MEMORANDUM

Date: March 5, 2020

To: 84-7171

From: Michele Edl

Re: documents for water right

On March 3, 2020, the morning of the field exam for water right 84-7171, Russ Ford (operator of the Ford Power Project) gave me three documents which are relevant to water right 84-7171. Those documents are attached to this memo.

They are:

- The Preliminary Design Specifications and the turbine curve for turbines manufactured by Canyon Industries, Inc. These turbines were installed in the powerhouse of the Ford Power Project.

- A print out of a Water Permit Report for right 84-7171 which was generated from IDWR's website on 4/10/2007. Note that the field exam date is highlighted and shown as 3/5/1998.

- An undated letter from Arch R. Ford (Ford Hydro, Inc.) to Albert Beardslee (IDWR Northern Region personnel) and an attachment to the letter. The topic of the letter was beneficial use and the attachment is a copy the Washington Water Power payment record for power generated in April 1993.

Ford Hydro, Inc.
1134 Marine Drive
Anacortes, Washington 98221
Telephone 206-293-3443
Facsimile 206-293-0539

Mr. Albert Beardslee
State of Idaho
Department of Water Resources
1910 Northwest Blvd.
Coeur d'Alene, Idaho 83814

Re: Permit No. 84-7171

Dear Mr. Beardslee:

Please find enclosed engineering drawings for the Ford Hydro Limited Partnership Project located in Weippe, Idaho. Also a monthly statement from Washington Water Power Company for electrical generation during March 1992 is included. It averaged 1171 KW for the entire month, in actuality it operated at 1499 KW part of the month and less the remainder. The installed generating capacity is 1499 KW.

Hopefully this will provide you sufficient information for demonstration of "Beneficial Use". If you have any further questions, please call.

Sincerely,

Arch R Ford

w/enclosure

THE WASHINGTON WATER POWER COMPANY

Contract: Power Sales Agreement dated 7/17/85 between
Ford Hydro Limited Partnership and Washington Water Power

April 1993 payment is composed of the following items:

Generation - kwh	855,071	
Firm Energy Cost Rate (¢/kwh)	.042	
Administrative Fee	($800.00)	04 5150
Net Payment Due For Generation	**$35,112.98**	

320-235912.98

Payment will be transferred by use of ACH on or before the 15th of the month to:

Ford Hydro Limited Partnership Account
Acct#002 017 7451
ABA #121 200 019
First Interstate Bank of Nevada, Reno Main Office
100 N. Virginia Street, 002
Reno, NV 98501

CANYON INDUSTRIES, INC.

SPECIALIZING IN SMALL WATER WHEELS

5346 Mosquito Lake Road
DEMING, WASHINGTON 98244
(206) 592-5552 or (206) 592-2235

May 6, 1987

PRELIMINARY DESIGN SPECIFICATIONS

FORD CREEK PROJECT

For

Mr. Charles D. Cuddy
Oxford Energy, Inc.
155 Main St. P.O. Box 1940
Orofino, ID 83544

Project data: Variable flow to 61 CFS.
Static head - 455 feet.
Effective head - 442 feet at 51 CFS.

General Equipment Specifications: Three each as follows.

Turbine: CANYON Custom designed horizontal shaft, 2 jet, infinitely variable flow needle nozzle tangental impulse (Pelton) type turbine.

Generator: 600 RPM, 500 KW, 480 VAC, 3 phase induction.

Configuration: Turbine, generator, on a common mounting frame, turbine direct coupled to generator shaft. Turbine and generator with seperate bearing system, coupled with standard 1.5 service factor flexible shaft coupler.

1.0 Turbine Assembly:

1.1 Speeds:
Normal.....600 RPM

Maximum.....1080 RPM

1.2 Design Output.....515 KW

1.3 Generator Speed Normal.....600 RPM

Maximum.....1080 RPM

1.4 Approximate Dimensions, assembled turbine/generator:

Length, inlet to turbine back.....13'10"

Width, turbine/generator.....10'

Height.....7'

Weight, maximum single piece.....6600 pounds

2.0 Impulse Turbine Runner:

2.1 Material:
Austenitic stainless steel alloy, high tensil strength, high abrasion resistance.

2.2 Construction:
Buckets, disc, and hub integrally cast as a single unit, machined and keyed to turbine shaft. Discs and buckets designed to withstand stress of jet impact of normal speeds, as well as all forces created during start-up and runaway speeds. Bucket spacing clearances, and shape designed for maximum performance and durability.

2.3 Finish:
Each bucket shape ground and polished to a finish of maximum 32 microns. Non-hydraulic surfaces shall be hand polished to maximum 125 microns, to reduce windage drag.

2.4 Runner shaft:
Ground and polished 4140 Chrome molly steel; keyed for generator shaft mounting to runner hub.

2.5 Balance:
Runner shall be statically balanced while on runner shaft, dynamically balanced to speeds exceeding runaway speeds.

3.0 Nozzle Assembly:

3.1 Number and Type:
Two (2) infinitely variable flow needle type nozzle, each turbine, design flow 8.7 CFS at 442 feet head.

