

State of Idaho
Department of Water Resources
Permit to Appropriate Water

NO. 63-33599

Priority: November 14, 2011

Maximum Diversion Rate: 120.00 CFS

This is to certify, that BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE ID 83705

has applied for a permit to appropriate water from:

Source: BOISE RIVER **Tributary:** SNAKE RIVER

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

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
POWER	03/01 to 11/15	120.00 CFS	

LOCATION OF POINT(S) OF DIVERSION:

BOISE RIVER NW1/4SW1/4 Sec. 3, Twp 02N, Rge 03E, B.M. ADA County

PLACE OF USE: POWER

Twp	Rge	Sec	NE				NW				SW				SE				
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
03N	05W	2			X														

CONDITIONS OF APPROVAL

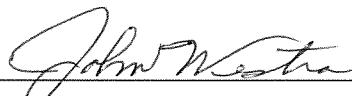
1. Proof of application of water to beneficial use shall be submitted on or before **March 01, 2015**.
2. Subject to all prior water rights.
3. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.
4. This right does not grant any right-of-way or easement across the land of another.
5. The right holder shall install a measuring device that can be used to determine the instantaneous rate of flow of water through the system, or the right holder shall provide to the department a flow rate measurement or computation made by a certified water right examiner in accordance with actual system design and operation.
6. This right does not constitute Idaho Public Utilities Commission or Federal Energy Regulatory Commission approval that may be required.
7. Use of water under this right shall be non-consumptive.

State of Idaho
Department of Water Resources
Permit to Appropriate Water

NO. 63-33599

8. 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.
9. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 63, Boise River.
10. The appropriator shall exercise this right in a manner that recognizes the historic practice that the use of water for power generation is incidental to the rights of others to the use of water for other purposes. The appropriator shall not make a delivery call for hydropower generation except as against junior hydropower rights.
11. The rights for the use of water acquired under this right shall be junior and subordinate to all other rights for the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this right and shall not give rise to any claim against any future rights for the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.
12. The Director retains jurisdiction of this right in order to limit the use of water for hydropower generation purposes to a specific term of years as required by Section 42-203B(7), Idaho Code.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this 2nd day of March, 2012.



JOHN WESTRA, Western Regional Manager



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region, 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Web Site: www.idwr.idaho.gov

March 5, 2012

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE ID 83705

RE: Permit No.63-33599

Permit Approval Notice

Dear Permit Holder:

The Department of Water Resources has issued the enclosed permit authorizing you to establish a new water right. Please be sure to thoroughly review the conditions of approval and remarks listed on your permit.

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

As a permit owner you must commence the excavation or construction of the diverting works within one year of the date the permit was issued, and you must proceed diligently until the project is completed. The date shown under condition no. 1 is the date when the project must be completed.

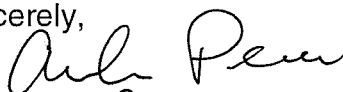
The Department will send you a 'Proof Due Notice' approximately 60 days prior to the above referenced date requesting you to file either a Proof of Beneficial Use form or a Request for Extension of Time form.

Please note that a separate stream channel alteration permit must be obtained from the Department prior to any activity in the stream channel other than construction or maintenance of the diversion structure for your water right(s). Applications for stream channel alteration permits must be filed at least sixty days prior to the commencement of work in the stream.

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

If you have any questions, please contact me at 208-334-2190.

Sincerely,



for

John Westra

Western Regional Manager

Enclosure(s)

cc: BARKER ROSHOLT & SIMPSON LLP

EXPLANATORY INFORMATION TO ACCOMPANY A PRELIMINARY ORDER

(To be used in connection with actions when a hearing was **not** held)

(Required by Rule of Procedure 730.02)

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

PETITION FOR RECONSIDERATION

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

EXCEPTIONS AND BRIEFS

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

REQUEST FOR HEARING

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

ORAL ARGUMENT

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

CERTIFICATE OF SERVICE

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

FINAL ORDER

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

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

Unless a different date is stated in a final order, the order is effective fourteen (14) days after its service date 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.

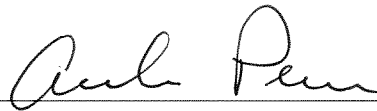
CERTIFICATE OF SERVICE

I hereby certify that on March 5, 2012 I mailed a true and correct copy, postage prepaid, of the foregoing PRELIMINARY ORDER(Approved Permit) to the person(s) listed below:

RE: WATER RIGHT NO. 63-33599

**BARKER ROSHOLT & SIMPSON LLP
ATTN SARAH W HIGER
PO BOX 2139
BOISE ID 83701-2139**

**BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE ID 83705**

A handwritten signature in cursive script, appearing to read "Mandi Pearson", is written over a horizontal line.

**Mandi Pearson
Office Specialist 2**

RECEIVED

FEB 10 2012

29512 608560

1 IDAHO DEPT. OF WATER RESOURCES

WESTERN REGION
2735 AIRPORT WAY
BOISE ID 83705

AFFIDAVIT OF PUBLICATION
STATE OF IDAHO)

WATER RESOURCES
WESTERN REGION

County of Canyon)

SS.

Amanda Weaver
of Nampa, Canyon County, Idaho, being
first duly sworn, deposes and says:

1. That I am a citizen of the United States, and at all times hereinafter mentioned was over the age of eighteen years, and not a party to the above entitled action.
2. That I am the Principle Clerk of the Idaho Press-Tribune, a daily newspaper published in the City of Nampa, in the County of Canyon, State of Idaho; that the said newspaper is in general circulation in the said County of Canyon, and in the vicinity of Nampa and Caldwell, and has been uninterruptedly published in said County during a period of seventy-eight consecutive weeks prior to the first publication of this notice, a copy of which is hereto attached.
3. That the notice, of which the annexed is a printed copy, was published in said newspaper 2 times(s) in the regular and entire issue of said paper, and was printed in the newspaper proper, and not in a supplement.

That said notice was published the following:

02/02/2012 02/09/2012

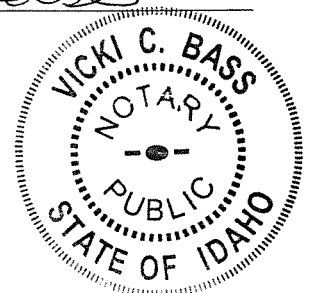
Amanda Weaver
STATE OF IDAHO)

County of Canyon)

On this 9th day of February in the year of 2012 before me a Notary Public, personally appeared. Amanda Weaver, known or identified to me to be the person whose name is subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledge to me that he/she executed the same.

