

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 47-7739

Exam Date: 11/16/2004

1. Current Owner: CAROL FULTZ
1137 E 4150 N
BUHL ID 83316
(208)543-6064

And/Or

WILLIAM FULTZ
1137 E 4150 N
BUHL ID 83316
(208)543-6064

RECEIVED**DEC - 7 2004**

DEPARTMENT OF WATER RESOURCES

2. Accompanied by: WILLIAM FULTZ

Phone No: SAME

Address: SAME

Relationship to Permit Holder: SAME

3. **SOURCE**

LATERAL NO 58

TRIBUTARY

MUD CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NONE
2. Other water rights with the same point of diversion: NONE

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

LATERAL NO 58

NW1/4NE1/4SW1/4

Sec. 33, Twp 09S, Rge 14E, B.M.

TWIN FALLS County

Method of Determination: GPS & ARCVIEW

2.

PLACE OF USE: POWER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
09S	14E	33	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
											X								

Method of Determination: ARCVIEW

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☐ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

D. FLOW MEASUREMENTS

1. NONE (MODELED WITH HYDROFLO COMPUTER PROGRAM)

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

2. Measurements:

E. FLOW CALCULATIONS

Measured Method:

☒ Additional Computation Sheets Attached

(HYDROFLO RESULTS)

F. 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:

$$0.66 \text{ CFS} \times 228 \text{ DAYS} \times 1.9835 = 298 \text{ AC-FT}$$

G. NARRATIVE/REMARKS/COMMENTS

Permit 47-7739, in the name of William &/or Carol Fultz, was approved December 10, 1981 to develop 2.00 cfs from Lateral #58 (tributary to Mud Creek) for power and heating use. The application for permit indicates that water will be diverted from Lateral #58 and conveyed some distance to the east and then dumped into Mud Creek, east (upstream) of where Lateral #58 dumps into Mud Creek. The original application for permit includes the following statement...

“Power for private use; home heating with a heat pump”

In March of 1987, IDWR approved an extension of time to submit beneficial use. The request indicated that the permit holder was having problems finding a generator to meet Idaho Power requirements.

In November of 1988, the permit holder filed Proof of Beneficial Use, for 2.0 cfs for heating and power use.

In August of 2003, IDWR approved application for Permit 47-17094, in the name of Jack Goodman, for the development of 3.1 cfs from Lateral #58 (tributary to Mud Creek) for power use. This particular application for permit indicates that water will be diverted from Lateral #58 and conveyed along the west side of Mud Creek and then dumped into Mud Creek. Recently, IDWR was contacted by Jack Goodman, and associates, regarding concerns that they had regarding permit 47-7739. Apparently, they assumed that permit 47-7739 would not impact their development covered by permit 47-17094. It appeared that they were under the assumption that permit 47-7739 had been forfeited due to non-use. It was explained to them that a permit could

not be forfeited by non-use that occurred after the proof of beneficial use was filed. Allen Merritt and I offered to pursue a licensing exam and the ultimate licensing of permit 47-7739 in an attempt to quantify the extent of development under the permit. Note that Jack Goodman wrote a letter to Allen Merritt outlining his concerns regarding permit 47-7739 (copy of 11/15/2004 letter enclosed).

As a result of the concerns raised by Mr. Goodman, and his associates, and the general need for a field exam for permit 47-7739, a field exam was scheduled for November 16, 2004.

Allen and I met Mr. Fultz on the afternoon of November 16th, and proceeded to investigate his development. Mr. Fultz indicated that he developed a pipeline from Lateral #58 near the upper (southwest) corner of his property and ran the pipeline down his property towards the northeast where it ultimately discharged into Mud Creek. He indicated that he intended to generate power and sell it to Idaho Power, but could never reach a deal. However, he did install a Pelton wheel that was used to power a generator that powered a heat pump that was used to heat his home. According to Mr. Fultz, his home burned down a couple of years ago and he has not used the system since the fire. When asked, he indicated that he used his system from September to May for heating purposes. However, he also indicated that he would like to "redevelop" the system and attempt to sell power if he could. Mr. Fultz indicated that he had a 10" plastic line buried from the point of diversion to the corner of his property. He indicated that he ran a 4-inch line off of the 10-inch line, which then turned into a 2-inch line that discharged water through a 1.75-inch nozzle to power the Pelton wheel. Discharge from the Pelton wheel was conveyed away via a 6-inch line. Allen and I conducted a level survey to determine the amount of head (fall) from the point of diversion to the Pelton wheel. The survey revealed that there was 65.17 feet of head (fall).

