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APR 6 1988

Conley
FILE 4769OPERATION REPORT
(Exempt Project)FEDERAL ENERGY REGULATORY COMMISSION
Portland Regional OfficeFor the period June 2, 1987, to February 23, 1988

Exemptee Zions Credit Corporation Project No. 4769-ID
Project Name Mud Creek
Location Mud Creek, Twin Falls, Idaho
(Waterway or reservation) (County) (State)
Exemption issued November 20, 1981 Type 106
(Date) (106 or 76)
Date of last amendment None
Inspected by Harold M. Wick Date February 23, 1988
Parts of project inspected Entire project
Weather Clear, 50°F
Accompanied by Mr. Rick Kaster, of Zions Credit Corporation

Summary

The project appears to be well maintained and operated. The exemptee seems to be in compliance with the agencies' terms and conditions. No safety problems were observed.

Since the last inspection, the exemptee has removed the original power-houses from their foundations and replaced them with wood frame structures with metal siding and roofing. Generating units have been removed from both plants and replaced with used units obtained from another project. The replacement equipment appears to have increased the total project generating capacity from 627 kW to 666 kW, or about six percent. The project has been off line for a considerable length of time while modifications were being made.

Submitted March 30, 1988Harold M. Wick

Harold M. Wick

Pertinent Data Sheet
Mud Creek Project
FERC No. 4769-ID

UPPER FACILITIES

DIVERSION STRUCTURE

Height:	6 feet
Length:	25 feet
Construction:	Reinforced concrete
Other features:	Fish ladder (abandoned), fish screens, canal inlet
Pool surface area:	0.1 acres
Storage capacity:	Negligible

CANAL

Width:	8 feet
Depth:	3 feet
Length:	2,250 feet
Construction:	Earth embankment (unlined)

PENSTOCK INTAKE

Height:	3 feet
Length:	12 feet
Construction:	Reinforced concrete
Other features:	Trash rack, overflow weir

PENSTOCK

Diameter:	38 inches
Length:	190 feet
Construction:	Steel

POWER PLANT

Quantity:	4 units
Capacity	
Units No. 1 - No. 2:	100 HP each
Unit No. 3:	40 HP
Unit No. 4:	250 kW (estimated)
Voltage:	480 V

<u>OPERATING HEAD:</u>	73 feet
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<u>HYDRAULIC CAPACITY:</u>	34 CFS
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<u>HAZARD RATING:</u>	LOW
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<u>DATE OF COMPLETION:</u>	March 1, 1982
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Pertinent Data Sheet
Mud Creek Project
FERC No. 4769-ID

LOWER FACILITIES

DIVERSION STRUCTURE

Height:	5 feet
Length:	50 feet
Construction:	Reinforced concrete and earth embankment
Other features:	Fish screens, canal inlet
Pool surface area:	0.1 acres
Storage capacity:	Negligible

CANAL

Width:	8 feet
Depth:	3 feet
Length:	1,500 feet
Construction:	Earth embankment (unlined)

PENSTOCK INTAKE

Height:	3 feet
Length:	12 feet
Construction:	Reinforced concrete
Other features:	Trash rack, overflow weir

PENSTOCK

Diameter:	42 inches
Length:	250 feet
Construction:	Steel

POWER PLANT

Quantity:	4 units
Capacity	
Units No. 1 - No. 3:	50 HP each
Unit No. 4:	125 kW (estimated)
Voltage:	480 V

<u>OPERATING HEAD:</u>	45 feet
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<u>HYDRAULIC CAPACITY:</u>	34 CFS
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<u>HAZARD RATING:</u>	LOW
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<u>DATE OF COMPLETION:</u>	May 14, 1984
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1. Terms of Exemption. Standard Article No. 2 of the Exemption Order requires the exemptee to comply with any terms and conditions that Federal and state fish and wildlife agencies determine appropriate. The Idaho Department of Fish and Game (IDFG) and the U.S. Fish and Wildlife Service (FWS) submitted terms and conditions letters dated May 12, 1981, and October 28, 1981, respectively. The terms and conditions are that a minimum flow of 5 cfs be maintained, fish screens be installed, transmission lines be raptor proofed and fish passage facilities be constructed. Construction of the fish passage facilities was later waived by an IDFG May 13, 1987, letter.

