

Memorandum

Date: December 8, 2010

To: File 78-7254

From: Craig L. Saxton

Re: Additional notes for licensing review of permit 78-7254

Diversion Volume:

The proposed license limits the maximum diversion volume to 700 AF because the examination fee submitted with proof was \$250.00.

State of Idaho		
Department of Water Resources		
License Examination Fee Schedule		
CFS	AF	FEE
0 to 0.20	0 to 20	\$50.00
0.21 to 1.00	21 to 100	\$100.00
1.01 to 2.00	101 to 200	\$125.00
2.01 to 3.00	201 to 300	\$150.00
3.01 to 4.00	301 to 400	\$175.00
4.01 to 5.00	401 to 500	\$200.00
5.01 to 6.00	501 to 600	\$225.00
6.01 to 7.00	601 to 700	\$250.00
7.01 to 8.00	701 to 800	\$275.00

However, because this is not a storage right, the limit is will be based on the CFS rather than the diversion volume. The examination fee of \$250 allows for licensing of up to 7 cfs. The proposed license diversion rate is 2.41 cfs.

The field examiner found that there is 727 AF of beneficial use established under this permit. The examination fee paid will not restrict recommending the full 727 AF.

Idaho Code 42-221.k states that the fees will be based on diversion rate or storage volume (emphasis added):

K. For filing proof of beneficial use of water and requests for water right license examinations, a fee based upon the rate of diversion claimed in the proof of beneficial use:

1. For a quantity of 0.2 c.f.s. or less, or for a storage volume of 20 acre feet or less
..... \$50.00
except no fee shall be charged for domestic use for which a permit is not required.
2. For a quantity greater than 0.2 c.f.s. but not exceeding 1.0 c.f.s., or for a storage volume greater than 20 acre feet, but not exceeding 100 acre feet
..... \$100
3. For a quantity greater than 1.0 c.f.s., or for a storage volume greater than 100 acre feet
..... \$100
plus \$25.00 for each additional c.f.s. or part thereof, or 100 acre feet or part thereof, over the first 1.0 c.f.s. or 100 acre feet with a maximum fee not to exceed \$600.

Conditions:

Permit condition of approval 09E is inactive and can be removed at licensing. It is appropriate to add a condition addressing water quality for a permit, but after the water right is established, then water quality regulation should belong to DEQ.

Approved per Commission Orders
18190 and 19186 (U-1006-243)

Facility No: 11615077
Project: Elk Creek

Myrna J. Walters
Myrna J. Walters
Commission Secretary

FIRM ENERGY SALES AGREEMENT

THIS AGREEMENT, entered into on this 31st day of August, 1984,
is between JAMES B HOWELL, an individual (Seller), and IDAHO POWER COMPANY, a
Maine corporation (Idaho) hereinafter sometimes referred to collectively as
"parties" or individually as "party."

W I T N E S S E T H:

WHEREAS, Seller plans to construct, own and operate an electric
generation facility; and

WHEREAS, Seller wishes to sell, and Idaho wishes to purchase,
electric energy from that facility,

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

ARTICLE I: DEFINITIONS

As used in this Agreement and the appendices attached hereto, the
following terms shall have the following meanings:

1.1 "Annual Net Energy" - The amount of Net Energy Seller estimates
it will deliver to Idaho at the Point of Delivery during each Contract Year.

1.2 "Commission" - The Idaho Public Utilities Commission.

1.3 "Contract Year" - The period commencing each calendar year on
the same calendar date as the Operation Date and ending 364 days thereafter.

1.4 "Designated Dispatch Facility" - Idaho's Boise Bench System
Dispatch Center.

1.5 "Disconnection Equipment" - Any device or combination of devices located on the interconnection between the Facility and Idaho's system by which Idaho can manually and/or automatically interrupt the flow of power from the Facility to Idaho's system. Disconnection Equipment includes such enclosures or other facilities as may be required to ensure that only Idaho will have access to the devices.

1.6 "First Energy Date" - The date when Seller has been interconnected with Idaho's system and begins delivering electric energy to Idaho for purposes of demonstrating to Idaho the Facility's degree of completion and reliability.

1.7 "Facility" - That electric generation facility described in Appendix B of this Agreement.

1.8 "Interconnection Facilities" - All facilities required to be installed solely to interconnect and deliver energy from the Facility to Idaho's system including, but not limited to, connection, switching, metering, relaying, communications and safety equipment.

1.9 "Losses" - The loss of energy occurring as a result of the transformation and transmission of energy between the Facility and the Point of Delivery.

1.10 "Net Energy" - The electric energy produced by the Facility, expressed in kilowatt hours ("kwh"), delivered to Idaho at the Point of Delivery less Station Use and less Losses.

1.11 "Operation Date" - The day commencing at 0001 hours, following the day during which all features and equipment of the Facility have reached a degree of completion and reliability, such that they are capable of operating simultaneously to deliver Net Energy continuously into Idaho's system.

1.12 "Point of Delivery" - The location specified in Appendix B, where Idaho's and Seller's electrical facilities are interconnected.

1.12 "Prudent Electrical Practices" - Those practices, methods and equipment that are commonly and ordinarily used in electrical engineering and operations to operate electric equipment lawfully and with safety, dependability, efficiency and economy.

1.13 "Scheduled Operation Date" - The date specified in Appendix B when Seller anticipates achieving the Operation Date.

1.14 "Season" - The four periods of three months each identified in Article VI.

1.15 "Seasonal Net Energy" - The amounts of Net Energy Seller estimates it will deliver to Idaho at the Point of Delivery during each Season.

1.16 "Special Facilities" - Those additions and alterations to Idaho's system which are reasonably required by Prudent Electrical Practices and the national Electric Safety Code to interconnect the Facility safely to Idaho's system.

1.17 "Station Use" - Electric energy which is used solely to operate the Facility's equipment which is auxiliary or directly related to the production of electricity and which, but for the generation of electricity, would not be consumed by Seller.

1.18 "Surplus Energy" - Net Energy' which is delivered and accepted prior to the Operation Date.

ARTICLE II: NO RELIANCE ON IDAHO

2.1 Seller Independent Investigation - Except for the Disconnection Equipment and any other facilities exclusively within the control of Idaho,

Seller warrants and represents to Idaho that in entering into this Agreement and the undertaking by Seller of the obligation set forth herein, Seller has investigated and determined that it is capable of performing hereunder and has not relied upon the advice, experience or expertise of Idaho in connection with the transactions contemplated by this Agreement.

2.2 Seller Independent Experts - Except for the Disconnection Equipment and any other facilities within the exclusive control of Idaho, all professionals or experts including, but not limited to, engineers, attorneys or accountants, that Seller may have consulted or relied on in undertaking the transactions contemplated by this Agreement, have been solely those of Seller.

ARTICLE III: WARRANTIES

3.1 No Warranty by Idaho - Any review, acceptance or failure to review Seller's design, specifications, equipment or facilities shall not be an endorsement or a confirmation by Idaho, and Idaho makes no warranties, express or implied, regarding any aspect of Seller's design, specifications, equipment or facilities, including but not limited to safety, durability, reliability, strength, capacity, adequacy or economic feasibility.

3.2 Qualifying Facility Status - Seller warrants that the Facility is a "qualifying facility," as that term is used and defined in 18 CFR, Part 292. Seller will take such steps as may be required to maintain the Facility's "qualifying facility" status during the term of this Agreement.

ARTICLE IV: CONDITIONS TO INTERCONNECTION

4.1 Prior to the First Energy Date and as a condition of interconnection with Idaho, Seller shall:

4.1.1 Submit proof to Idaho that all licenses, permits or approvals necessary for Seller's operations have been obtained from applicable federal, state or local authorities, including but not limited to those licenses, permit or approvals specified in Appendix C;

4.1.2 Make payment to Idaho for all costs of Disconnection Equipment, metering equipment and Special Facilities as provided for in Appendix B of this Agreement;

4.1.3 Obtain written acceptance from Idaho as provided in paragraph 8.3;

4.1.4 Submit proof to Idaho of all insurance required in Article XIV;

4.1.5 Demonstrate to Idaho's satisfaction that Seller's Facility has been completed, and is capable of operating safely to commence deliveries of electric energy into Idaho's system.

4.1.6 Submit to Idaho a statement from a licensed professional engineer certifying that the design of and equipment in Seller's Facilities comply with the standards of this Agreement and with Prudent Electrical Practices.

4.1.7 Obtain written confirmation from Idaho that all conditions to interconnection have been fulfilled. It is understood that such written confirmation shall not be unreasonably withheld by Idaho.

ARTICLE V: TERM AND OPERATION DATE

5.1 Term - This Agreement shall become effective on the date first above written, and shall continue in full force and effect for a period of thirty-five (35) Contract Years.

5.2 Operation Date - The Operation Date may occur only after Seller has achieved the First Energy Date, and the necessary degree of completion and reliability has been demonstrated to Idaho's satisfaction and Idaho has confirmed that satisfaction in writing. Seller shall have the duty to obtain that confirmation and it will not be unreasonably withheld by Idaho.

ARTICLE VI: SALE OF NET ENERGY

6.1 Delivery and Acceptance of Net Energy - Except when either party's performance is prevented by events of force majeure (Article XVI) or otherwise excused as provided herein, Idaho shall purchase all of the Net Energy and Surplus Energy delivered by Seller to the Point of Delivery.

6.2 Seasonal Net Energy Amounts - Based on long-term historical water flow records and average long-term energy estimates based thereon, Seller estimates that it can deliver Net Energy in the following amounts:

Season 1	December - 31 January - 30 February - 29	216,964 KWH	$\frac{216,964}{90 \times 24} = 100 \text{ KWH}$
Season 2	March - 31 April - 30 May - 31	2,234,820 KWH	$\frac{2,234,820}{92 \times 24} = 1012$
Season 3	June - 30 July - 31 August - 31	2,661,445 KWH	$= 1205$
Season 4	September - 30 October - 31 November - 30	27,205 KWH	

6.3 Annual Net Energy Amount - The Annual Net Energy shall be 5,140,434 KWH and shall be the sum of the four Seasonal Net Energy amounts Seller specified above.

6.4 Normal Water Conditions - For hydroelectric generating facilities, the Net Energy amounts Seller has estimated it can supply are based upon the anticipated water flows at the Facility. The parties have reviewed these anticipated water flows and the water records supporting those projected water flows and have agreed that, for purposes of this Agreement, the projected water flows used to calculate the Annual Net Energy amount are reasonable and shall constitute the water flows available to the Facility under "normal" water conditions. No later than 120 days after the Operation Date, Seller will install such water flow measuring equipment as is reasonably required to permit the parties to monitor the water flows at the Facility site. Seller will operate and maintain this water flow measuring equipment and will perform such other water flow analyses as may be required to carry out the provisions of 21.2.1.

6.5 Net Energy Changes - If, as a result of some action by Seller (for example, procurement of additional long-term water or other fuel supplies, or installation of larger or more efficient generating equipment), Seller is able to permanently increase the amount of annual Net Energy delivered to Idaho by more than 10% above the amount specified in paragraph 6.3 above, Idaho shall purchase this increased amount of Net Energy under the terms and conditions of this Contract except that the price paid to Seller for the increased increment of Net Energy shall not be determined in accordance with paragraph 7.1 of this Agreement, but instead will be priced at the firm energy rate in effect at the time of such increase for a Contract term equal in length to the period commencing in the year of the Net Energy increase and ending in the year in which this Agreement expires.

ARTICLE VII: PURCHASE PRICE AND METHOD OF PAYMENT;
ADJUSTMENT OF PURCHASE PRICE

7.1 Net Energy Purchase Price - The price to be paid to Seller for Net Energy which is not Surplus Energy will be the sum of the following payments:

7.1.1 Base Payment -

Season 1	73.3 Mills/KWH
Season 2	48.9 Mills/KWH
Season 3	73.3 Mills/KWH
Season 4	48.9 Mills/KWH

7.1.2 Adjustable Payment - In addition to the Base Payment specified in paragraph 7.1.1, Idaho shall pay to Seller an Adjustable Payment of 8.0 mills per kilowatt hour for Net Energy delivered and accepted in Seasons 1 and 3 and 5.4 mills per KWH for Net Energy delivered and accepted in Seasons 2 and 4. The Adjustable Payment shall be subject to change pursuant to Commission Order at such time as Idaho's retail rates are revised by Commission Order.

7.2 Surplus Energy Purchase Price - Surplus Energy will be purchased at the non-firm avoided energy rate in effect at the time of delivery. This rate is calculated monthly and is filed with the Commission.

7.3 Continuing Jurisdiction of the Commission - The rates, terms and conditions set forth in this agreement are subject to the continuing jurisdiction of the Idaho Public Utilities Commission. The rates, terms and conditions under this agreement are subject to change and revision by order of the Commission upon a finding, supported by substantial competent evidence, that such rates, terms or conditions, change or revision is just, fair,

reasonable, sufficient, nonpreferential and non-discriminatory. Provided, however, in no event shall Seller be entitled to rates in excess of the rate authorized by the Commission in Order No 18190 issued in Case No U-1006-200.

ARTICLE VIII: FACILITY AND INTERCONNECTION

8.1 Design of Facility - Seller shall design, construct, install, own, operate and maintain the Facility. The facility shall be designed and constructed so as to allow safe, reliable delivery of electric energy to Idaho's system.

8.2 Interconnection Facilities - Except for the Special Facilities, metering equipment and Disconnection Equipment specified in Appendix B, Seller shall construct, install, own, and maintain all Interconnection Facilities. Seller will pay all costs of interconnecting the Facility with Idaho.

8.3 Idaho Review - To assure the Facility and Seller-furnished Interconnection Facilities are of suitable size and are compatible with Idaho's system, Seller shall submit the designs, plans, specifications and performance data for the Facility and Seller-furnished Interconnection Facilities to Idaho for review. Idaho shall, in writing and in conformance with paragraph 4.1.3, notify Seller of its acceptance and confirmation of system compatibility or conversely, notify Seller, in writing, of any changes which, consistent with Prudent Electrical Practices, Idaho determines are necessary to assure the safe delivery of electric energy from the Facility to Idaho's system.

ARTICLE IX: DISCONNECTION EQUIPMENT

9.1 Disconnect Equipment - Idaho will, at Seller's expense, provide, install, own, operate, and maintain all Disconnection Equipment. At Seller's

request, Idaho will provide Seller with the general specifications and an itemization by category of the costs of such Disconnection Equipment. Idaho will establish the settings of Disconnection Equipment to disconnect automatically from the Facility for the protection of Idaho's system and personnel consistent with Prudent Electrical Practices. Upon Seller's request, Idaho will notify Seller as to the original setting and any adjustments thereof. Except as otherwise required by Prudent Electrical Practices, Disconnection Equipment will be designed so that the closure of any breaker or other disconnecting device which connects the Facility to Idaho's system shall be controlled by equipment which will perform the following:

(1) Automatically monitor the status of the electrical system on Idaho's side of the disconnecting device; as to voltage and frequency; and

(2) Prohibit closure or reconnection until voltage and frequency have been within approved limits for a continuous period of not less than five minutes; and

(3) Operate so that if Idaho's system is de-energized within ten seconds after the initial closure of the disconnecting device, the disconnecting device will immediately open and not close again until Idaho has been satisfied that Idaho can safely reclose the Disconnecting Equipment.

9.2 Security of Disconnect Equipment - The Disconnection Equipment will be located in an enclosure secured by a lock or otherwise secured in a manner designed to ensure that only Idaho's authorized personnel will have access to the disconnecting devices.

