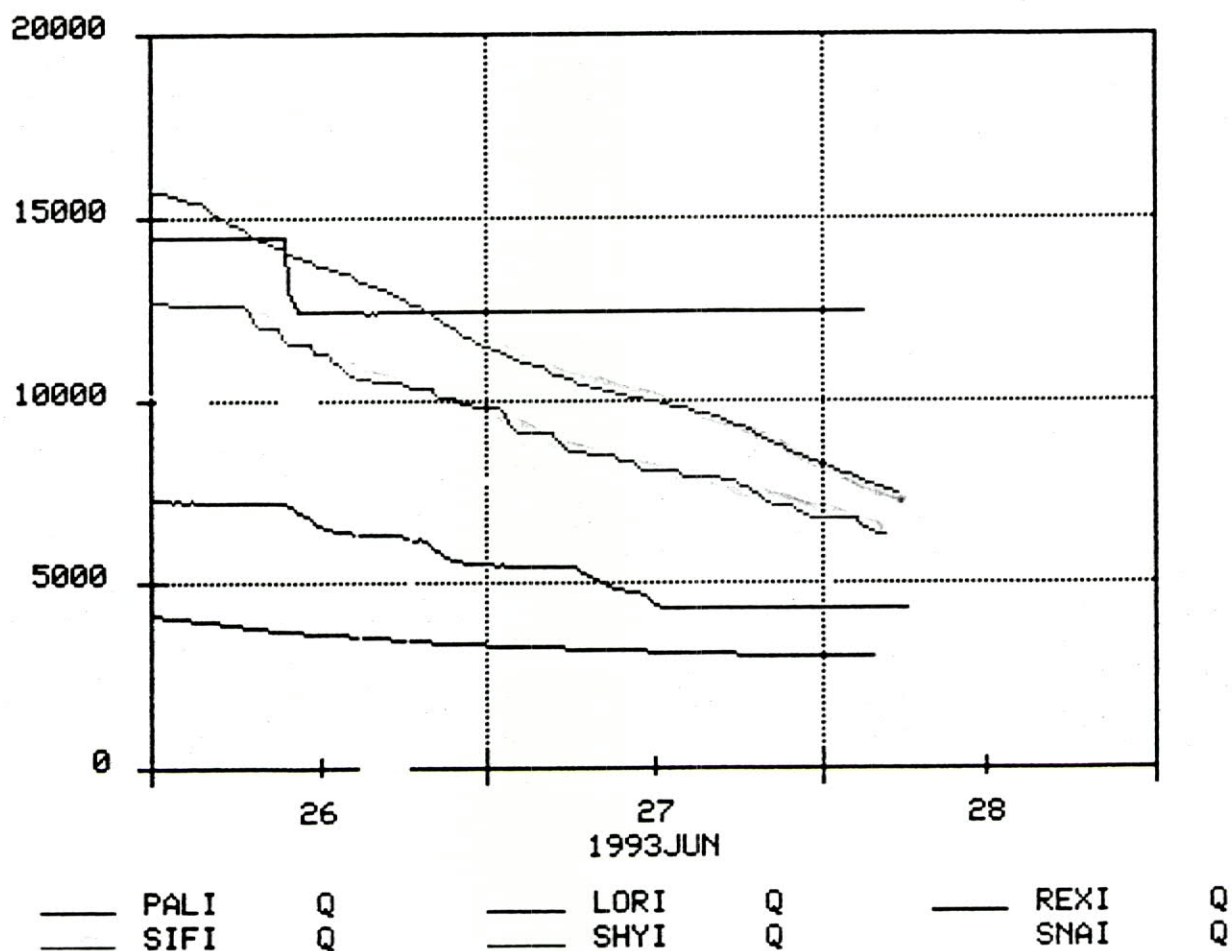


UNCLASSIFIED
DEC 04 1997

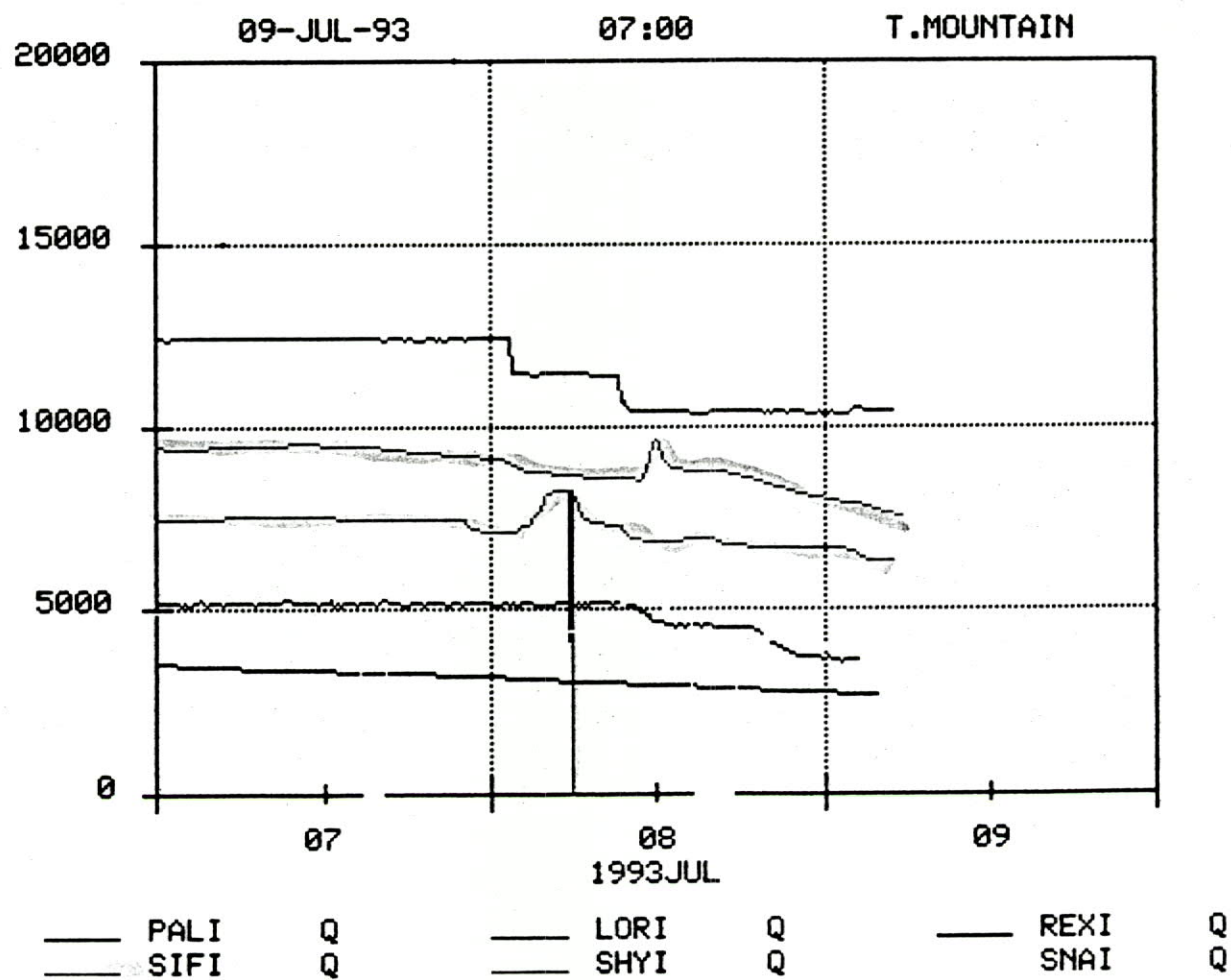
J.LINGER

06:30

28-JUN-93



RECEIVED
JUN 24 1993



GENERATOR OUTPUT (MW)

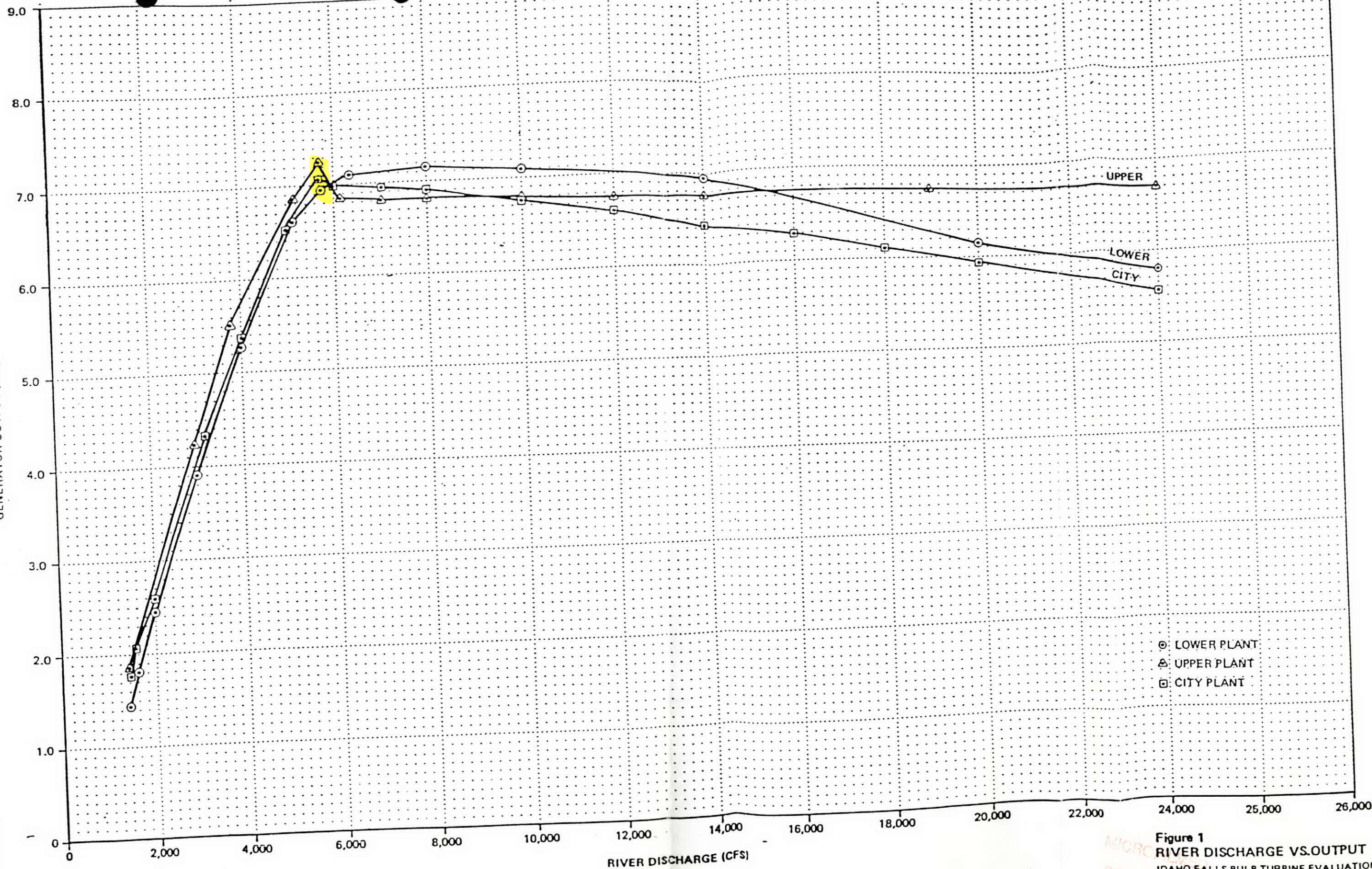
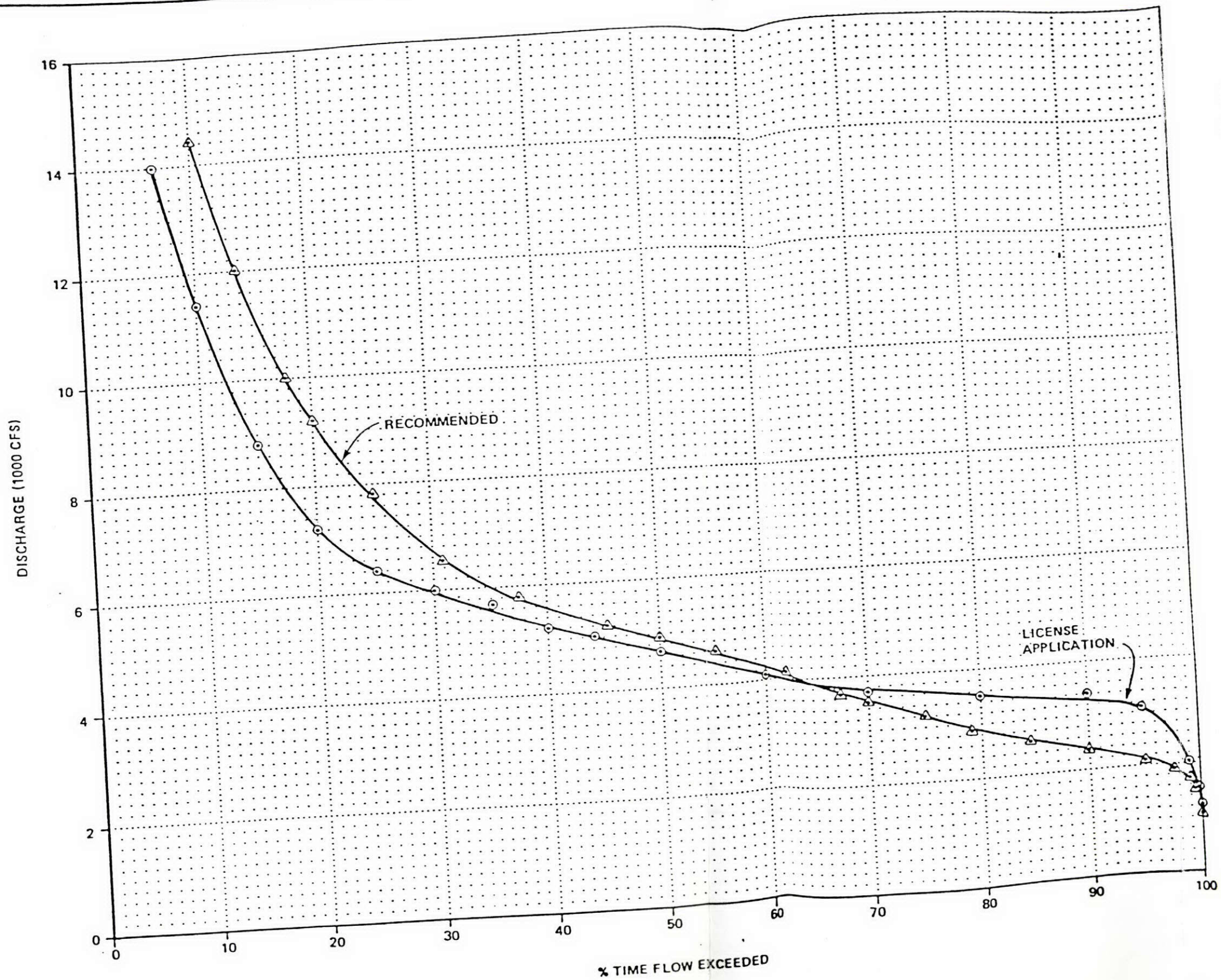


Figure 1
RIVER DISCHARGE VS. OUTPUT
IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO



△ DAILY Q SHELLEY GAGE 1960 - 1985
 ○ 1975 DEVELOPMENT MONTHLY 1978 - 1972

Figure 2
 DAILY FLOW DURATION
 SHELLEY GAGE (USGS)
 IDAHO FALLS BULB TURBINE EVALUATION
 CITY OF IDAHO FALLS, IDAHO

DEC 04 1997

CRMH

22

NET HEAD (FT)

20

18

16

14

12

10

8

6

4

2,000

4,000

6,000

8,000

10,000

12,000

14,000

16,000

18,000

20,000

22,000

24,000

25,000

26,000

RIVER DISCHARGE (CFS)

UPPER

LOWER

CITY

- LOWER PLANT
- △ UPPER PLANT
- CITY PLANT

TURBINE LOWER LIMIT = 13.0

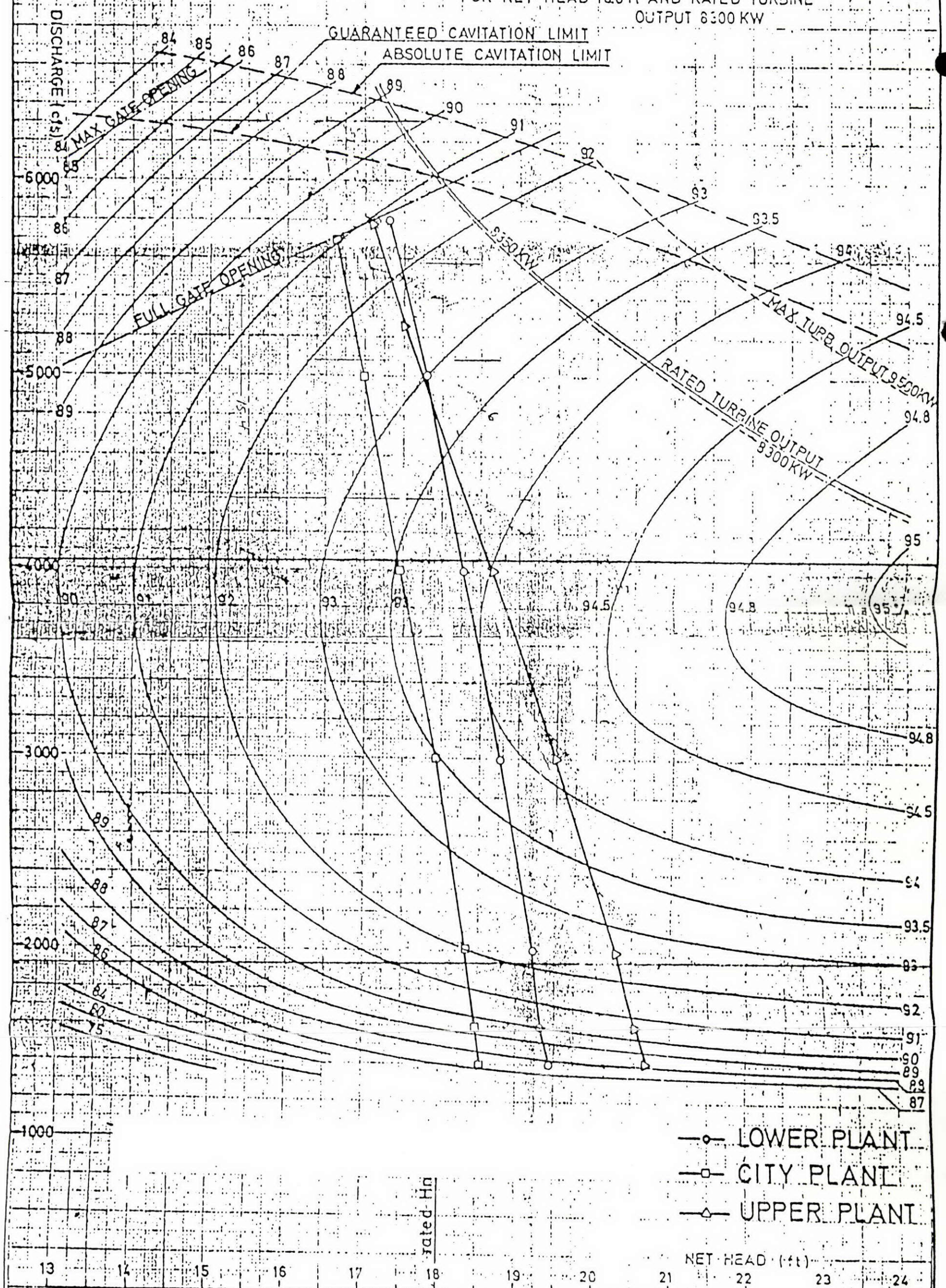
Figure 3
RIVER DISCHARGE VS. NET HEAD
IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO

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DEC 04 1997

RUNNER DIAMETER (4.85 m) 190 15/16 inch
 SYNCHRONOUS SPEED 94.73 rpm
 CENTERLINE RUNNER
 UPPER PLANT 4696.3 ft
 CITY PLANT 4657.2 ft
 LOWER PLANT 4636.7 ft

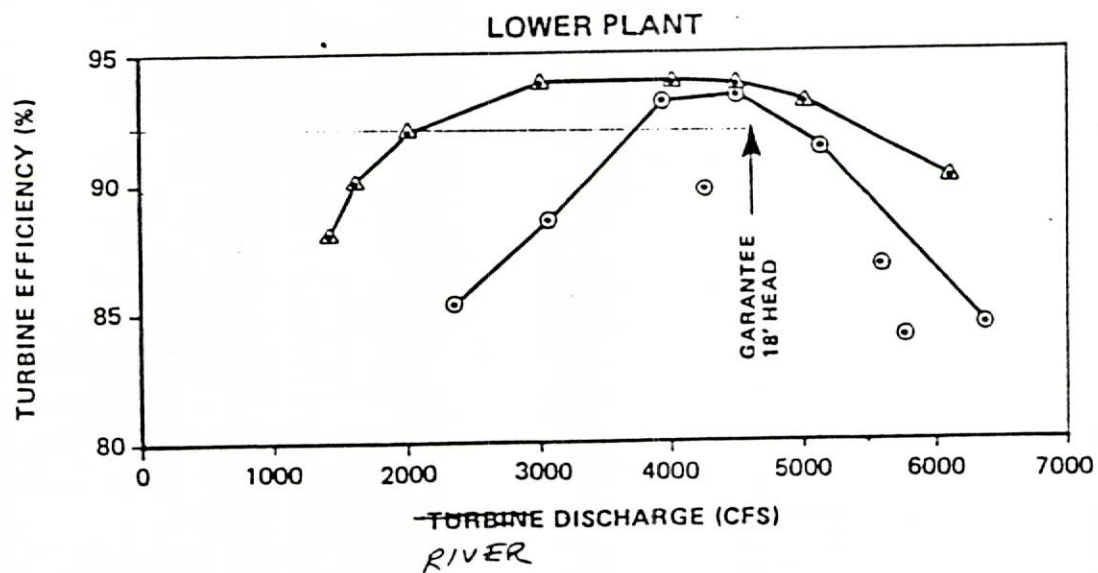
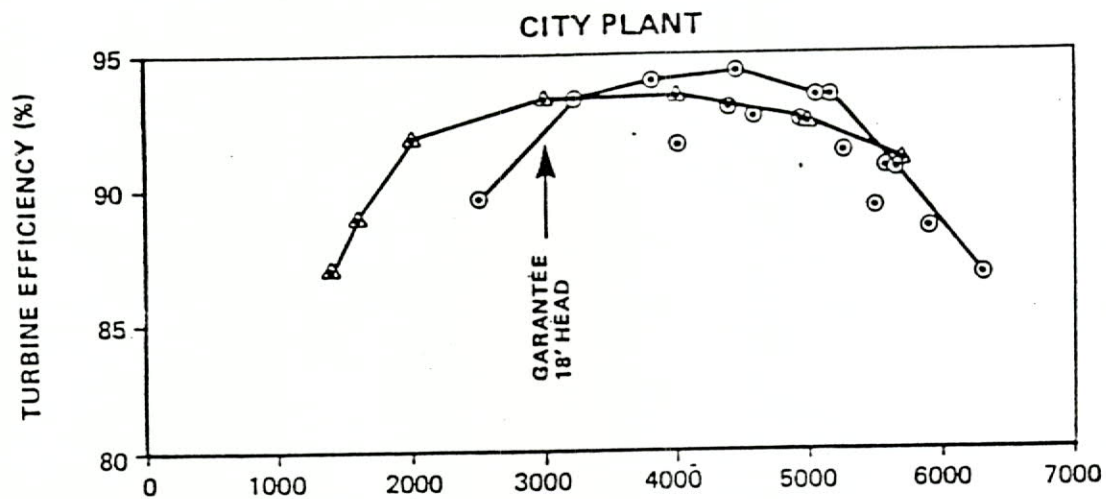
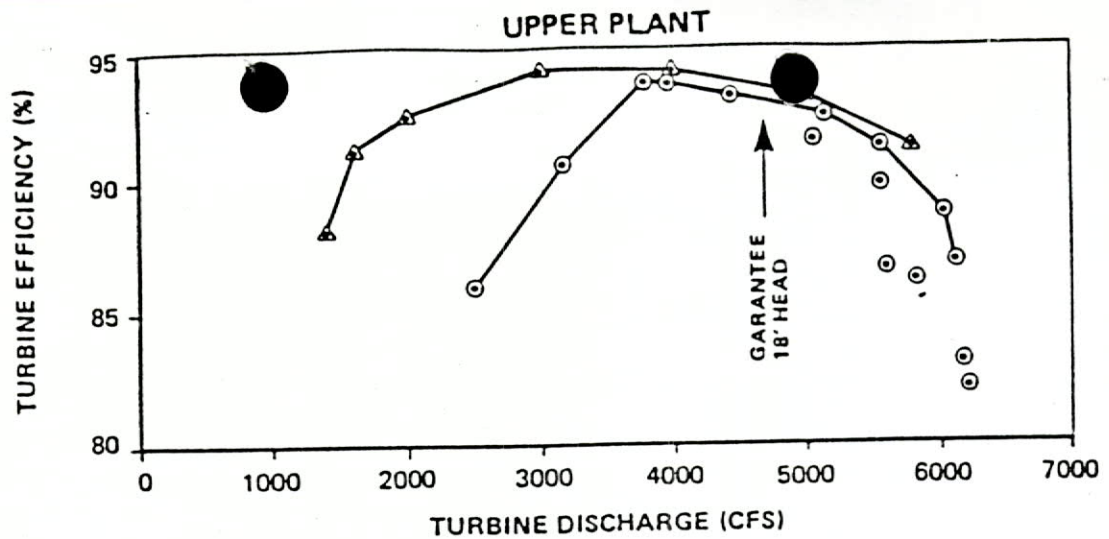
TOLERANCE OF MEASUREMENT IEC
 THE CAVITATION LIMITS ARE BASED ON THE
 FOLLOWING NORMAL RESERVOIR ELEVATIONS:
 UPPER PLANT CITY PLANT LOWER PLANT
 4734.0 ft 4694.25 ft 4674.0 ft

FULL GATE OPENING = NOMINAL OPENING
 FOR NET HEAD 18.0 ft AND RATED TURBINE
 OUTPUT 8300 KW



SOURCE: Hill diagram from Voest Alpine
 Index Test Report, Dec. 1983.

Figure 4
 OPERATING CONDITIONS



FROM INDEX TEST
 FROM GUARANTEED HILL DIAGRAM

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DEC 04 1997

Figure 5
EFFICIENCY COMPARISON

IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO

01-7023
upper plant

NORTH

0000

NORTH
NORTH

80.00

S. 89° 45' W.

40.06

1878

S. 89° 18' W.

5.94

7.74

3.30

8.54

N. 89° 35' W.

14.63

22.87

CARIN

DAM

DAM

POWER HOUSE

RESURVEY
25.52

8

5.98

29.77

S. 31° 24' W.

0.729

RIVER

JOHN B. DAVID

7

8

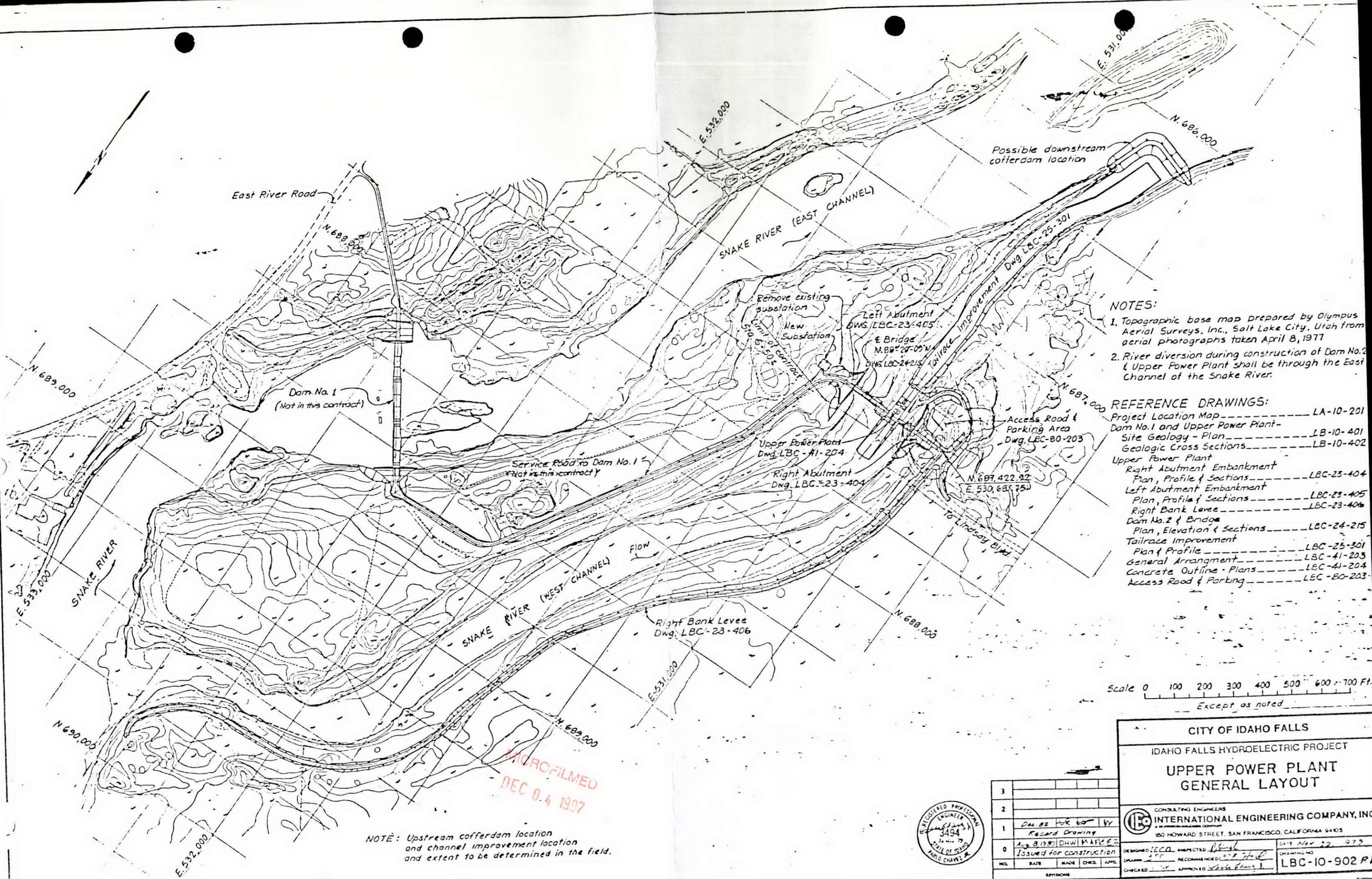
2

Sec. 36

6.70

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DEC 04 1997

BY



NOTES:

1. Topographic base map prepared by Olympus Aerial Surveys, Inc., Salt Lake City, Utah from aerial photographs taken April 8, 1977
2. River diversion during construction of Dam No. 1 & Upper Power Plant shall be through the East Channel of the Snake River.

REFERENCE DRAWINGS:

Project Location Map	LA-10-201
Dam No. 1 and Upper Power Plant - Site Geology - Plan	LB-10-401
Geologic Cross Sections	LB-10-402
Upper Power Plant	
Right Abutment Embankment Plan, Profile & Sections	LBC-23-404
Left Abutment Embankment Plan, Profile & Sections	LBC-23-405
Right Bank Levee	LBC-23-406
Dam No. 2 & Bridge Plan, Elevation & Sections	LBC-24-215
Tailrace Improvement Plan & Profile	LBC-25-301
General Arrangement	LBC-41-203
Concrete Outline - Plans	LBC-41-204
Access Road & Parking	LBC-80-203

Scale 0 100 200 300 400 500 600 700 Ft.
Except as noted

NOTE: Upstream cofferdam location and channel improvement location and extent to be determined in the field.

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DEC 04 1997



3					
2					
1	DRG. BY	CHK. BY	DATE	BY	
0	ISSUED FOR CONSTRUCTION				
	NO.	DATE	MADE	CHG.	APPR.

CITY OF IDAHO FALLS

IDAHO FALLS HYDROELECTRIC PROJECT

UPPER POWER PLANT

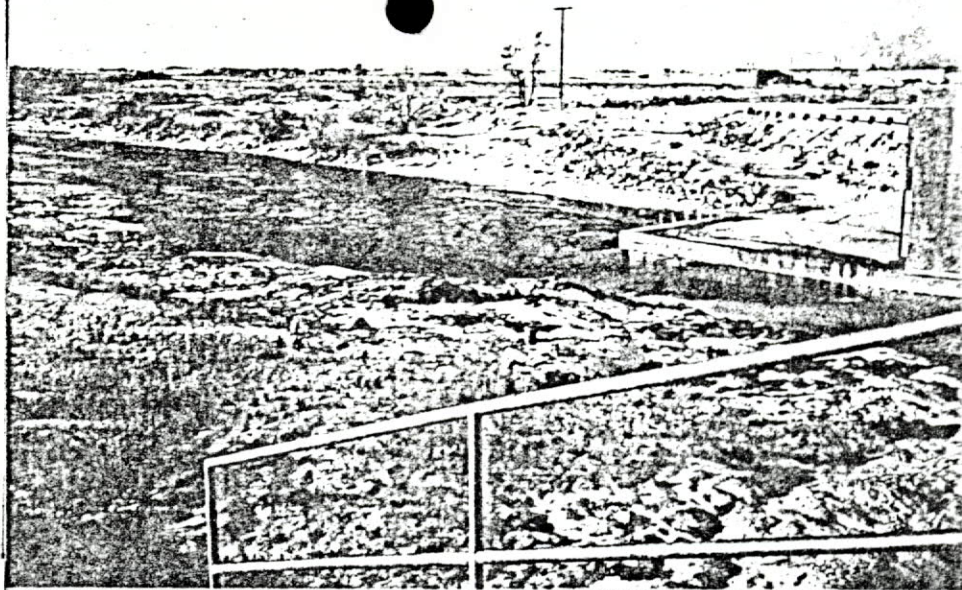
GENERAL LAYOUT

CONSULTING ENGINEERS
INTERNATIONAL ENGINEERING COMPANY, INC.
100 HOWARD STREET, SAN FRANCISCO, CALIFORNIA 94105

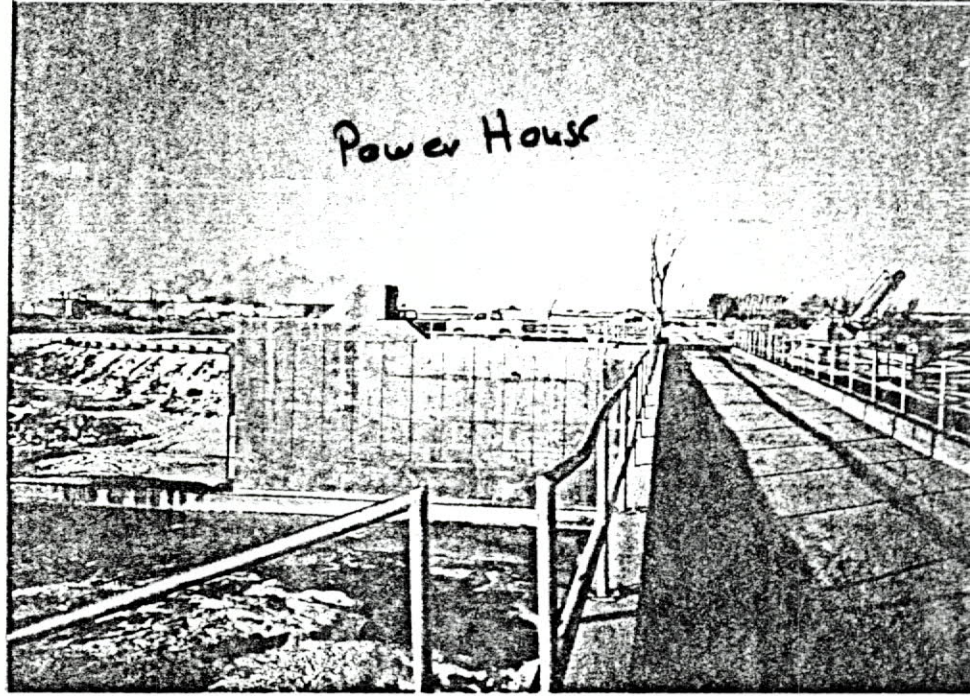
DESIGNED: J.E.C. CHECKED: [Signature] DATE: Nov 22 1973
DRAWN: J.E.C. RECOMMENDED: [Signature]
CHECKED: [Signature] APPROVED: [Signature]