Using the survey (head) information, and the information regarding the pipe system obtained from the permit holder, HYDROFLO was used to model the system and determine the amount of flow through the system. It was determined that the system could convey 0.66 cfs.

As previously indicated, Mr. Fultz stated that he used his system to power a heat pump that he used for heating his home from September to May. Examining 30 year average climate data from the Western Regional Climate Center website reveals that the maximum daily temperature for the Buhl area exceeds 70 degrees from about May 15th to October 1st. Therefore, based on the ultimate use of heating for the power generated a period of use for right 47-7739 from October 1st to May 15th seems to be appropriate.

Permit 47-7739 lists power and heating as a use of the water. However, the actual use of the water is power, and the water itself was never actually directly used for heating. Therefore, it is recommended that right 47-7739 be issued for only power use and not for heating use.

Permit 47-7739 includes a condition stating that measuring devices be permanently installed at the point of diversion and the point of effluent discharge. During the field exam, it was noted that measuring devices were not installed at the point of diversion or the point of

discharge into Mud Creek. However, it does not seem appropriate to require a measuring device at the point of discharge since the system is closed, and there is no flow loss associated with the use. Mr. Fultz indicated that water could be measured at the point of diversion if "boards" were installed upstream and downstream of his diversion and the difference in the flow were measured. If such a measurement system were utilized, it would be better to use weir plates for more accurate measurements. It also might not be a bad idea to have a control gate at the point of diversion to ensure that water is not diverted outside the ultimate licensed period of use. This may also help with the future distribution of water between 47-7739 (Fultz) and 47-17094 (Goodman).

Have conditions of permit approval been met? ☐ Yes ☐ No ?

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	10/01 to 05/15	0.660 CFS	298.00 AF
<u>Totals:</u>		0.660 CFS	298.00 AF