9.3 Remote Disconnection - Other Disconnection Equipment, including equipment which will provide Idaho's operating personnel with the ability to

remotely control and monitor the status of the breaker or other disconnecting device by radio or hard-wire circuit between the Facility and the Designated Dispatch Facility may be specified by Idaho when, in Idaho's reasonable judgment, such equipment is required by Prudent Electrical Practices. Seller recognizes that such remote control equipment may not initially be required by Idaho, but at such time as operating conditions on Idaho's system dictate, Idaho will install this remote control equipment at Seller's expense. If Seller disputes Idaho's determination that the installation of such remote Disconnection Equipment is required, such dispute shall be submitted to the Commission for resolution.

9.4 Interference with Disconnection Equipment - If Seller attempts to modify, adjust or otherwise interfere with the Disconnection Equipment or its enclosure, such action shall constitute an event of default pursuant to Article XXI.

ARTICLE X: METERING

10.1 Metering - Idaho shall, for the account of Seller, provide, install, and maintain required metering equipment to be located at a mutually agreed upon location to record and measure power flows to Idaho in accordance with the standards set forth in Appendix A. If required by Idaho, metering will also include measurement of kilovar-hours in a manner agreed to by both parties. All meter equipment, installation, ownership, and administration costs therefor, shall be borne by Seller, including costs incurred by Idaho for inspecting and testing such equipment at reasonable intervals at Idaho's actual cost of providing this equipment and services. The point of metering shall be

at the location described in Appendix B. All meters used to determine the billing hereunder shall be sealed and the seals shall be broken only upon occasions when the meters are to be inspected, tested or adjusted.

10.2 Meter Inspection - Idaho shall inspect and test all meters upon their installation and at least once every four years thereafter. If requested by Seller, Idaho shall make a special inspection or test of a meter and Seller shall pay the reasonable costs of such special inspection. Both parties shall be notified of the time when any inspection or test shall take place, and each party may have representatives present at the test or inspection. If a meter is found to be inaccurate or defective, it shall be adjusted, repaired, or replaced, at Idaho's expense, in order to provide accurate metering. If a meter fails to register, or if the measurement made by a meter during a test varies by more than two percent from the measurement made by the standard meter used in the test, adjustment to the payments Seller has received shall be made to correct those payments affected by the inaccurate meter for the actual period during which inaccurate measurements were made. If the actual period cannot be determined, corrections to the payments will be based on the shorter of (1) a period equal to one-half the time from the date of the last previous test of the meter to the date of the test which established the inaccuracy of the meter; or (2) six (6) months.

ARTICLE XI: RECORDS

11.1 Maintenance of Records - Seller shall maintain at the Facility or such other location mutually acceptable to the parties, adequate metering and related power production records, in a form and content recommended by Idaho.

11.2 Inspection - Either party, after reasonable notice to the other party, shall have the right, during normal business hours, to inspect and audit any or all such metering and related power production records pertaining to Seller's account.

ARTICLE XII: PROTECTION

12.1 Seller shall construct, operate and maintain the Facility and Seller-furnished Interconnection Facilities in accordance with Appendix A, Prudent Electrical Practices, the National Electric Safety Code and any other applicable local, state, and federal codes. If, in the reasonable opinion of Idaho, Seller's operation of the Facility or Interconnection Facilities is unsafe or may otherwise adversely affect Idaho's equipment, personnel, or service to its customers, Idaho may physically interrupt the flow of energy from the Facility or take such other reasonable steps as Idaho deems appropriate. Except in the case of an emergency, Idaho will attempt to notify Seller of such interruption prior to its occurrence as provided in paragraph 13.8. Seller shall provide and maintain adequate protective equipment sufficient to prevent damage to the Facility and Seller-furnished Interconnection Facilities.

ARTICLE XIII: OPERATIONS

13.1 Emergency Conditions - Seller agrees that in the event of and during a period of a shortage of power on Idaho's system as declared by Idaho in its reasonable discretion, Seller shall, at Idaho's request and within the limits of reasonable safety requirements as determined by Seller, use its best

efforts to provide requested Net Energy, and shall, if necessary, delay any scheduled shutdown of the Facility.

13.2 Communications - Idaho and Seller shall maintain appropriate operating communications through Idaho's Designated Dispatch Facility, and Seller shall report to Idaho at the times and in the manner set forth in Appendix A.

13.3 Energy Acceptance - Idaho shall be excused from accepting and paying for Net Energy delivered by Seller to the Point of Delivery under the following circumstances:

13.3.1 If it is prevented from doing so by an event of force majeure.

13.3.2 If Idaho determines that curtailment, interruption or reduction of Net Energy deliveries is necessary because of line construction or maintenance requirements, emergencies, operating conditions on its system, or as otherwise required by Prudent Electrical Practices. If, for reasons other than an event of force majeure, Idaho requires such a curtailment, interruption or reduction of Net Energy deliveries for a period that exceeds twenty days beginning with the twenty-first day of such interruption, curtailment or reduction, Seller will be deemed to be delivering Net Energy at a rate determined by dividing the Annual Net Energy amount by 8760 hours. Idaho will notify Seller when the interruption, curtailment or reduction is terminated.

13.4 Voltage Levels - Seller shall use its best efforts to minimize voltage swings and to maintain voltage levels acceptable to Idaho. Idaho may, upon one hundred eighty (180) days' notice to Seller, change its nominal

operating voltage level by more than ten percent (10%) at the Point of Delivery, in which case Seller shall modify, at Idaho's expense, Seller's equipment as necessary to accommodate the modified nominal operating voltage level.

13.5 Power Factor - Seller shall provide power within plus or minus 5% of unity power factor. The generator shall be equipped with controls or equipment which give it the capability of operating anywhere within this range.

13.6 Scheduled Maintenance - Seller shall submit a proposed maintenance schedule for each calendar year on or before the preceding February 1, and Idaho and Seller shall mutually agree as to the acceptability or unacceptability of the proposed date(s). The parties' determination as to the acceptability of Seller's timetable for scheduled maintenance will take into consideration Prudent Electrical Practices and neither party shall unreasonably withhold its acceptance of the proposed date for scheduled maintenance.

13.7 Maintenance Coordination - The parties shall, to the extent practical, coordinate their respective line and Facility maintenance schedules such that they occur simultaneously.

13.8 Contact Prior to Curtailment - Idaho will make a reasonable attempt to contact Seller prior to exercising its rights to curtail, interrupt or reduce deliveries from Seller. Seller understands that in the case of emergency circumstances, no notice will be given to Seller prior to interruption, curtailment, or reduction.

ARTICLE XIV: INDEMNIFICATION AND INSURANCE

14.1 Indemnification - Each party shall agree to hold harmless and to indemnify the other party, its officers, agents, and employees against all

loss, damage, expense and liability to third persons for injury to or death of person or injury to property, proximately caused by the indemnifying party's construction, ownership, operation or maintenance of, or by failure of, any of such party's works or facilities used in connection with this Agreement. The indemnifying party shall, on the other party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity.

14.2 Insurance - During the term of this agreement, Seller shall secure and continuously carry:

14.2.1 Comprehensive General Liability Insurance for both bodily injury and property damage equivalent to the amount of \$1,000,000 combined single limit. Such insurance shall:

- (a) include an endorsement naming Idaho as an additional insured insofar as work performed under this agreement is concerned; and
- (b) include a provision stating that such liability policies shall not be canceled or their limits of liability reduced without thirty (30) days' written notice to Idaho.

14.2.2 Valued Loss of Income Insurance covering, at a minimum, the perils of fire, extended coverage, vandalism and malicious mischief, earthquake and flood and loss arising out of accidents to boilers and/or pressure vessels and mechanical and electrical breakdown coverage for turbines and generators. Such policies shall:

- (a) be in amounts equal to the repayment amounts shown in Appendix E that would be owed to Idaho pursuant to paragraph 21.2.

(b) include a provision stating that this policy shall not be canceled or the limits reduced without thirty (30) days' written notice to Idaho.

(c) include Idaho as an additional insured and loss payee.

14.2.3 Seller to Provide Copies of Policies of Insurance - It is a requirement of this contract that a certified copy of the original policies and all endorsements be furnished Idaho as soon as reasonably possible.

ARTICLE XV: LAND RIGHTS

15.1 Seller to Provide Access - Seller hereby grants to Idaho for the term of this Agreement all necessary rights of way and easements to install, operate, maintain, replace, and remove Idaho's metering equipment, Disconnection Equipment and other Special Facilities necessary or useful to this agreement, including adequate and continuing access rights on property of Seller. Seller warrants that it has procured sufficient easements and rights of way from third parties so as to provide Idaho with the access described above. All documents granting such easements or rights of way shall be subject to Idaho's approval and in recordable form.

15.2 Use of Public Rights-of-Way - The parties agree that it is necessary to avoid the adverse environmental and operating impacts that would occur as a result of duplicate electric lines being constructed in close proximity. Therefore, subject to Idaho's compliance with paragraph 15.4, Seller agrees that should Seller seek and receive from any local, state or federal governmental body the right to erect, construct and maintain Seller-

furnished Interconnection Facilities upon, along and over any and all public roads, streets and highways, then the use by Seller of such public right-of-way shall be subordinate to any future use by Idaho of such public right-of-way for construction and/or maintenance of electric distribution and transmission facilities and Idaho may claim use of such public right-of-way for such purposes at any time. Except as required by paragraph 15.4, Idaho shall not be required to compensate Seller for exercising its rights under this paragraph 15.2.

15.3 Joint Use of Facilities - Subject to Idaho's compliance with paragraph 15.4, Idaho may use and attach its distribution and/or transmission facilities to Seller's Interconnection Facilities, may re-construct Seller's Interconnection Facilities to accommodate Idaho's usage or Idaho may construct its own distribution or transmission facilities along, over and above any public right-of-way acquired from Seller pursuant to paragraph 15.2, attaching Seller's Interconnection Facilities to such newly constructed facilities. Except as required by paragraph 15.4, Idaho shall not be required to compensate Seller for exercising its rights under this paragraph 15.3.

15.4 Conditions of Use - It is the intention of the parties that the Seller be left in substantially the same condition, both financially and electrically, as Seller existed prior to Idaho's exercising its rights under this Article XV. Therefore, the parties agree that the exercise by Idaho of any of the rights enumerated in paragraphs 15.2 and 15.3 shall: (1) comply with all applicable laws, codes and Prudent Electrical Practices, (2) Equitably share the costs of installing, owning and operating jointly used facilities and rights of way. If the parties are unable to agree on the method of appor-

tioning these costs, the dispute will be submitted to the Commission for resolution and the decision of the Commission will be binding on the parties, and (3) shall provide Seller with an interconnection to Idaho's system of equal capacity and durability as existed prior to Idaho exercising its rights under this Article XV.

ARTICLE XVI: FORCE MAJEURE

As used in this Agreement, "force majeure" or "an event of force majeure" means unforeseeable causes beyond the reasonable control of and without the fault or negligence of the party claiming force majeure and specifically excludes strikes, walkouts, lockouts or other labor disputes in which Idaho or Seller or their respective employees participate. If either party is rendered wholly or in part unable to perform its obligations under this Agreement because of an event of force majeure, both parties shall be excused from whatever performance is affected by the event of force majeure, provided that:

(1) The non-performing party shall, as soon as is reasonably possible after the occurrence of the event of force majeure, give the other party written notice describing the particulars of the occurrence.

(2) The suspension of performance shall be of no greater scope and of no longer duration than is required by the event of force majeure.

(3) No obligations of either party which arose before the occurrence causing the suspension of performance and which could and should have been fully performed before such occurrence shall be excused as a result of such occurrence.

ARTICLE XVII: LIABILITY; DEDICATION

Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a party to this Agreement. No undertaking by one party to the other under any provision of this Agreement shall constitute the dedication of that party's system or any portion thereof to the other party or to the public, nor affect the status of Idaho as an independent public utility corporation, or Seller as an independent individual or entity.

ARTICLE XVIII: SEVERAL OBLIGATIONS

Except where specifically stated in this Agreement to be otherwise, the duties, obligations and liabilities of the parties are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture or impose a trust or partnership duty, obligation or liability on or with regard to either party. Each party shall be individually and severally liable for its own obligations under this Agreement.

ARTICLE XIX: WAIVER

Any waiver at any time by either party of its rights with respect to a default under this Agreement, or with respect to any other matters arising in connection with this Agreement, shall not be deemed a waiver with respect to any subsequent default or other matter.

ARTICLE XX: CHOICE OF LAWS

This Agreement shall be construed and interpreted in accordance with the laws of the State of Idaho.

ARTICLE XXI: DEFAULT, NOTICE AND LIQUIDATED DAMAGES

21.1 Notice - In the event either party defaults in the performance of any of the terms or conditions of this Agreement, the nondefaulting party shall cause notice in writing to be given to the defaulting party, specifying the manner in which such default occurred. If the defaulting party shall fail to cure such default within the 30 days after service of such notice, then, and only then, may the nondefaulting party pursue any remedy which it may have in law or equity, including an action to terminate this Agreement, to enforce the terms of this Agreement, or to recover damages for breach thereof. This article shall not be construed as restricting in any way Idaho's rights under Article XII, or paragraph A-4.1 of Appendix A to immediately interrupt flows of energy from the facility to Idaho's system.

21.2 Liquidated Damages. The parties agree that the amount of the payment which Idaho is to make to Seller is based on the agreed value to Idaho of Seller's performance of its obligation to provide Net Energy as set out in Article VI for the full term of the Agreement. The parties further agree that if Idaho does not receive such full performance (1) Idaho shall be deemed damaged by reason thereof, (2) it would be impractical or extremely difficult to fix the actual damages to Idaho resulting therefrom, (3) the payments as provided below are in the nature of adjustments in Net Energy prices and liquidated damages and not a penalty, and are a reasonable attempt by the

parties to estimate a fair compensation to Idaho for the reasonable losses that would result from such total or partial default, (4) however this liquidated damages provision shall not preclude the Seller from repairing or reconstructing a Facility to restore its performance as otherwise provided herein.

21.2.1 Failure to Deliver for Term of Agreement - If, at any time prior to the end of the term of the Agreement, Seller permanently curtails in whole or in part its deliveries of the Annual Net Energy amount Seller shall pay to Idaho, as Idaho's sole and exclusive remedy for damages arising out of this permanent curtailment of Net Energy deliveries, the appropriate lump sum repayment amount specified in Appendix D, multiplied by the difference in megawatt-hours between the annual Net Energy amount specified in paragraph 6.3 and the reduced Annual Net Energy amount. This payment amount will bear interest from sixty (60) days after Idaho receives notice of Seller's permanent reduction of the annual Net Energy amount, until paid, at a rate equal to the average of the prime interest rates of the Idaho First National Bank in effect during each month of that period. For purposes of this paragraph, reduced deliveries of Net Energy due to below-normal water conditions (paragraph 6.4) shall not be considered a permanent curtailment.

ARTICLE XXII: GOVERNMENTAL AUTHORIZATION

This Agreement is subject to the jurisdiction of those governmental agencies having control over either party or this Agreement.

ARTICLE XXIII: COMMISSION APPROVAL

This Agreement shall not become effective until the Commission approves all terms and provisions hereof without change or condition and declares that all payments to be made hereunder shall be allowed as prudently incurred expenses for ratemaking purposes. If the Commission has not approved this Agreement within 60 days of its submission, then either party may terminate this Agreement by giving written notice to the other within 30 days after said 60-day approval period has expired.