DRAWING NO. **LBC-10-902 R1**

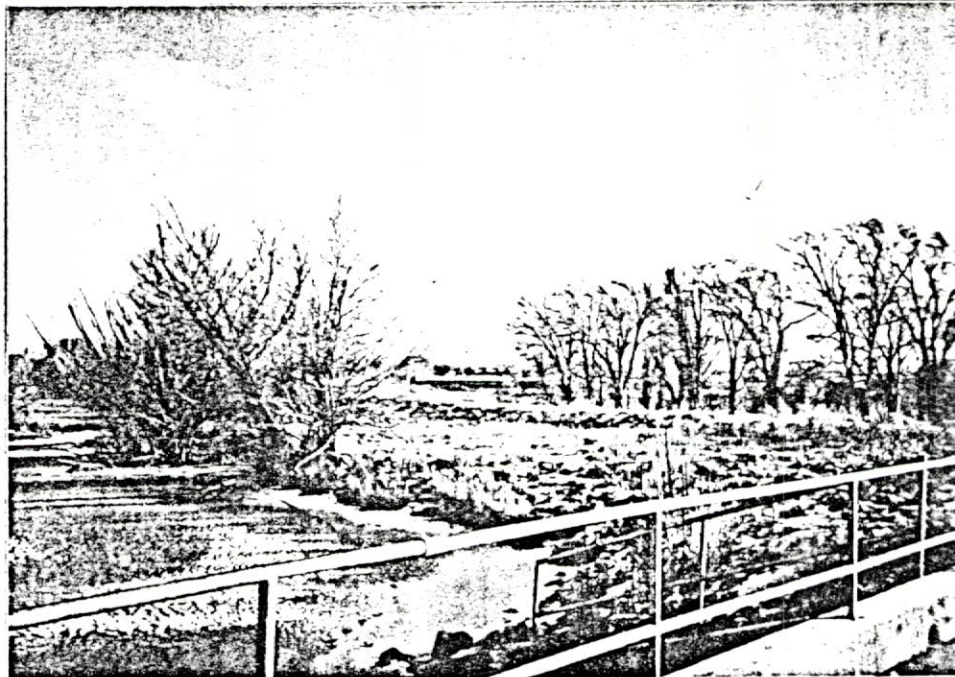
Tail Race



Power House



Spillway



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DEC 04 1977



Upper Plant
Power House

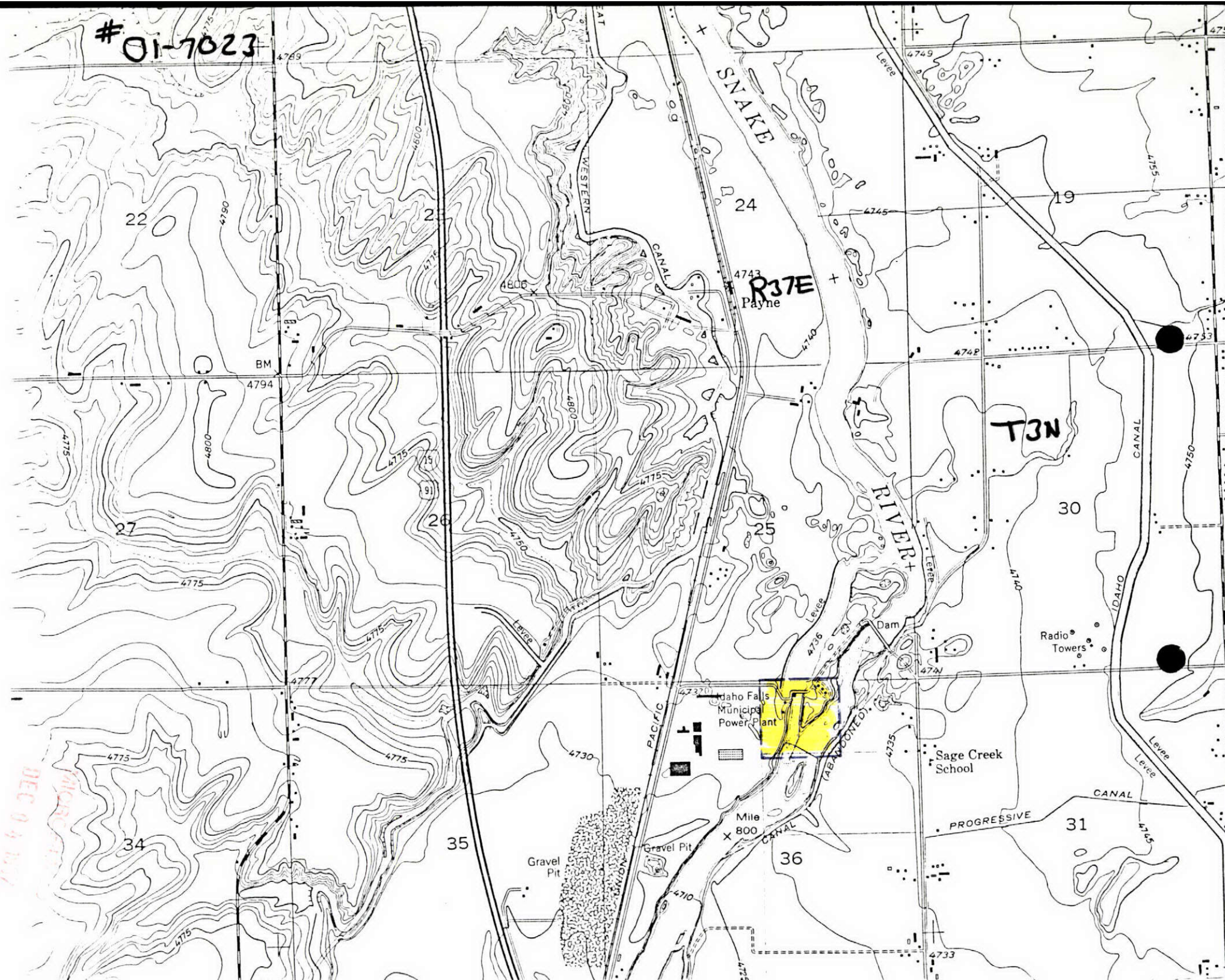


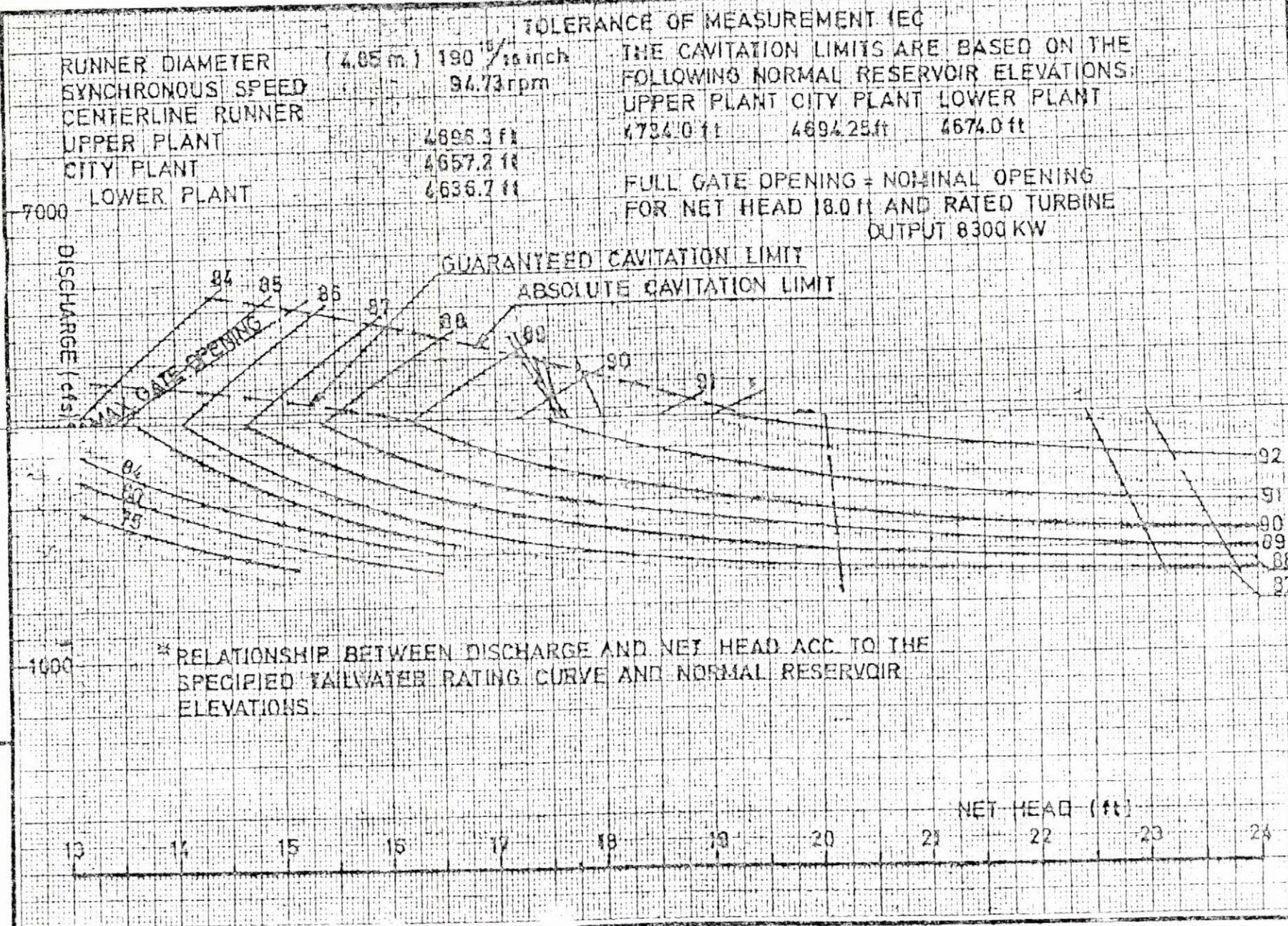
Ponding behind
Upper Power Plant

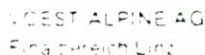


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DEC 9 4 1957

#01-7023





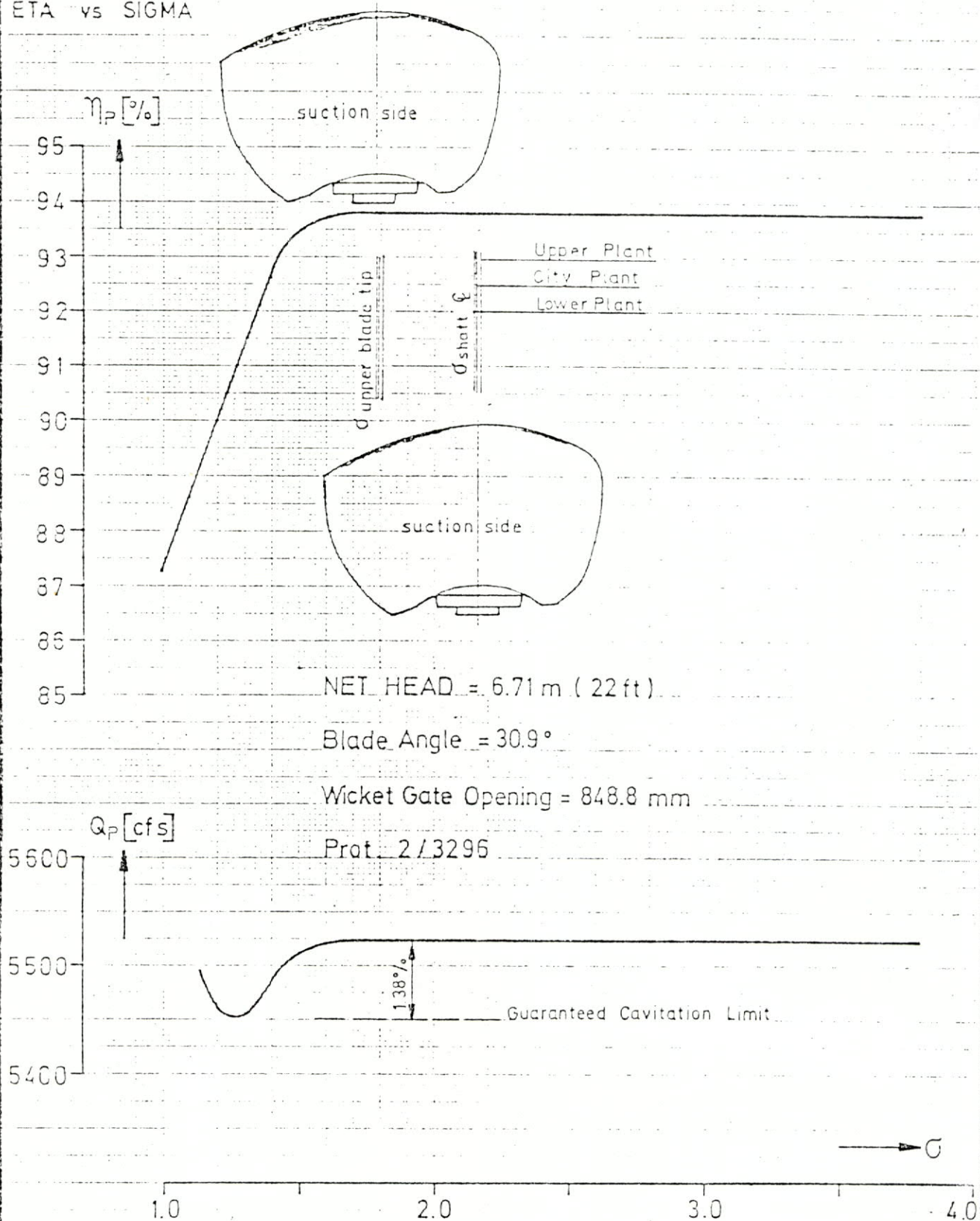


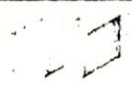
IDAHO FALLS
HYDROELECTRIC PROJECT
S.O. 5644 / 10714

TLM 2

MODEL 344 - 4

ETA VS SIGMA





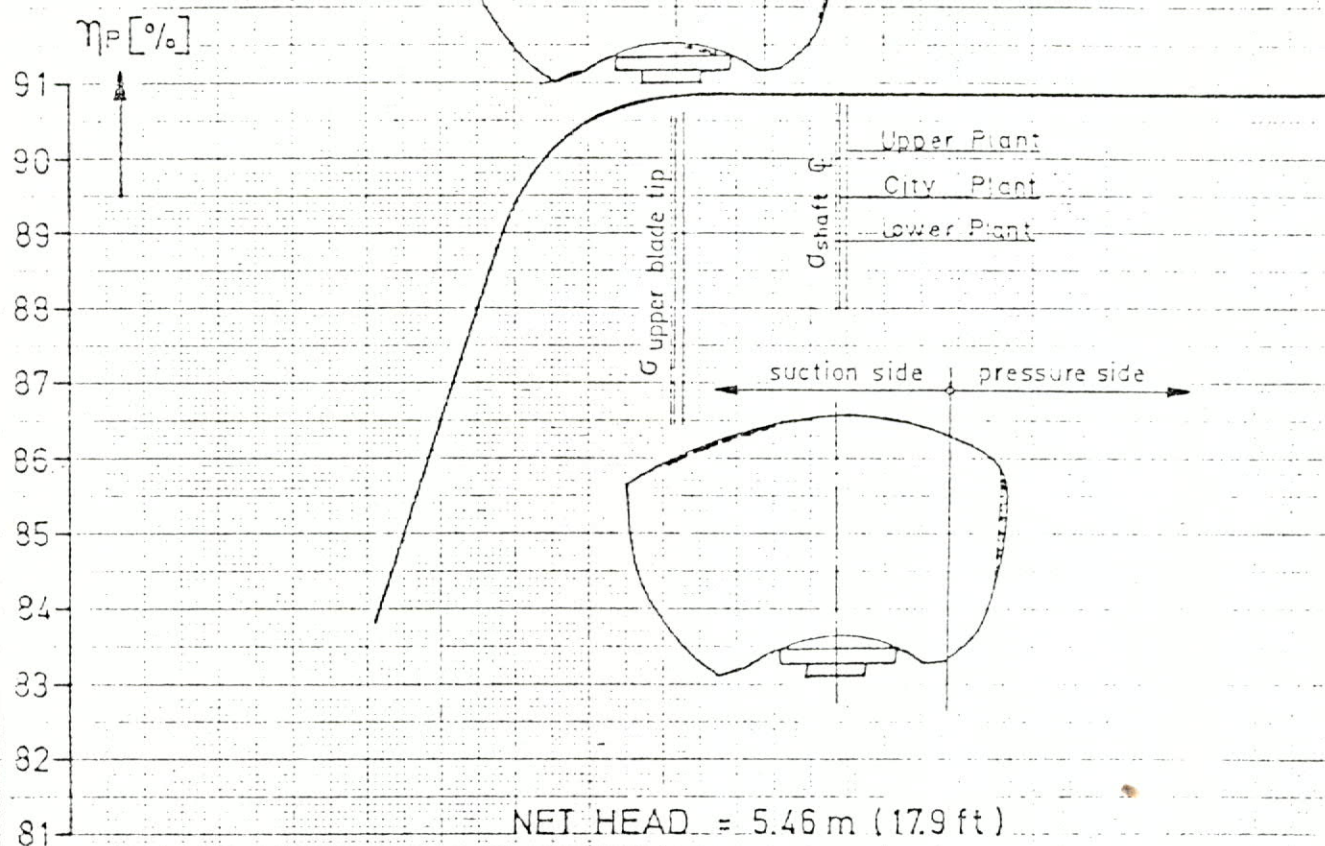
VOEST-ALPINE AG
Friedrichshafen, Linz

IDAHO FALLS HYDROELECTRIC PROJECT S.O. 5644/10714

TLM 2

MODEL 344-4

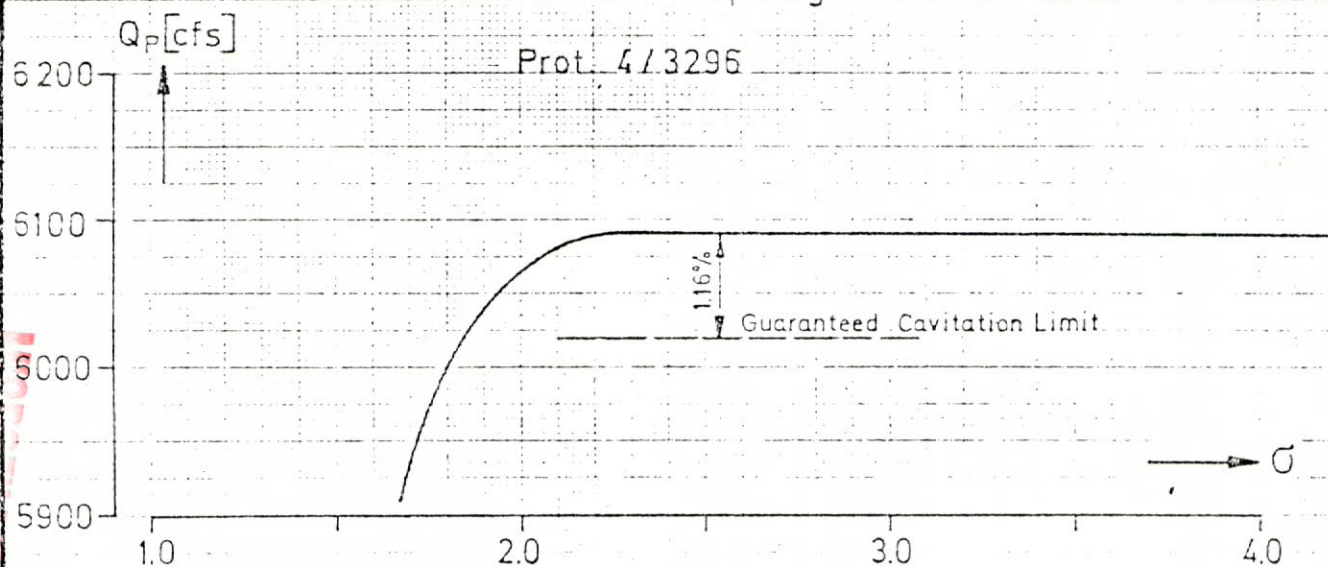
ETA VS. SIGMA

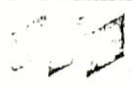


Blade Angle = 33.25°

Wicket Gate Opening = 884.4 mm

Prot. 4/3296





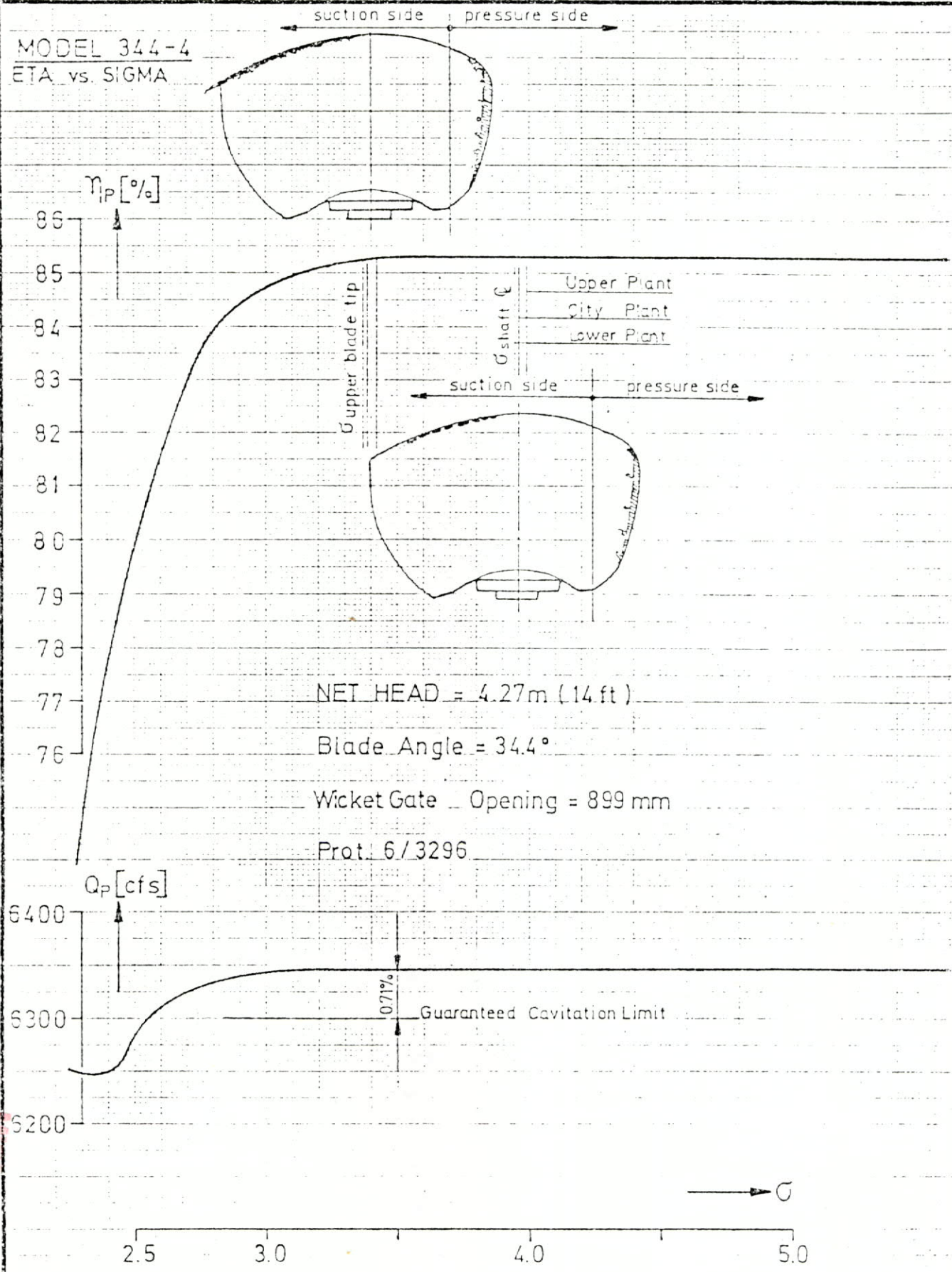
VCEST-ALPINE AG
Finalbereich Linz

IDAHO FALLS HYDROELECTRIC PROJECT

S.O. 5644/10714

TLM 2

MODEL 344-4
ETA vs. SIGMA



State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 01-07023

Priority: February 15, 1979 Maximum Diversion Rate: 1240.00 CFS

This is to certify, that CITY OF IDAHO FALLS

C/O M GENDRON

PO BOX 50220

IDAHO FALLS ID 83405

has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated February 15, 1979; and has submitted Proof of Beneficial Use on February 18, 1983. An examination indicates that the works have a diversion capacity of 6000.000 cfs of water from:

SNAKE RIVER

tributary to COLUMBIA RIVER

source, and a water right has been established as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
POWER	01/01 to 12/31	1240.00 CFS	

LOCATION OF POINT(S) OF DIVERSION: Lot 7(NWNE), Sec. 36, Township 03N, Range 37E
BONNEVILLE County

PLACE OF USE: POWER

TWN RGE SEC

03N 37E 36 Lot 7(NWNE)

CONDITIONS OF APPROVAL AND REMARKS

1. This water right is appurtenant to the described place of use.
2. This right is subject to all prior water rights and may be forfeited by five years of non-use.
3. Modifications to or variance from this license shall be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.
4. The water right confirmed in this license for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this license and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this license.
5. Use of water under this water right will be regulated by the watermaster of State Water District No. 01.
6. Use of water under this right shall be non-consumptive.

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DEC 04 1997

State of Idaho
Department of Water Resources

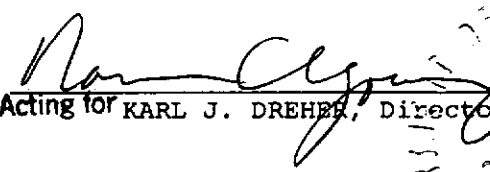
WATER RIGHT LICENSE

WATER RIGHT NO. 01-07023

CONDITIONS OF APPROVAL AND REMARKS

7. Use of water under this license shall not cause unreasonable fluctuations in the flows of the Snake River which impair the ability of prior right holders to divert their water.
8. The diversion and use of water under this license is subject to review by the Director after the date of expiration of license 2842 issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.
9. This power facility is known locally as the "Upper" Plant.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code.
Witness the seal and signature of the Director, affixed at Boise, this 7th
day of NOVEMBER, 1997.


Acting for KARL J. DREHER, Director

MICROFILMED

DEC 04 1997

RECEIVED

NOV 03 1997

State of Idaho
Department of Water Resources

Department of Water Resources

APPLICATION FOR AMENDMENT
(For Licensing Purposes)
WATER RIGHT NO. 01-07023

Date of Priority: February 15, 1979 **Maximum Diversion Rate:** 1240.00 CFS
Comes now **CITY OF IDAHO FALLS**
C/O M GENDRON
PO BOX 50220
IDAHO FALLS ID 83405

and represents to the Director of the

Idaho Department of Water Resources:

That he is the owner and holder of Permit to Appropriate the Public Waters of the State of Idaho No. 01-07023, and requests that the permit be changed as follows:

Source: SNAKE RIVER tributary to COLUMBIA RIVER

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
POWER	01/01 to 12/31	1240.00 CFS	

LOCATION OF POINT(S) OF DIVERSION: Lot 7(NWNE), Sec. 36, Township 03N, Range 37E
BONNEVILLE County

PLACE OF USE: POWER

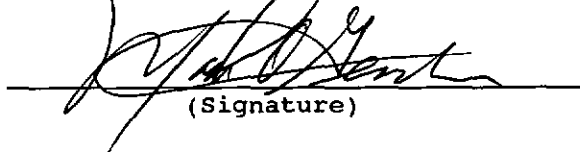
TWN RGE SEC

03N 37E 36 Lot 7(NWNE)

MICROFILMED
DEC 04 1997

Permit holder asserts that no one will be injured by such change and that such change will be made at permit holder's own risk.

Signed at Idaho Falls, this 24th day of October, 1997.


(Signature)

State of Idaho
Department of Water Resources

APPLICATION FOR AMENDMENT
(For Licensing Purposes)
WATER RIGHT NO. 01-07023

FOR DEPARTMENT USE ONLY

Preliminary check by _____ Fee = 50⁰⁰ Received by KS #C040541 Date 11/3/97

ACTION OF THE DEPARTMENT OF WATER RESOURCES

I, Karl J. Dreher, of the Department of Water Resources hereby approve the
above Application for Amendment for Permit No. 01-07023 with the following;

CONDITIONS OF APPROVAL AND REMARKS

1. This water right is appurtenant to the described place of use.
2. This right is subject to all prior water rights and may be forfeited by five years of non-use.
3. Modifications to or variance from this license shall be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.
4. The water right confirmed in this license for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this license and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this license.
5. Use of water under this water right will be regulated by the watermaster of State Water District No. 01.
6. Use of water under this right shall be non-consumptive.
7. Use of water under this license shall not cause unreasonable fluctuations in the flows of the Snake River which impair the ability of prior right holders to divert their water.
8. The diversion and use of water under this license is subject to review by the Director after the date of expiration of license 2842 issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.
9. This power facility is known locally as the "Upper" Plant.

Witness my hand this 7TH day of NOVEMBER, 1997.

MICROFILMED

DEC 04 1997

Acting for

KARL J. DREHER, Director

4/86

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MAR 18 1987
Department of Water Resources
Eastern District Office

STATE OF IDAHO

DEPARTMENT OF WATER RESOURCES

EXAMINATION FEE INFORMATION

For Office Use Only
Fee Received _____
Date _____
Receipt # _____
Receipt by _____
Sent to S.O. _____

RECEIVED
DEC 08 1987

1. Permit No. 01-7023

ONE OF THE FOLLOWING BOXES SHOULD BE MARKED TO DESIGNATE YOUR CHOICE:

☐ I choose to have the department make the field examination of this permit; attached is the examination fee. (If this box is marked, complete items 1 thru 8.)

2. Permit Holder: City of Idaho Falls3. Post Office Address: PO Box 220 Idaho Falls, Id. 83402Telephone No. 529 14304. Source of Water: Snake River

5. Extent of Use:

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

Irrigation _____ (acres) Other/Remark Hydro generation6. Total rate &/or volume for which proof is submitted 1240 cfs _____ acre-feet

7. Show the date water was first diverted and beneficially used under this permit:

7-24-82 "From DOE final report dated May 1986"

8. Person to contact to accompany the department representative during the field examination:

(Name)

(Address)

(Telephone Number)



I choose to have the field examination conducted by a certified water right examiner. Attached is a statement from the certified examiner I have selected verifying that he has been retained to conduct the examination. (If this box is marked, complete items 1 thru 7.)

March 16, 1987
Date

[Signature]
Signature of Permit Holder (and title, if appropriate)

MGR. ELECTRIC DIVISION

DEC 04 1987

BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE
STATE OF IDAHO

IN THE MATTER OF THE MEASURING DEVICE
REQUIREMENT ON PERMIT NOS. 01-7013, 01-7014,
01-7015, 01-7023, 01-7024 AND 01-7025 IN THE
NAME OF THE CITY OF IDAHO FALLS, IDAHO

ORDER

WHEREAS, on March 5, 1979, the Department of Water Resources issued the above-captioned permits with the conditions: "that proof of construction of works and application of water to beneficial use be submitted on or before April 1, 1983" and that "a measuring device of a type approved by this Department shall be installed and maintained as part of the diverting works"; and,

WHEREAS, on February 18, 1983, the Department received proof of beneficial use and a request to waive the measuring device requirement on each of the permits; and,

WHEREAS, the Department has determined that an installed measuring device is not necessary to measure the flow of water if other suitable methods of measurement as determined by the Director are readily available;

IT IS, THEREFORE, HEREBY ORDERED that the condition of approval requiring the installation of a measuring device of a type approved by the Department as part of the diverting works be changed to require that the permit holder shall provide information and/or flow data sufficient as determined by the Director to accurately reflect the rate of flow beneficially used under Permit Nos. 01-7013, 01-7014, 01-7015, 01-7023, 01-7024 and 01-7025.

Dated this 25th day of February, 1983.



L. GLEN SAXTON

Chief, Operations Bureau

RECEIVED
FEB 25 1983
WATER RESOURCES
DIVISION

Upper Plant

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT
To appropriate the public waters of the State of Idaho

\$1573.00

APPROVED

1. Name of applicant City of Idaho Falls % G.S. Harrison Phone 529-1444

Post office address P.O. Box 220

2. Source of water supply Snake River which is a tributary of Columbia

3. Location of point of diversion is SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 25 Township 3N

Range 37E B.M. Bonneville County, additional points of diversion if any: _____

4. Water will be used for the following purposes: Upper Plant

Amount 1240 CFS for Power Generation purposes from January 1 to December 31 (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. 1240 cubic feet per second and/or b. _____ acre-feet per annum.

6. Proposed diverting works:

a. Description of ditches, flumes, pumps, headgates, etc. 20 ft. high by 300 ft. long gated
concrete diversion dam.

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

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

c. Proposed well diameter is N.A. 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: NW $\frac{1}{4}$ of NE $\frac{1}{4}$ of Section 36 Township 3N

Range 37E B.M.

(2) Amount of power to be generated: 10,724 horsepower under 19.5 feet of head.

(3) List number of each kind of livestock to be watered N.A.

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

(5) If water is to be used for other purposes describe: N.A.

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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	SE¼	SW¼	

Total number of acres to be irrigated _____

c. Describe any other water rights used for the same purposes as described above. Existing water rights
01-2847, 01-2849, 01-7003
include rights #L.6799 and L.18271 of 500 CFS and 1500 CFS respectively and a claim
for an additional right of 500 CFS the total of which represent previous historical
use. A previous application for 2600 CFS has been filed with the Department.
01-7013

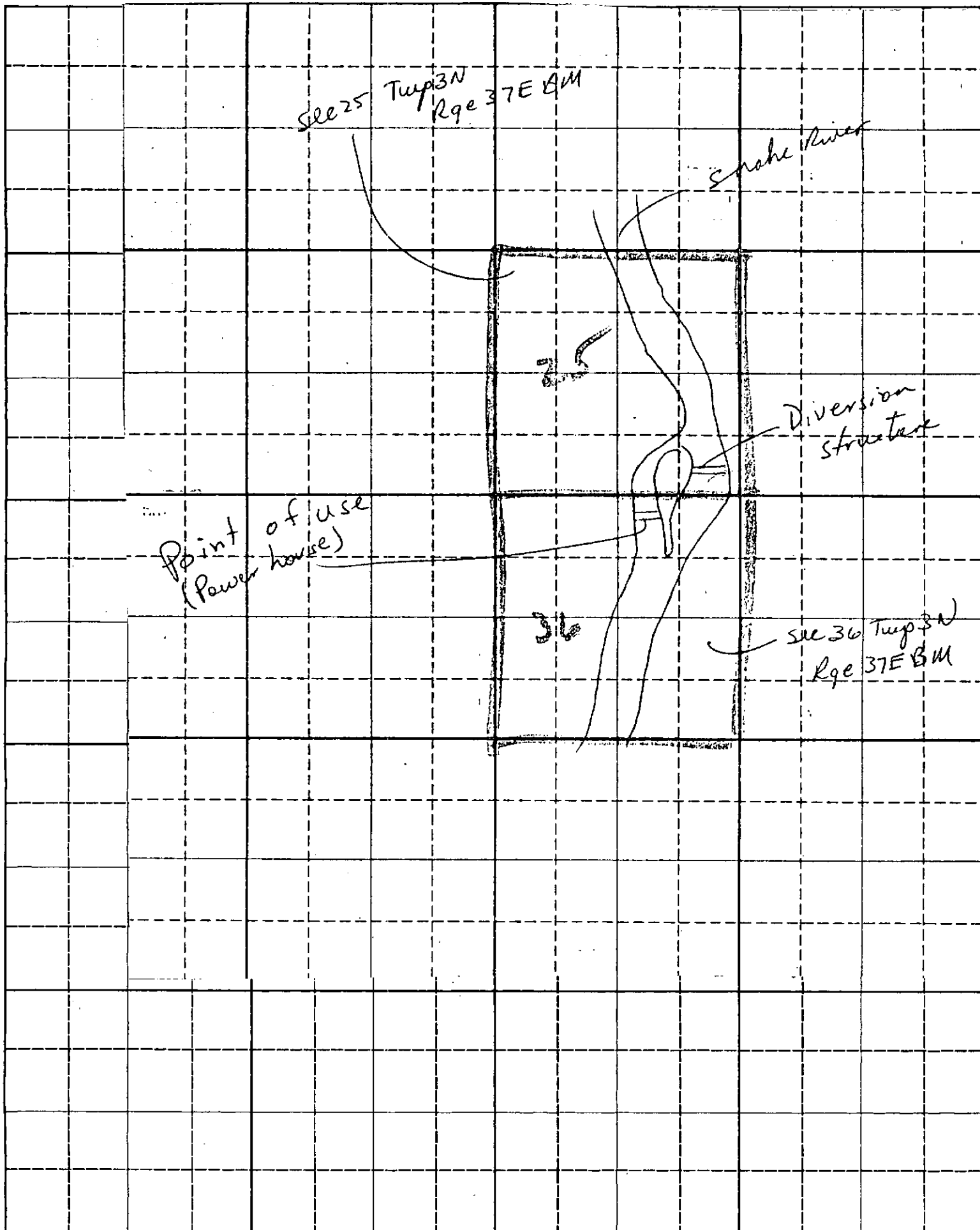
9. a. Who owns the property at the point of diversion The City of Idaho Falls and BLM

b. Who owns the land to be irrigated or place of use The City of Idaho Falls

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the
applicant to make this filing _____

10. Remarks This power site has been in continuous use from 1927 until damaged by the
flood waters of the Teton Dam failure. New power generation facilities are being
designed for this location. The new facilities will require about 6000 CFS of water
to operate at design capacity. The 2600 CFS previously applied for plus the 1240
CFS herein will supplement the existing rights and claims to provide at least the
required 6000 CFS.

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.

Thomas Campbell
(Applicant) MAYOR

~~Proposed~~ Priority 2-15-79

Received by dh Date 2-15-79 Time 4:00 p.m.

Preliminary check by EMC EP Fee \$ 1573.00

Receipted by dh Date 2-15-79 #12884

Publication prepared by dh Date 2-16-79

Published in Post Register

Publication dates February 22 & March 1, 1979

Publication approved 87 Date 3/13/79

Protests filed by: _____

Copies of protests forwarded by _____

Hearing held by _____ Date _____

Recommended for approval denial by dx J. J.

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. 01-7023, 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 April 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) The issuance of this permit in no way grants any right-of-way or easement across the land of another. (2) Use of water under this permit is subject to control by the watermaster of State Water District No. 01, Snake River. (3) A measuring device of a type approved by this Department shall be permanently installed and maintained as part of the diverting works. (4) This project 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) This project shall be operated in a manner that will not conflict or interfere with the future upstream diversion of water for irrigation or other beneficial consumptive uses.

Witness my hand this 16th day of March, 1979.

J. Glen Sayton
Chief, Operations Bureau

Proof of Publication

The Post-Register

State of Idaho,
County of Bonneville } ss.

I, J. Robb Brady, first being duly sworn, depose and say: That I am the Principal Clerk of The Post Company, a corporation of Idaho Falls, Bonneville County, Idaho, publishers of The Post-Register, a newspaper of general circulation, published daily, except Saturday, at Idaho Falls, Idaho; said Post-Register being a consolidation of the Idaho Falls Times, established in the year 1890, The Idaho Register, established in the year 1880 and the Idaho Falls Post, established in 1903, such consolidation being made on the 1st day of November, 1931, and each of said newspapers having been published continuously and uninterruptedly, prior to consolidation, for more than seventy-eighty (78) weeks and said Post-Register having been published continuously and uninterruptedly from the date of such consolidation, up to and including the last publication of notice hereinafter referred to.

That the notice, of which a copy is hereto attached and made a part of this affidavit, was published in said Post-Register for two consecutive weeks, first publication having been made on the 22nd day of February, 19 79, last publication having been made on the 1st day of March, 19 79, and that the said notice was published in the regular and entire issue of said paper on the respective dates of publication, and that such notice was published in the newspaper and not in a supplement.