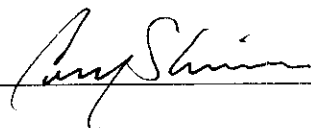
2. Recommended Amendments

☐ 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

I. AUTHENTICATION

Field Examiner's Name



Date

12/3/2004

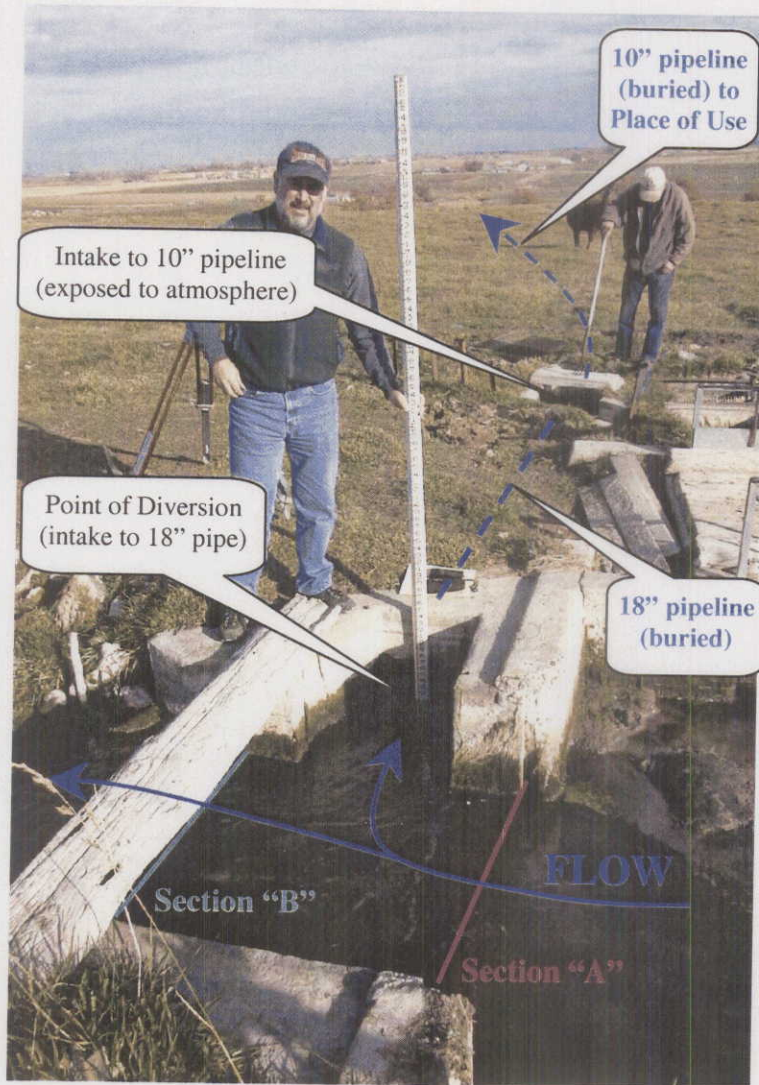
Reviewer

Date

Map for 47-7739 Field Exam

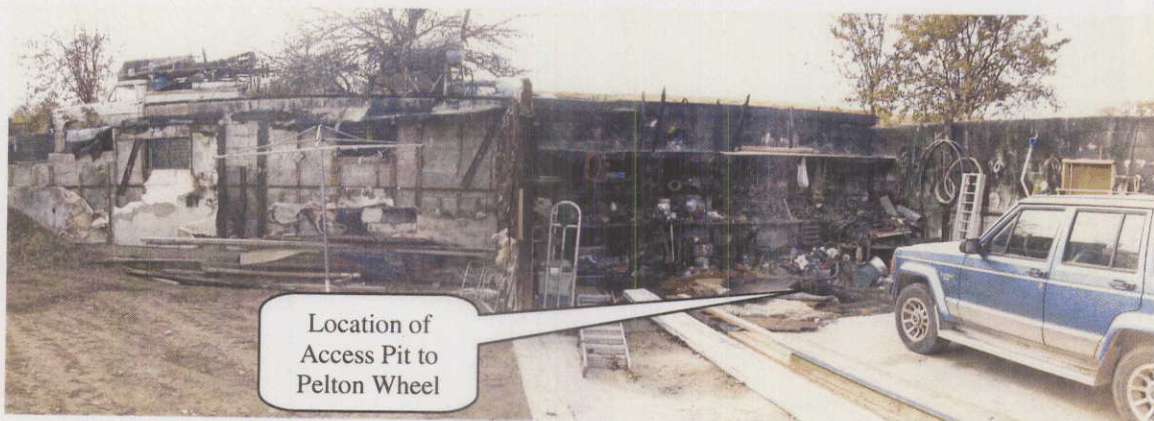


Township 09 South, Range 14 East
Section 33



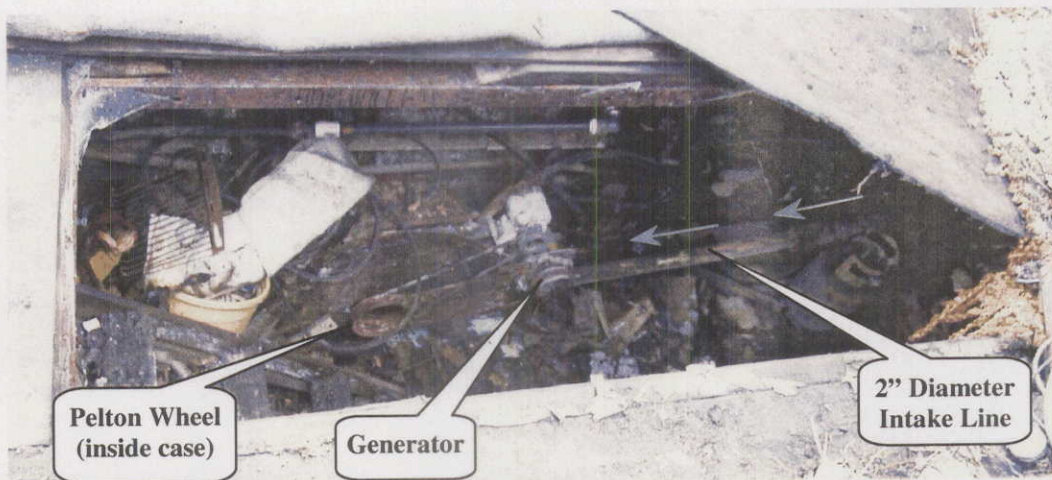
LEFT: View from diversion point looking to the east showing the source of water. An 18-inch diameter pipe (entrance at survey rod) conveys water to a buried 10-inch plastic pipeline that conveys water to the place of use (over the crest of the hill in the background). Note the high water mark (≈ 7 inches above the top of the 18 inch pipe) on the concrete structure. Also note the lack of measuring device in the foreground of this view. However, water