ARTICLE XXIV: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms and provisions hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto, save that no assignment hereof by Seller shall become effective without the written consent of Idaho being first obtained. Such consent shall not be unreasonably withheld. This article shall not prevent a financing entity with recorded or secured rights from exercising all rights and remedies available to it under law or contract. Idaho shall have the right to be notified by the financing entity that it is exercising such rights or remedies.

ARTICLE XXV: MODIFICATION

No modification to this Agreement shall be valid unless it is in writing and signed by both parties.

ARTICLE XXVI: TAXES

26.1 Each party agrees to pay its own federal and state taxes on its share of income attributable to the parties' performance of this Agreement, and any other tax, including any tax in the nature of an excise tax.

26.2 Each party shall pay before delinquency all ad valorem taxes and other governmental charges which if failed to be paid when due could result in a lien upon the Facility or the Interconnection Facilities.

ARTICLE XXVII: NOTICES

All written notices under this Agreement shall be directed as follows, and shall be considered delivered when deposited in the U S Mail, first-class postage prepaid, as follows:

To Seller: David H Leroy
Runft, Leroy, Stecher, Coffin
& O'Riordan, Chartered
P O Box 1960
Boise, ID 83701

To Idaho: Vice President, Power Operations
Idaho Power Company
P O Box 70
1220 Idaho Street
Boise, Idaho 83707

ARTICLE XXVIII: ADDITIONAL TERMS AND CONDITIONS

28.1 This Agreement includes the following appendices, which are attached hereto and included by reference:

Appendix A	-	Standards for Interconnection and Metering
Appendix B	-	Special Facilities, Point(s) of Delivery and Metering, and Operation Date
Appendix C	-	Schedule of Required Licenses and Permits
Appendix D	-	Lump Sum Payment

28.2 Idaho agrees that if Seller is unable to obtain project financing within ninety (90) days of the execution of this Agreement, the Seller may, at its option, void this Agreement, provided, however, that if Seller voids this Agreement within the ninety (90) day period, Seller will reimburse Idaho for all necessary and reasonable expenses incurred by Idaho for planning and construction of the interconnection with the facility.

28.3 In the event that the IPUC, pursuant to Section 7.3 of this Agreement, reduces the rate payable to Seller, the lump sum refund payment schedule in Appendix D will be adjusted commensurately with such reduction in rate.

ARTICLE XXIX - ENTIRE AGREEMENT

This Agreement constitutes the entire Agreement of the parties concerning the subject matter hereof and supersedes all prior or contemporaneous oral or written agreements between the parties concerning the subject matter hereof.

IN WITNESS WHEREOF, The parties hereto have caused this Agreement to be executed in their respective names as of the date first above written.

IDAHO POWER COMPANY

APPROVAL:

____ J E BRUCE/R J O'CONNOR
____ T A SPOFFORD
____ L G TEPLY
____ D E BARCLAY
____ B L KLINE

By _____
James E Bruce, Chairman
of the Board and CEO
"Idaho"

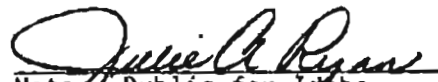
By James B. Howell
James B Howell
"Seller"

STATE OF IDAHO)
) ss
County of Ada)

On this 31st day of August, 1984, before me, the undersigned, a Notary Public, personally appeared JAMES E BRUCE, personally known, who being duly sworn, did say that he is the Chairman of the Board and Chief Executive Officer of the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same as the free act and deed of said corporation.

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

(NOTARIAL SEAL)

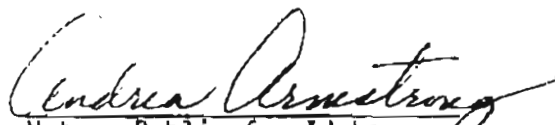

Notary Public for Idaho
Residing at Boise, Idaho

STATE OF IDAHO)
) ss
County of Ada)

On this 31st day of August, 1984, before me, the undersigned, a Notary Public, personally appeared JAMES B HOWELL, personally known, who being duly sworn, did say that he is the individual who executed the within instrument, and acknowledged to me that he executed the same as the free act and deed.

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

(NOTARIAL SEAL)


Notary Public for Idaho
Residing at: Boise, Id.

APPENDIX A
STANDARDS FOR INTERCONNECTION AND METERING

A-1 GENERAL PROVISIONS

A-1.1 It is the policy of Idaho to permit Seller to operate its Facility in parallel with Idaho's electric system, whenever this can be done without adverse effect to Idaho's equipment, personnel or other customers

A-1.2 These guidelines contain the minimum metering, interconnection, protection, operation, and communications requirements for the safe and effective parallel operation of Seller's Facility with Idaho's system. Although these guidelines are established to provide a uniform approach for evaluating Seller's generation projects, each interconnection must be examined by Idaho individually. Idaho and the Seller will be guided by this document, which is a part of the Firm Energy Sales Agreement, in planning an interconnection between Idaho's system and the Seller.

A-1.3 Idaho may provide limited technical assistance for Seller, but will not perform any engineering, construction or repair work on power production equipment.

A-2 GENERAL DESIGN CONSIDERATIONS

A-2.1 All Seller generators larger than 20 KVA shall be three-phase generators connected to three-phase circuits unless otherwise approved by Idaho. Generators 20 KVA and smaller may be either single-phase or three-phase.

A-2.2 Except in certain instances to be determined by Idaho, Seller's generator(s) shall be isolated from Idaho's system by a transformer. The Seller may be required to limit the fault current contribution to Idaho's system by generator impedance, neutral grounding or other means.

A-2.3 Idaho will not assume any responsibility for protection of the Seller's generator or of any other portion of the Seller's electrical equipment. The Seller is fully responsible for protecting his equipment from faults or disturbances on Idaho's system.

A-2.4 Seller is hereby notified that certain conditions on Idaho's system may cause negative sequence currents to flow in the Seller's generator. It is the sole responsibility of the Seller to protect his equipment from excessive negative sequence currents, reverse power flow, and single phasing.

A-3 METERING REQUIREMENTS

A-3.1 Unless otherwise agreed by the Parties, metering will be provided for recording net output of the Facility and will be separate from any metering of Seller's load. Metering required will be determined by Idaho on a case-by-case basis, but will generally follow the guidelines below:

A-3.1.1 Capacity Under 750 KVA - A kilowatt-hour/demand meter will be installed.

A-3.1.2 Capacity of 750 KVA and Above - Two meters will be installed. These will measure KWH/KW demand, and reactive power flow to and from the generator. These meters will have pulse outputs to a solid state recorder in order to determine power factor and demand.

A-4 FACILITY PROTECTION

A-4.1 The Seller has full responsibility for the maintenance of his generating equipment and the equipment protecting the Facility. If, in the opinion of Idaho, the Seller has failed to provide proper maintenance of the facility or its protection, and this failure could adversely impact Idaho or other Idaho customers, Idaho can require the Seller to cease parallel operation.

A-5 SYNCHRONOUS GENERATORS

A-5.1 If a governor is used, the governor characteristics may be adjusted to at least 5% droop.

A-5.2 A check interlock for synchronizing of the Seller's generator is required.

A-6 INDUCTION GENERATORS

A-6.1 Overvoltage can become a serious problem when an induction generator is isolated to a portion of a transmission or distribution system. Overvoltage relay shall be provided that will open the generator breaker in the event that the voltage reaches predetermined limits consistent with the overvoltage capability of the generator and the system. Undervoltage protection may also be required. On larger units, underfrequency and overfrequency relaying may be required.

A-6.2 Vars for excitation of the induction generator will need to be supplied from the power system or from capacitors as a component of a static Var source. Appendix B to this Agreement provides for compensation to Idaho for Vars supplied.

A-7 DC TO AC CONVERTERS

A-7.1 Direct current generators may be operated in parallel with Idaho system through a synchronous inverter. The inverter installation will be designed such that an Idaho system interruption will result in the immediate removal of the inverter power flow to Idaho. Harmonics and/or spurious frequencies generated by the Seller's generator-inverter combinations must be limited to avoid causing any reduction in quality of electric service to Idaho's other customers.

A-8 SWITCHING REQUIREMENTS

A-8.1 Idaho reserves the right to open and secure by lock any disconnecting device without prior notice to Seller for any of the following reasons:

A-8.1.1 System emergency.

A-8.1.2 Inspection of the Seller's Facility protective equipment reveals a condition which might adversely impact Idaho or Idaho's other customers.

A-8.1.3 Seller's generating equipment interferes with other customers, or with Idaho's system.

A-8.2 Seller shall maintain a written record of all operating (opening and closing) by Seller of the Seller's interconnection with Idaho. Each operation will be recorded by the date, hour and minute and will include the generator kilowatt hour reading at the time of the operation. This record will be maintained on a monthly basis and the original will be mailed to Idaho on the first business day of the following month. Idaho will provide the forms necessary for filing this monthly switching report.

A-9 GENERATION SCHEDULING AND REPORTING

A-9.1 For installations under 750 KVA, the Seller shall read his generator kilowatt hour meter within the 24-hour period following 12:00 noon on the last day of each month. That kilowatt hour meter reading is to be recorded on the monthly switching report that is mailed to Idaho.

A-9.2 For installations 750 KVA and above, before 10:00 A M each day, the Seller shall provide the Designated Dispatch Facility with an estimate of what the Seller will generate on the following day or days as may be required. In order to maintain a continuous record of energy actually generated and delivered, the Seller shall, by means acceptable to Idaho, obtain the kilowatt hour reading at midnight of each day and shall notify the Designated Dispatch

Facility, the following day, of that meter reading. Additionally, the kilowatt hour meter reading, corresponding to midnight at the end of the last day of each month, shall also be recorded on the monthly switching report that is mailed to Idaho.

A-9.3 The written record of the end-of-month meter reading on the monthly switching report, subject to subsequent review and correction by Idaho, will be the basis of payment for energy purchased by Idaho from the Seller. An adjustment in the kilowatt hours delivered will be made to compensate for the losses in B-6.

APPENDIX B
SPECIAL FACILITIES, POINTS OF DELIVERY AND METERING,
AND OPERATION DATE
ELK CREEK

B-1 DESCRIPTION OF FACILITY

The Seller's Facility is described as a 1884 KW synchronous generator, rated at 4160 volts, 60 hertz, driven by a Gilkes turbo turbine.

B-2 LOCATION OF FACILITY

The Facility is located in the NE Quarter of Section 27, Township 22 North, Range 1 East, Boise Meridian, Idaho County, Idaho.

B-3 SCHEDULED OPERATION DATE ~~AUGUST 1, 1984~~

~~February 1, 1985~~
Seller has selected ~~March 1, 1985~~, as the Scheduled Operation Date and ~~February 1, 1985~~, as the First Energy Date. In making these selections, Seller recognizes that to allow for adequate testing of the Facility's degree of completion and reliability, it must achieve its First Energy Date at least thirty (30) days prior to the Operation Date. Idaho, based on the information supplied by Seller, will schedule its construction so that all Special Facilities, Disconnection Equipment and metering equipment will be completed in time so as not to delay Seller's achieving the First Energy Date. However, if Seller fails to pay the costs specified in B-11 below at the time specified therein, or materially changes the specifications or design of the Facility or Seller-furnished Interconnection Facilities from what was previously provided to Idaho, Idaho may be required to reschedule its construction of these facilities which could adversely impact Seller's ability to achieve its scheduled First Energy

Date, otherwise Idaho agrees that if Idaho fails to interconnect Seller's Facility to Idaho's system within thirty (30) days of the Operation Date, Idaho shall commence making payments to Seller for the amount of net energy which, according to the estimates contained in paragraph 6.2 above, would have been delivered to Idaho at the rate specified in paragraph 7.1 above.

B-4 FAILURE TO ACHIEVE OPERATION DATE

If Seller has not achieved the Operation Date within eleven (11) months of the Scheduled Operation Date for reasons other than delays caused by Idaho, such failure shall be deemed to be an event of default pursuant to Article XXI.

B-5 POINT OF DELIVERY

The Point of Delivery of Energy from the Seller to Idaho will be the 19900/34500 volt bushings of the padmount transformer. The transformer will be 2500 KVA, three phase, 2400/4160 volts to 19900/34500 volts, connected grounded-wye--ungrounded-wye, located approximately 50 feet from the generator, and will be owned and maintained by the Seller.

B-6 LOSSES

In calculating payments made by Idaho for Seller's Net Energy Losses shall be 0.80% of the metered energy.

B-7 METERING

The metering equipment will be on the 4160 volt side of the transformer, and will consist of a demand meter, current and potential transformers, and associated equipment. The meter will register kilowatt-hours and kilowatts of demand. Metering equipment will be owned and maintained by Idaho, with total cost of purchase, installation, operation, and

maintenance, including administrative cost, to be reimbursed to Idaho by the Seller.

B-8 SPECIAL FACILITIES

The construction of approximately 1950 feet of three phase overhead, 34.5 KV distribution line, and the installation of a single phase transformer for local service, will be provided by Idaho as Special Facilities. The total actual cost to Idaho for these Special Facilities will be reimbursed to Idaho by the Seller.

B-9 REACTIVE POWER

The Seller will operate the synchronous generator within plus or minus 5% of unity power factor. Equipment and controls will be provided which allow the generator to operate anywhere within this range. The generator field excitation will be controlled by a power factor controller. The machine will be started using sync-check relays to assure proper synchronization.

B-10 DISCONNECTION EQUIPMENT

Disconnection Equipment is required to insure that the Seller's Facility will be disconnected from Idaho's system in the event of a disturbance on either Idaho's system or the Seller's Facility. This equipment is for the protection of Idaho's equipment only. Idaho will supply and install the Disconnection Equipment which consists of a pole mounted 34.5 KV rated oil switch to be used as the breaker, an interconnection panel which includes the relays and associated logic, a pole mounted transformer bank for ground fault detection and a safety switch. Seller will supply and install all wiring and conduit necessary for the operation of the Interconnection Equipment. Idaho will supply details for the interconnection

panel and will connect and test the equipment prior to operation of the Facility. Seller will provide drawings of the interconnection wiring for engineering approval before installation. The total cost of the Disconnection Equipment, connection and testing will be reimbursed to Idaho by the Seller.

B-11 COSTS

The total cost of Special Facilities and Metering Equipment is \$44,330. The total cost of the Disconnecting Equipment is \$12,876. Total amount to be paid to Idaho by the Seller is \$57,206. This represents the amount that will be charged by Idaho if the Seller makes the payment on or before August 1, 1984. If the Seller does not make this payment by the specified date, the amount will be subject to adjustment by Idaho. Idaho will not schedule construction or order Special Facilities which are not ordinarily maintained in Idaho's inventory until payment has been made. In addition, to the installation and construction charges above, during the term of the Agreement, Seller will pay Idaho an operation and maintenance charge of 0.7% per month times the total amount specified above. The monthly operations and maintenance charge may be adjusted during the term of the Agreement to reflect changes in the costs upon which the charge is based. Idaho will maintain on file with the Commission a schedule showing the cost components and calculation of the monthly operation and maintenance charge.

B-12 SALVAGE

No later than sixty (60) days after the termination or expiration of this Agreement, Idaho will prepare and forward to Seller an estimate of the remaining value of those Idaho Power furnished Interconnection Facilities

described in this Appendix, less the cost of removal and transfer to Idaho's nearest warehouse, if the Interconnection Facilities will be removed. If Seller elects not to retain ownership of the Interconnection Facilities but instead wishes that Idaho purchase such facilities from Seller at the net salvage value, Idaho may then be invoiced by Seller for the net salvage value estimated by Idaho for the Interconnection Facilities and shall pay such amount to Seller within thirty (30) days after receipt of said invoice. Seller shall have the right to offset the invoice amount against any present or future payments due Idaho.

