

MEMORANDUM

Date: March 25, 2011
To: Water Right File 37-7891 and 01-7086
From: medl
Re: license review

Applicant

According to IDWR records of Gooding County taxlots, Faulkner Brothers Hydro Inc., (ISOS #C100392) owns the property at the place-of-use and Faulkner Land and Livestock Company, Inc., (ISOS #C30155) owns the property at the intake. An assignment of the permit was from Faulkner Land and Livestock to Faulkner Brothers Hydro was processed in 2007. John Faulkner is listed as a member of both corporations.

Source and POD

The Faulkner Brothers Hydro has source water from more than one basin and this permit has been assigned dual numbers to acknowledge those basins. The two PODs recommended by the examiner are at the North Side Canal diversion from Milner Reservoir, and at the diversion dam for the Big Wood Canal Company s Y Canal in section 22 of Township 5S, Range 14E. At the head of the Y Canal diversion, water from the Big Wood River comingles with the water from the Snake River which was conveyed to that location through the North Side Canal.

There is some indication that another source may be providing water to this hydro facility. Other sources, inconsistent with the permit are listed on the FERC authorization and on the Proof of Beneficial Use statement. The Proof statement lists Silver Creek as a third source and the FERC authorization lists Clover Creek as a source.

Originally the Faulkner hydro received water which was discharged from another, upstream hydro. The Y8 Hydro was jointly owned and operated by Ida-West Energy (an IdaCorp subsidiary), and the North Side Canal Company and it appears to have a senior water right (1-7010). Possibly because of the existence of that hydro, North Side Canal Company protested this application for permit. An agreement dated August 20, 1984, between the North Side Canal Company and The Faulkner Land and Livestock Company Inc., resolved NSCC s protest. The agreement is referenced in a condition of this license.

The IDWR database shows an active permit still associated with the Y8 hydroelectric project. A "proof" statement has been submitted and I found evidence of generation attributable to the Y8 Hydro, but no field exam has been conducted. Researching the water sources for this permit, I interviewed personnel from Ida-West Energy and from NSCC. Spokespersons from both corporations stated that the Y8 facility has been abandoned for several years.

Water Use

Applicant expected to occasionally divert the entire flow of the lower Y canal through the powerhouse. Although a spillway at the intake returned excess water back into the canal, there is no requirement for continuous minimum flow to be maintained in the section of the Y canal bypassed by the hydroelectric facility. File documents state that the Faulkner Land and Cattle Company Inc., had shares in the North Side Canal Company, and that they were the only landowners who were bypassed. Groundwater rights held by the Faulkner Land and Cattle Co. would have been available to supply those water uses formerly covered by the surface water shares.

The Faulkner Brothers Hydroelectric project was issued FERC conduit exemption #7592 on June 5, 1984. On June 6, 1989, the FERC issued an order authorizing an increase to the plant s generation capacity from 400 to 800 kW. No request has been made for a concomitant increase to the authorized flow rates.

The field examiner found that a horizontal, Francis turbine, manufactured by Gilkes (serial #56331) was in place and in operation at the time of his exam. Gauges in the powerhouse provide the measuring device required by permit. The examiner recorded 48 kW, generated from 48 cfs, at the time of his exam. He recommended the full permitted rates based on his interviews with the plant operator and Mr. Dale Hobby, the local ditch rider. The examiner did not recommend a volume.

In response to my request, the IPUC provided a copy of a 35-year Firm Energy Sales agreement between Faulkner Land and Livestock Company, Inc. and Idaho Power Company. The document was signed December 11, 1986 and it may still be active. The IPUC did not provide an agreement between Faulkner Brothers Hydro Inc. and Idaho Power Company. I did not need confirmation of an update to the agreement for the purpose of licensing. A condition on the permit sets the date for Director's review to 30 years from the date of issuance of the permit. That date is May 6, 2015.

The sales agreement indicates that Idaho Power was expecting the Faulkner power plant to be capable of generating as much as 900 kW. The turbine curve and capacity information I received from the turbine manufacturer support the amended FERC authorization and Idaho Power's generation expectation for this project. The hydraulic capacity of the Gilkes turbine is approximately 105.9 cfs and it should be capable of generating 866 kW at approximately 141 ft of head. This turbine is capable of using more water than the permit authorizes.