could be measured at sections "A" and "B" via a weir plate or other apparatus, and the difference in flow at these two sections would be the amount diverted through the 18-inch pipe and into the 10-inch pipeline to the place of use.

BELOW: View of developed place of use (burned home). The permit holder indicated the home burnt a couple of years ago. The location of the access pit shown in next photos is indicated.

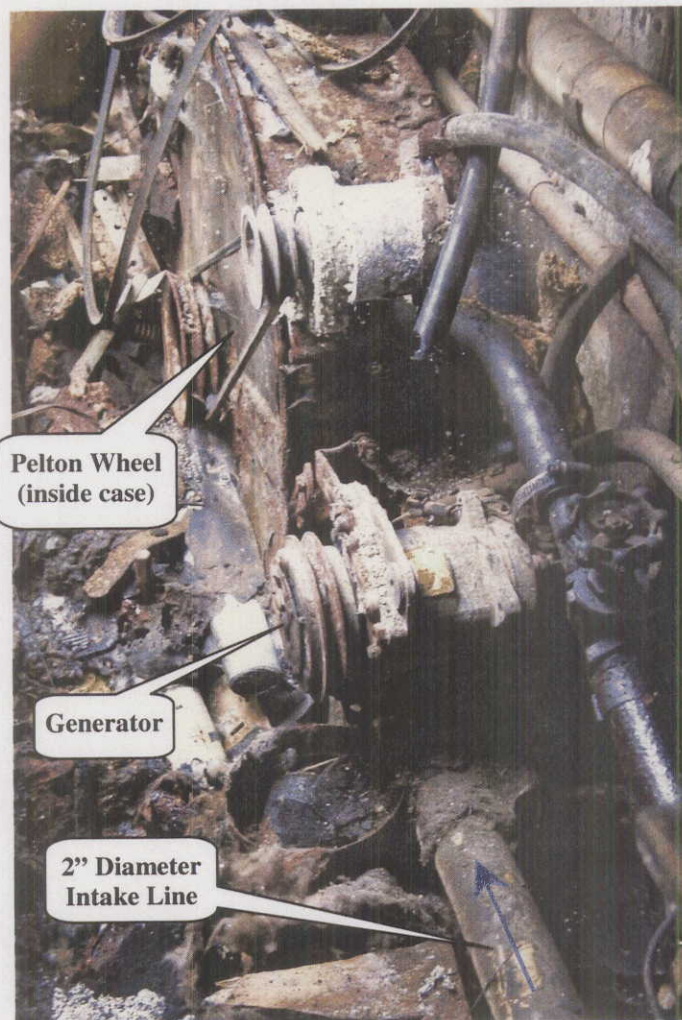




View of discharge location from 15-inch diameter pipe into Mud Creek



ABOVE: View looking into access pit showing the intake line (2" diameter) from the 10" pipeline shown on previous page. Water from this line enters the Pelton wheel through an estimate 1.75 " diameter nozzle. The Pelton wheel powers the generator, which was apparently used to run a heat pump for heating of the home.