APPENDIX C

SCHEDULE OF REQUIRED LICENSES AND PERMITS

1. Evidence of compliance with Part 1 of the Federal Power Act. Acceptable evidence of compliance will be an Order from FERC: (1) issuing a License for the Facility, or (2) exempting the Facility from Licensing.
2. Permit for the appropriation of water for power production purposes issued by the Idaho Department of Water Resources.
3. Evidence of compliance with Subpart B of CFR §292.707. For this Facility, self-certification is sufficient.

APPENDIX D

LUMP SUM REFUND PAYMENT FOR PERMANENT CURTAILMENT OF PORTION OR ALL OF ANNUAL NET ENERGY AMOUNT UNDER 35-YEAR CONTRACT DOLLARS PER ANNUAL MEGAWATT HOUR

<u>Contract Year of Curtailment Commencement</u>	<u>Facility Operation Date</u>			
	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
1	20	20	20	20
2	40	40	40	40
3	60	60	60	65
4	80	80	80	85
5	100	100	105	105
6	120	120	125	125
7	140	140	145	145
8	160	160	165	165
9	180	180	185	185
10	195	195	200	200
11	210	210	215	220
12	225	230	235	240
13	240	250	260	270
14	255	265	270	300
15	275	290	310	325
16	300	315	335	355
17	325	340	360	385
18	350	365	385	410
19	370	390	410	435
20	390	410	430	460
21	405	425	450	480
22	420	440	465	495
23	435	455	480	510
24	440	465	490	520
25	445	470	500	525
26	445	470	495	520
27	440	465	490	510
28	420	445	475	495
29	400	420	450	475
30	370	390	410	430
31	330	345	365	385
32	270	280	295	315
33	200	200	220	220
34	100	100	110	110
35	0	0	0	0

Permit No. 78-7254

1. Owner: El Dorado Hydro (CH Mountain States Operations) Phone No. (208) 734-0551

Current Address: CHI: One Tech Drive, Suite 220 Andover, MA 01810

Local Contact: Dale Higbee Idaho Operations Supervisor (Twin Falls)
CHI Mountain States Operations 2283 Wright Ave., Suite D Twin Falls, ID 83301
Office: (208) 734-0551; Cell Number: (208) 731-2729; Email: Dale.Higbee@northamerica.enel.it
VP of Operations Victor Engel (978)-681-1900 ext. 811

2. Accompanied by: Charley Holloway EXAM DATE : May 13, 2009

Address: _____ Phone No: Plant: (208) 628-3561; Home: (208) 628-2701

Relationship to Permit Holder: Plant Operator

3. Source: Elk Creek tributary to Little Salmon River

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 78-7150B (Power); 78-7154 (Power); 78-7188 (Power)
2. Other water rights with the same point of diversion: 78-7150B; 78-7154; 78-7188

C. DIVERSION AND DELIVERY SYSTEM

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

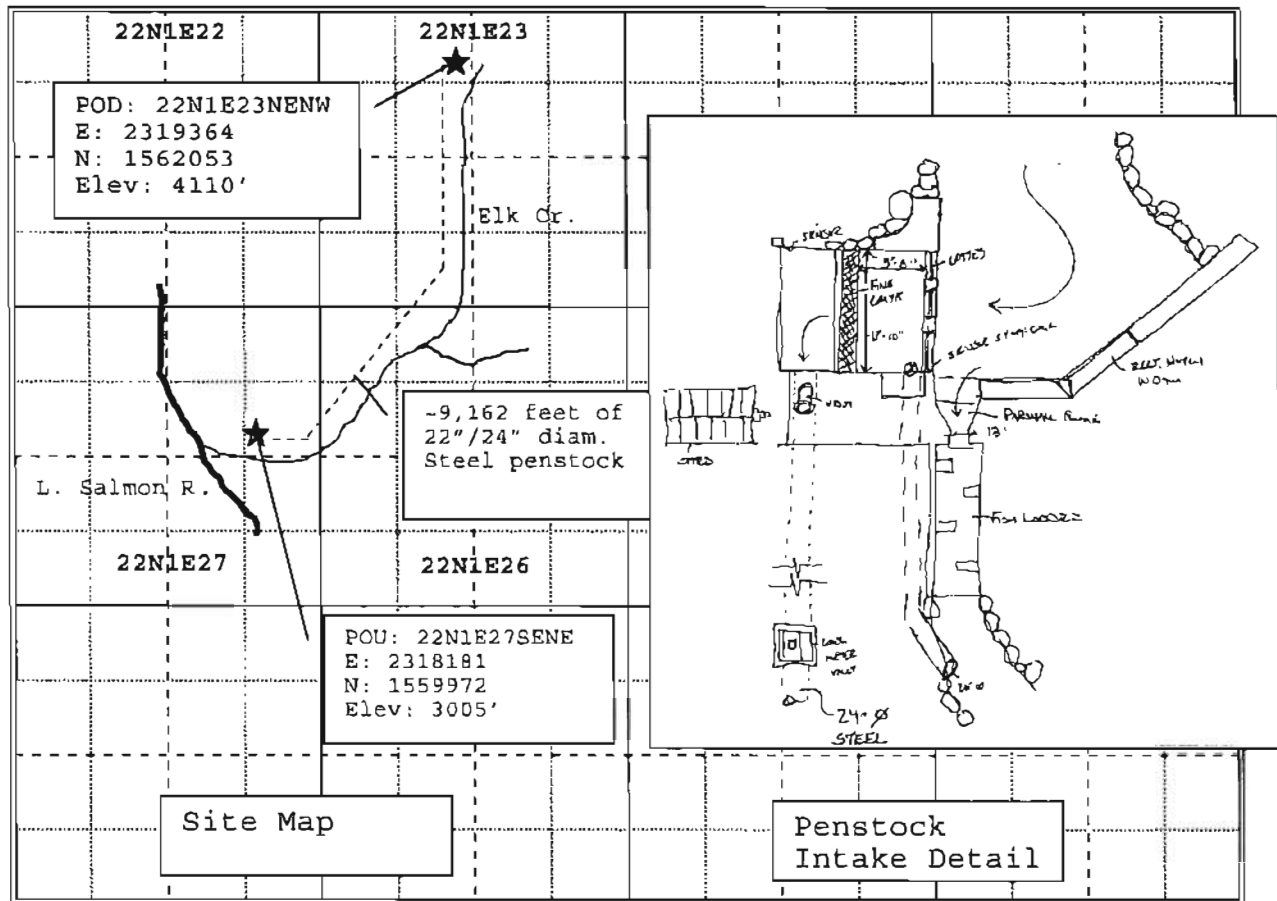
[illegible]

- 2. Place(s) of Use:**

Indicate Method of Determination Aerial Imagery

[illegible]

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



Scale: 1" = N.T.S.

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

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

☒ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
N/A – Gravity Flow					

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Closed Conduit Flow Meter		HydriL	TMTR-500	87260033		
Turbine Efficiency Curves	Pelton Wheel	Neyrpic				

2. **Measurements:** None taken, flow meter was not functioning.

E. NARRATIVE/REMARKS/COMMENTS

See Attachments.

Have conditions of permit approval been met? ☒ yes ☐ no

F. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method:

Q = 2.41 cfs (See attached calculations)

G. VOLUME CALCULATIONS

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:

$V_{calc} = 727 \text{ ac-ft (See attached calculations)}$

Proof of BU Volume = $V_{proof} = 700 \text{ ac-ft}$

$V_{proof} < V_{calc} \therefore$ license the fully requested volume from proof of BU notice of 700 ac-ft.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Power	3/01	7/31	2.41	700
Totals:			2.41	700

2. Recommended Amendments

☒ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None
☒ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ Other (change owner/contact)

I. AUTHENTICATION

Field Examiner's Name: Mat Weaver Date: 11-26-10

Reviewer _____ Date _____

SEAL

Permit 78-7254 Beneficial Use Field Report Supplemental Discussion

1.0 Site & System Description

The point of diversion (POD) for this permit is located on Elk Creek approximately 1,105 feet in elevation above and upstream of the power house or place of use (POU). At the POD a reinforced concrete dam transects Elk Creek, backing water up into the penstock intake works. Refer to pictures 1 and 2 for panoramic images of the intake system. Water enters the penstock intake system from Elk Creek via three slide gates situated on the north side of the channel - refer to picture 3. Downstream of the slide gates water flow passes through a series of two screens (course and fine) before discharging into the penstock. Picture 4 depicts the first screen. The entire intake system is covered by a 15 foot x 15 foot platform that protects the system from weathering and vandalism.

Flow rate into the penstock is managed to maintain optimal flow to the turbine while maintaining a minimum stream flow through the by-pass fish passage ladder of 3.00 cfs. Flow through the by-pass is measured with a built-in Parshall flume. A pressure transducer measures head at the intake of the flume and this data is used to calculate a flow rate based on the geometry and configuration of the flume. The Parshall flume is likely a non-standard device due to the turbulent flow characteristics at the inlet and outlet of the flume, which are not consistent with standard design recommendations. Picture 5 depicts the inlet to the fish passage channel. Pictures 6 and 7 depict the fish passage channel from downstream of the device. Head at the penstock is measured with a second pressure transducer and flow into the penstock is controlled with a float device. Refer to picture 8 for a depiction of the pressure transducer housing and picture 9 for depiction of the control float. Values from both pressure transducers are displayed in real time at the power house and are used to control the system. At the time of the field exam (~12:00 PM, May 13, 2009), the pressure transducer at the Parshall Flume was reading 3.77 feet of head and the pressure transducer at the penstock intake was reading 3.48 feet of head. The observed power output from the device for the corresponding head conditions was 1,815 KW.

Approximately 300 feet downstream from the penstock intake is a concrete meter vault housing a closed-conduit type flow meter that was used to measure the flow rate of water within the penstock. The device is a Hydrel flow meter with model number TMTR-500, part number 190-5087, and serial number 87260033. At the time of the field exam the flow meter did not function and no flow rate measurement was recorded. Refer to picture 10 for depiction of the meter vault display. During the field exam of WRs 78-7150B, 78-7154, and 78-7188 on June 11, 1987, Department staff observed a flow rate of 26 CFS as measured by the now defunct flow meter.

Design plans propose a penstock with a 30-inch diameter. At the inlet of the penstock and at the meter vault the facility operator (Charley Holloway) and past Department field examiners describe the penstock as having a 24-inch diameter. Within the power house just upstream of the turbine the penstock was measured as having a diameter of 22 inches. The length and fall of the penstock,

({

9,162 feet (~1-3/4 miles) and 1,105 respectively, were estimated from GIS mapping and a handheld GPS device.

The only day-lighted portion of the penstock observed by Department staff during the most recent field exam is where the penstock enters the power house. The power house sits adjacent to Elk Creek within a few hundred feet of the confluence of Elk Creek and the Little Salmon River. Picture 11 depicts the power house as seen from the east. Picture 12 depicts the south face of the power house and the facility identification sign. Picture 13 depicts the entrance and main exterior electrical box of the power (west face).

Inside the power house the penstock passes through a gate valve fitting before splitting into two separate lines of flow, refer to picture 14. Each line is throttled through a needle valve before discharging directly onto the blades of the turbine also located in the power house. Pictures 15 and 16 depict the turbine and upper line of the penstock feeding into the turbine. A digital pressure gage (Ashcroft serial number 1023732) is located just upstream of the division of the penstock, at the time of the field exam (~12:30 PM, May 13, 2009) the pressure gage read 399.25 PSI, refer to picture 17. A high pressure unit (HPU) is used to control discharge of water onto the turbine via both needle valves. Picture 18 depicts the HPU and lower penstock line feeding into the turbine. The turbine is a Pelton wheel type device manufactured by Neyrpic the following information was displayed on the turbine name plate: Output 2320 KW, Net Head 320 M, Discharge 0.85 M³/S, and Sync Speed 900 RPM. Picture 19 depicts the name plate and front face of the turbine. Also located in the power house are the generator, generator exhaust system, and the facility control system. Picture 20 depicts the generator exhaust system. Picture 21 depicts the generator name plate. The facility control system monitors and controls flow rate into the penstock, flow rate into the fish passage by-pass, and power generation and output. Picture 22 depicts the power plant control system. Picture 23 depicts the control system readouts.

Below the turbine the water is collected in a draft tube and discharged back into Elk Creek via two 24-inch diameter steel conduits. Discharge back to Elk Creek occurs approximately 100 feet to the southwest of the power house just upstream of the confluence between Elk Creek and the Little Salmon River. Pictures 24 and 25 depict the discharge of beneficially used water back to Elk Creek.

2.0 Flow Rate Evaluation

Three existing water rights describe the beneficial use of water at the Elk Creek hydro-power facility: 78-7150B (7.72 CFS), 78-7154 (10.00 CFS), and 78-7188 (8.00 CFS). The combined diversion rate of all three water rights is 25.72 CFS. There are no combined diversion rate limitations associated with any of the existing water rights. However, there is a combined head (1,130 feet) and horsepower (1,391.2 HP or 1,037.4 KW) limitation associated with all three rights.

Permit 78-7254 was originally permitted with a diversion rate of 50 cfs for the generation of 4,200 KW. The permit was amended to have a diversion rate of 40 cfs for the generation of 3,360 KW.

Proof of beneficial use, with appropriate fees, was submitted for a diversion rate of 7 CFS and an annual volume of 700 AF.

At the time of the field exam (May 13, 2009) the installed flow meter on the penstock was not functioning. Department staff attempted to measure flow rate with a portable Panametric ultrasonic flow meter but there was no accessible length of exposed penstock adequate to meet the attachment/mounting requirements of the flow meter. As such, a direct measurement of flow was not obtained during the field exam.

Following the field exam, Dale Higby with El Dorado Hydro provided turbine curves describing the relationship between power generation and penstock flow rate. In addition, power generation records were provided for 1990 (beneficial use submitted on 7-10-1990) and 1997. Records are included as an attachment with this BUFR.