During the previous operation inspection, it was observed that the exemptee had not developed an accurate means to measure, record and regulate minimum flows. By August 14, 1987, letter, the PRO directed the exemptee to develop a program to ensure compliance with minimum flow requirements. Under the direction of the IDFG, the exemptee has cut orifices in the existing steel slide gates at the upper (see Photograph No. 1) and lower diversion structures. Mr. Kaster advised that the orifice dimensions were provided by IDFG's engineers, and that the orifices are designed to discharge the full 5 cfs minimum flow prior to any water flowing over the intake weirs to the power plants. By a March 18, 1988, telephone conversation with the PRO, Mr. Scott Newbold, the exemptee's liaison, stated that he was in the process of obtaining a letter from the IDFG stating that the orifices satisfied the minimum flow requirements. Also, Mr. Newbold advised that he had asked the IDFG for a determination on the need for maintaining flow records for this type of minimum flow control system.

By August 14, 1987, letter, the PRO directed the exemptee to submit a letter to the FWS requesting that the transmission lines be inspected to determine if the raptor proofing was adequate. The licensee, by November 6, 1987, letter, requested that the FWS make such a determination. At the time of the inspection, Mr. Kaster advised that the exemptee was scheduling a meeting with the FWS and Idaho Power Company (owners of the transmission line) to determine if additional raptor proofing was needed, and, if needed, what specific actions are to be taken. By a March 23, 1988, telephone conversation, the licensee advised that the meeting with the FWS and the IPC was still pending.

Screens were installed at the entrance to the intake structures (see Photograph No. 2).

2. Safety of the Project. Exhibit No. 1 is a project location map. Exhibit No. 2 is a schematic drawing of the project and is annotated to show the location and direction from which the inspection photographs were taken. Attached are eight photographs showing the conditions and features of the project at the time of the inspection.

The upper plant appears to be in satisfactory condition. The diversion structure (see Photographs No. 1 and No. 3), the intake structure (see Photograph No. 2) and the power canal are in good condition. No cracking or spalling of the concrete was observed. No evidence of seepage or erosion

was seen. The penstock is buried for most of its length. The buried portion could not be inspected, but the above ground portion appeared to be in good condition. The powerhouse has been rebuilt (see Photograph No. 4). The exemptee was making improvements on generating equipment at the time of the inspection (see Photograph No. 5). Mr. Kaster advised that the plant had been out of service for a considerable time while improvements were being made.

The lower plant appears to be in satisfactory condition. The diversion structure (see Photograph No. 6) was in good condition. The only significant concrete cracking observed was at a construction joint on the right downstream wing wall. This crack was observed on the previous inspection and does not appear to have changed. As discussed in the previous report, the crack is not considered to be a safety problem. The power canal and intake structure appear to be in good condition. No cracking, seepage or erosion were seen. The penstock is buried for its entire length, and could not be inspected. As with the upper plant, the powerhouse has been rebuilt (see Photograph No. 7), and improvements have been made to the generating equipment (see Photograph No. 8). Improvement work on the generating equipment was nearly completed at the time of the inspection. The lower plant has been out of service for a considerable time while improvements were being made.

The project has a LOW hazard classification. Failure of any portion of the project would not be hazardous to human life and would not result in significant property damage.

3. Matters of Commission Interest.

a. Additions, Betterments, Retirements, or Extensions. As discussed previously, the licensee has made extensive improvement to both the upper and lower plants. At both plants, the original powerhouses were removed from their foundations and were replaced with new wood frame structures with sheet metal roofing and siding.

The generating units at both plants have been changed. The upper plant originally had 5 - 100 HP and 1 - 40 HP vertical turbines. The exemptee removed three of the 100 HP units and replaced them with a single unit. The single unit consists of used equipment salvaged from another project. The generator is synchronous, so that it can operate at variable flow. Mr. Kaster advised that the capacity of the unit was not known because the name plate had been removed by vandals; however, he estimated the capacity to be about 250 kW. If Mr. Kaster's estimate is correct, the upper plant capacity will be increased by approximately seven percent.