Subscribed and sworn to before me, this 8th day of March, 19 79

Karlson
Notary Public

My commission expires April 5, 19 79

B10, 1M,

NOTICE OF APPLICATION FOR WATER RIGHT

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

01-7023
CITY OF IDAHO FALLS
C/O G. S. HARRISON, P.O. BOX 220,
IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER.
Date Filed: 02/15/1979
Amount: 1240.00 CFS
Diversion Point: SESE Sec 25 T 03N R
37E, BONNEVILLE Co.
Use: POWER (1240.00 CFS) from 01/01
to 12/31
Place of Use: NWNE Sec 36 T 03N R 37E
Diversion Means: 20' HIGH, 300' LONG
CONCRETE DAM

01-7024
CITY OF IDAHO FALLS
C/O G. S. HARRISON, P.O. BOX 220,
IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER

Date Filed: 05/15/1979
Amount: 1460.00 CFS
Diversion Point: SESE Sec 13 T 02N R
37E SWSW Sec 18 T 02N R 38E NWNW
Sec 19 T 02N R 38E NENE Sec 24 T 02N R
37E SENE Sec 24 T 02N R 37E,
BONNEVILLE Co.
Use: POWER (1460.00 CFS) from 01/01 to
12/31
Place of Use: SENE Sec 24 T 02N R 37E
Diversion Means: CONCRETE DIVER-
SION STRUCTURE 1800' LONG

01-7025
CITY OF IDAHO FALLS, C/O G. S.
HARRISON
P.O. BOX 220, IDAHO FALLS, ID 83401
Source: SNAKE RIVER tributary to
COLUMBIA RIVER
Date Filed: 02/15/1979
Amount: 990.00 CFS
Diversion Point: SWSW Sec 25 T 02N R
37E, BONNEVILLE Co.
Use: POWER (990.00 CFS) from 01/01 to
12/31
Place of Use: SWSW Sec 25 T 02N R 37E
Diversion Means: CONCRETE STRUC-
TURE UP TO 20' HIGH & 1200' LONG.
If issued, the permit(s) will be subject
to all prior water rights. Protests against
the granting of any permit must be filed
with the Director of the Idaho Depart-
ment of Water Resources, 1515 Lincoln
Rd., Idaho Falls, Idaho 83401 on or before
MARCH 12, 1979.

C. STEPHEN ALLRED
Director

Pub.: Feb. 22 & March 1, 1979.

RECEIVED

MAR 18 1979

Department of Water Resources
Eastern District Office

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State of Idaho

DEPARTMENT OF WATER RESOURCES

1301 North Orchard Street, P.O. BOX 83720, Boise, Idaho 83720-0098

Phone: (208) 327-7900 FAX: (208) 327-7866

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

November 10, 1997

CITY OF IDAHO FALLS
C/O M GENDRON
PO BOX 50220
IDAHO FALLS ID 83405-0220

RE: WATER RIGHTS 01-07013/01-07014/01-07015/01-07023/01-07024

Dear Water Right Holder(s):

The Department of Water Resources (the Department) has issued the enclosed licenses confirming that water rights have been established in accordance with the permits referenced above. The licenses are preliminary orders issued by the Department pursuant to section 67-5243, Idaho Code. They can and will become final orders without further action of the Department unless a party petitions for reconsideration or files an exception and/or brief as further described below.

PETITION FOR RECONSIDERATION

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

EXCEPTIONS AND BRIEFS

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

If any party appeals or takes exceptions to this preliminary order, opposing parties shall have twenty-one (21) days to respond to any party's appeal. Written briefs in support of or taking exceptions to the preliminary order shall be filed with the Department. The Department retains the right to review the preliminary order on its own motion.

ORAL ARGUMENT

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

CERTIFICATE OF SERVICE

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

FINAL ORDER

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

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

Unless a different date is stated in a final order, the order is effective fourteen (14) days after its issuance if a party has not filed a petition for reconsideration. If a party has filed a petition for reconsideration with the agency head, the final order becomes effective when:

- (a) the petition for reconsideration is disposed of; or
- (b) the petition is deemed denied because the agency head did not dispose of the petition within twenty-one (21) days.

APPEAL OF FINAL ORDER TO DISTRICT COURT

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

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

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

Sincerely,


Shelley W. Keen
Water Rights Supervisor

SK:klt

Enclosure

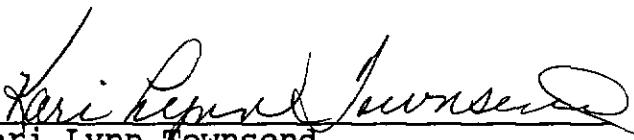
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CERTIFICATE OF MAILING

I hereby certify that on the 10th day of NOVEMBER, 1997, I mailed a true and correct copy, postage prepaid, of the foregoing PRELIMINARY ORDERS (Approved Licenses) to the person(s) listed below:

Water Rights 01-07013/01-07014/01-07015/01-07023/01-07024

CITY OF IDAHO FALLS
C/O M GENDRON
PO BOX 50220
IDAHO FALLS ID 83405-0220


Kari Lynn Townsend
Secretary

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DEC 04 1997

Law Offices
HOLDEN, KIDWELL, HAHN & CRAPO, P.L.L.C.

FRED J. HAHN
KENT W. FOSTER
ROBERT E. FARNAM
WILLIAM D. FALER
STEPHEN E. MARTIN
CHARLES A. HOMER
GARY L. MEIKLE
GAYLE A. SORENSON, P.A.
DONALD L. HARRIS, P.A.
DALE W. STORER
MARIE T. TYLER
JOHN G. SIMMONS
ROBERT M. FOLLETT
FREDERICK J. HAHN, III
SHAN B. PERRY

U.S. BANK OF IDAHO BUILDING
330 SHOUP AVENUE, THIRD FLOOR
P.O. BOX 50130
IDAHO FALLS, IDAHO 83405

TELEPHONE (208) 523-0620
FACSIMILE (208) 523-9518
E-MAIL HOLDNLAW@SRV.NET

Arthur W. Holden
(1877-1967)
Robert B. Holden
(1911-1971)
Terry L. Crapo
(1939-1982)
William S. Holden
(1907-1988)

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NOV 03 1997

Department of Water Resources

October 30, 1997

Mr. Jim Johnson
IDAHO DEPARTMENT OF
WATER RESOURCES
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

Re: Permit Nos. 01-07013/07014/07015/07023/07024/07025

Dear Mr. Johnson:

We are enclosing with this letter the executed relinquishment of permit no. 01-07025 and the applications for amendments of permits nos. 01-07023 and 01-07013. As we understand it, this now completes the paperwork from our end. We have also enclosed our check in the amount of \$100.00 for the amendment filing fees.

We will look forward to the issuance of the five licenses and if there is any way we may be of further assistance please feel free to call upon us at your convenience.

Yours very truly,



Kent W. Foster

Enclosures

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State of Idaho

DEPARTMENT OF WATER RESOURCES

1301 North Orchard Street, P.O. BOX 83720, Boise, Idaho 83720-0098

Phone: (208) 327-7900 FAX: (208) 327-7866

October 9, 1997

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

Kent Foster
Holden, Kidwell, Hahn & Crapo
PO Box 50130
Idaho Falls, ID 83405

RE: Permit Nos. 01-07013/07014/07015/07023/07024/07025

Dear Mr. Foster:

In response to your phone conversation with Jim Johnson this morning, enclosed are modified Applications for Amendment on Permit Nos. 01-07013 and 01-07023. In addition, the other three permits which are attempting to license have had the same data entry changes as the two requiring amendments. Specifically, the address has been updated in care of Mr. Gendron at PO Box 50220, and the condition/remark concerning fluctuations in flows of the river has been changed to read "unreasonable fluctuations".

The other remaining permit, No. 01-07025 is the one we sent a relinquishment form out for the purpose of clearing our records. We look forward to receiving the signed relinquishment along with the two amendment applications and their filing fees so that we can finish the licensing process.

If you have any questions, just let me know.

Sincerely,

A handwritten signature in cursive script that reads 'Sharla Curtis'.

SHARLA CURTIS
Water Resource Agent

Enclosures

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DEC 04 1997



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

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

September 18, 1997

CITY OF IDAHO FALLS
PO BOX 220
IDAHO FALLS ID 83402-0220

RE: Permit Nos. 01-07013, 01-07014, 01-07015
01-07023, 01-07024, and 01-07025

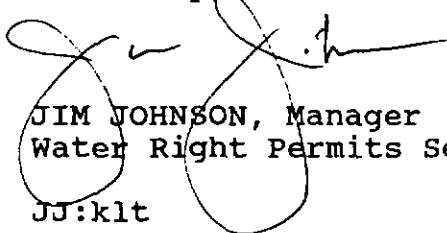
Gentlemen:

I previously wrote to you on August 11, 1997 regarding the above permits and stated that we are ready to finalize the licensing process.

Included with that letter were applications for amendment of Permit Nos. 01-07013 and 01-07023, a relinquishment form for Permit No. 01-07025 and draft copies of the licenses for the remaining rights, 01-07014, 01-07015 and 01-07024. I am enclosing copies of the applications for amendment, a relinquishment form and draft copies of the licenses as were sent with the August 11th letter.

If you have not already done so, please review the documents and if you concur, sign the amendments and relinquishment form and return them to our office along with the amendment filing fees (\$100 total - \$50 each permit). on receipt of the fees and forms, we will issue the licenses and clear our records for 01-07025.

Sincerely,



JIM JOHNSON, Manager
Water Right Permits Section

JJ:klt

Enclosures

cc: Kent Foster

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DEC 04 1997



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

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

August 11, 1997

City of Idaho Falls
PO Box 220
Idaho Falls, ID 83402

RE: Permit Nos. 01-07013, 01-07014, 01-07015,
01-07023, 01-07024, and 01-07025

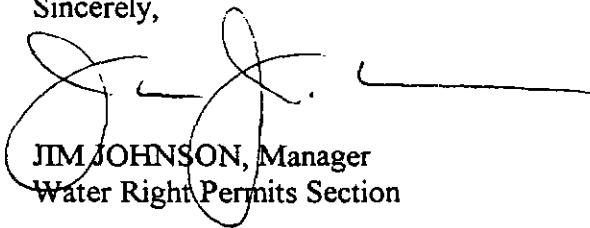
Gentlemen:

After a site visit and extensive review of the above referenced permits, we are ready to finalize the licensing process. I understand that Ralph Mellin of this department has forwarded a copy of his recommendations to Mark Gendron and that you are now in agreement with the proposals identified on the enclosed documents.

The enclosures are 1) applications for amendment of Permit Nos. 01-07013 and 01-07023, 2) a relinquishment form for Permit No. 01-07025, and 3) draft copies of the licenses for the remaining rights, 01-07014, 01-07015 and 01-07024.

Please review the documents and if you concur, sign the amendments and relinquishment form and return them to our office along with the amendment filing fees (\$100 total - \$50 each permit). Upon receipt of the fees and forms, we will issue the licenses and clear our records for 01-07025.

Sincerely,


JIM JOHNSON, Manager
Water Right Permits Section

JJ:sc

Enclosures

cc: Kent Foster

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DEC 04 1997

MEMORANDUM

June 16, 1997

TO: Jim Johnson, Section Manager, State Office
Harold Jones, Water Resource Supervisor, Idaho Falls Regional Office

FROM: Ralph Mellin, Special Projects Coordinator *Rm*

SUBJECT: Idaho Falls Hydroelectric Plants Proposed License Flow

This memorandum culminates the request earlier this year for a review of past work in the analysis of water right field examinations and related work to license two water right permits at each of three hydroelectric plants; the City Plant, Upper Plant, and Lower Plant built for and operated by the City of Idaho Falls on the Snake River near Idaho Falls.

HISTORY:

The field examinations for these water rights were completed by a licensed consulting engineer just prior to the deadline date for submitting the Beneficial Use Field Report (field examination) on the applicable water permits. These field examinations are stamped as received on March 17, 1988. The river flow on January 12, 1988, the date of the field examination, was approximately one-half the amount needed to use the capacity of the turbines. In the field examination for water right file 01-07013, under Flow Measurements, it is stated that

"Flow on this date was determined by power generation using the formula flow x head / 14 = kilowatts. On this date power output was 3,800 kW. Head = 18. Therefore flow = 2,955 cfs. At time of measurement this was total flow."

Additional information on previous higher amounts of water use by the newly constructed power plants does not appear to have been submitted.

On May 18, 1993, Kent Foster, private attorney for the City of Idaho Falls, requested issuance of the applicable water licenses. On May 26, 1993, IDWR's staff review of the water permit files showed there was documentation for licensing the water permits for the amount of water shown on the field examinations. An internal memorandum to the files dated February 3, 1994, indicates the licenses were prepared for the Department's Administrator's signature in June 1993; however, questions were raised about the low amount of water use relative to the amount allowed in the water permits.

On June 30, 1993, Mr. Foster wrote a follow-up to a previous telephone conversation with the Department and indicated "that each of the plants is a replacement for a former smaller plant at each site." No clarifying information was provided that the two older operating turbines were left at the Lower Plant. Also, a 1986 draft copy of an extensive post-project report prepared by CH2M Hill was submitted to the IDWR apparently near this time. (The

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August 1989 final report was recently obtained by this author. No change was found from the draft report.) This CH2M Hill report indicates in its Hill Diagram (Figure 4) of turbine flows related to turbine efficiency and rated head that the "full gate opening" allowed 5,700 cfs for the City Plant and 5,800 cfs for the Upper Plant and the Lower Plants. This "full gate opening" is when all water possible is entering the turbine without water flowing over the spillway.

The above mentioned February 3, 1994, memorandum to the files, recommended licensing the water permits based on these full gate opening flows; although, the graph for the Upper Plant apparently was misread and 5,700 cfs was indicated as the proposed license amount instead of 5,800 cfs. (The proposed new license flow would be for that portion of water when added to the current water right flows at each plant would total the above noted amounts.) On March 3, 1994, the Department sent to Mr. Foster draft copies of the proposed licenses based on the "full gate opening" flows.

On June 21, 1994, Mr. Foster wrote that the city's engineers were reviewing the water use amounts; however, "at the lower plant, the (Department's) exams and reports didn't even take into consideration the existence of the old machines which are still used as well as the newer bulb turbine." On October 10, 1994, Mr. Foster transmitted a City of Idaho Falls letter to him with calculations that showed a maximum water use of 6,700 cfs at the City Plant, 6,200 cfs at the Upper Plant, and 8,700 cfs at the Lower Plant (which included 2,831 cfs for the old plant that has 2,740 cfs of water rights). (It appears the turbine efficiencies used are lower than the efficiencies shown in the Hill Diagram of the CH2M Hill report. This would give higher water flows.)

On November 15, 1994, our letter to Mr. Foster indicated that review of the material received suggested the correct total water use of the Upper Plant and the Lower Plant (apparently including the old plant) remained as previously listed, 5,700 cfs and 5,800 cfs respectively and the maximum use for the city plant could be increased to the permitted amount of 6,000 cfs.

THIS CURRENT ANALYSIS:

On March 4, 1997, we (Jim Johnson, Harold Jones, and Ralph Mellin) went to the office of the Hydroelectric Division, City of Idaho Falls to tour their Lower Plant, City Plant, and Upper Plant all operated by the city.

Before the tour, Mark Gendron, Director, Hydroelectric Division; Scott McBride, Engineer; and Steve Elliot, Hydro Plant Mechanical Foreman, discussed the general operation of the plants and answered our general questions. Then Mr. McBride lead us first through the Lower Plant, then the City Plant, and lastly the Upper Plant. (Harold Jones returned to our Eastern Region office after the tour of the City Plant.) Upon returning to the Hydroelectric Division office, Steve Elliot provided us with a computer disk of hourly generation and 15-minute flow data for the previous 5 months of October 1996 through February 1997. These

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plants were operating near capacity during our visit; however, subsequent review of the generation data showed slightly higher generation levels existed prior to our tour.

The Upper Plant, the City Plant, and the new construction for the Lower Plant have water rights and approved water permits for a total of 6,000 cfs. The new construction at each plant is a single 7,200 kW generator powered by a horizontal bulb turbine. At the City Plant and the Upper Plant, the new construction replaced and expanded the existing power plants. At the Lower Plant, the two older generators with a maximum generation of 3,100 kW recorded in the November 1996 to February 1997 period were retained in their separate, adjacent powerhouse. The previous water rights at the Lower Plant consist of water right no. 01-00281 for 1,500 cfs and no. 01-04001 for 1,240 cfs which gives a total of 2,740 cfs for the older turbines. These water rights and the quantity of water use by the turbines located in the old powerhouse of the Lower Plant was not reviewed in this analysis.

Solutions:

A simple solution to determine the additional amount of water to license would be to:

1. Leave unchanged the 2,740 cfs of the non-reviewed water rights at the old Lower Plant.
2. License total water rights, including present water rights, for the single new turbine at each new plant based on the "full gate opening" shown in the Hill Diagram in the CH2M Hill post-project-construction report. According to the graph the "full gate opening" is 5,700 cfs for the City Plant and 5,800 cfs each for the Upper Plant and the addition to the Lower Plant.

It is noted, based on the Hill Diagram in the CH2M Hill report, the turbines can take more water than the "full gate opening" flow. There is shown on the graph a "maximum gate opening" flow; however, as this flow is approached a "guaranteed cavitation limit" is reached and subsequently an "absolute cavitation limit." There are flows above the "full gate opening" flow that are below the "guaranteed cavitation limit"; see subsequent detailed discussion for the City Plant.

A detailed solution was used and is recommended because of the availability of individual-plant operational data that reflects actual operating conditions; that is:

1. Also, leave unchanged the 2,740 cfs of the non-reviewed water rights at the old Lower Plant.
2. License total water rights for the single new turbine at each plant based on calculations from the more specific separate formulas for each plant given in the CH2M Hill report and use the maximum generation level obtained in the last 5 months (October 1, 1996 through February 28, 1997) which includes a high-water flow.

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DEC 04 1997

A total of 58 additional dates from 1988 to 1996 were reviewed in which the river flow was only slightly above the design capacity of all turbines in the Lower Plant to see if a higher total generation existed for the combination of the new turbine and the old turbines. No higher total hourly generation existed than the amount in the spring of 1997 with its exceedingly high runoff.

The new license amounts, calculated on the attached sheets, would be total 6,000 cfs for the City Plant, 6,000 cfs for the Upper Plant, and 4,800 cfs for the addition to Lower Plant.

Details:

Specific calculations are appended. The highest hourly generation level found was used. Turbine flow calculations also were made at river flows only slightly above the turbine capacity; however, the turbine flows were found to be slightly less than at the high river flows.

To calculate the turbine flow for a particular kW generation level, an estimated turbine flow first had to be used in order to determine the remaining flow over the spillway which would determine the head-water level. Estimated turbine flow also needed to be used to determine the head loss through the turbines.

Since the estimated turbine flow was used to determine the actual turbine flow, up to four iterations were needed before the two numbers would be closely matched. I have shown the first and last iteration for the each plant. It also is noted, the calculations for the City Plant and for the Upper Plant had to be done by linearly extending the graph provided by CH2M Hill past its termination at the "full gate opening."

For the City Plant, this above noted extension appeared to move into an area where the formula gave unstable results. It is repeated from earlier in this memorandum that the "full gate opening" is 5,700 cfs. The 6,800 cfs of calculated flow with the river at 11,052 cfs is past the absolute cavitation limit of 6,500 cfs. (Calculated flow of 6,400 cfs, not attached, was determined at a river flow of 7,500 cfs on Jan 11, 1997.) The guaranteed cavitation limit is at 6,150 cfs.

All numbers are suggested to be rounded to the nearest 100 units because of accuracy able to be obtained in the calculations. Dissenters could correctly state that three significant figures is the least number used in the input data so the answer should be carried to three significant figures or to the nearest ten units. This rule is expanded with the clarification that the last significant figure in the answer is not necessarily correct but represents merely the most probable value.

For the City Plant, this would allow for 6,100 cfs since a water right likely would not be given for an operation level that would cavitate the turbine impellers and at which the

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turbine owners would hesitate to operate within. In addition, since 6,000 cfs is the total allowed in the available water permits, this 6,000 cfs would be the maximum that currently could be licensed at the City Plant.

It is noted the calculation flow for the Upper Plant was 6,000 cfs or slightly past the "full gate opening" of 5,800 cfs. This flow takes place when there is extra flow to build up a head above the spillway lip.

For the new part of the Lower Plant, a flow rate of 5,200 cfs was calculated when the old turbines were not operating. The new water rights, however, should be limited to the 4,800 cfs of additional water used only through the new turbine when the turbines in both powerhouses are operating at capacity. It is noted for the Lower Plant, the maximum generation in the new powerhouse found when all turbines in both powerhouses were operating at capacity within the 5-months reviewed was 6,310 kW. That is somewhat below the 7,200 kW installed in the new powerplant. (Evidently the operation of the old turbines lowers the headwater for the new turbine with, of course, no corresponding lowering of the tailwater.) That 6,310 kW maximum increases to 7,100 kW when only the new turbine is in operation. (7,390 kW is the maximum generation recorded in both the City Plant and the Upper Plant.)

SUMMARY:

The total amount of flow recommended to be licensed follows.

Upper Plant:	6,000 cfs (3,840 cfs of new water rights)
City Plant:	6,000 cfs (4,060 cfs of new water rights)
Lower Plant:	7,540 cfs (4,800 cfs of new water rights)

Plant capacities would be shown as 6,100 cfs for the City Plant, 6,000 cfs for the Upper Plant, and 7,540 cfs for the Lower Plant. The plant capacity for the Lower Plant consists of 2,740 cfs non-reviewed capacity, under existing water rights, for the two older turbines left in-place plus 4,800 cfs for the new bulb turbine when both turbines in the older power house are operating but only 5,200 cfs for the new bulb turbine when neither turbine in the older power house is operating.

A revised summary of city of Idaho Falls hydroelectric water rights is enclosed.

A draft of this memorandum was sent to Mark Gendren, on April 11, 1997 and reviewed by telephone with Scott McBride and Jim Lingo, Generation Superintendent on May 20, 1997. A tentative agreement of flow amounts was provided in the telephone review with the stipulation that when the new turbine in the lower plant is operating alone, it can first use the earlier priority water rights.

cc: Mark Gendron

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UPPER PLANT

Generating 7,390 kW on 2/11/1997 at 0300

$Q_{\text{river (r)}} = 11,164$ cfs at Idaho Falls gage (Graph in Figure 1 does not fit.)

$$Q_{\text{turbine (t)}} = \overset{6,050}{\cancel{5,800}} \text{ cfs estimate}$$

$$Q_{\text{spillway (s)}} = Q_r - Q_t = 11,164 - \overset{6,050}{\cancel{5,800}} = \overset{5,114}{\cancel{5,364}} \text{ cfs}$$

The following formulas, specific to each power plant, are from the CH2M Hill report

Turbine efficiency (TE) = see Hill chart using flow & net head (Figure 4, CH2M Hill report)

Generator efficiency (GE) = 0.966 from CH2M Hill

$$\text{Headwater Level (HW)} = 4,733.7 + (Q_s/1,900)^{0.667} = 4,733.7 + \overset{5,114}{\cancel{(5,364/1,900)^{0.667}}}$$

$$= 4,733.7 + \overset{1.94}{\cancel{2.00}} = \overset{4,735.64}{\cancel{4,735.70}} \text{ ft} \quad \begin{array}{l} \text{vs } 4,735.00 \\ \text{IF data} \end{array}$$

$$\text{Tailwater Level (TW)} = 4,712 + Q_t/1,500 + (Q_s/1,700)^{0.667}$$

$$= 4,712 + \overset{6,050}{\cancel{5,800}}/1,500 + \overset{5,114}{\cancel{(5,364/1,700)^{0.667}}} = 4,712 + \overset{4.03}{\cancel{3.87}} + \overset{2.08}{\cancel{2.15}} = \overset{4,718.11}{\cancel{4,718.02}} \text{ ft}$$

$$\text{Head Loss (HL)} = (Q_t/6,325)^2 = \overset{6,050}{\cancel{(5,800/6,325)^2}} = \overset{0.91}{\cancel{0.84}} \text{ ft}$$

$$\text{Net Head (NH)} = \text{HW} - \text{TW} - \text{HL} = \overset{4,735.64}{\cancel{4,735.70}} - \overset{4,718.11}{\cancel{4,718.02}} - \overset{0.91}{\cancel{0.84}} = \overset{16.62}{\cancel{16.84}} \text{ ft}$$

$$Q_t = 11.8 \times \text{kW} / \text{NH} \times \text{TE} \times \text{GE} = 11.8 \times 7,390 / \overset{16.62}{\cancel{16.84}} \times \overset{0.999}{\cancel{0.966}} = \overset{6,041}{\cancel{5,897}} \text{ cfs} \quad \text{Use } 6,000 \text{ cfs}$$

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CITY PLANT

Generating 7,390 kW on 1/30/1997 at 1900

$Q_{\text{river (r)}} = 11,124$ cfs at Idaho Falls gage (Graph in Figure 1 does not fit.)

$$Q_{\text{turbine (t)}} = \overset{6,750}{\cancel{6,500}} \text{ cfs estimate}$$

$$Q_{\text{spillway (s)}} = Q_r - Q_t = 11,164 - \overset{6,750}{\cancel{6,500}} = \overset{4,414}{\cancel{4,624}} \text{ cfs}$$

The following formulas, specific to each power plant, are from the CH2M Hill report

Turbine efficiency (TE) = see Hill chart using flow & net head (Figure 4, CH2M Hill report)

Generator efficiency (GE) = 0.966 from CH2M Hill report

$$\text{Headwater Level (HW)} = 4,694.5 + (Q_s/7,020)^{0.667} = 4,694.5 + \overset{4,414}{\cancel{(4,624/7,020)^{0.667}}}$$

$$= 4,694.5 + \overset{0.73}{\cancel{0.76}} = \overset{4,695.23}{\cancel{4,695.26}} \text{ ft}$$

vs $\sim 4,695.15$
3 F 12

$$\text{Tailwater Level (TW)} = 4,675.5 + Q_r/3,500 = 4,675.5 + 11,124/3,500 = 4,675.5 + 3.18 = 4,678.68 \text{ ft}$$

$$\text{Head Loss (HL)} = (Q_t/6,508)^2 = \overset{6,750}{\cancel{(6,500/6,508)^2}} = \overset{1.08}{\cancel{1.00}} \text{ ft}$$

$$\text{Net Head (NH)} = \text{HW} - \text{TW} - \text{HL} = \overset{4,695.23}{\cancel{4,695.26}} - 4,678.68 - \overset{1.08}{\cancel{1.00}} = \overset{15.50}{\cancel{15.58}} \text{ ft}$$

$$Q_t = 11.8 \times \text{kW} / \text{NH} \times \text{TE} \times \text{GE} = 11.8 \times 7,390 / \overset{15.5}{\cancel{15.58}} \times \overset{0.855}{\cancel{0.867}} \times 0.966 = \overset{6,811}{\cancel{6,683}} \text{ cfs}$$

use 6800 cfs

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LOWER (NEW) PLANT

Generating 6,310 kW on 2/12/1997 at 0900
With both old turbines operating near capacity--3,100 kW

$Q_{\text{river (r)}} = 11,052$ cfs at Idaho Falls gage (Graph in Figure 1 does not fit.)

$Q_{\text{turbine new plant (t)}} = \overset{4,750}{\cancel{5,200}}$ cfs (estimate)

$Q_{\text{turbine old plant (top)}} = 2,740$ cfs (used previous water rights)

$Q_{\text{t + top}} = \overset{4,750}{\cancel{5,200}} + 2,740 = \overset{7,490}{\cancel{7,940}}$ cfs

$Q_{\text{spillway (s)}} = Q_{\text{r}} - Q_{\text{t + top}} = 11,052 - \overset{7,490}{\cancel{7,940}} = \overset{3,562}{\cancel{3,112}}$ cfs

The following formulas, specific to each power plant, are from the CH2M Hill report

Turbine efficiency (TE) = see Hill chart using flow & net head (Figure 4, CH2M Hill report)

Generator efficiency (GE) = 0.966 from CH2M Hill report

Headwater Level (HW) = $4,674.5 + (Q_{\text{s}}/2,424)^{0.667} = 4,674.5 + \overset{3.562}{\cancel{(3,112)/2,424}^{0.667}}$

$$= 4,674.5 + \overset{1.29}{\cancel{1.18}} \overset{4.675.79}{=} 4,675.68 \text{ ft}$$

$\begin{matrix} 4.675.79 \\ 1.29 \\ 1.18 \\ 4.675.79 \end{matrix}$

Tail Water Level (TW) = $4,654.6 + Q_{\text{r}}/3,226 = 4,654.6 + 11,052/3,226 = 4,654.6 + 3.43 = 4,658.03$ ft

Head Loss (HL) = $(Q_{\text{t}}/6,535)^2 = \overset{4,750}{\cancel{(5,200)/6,535}^2} = \overset{0.53}{\cancel{0.63}}$ ft

Net Head (NH) = $\text{HW} - \text{TW} - \text{HL} = \overset{4,675.79}{\cancel{4,675.68}} - 4,658.03 - \overset{0.53}{\cancel{0.63}} = \overset{17.23}{\cancel{17.02}}$ ft

$Q_{\text{t}} = 11.83 \times \text{kW} / \text{NH} \times \text{TE} \times \text{GE} = 11.83 \times 6,310 / \overset{17.23}{\cancel{17.02}} \times \overset{0.9335}{\cancel{0.927}} \times 0.966 = \overset{4,804}{\cancel{4,897}}$ cfs

Use 4,800 cfs

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LOWER (NEW) PLANT

Generating 7,100 kW on 1/11/1997 at 1300
Without old turbines operating

$$Q_{\text{river (r)}} = 7,495 \text{ cfs at Idaho Falls gage (Graph in Figure 1 fits!)}$$

$$Q_{\text{turbine new plant (t)}} = \overset{5,200}{\cancel{5,400}} \text{ cfs (estimate)}$$

$$Q_{\text{turbine old plant (top)}} = \text{ZERO}$$

$$Q_{\text{t + top}} = \overset{5,200}{\cancel{5,400}} + 0 = \overset{5,200}{\cancel{5,400}} \text{ cfs}$$

$$Q_{\text{spillway (s)}} = Q_r - Q_{\text{t + top}} = 7,495 - \overset{5,200}{\cancel{5,400}} = \overset{2,295}{\cancel{2,095}} \text{ cfs}$$

The following formulas, specific to each power plant, are from the CH2M Hill report

Turbine efficiency (TE) = see Hill chart using flow & net head (Figure 4, CH2M Hill report)

Generator efficiency (GE) = 0.966 from CH2M Hill report

$$\text{Headwater Level (HW)} = 4,674.5 + (Q_s/2,424)^{0.667} = 4,674.5 + \overset{2,295}{\cancel{(2,095/2,424)^{0.667}}}$$

$$= 4,674.5 + \overset{0.96}{\cancel{0.91}} = \overset{4,675.46}{\cancel{4,675.41}} \text{ ft}$$

vs 4,675.40 ft. 8-12

$$\text{Tailwater Level (TW)} = 4,654.6 + Q_t/3,226 = 4,654.6 + 7,495/3,226 = 4,654.6 + 2.32 = 4,656.92 \text{ ft}$$

$$\text{Head Loss (HL)} = (Q_t/6,535)^2 = \overset{5,200}{\cancel{(5,400/6,535)^2}} = \overset{0.63}{\cancel{0.68}} \text{ ft}$$

$$\text{Net Head (NH)} = \text{HW} - \text{TW} - \text{HL} = \overset{4,675.46}{\cancel{4,675.41}} - 4,656.92 - \overset{0.63}{\cancel{0.68}} = \overset{17.91}{\cancel{17.81}} \text{ ft}$$

$$Q_t = 11.8 \times \text{kW} / \text{NH} \times \text{TE} \times \text{GE} = 11.8 \times 7,100 / \overset{17.91}{\cancel{17.81}} \times \overset{0.9245}{\cancel{0.924}} \times 0.966 = \overset{5,215}{\cancel{5,270}} \text{ cfs}$$

use 5,200 cfs

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UPPER PLANT located 3 miles north of Idaho Falls with diversions in Sec. 25, T. 3 N., R. 37 E., B.M.

Water Right No.	Type of Water Right or Decree Name	Decree Date, File No., & Page No. in Decree	Priority Date	Flow in cfs	Subordination	
					Permit	License/Decree
01-02047	Permitted 12-19-1927 Licensed 2-11-1939		10-28-1927	500 ¹	No	No
01-04003	Idaho Falls Decree	9-03-1980, 01-B-4, p. 3	5-03-1930	580	No	
01-02049	Permitted 5-15-1936 Licensed 3-14-1939		1-14-1936	1,080 ¹	No	No
01-07013	Permitted 3-05-1979 Field exam 3-17-1988		11-09-1977	2,600	For diversion to beneficial uses ²	
01-07023	Permitted 3-16-1979 Field exam 3-17-1988		2-15-1979	1,240	For diversion to beneficial uses ²	
Subtotal of non-subordinated water rights				2,160 cfs		
Total (using permitted quantities)				6,000 cfs		

The footnotes are numbered consecutively for the group of four powerplants operated by the city of Idaho Falls.
Revised on June 12, 1997.

¹ See City of Idaho Falls vs Carlson, 9-03-80, File 01-B-4; the Stipulation makes no change in license 01-02047, but it reduces the subsequent licensed right 01-02049 from 1,500 cfs to 1,080 cfs.

² Idaho Code 42-203B(6) allows for subordination to upstream "depletory uses." Water Appropriation Rules, July 1, 1993, Rule 10.16 (010.16) defines a subordinated water right to be subject to depletion "for a purpose other than hydropower generation" (which appears to include recharge and non-hydropower storage). This type of language, which may clarify the status of recharge and non-hydropower storage, likely will be used at license time. A recent example is the condition placed on water license 01-07051 at Idaho Fall's Gem State Project which was licensed on 11-2-92 with the condition of subordination to future rights "other than hydropower." Idaho Code 42-4201A which states subsequent recharge rights are to be secondary to prior rights would have no bearing since the prior water right noted in this text would be a limited right in itself.

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CITY PLANT located in the city of Idaho Falls with diversions in Sec. 24, T. 2 N., R. 37 E., B.M.

Water Right No.	Type of Water Right or Decree Name	Decree Date, File No., & Page No. in Decree	Priority Date	Flow in cfs	Subordination Permit License/Decree
01-00197	Rexburg Decree	12-16-1910, 01-B, p. 59	11-18-1898	(75) ³	No
01-00040	Rexbury Decree	12-16-1910, 01-B, p. 10	4-20-1900	140 ⁴	No
01-00041	Rexburg Decree	12-16-1910, 01-B, p. 11	10-22-1904	48 ⁴	No
01-02014	Permitted 12-14-1907 Licensed 2-11-1918		12-03-1907	485 ⁵	No No
01-00360	Idaho Falls Decree	9-03-1980, 01-B-4, p. 2	2-05-1915	388	No
01-00361	Idaho Falls Decree	9-03-1980, 01-B-4, p. 3	7-18-1919	394	No
01-04002	Idaho Falls Decree	9-03-1980, 01-B-4, p. 3	10-05-1923	485	No
01-07015	Permitted 3-05-1979 Field exam 3-17-1988		11-09-1977	2,600	For diversion to beneficial uses ²
01-07024	Permitted 3-16-1979 Field exam 3-17-1988		2-15-1979	1,460	For diversion to beneficial uses ²
Subtotal of non-subordinated water rights				1,940 cfs	
Total (using permitted quantities)				6,000 cfs	

³ This Rexburg Decree water right in the name of G. G. Wright has not had an adjudication claim filed on it. This water right was not mentioned in the City of Idaho Falls vs Carlson Decree, 9-03-80, File 01-B-4, Findings of Fact and Conclusions of Law or the Stipulation. No transfer of ownership information or confirmation of this place of use is available. Evidently this power plant was dismantled; however, its exact location is unknown. Quantity not used in the totals.

⁴ Also see City of Idaho Falls vs Carlson, 9-03-80, File 01-B-4, Findings of Fact and Conclusions of Law, p. 4.

⁵ See City of Idaho Falls vs Carlson, 9-03-80, File 01-B-4; the Stipulation reduces the licensed right from 600 cfs to 485 cfs.

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LOWER PLANT located 1/2 mile south of Idaho Falls with diversions in Sec. 25, T. 2 N., R. 37 E., B.M.

Water Right No.	Type of Water Right or Decree Name	Decree Date, File No., & Page No. in Decree	Priority Date	Flow in cfs	Subordination Permit License/Decree
01-00281	Woodville Decree ⁶	6-29-1929, 01-K, p. 26	12-29-1905	1,500 ⁴	No
01-00282	Woodville Decree ^{6,7}	6-29-1929, 01-K, P. 26	9-07-1915	(100)	No
01-04001	Idaho Falls Decree	9-03-1980, 01-B-4, p. 3	10-05-1940	1,240	No
01-07014	Permitted 3-05-1979 Field exam 3-17-1988		11-09-1977	(5,100) ⁸ 4,800 ⁹	For diversion to beneficial uses ²
01-07025	Permitted 3-16-1979 Field exam 3-17-1988		2-15-1979	(900) ⁸ (860) ¹⁰ 0 ⁹	For diversion to beneficial uses ²
Subtotal of non-subordinated water rights				2,740 cfs	
Total (using permitted quantities)				(8,740 cfs) ⁸	
Total (using turbine capacity)				(8,700 cfs) ¹⁰	
Total				7,540 cfs	

⁶ Listed in the name of Utah Power and Light Co.

⁷ This water right was issued for the Shelley power plant located 1 1/2 miles downstream from the Lower Plant in Sec. 34, T. 2 N., R. 37 E., B.M. The water right for this site now removed could not be transferred to the City's Lower Plant because an expansion of a water right is not allowed.

⁸ Permitted amount. See water right file 01-07013 for most related data.

⁹ Total of new flow, 4,800 cfs recommended for new license. Add 1,500 cfs + 1,240 cfs for old plant.

¹⁰ Maximum amount needed. City of Idaho Falls "preliminarily determined turbine flow capacities to be" 8,700 cfs. See letter of October 4, 1994, to their private attorney, Kent Foster, located in water right file 01-07025.