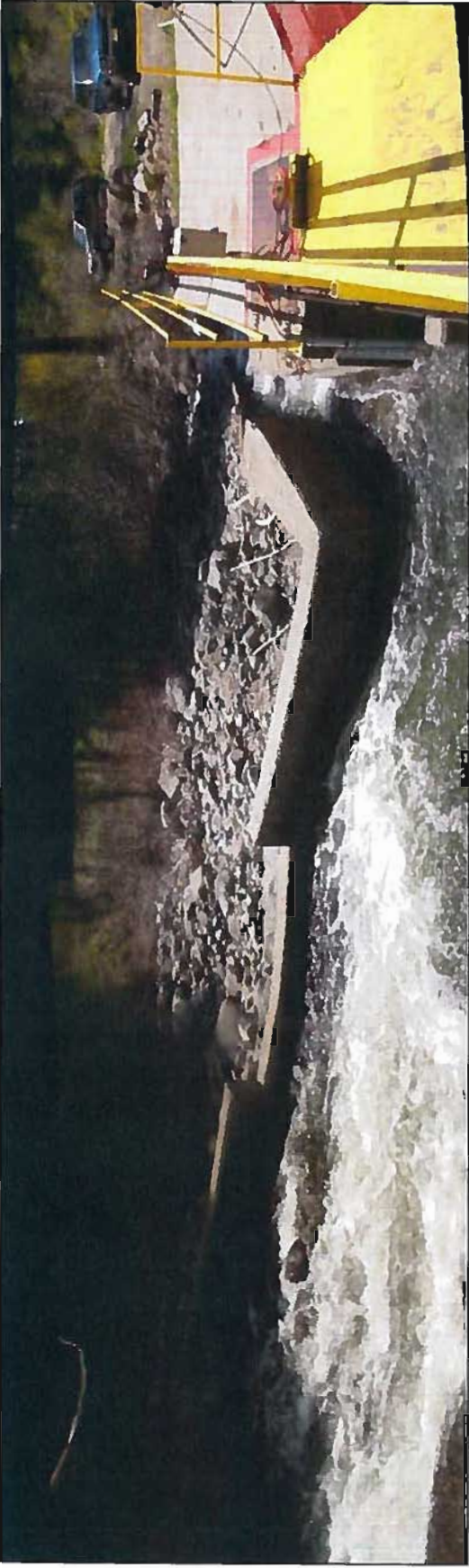
In 1990 the maximum power generation achieved prior to submittal of beneficial use was 1,919 KW (June 13). Turbine curves for a 22-inch penstock (diameter of penstock measured in the power house) indicated that a flow rate of 28.13 CFS is required to achieve 1,919 KW. Therefore, a beneficial use of 28.13 CFS can be recognized as occurring during the beneficial use development period. Since 25.72 CFS of beneficial use is already acknowledged under previous water rights, 2.41 CFS of unique beneficial use has been developed under permit 78-7254. Since proof of beneficial use was submitted for 7 CFS, we can recognize the full 2.41 cfs of beneficial use. Likewise, evidence was provided indicating that an instantaneous power generation rate of 1,919 KW were developed under this permit, 1,037.4 KW were developed previously, leaving 881.6 KW of unique beneficial use developed under this permit.

Refer to attached diversion rate calculations.

3.0 Annual Volume Evaluation

Proof of beneficial use was submitted for 700 AF per year. Assuming a diversion rate of 2.41 CFS and a season of use from 3/1 to 7/31 (152 days) an annual volume of 727 AF of beneficially used water was developed. Since proof was submitted only 700 AF, an amount less than actually developed, the water right license should be limited to the lesser amount or 700 AF.

Refer to attached annual volume calculations.



Picture 1- Panoramic photograph of intake works including diversion dam (left), fish flow by-pass channel (middle), and intake works (right).



Picture 2 - Second panoramic photograph of POD including the fish flow by-pass channel (left) and penstock intake works (right).



Picture 3 – photo of two of three slide gate intake devices, looking upstream with Elk Creek in background.



Picture 4 – photo of upstream screen at penstock intake.



Picture 5 – photo of inlet to fish passage channel. Note Parshall flume built into the passage and staff gage and stilling well (houses pressure transducer) on the right face of the entrance.



Picture 6 – photo of fish passage ladder taken from below (downstream) of the ladder.



Picture 7 – photo of stream channel immediately downstream of fish passage ladder.



Picture 8 - photo of pressure transducer that measures head over the penstock inlet (northeast corner of platform).



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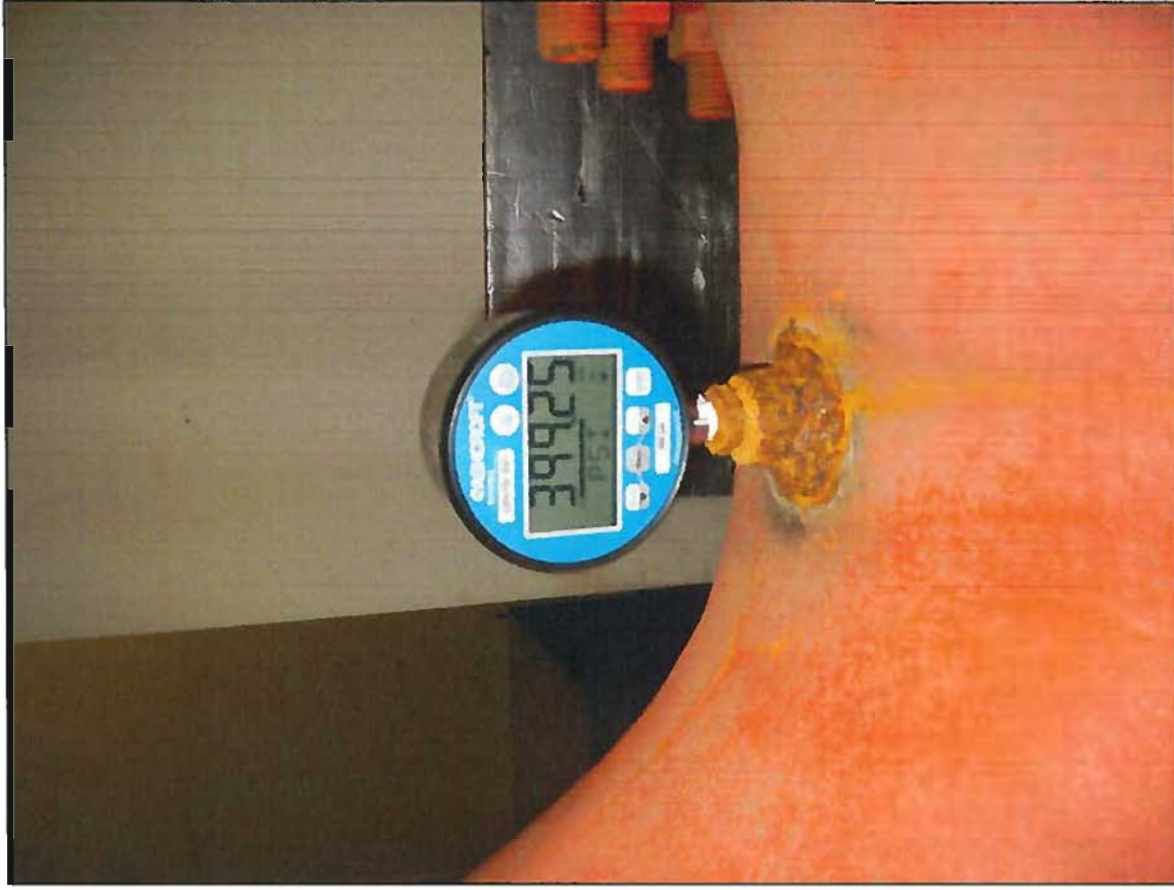
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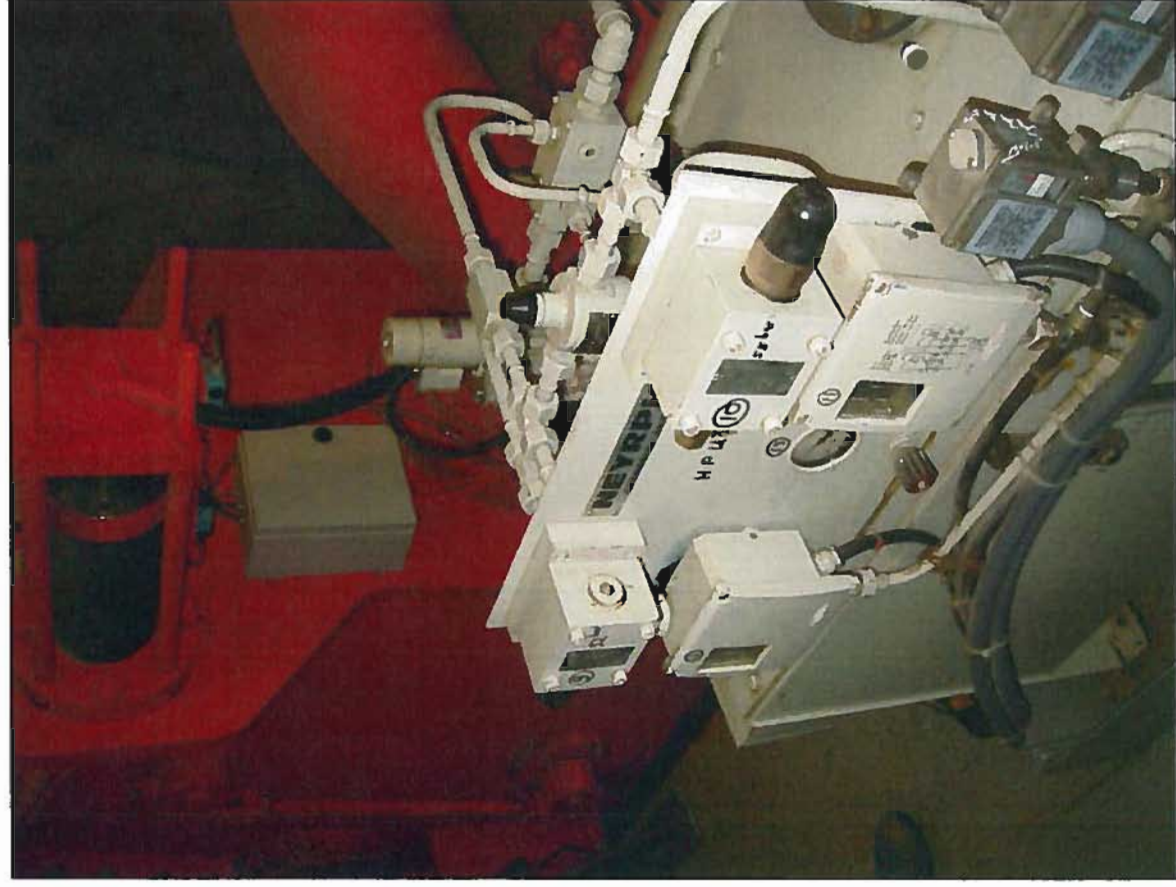
Picture 15 – turbine in foreground. Behind and above turbine the upper leg or line of the penstock can be observed.



Picture 16 – control motor for needle valve of the upper penstock line.



Picture 17 – pressure gage on penstock just upstream of the division of the penstock into two separate lines.



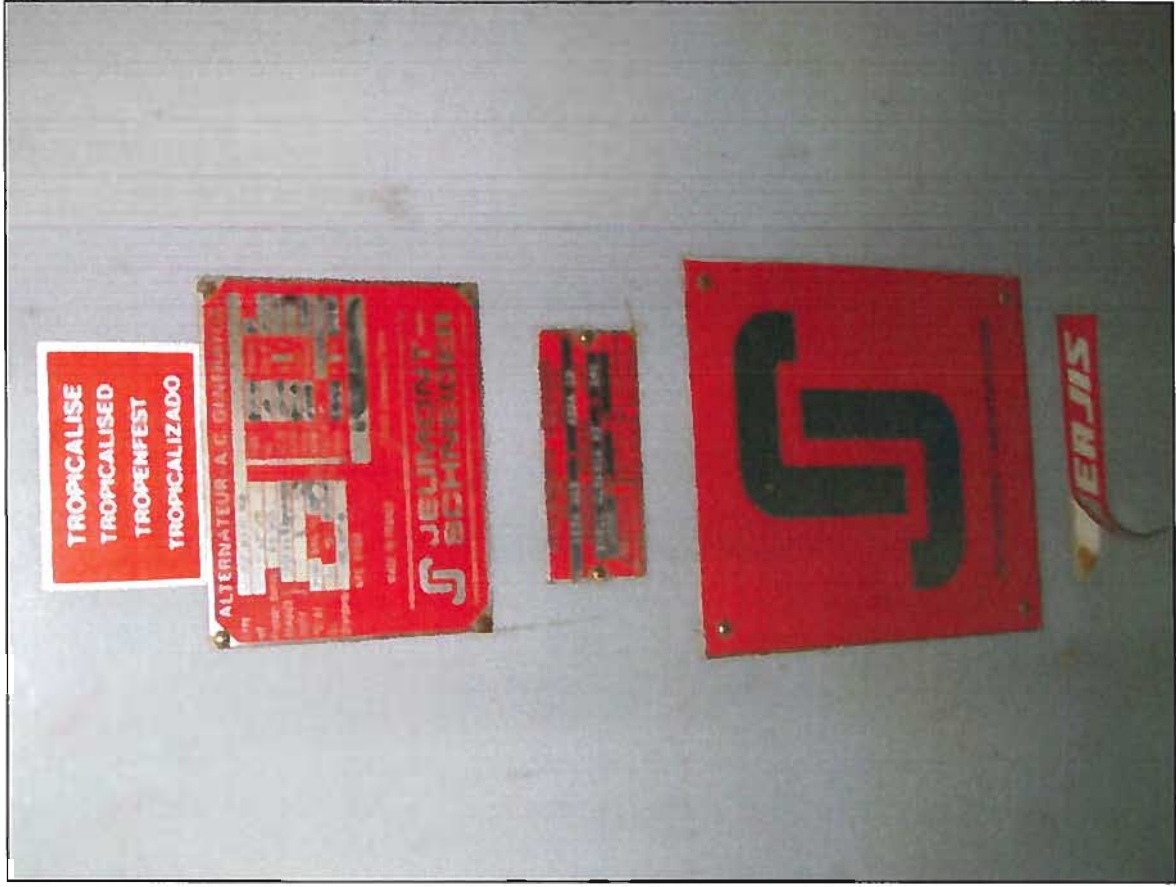
Picture 18 – HPU control device. Note lower leg of penstock in background.



Picture 19 -- turbine name plate.



Picture 20 – power house generator exhaust system.



Picture 21 – generator name plate.



Picture 22 – power plant control system.



Picture 23 – control system readouts.



Picture 24 – discharge of water back to Elk Creek.



Picture 25 – discharge of water back to Elk Creek – side view.