The lower plant originally had 6 - 50 HP verticle turbines. The exemptee removed three of the units and replaced them with a single unit. As with the upper plant, the single unit is used equipment, and the capacity is unknown; however, Mr. Kaster estimates the capacity to be about 125 kW. If Mr. Kaster's estimate is correct, the lower plant capacity will increase by approximately six percent.

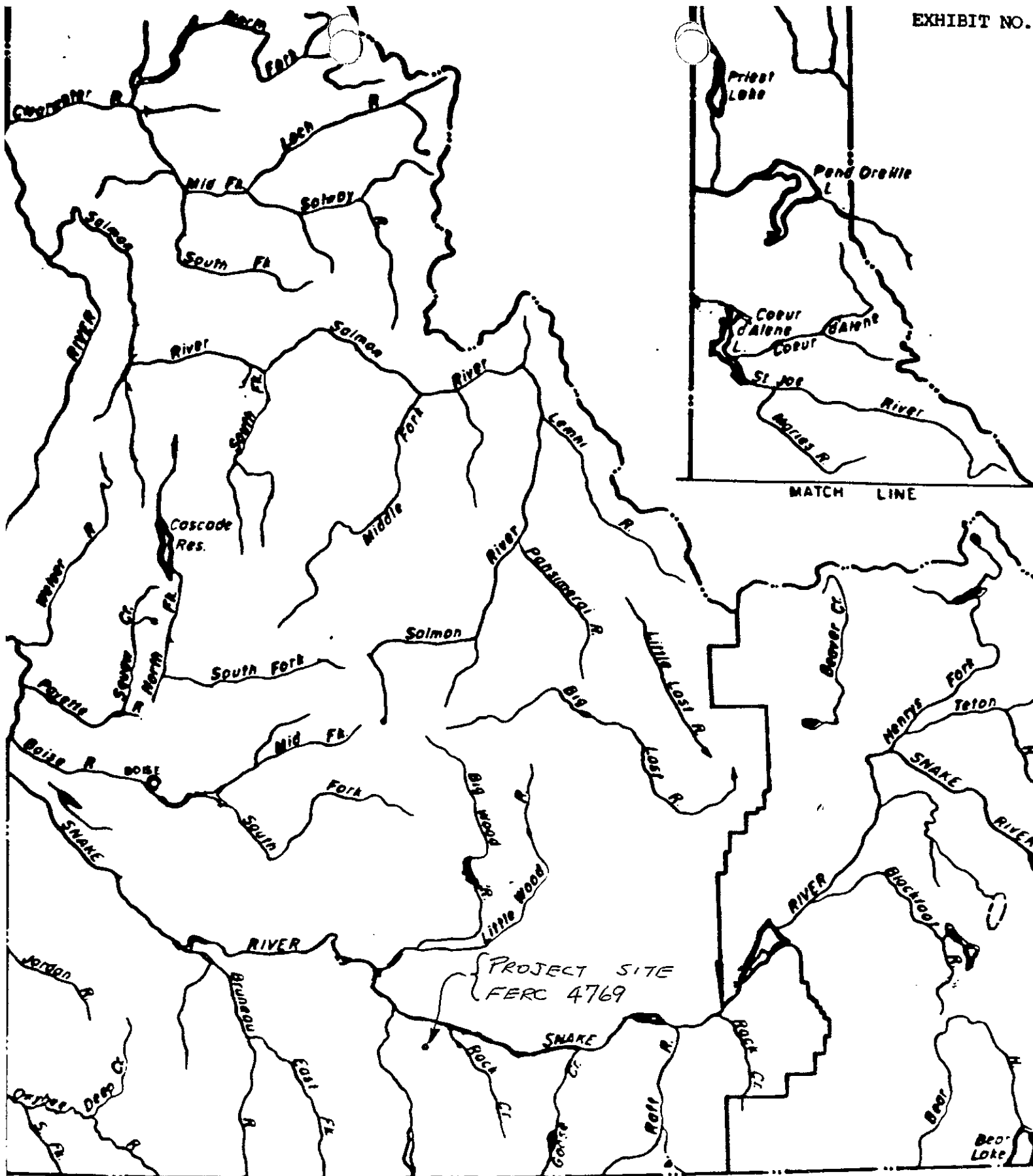
During the previous operation inspection, it was observed that the installed generating capacity of the upper and lower plants exceeded the generating capacity authorized by the exemption. The total installed capacity was 627 kW, and the authorized capacity was 266 kW. By August 14, 1987, letter, the PRO advised the exemptee of this deviation, and directed the exemptee to submit a letter to DINS, including comments from the agencies, describing these changes and requesting a determination concerning the need for an exemption amendment. The exemptee, by a December 10, 1987, letter, submitted copies of letters from the IDFG and the FWS, and referred to necessary changes. By March 11, 1988, letter, DINS advised that a complete description of changes should be submitted.

b. Changes in Ownership. Nothing to report.