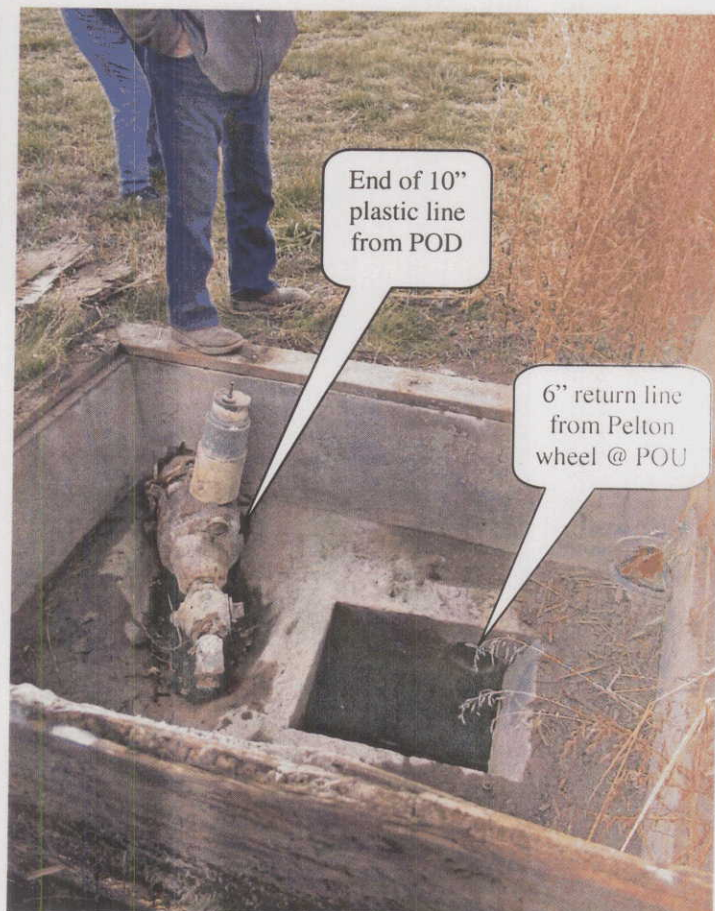


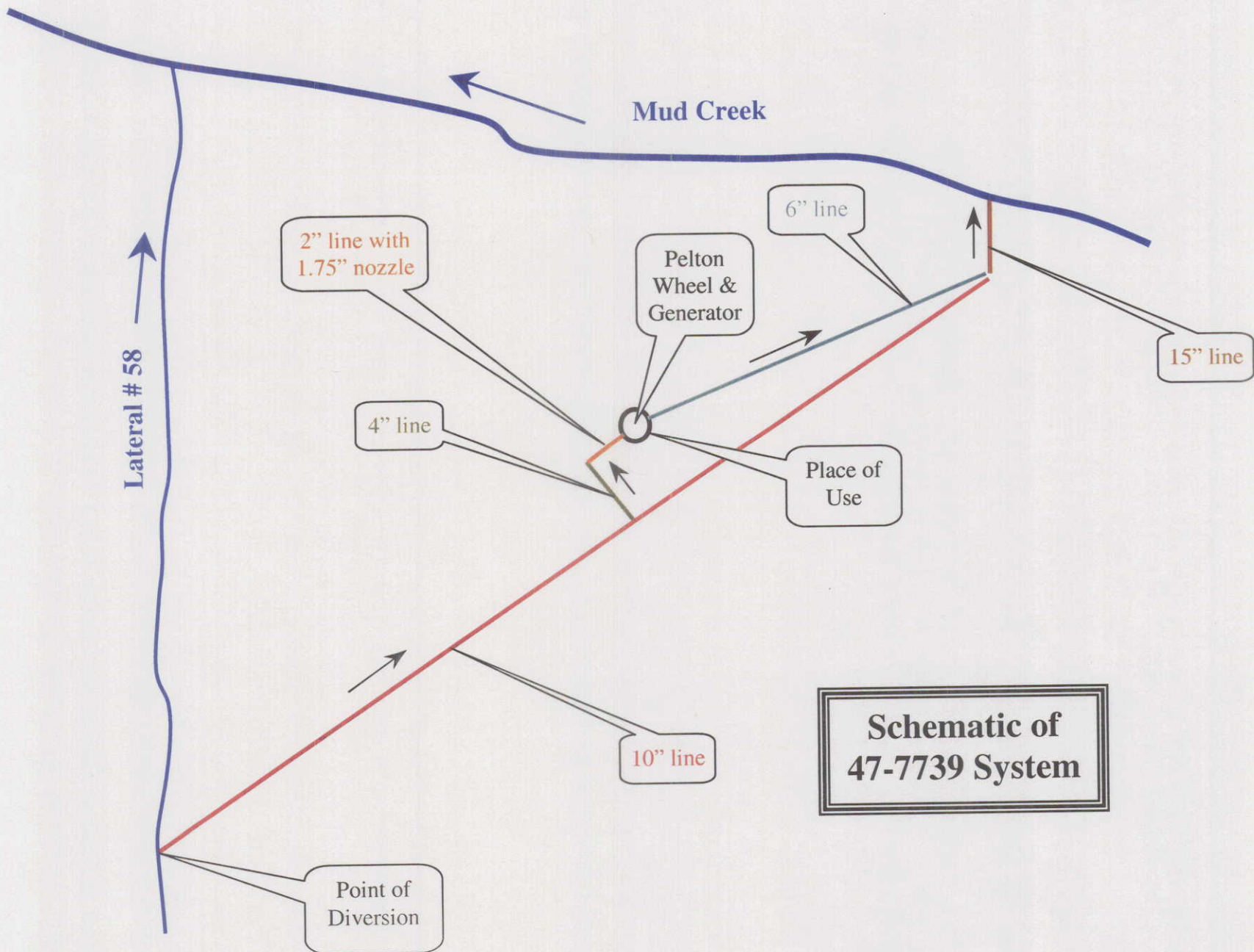
LEFT: View from inside the access pit showing the intake line, Pelton wheel, and generator.



LEFT: View from the center of Section 33 (T09S, R14E) looking to the west. Just behind the plywood is the view shown below. Note place of use (site of burned home) is visible in the background. The point of diversion is located further to the west, and slightly south, along the skyline in the far background.

RIGHT: View of area behind plywood in view above showing discharge point of six inch diameter line that conveys discharge from Pelton wheel towards Mud Creek. Note the end of the 10-inch plastic line also discharges at this location. The permit holder originally intended to generate power at this site, but never accomplished the development at this particular site. Water from this location enters a 15-inch diameter pipe which discharges into Mud Creek approximately 140 feet to the north.





**Schematic of
47-7739 System**

Project Elevations

Main Line (not to scale)