Generation data available from the IPUC shows that the Faulkner hydro generated power every month during 1990, the year nearest the proof date. I analyzed data from that year to determine a license rate and to calculate a license volume.

The power-flow relationship curve for the Gilkes turbine indicates that this turbine would be unlikely to generate electricity from flows as low as the 10 cfs, the permitted rate for the off-irrigation season. However there is data showing that power was generated during the winter season of 1990 and other winters as well. Therefore more than 10 cfs must have been available and put to use and this hydro facility appears to have operated above the permitted winter rate.

54 cfs was authorized for irrigation season use and the field examiner recommended that full rate in spite of the conditions he witnessed. However, this turbine would easily be capable of using more water and generating more power than the field examiner recognized. The permitted rate of 54 cfs is approximately 1530 liter/sec and would generate approximately 550 kW when paired with a suitable generator. In 1990, the generation data indicates that flow rates sufficient to generate more than 550 kW were frequently available and were put to use during most of the irrigation season. Therefore this hydroelectric facility appears to have operated above the rate authorized for the irrigation season too. I believe that in 1990 the Faulkner Brothers Hydro operated beyond its permitted authorization most of the year and that 1990 was not an atypical year.

Place of Use

I created the POU shape based on a comparison of aerial photography with the field examiner's report. The examiner recommended the POU in the SWSW of section 27 and I find that the intake and most of penstock are located within that quarter-quarter. However, the powerhouse and the tailrace discharge back to the Y canal are located further south, in the NWNW of section 34. This location is consistent with the FERC application but is not the location authorized by the permit. An amendment will be needed. Faulkner Brothers Hydro owns the property at the place-of-use.

Status and Combined Use

It is not clear if the water use I found at the Y8 Hydro has been moved downstream to the Faulkner Brothers Hydro without benefit of a transfer.

I did find evidence of water use exceeding the rate permitted at the Faulkner Hydro and although hydropower is a non-consumptive use of water, I recommend that the permit holder be encouraged to apply for an additional permit to cover the additional use found.

Calculations/Recommendations

Technically, I should not recommend beneficial use in the winter or off-irrigation season months because the Gilkes turbine is not designed to spin and generate with flows as low 10 cfs.

Statements in the application to FERC and from the ditch rider indicate that flows above the two permitted seasonal rates are frequently available. I believe that the permit holder was overly conservative in his application for permit and underestimated the quantity of available flow. Both the permitted winter and the permitted summer rates were exceeded and put to use for power generation by the Faulkner Brothers Hydro facility during the calendar year I analyzed.

I am recommending a volume based on the full use of both summer and winter rates. I am not penalizing the permit holder by excluding the winter rate on a technicality. My volume recommendation is
 $10 \text{ cfs} \times 151 \text{ days} \times 1.9835 = 2295.1 \text{ AF}$ (rounded to 3000 AF) and
 $54 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 22921.3 \text{ AF}$ (rounded to 22900 AF)
Total volume would be 25916.4 (rounded to 25900 AF)

An additional permit for the additional use at the Faulkner Brothers Hydro should be required.

