

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 82-7205

Exam Date: 9/15/2014

1. Current Owner: UNITED STATES OF AMERICA ACTING THROUGH
DOE-BONNEVILLE POWER ADMIN
LAND MGT SEC MMLC
PO BOX 3621
PORTLAND OR 97208-3621
(503)230-3252
2. Accompanied by: Aaron Penney
Phone No: (208) 843-7384 Ext. 3502
Address: 1895 Hubbard Gulch Juliaetta, ID 83535
Relationship to Permit Holder: Hatchery Manager, Nez Perce Tribal Hatchery

3. SOURCE TRIBUTARY
NEWSOME CREEK CLEARWATER RIVER

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 SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

NEWSOME CREEK NW1/4NE1/4 Sec. 31, Twp 30N, Rge 07E, B.M. IDAHO County

Method of Determination: GPS and Visual Inspection

2.

PLACE OF USE: FISH PROPAGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>Totals</u>
30N	07E	31			X														

PLACE OF USE: FISH PROPAGATION

Twp	Rge	Sec	NE				NW				SW				SE				
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>Totals</u>
30N	07E	31			X														

Method of Determination: Visual inspection and GIS.

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
YES Aerial Photo Attached (required for irrigation of 10+ acres).
YES Photo of Diversion and System Attached (See Field Exam for 74-15608)

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Newsome Creek Diversion Site Tag # A0018701	None	N/A	N/A	N/A	Buried 10 " PVC From Distribution Box

*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
FlowTracker	Sonic					

2. Measurements: The flow was calculated by attaining a measurement of the velocity on the outflow pipe for the facility. I then calculated the area of the pipe and used the velocity to determine the rate of flow using the standard formula $Q = VA$. Please see attachments to see the flow calculations.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method:

All of the piping for this facility is under ground or under water except for the outflow of the facility back to Newsome Creek. Measuring at this location could miss some flows, but it would give a minimum flow of water. Please see the attached analysis sheets to show the rate of flow of water that was measured coming out of the plant.

Measurement = 2.38 cfs

Permit Allows = 1.70 cfs

I recommend that this permit be licensed for the 1.70 cfs allowed by the permit, since it allows

F. VOLUME CALCULATIONS**1. Volume Calculations for Irrigation:**V- I.R. = (Acres Irrigated) x (Irrigation Requirement) = N/A V- D.R. = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = N/A V = Smaller of V- I.R. and V- D.R. = N/A **2. Volume Calculations for Other Uses:**

This permit allowed a volume for storage of 0.2 af. Upon reviewing the file, the storage volume for the pond did not include seepage or evaporation losses. The ponds were estimated at a volume of 10568 cubic feet or 0.24 af (See permit maps for pod calculations). During my exam, I found that the fingerling pond had a surface are of 0.09 acres and I measured a maximum depth of 6.5 feet. This pond has rounded slope, so per the field examiner's handbook, the maximum depth of the pond would need to be multiplied by 0.4 to determine average depth. Taking this information, I came up with the following storage volume:

$$0.09 \text{ acres surface area} \times (6.5 \text{ ft max depth} \times 0.4 \text{ coefficient}) = 0.234 \text{ acre feet of volume}$$

or 10193 cubic feet of the facility volume/capacity

Since the spawning ponds are not used any longer, there is no need to account for that volume, especially since the fingerling pond uses up all of the storage volume. The storage component for this license should be limited to the permitted amount of 0.2 af.

The fish propagation portion of this permit should be limited to 283 af. The total volume including the storage volume should be limited to 283.2 af, since this is the maximum that can be diverted during the 84 day acclimation period at a diversion rate of 1.70 cfs.

$$1.70 \text{ cfs} \times 1.9835 \times 84 \text{ days} = 283.2 \text{ af}$$

G. NARRATIVE/REMARKS/COMMENTS

The water for this permit is diverted from Newsome Creek in the NWNE of Section 31, Township 30 North, Range 7 East. The diversion consists of a dam across the creek, with a screen portion on one side of the dam delivering the water to a junction box. The water from this point is run through a buried 10 " PVC pipeline that carries the water approximately 1,076 feet due south to a distribution box. At the distribution box the water can be diverted to brood ponds or the fingerlings pond. In the beginning of this process, this facility was used to spawn adult fish. However, this process was discontinued after the first year or two due to diseases that were introduced into facility. They haven't used the brood ponds for spawning since the first few attempts.

The fingerlings pond holds between 75,000 and 100,000 fish at 29 fish per pound. An earlier field exam, found only 75,000 fingerlings and 2,586 pounds of adults fish used this facility, however, these fish numbers was based on the 2000 and 2003 hatchery reports. At the time of the field exam, the facility was not in operation, so the data received was based on previous reports and estimations. Proof for this permit was due and submitted in 2005. According to the new hatchery manager Aaron Penny, this facility runs between 75,000 and 100,000 fingerlings depending on the main hatchery's output, and cannot run the 2,586 pounds of adults that was done originally. Therefore, there shouldn't be any issues in allowing the full 100,000 fingerlings under this permit and not allow the 2,586 adults in this facility.

I maintained the conditions that we have used on all of these satellite fish hatchery water rights.