Vicki C Bass

Notary Public for Idaho
Residing at Caldwell
My Commission expires 04/19/2014



The following application(s) have been [redacted] to appropriate the public waters of the State of Idaho.

2-10464

CATHERINE VANDER STELT
STEVEN CLARENCE VANDER STELT
DONALD LEE VANDER STELT

12400 LANDAU WAY

NAMPA, ID 83686

Point of Diversion L5(SENW) S22 T01N R03W CANYON County Source SNAKE RIVER

Tributary COLUMBIA RIVER

Use: IRRIGATION 03/01 to 11/15 2.25 CFS

Total Diversion: 2.25 CFS

Date Filed: 5/6/2011

Place Of Use: IRRIGATION

T01N R03W S10 NE (ALL) SE(ALL)

T01N R03W S15 NE (ALL)

Total Acres: 470

*— priority reviewed,
nonfatal error*

63-33545

DANIEL MC LERAN

EMILY MC LERAN

2850 1ST LN E

PARMA, ID 83660

Point of Diversion L4(SWSWSW) S35 T05N R03W CANYON County Source GROUND

WATER Tributary

Use: IRRIGATION 03/01 to 11/15 0.15 CFS

Total Diversion: 0.15 CFS

Date Filed: 7/18/2011

Place Of Use: IRRIGATION

T05N R03W S35 L4(SWSW)

Total Acres: 5

Water bearing zone to be appropriated is from 150 to 250 feet.

*— OK
JL 2/16/12*

63-33599

BOISE PROJECT BOARD OF CONTROL

2465 OVERLAND RD

BOISE, ID 83705

Point of Diversion NWSW S3 T02N R03E ADA County Source BOISE RIVER Tributary

SNAKE RIVER

Use: POWER 03/15 to 10/31 120 CFS

Total Diversion: 120 CFS

Date Filed: 11/14/2011

Place Of Use: POWER

T03N R05W S2 SWNE

Permits will be subject to all prior water rights. For additional information concerning the proper location, contact Western Region office at (208) 334-2190; or for a full description of the right(s), please see www.idwr.idaho.gov/apps/ExtSearch/WRFiling.asp. Protests may be submitted based on the criteria of Idaho Code § 42-203A. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise 83705 together with a protest fee of \$25.00 for each application on or before February 21, 2012. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

February 2, 9, 2012

608560

abundant

Idaho Statesman

The Newspaper of the Treasure Valley
IDAHOSTATESMAN.COM

PO Box 40, Boise, ID 83707-0040

RECEIVED

FEB 10 2012

WATER RESOURCES
WESTERN REGION

LEGAL PROOF OF PUBLICATION

Account #	Ad Number	Identification	PO	Amount	Cols	Lines
47628	0000585631	LEGAL NOTICE	KirkwoodBank	\$298.20	3	56

Attention: Sherry Borgeman

IDAHO DEPT WATER RESOURCE

2735 AIRPORT WAY

BOISE

ID

83705

LEGAL NOTICE

The following application(s) have been filed to appropriate the public waters of the State of Idaho

✓ 63-33296

KIRKWOOD BANK & TRUST CO

ATTN PETE JAHNER

2911 N 14TH ST, STE 101

PO BOX 6089

BISMARCK, ND 58506

Point of Diversion SWNW S12 T01N R01E ADA County

Source GROUNDWATER Tributary

Point of Diversion SENW S12 T01N R01E ADA County

Source GROUNDWATER Tributary

Point of Diversion NWNW S13 T01N R01E ADA County

Source GROUNDWATER Tributary

Point of Diversion NWNW S13 T01N R01E ADA County

Source GROUNDWATER Tributary

Point of Diversion NESE S13 T01N R01E ADA County

Source GROUNDWATER Tributary

Use: IRRIGATION 03/01 to 11/15

10.46 CFS

Total Diversion 10.46 CFS

Date Filed: 11/6/2009

Place Of Use: IRRIGATION

T01N R01E S11 SWSE SESE

T01N R01E S12 NENW NWNW SWNW SENW NESW NWSW SWSW SESW NWSE SWSE SESE

T01N R01E S13 NENE NWNW SWNE SENE NENW NWNW NESE

T01N R01E S14 NENE NWNW SWNE SENE NESE NWSE

Total Acres: 1022

Water bearing zone to be appropriated is from 350 to 700 number feet.

Applicant proposes irrigation of 523 acres within a 1,022 acre parcel.

This application is associated with Application for Permit No. 63-32680.

63-33599

BOISE PROJECT BOARD OF CONTROL

2465 OVERLAND RD

BOISE, ID 83705

Point of Diversion NWSW S3 T02N R03E ADA County Source BOISE RIVER Tributary SNAKE RIVER

Use: POWER 03/15 to 10/31 120 CFS

Total Diversion: 120 CFS

Date Filed: 11/14/2011

Place Of Use: POWER

T03N R05W S2 SWNE

PROPOSED CHANGE OF WATER RIGHT(S)

Meridian CenterCal LLC of 615 S. Dupont Hwy, Dover DE 19901 filed Application No. 77630 to transfer a water right with a 1987 priority date from ground water totaling 2.0 cfs for 129 acres of supplemental irrigation. The transfer will split the right and change the applicant portion to primary irrigation on fewer acres. The applicant proposes a new well for its 67 acre portion of the right. The new well will be used for landscape irrigation of about 15 acres for a new shopping center on the northeast side of Fairview Avenue and Eagle Road in Meridian. The unchanged 62 acre portion of the right will remain with adjacent land.

Permits will be subject to all prior water rights. For additional information concerning the property location, contact Western Region office at (208) 334-2190, or see www.idwr.idaho.gov/apps/ExtSearch/WRFiling.asp for a full description of the rights &/or proposed transfer. Protests may be submitted based on the criteria of Idaho Code § 42-222 and 42-203A. Any protest against the approval of this application(s) must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise, ID 83705 together with a protest fee of \$25.00 for each application on or before February 21, 2012. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

Pub. FEB. 2, 9, 2012

0000585631-01

JANICE HILDRETH, being duly sworn, deposes and says: That she is the Principal Clerk of The Idaho Statesman, a daily newspaper printed and published at Boise, Ada County, State of Idaho, and having a general circulation therein, and which said newspaper has been continuously and uninterruptedly published in said County during a period of twelve consecutive months prior to the first publication of the notice, a copy of which is attached hereto: that said notice was published in The Idaho Statesman, in conformity with Section 60-108, Idaho Code, as amended, for:

2 Insertions

Beginning issue of: 02/02/2012

Ending issue of: 02/09/2012

Janice Hildreth
(Legals Clerk)

STATE OF IDAHO)

SS

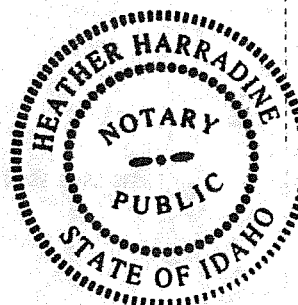
COUNTY OF ADA)

On this 9 day of February in the year of 2012 before me, a Notary Public, personally appeared before me Janice Hildreth known or identified to me to be the person whose name subscribed to the within instrument, and being by first duly sworn, declared that the statements therein are true, and acknowledged to me that she executed the same.