Project file: C:\hydroflow\Fultz.flo

Project Information

Project: 47-7739

Client: Fultz

Static Head Data

Source Elev: 0.00 ft

Source Pressure: 0.00 ft liq

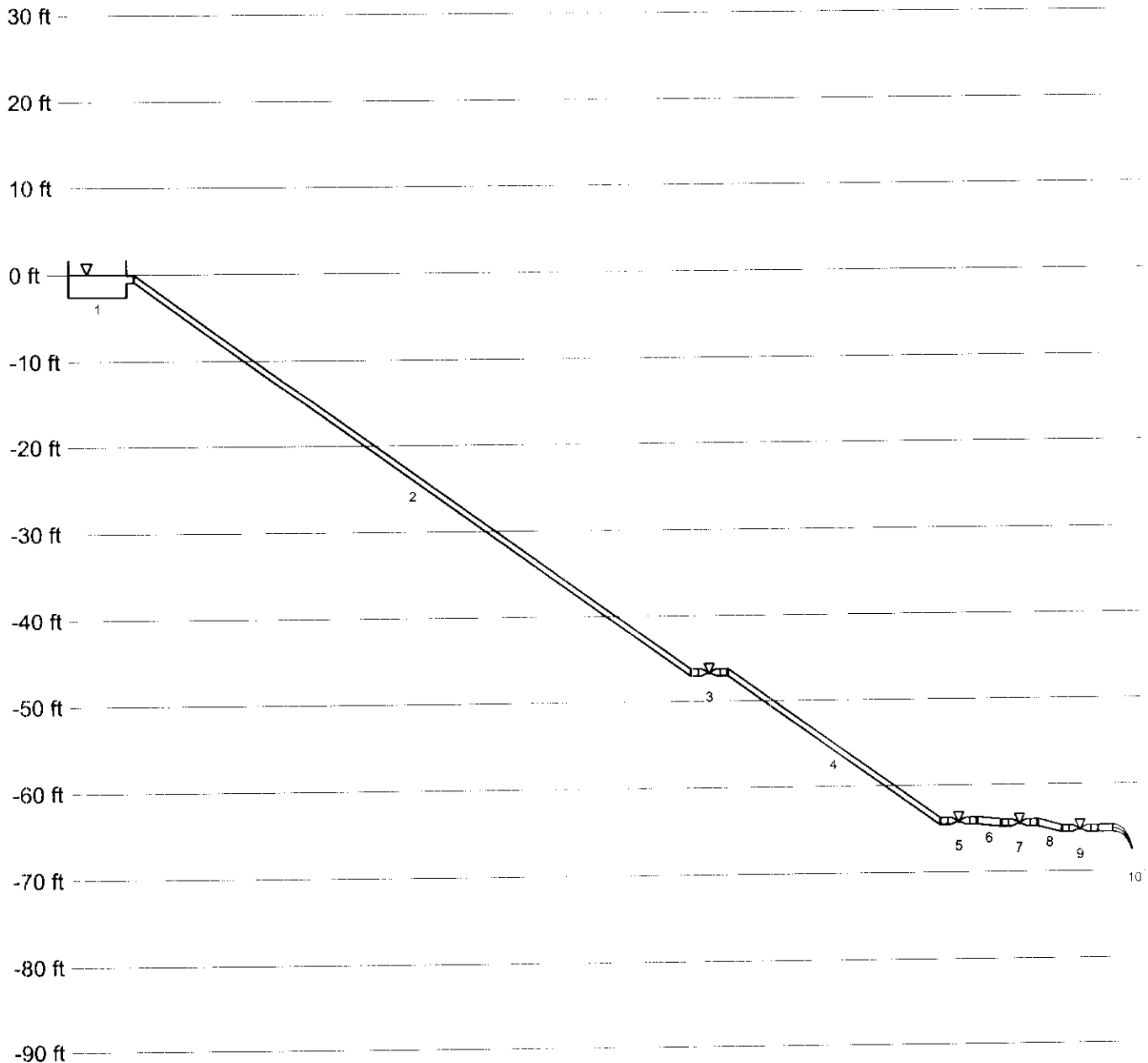
Source HGL: 0.00 ft

Discharge Elev: -65.17 ft

Discharge Pressure: 0.00 ft liq

Discharge HGL: -65.17 ft

Total Static Head: -65.17 ft



Complete Report

Project file: C:\hydroflow\Fultz.flo

This system is solved

Project Information

Project: 47-7739
 Client: Fultz

System Information

Pipe Head Loss Eq.: Hazen-Williams
 Tolerance: 2.21E-5 cfs
 Atmospheric Press: 13.00 psi
 Total Elements: 10
 Total Parallels: 0

Static Head Data

Source Elev: 0.00 ft
 Source Pressure: 0.00 ft liq
 Source HGL: 0.00 ft
 Discharge Elev: -65.17 ft
 Discharge Pressure: 0.00 ft liq
 Discharge HGL: -65.17 ft
 Total Static Head: -65.17 ft

Liquid Properties

Hazen-Williams equation used for pipe loss
 Temperature: 50.00 F
 Specific Gravity: 1.00
 Viscosity: 1.22E-5 ft²/s
 Vapor Pressure: 0.18 psi (abs)
 Specific Heat: 1.00 Btu/lbF

Element Data by type...