An amendment will be needed to correct the point of diversion description in the water right.

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>
DIVERSION TO STORAGE	01/01 to 12/31	1.700 CFS	
FISH PROPAGATION STORAGE	01/01 to 12/31		0.20 AF
FISH PROPAGATION	01/01 to 12/31	1.700 CFS	283.00 AF
	<u>Totals:</u>	1.700 CFS	283.20 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 Daniel A. Nelson – Staff Hydrologist

Field Examiner's Name



Date

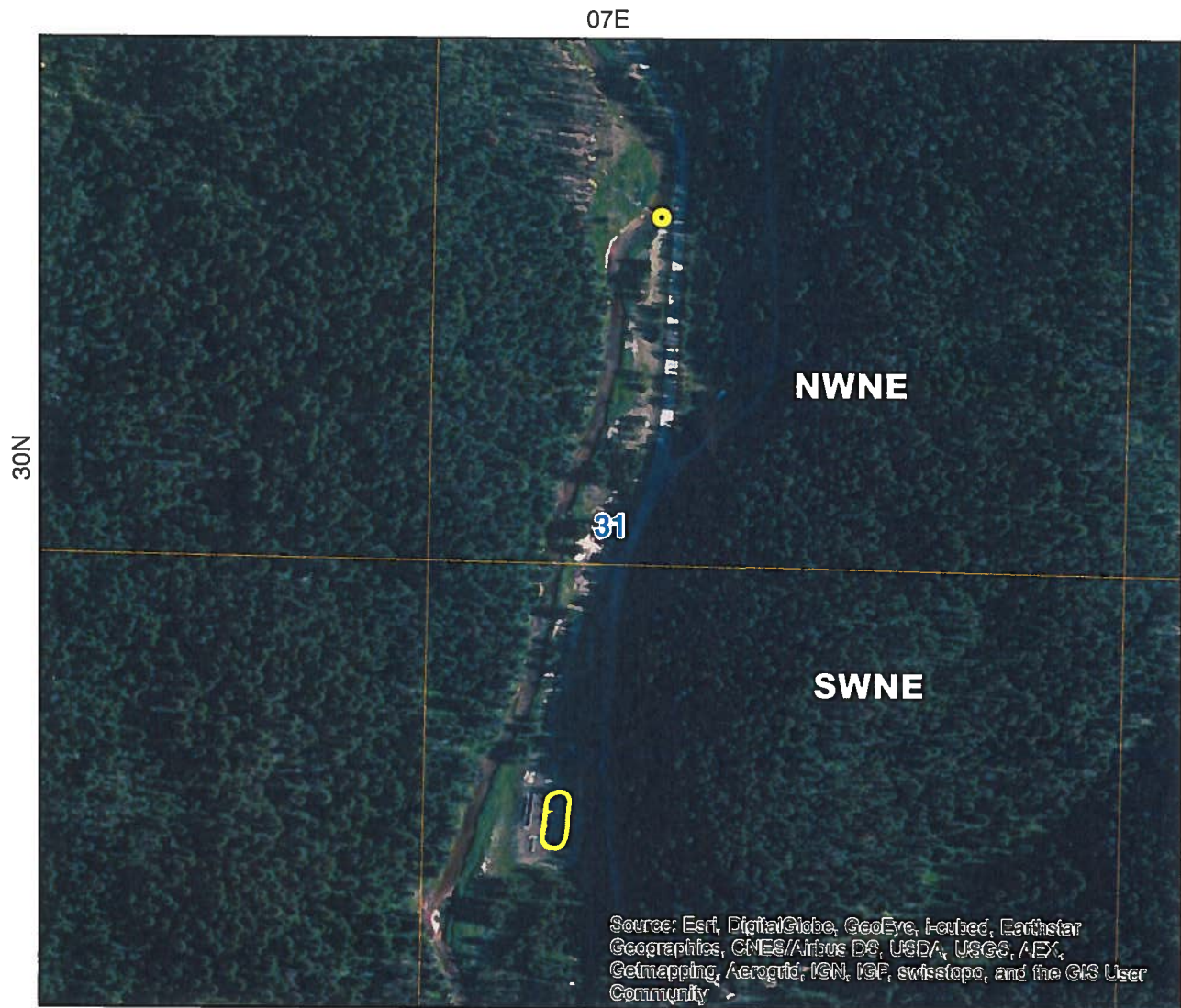
10-18-14

Reviewer

Date

State of Idaho
Department of Water Resources
Field Exam Map
82-7205

This map depicts the FISH PROPAGATION STORAGE place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