Heather Harradine
Notary Public for Idaho
Residing at: Boise, Idaho

My Commission expires:

2/08/2014





333 Northgate Mile

Idaho Falls, ID 83401

(208) 522-1800

February 09, 2012

DEPARTMENT OF WATER RESOURCES
2735 AIRPORT WAY

BOISE ID 83705

Account #: **00042190**

Legal Notice: APPLICATION#63-33296/#63-33599

Published **2** Days between **02/02/2012** and **02/09/2012**

Please refer to Ad #: **446201**

Total Cost: \$157.47

RECEIVED

FEB 13 2012

WATER RESOURCES
WESTERN REGION

Please include Ad # and Account # with payment.
If you have questions concerning this bill, please contact
Staci Dockery @ extension 1164, or legalnotices@postregister.com

THANK YOU!

**Proof of Publication
The Post Register**

RECEIVED

FEB 13 2012

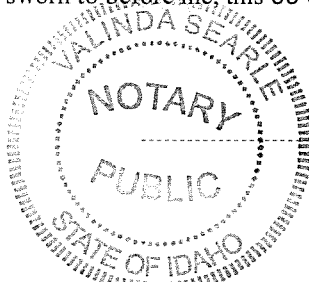
State of Idaho
Bonneville County:

I, ~~Hilary Witt~~ or Staci Dockery, first being duly sworn, depose and say: ~~That I am the~~
~~Classifieds Manager or~~ Legal Notice Representative of the Post Company, a corporation of Idaho
Falls, Bonneville County, Idaho, publishers of The Post Register, a newspaper of general
circulation, published Tuesday through Sunday 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 First day of November 1931, and each of said newspapers have been published
continuously and uninterruptedly, prior to consolidation, for more than twelve consecutive months
and said Post Register having been published continuously and uninterruptedly from the date of
such consolidations 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 under this ad number: **446201**, for **2** consecutive (days) weeks,
between **02/02/2012** and **02/09/2012**,

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 09 day of February 2012



Valinda Searle
Notary Public

My Commission expires: 1/10/2015

11-10-2017

attached jurat

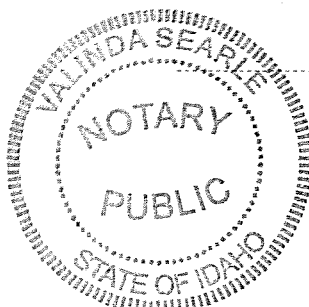
STATE OF IDAHO

ss.

COUNTY OF BONNEVILLE

Subscribed and sworn to before me, this 09 day of February 2012, before me, the undersigned, a Notary public
for said state, personally appeared ~~Hilary Witt~~ or Staci Dockery, known or identified to me to be the person(s)
whose name(s) is/are subscribed to the within instrument, and being by me duly sworn, declared that the
statements therein are true, and acknowledged to me that he/she/they executed the same,

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



Valinda Searle
Notary Public for The Post Company
Residing at: Idaho Falls
My Commission expires: 1/10/2015

11-10-2017

RECEIVED

FEB 13 2012

WATER RESOURCES
WESTERN REGION

The following application(s) have been filed to appropriate the public waters of the State of Idaho:

✓ 63-33296

KIRKWOOD BANK & TRUST CO

ATTN PETE JAHNER

2911 N 14TH ST, STE 101

PO BOX 6089

BISMARCK, ND 58506

Point of Diversion SWNW S12 T01N R01E
ADA County Source GROUNDWATER Tributary

Point of Diversion SENW S12 T01N R01E

ADA County Source GROUNDWATER Tributary

Point of Diversion NWNE S13 T01N R01E

ADA County Source GROUNDWATER Tributary

Point of Diversion NWNW S13 T01N R01E ADA

County Source GROUNDWATER Tributary

Point of Diversion NESE S13 T01N R01E ADA

County Source GROUNDWATER Tributary

Use: IRRIGATION 03/01 to 11/15 10.46 CFS

Total Diversion: 10.46 CFS

Date Filed: 11/6/2009

Place Of Use: IRRIGATION

T01N R01E S11 SWSE SESE

T01N R01E S12 NW (ALL) SW (ALL) NWSE

SWSE SESE

T01N R01E S13 NE (ALL) NENW NWNW

NESE

T01N R01E S14 NE (ALL) NESE NWSE

Total Acres: 1022

Water bearing zone to be appropriated is from
350 to 700 ~~number~~ feet.

Applicant proposes irrigation of 523 acres within
a 1,022 acre parcel.

This application is associated with Application
for Permit No. 63-32680.

✓ 63-33599

BOISE PROJECT BOARD OF CONTROL

2465 OVERLAND RD

BOISE, ID 83705

Point of Diversion NWSW S3 T02N R03E

ADA County Source BOISE RIVER Tributary
SNAKE RIVER

Use: POWER 03/15 to 10/31 120 CFS

Total Diversion: 120 CFS

Date Filed: 11/14/2011

Place Of Use: POWER

T03N R05W S2 SWNE

Permits will be subject to all prior water rights.

For additional information concerning the property
location, contact Western Region office at
(208) 334-2190; or see

www.idwr.idaho.gov/apps/ExtSearch/WRFilinq.asp for a full description of the right(s). Protests

may be submitted based on the criteria of Idaho
Code § 42-203A. Any protest against the approval
of this application must be filed with the Director,
Dept. of Water Resources, Western Region, 2735
Airport Way, Boise ID 83705 together with a
protest fee of \$25.00 for each application on or
before February 21, 2012. The protestant must
also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

Published: February 2 and 9, 2012 (446201)

excess word, ok ✓

OK
-JR 2/28/12

TRIBUNE PUBLISHING COMPANY, INC

The Lewiston Tribune
505 C St., P.O.Box 957
Lewiston, Idaho 83501
(208) 743-9411

Date:	<u>02/09/2012</u>	INVOICE NO.	<u>55246</u>
Account No.	<u>964760</u>		
Description	<u>55246 The follo</u>		
Times	<u>2</u>	Lines	<u>49</u>
		Tab. lines	
		\$	<u>220.50</u>

**LEGAL ADVERTISING
INVOICE**

Sold To: DEPT OF WATER RESOURCES
2735 AIRPORT WAY
BOISE ID 83705

PO#

NOTICE: This is a invoice of Purchase made by you. Statement will be rendered the first of the month
Please Retain This Invoice as Your Statement Will Refer to Invoice by No. Only.