Attachments

Exhibit No. 1 - Location Map
Exhibit No. 2 - Project Schematic Diagram
1 Set of 8 Photographs

cc: ✓ Mr. Jerry M. Conley, Director
Idaho Department of Fish and Game
P.O. Box 25
Boise, Idaho 83707



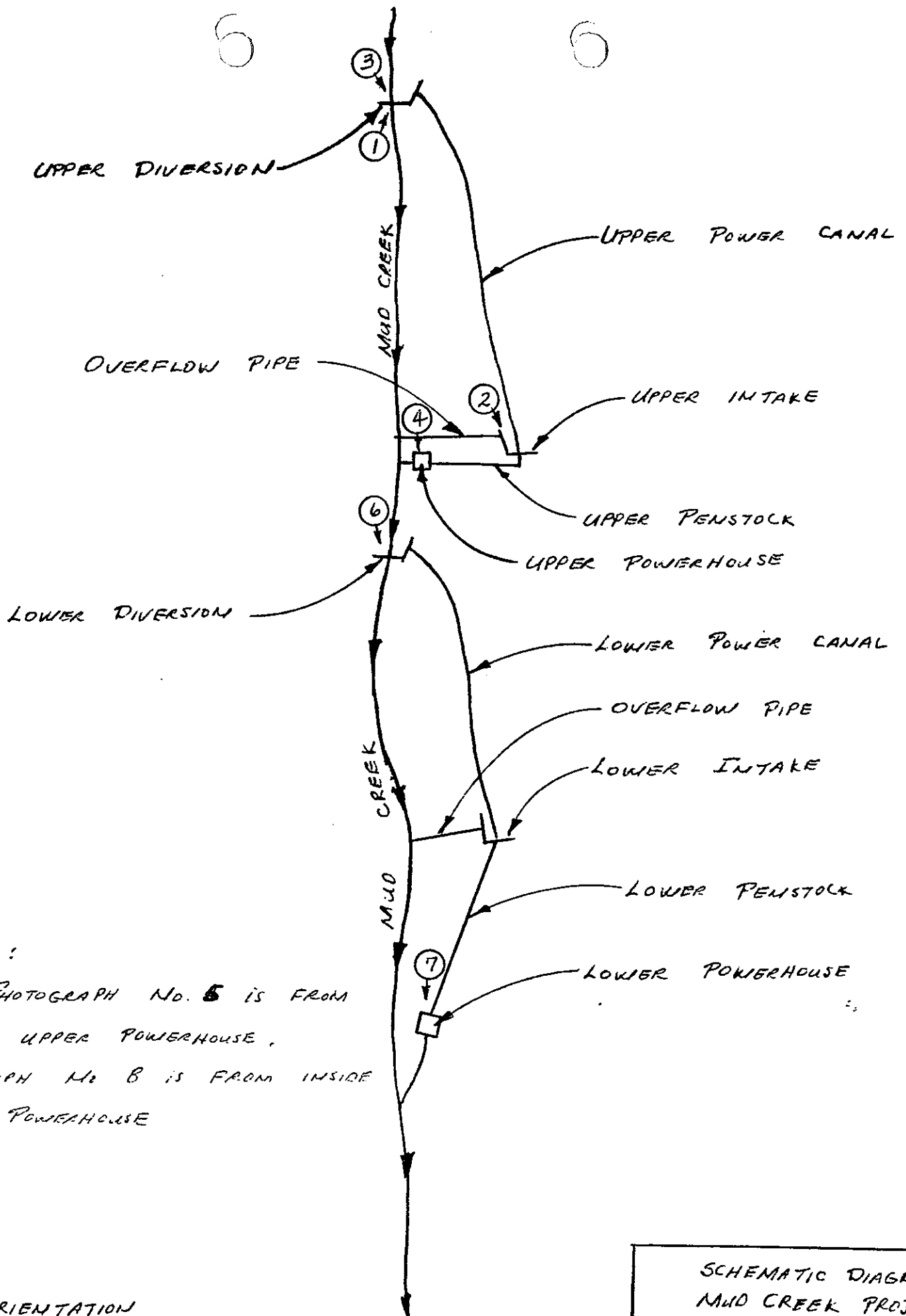
HYDROELECTRIC PROJECTS IN IDAHO

UNDER SUPERVISION OF *PORTLAND*

REGIONAL OFFICE

SCALE IN MILES

EXHIBIT No. 1



NOTE:

PHOTOGRAPH NO. 5 IS FROM

INSIDE UPPER POWERHOUSE.