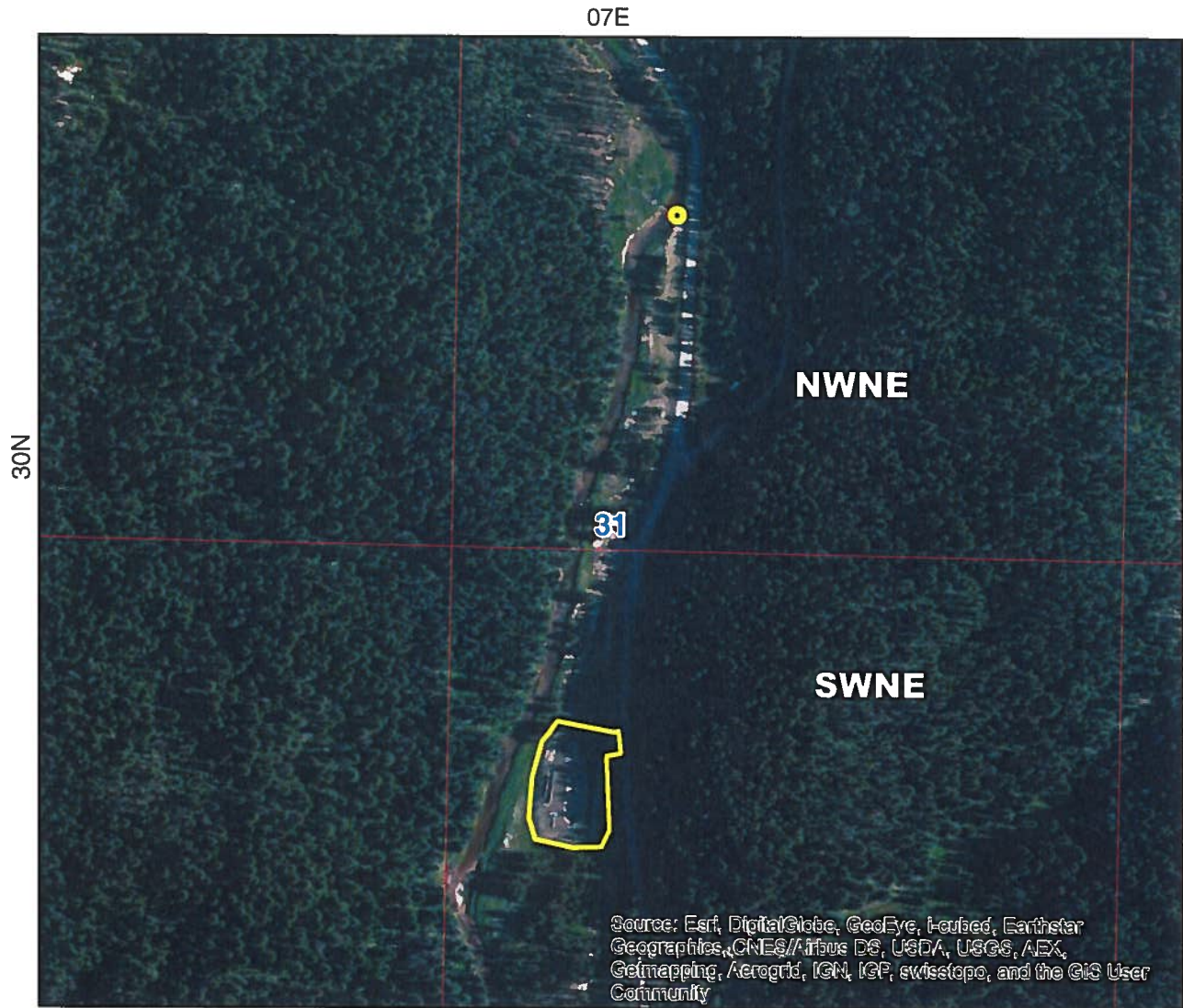
-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.04 0.08 0.16 Miles



State of Idaho
Department of Water Resources
Field Exam Map
82-7205

This map depicts the FISH PROPAGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