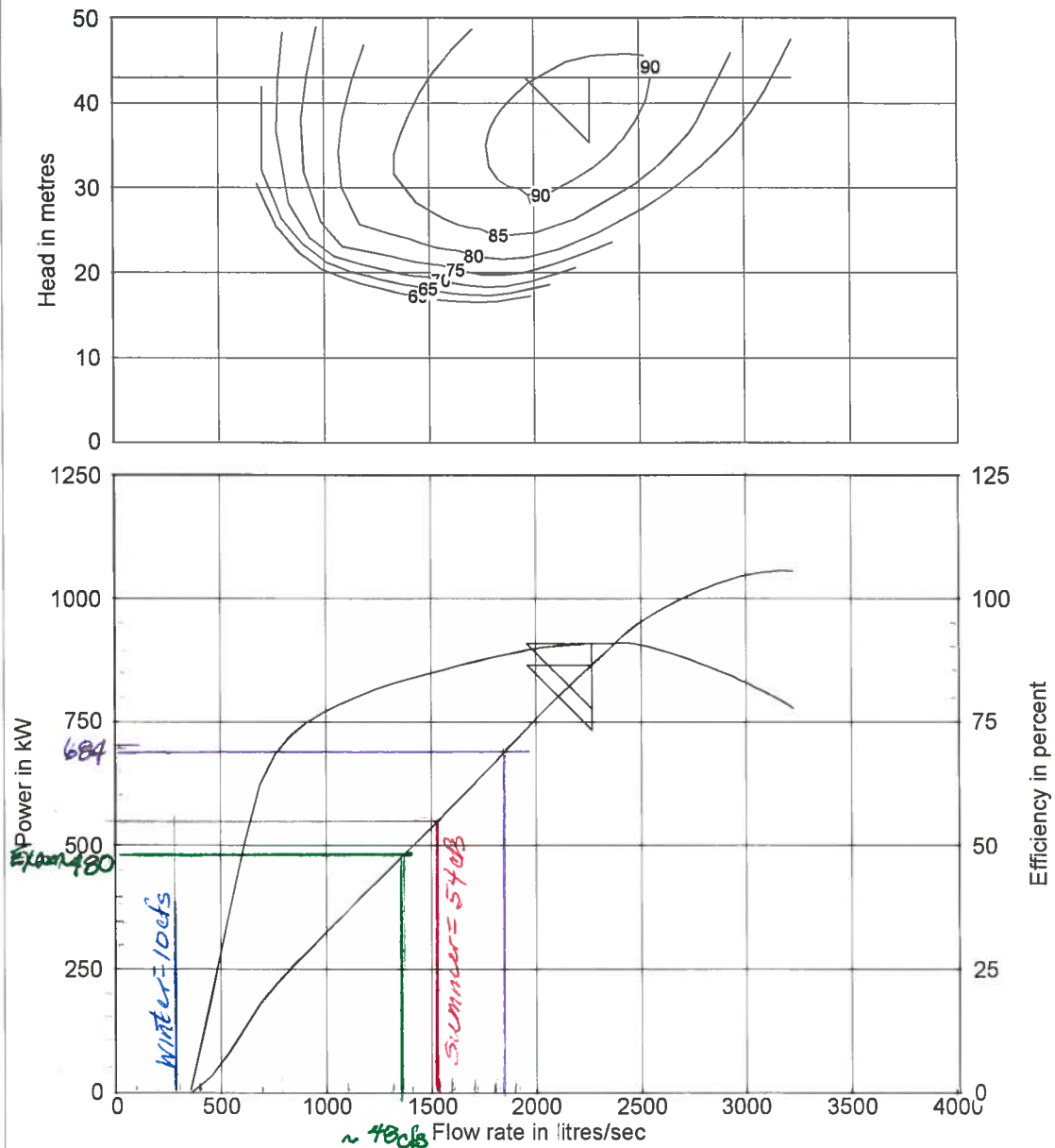
Relinquishment of the portion of permit 1-7010 associated with the Y8 Hydro, should be considered.