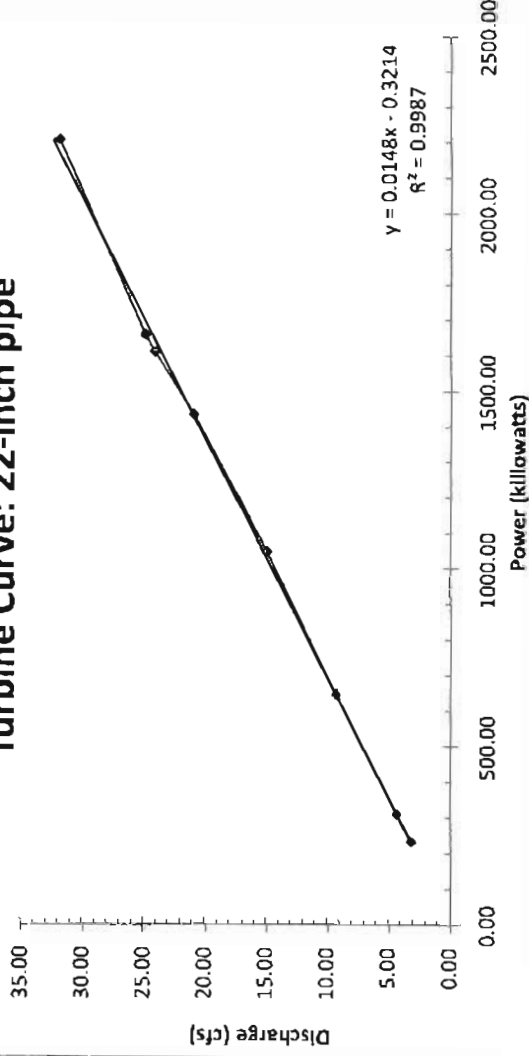
WR Permit 78-7254 Diversion Rate Calculations

22" Pipe

Y	X
Discharge CFS	Power Kw
3.12	234.62
4.29	312.73
9.29	649.57
14.92	1050.09
20.86	1435.75
24.07	1611.50
24.88	1660.31
31.84	2207.07

Table recreated from
El Dorado Turbine
Curve Data

Turbine Curve: 22-inch pipe



Model

n = 8
m = 0.0148
B = -0.3214
e = 0.4137

Given: 1919 KW

Predicted: 28.13 cfs

WR Permit 78-7254 Annual Volume Calculations

Q =	2.41	cfs
Season of Use:		
Start Date:	3/1/2009	
End Date:	7/31/2009	
# of Days:	152	
	152	
T =	13,132,800	seconds
V =	31,650,048	cubic feet
V =	727	ac-ft

WR 78-7254 Site Condition Summary

Penstock Diameter:

D =	30	inches	according to plan set
D =	24	inches	according 78-7150B Field Exam
D =	22	inches	as measured in Power House

Penstock Length:

L =	9370	feet	according to plan set
L =	9130	feet	according to 78-7150B Field Exam
L =	9162	feet	according to ArcMap

Penstock Elevation Drop:

Z =	1015	feet	according to plan set
Z =	1105	feet	GPS Reading 5-13-09 Field Exam
Z =	1163	feet	as conditioned on permit

Observed Operating Condition 5/13/2009 12:00*

P =	1815	kw
Speed =	900	rpm
Head =	3.48	above penstock intake
Head =	3.77	above Parshall Flume
p =	399	psi (pressure upstream of nozzles)

*This represents the operating condition as observed during the FE

Historic Operating Condition 6/30/2008 22:00*

P =	1861	kw
Speed =	--	rpm
Head =	6.17	above penstock intake
Head =	5.75	above Parshall Flume

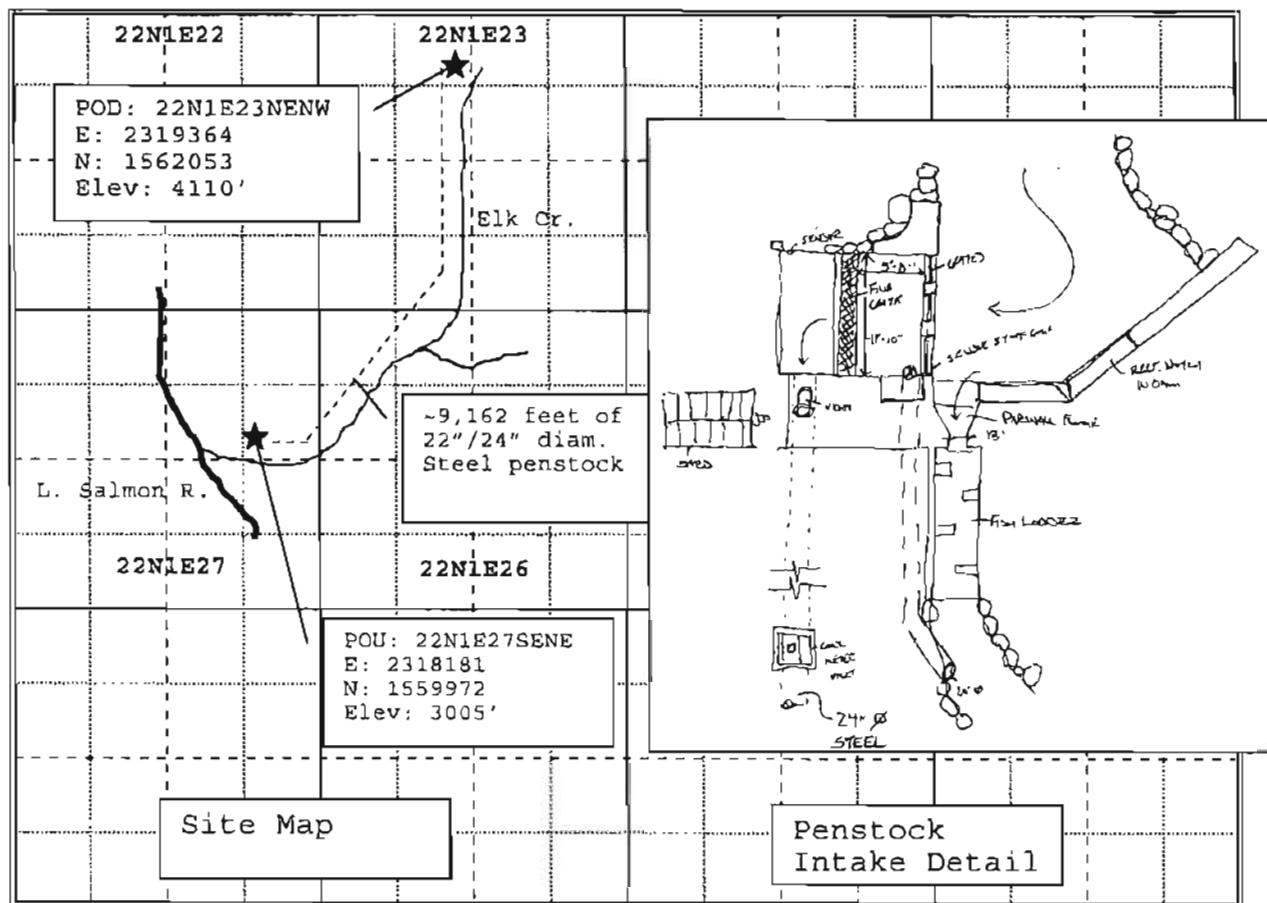
*This represented the peak hour of power generation in '08

DATA FROM DALE HIGBEE
R₀ SEASON PROOF WAS SUBMITTED

Elk Creek Production Data

Date	KW	Head Level
3/19/1990	151	0.635
3/20/1990	200	0.713
3/21/1990	204	0.704
3/22/1990	263	0.676
3/23/1990	354	0.669
3/24/1990	254	0.655
3/25/1990	230	0.657
3/26/1990	203	0.657
3/27/1990	278	0.667
3/28/1990	277	0.674
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3/30/1990	375	0.659
3/31/1990	473	0.671
4/1/1990	635	0.661
4/2/1990	1030	0.655
4/3/1990	1300	0.687
4/4/1990	1462	0.678
4/5/1990	1486	0.682
4/6/1990	1601	0.680
4/7/1990	1740	0.687
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4/10/1990	1696	0.682
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4/13/1990	1842	0.656
4/14/1990	1855	0.862
4/15/1990	1842	1.280
4/16/1990	1862	1.480
4/17/1990	1855	1.615
4/18/1990	1838	1.720
4/19/1990	1883	1.621
4/20/1990	1890	1.649
4/21/1990	1890	1.865
4/22/1990	1880	1.853
4/23/1990	1876	1.929
4/24/1990	1899	1.674
4/25/1990	1890	1.463
4/26/1990	1886	1.327
4/27/1990	1883	1.215
4/28/1990	1886	1.118
4/29/1990	1876	0.902
4/30/1990	1847	0.719

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



Scale: 1" = N.T.S.

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

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

☒ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
N/A – Gravity Flow					

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Closed Conduit Flow Meter		Hydri	TMTR-500	87260033		
Turbine Efficiency Curves	Paton Wheel	Neyrpic				

2. **Measurements:** None taken, flow meter was not functioning.

E. NARRATIVE/REMARKS/COMMENTS

See Attachments.

Have conditions of permit approval been met? ☒ yes ☐ no

F. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method:

Q = 2.41 cfs (See attached calculations)

G. VOLUME CALCULATIONS

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:

$V_{calc} = 727 \text{ ac-ft}$ (See attached calculations)

Proof of BU Volume = $V_{proof} = 700 \text{ ac-ft}$

$V_{proof} < V_{calc} \therefore$ license the fully requested volume from proof of BU notice of 700 ac-ft.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Power	3/01	7/31	2.41	700
Totals:			2.41	700

2. Recommended Amendments

☒ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None
☒ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ Other (change owner/contact)

I. AUTHENTICATION

Field Examiner's Name: Mat Weaver Date: 11-26-10

Reviewer _____ Date _____

SEAL

Permit 78-7254 Beneficial Use Field Report Supplemental Discussion

1.0 Site & System Description

The point of diversion (POD) for this permit is located on Elk Creek approximately 1,105 feet in elevation above and upstream of the power house or place of use (POU). At the POD a reinforced concrete dam transects Elk Creek, backing water up into the penstock intake works. Refer to pictures 1 and 2 for panoramic images of the intake system. Water enters the penstock intake system from Elk Creek via three slide gates situated on the north side of the channel - refer to picture 3. Downstream of the slide gates water flow passes through a series of two screens (course and fine) before discharging into the penstock. Picture 4 depicts the first screen. The entire intake system is covered by a 15 foot x 15 foot platform that protects the system from weathering and vandalism.

Flow rate into the penstock is managed to maintain optimal flow to the turbine while maintaining a minimum stream flow through the by-pass fish passage ladder of 3.00 cfs. Flow through the by-pass is measured with a built-in Parshall flume. A pressure transducer measures head at the intake of the flume and this data is used to calculate a flow rate based on the geometry and configuration of the flume. The Parshall flume is likely a non-standard device due to the turbulent flow characteristics at the inlet and outlet of the flume, which are not consistent with standard design recommendations. Picture 5 depicts the inlet to the fish passage channel. Pictures 6 and 7 depict the fish passage channel from downstream of the device. Head at the penstock is measured with a second pressure transducer and flow into the penstock is controlled with a float device. Refer to picture 8 for a depiction of the pressure transducer housing and picture 9 for depiction of the control float. Values from both pressure transducers are displayed in real time at the power house and are used to control the system. At the time of the field exam (~12:00 PM, May 13, 2009), the pressure transducer at the Parshall Flume was reading 3.77 feet of head and the pressure transducer at the penstock intake was reading 3.48 feet of head. The observed power output from the device for the corresponding head conditions was 1,815 KW.

Approximately 300 feet downstream from the penstock intake is a concrete meter vault housing a closed-conduit type flow meter that was used to measure the flow rate of water within the penstock. The device is a Hydril flow meter with model number TMTR-500, part number 190-5087, and serial number 87260033. At the time of the field exam the flow meter did not function and no flow rate measurement was recorded. Refer to picture 10 for depiction of the meter vault display. During the field exam of WRs 78-7150B, 78-7154, and 78-7188 on June 11, 1987, Department staff observed a flow rate of 26 CFS as measured by the now defunct flow meter.

Design plans propose a penstock with a 30-inch diameter. At the inlet of the penstock and at the meter vault the facility operator (Charley Holloway) and past Department field examiners describe the penstock as having a 24-inch diameter. Within the power house just upstream of the turbine the penstock was measured as having a diameter of 22 inches. The length and fall of the penstock,

9,162 feet (~1-3/4 miles) and 1,105 respectively, were estimated from GIS mapping and a handheld GPS device.

The only day-lighted portion of the penstock observed by Department staff during the most recent field exam is where the penstock enters the power house. The power house sits adjacent to Elk Creek within a few hundred feet of the confluence of Elk Creek and the Little Salmon River. Picture 11 depicts the power house as seen from the east. Picture 12 depicts the south face of the power house and the facility identification sign. Picture 13 depicts the entrance and main exterior electrical box of the power (west face).

Inside the power house the penstock passes through a gate valve fitting before splitting into two separate lines of flow, refer to picture 14. Each line is throttled through a needle valve before discharging directly onto the blades of the turbine also located in the power house. Pictures 15 and 16 depict the turbine and upper line of the penstock feeding into the turbine. A digital pressure gage (Ashcroft serial number 1023732) is located just upstream of the division of the penstock, at the time of the field exam (~12:30 PM, May 13, 2009) the pressure gage read 399.25 PSI, refer to picture 17. A high pressure unit (HPU) is used to control discharge of water onto the turbine via both needle valves. Picture 18 depicts the HPU and lower penstock line feeding into the turbine. The turbine is a Pelton wheel type device manufactured by Neyrpic the following information was displayed on the turbine name plate: Output 2320 KW, Net Head 320 M, Discharge 0.85 M³/S, and Sync Speed 900 RPM. Picture 19 depicts the name plate and front face of the turbine. Also located in the power house are the generator, generator exhaust system, and the facility control system. Picture 20 depicts the generator exhaust system. Picture 21 depicts the generator name plate. The facility control system monitors and controls flow rate into the penstock, flow rate into the fish passage by-pass, and power generation and output. Picture 22 depicts the power plant control system. Picture 23 depicts the control system readouts.

Below the turbine the water is collected in a draft tube and discharged back into Elk Creek via two 24-inch diameter steel conduits. Discharge back to Elk Creek occurs approximately 100 feet to the southwest of the power house just upstream of the confluence between Elk Creek and the Little Salmon River. Pictures 24 and 25 depict the discharge of beneficially used water back to Elk Creek.

2.0 Flow Rate Evaluation

Three existing water rights describe the beneficial use of water at the Elk Creek hydro-power facility: 78-7150B (7.72 CFS), 78-7154 (10.00 CFS), and 78-7188 (8.00 CFS). The combined diversion rate of all three water rights is 25.72 CFS. There are no combined diversion rate limitations associated with any of the existing water rights. However, there is a combined head (1,130 feet) and horsepower (1,391.2 HP or 1,037.4 KW) limitation associated with all three rights.

Permit 78-7254 was originally permitted with a diversion rate of 50 cfs for the generation of 4,200 KW. The permit was amended to have a diversion rate of 40 cfs for the generation of 3,360 KW.

Proof of beneficial use, with appropriate fees, was submitted for a diversion rate of 7 CFS and an annual volume of 700 AF.

At the time of the field exam (May 13, 2009) the installed flow meter on the penstock was not functioning. Department staff attempted to measure flow rate with a portable Panametric ultrasonic flow meter but there was no accessible length of exposed penstock adequate to meet the attachment/mounting requirements of the flow meter. As such, a direct measurement of flow was not obtained during the field exam.

Following the field exam, Dale Higby with El Dorado Hydro provided turbine curves describing the relationship between power generation and penstock flow rate. In addition, power generation records were provided for 1990 (beneficial use submitted on 7-10-1990) and 1997. Records are included as an attachment with this BUFR.

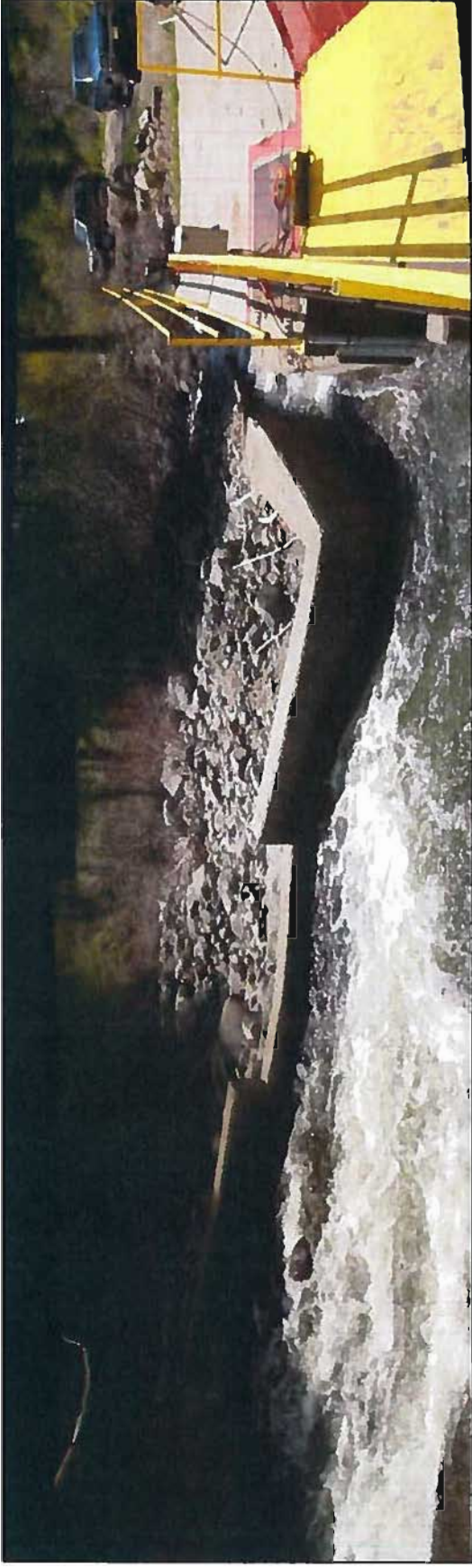
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Refer to attached diversion rate calculations.