PHOTOGRAPH NO. 8 IS FROM INSIDE

LOWER POWERHOUSE

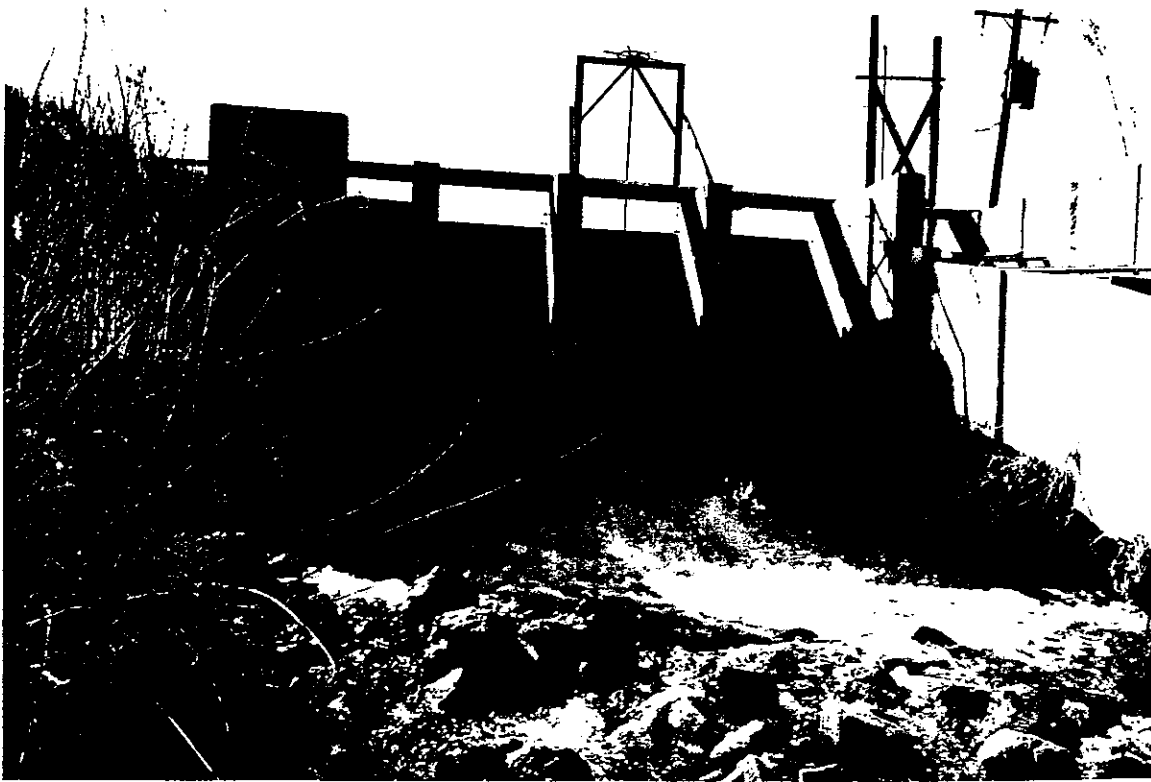
PHOTO ORIENTATION
DENOTED BY



SCHEMATIC DIAGRAM
MUD CREEK PROJECT
FERC NO. 4769-10

ENGINEER

6 Mud Creek Project 6