GILKES

Francis Turbine

600 G270

Speed 720 Rpm

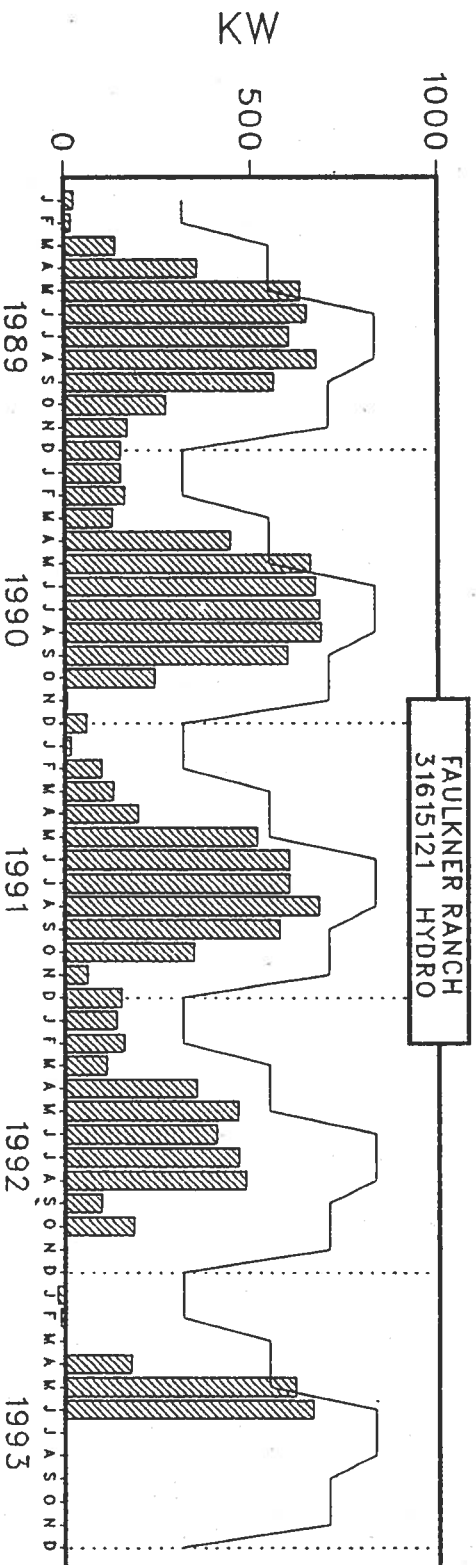
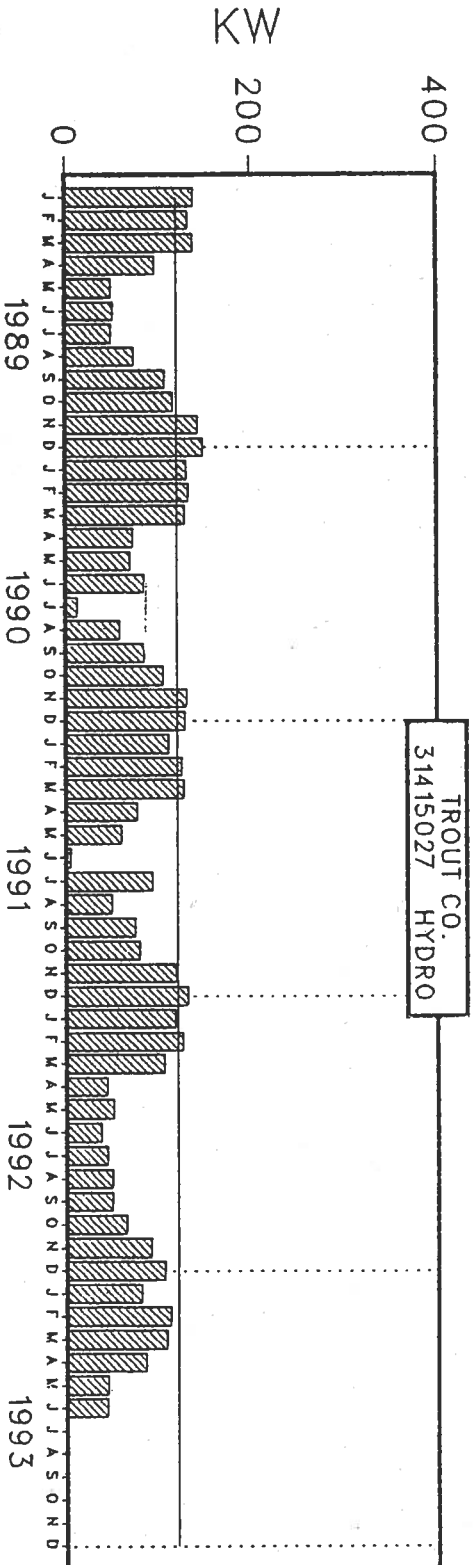


Name	Head metres	Flow rate m ³ /sec	Power kW	Efficiency percent	Vent mm
Faulkner R	43.0 ~ 141 ft	3 3000 l/sec ~ 105.9 cfs	866	90.9	36.4
Gilbert Gilkes and Gordon Ltd Kendal, Cumbria, UK. LA9 7BZ Tel: 01539 720028 Fax: 01539 732110			Approved 06/03/11		Number Version Number 9