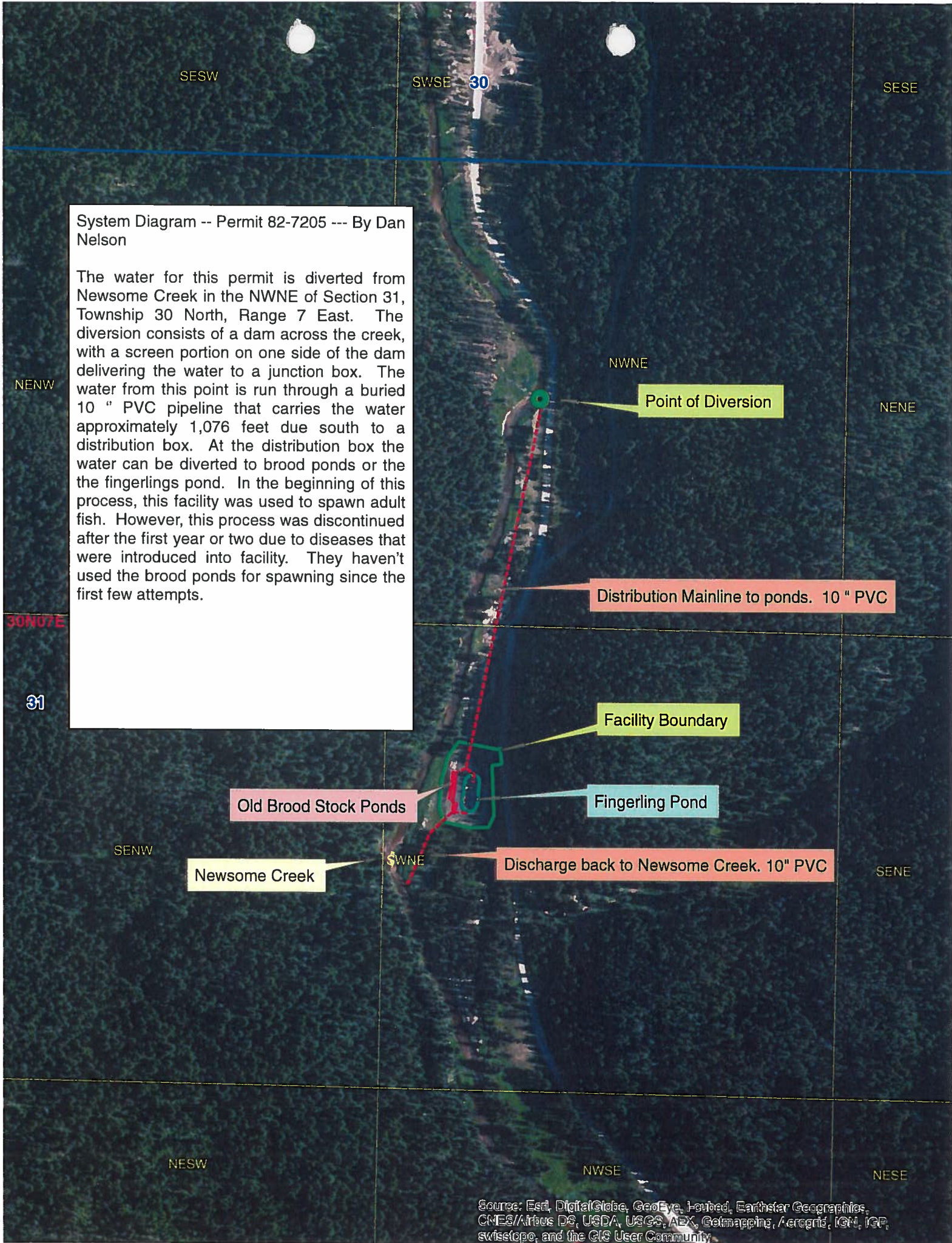
-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