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GEM STATE PROJECT located 4 miles south of Idaho Falls with diversions in Sec. 15, T. 1 N., R. 37 E., B.M.

Water Right No.	Type of Water Right or Decree Name	Decree Date, File No., & Page No. in Decree	Priority Date	Flow in cfs	Subordination Permit License/Decree
01-00283	Woodville Decree ⁶	6-29-1929, 01-K, p. 26	11-14-1924	(1,500) ¹¹	No
01-07051	Permitted 12-18-1985 Licensed 11-2-1992 ⁶		4-09-1980	3,000	Yes Yes ¹²
01-07018	Permitted 7-21-1982 Licensed 11-02-1992		3-17-1978	5,000	Yes Yes ¹²
Subtotal of non-subordinated water rights				none	
Total (using permitted and turbine capacity quantities)				8,000 cfs ¹³	

¹¹ The Decree refers to a water permit number that never was developed into a license.

¹² This water right was licensed on 11-2-92 with the condition that it is subordinate to future rights "other than hydropower."

¹³ October 14, 1992, Memorandum to File 01-07051 indicates the turbine capacity found during the field examination is 8,000 cfs.



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

November 15, 1994

RE: Permit Nos. 01-07013/07014/07015/07023/07024/07025

Kent W. Foster
Holden, Kidwell, Hahn & Crapo
PO Box 50130
Idaho Falls, ID 83405

Dear Mr. Foster:

We have reviewed your correspondence of October 10, which included the comments from the Chief Electrical Engineer from the City of Idaho Falls in relation to the above referenced permits. In response, I offer the following.

The information you submitted was routed to a departmental engineer who is familiar with power generating facilities. He reviewed the information along with the 1986 CH2M Hill report. Peak plant outputs taken from the city engineer's report were plotted onto the Hill diagram from the CH2M Hill report (copy enclosed). At 7.58 MW, the turbine flow at the "City Plant" would be about 6500 cfs, however, this operating point is on the absolute cavitation limit line. It is not logical that such a flow is utilized often and it would not be prudent to recommend a flow which could cause damage to the turbine. As you can see on the chart, the guaranteed cavitation limit line intersects at about 6150 cfs. The licenses to be issued for this plant will be changed to allow the maximum amounts permitted, thus bringing the city's rights for the plant to a total of 6000 cfs.

Plant output for the "Upper" and "Lower" plants calculates turbine flows below what has already been recommended by the Department, thus the figures recommended in our previous correspondence are generous and are the maximum to be considered for licensing.

One final note is that the figures recommended by the city's engineer for the "Upper" plant are considerably higher than what the city has water rights to cover, even after including the maximum rates permitted by the rights currently under review for that plant as well.

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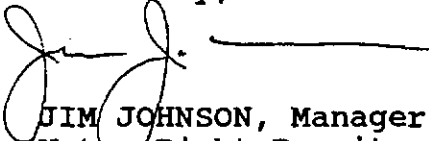
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Kent Foster
November 15, 1994
Page 2

I have again enclosed licensing amendments and a relinquishment form to finalize the licensing processing of these permits. Note that the amendment for Permit 01-07024 has been changed to the permitted rate of 1460.0 cfs to bring the total licensed amount for the "City" Plant to 6000.0 cfs.

If you have any further questions or concerns, feel free to give me a call at 327-7947.

Sincerely,

A handwritten signature in dark ink, appearing to be "Jim Johnson", followed by a horizontal line.

JIM JOHNSON, Manager
Water Right Permits Section

Enclosures

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MEMORANDUM

November 8, 1994

To: ~~Jim Johnson and Sharla Curtis~~ *File*

From: Jeff Peppersack

Re: City of Idaho Falls Hydropower

I have reviewed the information submitted by the City dated October 4, 1994 and other information from the water right files including the 1986 CH2M Hill report.

In order to gain some understanding of the relationship between plant output and turbine flows I plotted the peak plant outputs submitted by the City onto the Hill diagram from the CH2M Hill report (Figure 4.) which shows the operating conditions for each plant. Plant output was calculated as recommended in the report.

From the plot it can be seen that at 7.58 MW the turbine flow at the City plant would be about 6500 cfs. Note that this operating point is on the absolute cavitation limit line. Although turbine flow at the plant may have been near 6500 cfs it does not seem prudent to recommend a flow which could cause damage to the turbine. The guaranteed cavitation limit line intersects at about 6150 cfs. This flow would appear to be a reasonable upper limit for the plant.

Plant output for the Upper and Lower plants gives turbine flows below that already recommended by the Department.

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Law Offices
HOLDEN, KIDWELL, HAHN & CRAPO, P.L.L.C.

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TELEPHONE (208) 523-0620
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OCT 13 1994

Department of Water Resources

Arthur W. Holden
(1877-1967)
Robert B. Holden
(1911-1971)
Terry L. Crapo
(1939-1982)
William S. Holden
(1907-1988)

October 10, 1994

Mr. Jim Johnson
IDAHO DEPARTMENT OF WATER
RESOURCES
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

Re: Permit Nos. 01-07013 / 07014 / 07015 / 07023 / 07024 / 07025

Dear Mr. Johnson:

We have now received a letter from the City of Idaho Falls Chief Electrical Engineer containing that department's comments relating to the proposed licenses, permit amendments, and relinquishment form which you sent to us some time ago. With the permission of the engineer, we have elected to send you the original of his letter to us with all of the attachments for your further consideration.

Would you please review this material and feel free to call us for any additional information that might be helpful in order to make appropriate adjustments. We will look forward to hearing from you when it is convenient.

Very truly yours,



Kent W. Foster

Enclosure

c. Mark Gendron

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DEC 04 1997



ELECTRIC DIVISION

CITY OF IDAHO FALLS

P.O. BOX 50220
IDAHO FALLS, IDAHO 83405-0220

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6 1994

PHONE (208) 529-1430

October 4, 1994

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

Dear Kent:

After review of your letter of March 21, 1994, transmitting proposed licenses, permit amendments, and a relinquishment form from IDWR relating to the Bulb Turbine Project, FERC No. 2842, we have the following comments:

The IDWR has used the CH₂M Hill generation report as a basis for establishing turbine capacities, and claim to have confirmed those capacities from power production records. After review of our records, we have determined the proposed capacities to be deficient for all three plants. Using the formulas from the CH₂M Hill report, actual generation records obtained from the Bonneville Power Administration; billing records, river flow information from the USGS SIFI and SHYI gauges, turbine efficiencies from manufacturer generator tests, we have preliminarily determined turbine flow capacities to be:

Upper Plant	:	6,200 cfs ¹
City Plant	:	6,700 cfs
Lower Plant	:	8,700 cfs

The calculations are attached. The generation MW output used to calculate flow was not necessarily the highest on record, but the highest in 1993. This allowed utilization of the daily river flow data available to us in our office. The generation output is expressed in hourly averages. Instantaneous peaks would be equal or higher, resulting in equal or higher flow. Also, maximum generation levels do not necessarily yield the maximum turbine flow. Maximum turbine flow results from a combination of high power output, low net head, and low turbine-generator efficiency.

¹Does not include 100 cfs FERC license required bypass flow.

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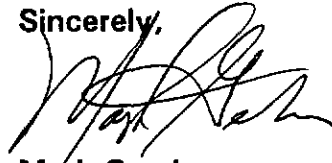
DEC 04 1997

We have not carefully evaluated turbine flow under any condition other than maximum power output. Summarizing, the flows listed above are not necessarily maximum quantities.

Also of concern is the proposed relinquishment of right 07025 (Lower Plant) and apparent reduction of rights 02049 (Upper Plant) and 02014 (City Plant). Finally, the flows for City Plant rights 04002, 00360, and 00361 do not agree with our records.

We believe that the licensed water rights for the Upper, City, and Lower Plants should be the higher of either the calculated flows herein or the sum of all old decrees, permits, and licenses, as summarized in your letter to Dale Storer dated March 25, 1986. After you have reviewed this information, please call to discuss our strategy with IDWR.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Gendron', written over a horizontal line.

Mark Gendron
Chief Engineer

MOG/180/mf
Enc.

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MAXIMUM GENERATION SUMMARY							
UPPER		CITY		LOWER		OLD LOWER	
MW	Date	MW	Date	MW	Date	MW	Date
7.20	9/2/93	7.14	8/3/93	6.93	7/9/93	3.14	6/26/93
7.25	8/9/93	7.58	7/8/93	6.96	3/7/86	3.256	7/10/86
7.30	7/16/93			6.98	8/1/85		
7.32	12/9/83			7.11	11/20/84		
				7.15	12/2/83		
				7.22	11/4/83		
				7.33	8/17/83		

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Upper Plant

Maximum Actual MW : 7.30

Date : 7/16/93 2300

River Q : 7,000 cfs

Assume Turbine Q = 6,000 cfs at SIFI gauge

From CH₂ Report:

$$HW = 4733.7 + \frac{1000}{1900}^{.667} = 4734.4$$

$$TW = 4712 + \frac{Qt}{1500} + \frac{Qs}{1700}^{.667} = 4716.7$$

$$HL = HW - TW - HL = 16.8 \text{ ft.}$$

$$E_T = .86 \quad E_G = .965 \quad E = .83$$

$$Q_T = \frac{(11.83)(kW)}{(NH)(E)} = \frac{(11.83)(7,300)}{(16.0)(.83)} = 6,193 \text{ cfs}$$

30

$$IDWR \ Q = 5,700$$

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City Plant

Maximum Actual MW : 7.58 MW

Date : 7/8/93 1400

River Q : 8,000 cfs

Assume Turbine Q = 6,000 cfs

From CH₂ Report:

$$HW = 4694.5 + \frac{Q_s^{.667}}{7020} = 4694.9$$

$$TW = 4675.5 + \frac{Q_r}{3,500} = 4677.8$$

$$HL = \frac{Q_t^2}{6508} = .8$$

$$NH = HW - TW - HL = 16.3 \text{ ft}$$

$$E_T = .86 \quad E_G = .966 \quad E = .83$$

$$Q_T = \frac{(11.83)(kW)}{(NH)(E)} = \frac{(11.83)(7.580)}{(16.3)(.83)} = 6,628 \text{ cfs}$$

$$IDWR \ Q = 5,700 \text{ cfs}$$

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Lower Plant

Actual MW : 6.93 *

Date : 7/9/93 1800

River Q : 6,500 cfs @ SIFI gauge Assume Turbine Q = 6,000 cfs

From CH₂ Report:

$$HW = 4674.5 + \frac{Q_s^{.667}}{2424} = 4674.8$$

$$TW = 4654.6 + \frac{Q_r}{3226} = 4656.6$$

$$HL = \frac{Q_t^2}{6535} = .8$$

$$NH = HW - TW - HL = 17.4 \text{ ft}$$

$$E_g = .966 \quad E_T = .84 \quad E = .81$$

$$Q_T = \frac{(11.83)(kW)}{(NH)(E)} = \frac{(11.83)(6930)}{(17.4)(.81)} = 5,817 **$$

$$IDWR \ Q = 5,900 \text{ cfs}$$

* Actual maximum output has exceeded 6.93 MW on several occasions (3/7/86, 8/1/85, 11/20/84, 12/2/83, 11/4/83, and 8/17/83) This output was used because we have better river Q data at this time.

** Combined with the Old Lower Plant Q_T of 2831 cfs the Lower Plant total turbine flow should be 8,648 cfs.

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Old Lower Plant

Actual MW : 3.14 *

Date : 6/26/93 1400

River Q : 12,000 cfs @ SIFI gauge Assume Combined Turbine Q = 9,000 cfs

From CH₂ Report:

$$HW = 4674.5 + \frac{Q_s^{.667}}{2424} = 4675.7$$

$$TW = 4654.6 + \frac{Q_r}{3226} = 4658.3$$

HL = 1 ft. assumed

$$NH = HW - TW - HL = 16.4 \text{ ft}$$

E assumed = .8

$$Q_T = \frac{(11.83)(kW)}{(NH)(E)} = \frac{(11.83)(3140)}{(16.4)(.8)} = 2,831$$

* Actual maximum output has exceeded 3.14 MW (3.256 MW on 7/10/86 for example) this output was used for this calculation due the available river flow records.

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BONNEVILLE POWER ADMINISTRATION
WHOLESALE POWER BILL

Box 3621

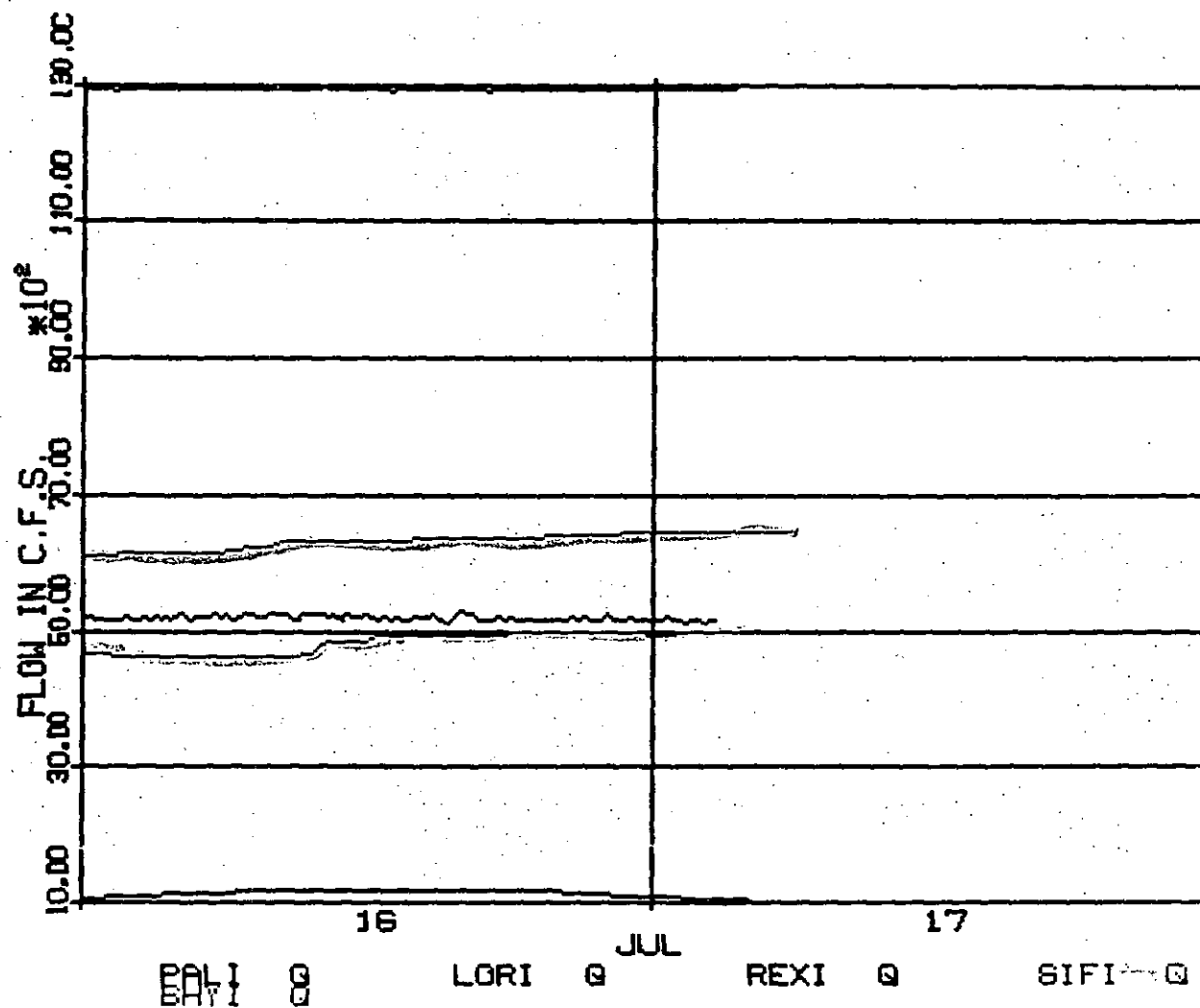
Portland, OR 97203-3621

ACTUAL PEAK DEMAND SUPPLEMENTARY INFORMATION

CUSTOMER NAME - CITY OF IDAHO FALLS
POWER BILL ID - 5152307
MAILING DATE - 8/ 2/93

DEL.POINT	READING	K	LOSS FACT.	DEL.KW	MO DA HR
SUGRMILL1	399.000✓	50.00	1.000	19950	7 8 11
SUGRMILL2	449.000✓	50.00	1.000	22450	7 8 11
UPPER PNT	730.000✓	10.00	1.000	7300	7 16 23
CITY PNT	758.000✓	10.00	1.000	7580	7 8 14
OLDLWRPLT	166.000✓	10.00	1.000	1660	7 8 16
LWR PLANT	693.000✓	10.00	1.000	6930	7 9 18
WESTSDE	280.000✓	100.00	0.996	27891	7 13 14
WESTSDE/R	107.000✓	100.00	0.996	-10658	7 7 3
SGRML W	0.000✓	100.00	0.996		7 19 14
SGRML W/R	330.000✓	100.00	0.996	-32871	7 20 8
GEM/UTAH	908.000✓	25.00	0.996	22611	7 27 15
GEM/UT/RV	240.000✓	-25.00	0.996	-5977	7 7 10

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U.S. DEPARTMENT OF ENERGY
 BONNEVILLE POWER ADMINISTRATION
 WHOLESALE POWER BILL

P.O. Box 3621

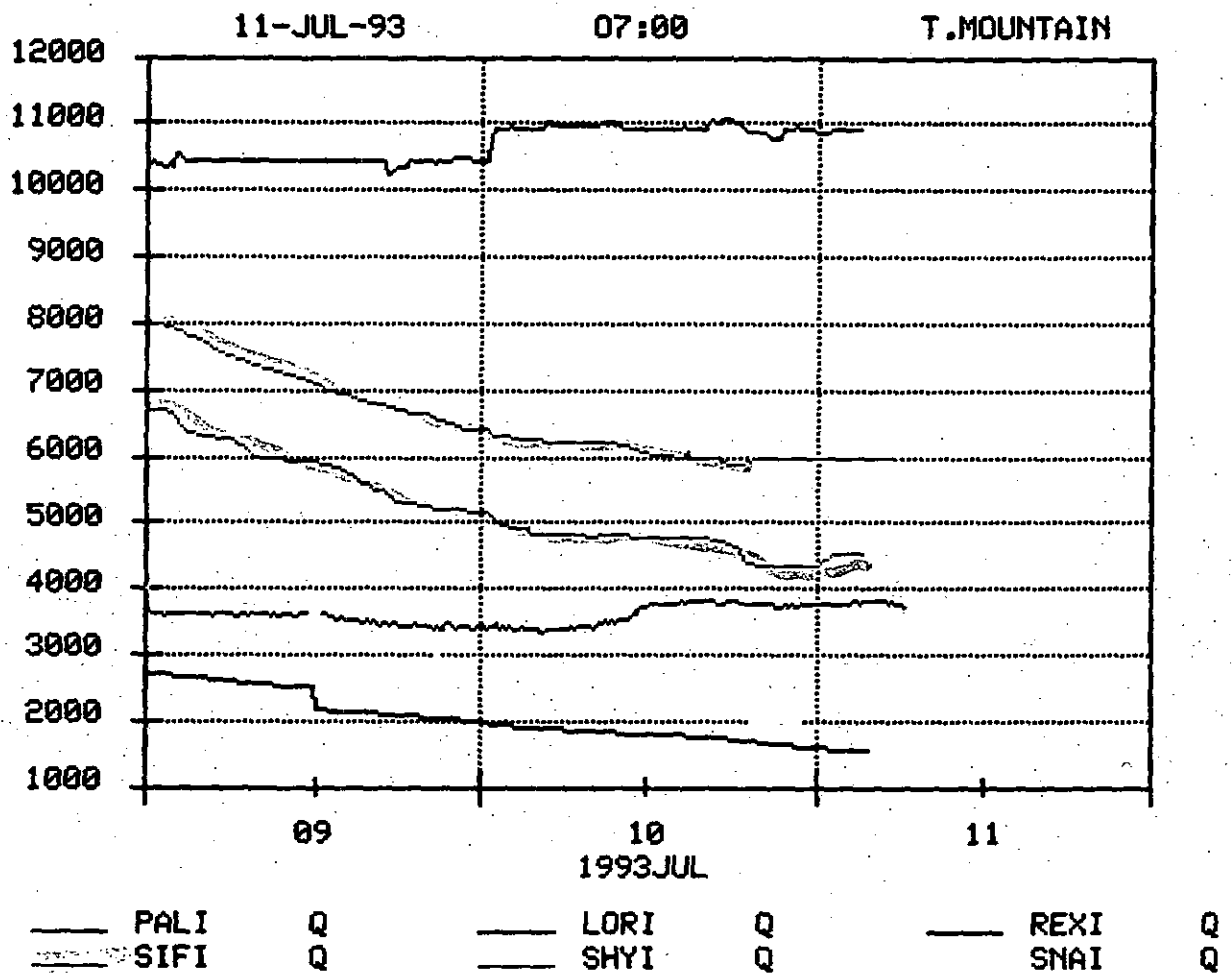
Portland, OR 97208-3621

ACTUAL PEAK DEMAND SUPPLEMENTARY INFORMATION

CUSTOMER NAME - CITY OF IDAHO FALLS
 POWER BILL ID - 5152307
 MAILING DATE - 8/ 2/93

DEL.POINT	READING	K	LOSS FACT.	DEL.KW	MO DA HR
SUGRMILL1	399.000 ✓	50.00	1.000	19950	7 8 11
SUGRMILL2	449.000 ✓	50.00	1.000	22450	7 8 11
UPPER PNT	730.000 ✓	10.00	1.000	7300	7 16 23
CITY PNT	758.000 ✓	10.00	1.000	7580	7 8 14
GLDLWRPLT	166.000 ✓	10.00	1.000	1660	7 8 16
LWR PLANT	693.000 ✓	10.00	1.000	6930	7 9 18
WESTSDE	280.000 ✓	100.00	0.996	27891	7 13 14
WESTSDE/R	107.000 ✓	100.00	0.996	-10658	7 7 3
SGRML W	0.000 ✓	100.00	0.996		7 19 14
SGRML W/R	330.000 ✓	100.00	0.996	-32871	7 20 8
GEM/UTAH	908.000 ✓	25.00	0.996	22611	7 27 15
GEM/UT/RV	240.000 ✓	-25.00	0.996	-5977	7 7 10

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U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
WHOLESALE POWER BILL

Box 3621

Portland, OR 97208-3621

ACTUAL PEAK DEMAND SUPPLEMENTARY INFORMATION

CUSTOMER NAME - CITY OF IDAHO FALLS
POWER BILL ID - 5152306
MAILING DATE - 7/ 2/93

DEL.POINT	READING	K	LOSS FACT.	DEL.KW	MO DA HR
SUGRMILL1	475.000 ✓	50.00	1.000	23750	6 5 10
SUGRMILL2	535.000 ✓	50.00	1.000	26750	6 5 10
UPPER PNT	719.000 ✓	10.00	1.000	7190	6 18 6
CITY PNT	738.000 ✓	10.00	1.000	7380	6 26 13
OLDLWRPLT	214.000 ✓	10.00	1.000	3140	6 26 14
LWR PLANT	687.000 ✓	10.00	1.000	6870	6 28 17
WESTSDE	291.000 ✓	100.00	0.996	28937	6 15 14
WESTSDE/R	42.000 ✓	100.00	0.996	-4184	6 1 3
SGRML W	0.000 ✓	100.00	0.996		
SGRML W/R	319.000 ✓	100.00	0.996	-31776	6 5 14
GEM/UTAH	914.000 ✓	25.00	0.996	22761	6 27 17
GEM/UT/RV	238.000 ✓	-25.00	0.996	-5927	6 27 7

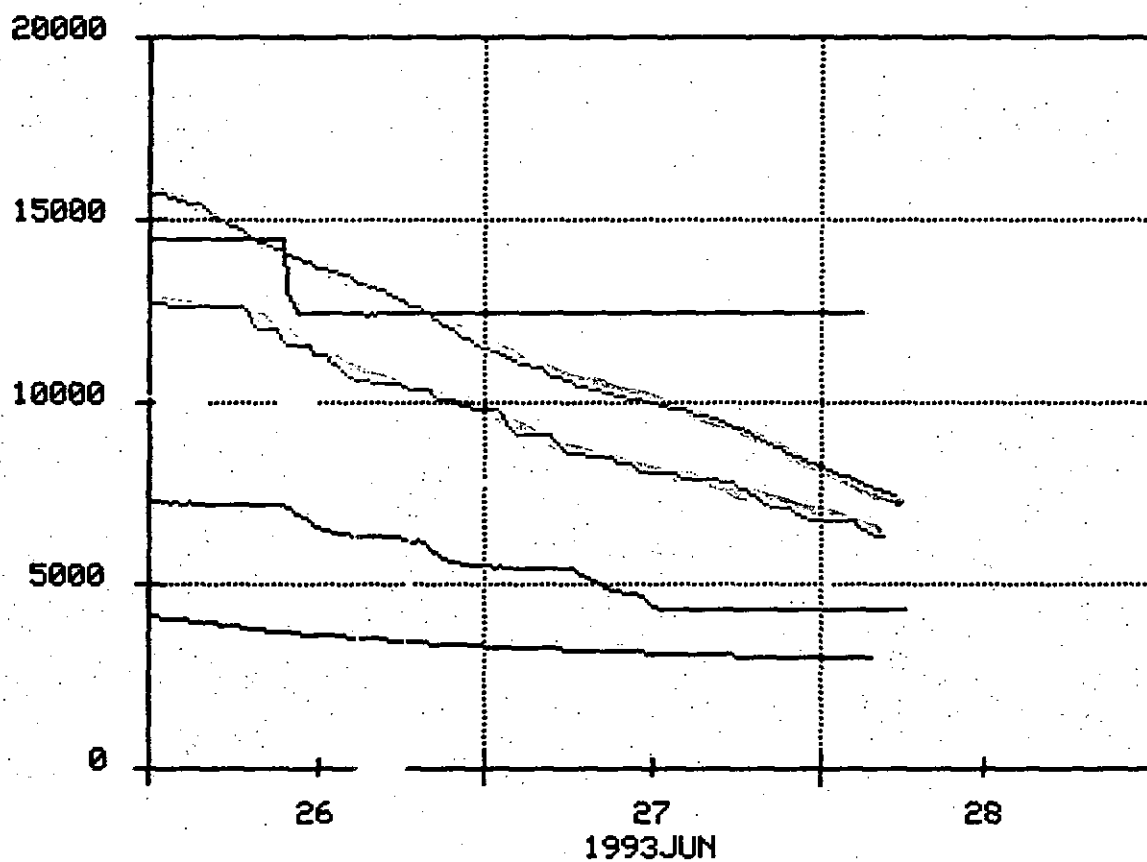
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J.LINGER

06:30

28-JUN-93



— PALI Q — LORI Q — REXI Q
- - - SIFI Q - - - SHYI Q - - - SNAI Q

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DEC 8 4 1997



VOEST-ALPINE AG
Maschinenbau
MACHINERY DEPARTMENT

IDAHO FALLS
HYDROELECTRIC PROJECT
S.O. 5644/10714

Part Page
III /A 1

A. MAIN DATA OF TURBINE

1. General

- type	KAPLAN BULBTURBINE
- manufacturer	VOEST-ALPINE
- number of units	3
- rated discharge	6000 cfs
- rated output	8300 kW
- rated speed	94,73 RPM
- runaway speed	240 RPM
- max.speed rise	45 %
- direction of rotation in view of water flow direction	clockwise
- turbine starting time	2,2 s
- starting time of water ways	3,1 s
- rated nethead	18 ft
- max.nethead	20,1 ft
- min.nethead	13,3 ft
- max.pressure rise	10 %
- cross section intake	44,75ftx28,52ft (1276,27ft ²)
- cross section outlet	31,58ftx22ft (694,76ft ²)
- flywheel effect turbine	7,775.10 ⁵ lb ft
- flywheel effect generator	3,57.10 ⁶ lb ft

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U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
WHOLESALE POWER BILL

P.O. Box 3621

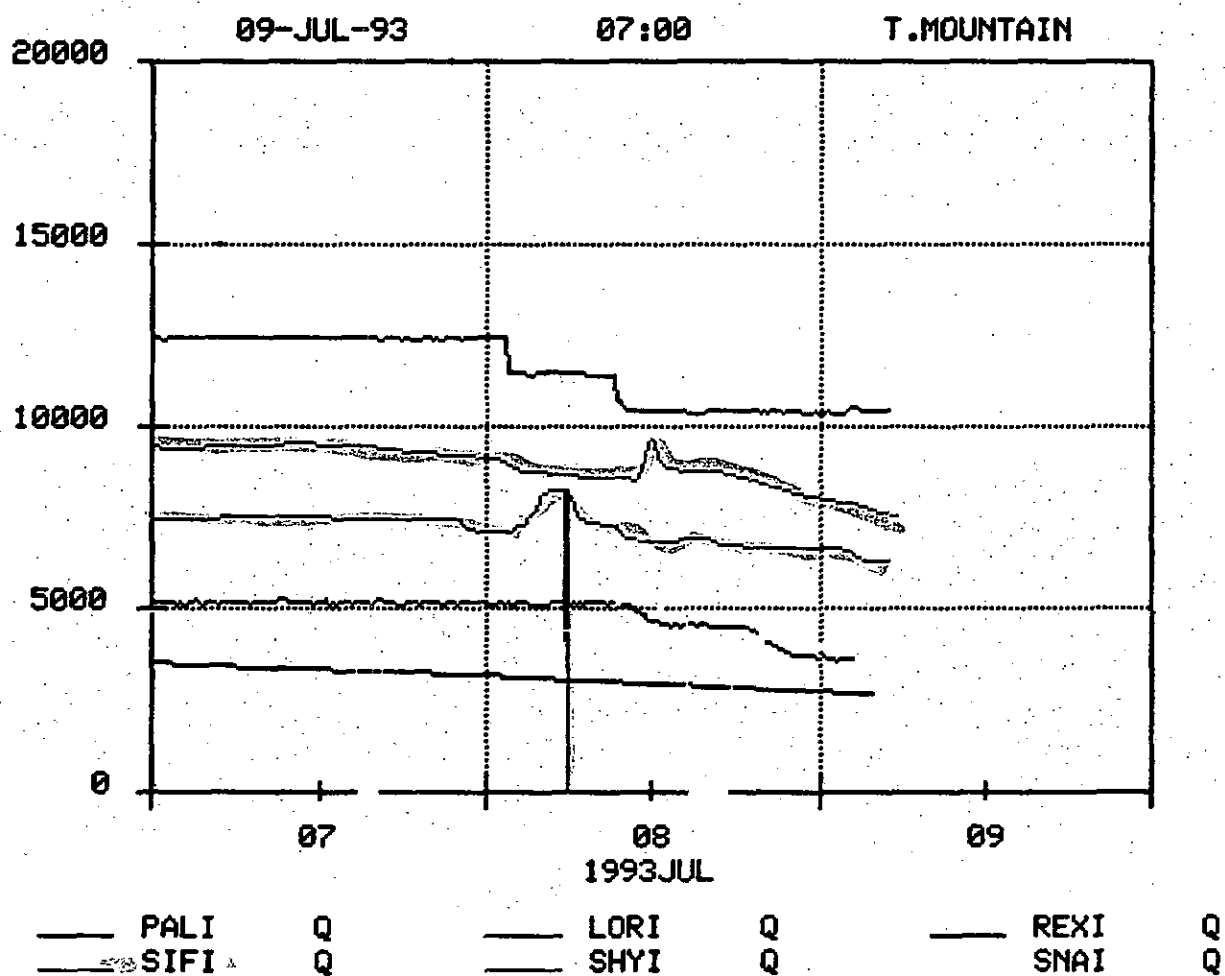
Portland, OR 97208-5621

ACTUAL PEAK DEMAND SUPPLEMENTARY INFORMATION

CUSTOMER NAME - CITY OF IDAHO FALLS
POWER BILL ID - 5152307
MAILING DATE - 8/ 2/93

DEL.POINT	READING	K	LOSS FACT.	DEL.KW	MO	DA	HR
SUGRMILL1	399.000 ✓	50.00	1.000	19950	7	8	11
SUGRMILL2	449.000 ✓	50.00	1.000	22450	7	8	11
UPPER PNT	730.000 ✓	10.00	1.000	7300	7	16	23
CITY PNT	758.000 ✓	10.00	1.000	7580	7	8	14
GLDLWRPLT	166.000 ✓	10.00	1.000	1660	7	8	16
LWR PLANT	693.000 ✓	10.00	1.000	6930	7	9	18
WESTSDE	280.000 ✓	100.00	0.996	27891	7	13	14
WESTSDE/R	107.000 ✓	100.00	0.996	-10658	7	7	3
SGRML W	0.000 ✓	100.00	0.996		7	19	14
SGRML W/R	330.000 ✓	100.00	0.996	-32871	7	20	8
GEM/UTAH	908.000 ✓	25.00	0.996	22611	7	27	15
GEM/UT/RV	240.000 ✓	-25.00	0.996	-5977	7	7	10

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ENCLOSURE
DEC 6 4 1997

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HOLDEN, KIDWELL, HAHN & CRAPO

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JUN 23 1994
Department of Water Resources

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CHARLES A. HOMER
GARY L. MEIKLE
GAYLE A. SORENSON, P.A.
DONALD L. HARRIS
DALE W. STORER
MARIE T. TYLER
JOHN G. SIMMONS, P.A.
ROBERT M. FOLLETT
JAMES K. SLAVENS

WEST ONE BANK
P.O. BOX 50130
330 SHOUP AVENUE
IDAHO FALLS, IDAHO 83405

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

KEY FINANCIAL CENTER
702 W. IDAHO SUITE 810
BOISE, IDAHO 83702

TELEPHONE (208) 343-0820
TELEFAX (208) 343-8078

BOISE OFFICE

TODD J. WILCOX
FREDERICK J. HAHN III
RONALD D. CHRISTIAN

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

June 21, 1994

Mr. Jim Johnson
IDAHO DEPARTMENT OF WATER
RESOURCES
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

RE: Permit Nos. 01-07013/07014/07015/07023/07024/07025

Dear Mr. Johnson:

After receipt of the proposed licenses which you sent, we asked the city's electrical department to review them as you know. There were a number of questions and concerns that arose.

First, as the engineers began to compare the proposed licenses with the actual use of water through the turbines and their capacities, it became apparent that there were significant discrepancies. The engineers then went to the proof of beneficial use forms and the field exam reports and concluded that those documents don't contain the total plant capacities or actual amounts used, but rather appear only to address the extra amounts used under the two extra permits for each plant. For whatever reason, the amounts previously appropriated appear not to have been considered in preparation of the proof of beneficial use or the field exams, presumably because such rights were not at issue in connection with the licensing of the above numbered permits.

Also, at the lower plant, the exams and reports didn't even take into consideration the existence of the old machines which are still used as well as the newer bulb turbine.

The engineers are trying to prepare documentation which will provide an understandable record of both water diversion and power production by all generators at each

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Mr. Jim Johnson
June 21, 1994
Page 2

plant since the installation of the three bulb turbines. As soon as that information is available, we will provide it to you.

Then, you may wish to visit with the city engineers yourself. You would of course even be welcome to come and personally tour the facilities at your convenience.

We will probably be in touch again soon. Thank you for your continued consideration in this matter.

Very truly yours,



Kent W. Foster

G:\WPDATA\SANDRA\00JOHN01.LTR:sjw

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DEC 04 1997



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

June 14, 1994

CITY OF IDAHO FALLS
C/O G S HARRISON
PO BOX 220
IDAHO FALLS ID 83402

RE: Permit Nos. 01-07013, 01-07014, 01-07015, 01-07023,
01-07024 and 01-07025,

Dear Water Right Holder:

On March 3, 1994 we sent you copies of proposed licenses for Water Right Nos. 01-07014, 01-07015 and 01-07024; Amendment forms for Water Right Nos. 01-07013 and 01-07023 and a Relinquishment form for Water Right No. 01-07025.

On March 31, 1994 we received your letter of March 29, 1994 stating that your city engineers were reviewing the paperwork, and asking that we hold the matter in abeyance until they had time to complete their review.

We would appreciate knowing what progress you have made to date, and when we can expect to receive the Amendment forms back so that we can continue processing those rights. If you have any questions please call me at (208) 327-7947.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim Johnson', written over the typed name.

JIM JOHNSON
Water Rights Supervisor

JJ:dc

Enclosure

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DEC 04 1997

LAW OFFICES
HOLDEN, KIDWELL, HAHN & CRAPO

IDAHO FALLS OFFICE

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(1911-1971)
TERRY L. CRAPO
(1939-1982)
WILLIAM S. HOLDEN
(1907-1988)

March 29, 1994

Mr. Jim Johnson
IDAHO DEPARTMENT OF WATER
RESOURCES
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

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MAR 31 1994
Department of Water Resources

RE: The City of Idaho Falls Bulb Turbine Licenses

Dear Jim:

We have recently received your letter and the attached proposed licenses. We have sent a full set to the city engineers for review and have been advised that it will take some time before they are able to complete that. Would you please hold this matter in abeyance until we are able to get back to you. Thank you for your continued assistance.

Yours very truly,



Kent W. Foster

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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 3, 1994

RE: Permit Nos. 01-07013/07014/07015/07023/07024/07025

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

Dear Mr. Foster:

After an extensive review of the above referenced permits, we are ready to finalize the licensing process.

Enclosed are copies of the proposed licenses for Permit Nos. 01-07014, 01-07015 and 01-07024. Permit Nos. 01-07013 and 01-07023 require amendments due to changes in the point of diversion locations; the amendments have also been enclosed for signature.

A relinquishment form has been enclosed for Permit No. 01-07025. Since the capacity of 5800 cfs is covered by the two previous decreed and claimed rights and the license to be issued on Permit 01-07014, there is no additional water to be appropriated under the second permit.

Below is a compilation of rights covering the three plants, including the rights to now be licensed. The turbine capacities are stated in the Turbine Evaluation & Energy Generation report prepared by CH2M HILL. These capacities are confirmed by power production records and have been used as the capacities upon which the licenses are based.