FERC No. 4769-ID
(Photographs taken February 23, 1988)



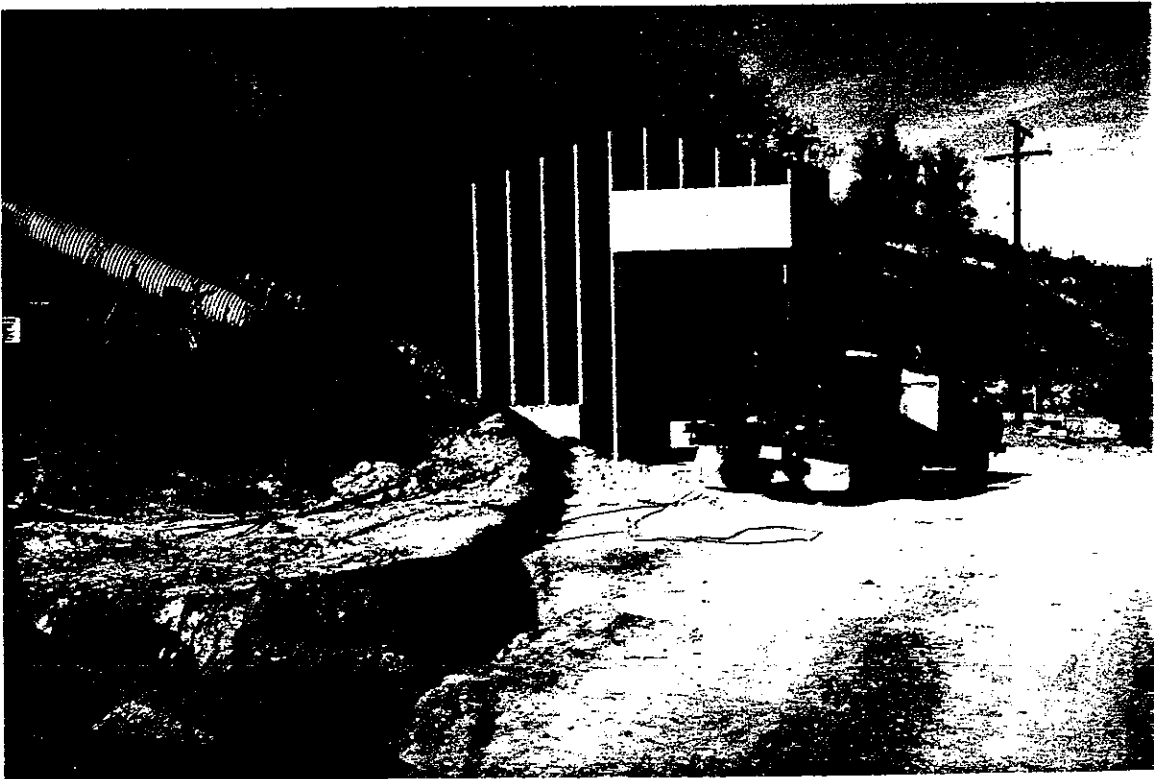
1. Downstream view of upper diversion structure. Note orifice in slide gate for minimum flow requirements.