IDAHO POWER COMPANY
COGENERATION AND SMALL POWER PRODUCTION
MONTHLY GENERATION BY PLANT (AVERAGE KW)

	1990	JAN90	FEB90	MAR90	APR90	MAY90	JUN90	JUL90	AUG90	SEP90	OCT90	NOV90	DEC90
31515004	MUD CREEK/SLTS	97	71	44	29	77	121	60	107	219	215	212	151
31416001	SHOSHONE	109	126	282	272	300	292	309	299	298	95	62	65
11766002	TAMARACK	4538	4433	4359	3262	4617	4846	4909	4834	4782	4908	4094	4872
31415017	NORTHSIDE CANAL Y-8	17	15	18	27	32	31	24	37	30	0	0	0
31415023	CURRY CATTLE CO.	0	0	0	71	98	403	69	184	140	58	0	0
11415009	SHINGLE CREEK	80	74	80	122	176	190	171	136	112	107	99	78
31615003	ROCK CREEK #1	901	653	561	873	1475	1773	1820	1899	1979	1998	1536	945
31515009	MALAD RIVER	202	254	347	401	616	437	150	373	499	280	4	46
31516014	CLEAR SPRINGS TROUT	417	412	421	415	416	416	417	405	423	398	413	384
31416013	BOX CANYON	237	242	244	212	211	233	199	201	195	207	188	220
31615030	KOYLE	138	218	421	600	941	780	350	531	629	448	0	47
31615031	KASEL & WITHERSPOON	303	291	222	293	542	770	699	801	1050	1016	554	500
44767012	AFTON	6405	7070	6120	6082	5996	6175	3629	5765	6300	6801	4458	3862
31214058	BIRCH CREEK	44	44	43	30	38	44	43	47	52	52	47	44
31316010	STEVENSON #1	25	25	14	12	28	27	6	10	27	24	24	9
31415065	BLACK CANYON NO. 3	0	0	0	53	104	87	94	59	40	33	0	0
31616081	CEDAR DRAW	309	252	208	688	849	1297	423	390	1087	1452	773	361
31316011	STEVENSON #2	34	35	33	30	30	26	32	34	33	30	29	28
31415094	JIM KNIGHT	0	0	67	136	146	183	257	120	219	86	0	0
31416020	CANYON SPRINGS	58	113	116	98	100	109	124	123	93	108	110	72
31615067	PIGEON COVE	674	540	396	947	1374	1401	1103	1207	1449	1589	902	720
31315021	SNAKE RIVER POTTERY	60	59	53	37	28	29	27	27	40	46	61	62
31316015	LEMOYNE	25	12	1	22	22	13	22	11	18	21	24	24
31414075	SNEDIGAR RANCH	123	143	111	134	237	295	232	270	232	235	182	169
31715099	LOWLINE CANAL	-5	-6	-8	3598	6600	6880	8033	7830	5976	3969	354	-2
31315093	HAILEY CSCP	16	15	17	17	15	15	16	16	15	15	15	14
31615105	LITTLE WOOD RIV. RES.	-7	0	-9	342	1387	1325	1350	146	2096	2115	-1	-3
31615056	LATERAL #10	992	482	74	1321	1715	1812	150	643	2096	2115	1937	992
11866006	B.C. EMMETT	9668	8678	9028	5391	1917	10935	12262	12286	3307	11822	9156	9175
31515103	SAGEBRUSH	-4	-4	67	200	287	302	284	287	272	96	0	0
31315029	WHITE WATER RANCH	125	125	119	58	43	508	34	29	36	50	105	116
31615117	MARCOS RANCHES	0	0	0	301	453	508	358	451	782	812	0	0
12616071	OWYHEE DAM	-37	-17	0	4164	4207	4180	4043	3899	3755	2685	-15	-15
31315008	H.E.D. CO.	6	8	0	0	0	0	19	23	35	14	18	23
31515100	BRIGGS CREEK	376	372	386	374	383	382	383	395	406	409	414	400
31615057	CRYSTAL SPRINGS	0	0	0	705	1213	1803	24	326	1526	2253	911	115
41455091	POCATELLO WASTE	128	146	152	136	128	165	154	155	85	146	166	172
31414111	MUD CREEK/WHITE	16	40	51	25	16	36	12	35	77	144	133	31
11615077	ELK CREEK	-11	-14	115	1712	1847	1813	477	0	0	0	0	0
21415119	REYNOLDS IRRIGATION	202	210	187	118	113	140	146	175	198	188	209	213
31515107	LITTLEWOOD/ARKOOSH	248	215	344	505	738	140	822	836	736	245	62	111
41515122	SCHAFFNER	45	44	37	186	262	392	264	152	100	93	68	42
31615098	GEORON 2	249	310	376	512	806	759	843	833	779	162	13	103
31415027	TROUT CO.	131	133	129	73	70	85	12	59	85	105	131	129
31615121	FAULKNER RANCH	148	159	127	443	656	670	682	684	597	239	8	56
41415124	SUNSHINE POWER #2	11	9	9	10	21	21	33	30	29	18	17	0
31615125	LOWLINE #2	0	-16	-24	1208	2353	2349	2382	2382	2227	1505	-29	0
31715126	BYPASS	-32	0	313	3702	6333	6869	8494	7652	5778	2508	0	-28
31615106	DIETRICH DROP	-5	-6	-5	1531	3952	3405	3755	4543	3925	1006	-5	-5