Upper Plant -

01-02047	-	500 cfs
01-02049	-	1080 cfs (see enclosed Stipulation)
01-04003	-	580 cfs
01-07013*	-	2600 cfs
01-07023*	-	<u>940 cfs</u>
		5700 cfs

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Kent Foster
March 3, 1994
Page 2

Central Plant -

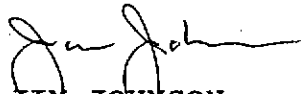
01-00040	-	140 cfs
01-00041	-	48 cfs
01-02014	-	485 cfs (see enclosed Stipulation)
01-04002	-	388 cfs
01-00360	-	394 cfs
01-00361	-	485 cfs
01-07015*	-	2600 cfs
01-07024*	-	<u>1160 cfs</u>
		5700 cfs

Lower Plant -

01-00281	-	1500 cfs
01-04001	-	1240 cfs
01-07014*	-	3060 cfs
01-07025	-	<u>not needed</u>
		5800 cfs

If you concur with this information, please sign the relinquishment form and the two amendments. These documents can then be returned to us along with the amendment fees so that licenses can be issued. If you have any questions, feel free to give me a call at 327-7947.

Sincerely,



JIM JOHNSON
Water Rights Supervisor

Enclosures

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MEMORANDUM

TO: Files 01-07013/07014/07015/07023/07024/07025

FROM: Sharla

DATE: February 3, 1994

RE: Plant Capacities and Licensing Rates of Diversion

Rights 01-07014/07015/07024/07025 were sent to Norm for license signature in June of 1993. They were returned by Norm with questions concerning plant capacities and flow rates to be licensed. After extensive review, the following summation is given.

In documentation contained in Right 01-07014, Skip Jones made some math and flow computations based on a formula provided by Internation Engineer for determining flow (Kilowatts = flow x head/14, thus $Q = kW \times 14/18$). Skip's calculation was based on plant records of kWh's and kW's from 1985 to 1987. While it appeared that November of 1985 had the highest kW output, comparison of the corresponding column (kWh) for that month with other similar kWh data, it appears that the 9,760 kW should be 6760 kW. Therefore, the data from March of 1986 was appropriately used to determine maximum generation.

The measuring device requirement under these rights was changed to require information &/or flow data to reflect the rate of flow beneficially used. While the data supplied with the exams is not as technically complete as would be preferred, the plant generating records are sufficient for calculation using the method stated above. Further compliance with the condition does not appear to need addressing.

In a listing of water rights covering these three bulb turbine plants which is contained in 01-07014, there were several errors in amount of cfs under some rights. Further investigation of adjudication claims and previous licenses revealed a Stipulation prepared in 1980 which set out the amounts to be recognized under 01-02014/02049 if ever included in a future adjudication. The ongoing SRBA will have to recognize these reduced amounts and the

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DEC 04 1997

reductions were considered when evaluating the flow needing to yet be licensed. The listing of rights covering the plants are as follows:

Upper Plant -

01-02047	-	500 cfs
01-02049	-	1080 cfs
01-04003	-	580 cfs
01-07013*	-	2600 cfs
01-07023*	-	<u>940 cfs</u>
		5700 cfs

Central Plant -

01-00040	-	140 cfs
01-00041	-	48 cfs
01-02014	-	485 cfs
01-04002	-	388 cfs
01-00360	-	394 cfs
01-00361	-	485 cfs
01-07015*	-	2600 cfs
01-07024*	-	<u>1160 cfs</u>
		5700 cfs

Lower Plant -

01-00281	-	1500 cfs
01-04001	-	1240 cfs
01-07014*	-	3060 cfs
01-07025	-	<u>not needed</u>
		5800 cfs

The turbine capacities are stated in the Turbine Evaluation & Energy Generation report prepared by CH2M HILL. These capacities are very close to the capacities determined when using the calculation described at the beginning of this memo. Therefore, the turbine capacities found in the report have been used as the capacities upon which the licenses are based.

*to be licensed

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JUL 02 1993

Department of Water Resources

LAW OFFICES

HOLDEN, KIDWELL, HAHN & CRAPO

IDAHO FALLS OFFICE

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

June 30, 1993

Jim Johnson, Water Right Supervisor
IDAHO DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

RE: City of Idaho Falls Bulb Turbine Project

Dear Jim:

I believe we spoke briefly by telephone a few weeks ago about six permits for the City of Idaho Falls bulb turbine power plants. This letter is intended just as a follow-up since I have been asked to follow the matter until the licenses have been issued.

You will probably recall that there are three bulb turbine plants; we call them the "Upper Plant", the "Central Plant" and the "Lower Plant". They were completed and came on line in about 1980 or 1981. There are two permits for the Upper Plant (01-07013 and 01-07023), two for the Central Plant (01-07015 and 01-07024), and two for the Lower Plant (01-07014 and 01-07025). It appears the Proof of Beneficial Use was submitted in 1983 for all six permits, and the field exam was done in 1988.

As I recall, when we visited by telephone, we mentioned to you that each of the plants is a replacement of a former smaller plant at each site. The city started producing electricity at its first plant in about 1900, and over the years there have been a number of increases at each site until the culmination of the bulb turbine project of the late 70s and early 80s.

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DEC 04 1997

Jim Johnson, Water Right Supervisor
June 30, 1993
Page 2

If we can provide information or be of service in any manner to help finish the licensing process on these six permits, we hope you will feel free to call upon us. We will look forward to hearing from you as soon as it is convenient.

Yours very truly,



Kent W. Foster

#0518.00/srs

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DEC 04 1997

Mike

BULB TURBINE HYDROELECTRIC PLANTS
TURBINE EVALUATION
AND
ENERGY GENERATION

Prepared for
CITY OF IDAHO FALLS

DRAFT

Prepared by
CH2M HILL
Boise, Idaho

March 1986

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DEC 04 1997

SUMMARY

This report describes the performance of the City's three bulb turbine hydroelectric plants completed in 1982. The manufacturer of the bulb turbines, Voest-Alpine, tested the plants and issued the results in the document titled Report on Index Test, revised December 1983. Relationships were derived from those tests and compared with operating records. The relationships between river discharge and headwater elevation, tailwater elevation, head losses, and power were derived for each plant. These were then converted to discharge versus generator output (MW) curves and plotted on Figure 1. The curves should be useful tools for the operators in adjusting plant output to river discharge. The curves are maximum potential output under ideal conditions and will be reduced by ice, trash, or other problems.

The long-term average energy generation from each plant was calculated using the above-described curves and a flow-duration curve developed by the U.S. Geologic Survey for the Shelley gage and adjusted by CH2M HILL for intervening canal diversions. The predicted average annual energy generation is as follows:

Upper Plant	49,410,000 kWh
City Plant	45,460,000 kWh
Lower Plant	<u>48,970,000 kWh</u>
TOTAL	143,840,000 kWh

The above averages should be reduced for downtime and less-than-optimum operation due to ice, trash, maintenance, repair, etc. Each day of downtime in one plant will reduce generation by about 130,000 kWh under average conditions.

BOT524/002

ENERGY CALCULATION

GENERAL

FLOW

Energy calculations are based upon integration of the flow-duration curve. CH2M HILL used the flow-duration curve calculated by the U.S. Geological Survey for the 1960 through 1985 water years. This curve was calculated from daily flow measurements at the Shelley gage. The energy was adjusted for canal diversions between the Shelley gage and the plants. The period before 1960 was deleted because filling of Palisades Reservoir in the late 1950s caused unnatural variations in the river discharge.

The curve is shown in Figure 2 and compared with the curve used in the FERC license application.

Monthly average flows were used in the energy calculations done during preparation of the license application. Since the turbines are forced to react to frequent changes in river flow, the daily flows used in this study provide a more accurate estimate of the energy production.

HEAD

The head available to impart energy to the turbine is the net head (NH) and depends on three elements: headwater elevation (HW), tailwater elevation (TW), and head loss (HL) through the plant.

$$NH = HW - TW - HL$$

Headwater at each plant is controlled by the weir and consequently is relatively easy to predict. Conversely, tailwater elevation and plant losses depend on very complicated relationships that are difficult to accurately predict. Figure 3 shows the relationship between net head and river flow at each plant.

Headwater elevation was taken as slightly below the weir elevation for flows up to the plant capacity. Above plant capacity, the headwater elevation is a function of spill and the overflow weir characteristics. This function was derived for each plant.

Head losses were computed from results of the Voest-Alpine (VA) index tests and an expression was derived to relate head loss to turbine discharge.

Tailwater values were plotted from the VA tests and measurements taken by the City in January 1986. However, since all the measurements were taken at relatively low river flow, the derived equations should be verified at flows above 6,000 cfs. Since tailwater is the most difficult element to estimate, additional measurements will be very valuable.

PLANT OUTPUT

The net head versus discharge shown in Figure 3 was plotted over the Voest-Alpine Guaranteed Hill Diagram shown in their Report on Index Test for each plant. Turbine efficiencies were picked off the Hill Diagram. Generator efficiencies were also taken from the VA report. Plant output was calculated by the following expression and plotted in Figure 1:

$$KW = QT \times NH \times TE \times GE / 11.8$$

KW = Generator output in kilowatts
QT = Turbine discharge in cfs
NH = Net head in feet
TE = Turbine efficiency
GE = Generator efficiency

ENERGY GENERATION

Average energy generation in megawatt hours (MWh) was calculated for each plant by intergration of the flow-duration curve (Figure 2) with the plant output (Figure 1). This average generation was then distributed monthly in proportion to monthly river discharge up to plant capacity. Table 1 shows the predicted monthly energy from each plant and the total expected energy in an average year of full generation. Outages or reduced generation have not been accounted for. Thus, the MWh shown in Table 1 are maximum and should be reduced based on the City's judgment. A single-day outage at one plant would reduce the total by about 130 MWh.

BOT524/002

CITY PLANT

HEAD

Headwater elevation is controlled by the weir at Elevation 4694.8. Headwater elevation used in this study is 4694.5, up to the turbine capacity of 5,700 cfs. Above 5,700 cfs, water will spill over the weir, and headwater is a function of flow and weir characteristics. The relationship between flow and headwater elevation is shown below:

$$HW = 4694.5 + (QS/7020)^{.667}$$

HW = Headwater elevation (ft)
QS = Spill over the weir (cfs)
QR = River discharge (cfs)
QT = Turbine discharge (cfs)
QS = QR - QT (cfs)

City Plant tailwater is controlled by the weir at the Lower Plant and the river channel between the City and lower plants. The lower plant weir elevation is 4674.5. The derived relationship between river discharge and tailwater elevation is as follows:

$$TW = 4675.50 + QR/3500$$

TW = Tailwater elevation (ft)
QR = River discharge (cfs)

Head losses through the plant were derived from the VA test report as follows:

$$HL = (QT/6508)^2$$

HL = Head loss through plant (ft)
QT = Turbine discharge (cfs)

Net head is the difference between headwater and tailwater minus losses.

$$NH = HW - TW - HL$$

NH = Net head (ft)

Net head is plotted against river discharge in Figure 3.

EFFICIENCY

Turbine efficiencies were derived from the net head versus discharge relationship noted above and the Guaranteed Hill

Diagram shown in the VA test report. The head versus discharge curve is plotted on the Hill Diagram, and turbine efficiencies are picked off at the points of intersection with the constant efficiency contours on the Hill Diagram. This line is different from the VA line because VA adjusted their output to the design head of 18 feet, whereas the CH2M HILL line is in terms of actual head at the plant. Figure 4 shows the plant characteristics plotted over the Hill Diagram.

Generator efficiency is nearly constant over the operating range. The VA tests show an average generator efficiency of 96.6 percent.

DISCHARGE

The river discharge (QR) is shown in Figure 2 as the flow-duration curve, as previously described. Turbine discharge (QT) is limited by the "full gate opening" shown on the Hill Diagram. Spill (QS) is the difference between QR and QT.

ENERGY CALCULATION

Integration of the flow-duration curve with the plant characteristics provides the potential energy at the site if flow at the site were the same as at the Shelley gage and no bypass around the plant occurred at flows below the plant capacity. However, the City is required to bypass 850 cfs during March through November. In the period of April through July, river flows in an average year are high enough to supply the full plant capacity plus the 850 cfs spill. However, during August through November the bypass will reduce plant output. Furthermore, the Shelley gage records do not include flows diverted to the Snake River Valley Canal or the Woodville Canal. Thus, more water is available at the plant, which will increase potential generation. Therefore, the energy output was adjusted to account for bypass and canal diversions as follows:

Base energy from Shelley gage records	47,640 MWh
Adjustment for canal diversions	<u>+1,350 MWh</u>
Gross potential at plant	48,990 MWh
Reduction due to 850 cfs bypass	<u>-3,530 MWh</u>
Net annual energy production (generator terminals)	45,460 MWh

BOT524/002

UPPER PLANT

HEAD

Headwater elevation is controlled by the weir at Elevation 4734.0. Headwater elevation used in this study is 4733.7, up to the turbine capacity of 5,700 cfs. Above 5,700 cfs, water will spill over the weir, and headwater is a function of flow and weir characteristics. The relationship between flow and headwater elevation is shown below:

$$HW = 4733.7 + (QS/1900)^{.667}$$

Tailwater is controlled by the tailrace channel and the river channel below it. The derived relationship between river discharge and tailwater elevation is as follows:

$$TW = 4712 + QT/1500 + (QS/1700)^{.667}$$

Head losses through the plant were derived from the VA test report as follows:

$$HL = (QT/6325)^2$$

Net head is the difference between headwater and tailwater minus losses.

$$NH = HW - TW - HL$$

Net head is plotted against river discharge in Figure 3.

EFFICIENCY

Turbine efficiencies were derived from the net head-discharge relationship noted above and the Guaranteed Hill Diagram shown in the VA test report. The head versus discharge curve is plotted on the Hill Diagram, and turbine efficiencies are picked off at the points of intersection with the constant efficiency contours on the Hill Diagram. This line is different from the VA line because VA adjusted their output to the design head of 18 feet, whereas the CH2M HILL line is in terms of actual head at the plant. Figure 4 shows the plant characteristics plotted over the Hill Diagram.

However, the energy calculations using these efficiencies yielded more energy than expected and more than was produced in 1985. Consequently, the efficiencies from the Hill Diagram were compared with those shown in the VA Report on Index Test. The test efficiencies are lower than those derived from the hill curve. Therefore, it appears as though the turbine efficiency and output are below the guaranteed level in the flow range below 4,000 cfs. However, the curves are

very close at the actual design point where head is 18.0 feet. The difference in turbine efficiency would appear to decrease average annual generation by about 3,000 MWh per year. A comparison of efficiencies is shown on Figure 5.

Generator efficiency is nearly constant over the operating range. The VA tests show an average generator efficiency of 96.5 percent.

DISCHARGE

The river discharge is shown in Figure 2 as the flow-duration curve, as previously described. Three discharges were calculated from the flow-duration curve and turbine characteristics (QR, QS, and QT).

ENERGY CALCULATION

Integration of the flow-duration curve with the plant characteristics provides the potential energy at the site if flow at the site were the same as at the Shelley gage and no bypass around the plant occurred at flows below the plant capacity. However, the City is required to bypass 100 cfs. Since the 100-cfs bypass is required year-round, the flow-duration curve was reduced by 100 cfs to reflect flows actually available for generation. In addition, the Shelley gage records do not include flows diverted to the Snake River Valley Canal or the Woodville Canal. Thus, more water is available at the plant, which will increase potential generation.

Results of the energy calculations are as follows:

Base energy from flow-duration curve decreased by 100 cfs for bypass	48,060 MWh
Adjustment for canal diversions	<u>+1,350 MWh</u>
Net annual energy production (generator terminals)	49,410 MWh

BOT524/002

LOWER PLANT

HEAD

Headwater elevation is controlled by the weir at Elevation 4674.5. Headwater elevation used in this study is 4674.5 up to the turbine capacity of ~~6,000~~ ⁵⁸⁰⁰. Above ~~6,000~~ ⁵⁸⁰⁰ cfs, water will spill over the weir, and headwater is a function of spill and weir characteristics. The relationship between flow and headwater elevation is shown below:

$$HW = 4674.5 + (QS/2424)^{.667}$$

Tailwater is controlled by the Woodville Canal diversion weir and the river channel between the weir and lower plant. The Woodville Canal weir elevation is 4654.0. The derived relationship between river discharge and tailwater elevation is as follows:

$$TW = 4654.6 + QR/3226$$

Head losses through the plant were derived from the VA test report as follows:

$$HL = (QT/6535)^2$$

Net head is the difference between headwater and tailwater minus losses.

$$NH = HW - TW - HL$$

Net head is plotted against river discharge in Figure 3.

EFFICIENCY

Turbine efficiencies were derived from the net head versus discharge relationship shown above and the Guaranteed Hill Diagram shown in the VA test report. The head versus discharge curve is plotted on the Hill Diagram, and turbine efficiencies are picked off at the points of intersection with the constant efficiency contours on the Hill Diagram. This line is different from the VA line because VA adjusted their output to the design head of 18 feet, whereas the CH2M HILL line is in terms of actual head at the plant. Figure 4 shows the plant characteristics plotted over the Hill Diagram.

However, the energy calculations using these efficiencies yielded more energy than expected and more than was produced in 1985. Consequently, the efficiencies from the Hill Diagram were compared with those shown in the VA Report on Index Test. The test efficiencies are lower than those derived from the Hill Diagram. Therefore, it appears as though the

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turbine efficiency and output are below the guaranteed level in the flow range below 4,000 cfs. The difference in turbine efficiency would appear to decrease average annual generation by about 3,400 MWh per year. A comparison of efficiencies is shown in Figure 5. However, the curves are very close at the actual design point where head is 18.0 feet.

Generator efficiency is nearly constant over the operating range. The VA tests show an average generator efficiency of 96.6 percent.

DISCHARGE

The river discharge is shown in Figure 2 as the flow-duration curve, as previously described. Three discharges were calculated from the flow-duration curve and turbine characteristics (QR, QT, and QS).

ENERGY CALCULATION

Integration of the flow-duration curve with the plant characteristics provides the potential energy at the site if flow at the site were the same as at the Shelley gage and no bypass around the plant occurred at flows below the plant capacity. However, the Shelley gage records do not include flows diverted to the Snake River Valley Canal or the Woodville Canal. Thus, more water is available at the plant, which will increase potential generation. Therefore, the energy output was adjusted to account for diversions as follows:

Base energy from Shelley gage records	47,620 MWh
Adjustment for canal diversions	<u>+1,350 MWh</u>
Net energy production (generator terminals)	48,970 MWh

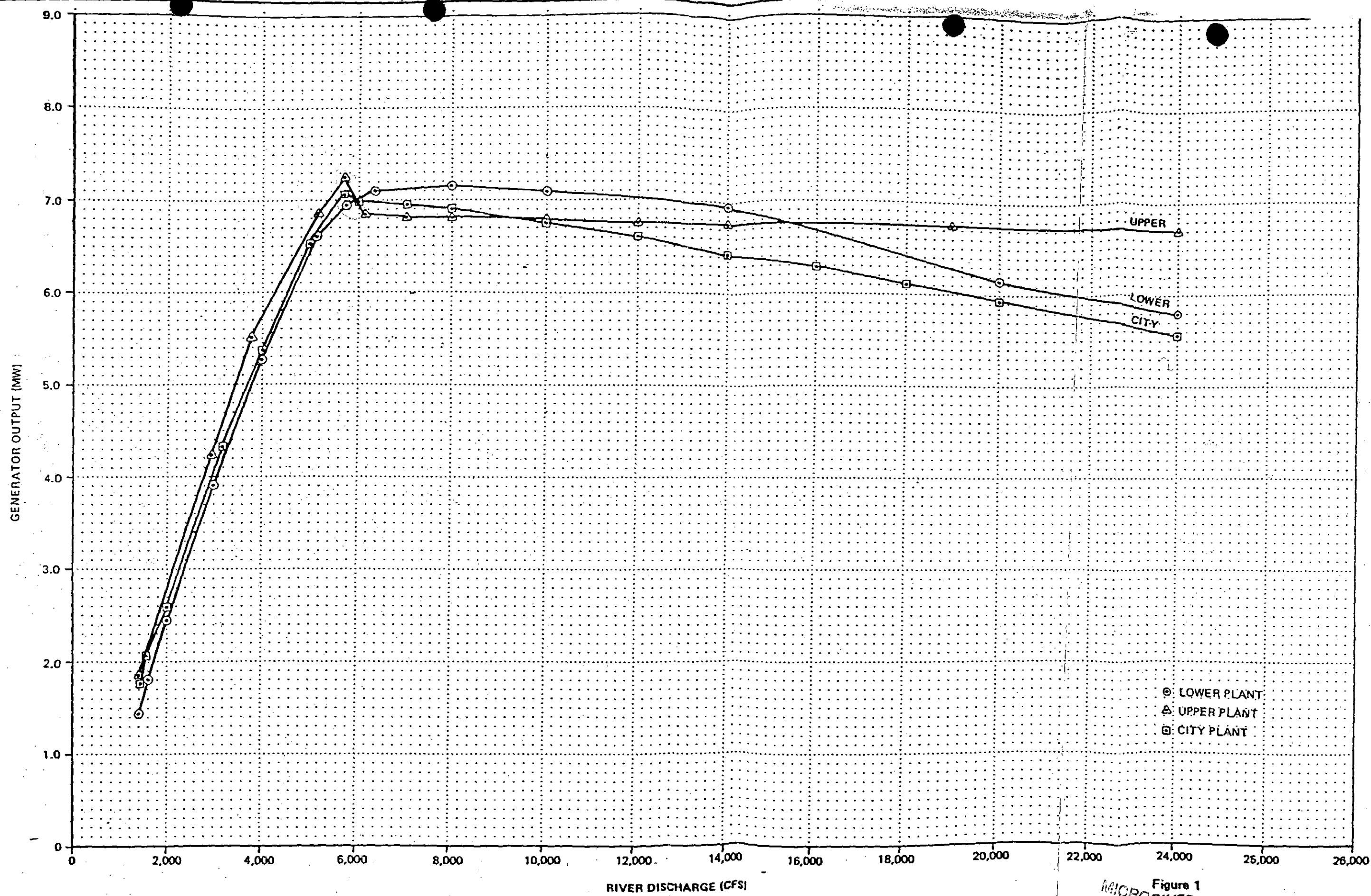
BOT524/002

TABLE 1
IDAHO FALLS BULB TURBINE PLANTS
AVERAGE ANNUAL ENERGY GENERATION
(Mega Watt Hours)

MONTH	UPPER PLANT	CITY PLANT	LOWER PLANT	TOTAL
OCTOBER	3,437	3,162	3,406	10,005
NOVEMBER	3,328	3,062	3,298	9,688
DECEMBER	3,786	3,483	3,752	11,021
JANUARY	3,678	3,384	3,645	10,707
FEBRUARY	3,786	3,483	3,752	11,021
MARCH	4,283	3,941	4,245	12,469
APRIL	4,673	4,299	4,631	13,603
MAY	4,543	4,180	4,502	13,225
JUNE	4,586	4,219	4,545	13,350
JULY	4,695	4,319	4,653	13,667
AUGUST	4,730	4,351	4,687	13,768
SEPTEMBER	3,887	3,576	3,852	11,315
TOTAL	49,412	45,459	48,968	143,839

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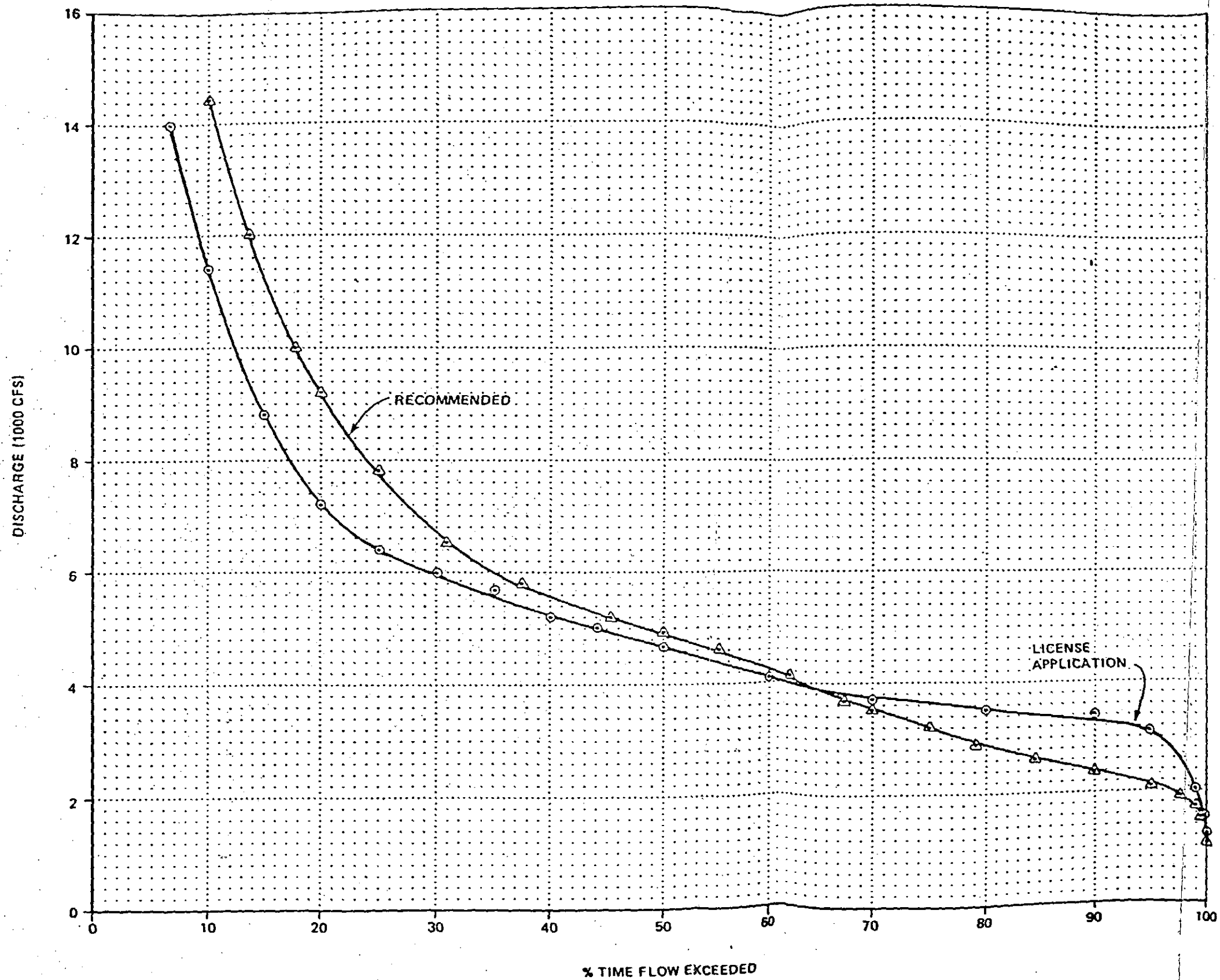
DEC 04 1957



B12261.00

Figure 1
MICRO RIVER DISCHARGE VS. OUTPUT
IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO
DEC 11 1997

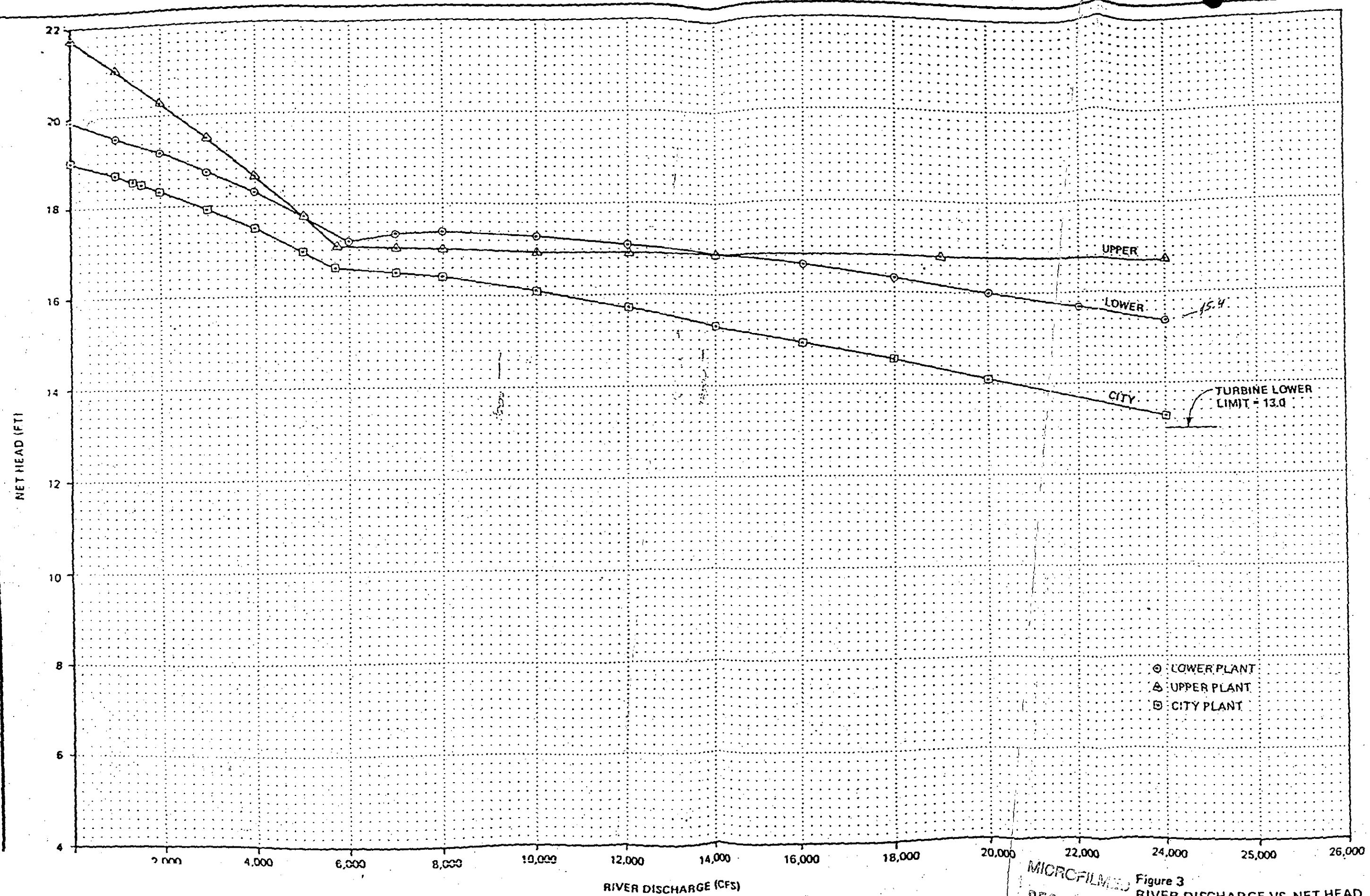




△ DAILY Q SHELLEY GAGE 1960 - 1985
 ○ 1975 DEVELOPMENT MONTHLY 1978 - 1972

Figure 2
 DAILY FLOW DURATION
 SHELLEY GAGE (USGS)
 IDAHO FALLS BULB TURBINE EVALUATION
 CITY OF IDAHO FALLS, IDAHO
 DEC 4 1997

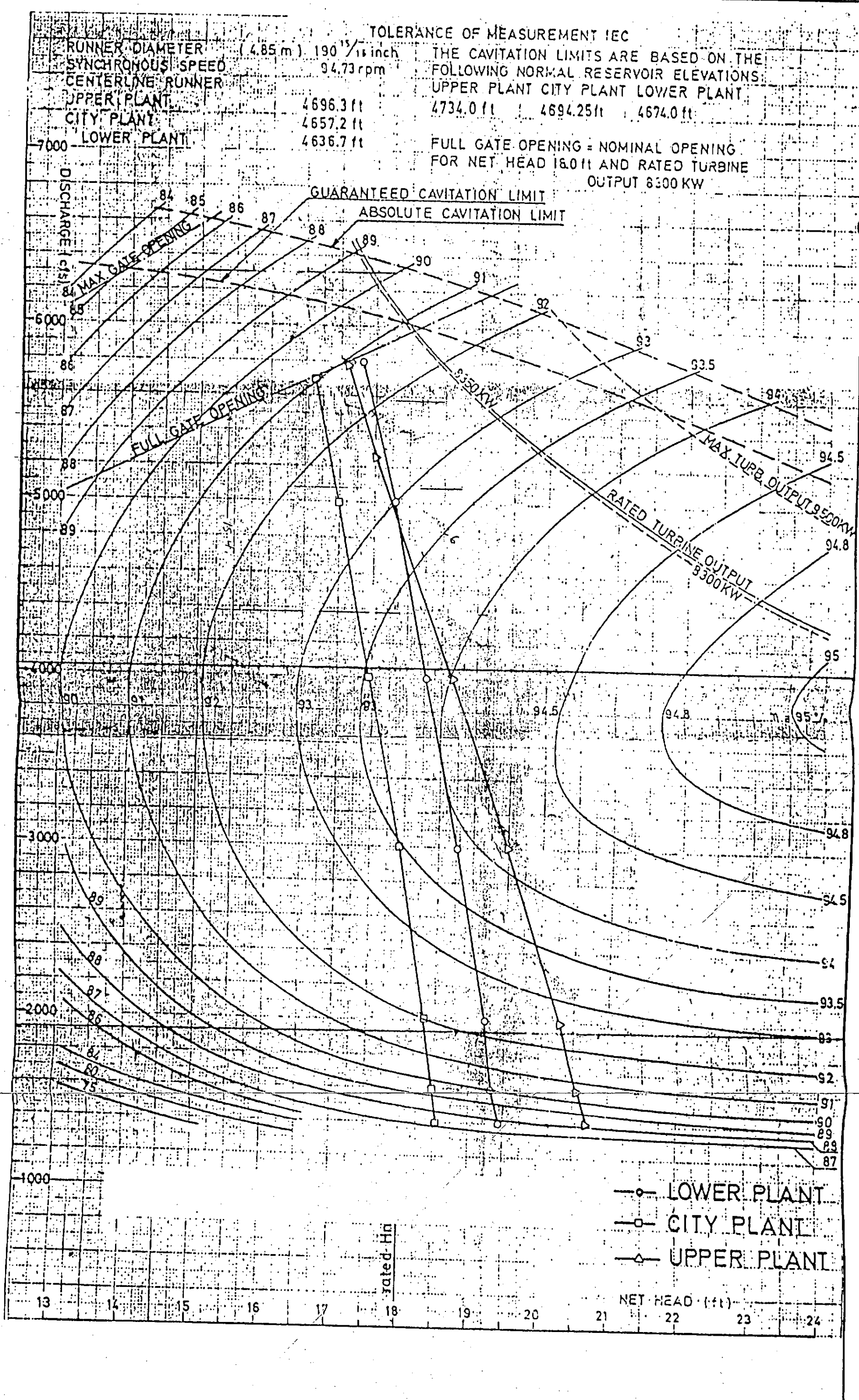


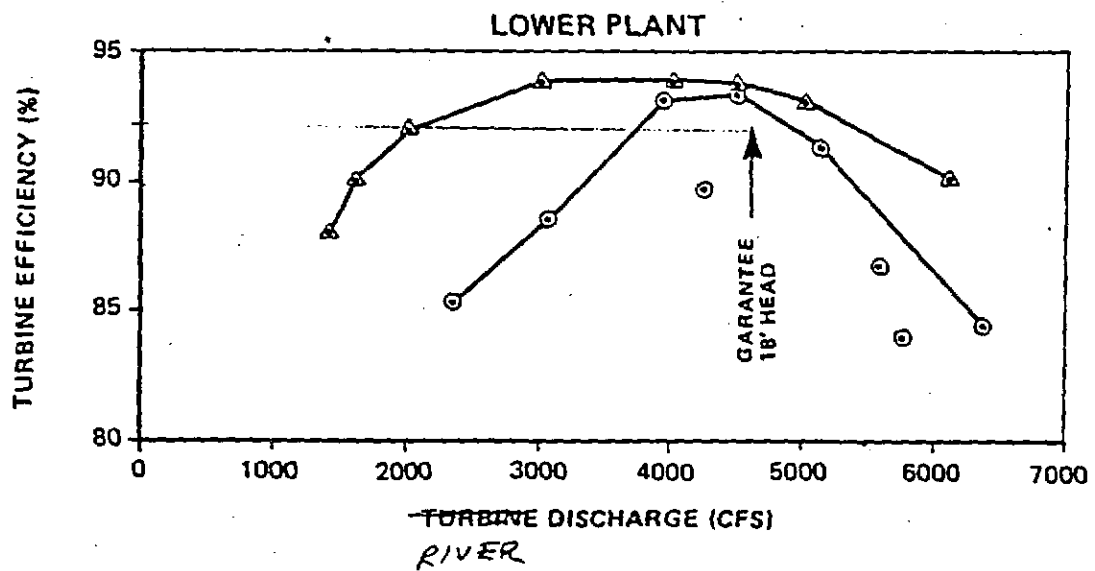
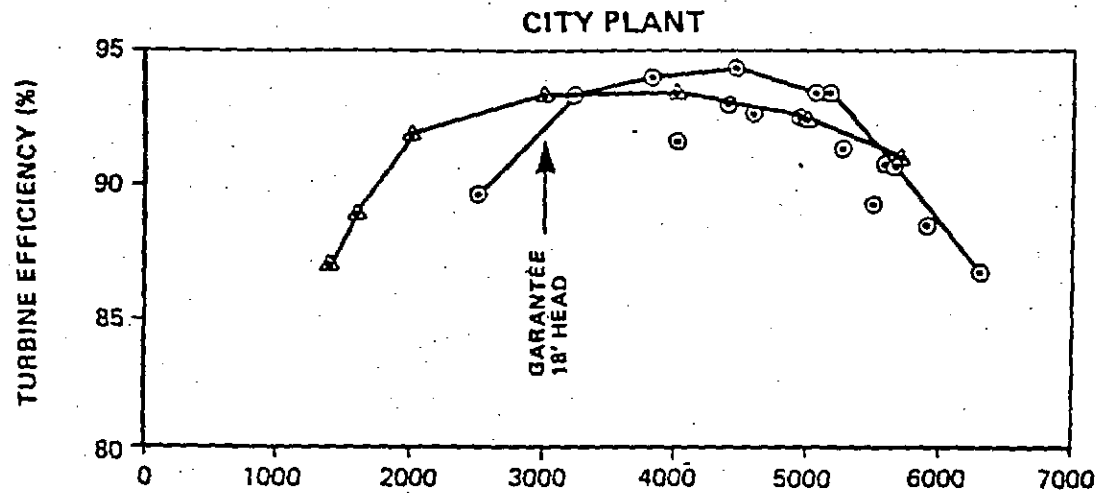
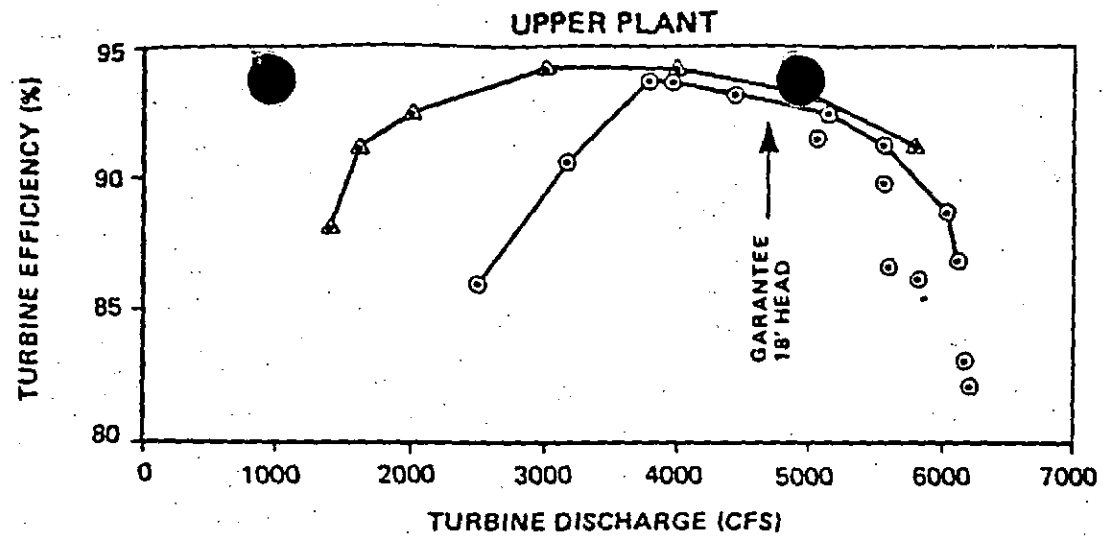


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Figure 3
RIVER DISCHARGE VS. NET HEAD
IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO

SOURCE: Hill diagram from Voest Alpine
Index Test Report, Dec. 1983.