AFFIDAVIT OF PUBLICATION

RECEIVED

FEB 13 2012

WATER RESOURCES
WESTERN REGION

Karen J. Lewis, being duly sworn, deposes and says, I am the Legal Clerk of the Tribune Publishing Company, a corporation organized and existing under and by virtue of the laws of the State of Idaho and under and by virtue of the laws of the State of Washington, publishers of the Lewiston Tribune, a newspaper of general circulation published at Lewiston, Nez Perce County, Idaho; That the said Lewiston Tribune is an established newspaper and has been published regularly and issued regularly at least once a day for more than 105 consecutive years next immediately preceding the first publication of this notice, and has been so published uninterrupted for said period; that the 55246 The follo attached hereto and which is made a part of this affidavit was published in the said Lewiston Tribune, 2 time(s). Publication being on 02/02, or once a Week for 2 consecutive Week, the first publication thereof being on the 02/02/2012, and the last publication thereof being on the 02/09/2012, and said 55246 The follo was so published in the regular and entire issue of said newspaper and was not in a supplement thereof and was so published in every issue and number of the said paper, during the period and times of publication as set forth above.

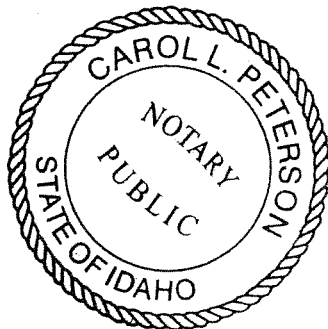
Karen J. Lewis

State of Idaho

S.S.

County of Nez Perce

On this 10th day of February in the year of 2012, before me, a Notary Public, personally appeared Karen J. Lewis, known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledged to me that he executed the same.



Carol L. Peterson
Notary Public in and for the State of Idaho,
residing at Lewiston, therein
Commission Expires 9/1/2017

RECEIVED

2012
FEB 13

WATER RESOURCES
WESTERN REGION

55246
The following application(s) have been filed to appropriate the public waters of the State of Idaho:

✓ 63-33296

KIRKWOOD BANK & TRUST CO

ATTN PETE JAHNER

2911 N 14TH ST, STE 101

PO BOX 6089

BISMARCK, ND 58506

Point of Diversion SWNW S12 T01N R01E ADA County Source GROUNDWATER Tributary

Point of Diversion SENW S12 T01N R01E ADA County Source GROUNDWATER Tributary

Point of Diversion NWNE S13 T01N R01E ADA County Source GROUNDWATER Tributary

Point of Diversion NWNW S13 T01N R01E ADA County Source GROUNDWATER Tributary

Point of Diversion NESE S13 T01N R01E ADA County Source GROUNDWATER Tributary

Use: IRRIGATION 03/01 to 11/15 10.46 CFS

Total Diversion: 10.46 CFS

Date Filed: 11/6/2009

Place Of Use: IRRIGATION

T01N R01E S11 SWSE SESE

T01N R01E S12 NW (ALL) SW (ALL) NWSE SWSE SESE

T01N R01E S13 NE (ALL) NENW NWNW NESE

T01N R01E S14 NE (ALL) NESE NWSE

Total Acres: 1022

Water bearing zone to be appropriated is from 350 to 700 number feet.

Applicant proposes irrigation of 523 acres within a 1,022 acre parcel.

This application is associated with Application for Permit No. 63-32680.

✓ 63-33599

BOISE PROJECT BOARD OF CONTROL

2465 OVERLAND RD

BOISE, ID 83705

Point of Diversion NWSW S3 T02N R03E ADA County

Source BOISE RIVER Tributary SNAKE RIVER.

Use: POWER 03/15 to 10/31 120 CFS

Total Diversion: 120 CFS

Date Filed: 11/14/2011

Place Of Use: POWER

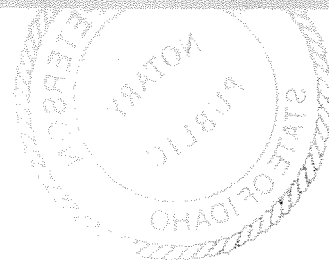
T03N R05W S2 SWNE

Permits will be subject to all prior water rights. For additional information concerning the property location, contact Western Region office at (208) 334-2190; or see www.idwr.idaho.gov/apps/ExtSearch/WRFiling.asp for a full description of the right(s). Protests may be submitted based on the criteria of Idaho Code § 42-203A. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise ID 83705 together with a protest fee of \$25.00 for each application on or before

February 21, 2012. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

Published on 2/2/2012 and 2/9/2012



REC'd 2/13/12 w/ notice
-gr

Affidavit of Publication
STATE OF IDAHO)
COUNTY OF TWIN FALLS) SS.

I, Ruby Aufderheide, being first duly sworn upon oath, depose and say that I am Legal Clerk of the TIMES-NEWS, published daily at, Twin Falls, Idaho, and do solemnly swear that a copy of the notice of advertisement, as per clipping attached, was published in the regular and entire issue of said newspaper, and not in any supplement thereof, for two consecutive weeks, commencing with the issue dated 2nd day of February, 2012 and ending with the issue dated 9th day of February, 2012

And I do further certify that said newspaper is a consolidation, effective February 16, 1942, of the Idaho Evening Times, published theretofore daily except Sunday, and the Twin Falls News, published theretofore daily except Monday, both of which newspapers prior to consolidation had been published under said names in said city and county continuously and uninterruptedly during a period of more than twelve consecutive months, and said TIMES-NEWS, since such consolidation, has been published as a daily newspaper except Saturday, until July 31, 1978, at which time said newspaper began daily publication under said name in said city and county continuously and uninterruptedly.

And I further certify that pursuant to Section 60-108 Idaho Code, Thursday of each week has been designated as the day on which legal notice by law or by order of any court of competent jurisdiction within the state of Idaho to be issued thereof Thursday is announced as the day on which said legal will be published.

Ruby Aufderheide
Ruby Aufderheide, Legal Clerk

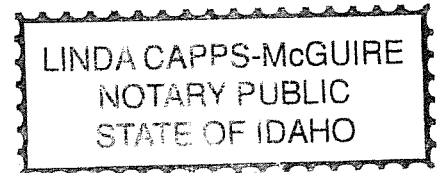
STATE OF IDAHO
COUNTY OF TWIN FALLS

On this 9th day of February, 2012, before me,

a Notary Public, personally appeared Ruby Aufderheide,
known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledged to me that he executed the same.