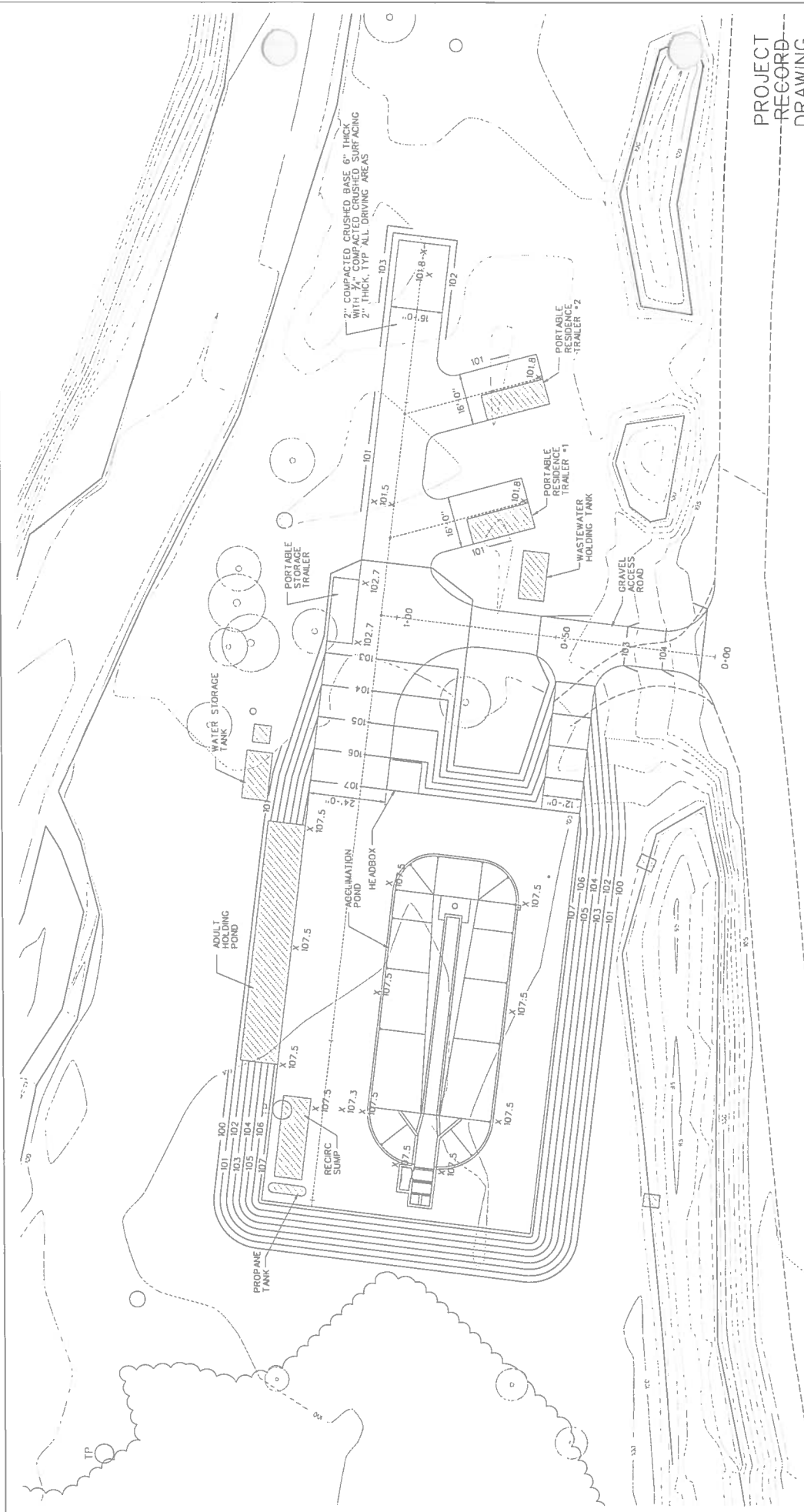
0 0.0425 0.085 0.17 Miles



System Diagram -- Permit 82-7205 --- By Dan Nelson

The water for this permit is diverted from Newsome Creek in the NWNE of Section 31, Township 30 North, Range 7 East. The diversion consists of a dam across the creek, with a screen portion on one side of the dam delivering the water to a junction box. The water from this point is run through a buried 10 " PVC pipeline that carries the water approximately 1,076 feet due south to a distribution box. At the distribution box the water can be diverted to brood ponds or the the fingerlings pond. In the beginning of this process, this facility was used to spawn adult fish. However, this process was discontinued after the first year or two due to diseases that were introduced into facility. They haven't used the brood ponds for spawning since the first few attempts.





SCALE IN FEET
1" = 10'

SHADE COVER POST
BASES REMOVED

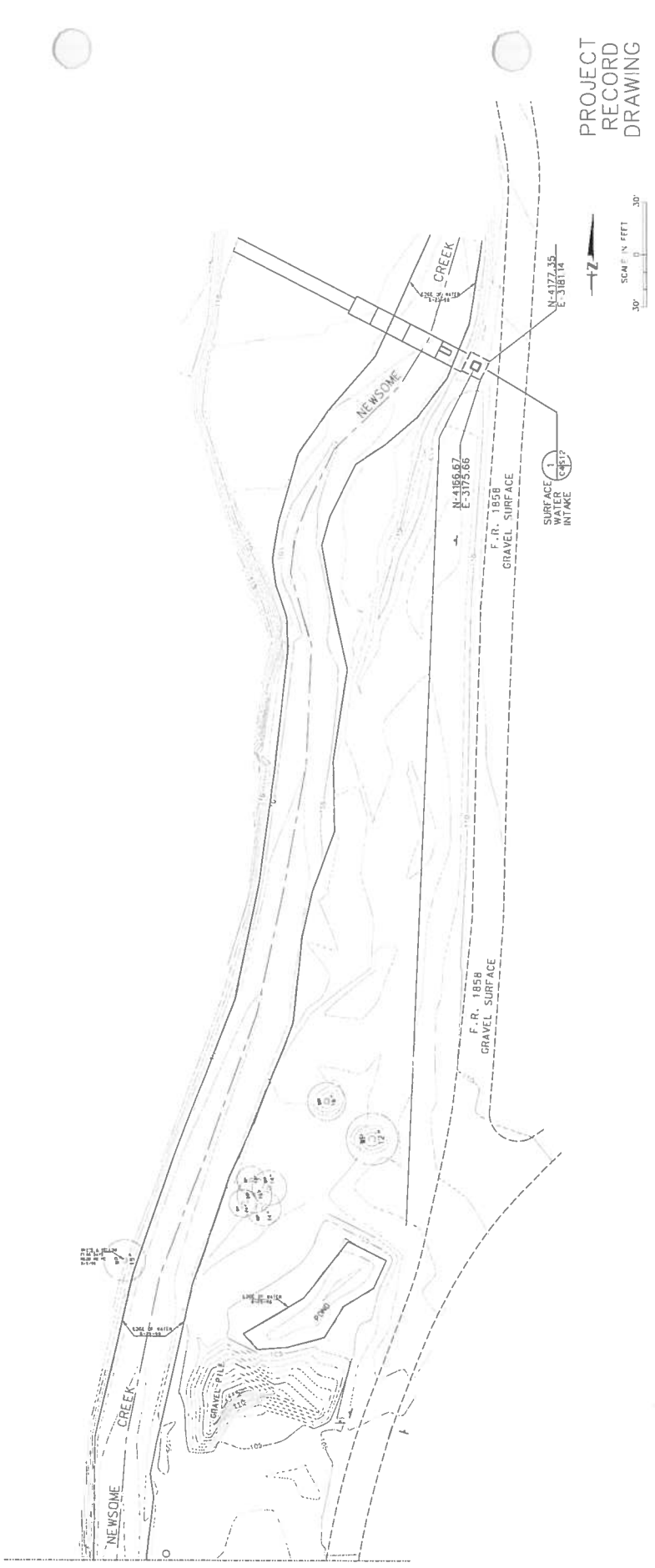
REFERENCE SHEET: C5



PROJECT
RECORD
DRAWING

O	C	F	3062	CONTRACT DRAWINGS	CUJ	1/7/00	EED
NO.	REV.	PL	6	COMPUTER REVISION ONLY	BY	DATE	APPROVED
S. E. C. - CONTRACT, CONSTRUCTION, I. A. - FIELD ACCOUNT, H. RECORD							
UNITED STATES DEPARTMENT OF AGRICULTURE							
BONNEVILLE POWER ADMINISTRATION							
NEZ PERCE TRIBAL HATCHERY PROGRAM							
- 4. BOONVILLE, IDAHO, U.S.A.							
GRADING PLAN							
NEWSOME CREEK							
SERIAL							
260203				Source	Size	Sheet	Revision
DATE 4/04/00				A1	610	Q	