FROM INDEX TEST

FROM GUARANTEED HILL DIAGRAM

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Figure 5

EFFICIENCY COMPARISON

IDAHO FALLS BULB TURBINE EVALUATION
CITY OF IDAHO FALLS, IDAHO

812261.00



WR0749NP
No. L01-07023

IDAHO DEPARTMENT OF WATER RESOURCES
WATER RIGHT PROFILE REPORT
(REGIONAL)

DATE: 05/27/93
PAGE: 1

OWNER CODE	NAME & ADDRESS	PRIORITY DATE	WATER USE	USE PERIOD FROM TO	DIVERSION RATE	DIVERSION VOLUME
C	CITY OF IDAHO FALLS C/O G S HARRISON PO BOX 220 IDAHO FALLS ID 83402 (208) 529-1430	02/15/1979	POWER	01-01 12-31	1240.00 CFS	897732.0 AFA
TOTAL DIVERSION:					1240.00 CFS	897732.0 AFA

Water Source: SNAKE RIVER

Tributary to: COLUMBIA RIVER

Stage: LICENSE

Point(s) of Diversion Capacity: 2955.00 CFS

Point(s) of Diversion: T03N R37E S36 Lot 07(NW NE)

Place of use Legal Description for: POWER

				NE				NW				SW				SE			
T	R	S	:	Lt	Ac	Lt	Ac	Lt	Ac	Lt	Ac	Lt	Ac	Lt	Ac	Lt	Ac	Lt	Ac
03N	37E	36	:			07-P	:												

Pou County: BONNEVILLE

Other Rights: SEE "REMARKS"

Conditions of Approval:

- R23 - The water right confirmed in this license for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this license and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this license.
- R04 - Use of water under this water right will be regulated by the watermaster of State Water District No. 01.
- 08A - This right is subject to the provisions of Sections 42-205 through 42-210, Idaho Code, restricting the sale, transfer, assignment, or mortgage of this right. Failure to comply with these provisions is cause for immediate cancellation of this right.
- 017 - This project shall be operated in a manner that will not conflict or interfere with the future diversion of water for irrigation or other beneficial consumption.
- 004 - The issuance of this right in no way grants any right-of-way or easement across the land of another.
- 027 - Use of water under this right shall be non-consumptive.

Remarks: ① Use of water under this license shall not cause fluctuation in the flows of the Snake River which impairs the ability of prior right holders to divert their water.

② The diversion and use of water under this license is subject to

Remarks: review by the Director after the date of expiration of license 2842 issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.

③ This license is subject to revocation pursuant to Section 42-350, Idaho Code.

④ This power facility is known locally as the Three City Bulb Turbine Plants.

Dates: App. Received: 02/15/1979 Priority Date: 02/15/1979
Proof Due Date: 04/01/1983 Proof Made Date: 02/18/1983
Exam Made Date: 01/12/1988 Exam Sent to S.O.: 03/16/1988
Licensed Date:

Misc: Water District Number: 01 Field Exam Fee:

Audit: 05/27/93 CHAPMAN

LICENSE REVIEW CHECKLIST

Permit # 01-7023

Date 5-26-93

Brenda Chapman

NAME	Yes ___	No ___ ☒	Address Change?
PRIORITY DATE	___	___ ☒	Advance?
	___	___ ☒	Memo to Advance
	___	___ ☒	Order to Reinstate Needed?
TOTAL CFS	___ <u>NA</u> ___		Incorrect Fee for rate recommended?
	___		Measurement Done
	___ <u>NA</u> ___		Pumping Theoretical $(8.8) \times () \times (.7)$ $(+ [2.31 \times])$
	___	___ ☒	System Capacity <u>2955</u> Allowable Amount: <u>1240 CFS</u>
TOTAL VOLUME			Rate/ac _____ AFA Irr. Season _____ Standard Irr. Season _____ Season Recommended _____
	___	___ ☒	Disagree with Examiner's Calculations?
	___	___ ☒	Flow limit: <u>1240</u> x <u>365</u> x 1.9835 = <u>897732</u> AF
SOURCE	___	___ ☒	Changes? Clarification of <u>Originally</u> <u>Intended</u> source
	___	___ ☒	Notice of Intent to Void.
P/D	___ ☒	___	Amendment Needed? <u>CHANGE TO NW NE SEC 36 LOT</u>
	___	___ ☒	Overlap Analysis a Consideration?
P/U	___	___ ☒	Amendment Needed? <u>Add Lot 7</u>
	___	___ ☒	Overlap Analysis for 5+ Acres Needed?
USES	___	___ ☒	Change(s) in Nature of Use? _____
	___	___ ☒	Amendment Needed? _____
REMARKS	___	___ ☒	Multiple P/Ds in 1/4 1/4? _____
	___ ☒	___	Non-Irr. Uses <u>POWER</u>
	___	___ ☒	Special Overlap Condition
	___ ☒	___	Other <u>Special remarks needed</u>
CONDITIONS	___ <u>CHANGED</u> ___		Measuring Devices
	___ <u>ROY</u> ___		W/Master Control
	___	___ ☒	Standard/Irr/Overlap
	___	___ ☒	Water Quality
			Dates/Misc
			<u>01</u> Water Dist
			<u>✓</u> App Rec'd
			<u>✓</u> Exam Made

COMMENTS: Amend P/D

LICENSE _____ AMEND ☒ SPECIAL PARAGRAPH _____

A

RECEIVED

MAY 20 1993

LAW OFFICES

HOLDEN, KIDWELL, HAHN & CRAPO

Department of Water Resources

BOISE OFFICE

WM. LYMAN BELNAP, P.A.
RANDALL B. REED
FREDERICK J. HAHN III
RONALD D. CHRISTIAN

IDAHO FALLS OFFICE

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May 18, 1993

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Idaho Department of Water Resources
1301 North Orchard Street
Statehouse Mail
Boise, Idaho 83720

Idaho Department of Water Resources
900 North Skyline Drive
Idaho Falls, Idaho 83402-1718

Gentlemen:

In a recent review of some of the City of Idaho Falls' water rights, we discovered that a number of the potential licenses for water rights used for power production at the Three City Bulb Turbine Plants have never been issued. The following is a list of such rights: 01-7013, 01-7014, 01-7015, 01-7023, 01-7024 and 01-7025.

It appears that for each of these rights the proof of beneficial use was filed in 1983 and the field exams completed in 1988. We wonder if you would check these items to determine what the cause of the delay in issuing the licenses might be and advise us. If there is something the city needs to be doing in this regard, we would appreciate learning of that as well. Thank you for your kind attention to this matter.

Yours very truly,



Kent W. Foster

#0518.00/srs

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MAR 16 1990 *PS2*

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Department of Water Resources

City of Idaho Falls

Project No. 2952-024
Idaho

ORDER GRANTING EXTENSION OF TIME

(Issued March 12, 1990)

The licensee for the Gem State Project has requested an extension of time to comply with ordering paragraph B of the Commission's Order Approving Riparian Habitat Mitigation Plan with Modification issued September 29, 1988. The reasons advanced by the licensee in support of the requested extension of time are reasonable and justify the extension.

The Director orders:

(A) The deadline for filing the first annual riparian habitat mitigation monitoring report according to ordering paragraph B is extended to December 31, 1990.

(B) This order is issued under authority delegated to the Director and is final unless appealed to the Commission under Rule 1902 within 30 days from the date of its issuance.

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

DC-A-5

01-7053/7066 (Shelby Falls #3690)

01-7025/7024/7023/7015/7014/7013 (Shelby Falls #2812)

01-2047/2049 (2812)

01-4001/4003/01-0360/0361
(Do not call)

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01-1013-1013
01-7018/7023-01-7025
01-2047/2049

Department of Water Resources
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION 17 FERC 61,115

Before Commissioners: Martha O. Hasse, Chairman;
Charles G. Stalon, Charles A. Trabandt,
Elizabeth Anne Moler and Jerry J. Langdon.

City of Idaho Falls, Idaho) Project Nos. 2842-013 and
-017

ORDER DISMISSING REQUESTS FOR REHEARING AND APPROVING
AMENDMENT OF LICENSE AND REVISED EXHIBIT R

(Issued April 27, 1989)

By order issued June 24, 1988, the Director, Division of Project Compliance and Administration (Director), denied the request of the City of Idaho Falls, Idaho (licensee), filed March 22, 1988, to amend its license by deleting a requirement to install shore-to-shore buoy lines from the licensee's Exhibit R (recreation use plan) drawings for Project No. 2842. 1/ Based on recommendations and a site inspection by personnel of the Commission's Portland, Oregon Regional Office (PRO), the Director rejected the licensee's proposal to install warning signs in lieu of the required buoy lines. 2/ The Director noted that the PRO's

1/ See Order Approving in Part and Modifying in Part a Revised Exhibit R, 43 FERC ¶ 62,366 (1988). The Director's order also revised the Exhibit R to require: (1) seasonal installation of the buoy lines between May 1 and September 30 each year, beginning in 1989; and (2) permanent installation of (a) warning signs at four locations upstream from the buoy lines to warn boaters of the project's three dam locations and (b) warning horns at the spillway gates to alert persons downstream from the project of sudden water releases.

2/ The license for Project No. 2842 was issued on February 8, 1979. See 6 FERC ¶ 61,120 (1979). Article 42 of the license (*id.* at p. 61,219) required the licensee to file for Commission approval a revised Exhibit R within one year from the date of issuance of the license. The licensee's Exhibit R, as filed on May 30, 1980, and approved November 16, 1981 (17 FERC ¶ 62,240 (1981)), included buoy lines in the project drawings.

Project Nos. 2842-013
and 2842-017

-2-

site inspection revealed that recreational boaters were coming dangerously close to the project's diversion structures. 1/

On July 25, 1988, the licensee timely filed an appeal of the Director's order, challenging the buoy-line requirement. On July 26, 1988, the Bonneville County, Idaho Sheriff's Department (Department) filed a request for intervention in the proceeding and a late appeal of the Director's order. By order issued October 7, 1988, the Commission granted the Department's intervention request and denied the appeals. 4/ The Commission found that the project's ungated spillways posed a hazard for recreationists and that the buoy lines would provide a needed additional measure of safety that warning signs alone could not provide. 5/

2/ Project No. 2842 is located on the Snake River in Bonneville County, Idaho, and consists of three run-of-river hydroelectric developments designated Upper Plant, City Plant, and Lower Plant. Upper Plant includes two combination concrete and earthfill dams, one 600 feet long and 23 feet high and the other 470 feet long and 33 feet high, and a reservoir with 800 gross acre-feet of capacity and 100 acres of surface area. City Plant includes a concrete dam and diversion structure 1,970 feet long and 30 feet high and a reservoir with 400 gross acre-feet of capacity and 50 acres of surface area. Lower Plant includes a concrete dam 930 feet long and 16 feet high and a reservoir with 800 acre-feet of capacity and 100 acres of surface area.

4/ See 45 FERC ¶ 61,042 (1988). Based on the Department's contentions that the buoy lines might hinder its rescue operations in the Snake River near the project, the Commission also required the licensee to file, by November 7, 1988, and after consultation with the Department, either a request to change the location of the buoy lines, with appropriately revised Exhibit R drawings, or a letter stating that no change in the buoy-line locations is needed. *Id.* at p. 61,139, note 21. After two extensions of time (see notices extending deadline, issued November 15, and December 27, 1988 (unpublished)), the licensee filed its supplemental Exhibit R drawings on January 23, 1989.

5/ 45 FERC ¶ 61,042, *SUPRA*, at p. 61,136-140. The Commission (*id.* at pp. 61,136-37) also based its decision on Section 12.42 of the Commission's regulations (18 C.F.R. § 12.42 (1988)), which states that,

(continued...)

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

City of Idaho Falls

Project No. 2842-012
IdahoORDER APPROVING REVISED EXHIBIT K DRAWINGS
(Issued October 19, 1989)

On October 3, 1988, the City of Idaho Falls, licensee for the Upper Power Plant Project, FERC Project No. 2842, filed revised Exhibit K drawings in response to a letter dated April 19, 1988 from the Director, Division of Project Compliance and Administration.

The Exhibit K drawings have been revised to more accurately reflect the project boundary under all operating conditions and conform to the Commission's Rules and Regulations.

The Director orders:

(A) The following revised Exhibit K drawings are approved and made a part of the license:

Exhibit	FERC No.	Drawing Title
K-1	2842-77	Project Boundary-Sheet 1 of 9
K-1	2842-78	Project Boundary-Sheet 2 of 9
K-1	2842-79	Project Boundary-Sheet 3 of 9
K-1	2842-80	Project Boundary-Sheet 4 of 9
K-1	2842-81	Project Boundary-Sheet 5 of 9
K-1	2842-82	Project Boundary-Sheet 6 of 9
K-1	2842-83	Project Boundary-Sheet 7 of 9
K-1	2842-84	Project Boundary-Sheet 8 of 9
K-1	2842-85	Project Boundary-Sheet 9 of 9

(B) Exhibit K drawing numbers 2842-3 and 2842-4 are superseded and removed from the license.

(C) Within 90 days of the date of issuance of this order, the licensee shall file an original of the approved Exhibit K drawings reproduced on silver or gelatin 35mm microfilm mounted on Type D (3 1/4" x 7 1/8") aperture cards for each drawing. In addition, the licensee shall file two Diazo-type duplicate aperture cards. The original set and one duplicate set of aperture cards should be filed with the Secretary of the Commission. The remaining duplicate set of aperture cards should be filed with the Commission's Portland Regional Office. The FERC drawing numbers (2842-77 through 2842-85) shall be shown in the margin below the title block of the microfilmed drawing and also in the upper right corner of each aperture card. The top

DC-A-8

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attachment

-2-

lines of the aperture cards shall show the FERC Exhibit (i.e., K-1, K-2), Project Number, Drawing Title, and date of this order.

(D) This order is issued under authority delegated to the Director and is final unless appealed to the Commission under Rule 1902 within 30 days from the date of this order. Failure to file a petition appealing this order to the Commission shall constitute acceptance of this order.

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

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OCT 26 1989

Department of Water Resources

POWER RIGHTS FOR CITY OF IDAHO FALLS
DIVERTING FROM SNAKE RIVER

✓ 0107066
✓ 0107025
✓ 0107024
✓ 0107023
✓ 0107015
✓ 0107014
✓ 0107013
✓ 0107018
✓ 0102047
✓ 0102049
0104001
0104003
0100360
0100361

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STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

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JAN 17 1988
Department of Water Resources

A. GENERAL INFORMATION

Permit No. 01-7023
1. Owner: CITY OF IDAHO FALLS Phone No. 529-1430
Current Address: P.O. BOX 220 IDAHO FALLS, IDAHO 83402
2. Accompanied by: DEE LEWIS EXAM. DATE: 12 JAN. '88
Address: P.O. BOX 220 IDAHO FALLS, IDAHO 83402 Phone No. 529-1430
Relationship to Permit Holder: EMPLOYEE
3. Source: SNAKE RIVER tributary to COLUMBIA RIVER

B. OVERLAP REVIEW

1. Other water rights with same place of use: 01-7013
☐ Copies Attached
2. Other water rights with same point of diversion: 01-7013
☐ Copies Attached ☒ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☒ Alternative diagram attached

SEE ATTACHED GENERAL LAYOUT DRAWING # LBC-10-902 R1
COMPLETE PLANS ARE AVAILABLE AT THE CITY OF IDAHO FALLS
ELECTRIC DEPARTMENT.

Scale: 1" = NA

2. ☒ Copy of U.S.G.S. Quadrangle Attached ☒ Aerial Photo Attached
Showing location(s) of point(s) of diversion and (required for irrigation of 10 acres or more)
place(s) of use (required).
☒ Photo of Diversion and System Attached
(required for all but single household domestic groundwater, and stockwater.)

System Description (continued)

3. Narrative: Description (As operating at time of measurement. Indicate pressure, number of sprinklers, etc.)

AT THIS LOCATION THE SNAKE RIVER SEPERATES INTO TWO SIMILAR SIZED CHANNELS. THE EAST CHANNEL IS CONTROLLED BY A DAM WITH A SPILLWAY. THE WEST CHANNEL IS CONTROLLED BY A DAM WITH A POWER HOUSE. THE RESULTING LAKE IS REGULATED TO PRODUCE POWER AND MAINTAIN THE INTEGRITY OF THE RIVER.

☐ See Remarks on page 4 for continuation

- 4.

Well or Diversion Identification No.*	TURBINE Motor Make	Hp	TURBINE Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
LIPPER PLANT	VDEST-ALPINE	8.3	MB 7-059/3	—	—

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

5. Point(s) of Diversion:

Ident. No.	Gov't. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
	7	NW	NE		36	3N	37E	BONNEVILLE	U.S.G.S. QUAD MAP

6. Place(s) of Use:

Indicate Method of Determination

Twp.	Rge.	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
			DIVERSION GENERATION AND RETURN FLOW				ALL OCCURE												NA
			NEAR SAME LOCATION																
3N	37E	36			P														
					L-7														

Do not use this space

RECORDED

4 500

Do not use this space

D. FLOW MEASUREMENTS

☐ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
VDEST - ALPINE TURBINE	KAPLAN	—	—	MB9-059/3	3.3MM	1980
	- BULB					

2. Measurements:

FLOW ON THIS DATE WAS DETERMINED BY POWER GENERATION USING THE
 FORMULA $\frac{\text{FLOW} \times \text{HEAD}}{14} = \text{KILLOWATTS}$ ON THIS DATE POWER OUTPUT
 WAS 3800 KW HEAD = 18' $\therefore$ FLOW = ~~2955~~ CFS 2955 CFS

E. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

1. Measured Method: MANUFACTURERS RATING CURVE

2. Alternate Method for Checking Purposes:

F. PUMP EFFICIENCY DATA (Optional) 'NA'

Discharge Pressure: _____ psi x 2.31 = _____ ft (1); Dynamic pumping level: _____ ft (2)

Total Head: (1) + (2) = _____ (3); Flow rate: _____ cfs (4)

Water HP: (3) x (4) $\div$ 8.8 = _____ (5)

Meter Input KW: 3.6 x _____ KH x _____ CTR or _____ MULT x _____ PTR x _____ N/ _____ T = _____ (6)

Meter Input HP: (6) x 1.34 = _____ (7)

Panel Input KW: _____ Ave PF x _____ Ave Volts x _____ Ave Amps x .001732 = _____ (6)

Panel Input HP: (6) x 1.34 = _____ (7) Efficiency: (5)/(7) x 100 = _____ %

G. VOLUME CALCULATIONS 'NA'

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____

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

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

2. Volume Calculations for Other Uses:

H. REMARKS AND OVERLAP REVIEW ANALYSIS

ON THE DATE OF THIS FIELD EXAM ONLY MINOR FLOWS ESCAPED
THRU THE SPILLWAY. INCLUDED IS A MONTHLY POWER PRODUCTION CHART
FOR 1985-1987. THE UPPER PLANT IS RATED AT 8.3 MEGAWATTS.
EXISTING RIGHTS AND DECREES WILL PRODUCE APPROX 3,300 KWH OF
POWER. PRODUCTION RECORDS SHOW THAT PLANT HAS EXCEEDED 3,300 KWH
IN 36 OF LAST 36 MONTHS. THEREFORE CITY HAS DEMONSTRATED BENEFICIAL
USE OF NEW PERMITS

R17 (01-7013, 01-2047, 01-2049) (5700 cfs) see pg 6 of Turbine evaluation

I. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
POWER GENERATION	JAN 1	DEC 31	AVAILABLE FLOW	
			UP TO 1240 CFS.	
Totals:				

2. Recommended Amendments

- ☒ Change P.D. as reflected above ☐ Add P.D. as reflected above
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above

☐ None

☐ Other

J. AUTHENTICATION

Field Examiner's Name DARYL LOFDED
Signature Daryl Lofded PE.
Certification Date 18 Jan, 88
Field Report Preparation Date 12 JAN, '88



Exam No.
87-115

- K. Licensing recommendation shall be prepared by an Idaho Department of Water Resources employee on a computer printout attached hereto.

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DEC 6 1987

Form 217
03/86

For Office Use Only
Fee Received _____
Date _____
Receipt # _____
Receipt by _____
Reviewed by _____
Sent to region _____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
PROOF OF BENEFICIAL USE

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

Permit No. 01-7023

Name(s) of Permit Holder: CITY OF IDAHO FALLS, IDAHO

Post Office Address: PO BOX 220

IDAHO FALLS, IDAHO 83402 Telephone No. 208-529-1430

Source of Water: SNAKE RIVER

Extent of Use:

Domestic N/A (number of households) Stockwater N/A (number and type of stock)
Irrigation N/A (acres) Other/Remark POWER GENERATION

Total rate and/or volume for which proof is submitted 1240 cfs N/A acre-feet

Show the date water was first diverted and beneficially used under this permit: 9-24-82

Measuring Device: Required? ☐ Yes ☐ No Fee enclosed \$ _____
Installed? ☐ Yes ☐ No (See License Examination Fee Schedule)

Flow Measurement Port: Required? ☐ Yes ☐ No
Installed? ☐ Yes ☐ No

Person to contact to accompany the Department representative during the field examination:

FIELD EXAM BY PRIVATE CONSULTANT (208) 523 1662
(Name) (Telephone Number)

ELLSWORTH ENGINEERING INC. P.O. BOX 1822 IDAHO FALLS, IDAHO 83401
(Address)

The above information is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the state of Idaho.

1-18-88
Date

[Signature] Chief Engineer
Signature of Permit Holder (and title, if appropriate)

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01-7623
upper plant

NORTH

0000

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48

JOHN B. DAVID

Sec. 36

RIVER

1878

S. 89° 45' W.

40.06

5.94

S. 89° 18' W.

DAM

POWER HOUSE

0.729

S. 31° 24' W.

29.77

RESURVEY

25.52

3.30

5.98

8

22.87

CARIN B

DAM

N. 89° 35' W.

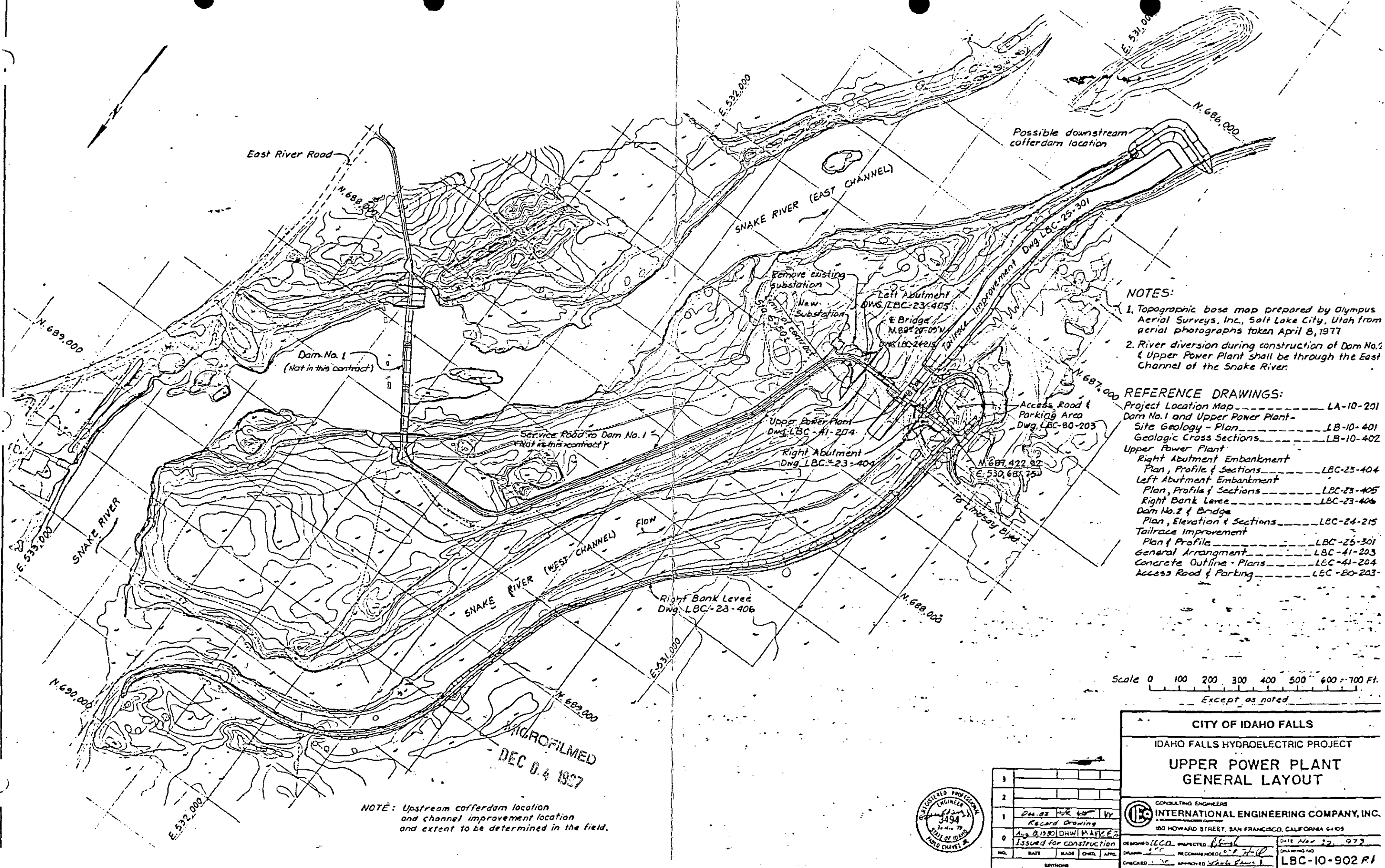
14.63

15.50

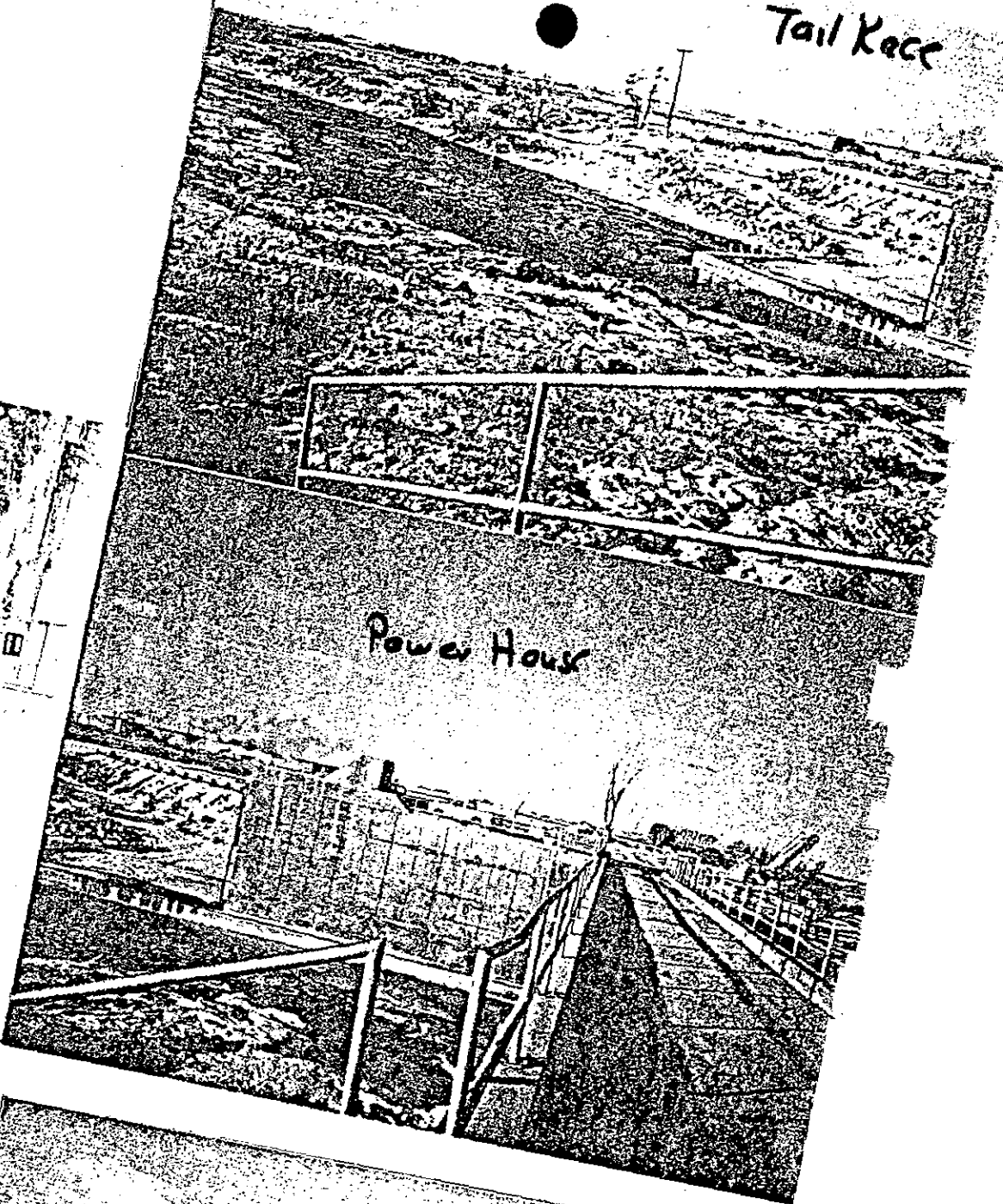
NORTH

80.00

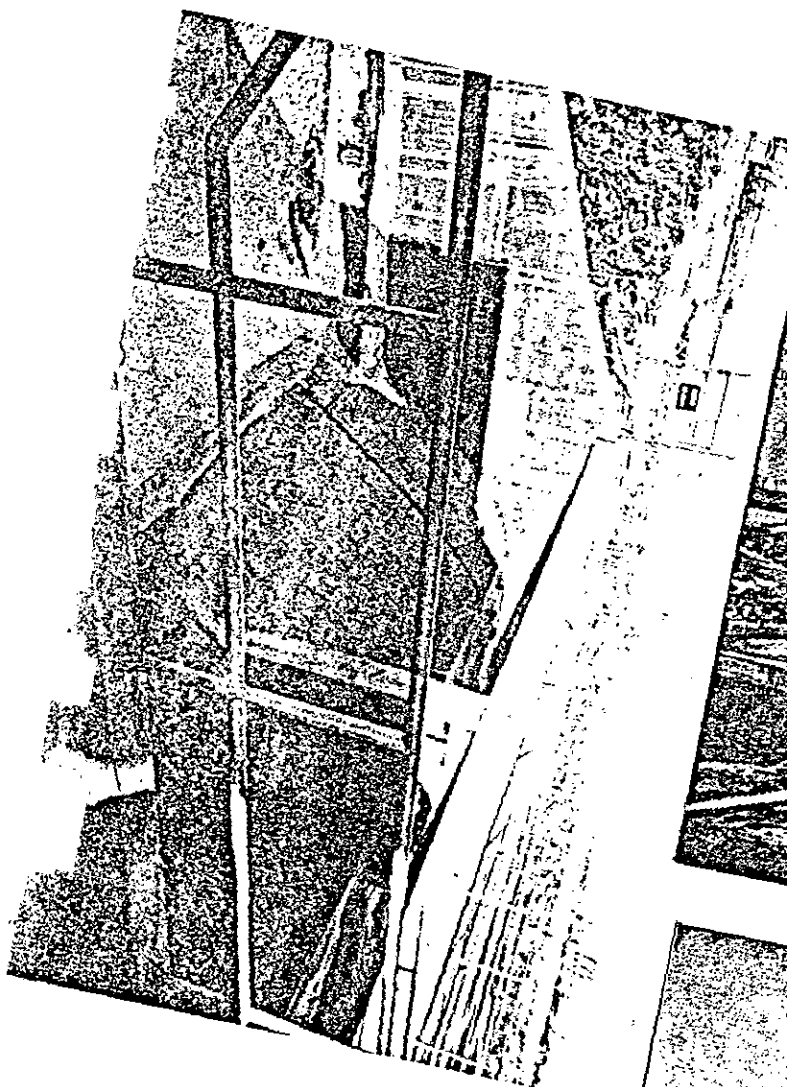
670



Tail Race



Power House



Spillway



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UPPER POWER PLANT

#01-7023

1. License L.6799 (new number 01-2007) for 500 cfs, with a priority of October 28, 1927.
2. License No. L.18271 (new number 01-2049) for 1500 cfs, with a priority of February 14, 1936.
3. Constitutional or claimed right (no number), for 160 cfs, with a priority of May 3, 1930.
4. Permit number 01-7013, issued March 5, 1979, for 2600 cfs with a priority of November 9, 1977.
5. Permit No. 01-7023 issued March 16, 1979, for 1240 cfs, with a priority of February 15, 1979.

Total: 6000 cfs

CITY OR CENTRAL PLANT

1. Decreed right No. 193 (new number 01-0040) for 140 cfs, with a priority of April 20, 1900.
2. Decreed Right No. 258 (new number 01-0041) for 48 cfs, with a priority of October 22, 1904.
3. License No. L.3304 (new number 01-2014) for 600 cfs, with a priority of December 3, 1907.
4. Constitutional or claimed right (no number), for 225 cfs, with a priority of February 5, 1915.
5. Constitutional or claimed right (no number), for 412 cfs, with a priority of July 18, 1919.
6. Constitutional or claimed right (no number), for 515 cfs, with a priority of October 5, 1923.
7. Permit No. 01-7014, issued March 5, 1979, for 2600 cfs, with a priority of November 9, 1977.
8. Permit No. 01-7024, issued March 16, 1979, for 460 cfs, with a priority of February 15, 1979.

Total: 6000 cfs

LOWER PLANT

1. Decreed right No. 01-0281 for 1500 cfs, with a priority of December 29, 1905.
2. Constitutional or claimed right (no number), for 1240 cfs, with a priority of October 5, 1940.
3. Permit No. 01-7015, issued March 5, 1979, for 5100 cfs, with a priority of November 9, 1977.
4. Permit No. 01-7025, issued March 16, 1979, for 900 cfs, with a priority of February 15, 1979.