Linda Capps McGuire
Notary Public for Idaho
Residing at Twin Falls, Idaho.

My commission expires: 5-19-15



The following application(s) have been filed to appropriate the public waters of the State of Idaho:

63-33296

KIRKWOOD BANK & TRUST CO

ATTN PETE JAHNER

2911 N 14TH ST, STE 101

PO BOX 6089

BISMARCK, ND 58506

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Source GROUNDWATER Tributary

Point of Diversion NWNW S13 T01N R01E ADA County

Source GROUNDWATER Tributary

Point of Diversion NESE S13 T01N R01E ADA County

Source GROUNDWATER Tributary

Use: IRRIGATION 03/01 to 11/15 10.46 CFS

Total Diversion: 10.46 CFS

Date Filed: 11/6/2009

Place Of Use: IRRIGATION

T01N R01E S11 SWSE SESE

T01N R01E S12 NW (ALL) SW (ALL) NWSE SWSE SESE

T01N R01E S13 NE (ALL) NENW NWNW NESE

T01N R01E S14 NE (ALL) NESE NWSE

Total Acres: 1022

Water bearing zone to be appropriated is from 350 to 700 number feet.

Applicant proposes irrigation of 523 acres within a 1,022 acre parcel.

This application is associated with Application for Permit No. 63-32680

63-33599

BOISE PROJECT BOARD OF CONTROL

2465 OVERLAND RD

BOISE, ID 83705

Point of Diversion NWSW S3 T02N R03E ADA County

Source BOISE RIVER Tributary SNAKE RIVER

Use: POWER 03/15 to 10/31 120 CFS

Total Diversion: 120 CFS

Date Filed: 11/14/2011

Place Of Use: POWER

T03N R05W S2 SWNE

Permits will be subject to all prior water rights. For additional information concerning the property location, contact Western Region office at (208) 334-2190; or see www.idwr.idaho.gov/apps/ExtSearch/WRFiling.asp for a full description of the right(s). Protests may be submitted based on the criteria of Idaho Code 42-203A. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Western Region, 2735 Airport Way, Boise ID 83705 together with a protest fee of \$25.00 for each application on or before

February 21, 2012. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

PUBLISH: 2/2/2012 and 2/9/2012

OK
- JZ 2/16/12

RECEIVED

JAN 26 2012

WATER RESOURCES
WESTERN REGION

State of Idaho
Department of Water Resources
Application for Permit
RECOMMENDATION FORM

Application No.: 63-33599

Applicant's Name: BOISE PROJECT BOARD OF CONTROL
2465 OVERLAND RD
BOISE, ID 83705

Watermaster's Recommendation:

- a) xxx I do not oppose approval of this application.
- b) I do not oppose approval of this application if it is conditioned as follows:
- c) I oppose approval of this application for the following reasons:
- d) Additional comments:

Dated this 26 day of January, 2012

Water District No. 63

Rex R. Barrie

Watermaster's Signature

Printed Name

MEMORANDUM

TO: Application for Hydropower Permit No. 63-33599 File

FROM: Vicky Music

DATE: January 24, 2012

RE: Evaluation of Sufficiency of Information Submitted

The purpose of this memo is to evaluate the sufficiency of information submitted by applicant Boise Project Board of Control (BPBC) for a hydropower permit. The application is for 120 cfs of water for power from a power plant to be constructed on the "Fargo Drop" area of the applicant's canal system and diverted from the Boise River at what is commonly known as the "Diversion Dam". The hydropower plant on the Fargo Drop will be located approximately 6 miles southeast of downtown Boise.

The 120 cfs of water proposed for this nonconsumptive power use is used for water rights associated with the five irrigation districts that comprise the BPBC. The power will be sold to Idaho Power and the revenue distributed among the five operating partners.

Contact person for the applicant is attorney, Sarah Higer, of the firm Barker Rosholt & Simpson LLP.

IDWR Standards for the Evaluation of a Power Permit

The Administrator's Memorandum, Application Processing Memo # 24, Re "Approval of Permits for Power Purposes" (June 19, 1986), provides guidance for processing this application and is attached to this memo. Specifically, the memo guides the department regarding requirements of the Idaho Public Utilities Commission (PUC) and the Federal Energy Regulatory Commission (FERC); IDWR regional processing of a power application; and, calculation of a reasonable diversion rate. Regional processing includes a review of IDWR Administrative Rule 40 additional information for large diversions, if applicable, as it is in this instance. This review memo will narrowly address the application submitted by BPBC in light of these criteria.

Summary of Information Submitted

The application proposed to divert water from the New York canal to the power plan via a buried pipe. Though the application states that the use is nonconsumptive, it did not describe how the water would be returned to the New York Canal or Boise River. A letter request for this explanation was sent to attorney, Sara Higher on January 6, 2012. A detailed response was received from the attorney that will allow processing of this application to continue.

The following documents were attachments to the application:

- A power affidavit signed by Paul Deveau, manager of the BPBC;
- 5th Addendum to Agreement for Development Projects Lease & Assignment of Assets [signed by all of the irrigation entities];

- Project timeline
- Letters from IDFG and the USDOA;
- FERC notice application for exemption and order granting exemption for #5042; and,
- FERC Form 556 QF certification;

Power Affidavit

Memo # 24 (2),(A) (1) Regional Office Processing describes documentation required for all power applications and (a) states a Form 205/206, the affidavit establishing residency and ownership of facilities, is mandatory. The applicant did not submit the form but an affidavit from Paul J. Deveau, that provides the information required in the Form 205/206. The applicant does not need to provide additional information in this regard.

PUC and/or FERC regulation

Memo # 24 (2),(A) (1) (b) and (c) states that all power applications must state whether the project will be regulated by the PUC and/ or FERC, and if the project is to be regulated by either entity, the approvals or alternatives must be a part of the application. It is the applicant's responsibility to ensure the documentation is provided as part of the application package. The application did include exemption documents that meet the criteria.

I. C. § 42-203A (5) (a-e) and Water Appropriation Rule 40

Memo # 24 (2), (A) (2) refers to additional information required by statute and Rule 40, Subsections 040.05c through 040.05g for "large diversion projects." These authorities are relevant here because the application is for more than 25 cfs, or for an installed capacity of more than 5MW.

Attached to the application is Rule 40 information.