MATCH LINE C3



PROJECT
RECORD
DRAWING

NO.	DATE	CONTRACT DRAWINGS	BY	DATE	LED
0	C	F-5062		1/7/00	
1	C	F-5062		1/7/00	
2	C	F-5062		1/7/00	
3	C	F-5062		1/7/00	
4	C	F-5062		1/7/00	
5	C	F-5062		1/7/00	
6	C	F-5062		1/7/00	
7	C	F-5062		1/7/00	
8	C	F-5062		1/7/00	
9	C	F-5062		1/7/00	
10	C	F-5062		1/7/00	
11	C	F-5062		1/7/00	
12	C	F-5062		1/7/00	
13	C	F-5062		1/7/00	
14	C	F-5062		1/7/00	
15	C	F-5062		1/7/00	
16	C	F-5062		1/7/00	
17	C	F-5062		1/7/00	
18	C	F-5062		1/7/00	
19	C	F-5062		1/7/00	
20	C	F-5062		1/7/00	
21	C	F-5062		1/7/00	
22	C	F-5062		1/7/00	
23	C	F-5062		1/7/00	
24	C	F-5062		1/7/00	
25	C	F-5062		1/7/00	
26	C	F-5062		1/7/00	
27	C	F-5062		1/7/00	
28	C	F-5062		1/7/00	
29	C	F-5062		1/7/00	
30	C	F-5062		1/7/00	
31	C	F-5062		1/7/00	
32	C	F-5062		1/7/00	
33	C	F-5062		1/7/00	
34	C	F-5062		1/7/00	
35	C	F-5062		1/7/00	
36	C	F-5062		1/7/00	
37	C	F-5062		1/7/00	
38	C	F-5062		1/7/00	
39	C	F-5062		1/7/00	
40	C	F-5062		1/7/00	
41	C	F-5062		1/7/00	
42	C	F-5062		1/7/00	
43	C	F-5062		1/7/00	
44	C	F-5062		1/7/00	
45	C	F-5062		1/7/00	
46	C	F-5062		1/7/00	
47	C	F-5062		1/7/00	
48	C	F-5062		1/7/00	
49	C	F-5062		1/7/00	
50	C	F-5062		1/7/00	
51	C	F-5062		1/7/00	
52	C	F-5062		1/7/00	
53	C	F-5062		1/7/00	
54	C	F-5062		1/7/00	
55	C	F-5062		1/7/00	
56	C	F-5062		1/7/00	
57	C	F-5062		1/7/00	
58	C	F-5062		1/7/00	
59	C	F-5062		1/7/00	
60	C	F-5062		1/7/00	
61	C	F-5062		1/7/00	
62	C	F-5062		1/7/00	
63	C	F-5062		1/7/00	
64	C	F-5062		1/7/00	
65	C	F-5062		1/7/00	
66	C	F-5062		1/7/00	
67	C	F-5062		1/7/00	
68	C	F-5062		1/7/00	
69	C	F-5062		1/7/00	
70	C	F-5062		1/7/00	
71	C	F-5062		1/7/00	
72	C	F-5062		1/7/00	
73	C	F-5062		1/7/00	
74	C	F-5062		1/7/00	
75	C	F-5062		1/7/00	
76	C	F-5062		1/7/00	
77	C	F-5062		1/7/00	
78	C	F-5062		1/7/00	
79	C	F-5062		1/7/00	
80	C	F-5062		1/7/00	
81	C	F-5062		1/7/00	
82	C	F-5062		1/7/00	
83	C	F-5062		1/7/00	
84	C	F-5062		1/7/00	
85	C	F-5062		1/7/00	
86	C	F-5062		1/7/00	
87	C	F-5062		1/7/00	
88	C	F-5062		1/7/00	
89	C	F-5062		1/7/00	
90	C	F-5062		1/7/00	
91	C	F-5062		1/7/00	
92	C	F-5062		1/7/00	
93	C	F-5062		1/7/00	
94	C	F-5062		1/7/00	
95	C	F-5062		1/7/00	
96	C	F-5062		1/7/00	
97	C	F-5062		1/7/00	
98	C	F-5062		1/7/00	
99	C	F-5062		1/7/00	
100	C	F-5062		1/7/00	

REFERENCE SHEET: C4

FISHPRO

SITE PLAN - NORTH

Series	260203	Source	FFC	Size	A1	Sheet	609	Revision	0
DATE	4/04/00								

Fish Propagation Worksheet

Determination of Density Index = Weight of Fish Produced in pounds/ (Fish length in inches X Facility Volume in ft³)		
Fish Weight	3,448.00	
Length	3.00	
Volume	10,193.00	
Density Index	0.11	
Under Ideal Conditions, Density Index should be between 0.4 and 1		

Determination of facility exchange = Diversion Rate in cfs X 3600/ Facility Volume in ft³		
Diversion Rate	1.70	
Facility Volume	10,193.00	
Exchanges per Hour	0.60	
Under Ideal Conditions, Exchanges per Day should be 2.5 for Trout.		