IDAHO POWER COMPANY
Cogeneration and Small Power Production



UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Faulkner Land and Livestock Co., Inc.

Project No. 7592-003
Idaho

ERRATA NOTICE
(July 21, 1989)

ORDER AMENDING EXEMPTION
(Issued June 6, 1989)

Ordering paragraph (B) of the Order Amending Exemption,
issued June 6, 1989, is revised to read:

(B) The project description, referenced in Ordering
Paragraph (A) of the Order Granting Exemption, issued on June 5,
1984, is revised to read as follows:

Description of Project: The project diverts water from the
Northside "Y" Canal and consists of: (1) a 8.5-foot-high,
68-foot-long, reinforced concrete diversion structure with a
normal water surface elevation of 3286.5 m.s.l.; (2) a 2100-
foot-long earthen diversion canal; (3) a 860-foot-long, 51-
inch-diameter steel penstock; (4) a 32-foot by 24-foot
powerhouse containing a single 870-kw generating unit; and
(5) a 700-foot-long exit canal, which discharges water back
into the Northside "Y" Canal.

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

OHL/DPCA
Fearon, K.:jej
07/14/89

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Faulkner Land and Livestock Co., Inc.

Project No. 7592-003
Idaho

ORDER AMENDING EXEMPTION

June 6, 1989

On March 6, 1989, on behalf of the exemptee, Faulkner Land and Livestock Co., Inc., Mr. C. Tom Arkoosh, Attorney, filed a request for an amendment to the conduit exemption for the Faulkner Hydro Project, FERC Project No. 7592.

The licensed project consists of a diversion canal, a powerhouse containing a single 400-kw generating unit, and a tailrace. The amendment would increase the plant's authorized generating capacity from 400-kw to 800-kw. The existing diversion canal and penstock are adequately sized to support the increase in the project's generating capacity.

Comments were requested from interested Federal and State agencies including the U.S. Fish and Wildlife Service, the State Fish and Game, and the State Historical Society. No agency offered any objections to the proposed increase in the project's installed capacity.

The Director orders:

(A) The exemption for the Faulkner Hydro Project, FERC Project No. 7592, is amended as provided in this order, effective the first day of the month in which this order is issued.

(B) The project description, referenced in Ordering Paragraph (A) of the Order Granting Exemption, issued on June 5, 1984, is revised to read as follows:

Description of Project: The project diverts water from the Northside "Y" Canal and consists of: (1) a 8.5-foot-high, 68-foot-long, reinforced concrete diversion structure with a normal water surface elevation of 3286.5 m.s.l.; (2) a 2100-foot-long earthen diversion canal; (3) a 860-foot-long, 51-inch-diameter steel penstock; (4) a 32-foot by 24-foot powerhouse containing a single 800-kw generating unit; and (5) a 700-foot-long exit canal, which discharges water back into the Northside "Y" Canal. The average annual energy output would be 3.368 Gwh.

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

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

OHL/DPCA
Fearon, K.:jej
05/24/89

K04