3.2 Materials:
Nozzle assembly body of fabricated ASTM A106 steel, nozzle needle, and beak of 316 stainless steel, polished to 32 microns.

3.3 Actuator:
Nozzle assembly provided with hydraulic nozzle actuator, complete with hydraulic power pack, accumulator, and solenoid valves.

4.0 Jet Deflector:

4.1 Construction:
Constructed of ASTM A106 steel, with stainless shaft, mounted on sealed ball bearings.

4.2 Actuator:
Jet deflector opened hydraulically, closed in 2 seconds by weighted arm. Jet deflector control arm weighted for failsafe closure.

5.0 Turbine Housing:

5.1 Design:
Turbine housing designed for maximum efficient escape of water and efficient windage reduction.

5.2 Materials:
Housing weld fabricated of ASTM A36 plate steel, gusseted and reinforced. Frame constructed of welded rectagular mechanical tubing for maximum rigidity and strength.

5.3 Construction:
Turbine housing to have removable runner access and inspection cover section. Lower section to support labyrinth seal assembly and bearing support assembly, and nozzle assembly. Lower section fully flanged and skirted for mounting to foundation bed plate.

6.0 Bearing Assemblies:

6.1 Type:
Double row spherical roller bearings, Torrington 22500 series pillow block or equivalent. Factory recommended lubrication, static oil. Bearings fitted with lube sight guage, and 10 ohm bearing temperature RTD's. Minimum B-10 life of 175,000 hours.

6.2 Bearing Seals:
Each bearing sealed from internal turbine waters by means of a non-wearing labyrinth seal assembly including a centrifugal slinger, labyrinth cage, runner hub mounted centrifugal cups, and cover plate with neoprene backup seal.

7.0 Generator:

7.1 Manufacturer:
~~U.S. Motors, Division~~ Emerson Electric.
KATO ENGINEERING

7.2 Specifications:
500 KW, nameplate 499 KW, 600 RPM (615 RPM full load) 480 VAC, 60 hertz, 3 phase, open dripproof construction, horizontal shaft, bearings rated B-10 175,000 hours.

7.3 Efficiency:
Full load 93.2% 3/4 load 93.3% ½ load 92.4%.
95.2

7.4 Power Factor:
Full load 67.0, 3/4 load 59.0, ½ load 46.0.
82.0

7.5 Protective Features:
Bearing RTD's
Winding RTD's
Vibration switch
(2) 1600 watt winding heaters

8.0 Expected Efficiency: See attached sheet.

9.0 Spare Parts:
A. (2) shaft seals.
B. (1) Turbine shaft bearing assembly.
C. 1 year supply of hydraulic and lubricating fluid.
D. One gasket set.
E. (1) vibration switch.

10.0 Operation and Maintenance:

10.1 Complete instruction and maintenance manuals will be provided for turbine and generator.

10.2 A factory representative will be made available at turbine site for system installation, testing, adjustment, and to instruct local personnel in operation and maintenance, at additional cost. Cost is based on $44.00 per hour, plus travel expenses and time from Deming, WA.