Total: 8740 cfs

16 APR 1979
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Month	1985		1986		1987	
	kWh	kW	kWh	kW	kWh	kW
Jan	3,198,000	6,850	4,640,000	6,470	3,637,000	6,940
Feb	3,152,000	5,040	4,216,000	7,200	3,371,000	6,080
Mar	4,646,000	6,860	4,587,000	7,090	3,243,000	7,060
Apr	4,572,000	7,050	4,679,000	6,950	4,114,000	7,140
May	4,794,000	6,730	5,019,000	6,760	3,933,000	7,180
Jun	4,511,000	7,120	4,501,000	6,760	4,770,000	7,220
Jul	4,671,000	6,990	4,891,000	7,020	5,088,000	7,120
Aug	4,425,000	5,240	5,034,000	6,940	4,290,000	6,540
Sep	2,647,000	6,800	4,791,000	7,180	3,875,000	6,150
Oct	3,653,000	5,650	4,910,000	7,050	3,018,000	4,770
Nov	3,886,000	6,160	4,440,000	6,980	2,597,000	4,160
Dec	4,238,000	6,530	5,010,000	7,200	2,632,000	3,950
TOTAL	48,393,000		56,718,000		44,568,000	

01-7023

CITY PLANT

Month	1985		1986		1987		1988	
	kWh	kW	kWh	kW	kWh	kW	kWh	kW
Jan	4,020,000	6,540	4,302,000	6,250	4,367,000	7,210		
Feb	3,554,000	6,450	4,186,000	7,120	3,250,000	5,950		
Mar	4,411,000	7,020	4,279,000	6,990	2,907,000	6,570		
Apr	4,270,000	6,880	3,912,000	6,630	3,690,000	7,260		
May	3,887,000	6,680	3,467,000	5,880	4,880,000	7,010		
Jun	4,026,000	7,490	4,072,000	6,560	4,636,000	7,150		
Jul	4,209,000	6,620	4,997,000	7,170	4,891,000	6,960		
Aug	3,072,000	4,860	3,201,000	6,940	3,908,000	6,230		
Sep	3,213,000	5,960	0	0	3,373,000	5,570		
Oct	3,297,000	5,630	0	0	2,682,000	4,230		
Nov	3,433,000	5,620	0	0	2,224,000	3,610		
Dec	3,609,000	5,990	2,275,000	7,220	2,278,000	3,620		
TOTAL	45,001,000		34,691,000		43,086,000			

LOWER PLANT

Month	1985		1986		1987		1988	
	kWh	kW	kWh	kW	kWh	kW	kWh	kW
Jan	4,353,000	6,670	4,599,000	6,570	4,343,000	6,840		
Feb	4,090,000	6,690	4,134,000	6,890	2,923,000	6,040		
Mar	4,076,000	6,440	3,967,000	6,960	2,788,000	3,800		
Apr	4,214,000	6,900	3,381,000	5,770	4,008,000	6,950		
May	3,582,000	5,820	3,372,000	4,920	3,881,000	6,680		
Jun	3,959,000	6,320*	3,214,000	5,230	4,356,000	6,880		
Jul	2,490,000	6,930	4,081,000	3,256	4,489,000	6,090		
Aug	4,639,000	5,380	4,480,000	6,340	3,778,000	5770		
Sep	3,544,000	6,650	4,086,000	6,650	3,458,000	5,520		
Oct	3,406,000	5,590	4,489,000	6,770	2,707,000	4,270		
Nov	3,725,000	9,760	3,791,000	6,170	2,390,000	3,860		
Dec	4,003,000	6,340	4,727,000	6,910	2,340,000	3,650		
TOTAL	46,081,000		48,321,000		41,461,000			

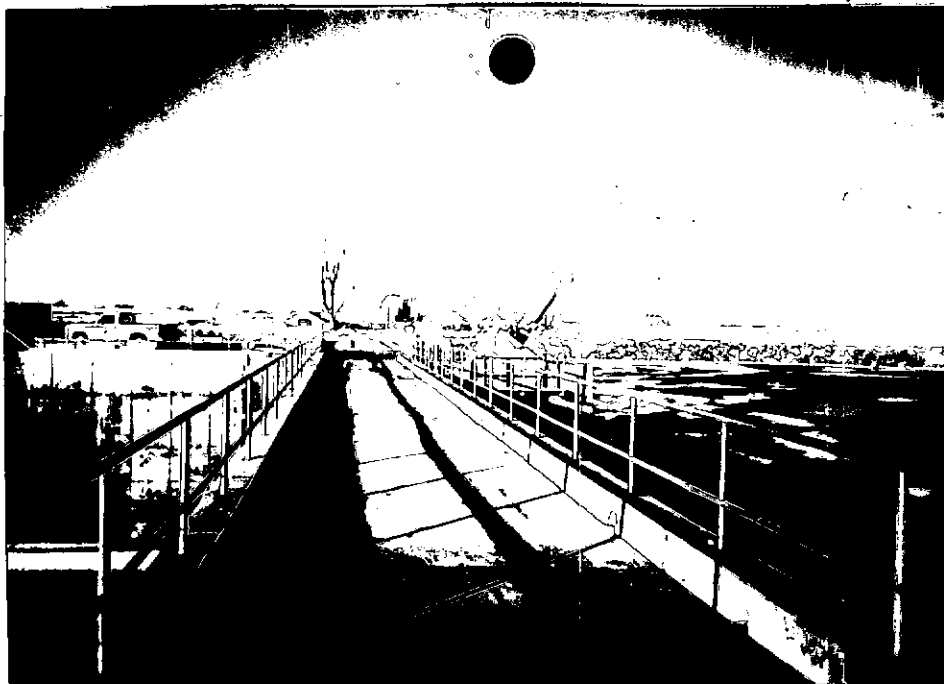
*Estimate, demand meter not stamping properly.

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OLD LOWER PLANT

	1985		1986		1987		1988	
	kWh	kW	kWh	kW	kWh	kW	kWh	kW
Jan	796,800	1,632			607,000	1,720		
Feb	580,800	1,584			342,000	810		
Mar	710,400	3,360	1,214,400	3,160	145,000	3,270		
Apr	2,092,800	4,120	1,929,600	3,016	311,000	2,560		
May	2,208,000	3,552	1,824,000	2,592	600,000	2,950		
Jun	1,032,000	3,304	1,646,400	2,632	313,000	3,080		
Jul	936,000	3,376	1,564,800	6,350	0	0		
Aug	0	0	52,800	864	0	0		
Sep	0	0	110,400	1,680	0	0		
Oct	0	0	392,000	1,630	0	0		
Nov	0	0	692,000	1,610	0	0		
Dec	0	0	780,000	1,650	0	0		
	<u>8,626,800</u>		<u>10,206,400</u>		<u>2,318,000</u>			

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Upper Plant
Power House

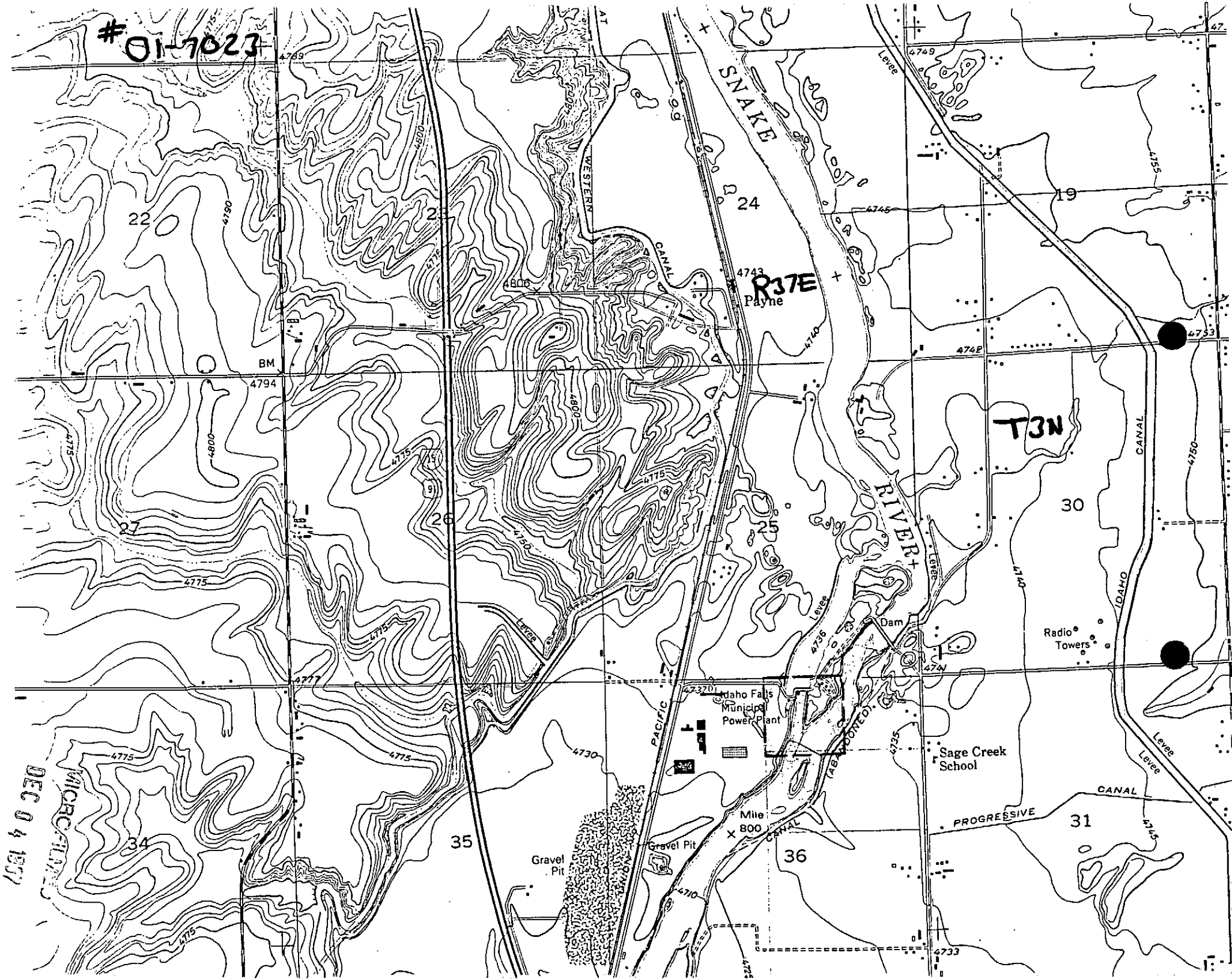


Ponding behind
Upper Power Plant



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DEC 9 4 1967

#01-7023



DEC 04 1957

ELLSWORTH ENGINEERING, INC.

P.O. Box 1822 • 140 N. Corner Ave.
Idaho Falls, Idaho 83401
(208) 523-1662

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MAR 18 1987

Department of Water Resources
Eastern District Office

March 17, 1987

Mr. Ronald Carlson, Manager
Idaho Department of Water Resources
150 Shoup Avenue, Suite 15
Idaho Falls, Idaho 83401

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DEC 08 1987

Re: City of Idaho Falls

Department of Water Resources

Dear Mr. Carlson:

The City of Idaho Falls has recently retained Ellsworth Engineering, Inc. to conduct the field examinations for determining the extent of beneficial use on the following permits: 01-7013; 01-7014; 01-7015; 01-7023; 01-7024; and 01-7025. Enclosed are the information sheets for each of the permits which indicate that the City has elected to secure their own examiners. Please note that all information sheets were signed March 16, 1987 which date is prior to the sixty days allowed for in your letter of transmittal dated January 26, 1987.

These examinations will be conducted by Rance Bare, Certification Number 87-115 of our office.

If there should be any questions, please call.

Yours truly,

ELLSWORTH ENGINEERING, INC.

Rance
Rance Bare, P.E.

cc: City Electric Division

MICROFILMED
DEC 04 1987



STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
EASTERN REGION

John V. Evans
Governor

150 Shoup — Suite 15
Idaho Falls, Idaho 83402
(208) 525-7161

A. Kenneth Dunn
Director

01-7023
CITY OF IDAHO FALLS
C/O G. S. HARRISON
P.O. BOX 220
IDAHO FALLS, ID 83401

January 26, 1987

EXAMINATION FEE NOTICE



Dear Permit Holder:

Department records show that proof of beneficial use has been submitted for the above-referenced permit, but that a field examination has not yet been conducted to determine the extent of beneficial use of the water for licensing purposes.

House Bill 671 (effective April 4, 1986) enacted by the 1986 Idaho Legislature requires the payment of a fee before this Department can conduct the field examination needed to issue a license confirming use of water under the permit. This letter is notification that the license examination fee is due within sixty (60) days of the date of this letter. The examination fee information sheet (enclosed) must be returned with the fee.

As an alternative to submitting the fee, the Department will accept a field examination report completed by a certified water right examiner from the private sector. If you choose to have the examination done by a certified water right examiner, you need not submit the license examination fee to the Department, but you must within sixty (60) days of the date of this letter return to the Department, the examination fee information sheet showing appropriate information together with a statement from the certified examiner to verify that you have retained a certified examiner to conduct the field examination. If you choose this alternative, a completed field examination report must be submitted within one year of the date of this letter. You cannot later change your decision to use this alternative and submit the fee needed for the Department to conduct the field examination, but you may change to another certified examiner.

Certified water right examiners are licensed engineers, geologists, or land surveyors certified by the Department to conduct water right examinations. The procedure for certifying examiners results from the recently enacted HB 671 and is being developed at this time. A listing of certified water right examiners will be available from this Department when examiners have been certified.

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DEC 11 1987

If your permitted use, in fact, has already been examined by the Department and you have not asked to have the examination repeated, the fee requirement is not applicable to your permit. If you believe this is the case, please contact the Department.

The license examination fee is to be based on the amount of water you indicate you have developed, as listed in item 6 on the examination fee information sheet. The amount of water on which the examination fee is based can be less than the permitted amount, if less water has been diverted and beneficially used. The licensed amount of water, however, will not exceed the amount you claim on the examination fee information sheet. The enclosed license examination fee schedule shows a listing of applicable fees.

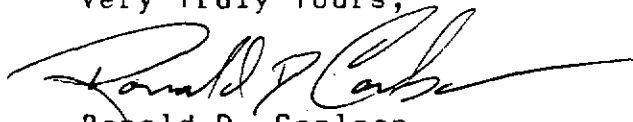
FAILURE TO SUBMIT WITHIN THE SIXTY (60) DAY PERIOD THE FEE OR THE STATEMENT THAT A CERTIFIED EXAMINER HAS BEEN RETAINED TO MAKE THE FIELD EXAMINATION WILL BE CAUSE TO ADVANCE THE PRIORITY OF THE PERMIT ONE DAY FOR EACH DAY THAT THE FEE SUBMITTAL IS LATE.

FAILURE TO SUBMIT THE FEE OR THE COMPLETED FIELD EXAMINATION REPORT WITHIN A YEAR WILL BE CAUSE TO CONSIDER THE PROOF OF BENEFICIAL USE TO BE INCOMPLETE AND TO LAPSE THE PERMIT.

The attached examination fee information sheet and the fee may be submitted to the following Department office:

Eastern Region
Idaho Dept. of Water Resources
150 Shoup Ave., Suite 15
Idaho Falls, Idaho 83401
Phone: 525-7161

Very Truly Yours,


Ronald D. Carlson
Eastern Regional Manager

Enclosures

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DEC 04 1997



STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
EASTERN REGION

John V. Evans
Governor

A. Kenneth Dunn
Director

150 Shoup
Idaho Falls, Idaho 83401
(208) 525-7161

March 23, 1963

City of Idaho Falls
c/o G.S. Harrison
P.O. Box 220
Idaho Falls, ID 83401

RE: Permits Nos. 01-7014, 01-7023, 01-7024, 01-7025, 01-7013, 01-7015

Dear Sir:

We acknowledge receipt of your statement submitted as proof of beneficial use for the above referenced permit.

Before a license can be issued, a field examination must be made by a representative of this Department.

_____ A field examination of your system has been scheduled for _____.

If this time and date is not convenient for you, please contact this office as soon as possible.

 X A field examiner will contact you to arrange to examine your system.

If you have any questions regarding the field examination, please contact this office.

Sincerely,

KEITH C. WILSON
Sr. Resource Agent

KCW:cw

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DEC 04 1997

DEPARTMENT OF WATER RESOURCES

The Idaho Department of Water Resources will consider this card as a statement that the permit holder(s) has completed development to the extent shown below of Permit No. 01-7023.

Name(s) of Permit Holder: CITY OF IDAHO FALLS c/o G.S. HARRISON

Post Office Address: P.O. Box 220, IDAHO FALLS, ID.

83402 - 0220

Tel. No. 529-1430

Source of Water: _____

Extent of Use:

- ☐ Domestic _____ (number of households)
☐ Stockwater _____ (number and type of stock)
☐ Irrigation _____ (acres)
☒ Other POWER PRODUCTION

Measuring Device: Required? ☒ Yes ☐ No Installed? ☒ Yes ☐ No

Access Port: Required? ☐ Yes ☐ No Installed? ☐ Yes ☐ No

The above information is a true statement of the extent to which the above numbered permit has been developed.

2/16/83

Date

Thomas Campbell Mayer
Signature of Permit Holder

APPROVED



IDAHO DEPARTMENT OF WATER RESOURCES
STATEHOUSE
BOISE, IDAHO 83720

PLACE
13 CENT
STAMP
HERE

FEB 18 1983

DEPARTMENT OF WATER RESOURCES

RECEIVED



ELECTRIC DIVISION

CITY OF IDAHO FALLS

P.O. BOX 220
IDAHO FALLS, IDAHO 83402-0220

RECEIVED

MAR 4 1983

DEPARTMENT OF WATER RESOURCES

(208) 529-1430

March 3, 1983

Ms. Rita Fleck
Secretary/Records Manager
Idaho Department of Water Resources
Statehouse
Boise, Idaho 83720

Re: City of Idaho Falls, Hydroelectric Project.

Dear Ms. Fleck:

Enclosed are the statement of Beneficial use postcards signed
by the Mayor of Idaho Falls for the following Permit Nos.

Permit No. 01-7013
Permit No. 01-7014
Permit No. 01-7015
Permit No. 01-7023
Permit No. 01-7024
Permit No. 01-7025

Sincerely,

ELECTRIC LIGHT DIVISION

A handwritten signature in cursive script, appearing to read "G.S. Harrison".

G.S. HARRISON
MANAGER

GSH-83-33/sp

Enclosures as stated

RECEIVED



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

February 28, 1983

City of Idaho Falls
P. O. Box 220
Idaho Falls, ID 83402-0220

Attention: G. S. Harrison or Larry E. Felton

Gentlemen:

Re: Permit Nos. 01-7013, 01-7014, 01-7015, 01-7023, 01-7024, and 01-7025

Pursuant to your request to waive the measuring device requirement on the above-referenced permits, enclosed is a copy of the Order changing the condition.

Also enclosed are the Statement of Beneficial Use postcards received for the above-referenced permit. Please have an authorized agent for the City of Idaho Falls sign the postcard and indicate his title. Return the postcards to the Department before April 1, 1983 to keep the permits in good standing.

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

Sincerely,

RITA I. FLECK
Secretary/Records Manager

Enclosures

RECEIVED
FEB 29 1983
IDaho Falls

FROM Keith Wilson

DATE 14 Feb 83

TO Jim Johnson

SUBJECT Idaho Falls Power Permits

Permits 01-7013 / 7014 / 7015 / 7023 / 7024 / 7025

Enclosed is the index test procedure and an example of the test conducted for their (Idaho Falls) power permits they wish to have the measuring device requirement removed from the permits in ^{lieu} of the index test which will give "power vs flow" curves. Hopefully this will assist the department make their decision.

P.S. Also reference Corps of Engr. 1 May 63 pub. "Turbine Testing by Gibson + Index ^{SIGNATURE} Methods"

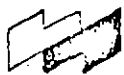
5.5.1 Evaluation of the Results

EXAMPLE

Fix Data	Prototype - Throat Diameter	DA	m	6.3
	Model - Throat Diameter	DM	m	0.34
	Inlet Measuring Section - Area	Fe	mm ²	656894.00
	Outlet Measuring Section - Area	Fa	mm ²	306296.00
	Length of the Lever	L	mm	1145.92
Measuring Data	Barometric Head	Bo	mWC	9.95928
	Prototype Net Head	Ha	mWC	8.1000
	Measuring Point Number			1.000
	Wicket Gate Opening	a _o	mm	54.000
	Water Temperature	tw	°C	19.100
	Manometric Head on the Model	Hmano	mWC	8.190
	Weight = Force on the Lever	G	kp	24.168
	Speed	nM	rpm	1530.800
	Pressure difference on the Venturitube	hQ	mmHg	334.200
Results	Suction Head	Hs	mWC	- 9.250
	Jäger-Number = $\frac{1}{\sqrt{g}} \cdot (h_2 / \gamma H_2 O)^{0.5}$	Jä		17.83370
	Calibration Factor of the Venturitube	C		33.98000
	Model - Discharge	QM	lit/s	621.69293
	Model Net Head	Heff	mWC	8.03331
	Model Speed referred to the Prototype	n	rpm	1536.80537
	Discharge on the Prototype	QA	m ³ /s	214.26238
	Referred Discharge for DA = 1m and HA = 1m	Q11	m ³ /s	1.89680
	Prototype Output	PA	kW	15638.07773
	Referred Output for DA = 1m and HA = 1m	P11	kW	17.09129
	Model Efficiency	η	(%)	91.88228
	Cavitation Number	σ	-	2.36722

Example for Measuring Point Number 1: Record Sheet PM 2 - 01

Info for the Model



5.5.2 Sample Computation of a Measuring Point

Efficiency, model -, prototype - and unit values are computed by means of the following formulas:

(measuring point No. 1 - sheet PM2-01)

Model discharge: Q_M

water temperature $t_w = 19^\circ \rightarrow \nu = 1.02591 \cdot 10^{-6} \text{ m}^2/\text{s}$
 $\gamma_{H_2O} = 0.9984 \text{ kp/lit}$

$$J_d = \frac{1}{\nu} \cdot (h_Q / \gamma_{H_2O})^{0.5} = \frac{1}{1.02591} \cdot \sqrt{\frac{334.2}{0.9984}} = 17.93$$

$C = 33.98$ (see diagr. D - 1.000 - 105.3 in the ASTRO Test Report)

$$Q_M = C \cdot (h_Q / \gamma_{H_2O})^{0.5} = 33.98 \cdot \sqrt{\frac{334.2}{0.9984}} = 621.69 \text{ lit/s}$$

Effective model head: H_{eff}

$$H_{dyn} = \left(\frac{Q_M}{1000} \right)^2 \cdot \frac{1}{2g} \cdot \left(\frac{1}{F_e^2} - \frac{1}{F_d^2} \right) = \left(\frac{621.69}{1000} \right)^2 \cdot \frac{1}{19.62} \cdot \left(\frac{1}{0.306296^2} - \frac{1}{0.656894^2} \right)$$

$$H_{dyn} = 0.1643 \text{ m} \quad H_{STAT} = H_{MANO} \cdot \frac{1000}{\gamma_{H_2O}}$$

$$H_{eff} = H_{STAT} + H_{dyn} = \frac{8.19 \cdot 1000}{998.4} + 0.1643 = 8.039 \text{ m}$$

Model speed referred to the prototype: n

$$n = n_M (H_A / H_M)^{0.5} = 1580.8 \cdot (8.1 / 8.0388)^{0.5} = 1586.8$$

Prototype - and unit discharge: Q_A, Q_{11}

$$Q_A = Q_M \cdot \left(\frac{D_A}{D_M} \right)^2 \cdot \sqrt{\frac{H_A}{H_M}} = 0.6217 \cdot \left(\frac{6.3}{0.34} \right)^2 \cdot \sqrt{\frac{8.1}{8.0388}} = 214.26 \text{ m}^3/\text{s}$$

$$Q_{11} = \frac{Q_A}{D_A^2 \sqrt{H_A}} = \frac{214.26}{6.3^2 \cdot \sqrt{8.1}} = 1.8968$$

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MaschinenbauEfficiency: η

$$\eta = 100 \cdot \frac{G \cdot L \cdot \pi \cdot \rho_M}{30 \cdot Q_M \cdot H_{eff} \cdot \gamma} = 12 \cdot \frac{24.168 \cdot 1580.8}{0.6217 \cdot 8.039 \cdot 998.4} = \underline{91.98\%}$$

Model -, prototype - and unit output: P_M , P_A , P_{11}

$$P_M = Q_M \cdot H_{eff} \cdot \gamma \cdot \eta \cdot 9.80665 \cdot 10^{-3} = \underline{44.959697 \text{ kW}}$$

$$P_A = P_M \cdot \frac{\gamma_A}{\gamma_M} \cdot \left(\frac{D_A}{D_M} \right)^2 \cdot \left(\frac{H_A}{H_M} \right)^{\frac{3}{2}} = 44.959697 \cdot \frac{1000}{998.4} \cdot \left(\frac{5.3}{0.34} \right)^2 \cdot \left(\frac{8.1}{8.039} \right)^{\frac{3}{2}} = \underline{15638 \text{ kW}}$$

$$P_{11} = \frac{P_A}{D^2 \cdot H^{1.5}} = \frac{15638}{6.3^2 \cdot 8.1^{1.5}} = \underline{17.09 \text{ kW}}$$

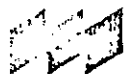
Cavitation number: σ

$$\sigma = \frac{1}{H_{eff}} (B_0 - p_d - H_s) = \frac{9.959 - 0.18 + 9.25}{8.039} = \underline{2.367}$$

Nomenclature not included in the evaluation of results:

γ (kp/lit) specific weight of water
 ν (m²/s) kinematic viscosity of water
 H_{STAT} (m WC) static test head
 p_d (m WC) vapour pressure of water

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11.2 Prototype Hill Diagram

11.2.1 Sample Computation for Efficiency Step-Up

According to the specification for efficiency step-up the HUTTON-formula was used for each point:

$$\frac{1 - E_P}{1 - E_M} = 0.3 + 0.7 \cdot \left(\frac{D_M}{D_P}\right)^{0.2} \cdot \left(\frac{H_M}{H_P}\right)^{0.1}$$

$$H_M/H_P = 1.38$$

E efficiency (-)

D runner diameter (m)

Subscripts: M model

P prototype

$$1 - E_P = (1 - E_M) \cdot \left(0.3 + 0.7 \cdot \left(\frac{D_M}{D_P}\right)^{0.2} \cdot \left(\frac{H_M}{H_P}\right)^{0.1}\right)$$

$$E_P = 1 - (1 - E_M) \cdot \left(0.3 + 0.7 \cdot \left(D_M/D_P\right)^{0.2} \cdot \left(H_M/H_P\right)^{0.1}\right)$$

Sample computation for operating point at full gate opening:

$$H = 18 \text{ ft}$$

$$D_P = 485 \text{ m} = 15.91 \text{ ft}$$

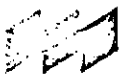
$$P = 8300 \text{ kW}$$

$$n_P = 9473 \text{ rpm}$$

$$Q_P = 5977 \text{ cfs}$$

$$Q_{11} = 0.5521 \frac{5977}{15.91^2 \cdot \sqrt{18}} = 3.07$$

$$n_{11} = 0.5521 \frac{94.73 \cdot 15.91}{\sqrt{18}} = 196.13$$



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Maschinenbau

IDAHO FALLS HYDROELECTRIC PROJECT

S.O. 5644/10714

TLM 2
Page 27

From model hill diagram MB 9-908.4514:

$$E_M = 88.0 \%$$

$$D_P = 4.85 \text{ m}$$

$$D_M = 0.34 \text{ m}$$

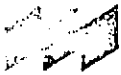
$$E_P = 1 - (1 - 0.88) \cdot (0.3 + 0.7 \cdot \left(\frac{0.34}{4.85}\right)^{0.2} \cdot 1.38^{0.1})$$

$$E_P = 91.30 \%$$

=====

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MB 8-158.0062



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Maschinenbau

IDAHO FALLS HYDROELECTRIC PROJECT

S.O. 5644/10714

TLM 2

Page 28

11.2.2 Prototype Hill Diagram

Scaling up the model hill diagram with the aforementioned HUTTON formula point by point the guaranteed prototype hill diagram for IDAHO FALLS Hydroelectric Project was plotted (MB 9-908.4575).

HYDRO
ELECTRIC
PROJECT

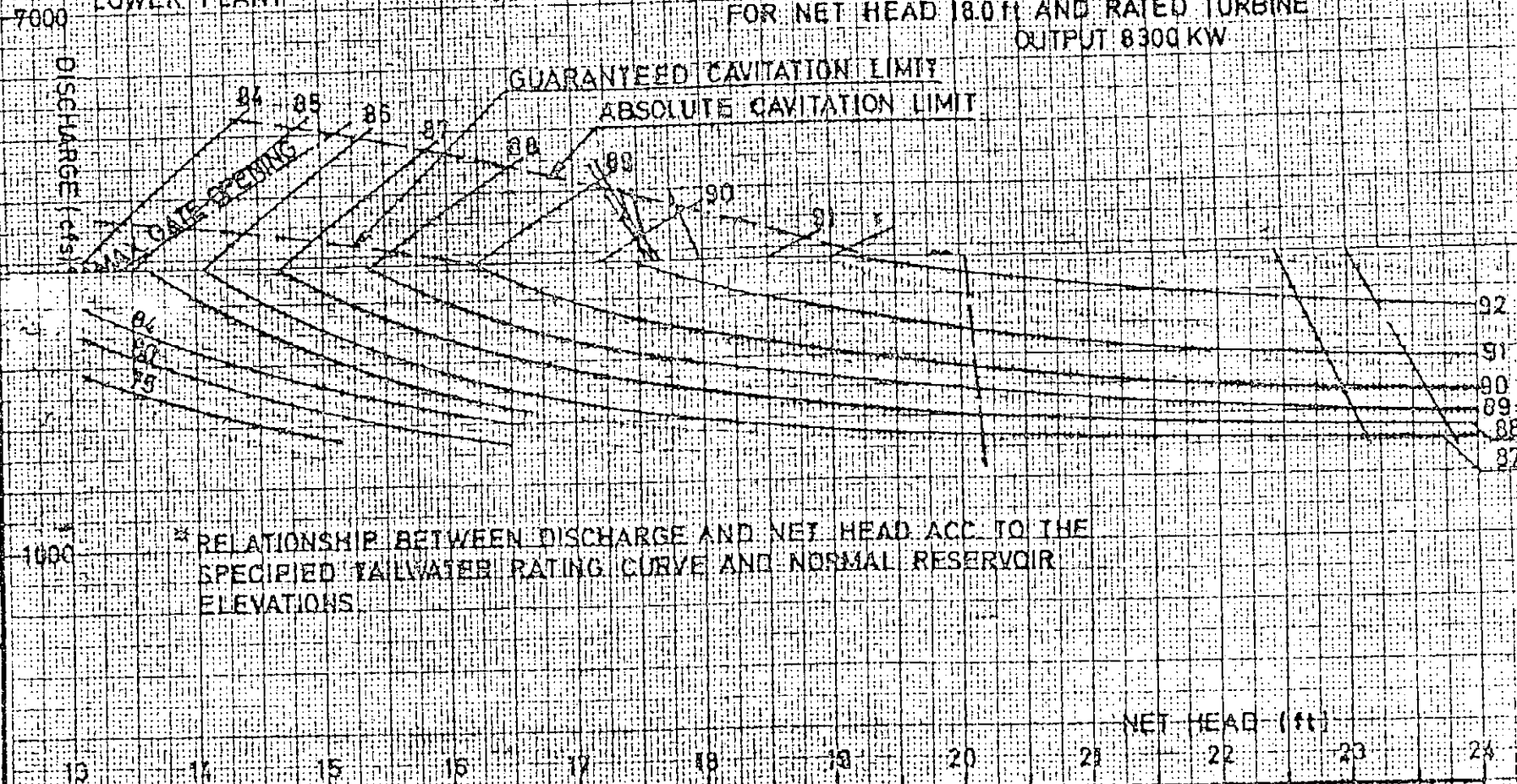
TOLERANCE OF MEASUREMENT (EC)

RUNNER DIAMETER (4.85 m) 190 1/16 inch
 SYNCHRONOUS SPEED 94.73 rpm
 CENTERLINE RUNNER
 UPPER PLANT 4895.3 ft
 CITY PLANT 4657.2 ft
 LOWER PLANT 4636.7 ft

THE CAVITATION LIMITS ARE BASED ON THE
 FOLLOWING NORMAL RESERVOIR ELEVATIONS:

UPPER PLANT CITY PLANT LOWER PLANT
 4784.0 ft 4694.25 ft 4674.0 ft

FULL GATE OPENING = NOMINAL OPENING
 FOR NET HEAD 18.0 ft AND RATED TURBINE
 OUTPUT 8300 KW



* RELATIONSHIP BETWEEN DISCHARGE AND NET HEAD ACC. TO THE
 SPECIFIED TAILWATER RATING CURVE AND NORMAL RESERVOIR
 ELEVATIONS.

A P P E N D I X

13. Cavitation Observation for Idaho Falls HEP

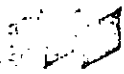
The layout of the bulb turbine for Idaho Falls HEP is based on the cavitation tests carried out with the model for MELK power station.

On the sheets MB 9-908.4576/1+3 prototype efficiency η_p and prototype discharge Q_p versus cavitation number σ and cavitation pictures for σ referred to the shaft centerline and σ referred to the upper blade tip are plotted for three points near to the guaranteed cavitation limit.

These three points are:

H (ft.)	Q (cfs.)
22	5525
17.9	6090
14	6345

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Friedrich-Lenz

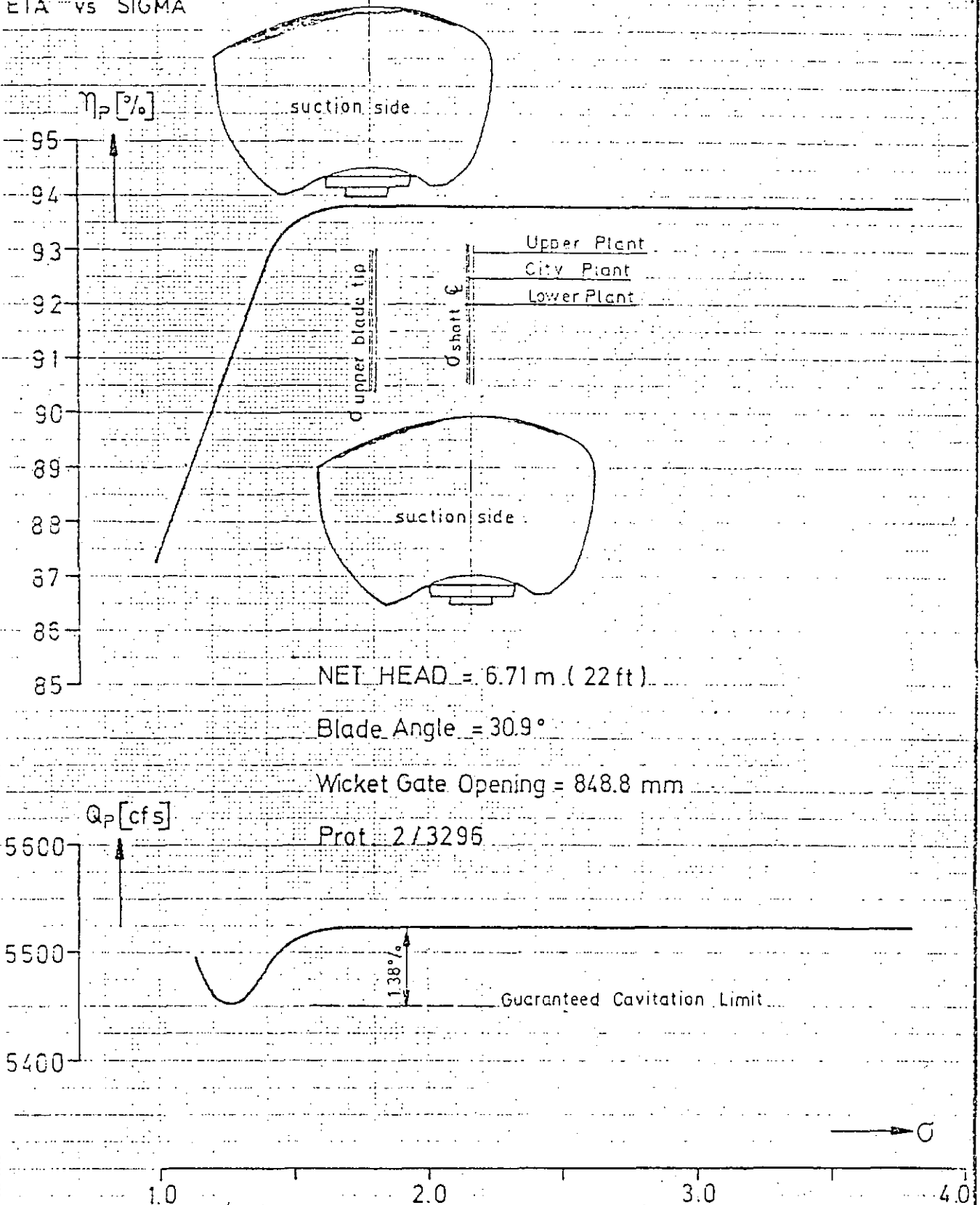
IDAHO FALLS HYDROELECTRIC PROJECT

S.O. 5644 / 10714

TLM 2

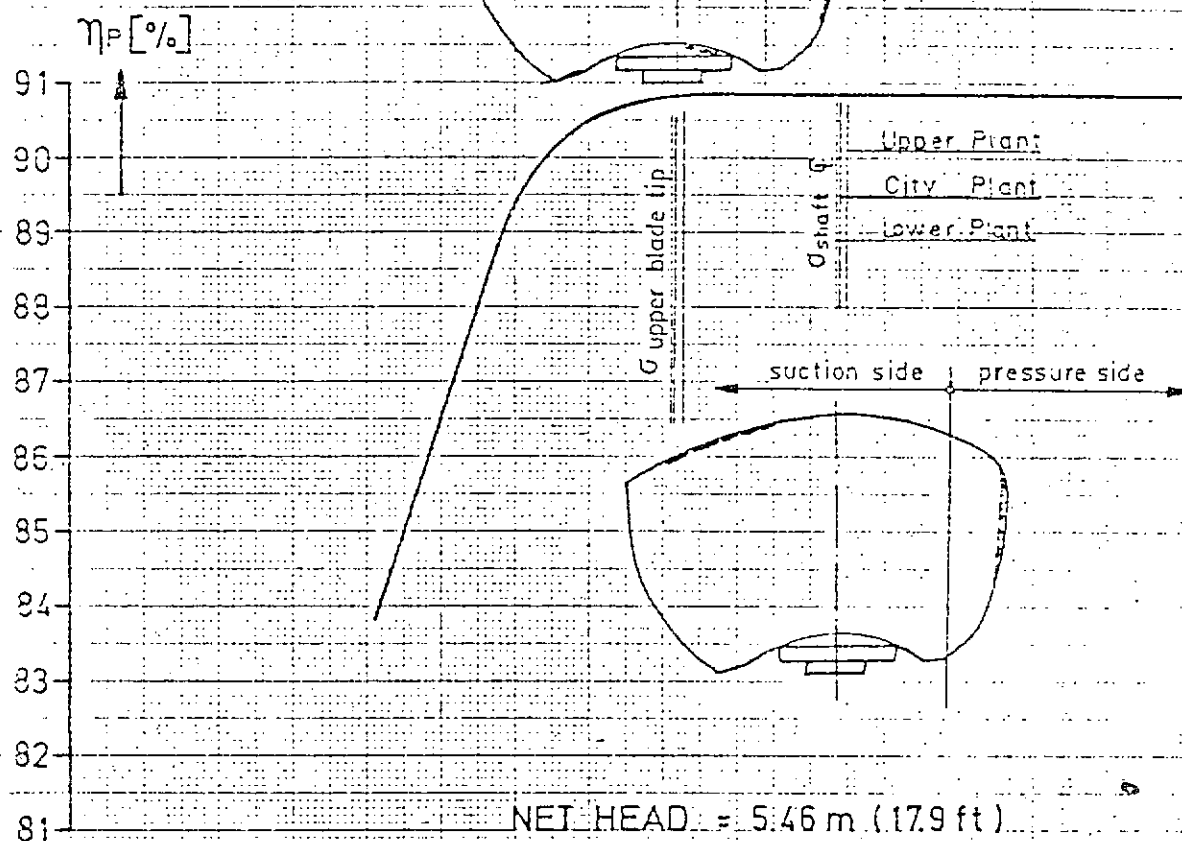
MODEL 344 - 4

ETA vs SIGMA



MODEL 344-4

ETA VS. SIGMA

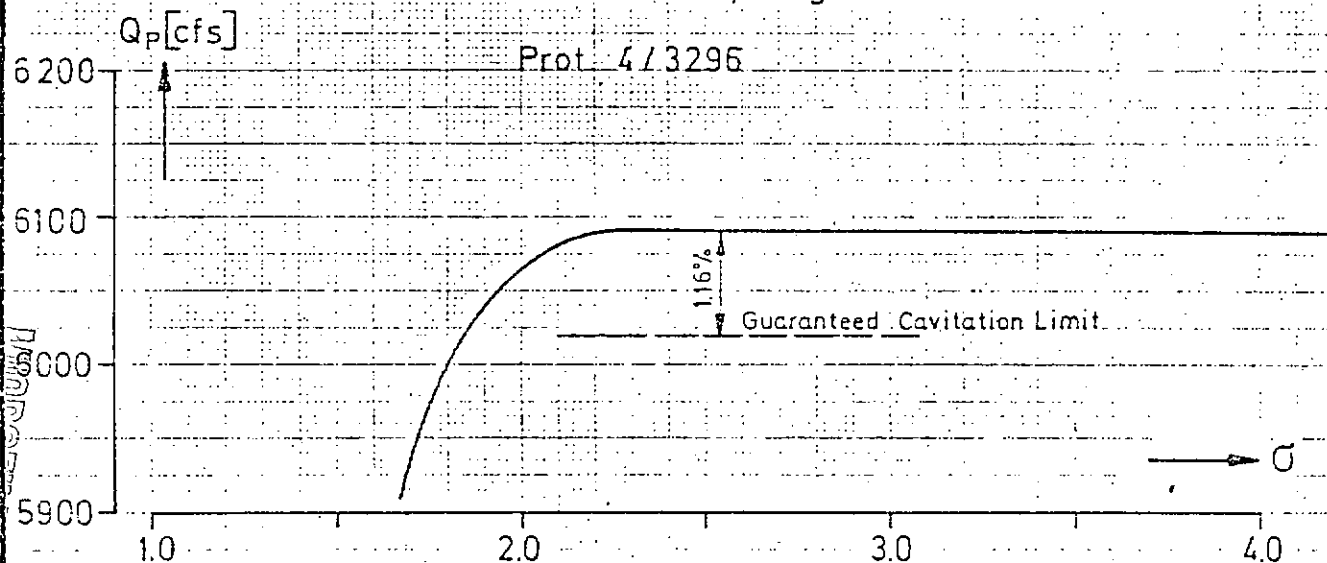


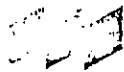
NET HEAD = 5.46 m (17.9 ft)