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Proof of beneficial use was submitted for 700 AF per year. Assuming a diversion rate of 2.41 CFS and a season of use from 3/1 to 7/31 (152 days) an annual volume of 727 AF of beneficially used water was developed. Since proof was submitted only 700 AF, an amount less than actually developed, the water right license should be limited to the lesser amount or 700 AF.

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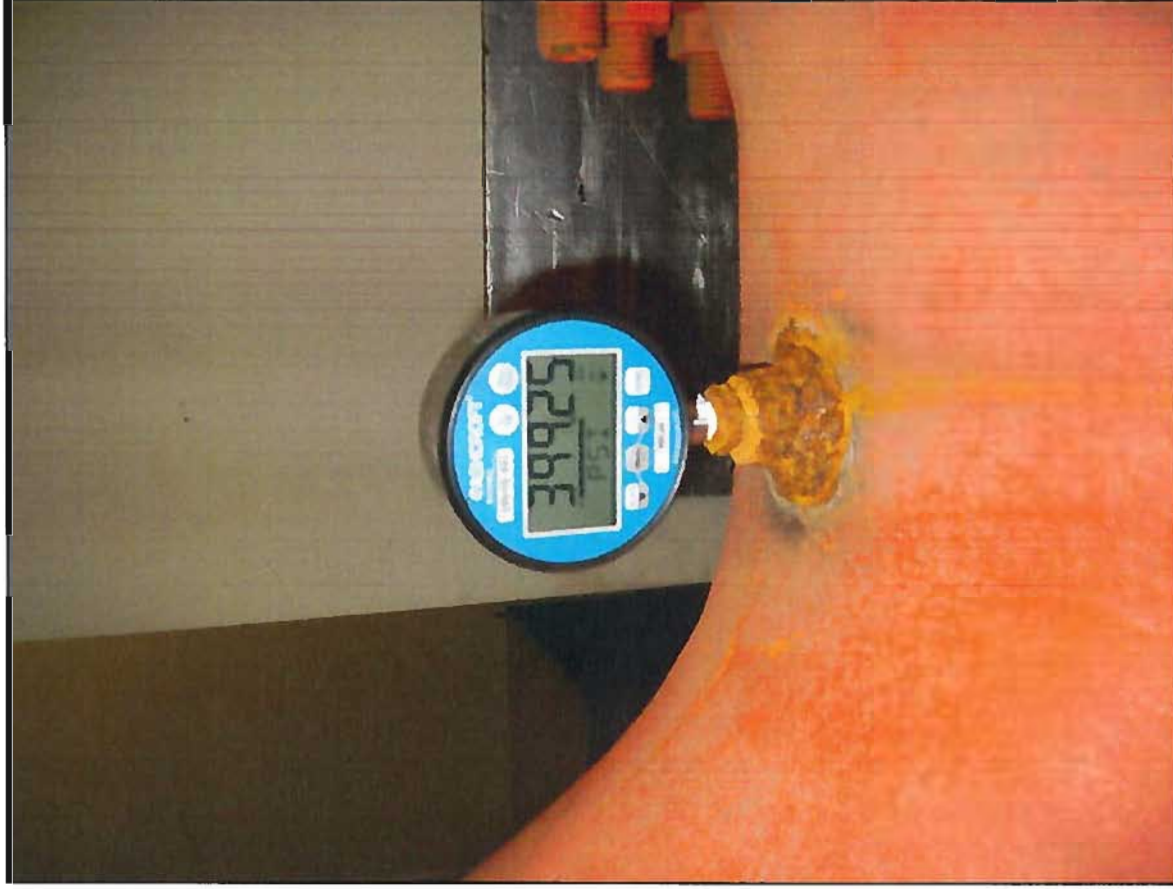
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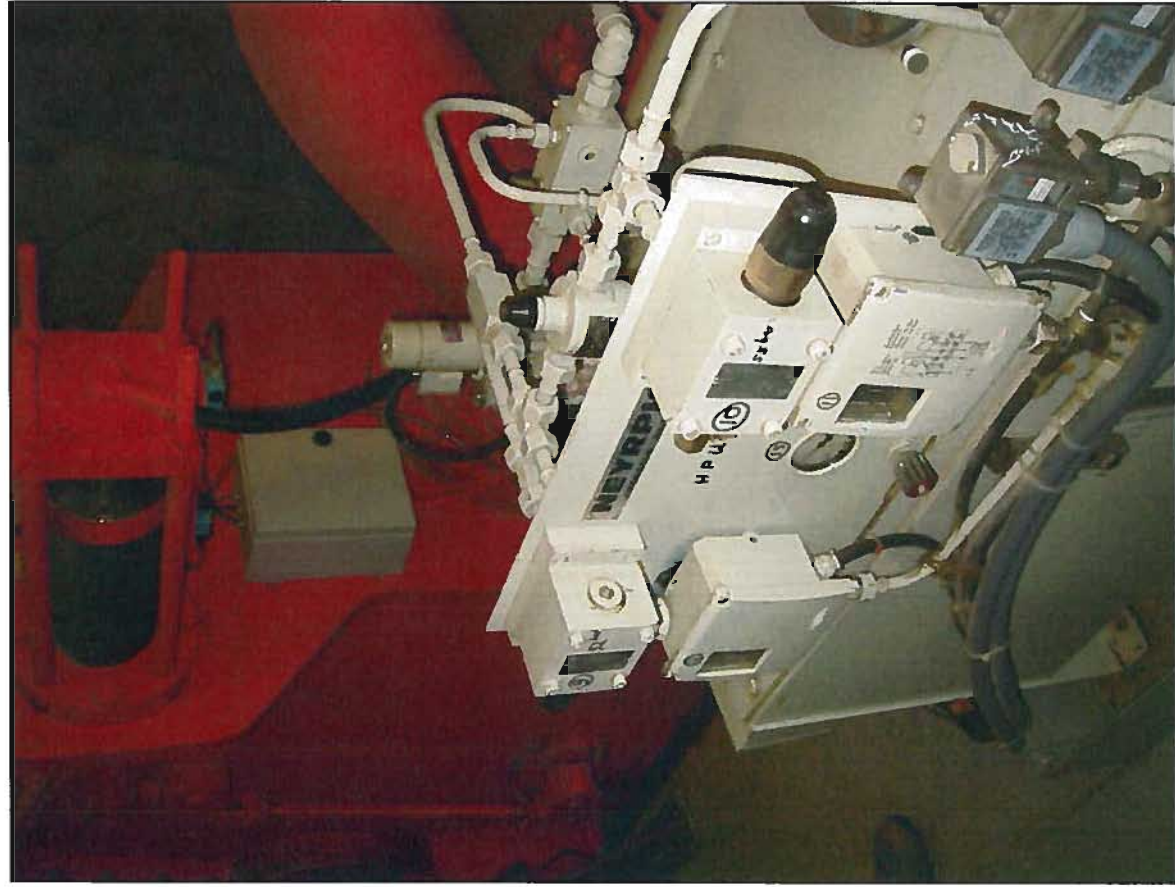
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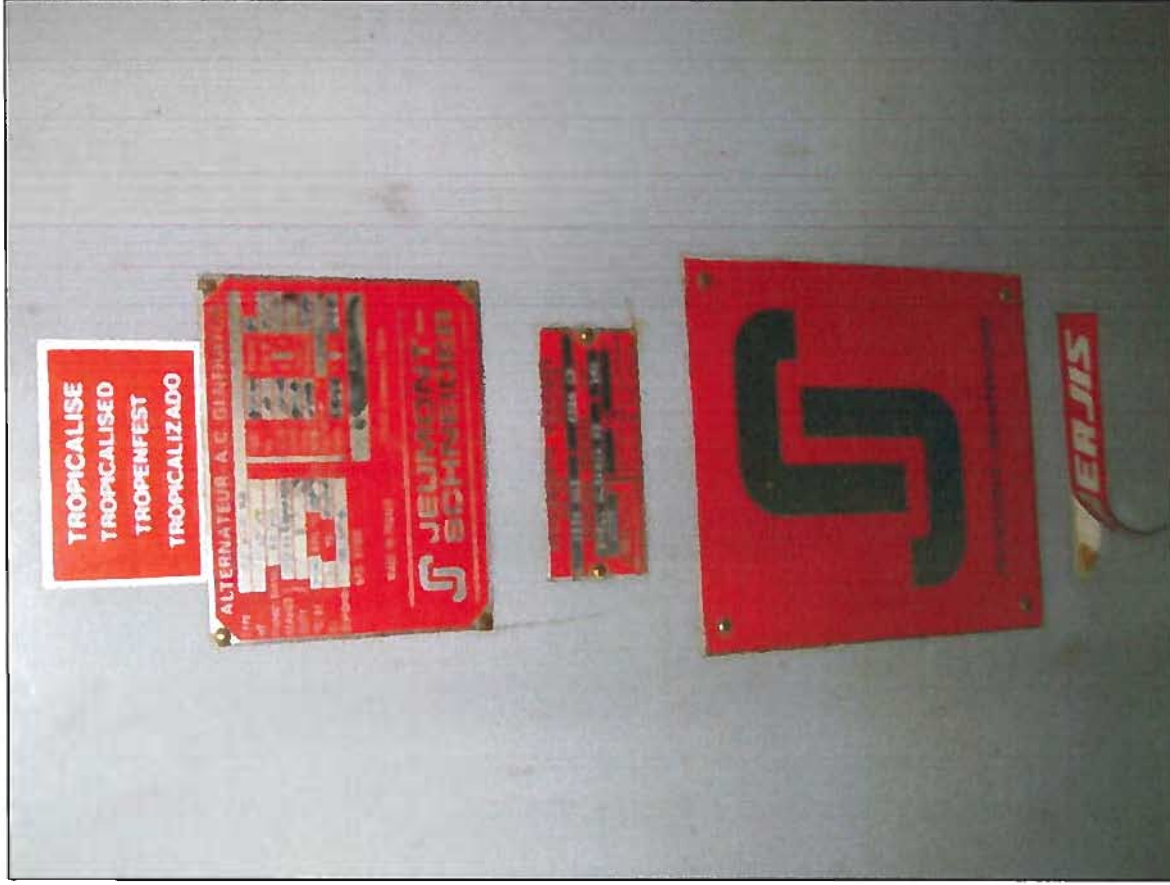
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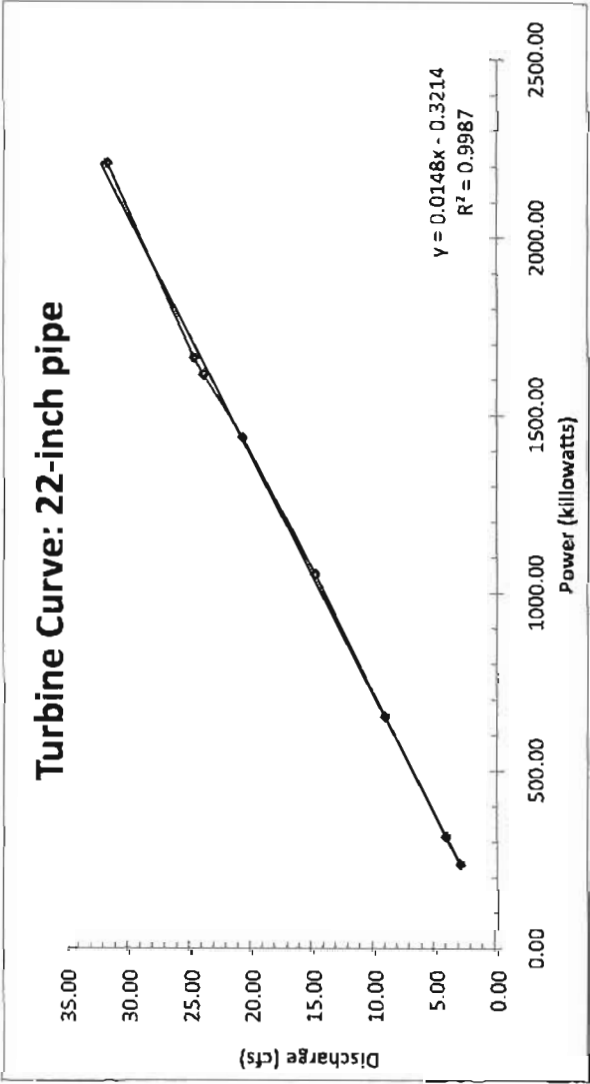


Picture 25 – discharge of water back to Elk Creek – side view.