Supplies:		Pressure	Elev	Demand	HGL
No.	Type	(ftlq)	(feet)	(cfs)	In/Out (feet)
1	reservoir/tank (open)	0.00	0.00	0.66	out 0.00
Inlet/Exit: pipe inlet-flush, sharp-e, Elev=-0.50 feet, dia=10.000 in, hl=0.01 ft liq					
10	free discharge	0.00	-65.17	0.66	in -65.17

Pipes:		Length	Fric	Nom Dia	I.D.	Flow	Direction	Velocity	Head Loss
No.	Spec	(feet)	HW C	(inch)	(inch)	(cfs)	->element	(ft/s)	(ftlq)
2	UB15	500.00	150	10	9.790	0.66	->3	1.26	0.28
10" pipe									
4	US04	190.00	100	4	4.026	0.66	->5	7.44	16.76
4" steel pipe									
6	US04	3.00	100	4	4.026	0.66	->7	7.44	0.26
8	US04	8.00	100	2	2.067	0.66	->9	28.22	18.08

Pipe specifications...

UB15 = PVC, AWWA C900, Class 150, DR18
 US04 = Steel, Seamless, Sch 40, ANSI B36.10, B31.1

Valves & Fittings:		Fric	Diameter	Flow	Direction	Head Loss
No.	Description	K	(inch)	(cfs)	->element	(ftlq)
3	Standard tee (thru branch)	1.02	4.026	0.66	->4	0.88
5	Standard elbow (90 deg)	0.51	4.000	0.66	->6	0.45
bend						
7	Enlarge/Contract (Angle=180)	0.37	2.067	0.66	->8	4.56
transition from 4" to 2"						

Complete Report (continued)

Project file: C:\hydroflow\Fultz.flo

This system is solved

Element Data by type... (continued)

Valves & Fittings:		Fric	Diameter	Flow	Direction	Head Loss
No.	Description	K	(inch)	(cfs)	->element	(ftlq)
9	Nozzle/Orifice-Discharge Coef:	0.70	1.750	0.66	->10	23.90

Elements in sequence		Pressure	Elev	Head Change	HGL
No.	Type Desc	(ftlq)	(feet)	(ftlq)	(ftlq)
Start of Main Line - source side...					
1	Supply reservoir/tank (open)	0.00	0.00		0.00
	Inlet/Exit: Type=pipe inlet-flush, sharp-edged			-0.01	-0.01
2	Pipe PVC, AWWA C900, Class 150, DR18			-0.28	-0.29
	10" pipe				
3	Fitt Standard tee (thru branch)			-0.88	-1.16
4	Pipe Steel, Seamless, Sch 40, ANSI B36.10, B31.1			-16.76	-17.92
	4" steel pipe				
5	Fitt Standard elbow (90 deg)			-0.45	-18.37
6	Pipe Steel, Seamless, Sch 40, ANSI B36.10, B31.1			-0.26	-18.64
7	Fitt Enlarge/Contract (Angle=180)			-4.56	-23.19
8	Pipe Steel, Seamless, Sch 40, ANSI B36.10, B31.1			-18.08	-41.27
9	Fitt Nozzle/Orifice-Discharge Coef:			-23.90	-65.17
10	Supply free discharge	0.00	-65.17		-65.17
End of Main Line - discharge side...					

10" Pipeline Intake
Assumed Elevation = 100.0'

Survey for Licensing Exam 47-7739

Allen Merritt & Corey Skinner 11/16/2004