Diversion Capacity Calculation = Diversion Rate in cfs X 1.9835 X 84 days		
Diversion Rate	1.70	
Total Volume	283.2438	

Determination of Flow Index = Weight in Pounds/ (Fish Length X Diversion Rate in gpm).		
Fish Weight	3,448.00	
Length	3.00	
Diversion Rate	763.00	
Flow Index	1.51	
Under Ideal Conditions, Flow Index should be between 0.83 and 2.7		

Adjusted Density Index if the Facility was a Standard Facility is as follows: Adjusted Density Index = (Actual Density Index X Standard Exchange of 2.5 per Hour)/ Actual Exchanges per Hours=.		
Actual Density Index	0.11	
Actual Exchanges Per Hour	0.60	
Adjusted Density Index	0.47	
If the Adjusted Density Index is between 0.4 and 1 then the density Index was Lowered to handle a lower diversion rate, so the annual volume should equal diversion capacity.		

<---- Use This Volume if Adjusted Density Index falls Within
Standards.

The Newsome hatchery is strictly for spring Chinook salmon. The hatchery operates between late August to mid-October for approximately 6 to 12 weeks. Typically the fish are released over a period of time starting at between 6 weeks and up to 10 to 12 weeks. I choose use the 12 week time table, since that is the maximum amount of time the fish are in the facility. They acclimate between 75,000 and 100,000 fish in this facility. The Spring Chinook average approximately 29 fish per pound at release. 100,000 fish / 29 fish per pound = 3,448 pounds of fish.

As you can see from the information above, they are diverting less water than a facility this size should. However, the fish they are raising are all fingerlings that are being acclimated to the creek temperature and are only being held here a very short time. At this site they are less concerned about growth rates and more concerned about maintain low mortality numbers during the acclimation process and after the release. This rate and flow seem reasonable for this facility.

Cross Sectional Area of Flow Calculator for Water Flowing in Circular Conduit

READ ME

Was the Diameter or Radius of the Pipe Measured?

- ☒ Diameter
- ☐ Radius

Was Sediment Observed & Measured in the Pipe?

- ☐ Sediment
- ☒ No Sediment

Converter: Inches --> Feet (Use as Needed)

X = 9.50 inches = 0.79 feet

Input Observed Conditions (Units Must be in Feet)

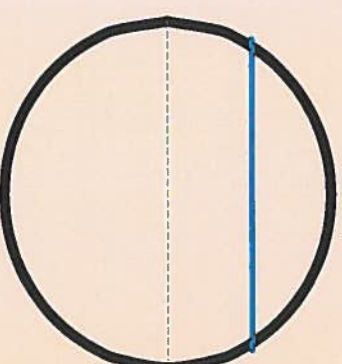
D = 0.79 feet (radius of pipe)

h = 0.60 feet (depth of water)

Cross Sectional Area of Flow

A_{FLOW} = 0.40 square feet

X-Sectional Flow Area Sketch



- Conduit Wall
- Water Surface
- Horizontal Center Line
- Sediment Surface

A velocity of 5.95 feet per second was measured out of the outflow pipe using the flowtracker. The pipe was a 10 inch pipe with 1/4 inch walls. The inside diameter was 9.5 inches or 0.79 feet. The water level was measured at 0.6 feet using the staff guage. The flow rate was calculated using the standard flow equation of Q=AV and the calculations are as follows:

0.40 Sq Ft X 5.95 ft/sec = 2.38 cfs.

The permit allows 1.70 cfs, which is less than what is actually being diverted through the system.

Cross Sectional Area of Flow Calculator
for Water Flowing in Circular Conduit

READ ME

Was the Diameter or Radius of the Pipe Measured?

☒ Diameter ☐ Radius

Was Sediment Observed & Measured in the Pipe?

☐ Sediment ☒ No Sediment

Converter: Inches --> Feet (Use as Needed)

X = 9.50 inches = 0.79 feet

Input Observed Conditions (Units Must be in Feet)

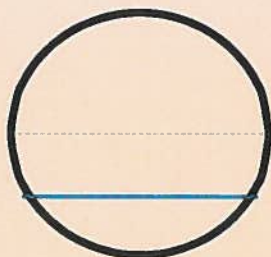
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h = 0.60 feet (depth of water)

Cross Sectional Area of Flow

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X-Sectional Flow Area
Sketch



A velocity of 5.95 feet per second was measured out of the outflow pipe using the flowtracker. The pipe was a 10 inch pipe with 1/4 inch walls. The inside diameter was 9.5 inches or 0.79 feet. The water level was measured at 0.6 feet using the staff gauge. The flow rate was calculated using the standard flow equation of $Q=AV$ and the calculations are as follows:

$0.40 \text{ Sq Ft} \times 5.95 \text{ ft/sec} = 2.38 \text{ cfs.}$

The permit allows 1.70 cfs, which is less than what is actually being diverted through the system.