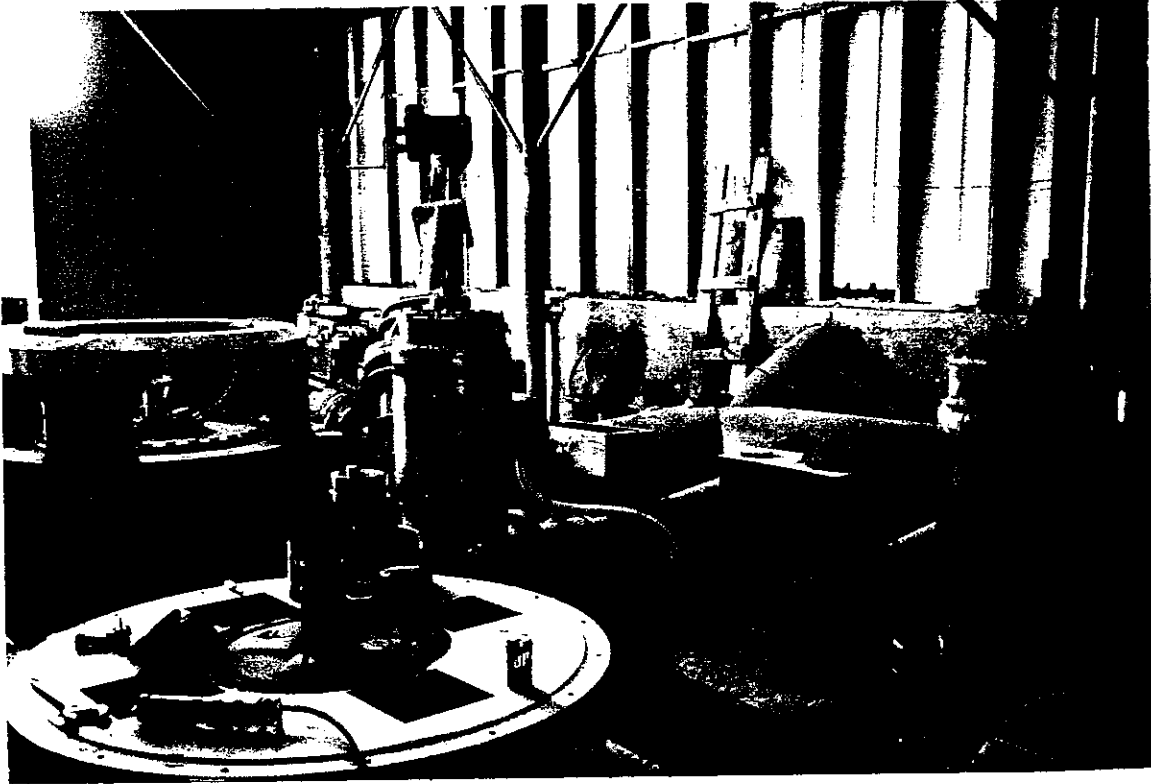
2. Upper power canal and intake structure. Note screens in front of intake.



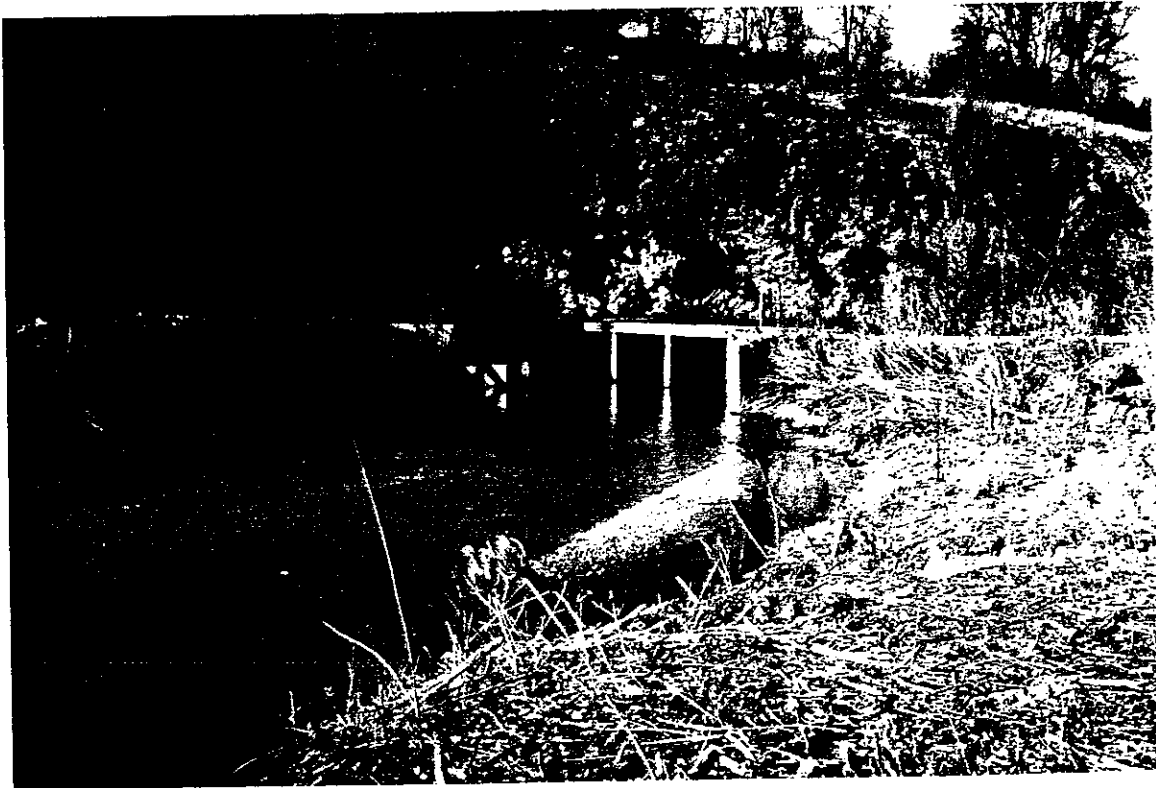
3. Upstream view of upper diversion structure.