Rule 40(c): The letter states there are no impacts in existing water rights. Information in IDWR records is available to evaluate impacts. Use is nonconsumptive and there is not expected to be an impact on existing rights.

Rule 40(d): Regarding the available water supply, the letter states there is no consumptive use and if there is no water available in the Boise Project system, there is no power generated. IDWR concurs.

Rule 40(e): Regarding good faith and delay, the letter refers to contracts and a construction timeline that is in place and provided to IDWR. No additional information is needed.

Rule 40(f): regarding financial resources, the applicant references the contracts that are in place and the WaterSMART grant from the federal BOR.

Rule 40(g): The project is clearly within the public interest as it is not consumptive, and proposes an additional use of appropriated water, for a power generation plant that is not use coal or other non-renewable resource, but uses water, a renewable resource.

Flow Calculation

Memo # 24 (3), Flow Calculation, and Attachment C, "Individual Hydropower Production" provides guidance to determine if the diversion rate proposed in the application is reasonable. Attachment C states that a formula using power, gross head, design flow and efficiency will result in a means of evaluating small scale hydropower applications.

The application provides the following: a design flow of 120 cfs, a gross head of 144 feet, and 1265 kw as the proposed power capacity. Using the formula,

$$\begin{aligned} \text{power in kw} &= \frac{(\text{Diversion rate})(\text{Head in feet})(\text{efficiency \%})}{(11.8)} = \frac{(120 \text{ cfs})(144')(.5)}{(11.8)} \\ &= \frac{8650}{11.8} = 732.2 \text{ kw system capacity} \end{aligned}$$

The applicant stated the plant efficiency is 88%. Using this efficiency, the output is calculated to be 1288.7 kw. Hence, the system with the proposed 120 cfs diversion rate is capable of producing the 1265 kw output in the application. The rate is reasonable.

Summary

Assuming protests are not filed and/or other information does not contradict the above analysis, the information in the application file allows for a thorough evaluation of the application and it can be approved as reflected by the draft approval.



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

ADMINISTRATOR'S MEMORANDUM

App. Processing No. 24 (Amended)

TO: Regional Offices and Water Allocation Section
FROM: Norman C. Young *NCY*
DATE: June 19, 1986 (Replaces version dated December 1, 1980)
RE: Approval of Permits for Power Purposes

Changes in Federal Energy Regulatory Commission (FERC) processing requirements have precipitated a modification in Department policy regarding applications for permit for hydropower*. This memorandum provides updated information regarding three unique aspects of hydropower applications: (1) current requirements of the Idaho Public Utilities Commission (PUC) and FERC; (2) Department processing guidelines for Applications for Permit; and (3) a method for calculating a reasonable rate of flow.

(1) CURRENT REQUIREMENTS OF THE PUC AND FERC

PUC

The determination of which power producers are subject to PUC regulation and which are not remains a complex issue. In general, the PUC regulates and requires applications from investor-owned utilities that market power, such as Idaho Power Company, or independent small power producers. Systems that are not regulated include those owned

* This memorandum is written specifically for hydropower use, and the terms power and hydropower are considered to be interchangeable herein. The use of water for purposes associated with thermal and nuclear power plants should be classified as cooling use, and an Application for Permit for this use is not subject to the provisions specified herein.

by public entities (co-ops, municipalities, irrigation districts, etc.), private systems for personal use, and entities meeting the requirements of a qualifying facility (QF*) under PURPA**. If there is a question about jurisdiction in a specific instance, PUC will provide a letter stating their position.

Processing a PUC application requires a public hearing in most cases. Processing time by PUC is usually 3 months to 1 year, and final approval by PUC, in the form of the issuance of a Certificate of Public Convenience and Necessity (CPCN), can be completed prior to approval of the water right application by the Department.

*A QF is defined as a facility that:

- A. Is owned by an individual or a corporation (including municipalities), but not more than 50% of the equity interest in a facility may be owned by an electric utility.
- B. Produces electric energy primarily by use of a renewable resource (water power is considered to be a renewable resource at both new and existing dams).
- C. Has a power production capacity of no more than 80 megawatts.

**Public Utility Regulatory Policies Act of 1978

FERC

Water power development comes within FERC jurisdiction when the project:

- A. Is located on federal land, or
- B. Is located in or uses water from a navigable stream, or
- C. Uses water impounded by a federal dam, or
- D. Provides power to a FERC regulated (interstate) power grid.

Where FERC is found to have jurisdiction, frequently the first step toward project development is to obtain a preliminary permit from FERC. A preliminary permit requires minimal information and establishes filing priority for subsequent license or exemption applications. It is not an approval to begin construction, and is not required by FERC.

Project development approval can be obtained by securing either a license or an exemption. An exemption relieves the project of some FERC requirements. Exemptions are generally available for projects that do not use dams or that utilize an existing conduit originally built primarily for non-power purposes.

Three types of license applications are available -- a short form for all projects 5 MW or less, a slightly longer form for projects greater than 5 MW at existing dams, and a long form for major unconstructed or major modified projects greater than 5 MW. Processing times vary depending on the complexity and environmental impact of the projects and can range from several months to several years. A graphical representation of FERC filing categories is depicted in Attachment A.

A change in FERC processing is that in the past FERC required the project applicant to obtain an approved water right permit prior to issuing a FERC license, whereas now FERC will issue a license before a state water right is approved, contingent on the licensee obtaining state water right approval.

DEPARTMENT PROCEDURE WITH RESPECT TO FERC & PUC

The Department does not require FERC &/or PUC approvals to be prerequisites for issuance of a water right permit. However, many of the issues regarding local public interest that are evaluated by the Department are also evaluated by FERC &/or PUC. Thus, the Department normally does not take final action on an application for permit until the application for license or exemption or application for CPCN together with supporting documents have been filed with FERC &/or the PUC. An applicant, however, can request Department action on an application for permit prior to the application submittal to FERC &/or PUC if the applicant provides to the Department all of the information needed for the Department to evaluate the proposed project. Henceforth in this memorandum, in the situations where FERC &/or PUC have jurisdiction, the alternatives of providing either (1) an application for a CPCN from PUC &/or an application for license or exemption from FERC, or (2) information for the evaluation of the proposed project, will be identified as "PUC &/or FERC approvals or alternatives."

(2) DEPARTMENT PROCESSING GUIDELINES FOR APPLICATIONS FOR PERMIT

Rule 4 of the Department's Water Appropriation Rules and Regulations provide general considerations to be met by a hydropower applicant. In addition, special processing guidelines have been developed for power applications for permit based on (1) the potential for speculation, (2) Sections 42-205 thru 42-210, Idaho Code, (3) Idaho case law, and (4) interagency coordination. The guidelines are divided into regional office processing and state office processing as follows:

Regional Office Processing

- A. Upon receipt of an application for permit for hydropower use, the applicant should be advised, via either a documented conversation or correspondence, of the unique requirements for processing a hydropower water right. Requirements are as follows:

1. Requirements for All Power Applications

- a. An affidavit establishing residency and ownership of facilities (Form 205/206).