WR Permit 78-7254 Diversion Rate Calculations

22" Pipe			
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Discharge	Power		
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4/27/1990	1883	1.215
4/28/1990	1886	1.118
4/29/1990	1876	0.902
4/30/1990	1847	0.719

6/17/1990	1910	1.334
6/18/1990	1901	1.295
6/19/1990	1904	1.412
6/20/1990	1910	1.442
6/21/1990	1902	1.452
6/22/1990	1903	1.434
6/23/1990	1901	1.406
6/24/1990	1901	1.385
6/25/1990	1919	1.329
6/26/1990	1909	1.164
6/27/1990	1904	0.917
6/28/1990	1892	0.703
6/29/1990	1817	0.654
6/30/1990	1663	0.654
7/1/1990	1600	0.654
7/2/1990	1439	0.723
7/3/1990	1701	0.645
7/4/1990	1340	0.649
7/5/1990	1276	0.647
7/6/1990	1164	0.667
7/7/1990	1051	0.673
7/8/1990	1000	0.728
7/9/1990	886	0.714
7/10/1990	788	0.728
7/11/1990	718	0.714
7/12/1990	625	0.721
7/13/1990	577	0.701
7/14/1990	511	0.706
7/15/1990	456	0.707
7/16/1990	408	0.710
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7/25/1990		
7/26/1990		
7/27/1990		
7/28/1990		
7/29/1990		
7/30/1990		
7/31/1990		

- MAX POWER output

← PROOF SUBMITTED

Elk Creek Production Data

Date	KW	Head Level
1/1/1997	1000	1.960
1/2/1997		
1/3/1997		
1/4/1997		
1/5/1997		
1/6/1997		
1/7/1997		
1/8/1997		
1/9/1997		
1/10/1997		
1/11/1997		
1/12/1997		
1/13/1997		
1/14/1997		
1/15/1997		
1/16/1997		
1/17/1997	300	2.150
1/18/1997	400	2.150
1/19/1997	800	1.480
1/20/1997	800	1.480
1/21/1997	750	1.480
1/22/1997	700	1.480
1/23/1997	700	1.470
1/24/1997	700	1.480
1/25/1997	700	1.500
1/26/1997	700	1.500
1/27/1997		
1/28/1997	500	1.500
1/29/1997	600	1.500
1/30/1997	600	1.490
1/31/1997	600	1.490
2/1/1997		
2/2/1997	550	1.480
2/3/1997	500	1.410
2/4/1997		
2/5/1997		
2/6/1997		
2/7/1997		
2/8/1997		
2/9/1997		
2/10/1997		
2/11/1997	400	1.490
2/12/1997	400	1.480

2/13/1997	350	1.470
2/14/1997	350	1.490
2/15/1997	300	1.500
2/16/1997	300	1.500
2/17/1997	400	1.500
2/18/1997	400	1.490
2/19/1997	410	1.490
2/20/1997	400	1.480
2/21/1997	350	1.490
2/22/1997	350	1.490
2/23/1997	350	1.480
2/24/1997	350	1.490
2/25/1997	350	1.490
2/26/1997	350	1.490
2/27/1997	350	1.480
2/28/1997	340	1.480
3/1/1997	300	1.480
3/2/1997		
3/3/1997		
3/4/1997		
3/5/1997		
3/6/1997		
3/7/1997		
3/8/1997		
3/9/1997		
3/10/1997		
3/11/1997		
3/12/1997		
3/13/1997		
3/14/1997		
3/15/1997		
3/16/1997		
3/17/1997		
3/18/1997		
3/19/1997		
3/20/1997	900	1.480
3/21/1997	1100	1.480
3/22/1997	1000	1.490
3/23/1997	1000	1.470
3/24/1997	900	1.480
3/25/1997	850	1.490
3/26/1997	1000	1.490
3/27/1997		
3/28/1997	177	1.690
3/29/1997	1050	1.510
3/30/1997	1100	1.400
3/31/1997	1100	1.590

4/1/1997	1000	1.510
4/2/1997	950	1.510
4/3/1997	950	1.510
4/4/1997	950	1.500
4/5/1997	850	1.520
4/6/1997	800	1.520
4/7/1997	800	1.510
4/8/1997	800	1.500
4/9/1997	750	1.540
4/10/1997	450	1.520
4/11/1997	700	1.500
4/12/1997	650	1.530
4/13/1997	700	1.520
4/14/1997	700	1.500
4/15/1997	700	1.500
4/16/1997	800	1.500
4/17/1997	900	2.040
4/18/1997		
4/19/1997	1850	2.990
4/20/1997	1850	3.580
4/21/1997	1400	3.530
4/22/1997	1900	2.800
4/23/1997	1850	2.830
4/24/1997	1850	2.330
4/25/1997	1850	1.730
4/26/1997	1850	1.730
4/27/1997	1850	2.610
4/28/1997	1850	2.620
4/29/1997	1850	2.560
4/30/1997	1850	2.370
5/1/1997	1850	1.910
5/2/1997	1850	1.530
5/3/1997	1800	1.520
5/4/1997	1850	1.950
5/5/1997	1850	2.190
5/6/1997	1850	2.760
5/7/1997	1850	2.880
5/8/1997	1850	3.000
5/9/1997	1850	3.010
5/10/1997	1850	3.400
5/11/1997	1850	3.300
5/12/1997	1850	2.890
5/13/1997	1850	3.750
5/14/1997	1900	3.660
5/15/1997		
5/16/1997		
5/17/1997	1300	3.450

5/18/1997		
5/19/1997	1250	3.790
5/20/1997	1850	3.570
5/21/1997	1850	3.600
5/22/1997	1850	3.540
5/23/1997	1850	3.540
5/24/1997	1850	3.570
5/25/1997	1850	3.360
5/26/1997	1850	3.330
5/27/1997	1850	2.980
5/28/1997	1850	3.270
5/29/1997	1850	3.590
5/30/1997	1850	3.610
5/31/1997	1850	3.580
6/1/1997	1850	3.070
6/2/1997	1850	3.070
6/3/1997	1850	3.100
6/4/1997	1850	3.150
6/5/1997	1200	3.700
6/6/1997	1500	3.300
6/7/1997	1850	3.340
6/8/1997	1850	2.320
6/9/1997	1850	3.380
6/10/1997	1850	3.420
6/11/1997	1850	3.790
6/12/1997	1850	3.570
6/13/1997	1850	3.480
6/14/1997	1850	3.500
6/15/1997	1850	3.400
6/16/1997	1850	3.200
6/17/1997	1850	3.410
6/18/1997	1850	3.430
6/19/1997	1850	3.330
6/20/1997	1850	3.160
6/21/1997	1850	3.030
6/22/1997	1850	3.080
6/23/1997	1850	2.880
6/24/1997	1850	2.680
6/25/1997	1850	2.600
6/26/1997	1850	2.770
6/27/1997	1850	2.750
6/28/1997	1850	2.700
6/29/1997	1850	2.700
6/30/1997	1850	2.560
7/1/1997	1850	2.650
7/2/1997	1850	2.200
7/3/1997	1850	1.730

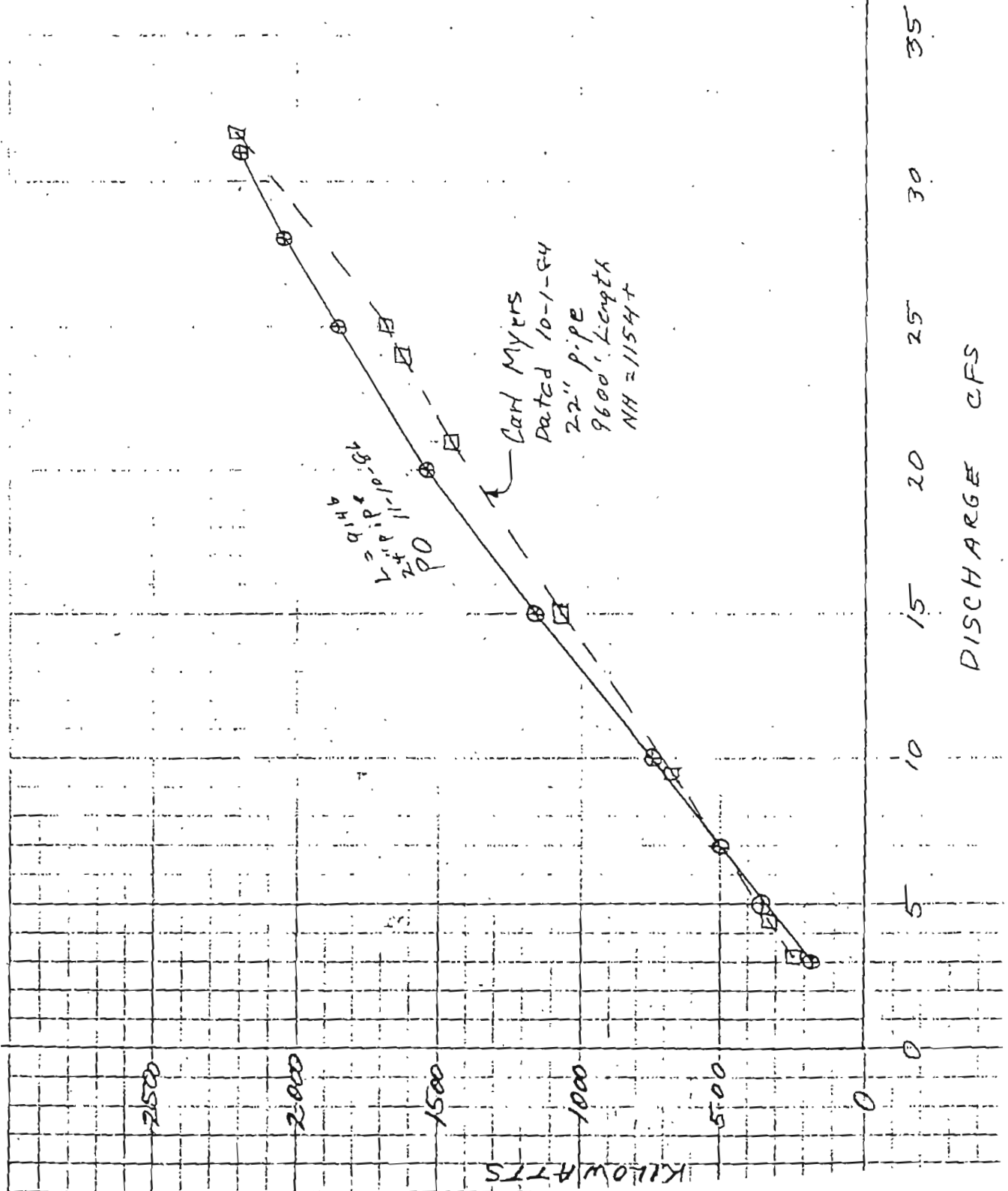
7/4/1997	1850	1.520
7/5/1997	1850	1.610
7/6/1997	1850	2.150
7/7/1997	1850	1.500
7/8/1997	1850	1.520
7/9/1997	1800	2.500
7/10/1997	1850	2.690
7/11/1997	1800	1.500
7/12/1997	1500	1.560
7/13/1997	1700	1.500
7/14/1997	1450	1.510
7/15/1997	1550	1.500
7/16/1997	1450	1.510
7/17/1997	1450	1.490
7/18/1997	1300	1.500
7/19/1997	225	1.520
7/20/1997	1500	1.500
7/21/1997	1200	1.500
7/22/1997	1200	1.500
7/23/1997	1000	1.810
7/24/1997	950	1.610
7/25/1997	900	1.510
7/26/1997	750	1.530
7/27/1997	710	1.510
7/28/1997	600	1.510
7/29/1997	600	1.530
7/30/1997	650	1.520
7/31/1997	600	1.518
8/1/1997	510	1.520
8/2/1997	450	1.510
8/3/1997	350	1.510
8/4/1997		
8/5/1997	400	1.440

LY	AUGUST	SEPTEMB	OCTOBER	NOVEMBE	DECEMBE	KWH (FY)	KWH (CY)
476,709	0	0	0	0	0		3,920,177
355,258	0	0	0	0	0	4,445,927	4,324,476
649,793	0	0	0	0	0	3,328,623	3,623,158
90,622	0	0	0	0	0	3,941,324	3,382,153
1,084,259	138,983	0	0	0	0	3,171,839	4,304,459
124,704	0	0	0	0	0	4,209,285	3,110,747
540,998	27,544	0	0	4,645	0	3,455,930	3,904,411
948,169	52,574	0	0	13,272	0	4,390,291	4,831,121
928,904	28,601	0	0	51,754	0	5,112,995	5,108,239
738,176	0	0	0	0	0	4,286,612	4,015,529
1,113,192	165,462	0	0	0	0	3,857,602	4,398,080
262,900	0	0	0	0	0	4,853,036	3,837,282
1,000	0	0	0	0	0	2,496,207	2,234,307
521,238	0	0	0	0	0	3,365,202	3,885,440
279,023	0	0	0	0	0	3,838,251	3,596,036
604,800	2,800	120,400	28,000	0	1	1,286,023	1,763,001
519,571	0	0	0	0	0	4,284,799	4,048,369
377,754	8,333	-1,734	0	0	0	3,730,407	3,595,189
94,438	0	-910	0	0	0	3,737,239	3,446,414
899,942	22,221	0	-4,752	0		2,576,703	
530,572	22,326	5,888	1,162	3,484	0	3,736,459	
14.20%	0.60%	0.16%	0.03%	0.09%	0.00%	100%	

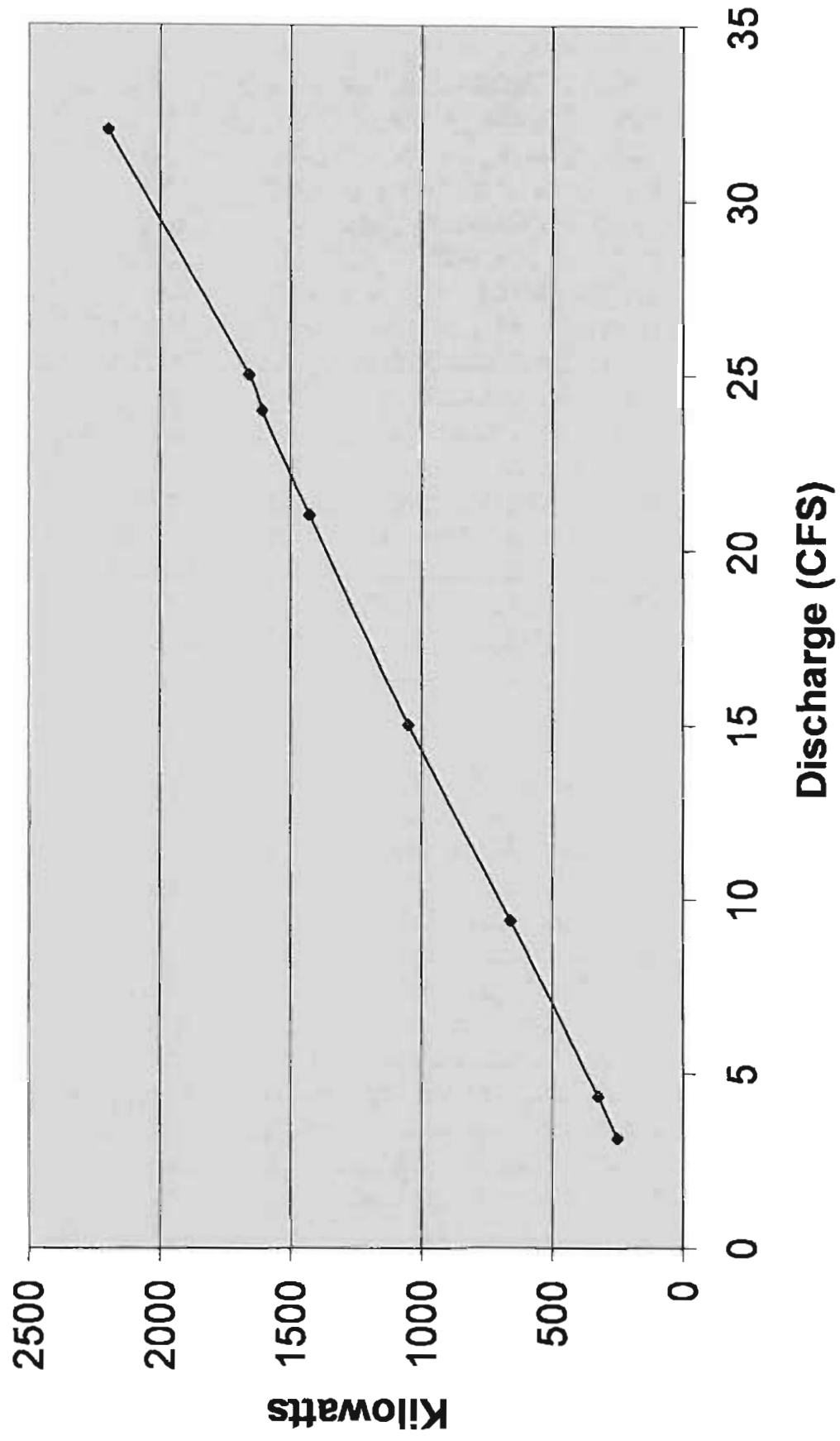


DATE 11-10
BY P.O.
SHEET 6 OF
PROJECT NO. B21841 A0 v

From 1.15 KW MWH .025
Compared with Myers 22' pipe



22 Inch Pipe



24 Inch Pipe