Blade Angle = 33.25 °

Wicket Gate Opening = 884.4 mm

Prot. 4 / 3296





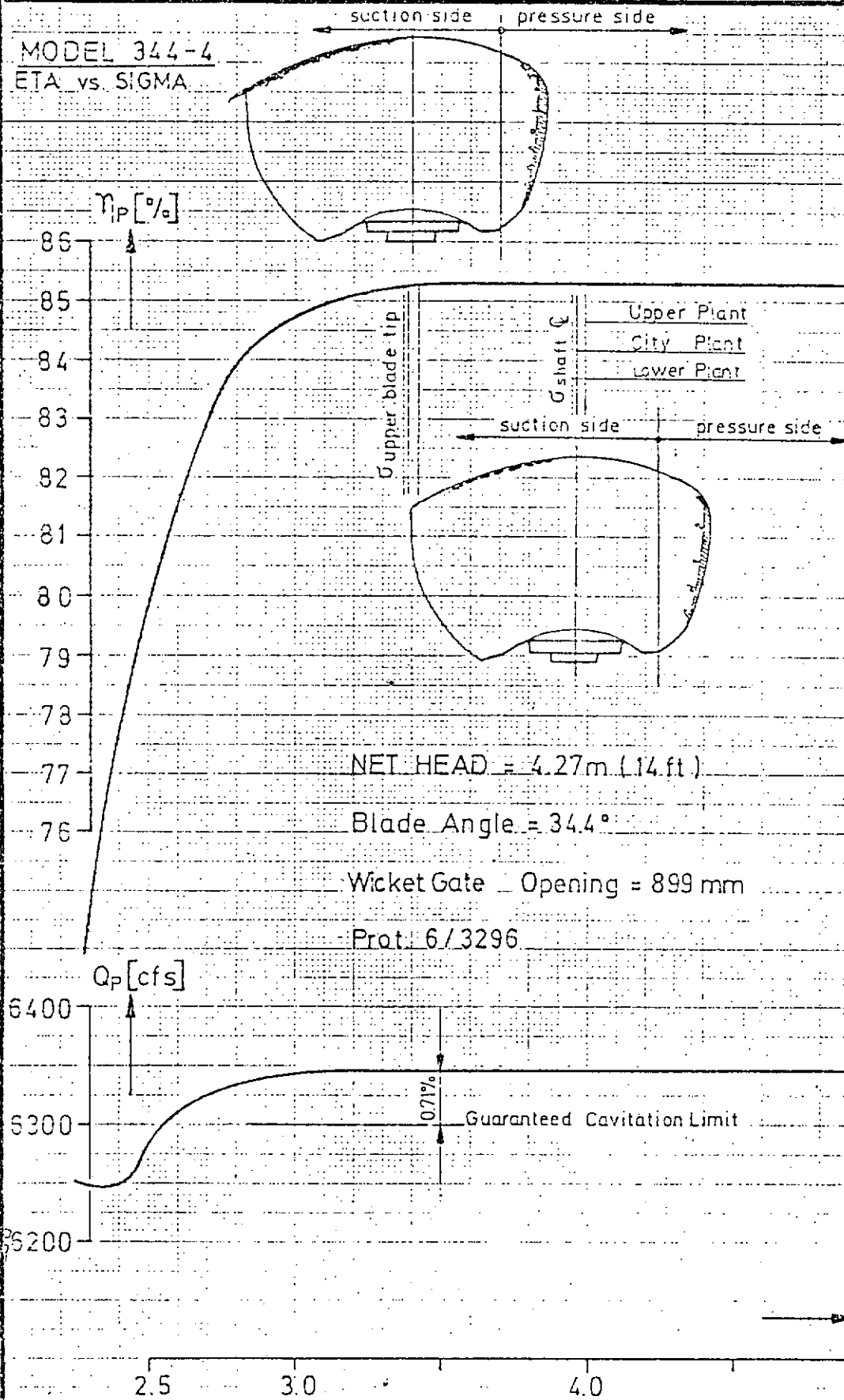
VCEST-ALPINE AG
Finalbereich Linz

IDAHO FALLS HYDROELECTRIC PROJECT

S.O. 5644/10714

TLM 2

MODEL 344-4
ETA vs. SIGMA



A. H. ...
International Engineering Co., Inc.
Att.: Mr. Pablo Chavez

180 Howard Street
SAN FRANCISCO, CA 94105/USA

TLM1/Scha/sa/2409.

August 20, 82

Idaho Falls
S.O. 5644/10714

Your telexes xnh204 dated August 6th, 1982 and xnh210 dated August 11th, 1982.

Enclosed please find the requested index test procedure MB9-350.0070E for your information.

The governor is designed regarding isolated load operation as stipulated in Specification Section 15981, 1-3 with the speed no load parameter settings. The dampening selection for speed no load respectively isolated load operation will be optimized between both operating modes.

However, if selection of individual dampening for isolated load operation is requested, five different dampening settings can be chosen by remote selector switch. This can be installed and we have to charge you with arising cost.

Index tests will be performed as required on all three units.

Very truly yours,

VOEST-ALPINE AG

[Signature]
F.V.

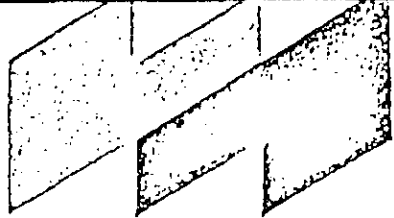
[Signature]
I.A.

Enzenhofer

Haslinger

RECEIVED
Encls: 2
as cited above

8009-210
DATE



VOEST-ALPINE

FINISHED PRODUCTS DIVISION LINZ
HYDRO TURBINES

INDEX TEST PROCEDURE
FOR KAPLAN BULB TURBINE

FOR
IDAHO FALLS

Prepared by: Ing. Schatz Johannes
Linz, August 1982

MB9-350.0070 E

Page 1 - 8

VOEST-ALPINE AG, Postfach 2, A-4010 Linz, Austria

GENERAL

The tests will be carried out in accordance with IEC-Code Publication 41.

1. Observation Stations and Test Equipment

1.1 Static Pressure Head Turbine Inlet H stat 1:

✓ The H stat 1 is measured at the turbine inlet section after the trash rack in the chamber of the stop logs.

1.2 Static Pressure Head Turbine Outlet H stat 2:

The H stat 2 is measured at the turbine outlet section in the chamber of the tailwater stop logs. *NO*

1.3 Headwater Level:

✓ The free water level is measured after the trash rack using a plate gauge.

1.4 Tailwater Level:

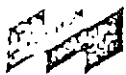
✓ The free water level is measured using a plate gauge.

1.5 Turbine Output Pt:

✓ The measurement of the turbine output Pt is done indirectly by determining the generator output Pg using an accurate wattmeter and taking into consideration the guaranteed generator efficiency. *OK*

1.6 Servomotor Stroke Wicket Gate SM :

The servomotor stroke SM is measured directly on the piston rod of the servomotor using a measuring tape.



1.7 Runner Blade Angle ϕ :

The runner blade angle is read directly on the runner blade position indicator mounted on the oil head.

1.8 Turbine Discharge Q_t :

The measurement of Q_t is done indirectly by determining the differential pressure D with a differential pressure transmitter.

The differential pressure is picked-up between the taps fixed on the bulb case and the tap fixed in the generator bulb.

2. Measuring Procedure

Measurement is effected in manual mode.

Five different runner blade positions are set, whereby for each blade position the Kaplan curve is determined with 6 to 8 different wicket gate positions. For each wicket gate position measurements are taken for 10 minutes, whereby readings of the different values are effected at intervals of 30 sec. each.

The respective average value is used for calculating the discharge and efficiency and the result is entered in a diagram.

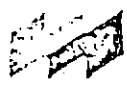
3. Notations

SM	(inch)	Wicket Gate-Servomotor Stroke
ϕ	(degrees)	Runner Blade Position
H ~~stat~~ 1	(ft)	~~Static~~ Pressure Head Turbine Inlet
H ~~stat~~ 2	(ft)	~~Static~~ Pressure Head Turbine Outlet
v1	(ft/s)	Water Discharge Velocity in Turbine Inlet Section
v2	(ft/s)	Water Discharge Velocity in Turbine Outlet Section
hv1	(ft)	Velocity Head in Turbine Inlet Section
hv2	(ft)	Velocity Head in Turbine Outlet Section
HW	(ft)	Headwater Level
TW	(ft)	Tailwater Level
Hn	(ft)	Net Head
E1	(ft)	Total Energy Potential Turbine Inlet
E2	(ft)	Total Energy Potential Turbine Outlet
g	(ft/s ²)	Gravitation Constant
γ	(lb/ft ³)	Specific Weight - Water
D	(ft)	~~Winter-Kennedy~~ Differential Pressure
k	(-)	~~W~~ - Calibrating Factor

CE 1145000000

MICROFILMED

CE 1145000000



n (-) ~~nk~~ - Exponent

Qt (cfs) Turbine Discharge

Pd (kW) Hydraulic Power

Pt (kW) Turbine Output

Pg (kW) Generator Output

eta g (%) Generator Efficiency
(guaranteed)

eta t (%) Turbine Efficiency

Ptr (kW) Reference Turbine Output

Qtr (cfs) Reference Turbine Discharge

Hr (ft) Reference Net Head

(K) HAUSCHKE

HAUSCHKE

10-3507

4. General Computation

4.1 Net Head:

$$H_n = E_1 - E_2 \quad (\text{ft})$$

$$E_1 = H_{\text{stat } 1} + h_{v1} \quad (\text{ft})$$

$$E_2 = H_{\text{stat } 2} + h_{v2} \quad (\text{ft})$$

$$h_{v1} = \frac{v_1^2}{2g} \quad (\text{ft})$$

$$h_{v2} = \frac{v_2^2}{2g} \quad (\text{ft})$$

$$v_1 = \frac{Q_t}{A_e}$$

$$v_2 = \frac{Q_t}{A_a} \quad (\text{ft/s})$$

4.2 Turbine Discharge:

$$Q_t = k \cdot D^n \quad (\text{cfs})$$

$$n = 0,5$$

$$k = \frac{Q_t}{\sqrt{D}}$$

For determining k the first test run is carried out approx. peak efficiency for the pertaining net head.

Q is calculated with the efficiency taken from the hill diagram acc.:

$$Q = \frac{P_t}{H_n \cdot \eta_t \cdot \gamma \cdot k}$$

use diff. symbol

$$k = \frac{1356}{1000,000}$$

As net head H_n is depending on discharge Q several iteration steps have to be performed using in the first step an estimated discharge close to the expected one.

4.3 Hydraulic Power:

(power *available to* ~~picked up by~~ the turbine)

$$P_d = Q_t \cdot H_n \cdot \gamma \cdot \frac{1356}{1000} \quad (\text{KW})$$

4.4 Turbine Output:

(mechanical power available at the turbine shaft)

$$P_t = \frac{P_g}{\eta_g} \quad (\text{KW})$$

4.5 Turbine Efficiency:

$$\eta_t = \frac{P_t}{P_d} \cdot 100 \quad (\%)$$

4.6 Reference Turbine Output and Reference Turbine Discharge at Constant Net Head:

$$P_{tr} = P_t \cdot \left[\frac{H_r}{H_n} \right]^{3/2} \quad (\text{KW})$$

$$Q_{tr} = Q_t \cdot \left[\frac{H_r}{H_n} \right]^{1/2} \quad (\text{cfs})$$

4.7 Calculation of the Value for Probable Inaccuracy f_z 4.7.1 Discharge

Measurement of Winter-Kennedy differential pressure by means of differential pressure transmitter.

$$f_Q = \pm 1.0 \%$$

4.7.2 Net Head

Measurement of free water level by means of plate gauge.

$$f_h = \pm 0.8 \%$$

4.7.3 Turbine Output

Measurement of generator output by means of watt-hour-meter.

$$f_p = \pm 0.8 \%$$

4.7.4 Efficiency

The probable inaccuracy f_η of the turbine efficiency determination is computed from the estimated individual inaccuracies by

$$f = \pm \sqrt{f_Q^2 + f_H^2 + f_P^2}$$

$$f = \pm \sqrt{1.0^2 + 0.8^2 + 0.8^2} =$$

$$f = \pm 1.51 \%$$

=====



CITY OF IDAHO FALLS

P.O. BOX 220
IDAHO FALLS, IDAHO 83402-0220

ELECTRIC DIVISION

(208) 529-1430

February 16, 1983

RECEIVED

FEB 18 1983

Department of Water Resources

Ms. Rita Fleck
Secretary/Records Manager
Idaho Department of Water Resources
Statehouse
Boise, Idaho 83720

Re: Flow Measuring Device Requirement for City of Idaho Falls
Hydroelectric Project.

Dear Ms. Fleck:

Enclosed as requested are completed "Statement of Beneficial Use" cards you sent the City of Idaho Falls January 31, 1983, regarding Water Permit Numbers 01-7013, 01-7014, 01-7015, 01-7023, 01-7014, and 01-7025. These permits allow the City non-consumptive use of up to 6,000 cfs for power production purposes at the City's three recently completed hydroelectric projects.

One of your Department's conditions of approval is that the City install a permanent flow measuring device at each point of use. Since this is a nonconsumptive use permit, the City of Idaho Falls respectfully requests that the Idaho Department of Water Resources waive this requirement because the City can accurately determine flow from power production records. Each of the three plants has been index tested which is a standard method of determining the efficiency at which they utilize the water. The test results establish a flow versus power curve for each project. The City proposes to use these curves to determine flow on an hour by hour basis in lieu of other types of flow measuring devices. The particulars of index testing and the above request has been discussed with Keith Wilson of the Department of Water Resources, Idaho Falls Office. He should be communicating his opinion of our request for waiver with your office in the near future.

Please inform us of the Department's decision regarding this matter. If we can be of any further assistance, please let us know.

Sincerely,

ELECTRIC LIGHT DIVISION

Larry E. Felton

LARRY E. FELTON
ELECTRICAL ENGINEER

LEF-83-008/sp
00511

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

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

138145

CITY OF IDAHO FALLS
C/O G. S. HARRISON
P. O. BOX 220
IDAHO FALLS, ID 83401

PROOF DUE NOTICE

JANUARY 31, 1983

DEAR PERMIT HOLDER:

ONE OF THE CONDITIONS OF APPROVAL OF YOUR WATER PERMIT NO. 01-7023 WAS THAT PROOF OF THE EXTENT OF YOUR BENEFICIAL USE MUST BE SUBMITTED TO THIS OFFICE ON OR BEFORE APRIL 01, 1983. (SEE LAST PAGE OF YOUR APPROVED PERMIT OR YOUR LAST APPROVED EXTENSION REQUEST). ENCLOSED IS A POSTCARD WHICH 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, MORE THAN ONE EXTENSION OF TIME CAN BE GRANTED. AN EXTENSION OF TIME REQUEST FORM IS ENCLOSED FOR YOUR CONVENIENCE.

EITHER THE BENEFICIAL USE POSTCARD OR A 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



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 20, 1979

Re: Permit No.'s 01-7023, 01-7024, & 01-7025

City of Idaho Falls
c/o G. S. Harrison
P.O. Box 220
Idaho Falls, Idaho 83401

Gentlemen:

Enclosed are copies of your approved Applications for Permit. We direct your attention to the conditions of approval as listed on the fourth pages.

Be sure to note the special conditions requiring you to install and maintain measuring devices at your points 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.
Supervisor, Water Allocations Section

DRT:lr

Enc: 4

MICROFILMED

01-7023

STAFF REVIEW - STATE OFFICE

1. Mayer Name vs. Signature
2. 01 Source
3. ✓ Point of Diversion
4. 1240 Amnt. & Period of Use
5. ✓ Descrip. of Diverting Wrks.
6. 4 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. other Property Owner at Pt. of Div. & Pl. of Use.
10. ✓ Map
11. 1573 Fee & Rec't. No.

Copies Sent To:

 Idaho Health Department
Yes Idaho Fish & Game Dept.
 Bureau of Land Management

 U.S.F.S.
Yes Dept. of Lands
Yes Other BPA, C of E, F.E.C.,
water master of

Dam Safety Information Yes (Goes to Permit Section)

Check:

Critical G.W. Area yes ✓ no

Other rights on same land See application

01-2047 500 cfs
01-2049 1500 cfs
01-4003 500 cfs
sub total 2500
01-7013 2600
sub total 5100
01-7023 1240 cfs
total 6340 cfs

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 2/15/79

Meas. Dev. or Sc. Meas. No
Totalizing meter No
Supplemental No
Right-of-Way Cond. Yes
Watermaster Cond. Yes
Wtr. Dist No. 01

Water Quality #16 No
Water Quality #10
intrastate interstate

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

Condition #20
#21

Jessie

3/6/79

Reviewer
MICROFILMED

Date

March 12, 1979

The Post Register
P. O. Box 1800
Idaho Falls, Idaho 83401

Gentlemen:

Re: 01-7023 - City of Idaho Falls
01-7024 - City of Idaho Falls
01-7025 - City of Idaho Falls
35-7841 - City of Idaho Falls

Please send affidavits of publication and certified bills in connection with the above referenced applications. The legal notices for 01-7023, 01-7024, 01-7025 were to have been published February 22 and March 1, 1979 and the legal notice for 35-7841 was to have been published February 15 and 22, 1979. Your cooperation in this matter is greatly appreciated.

Very truly yours,

DONNA HENRIQUES
Secretary

MICROFILMED

FEDERAL ENERGY REGULATORY COMMISSION
REGIONAL OFFICE
555 BATTERY STREET, ROOM 415
SAN FRANCISCO, CA 94111

March 2, 1979

RECEIVED

MAR 6 1979

Department of Water Resources
Eastern District Office

Mr. Ronald D. Carlson
Supervisor
Eastern Region
State of Idaho
Department of Water Resources
1515 Lincoln Road
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Thank you for requesting our comments with regard to the applications for water rights permits filed by the City of Idaho Falls (Permits Nos. 01-7023, 01-7024, and 01-7025).

The Federal Energy Regulatory Commission issued a license which encompassed these facilities, on February 7, 1979. To effectuate this license, the Licensee must obtain the necessary water rights from the State.

We appreciate your cooperation in bringing these filings to our attention.

Sincerely,



Eugene Neblett
Regional Engineer

MICROFILMED



Department of Energy

Bonneville Power Administration
Idaho Falls District Office
P.O. Box 2558
Idaho Falls, Idaho 83401

RECEIVED

FEB 23 1979

Department of Water Resources
Eastern District Office

In reply refer to: OWI

February 22, 1979

Mr. Ronald D. Carlson
Supervisor, Eastern Region
State of Idaho Department of Water Resources
1515 Lincoln Road
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Subject: City of Idaho Falls, Application No. 01-7023
City of Idaho Falls, Application No. 01-7024
City of Idaho Falls, Application No. 01-7025

We appreciate the opportunity to review and comment on the subject applications, submitted by the City of Idaho Falls, for additional water rights on the Snake River.

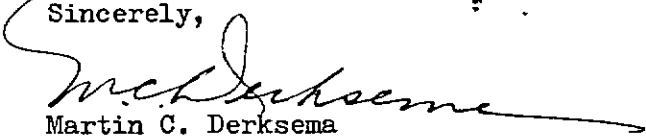
These applications supplement Applications No. 01-7013, 01-7015 and 01-7014, respectively, which were submitted in November 1977. Please refer to our letter of November 23, 1977.

The additional water rights will accommodate installation of somewhat larger bulb turbine generators at the three existing hydro sites being redeveloped. The original feasibility study contemplated 7200 kW of installed generating capacity at each site while updated design calls for 8000 kW units.

We feel that modern, efficient low-head hydro generation is perhaps the most environmentally acceptable method of coping with the critical energy situation facing the Northwest and the Nation as a whole. The City of Idaho Falls' bulb turbine project is attracting nationwide attention to this technology which has not previously been employed in the United States.

As the requested water rights are for a strictly nonconsumptive use of available falling water, we can foresee no objection to these applications.

Sincerely,


Martin C. Derksema
District Manager

MICROFILMED

ppg 6
RECEIVED

FEB 23 1979

Department of Water Resources
Eastern District Office

OWI

November 23, 1977

Mr. Ronald D. Carlson, Supervisor
Eastern Division
State of Idaho Department of Water Resources
1515 Lincoln Road
Idaho Falls, Idaho 83401

Dear Mr. Carlson:

Subject: City of Idaho Falls, Application No. 01-7013
City of Idaho Falls, Application No. 01-7014
City of Idaho Falls, Application No. 01-7015

Thank you for the opportunity to comment on the City of Idaho Falls applications for additional water rights associated with its proposed project to install 7.2 MW bulb turbines at each of its three hydro generation sites on the Snake River in the vicinity of the City of Idaho Falls.

In view of the critical electric energy supply situation facing the Pacific Northwest, the additional electrical generation to be developed by these projects is needed by the City of Idaho Falls as well as the region. It should be noted that Bonneville Power Administration has given notice to all its Preference Customers, including the City of Idaho Falls, that after July 1, 1983, it will no longer be able to serve these utilities' load growth requirements, and thereafter these utilities must be responsible for making other arrangements to meet their increasing loads.

The City of Idaho Falls is to be commended for taking appropriate action to meet its utility responsibility to its citizens. Redevelopment of low head hydro generation at existing sites appears to be one of the most environmentally acceptable methods of developing additional resources.

Additionally, the participation of the Department of Energy in this project will enhance the state of the art for future similar developments elsewhere in the United States.

OWI

November 23, 1977

Page 2

Letter to Mr. Ronald D. Carlson, State of Idaho Department of Water
Resources

Although I understand that there is considerable demand and competition for water rights on the upper Snake River, I would foresee no objection to the City of Idaho Falls application for additional water rights of a non-consumptive nature.

Sincerely yours,

ORIGINAL SIGNED BY
M. C. DERKSEMA

Martin C. Derksema
District Manager



STATE OF IDAHO

DEPARTMENT OF LANDS

STATEHOUSE, BOISE, IDAHO 83720

GORDON C. TROMBLEY
DIRECTOR

STATE BOARD OF LAND COMMISSIONERS

JOHN V. EVANS
GOVERNOR AND PRESIDENT
PETE T. CENARRUSA
SECRETARY OF STATE
DAVID H. LEROY
ATTORNEY GENERAL
JOE R. WILLIAMS
STATE AUDITOR
JERRY L. EVANS
SUPT OF PUBLIC INSTRUCTION

February 27, 1979

Ronald D. Carlson
Dept. of Water Resources
Eastern Region
1515 Lincoln Road
Idaho Falls, ID 83401

RE: City of Idaho Falls
01-7023, 24, 25

Dear Ron:

The City of Idaho Falls has made application for easement at the locations shown on the above numbered applications.

The Department of Lands has no objection to the proposals. Thank you for the opportunity to comment.

Very truly yours,

William A. Scribner

WILLIAM A. SCRIBNER, Chief
Bureau of Navigable Waters

WAS:bv

cc: Eastern Idaho

RECEIVED

FEB 28 1979

Department of Water Resources
Eastern District Office

MICROFILMED

EQUAL OPPORTUNITY EMPLOYER

MAIL CERTIFIED INVOICE TO:

CONTROLLERS OFFICE

P. O. BOX 220

IDAHO FALLS, IDAHO

City of Idaho Falls, Idaho

PURCHASE ORDER

No. 18644

SHIP TO

CITY OF IDAHO FALLS

IDAHO FALLS, IDAHO

VENDOR

Idaho Dept Water Resource
Statehouse
Boise, ID 83720

398404

☒ CONFIRMING ☐ NON CONFIRMING

REQ. NO. 19024 Electric

DATE February 20, 1979

☐ FREIGHT F.O.B. IDAHO FALLS

☐ FREIGHT BILLING MUST
ACCOMPANY INVOICE.

DELIVERY DATE

QUANTITY		DESCRIPTION	ACCOUNT	UNIT PRICE	AMOUNT
RECEIVED	ORDERED				
		Application for Water Rights	005 510 405.42.38		4695.00
		Upper: 1240 CFS	WR2138 DOE		
		City: 1460 CFS			
		Lower: 900 CFS			

Confirming

RECEIVED

FEB 22 1979

Department of Water Resources
Eastern District Office

IDAHO STATE TAX EXEMPTION CERTIFICATE

NO. 0024045S-10-2-1

CITY OF IDAHO FALLS

BY

PURCHASING AGENT

1. MAIL INVOICE AT TIME OF SHIPMENT. INVOICES RECEIVED AFTER 25TH OF MONTH WILL BE INCLUDED IN FOLLOWING MONTHS BUSINESS.
2. MAIL A SEPARATE INVOICE FOR EACH SHIPMENT AGAINST THIS PURCHASE ORDER IF PARTIAL SHIPMENTS ARE MADE.
3. ALL PACKAGES, INVOICES AND BILLS OF LADING MUST SHOW THE ABOVE PURCHASE ORDER NUMBER.
4. PLEASE ACKNOWLEDGE RECEIPT OF THIS PURCHASE ORDER BY RETURN MAIL; AND IF NOT ACCEPTED AS WRITTEN, ADVISE AT ONCE, WITH EXPLANATION; ALSO GIVE SHIPPING DATE.
5. BE SURE TO ENCLOSE DELIVERY OR PACKING LIST WITH EACH SHIPMENT.
6. MAIL BILL OF LADING AT TIME OF SHIPMENT SHOWING THE ABOVE ORDER NUMBER AND COMPLETE ROUTING.

ORIGINAL

MICROFILMED

4-833

CONDITIONS OF PURCHASE UNLESS OTHERWISE SPECIFIED

Goods subject to our inspection and approval on arrival, notwithstanding prior payment to obtain cash discount.

Goods rejected on account of inferior quality or workmanship will be returned to you with charge for transportation both ways, plus labor reloading, trucking, etc., and may not be replaced except upon receipt of written instructions from us.

Seller guarantees and agrees that the goods, wares, and merchandise to be furnished hereunder, will not infringe any patents or trade-marks, and that Seller will at Seller's own expense, defend any and all actions or suits alleging such infringement and will save us, our associates and affiliates, and those for whom we may act as agents in the purchase of said goods, wares and merchandise, harmless in cases of such infringement.

Your acceptance of this order constitutes an agreement on your part, guaranteeing that all materials furnished pursuant to this order will strictly comply in every respect with all Federal laws and all State laws and regulations of all Cities and Counties, and that you will defend this City against all actions and proceedings and will indemnify it against all costs, fines, judgments, damages, and legal expenses incurred by reason of the violation of such laws and ordinances or against any action brought by any person for injury, illness or death caused by or resulting from the equipment or materials being defective in any respect.

All specifications, drawings, technical information or data furnished by the Buyer to the Seller hereunder shall be used only in the manufacture of material furnished to the Buyer.

It is mutually agreed that time shall be of the essence of this order.

The Buyer shall not be bound by any provisions at variance with this Purchase Order inserted by the Seller on the attached Acknowledgment Copy or appearing on any other acknowledgment form, unless agreed to in writing by the Buyer.

Prices for the items hereunder shall include State, Local Sales and Use Taxes, where applicable.

By accepting this order the Seller warrants that the material to be furnished hereunder will be in full conformity with the specifications, drawings or samples, and agrees that this warranty shall survive acceptance of and payment for the material. The Buyer in addition to other rights may accept a part of any shipment which fulfills the specifications and reject the balance. Rejected material shall be returnable to the Seller for full credit at the price stipulated in the order. If this order covers materials that are required by law to be packaged, labeled or registered in a prescribed manner (e.g., foods, combustibles, drugs, fabrics and others), the Seller hereby warrants that shipments to the Buyer will be in compliance with the Federal law irrespective of whether the Seller's shipment to the Buyer is interstate or intrastate and the applicable state law.

The Seller shall not without the Buyer's consent assign this order in whole or in part with respect to work to be done. No assignment of accounts receivable under this order shall preclude the Seller from negotiating directly with the Buyer amendments to or settlements of this order or impose on the Buyer any obligation toward the assignee other than for the payment of money due.

The Buyer may terminate work under this order in whole or in part at any time by written or telegraphic notice and thereupon the Seller shall as and to the extent directed by the Buyer stop work under this order. As compensation to the Seller for such termination, the Buyer shall pay to the Seller the contract price for all articles or services completed in accordance with this order plus (1) the actual costs incurred by the Seller and properly allocable to the terminated portion of this order less the disposal value of work in process and unused materials; if any, included in such costs, and (2) a percentage of such costs (before crediting said disposal value), such percentage to be equal to the profit factor (percentage) included in the contract price.

Seller certifies and warrants that the product furnished under this purchase order contains no food additive, as defined by the food additive amendment to the Federal Food Drug and Cosmetic Act or, if it contains such food additive, that such additive has been approved by the F.D.A. for use in foods. The date of such F.D.A. approval was _____

[Handwritten signature]

WATERMASTER COMMENTS

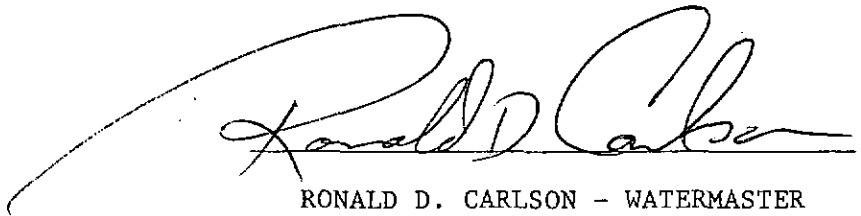
I have reviewed application for permit No. 01-7023 and have

✓ (1) no objections to the approval of this permit.

 (2) the following objections to the approval of this permit:

Feb 23, 1979

DATE


RONALD D. CARLSON - WATERMASTER

WATER DISTRICT # 01

NOT RECORDED

February 20, 1979

Federal Energy Regulatory Commission
Bureau of Power
555 Battery Street, Room 415
San Francisco, California 94111

Gentlemen:

Re: Applications for Permit No's. 01-7023, 01-7024, 01-7025

We are enclosing copies of applications for permit in the name of City of Idaho Falls which may be of interest to your agency. Please review the applications and submit any comments you may have to our Department as soon as possible. The last date of protest for these applications is March 12, 1979, and we are required to take final action shortly thereafter.

If we may be of further assistance, please feel free to contact this office.

Very truly yours,

RONALD D. CARLSON
Supervisor
Eastern Region

RDC:dh

Enclosures

MICROFILMED

February 20, 1979

Department of Lands
Statehouse
Boise, Idaho 83720

Gentlemen:

Re: Applications for Permit No's. 01-7023, 01-7024, 01-7025

We are enclosing copies of applications for permit in the name of City of Idaho Falls which may be of interest to your agency. Please review the applications and submit any comments you may have to our Department as soon as possible. The last date of protest for these applications is March 12, 1979, and we are required to take final action shortly thereafter.

If we may be of further assistance, please feel free to contact this office.

Very truly yours,

RONALD D. CARLSON
Supervisor
Eastern Region

RDC:dh

Enclosures

MICROFILMED

February 20, 1979

District Engineer
Walla Walla Corps of Engineers
Bldg. 602, City-County Airport
Walla, Walla, Washington 99362

Dear Sir:

Re: Applications for Permit No's. 01-7023, 01-7024, 01-7025

We are enclosing copies of applications for permit in the name of City of Idaho Falls which may be of interest to your agency. Please review the applications and submit any comments you may have to our Department as soon as possible. The last date of protest for these applications is March 12, 1979, and we are required to take final action shortly thereafter.

If we may be of further assistance, please feel free to contact this office.

Very truly yours,

RONALD D. CARLSON
Supervisor
Eastern Region

RDC:dh

Enclosures

MICROFILMED

February 20, 1979

Mr. Martin C. Derksema
District Manager
Bonneville Power Administration
Box 2558
Idaho Falls, Idaho 83401

Dear Sir:

Re: Applications for Permit No's. 01-7023, 01-7024, 01-7025

We are enclosing copies of applications for permit in the name of City of Idaho Falls which may be of interest to your agency. Please review the applications and submit any comments you may have to our Department as soon as possible. The last date of protest is March 12, 1979, and we are required to take final action shortly thereafter.

Very truly yours,

RONALD D. CARLSON
Supervisor
Eastern Region

RDC:dh

Enclosures

MICROFILMED

February 20, 1979

Mr. Tom Reincke, Supervisor
Department of Fish and Game
1515 Lincoln Road
Idaho Falls, Idaho 83401

Dear Tom:

Re: Applications for Permit No's. 01-7023, 01-7024, 01-7025

We are enclosing copies of applications for permit in the name of City of Idaho Falls which may be of interest to your agency. Please review the applications and submit any comments you may have to our Department as soon as possible. The last dates of protest for these applications is March 12, 1979, and we are required to take final action shortly thereafter.

Very truly yours,

RONALD D. CARLSON
Supervisor
Eastern Region

RDC:dh

Enclosures

MICROFILMED

STATE OF IDAHO

DEPARTMENT OF WATER RESOURCES
Eastern Region

1515 Lincoln Road
Idaho Falls, ID 83401
(208) 523-7186

FEBRUARY 16, 1979

The Post Register
P. O. Box 1800
Idaho Falls, Idaho 83401

Gentlemen:

Enclosed you will find a legal notice which we wish to have published on the dates indicated (once a week for two consecutive weekly issues) in your newspaper. We have allowed ample time for you to submit a galley proof to this office for review before the first publication date. If you cannot publish the notice on the proposed dates, please contact us immediately.

An affidavit of publication must be submitted to the Department along with the publication bill. Your cooperation is appreciated.

Please send the affidavit of publication and publication billing to this office before MARCH 12, 1979.

Yours truly,

RONALD D. CARLSON
Supervisor

Encl.

MICROFILMED

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:

01-7023-

CITY OF IDAHO FALLS

C/O G. S. HARRISON, P. O. BOX 220, IDAHO FALLS, ID 83401

Source: SNAKE RIVER tributary to COLUMBIA RIVER

Date Filed: 02/15/1979

Amount: 1240.00 CFS

Diversion Point: SESE Sec 25 T 03N R 37E, BONNEVILLE Co.

Use: POWER (1240.00 CFS) from 01/01 to 12/31

Place of Use: NWNE Sec 36 T 03N R 37E

Diversion Means: 20' HIGH, 300' LONG CONCRETE DAM

If issued, the permit(s) will be subject to all prior water rights. Protests against the granting of any permit must be filed with the Director of the Idaho Department of Water Resources, 1515 Lincoln Rd., Idaho Falls, Idaho 83401 on or before MARCH 12, 1979.

C. STEPHEN ALLRED

Director

Published 1/22 & 3/1/79.

MICROFILMED

DEPARTMENT OF WATER RESOURCES
- STAFF ANALYSIS -

Item Initial Date

Application No. City of I.F.

☒ 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

(1) R.P. 2/15/79
(2) R.P. 2/15/79

In form to receipt

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) R.P. 2/15/79

In form for advertising

(5) } }

Platted on Map No. X-93

(6) } }

Located within Water District No. 01

(7) } }

Critical groundwater area: yes ☐ no ☒

(8) } }

Groundwater levels:

☐ Declining, ☒ Stable, ☐ Increasing

(comment) _____

(9) RP 2/15/79

Other rights on the same place of use YES

(10) _____

Comments: NON CONSUMPTIVE USE

(11) DH 3-13-79

Affidavit of Publication received(date) 3-13-79

(12) DH 3-13-79

Final date for protests MARCH 12, 1979

Protests received: yes ☐ no ☒

(13) RDC 3/13/79

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

(14) IL IL

Action recommended:

☒ Approve ☐ Deny

2/15/79 Proposed Priority

Reason for Reduction _____

Measuring device required

See attached sheet for other conditions of approval

No special conditions for approval

Department of Water Resources

(15) District E By RDC Date 3/13/79

See 01-70
For Condition

RECEIVED
MAR 14 1979

MICROFILMED