- b. Information that shows whether or not the project will be regulated by FERC &/or PUC.
 - c. If the project will be regulated by FERC &/or PUC, FERC &/or PUC approvals or alternatives.
2. In the past, the Department basically considered power projects in either a small or large category based on certain criteria. The adopted water appropriation rules and regulations when considered with existing statutes suggest additional categories with different related requirements.

An application for permit (application) for 5 cfs or less and for an installed capacity of 0.37MW or less usually will require no additional information.

An application with a diversion rate greater than 5 cfs will require the submittal of all information described in Rule 4,5,3., Water Appropriation Rules and Regulations.

An application for 5 cfs or less but for an installed capacity of more than 0.37MW will require a financial statement.

An application for more than 25 cfs, or for an installed capacity of more than 5MW will require all of the information described in Rule 4,5,3., Water Appropriation Rules and Regulations in addition to an engineering design.

- B. In situations where FERC &/or PUC have jurisdiction, the conference/hearing for a protested application should be delayed until FERC &/or PUC approvals or alternatives are provided.
- C. Unprotested applications should be forwarded to the state office when all requirements have been met except FERC &/or PUC approvals or alternatives.

State Office Processing

- A. The state office should insure that documentation describing the completion of all requirements is in the file, with the exception of FERC &/or PUC approvals or alternatives.
- B. Applicants should be required by the state office to update the file on an annual basis regarding the status of obtaining FERC &/or PUC approval. An exception is that if the applicant receives approval of a preliminary permit, an update is not needed until the permit expires. The applicant must maintain applications with PUC &/or FERC in a valid status to be entitled to the Department processing delays described herein.

- C. Applications for permit that would be denied by the Director for reasons other than failure to receive approval from PUC &/or FERC will be denied at the earliest possible time and will not be held pending comments submitted by those agencies.

Attachment B shows standard conditions of approval which are associated with approvals for Applications for Permit for power purposes.

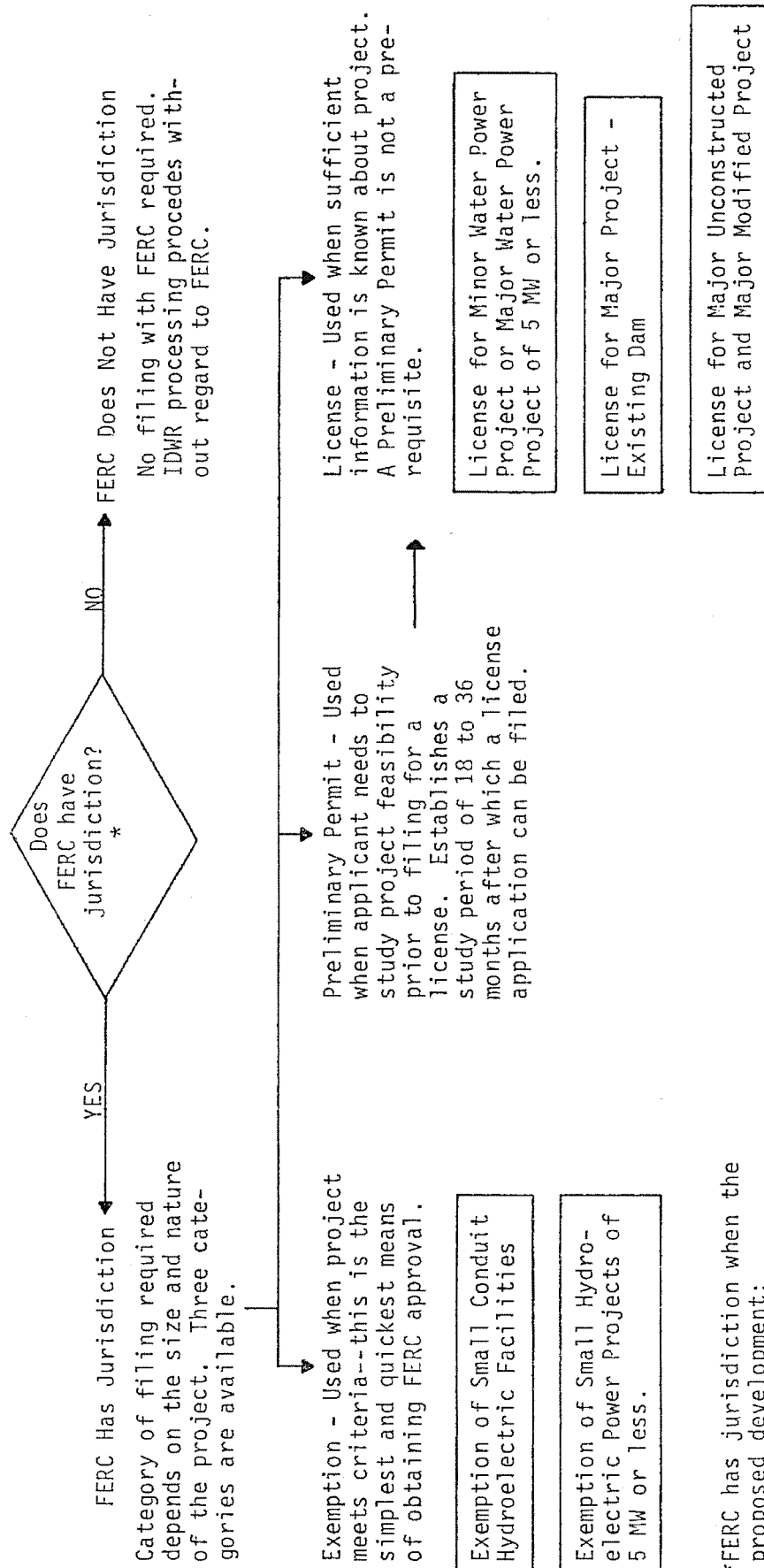
One unique aspect of power applications regards possessory interest. For most water right applications, the applicant must show some "vested interest", or "color of title" to the place of use before the application is deemed valid (see Lemmon v Hardy, 95 Idaho 778, 1974). However, an application for power may be an exception to this requirement since the place of use for power purposes can in some cases be obtained by the applicant through eminent domain after the water right has been obtained. Therefore, a power application may be approved even though possessory interest has not been demonstrated, if all other requirements are satisfied.