4. Upper powerhouse, (rebuilt).



5. Upper powerhouse generating equipment. Exemptee is removing 3 - 100 HP units and replacing with 1 - 250 kW synchronous unit.

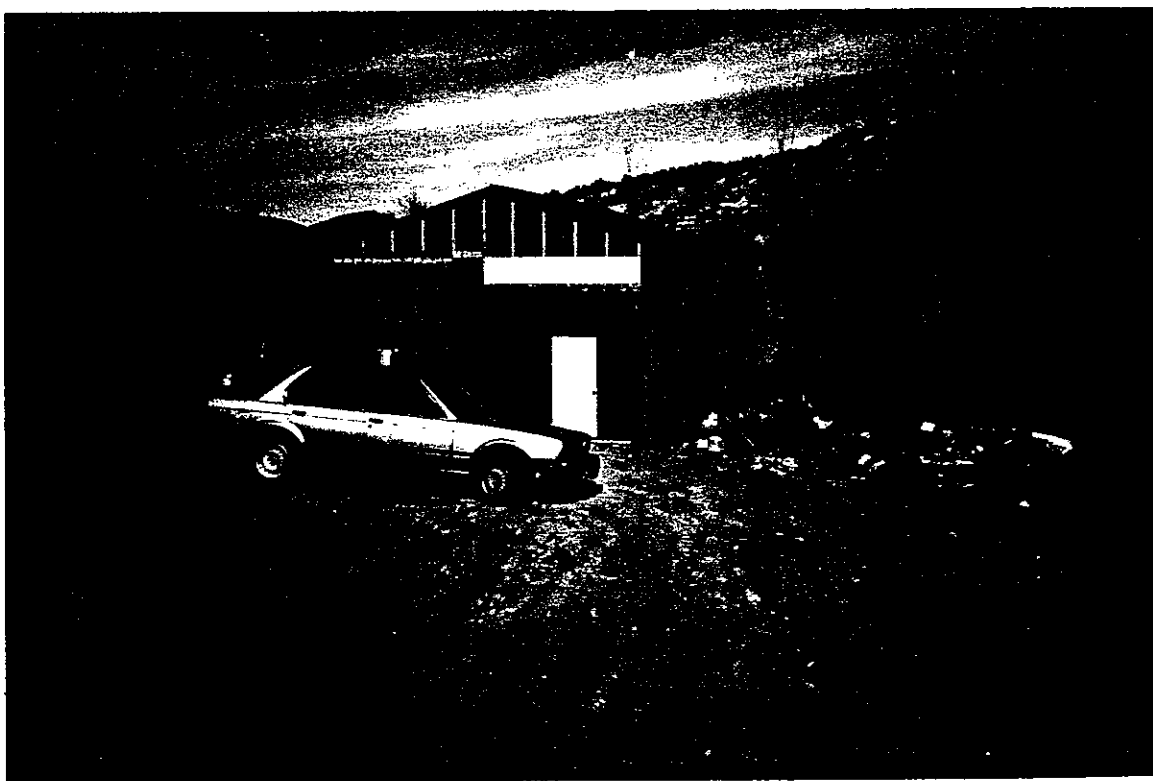


6. Upstream view of lower diversion structure.

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Mud Creek Project
FERC No. 4769-ID
(Photographs taken February 23, 1988)



7. Lower powerhouse, (rebuilt).

Mud Creek Project
FERC No. 4769-ID
(Photographs taken February 23, 1988)



8. Lower powerhouse generating equipment. Exemptee has removed 3 - 50 HP units and replaced with 1 - 125 kW synchronous unit.