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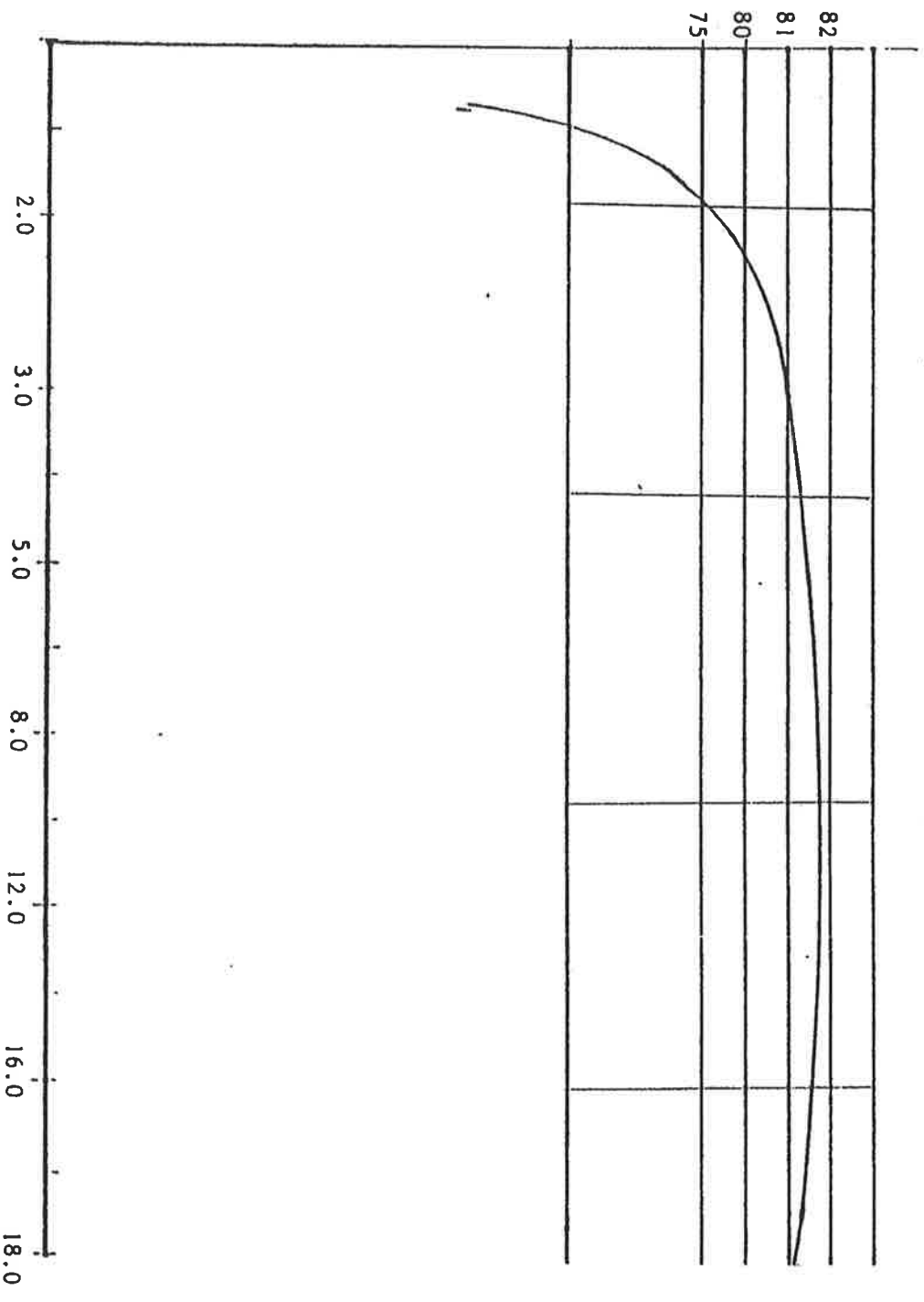

FORD CREEK PROJECT
Turbine Generator
Expected Efficiency
Each Unit

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Permit Report

04/10/2007

WATER RIGHT NO. 84-7171

Owner Type	Name and Address
Current Owner	FORD HYDRO LTD PARTNERSHIP C/O FORD HYDRO INC 1134 MARINE DR ANACORTES, WA 98221 (206)293-3443
Original Owner	IDAHO HYDRO INC

Priority Date: 06/30/1983
Status: Active

Source	Tributary
JIM FORD CREEK	CLEARWATER RIVER

Beneficial Use	From	To	Diversion Rate	Volume
POWER	1/01	12/31	100 CFS	
Total Diversion			100 CFS	

Location of Point(s) of Diversion:

JIM FORD CREEK | SWSW | Sec. 10 | Township 35N | Range 04E | CLEARWATER County

POWER Use:
Hydropower Kilowatts: 0

Place(s) of use:

Place of Use Legal Description: POWER CLEARWATER County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
35N	04E	9		NENE										

Conditions of Approval:

1.	004	The issuance of this right does not grant any right-of-way or easement across the land of another.
2.	01F	The right holder shall either install a measuring device or a flow measurement port or provide a certified measurement or computation of flow based upon system design to be prepared by a professional engineer.
3.	08A	This right is subject to the provisions of Sections 42-205 through 42-210, Idaho Code, restricting the sale, transfer, assignment, or mortgage of this right. Failure to comply with these provisions is cause for immediate cancellation of this right.
4.	030	A separate stream alteration permit from the IDWR is required for any activity in the stream channel other than construction and/or maintenance of the diversion structure. If the proposed construction or operation involves construction of an outfall or any other work in the stream channel other than a water diversion, the right holder shall contact the Department and obtain a Stream Channel Alteration permit prior to the start of construction.
5.	17K	The water right acquired under this permit for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.
6.	09E	Water used under this right when discharged into a natural channel or subsurface system shall meet Idaho Water Quality Standards.
7.	025	This right does not constitute Idaho Public Utilities Commission or Federal Energy Regulatory Commission approval that may be required.
8.	027	Use of water under this right shall be non-consumptive.
9.		FEET OF HEAD = 364. HORSEPOWER = 2800.
10.	17G	The diversion and use of water under this right and any license subsequently issued is subject to review by the Director on the date(s) of expiration of any license issued by the Federal Energy Regulatory Commission. Upon appropriate findings relative to the interest of the public, the Director may cancel all or any part of the use authorized herein and may revise, delete or add conditions under which the right may be exercised.

Dates:
Proof Due Date: 04/01/1990
Proof Made Date: 03/30/1990
Approved Date: 04/30/1986
Moratorium Expiration Date:
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Application Received Date:
Protest Deadline Date:

Number of Protests: 0
Field Exam Date: 3/5/1998
Date Sent to State Off:
Date Received at State Off:

Other Information:
State or Federal:
Owner Name Connector:
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False
Close