(3) FLOW CALCULATION

Attachment C entitled "Individual Hydropower Production" has been prepared to assist in the determination of a reasonable rate of flow based on (1) the power requirements of the applicant, (2) the type of hydroelectric system to be installed, and (3) available head. The instructions provide a basic method to assess the adequacy of flow requested, but this brief method should not be used to calculate final design flows. If the calculated flows are either much lower or much higher than those shown on the application, the applicant should be required to justify the rate of diversion shown.

FERC Filing Categories

Each power project can be categorized at a unique location on this chart. Boxes represent categories for which FERC approval is normally required before IDWR issues a permit.



*FERC has jurisdiction when the proposed development:

- (A) Is located on federal land, or
- (B) Is located on or uses water from a navigable stream, or
- (C) Uses water impounded by a federal dam, or
- (D) Provides power to a FERC regulated (interstate) power grid.

Source: Federal Energy Guidelines, FERC Statutes and Regulations, Vol. 1, Subchapter B - Regulations Under the Federal Power Act, Part 4, par 2,000 et seq.

ATTACHMENT B

* { A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works.

The permit holder shall either install a measuring device or a flow measurement port or provide a certified measurement or computation of flow based upon system design to be prepared by a professional engineer.

The issuance of this permit in no way grants any right-of-way or easement across the land of another.

Use of water under this permit is subject to control by the watermaster of State Water District No. <number and name>.

* This permit is subject to the provisions of Sections 42-205 through 42-210, Idaho Code, restricting the sale, transfer, assignment, or mortgage of this permit. Failure to comply with these provisions is cause for immediate cancellation of this permit.

* Water used under this permit if discharged into a natural channel or subsurface system shall meet Idaho Water Quality Standards.

* { The diversion and use of water under this permit and any license subsequently issued is subject to review by the Director thirty-five (35) years from the date of issuance of this permit. 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.

The diversion and use of water under this permit and any license subsequently issued is subject to review by the Director on the date(s) of expiration of any license issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.

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

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

* Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which permit holder had no control.

* Use of water under this permit shall be non-consumptive.

A separate stream alteration permit from the IDWR is required for any activity in the stream channel other than construction and/or maintenance of the diversion structure. If your proposed construction or operation involves construction of an outfall or any other work in the stream channel other than a water diversion, you must contact the Department and obtain a Stream Channel Alteration permit prior to the start of construction.

Power apps from a groundwater source:

Water shall not be diverted solely for power production purposes, however, power may be produced utilizing water diverted for other uses.

*Conditions with an asterisk are used for every hydropower application approved by IDWR. Brackets signify alternative choices based on ancillary parameters.

ATTACHMENT C

INDIVIDUAL HYDROPOWER PRODUCTION

The following is an acceptable means of evaluating water requirements for planning a small scale hydropower facility. This method is general and intended to provide approximate results for use in filing a water right permit application for development of such a facility. Sizing and selection of equipment for installation is much more complicated and should not be attempted without proper technical guidance. Any one of the following four variables can be determined by mathematical or graphical methods providing the other three are known or assumed: (See Figure 1).

- 1) Power (kilowatts)
- 2) Gross Head (feet)
- 3) Design Flow (cubic feet per second)
- 4) Efficiency

Definition and Explanation of Terms

For turbines, pelton wheels and overshot water wheels, the above variables are defined as follows:

A) Power (P)

System power production capability or system capacity is the amount of electrical power that can be generated by the hydropower system. Power demand is the amount of electrical power that is required by the user to supply electrical appliances. In order to have an operational system, power production capability must be greater than or equal to power demand. Power is commonly measured in kilowatts.

Maximum power demand can be estimated by summing the demand of all electrical appliances that may reasonably be in use at one time. The demand requirements of individual electrical appliances can usually be obtained from power suppliers or are listed on the appliances. An estimate of normal household demand can also be obtained from the following table:

Table 1: Maximum Household Power Demand

<u>Electrical Power Use</u>	<u>Demand (Watts/ft²)</u>
Lighting and refrigeration only	2
Lighting, refrigeration, water heating, cooking and clothes drying	4-7
Total electric home	10-15

Maximum power demand in watts can be computed by multiplying demand in watts per square foot by the home size in square feet. Divide by 1000 to convert watts to kilowatts.

B) Gross Head (H)

1) Pelton Wheel or Hydraulic Turbine

Gross head for a pelton wheel or hydraulic turbine is the total vertical elevation difference in feet between the upper end of the penstock and the lower end of the penstock.

2) Overshot Water Wheel

Gross head for an overshot water wheel is the total vertical elevation difference in feet between the bottom of the discharge flume and the water surface of the tail-water.

C) Design Flow (Q)

The flow in cubic feet per second (cfs) at which the system is designed to operate.

D) Efficiency (e)

The fraction of total hydraulic energy available that can be converted to electrical energy and delivered to the consumer. For estimating purposes, use .50 for pelton wheels and turbines and .40 for overshot water wheels.

EXAMPLE PROBLEM

Problem Statement

A person with a 2000 ft² total electric home has a stream near his house which flows a minimum of 15 cfs and has a vertical drop of 400 ft. in the mile upstream from his house. The person desires to supply all of the electrical requirements of his home with a hydro-power generating system. How much water does he need?

Solution

This will be a graphical solution using Figure 1 and assuming the use of a pelton wheel or hydraulic turbine system.

1) Determine home electrical power demand.

Using Table 1

$$\begin{aligned}\text{Maximum Demand} &= 2000 \text{ ft}^2 (15 \text{ watts/ft}^2) \\ &= 30,000 \text{ watts} = 30 \text{ kw}\end{aligned}$$

2) Assume System Efficiency

Since power is assumed to be generated by a pelton wheel or hydraulic turbine, a reasonable system efficiency might be 50%. Assume $e = .5$.

3) Determine $H \times Q$ Requirement to Produce the Desired Power

Enter the graph (Figure 1) at 30 kw. Cross to the 50% efficiency line and proceed down to the lower axis and find $H \times Q = 708$.

4) Select a Head and Solve for the Flow

$H \times Q = 708$; therefore

$$Q = \frac{708}{H}$$

If $H = 400$ ft.; $Q = \frac{708}{400} = 1.8$ cfs

If $H = 200$ ft.; $Q = 3.5$ cfs

If $H = 50$ ft.; $Q = 14.2$ cfs

(It should be noted that there are an infinite number of possible solutions for $H \times Q = 708$ that provide 30 kw of power.)

FIGURE 1: GRAPHICAL SOLUTION OF HYDRO POWER PROBLEMS