Discharge Measurement Summary

Date Generated: Thu Sep 18 2014

File Information

File Name NEWSOME.WAD
Start Date and Time 2014/09/15 14:53:17

Site Details

Site Name
Operator(s) DAN

System Information

Sensor Type FlowTracker
Serial # P4554
CPU Firmware Version 3.7
Software Ver 2.11

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	0.0%
Velocity	0.3%	0.0%
Width	0.5%	0.5%
Method	7.5%	-
# Stations	32.0%	-
Overall	32.9%	1.0%

Summary

Averaging Int.	40	# Stations	3
Start Edge	LEW	Total Width	2.000
Mean SNR	45.8 dB	Total Area	1.000
Mean Temp	49.53 °F	Mean Depth	0.500
Disch. Equation	Mid-Section	Mean Velocity	5.9485
		Total Discharge	5.9485

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:53	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:53	1.00	0.6	1.000	0.6	0.400	5.9485	1.00	5.9485	1.000	5.9485	100.0
2	14:53	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Discharge Measurement Summary

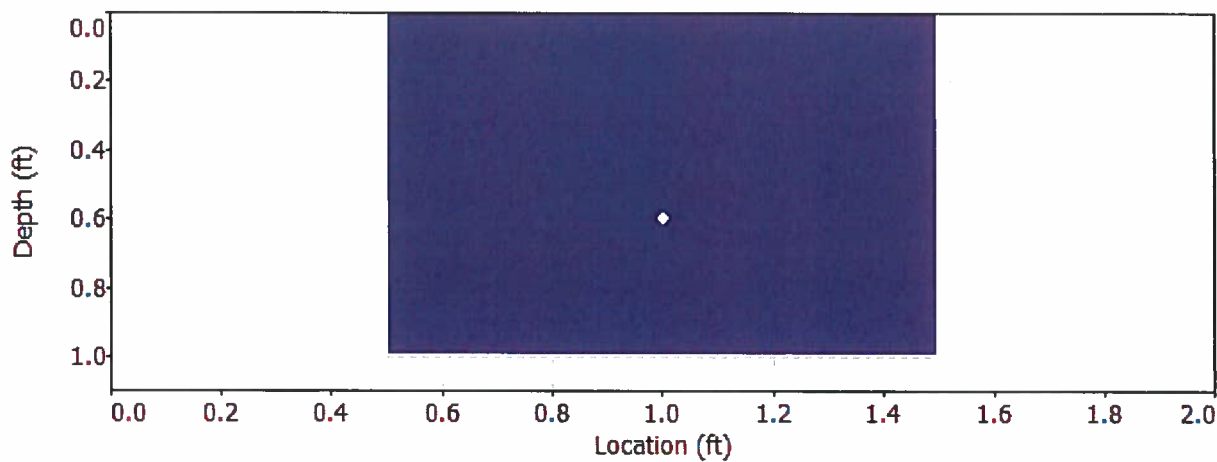
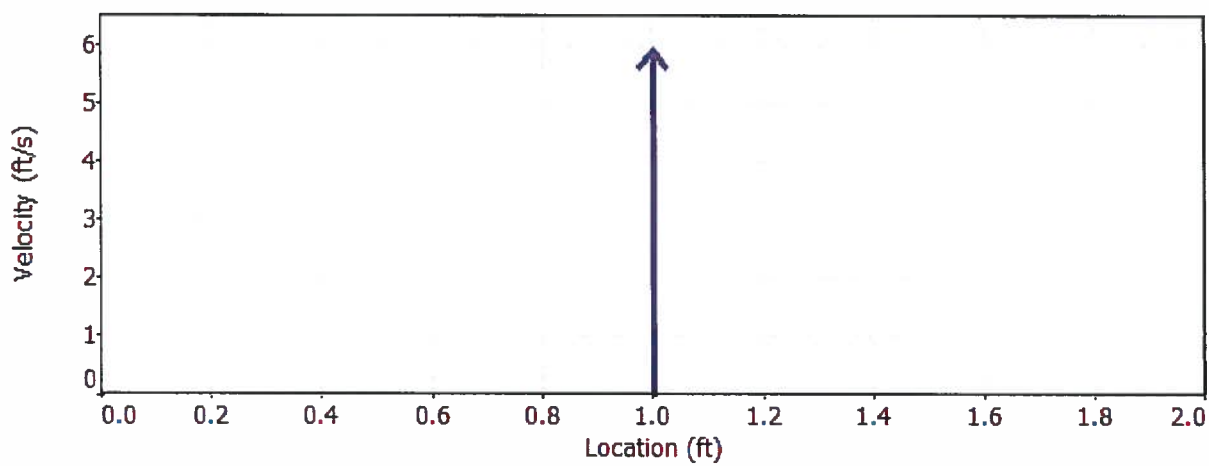
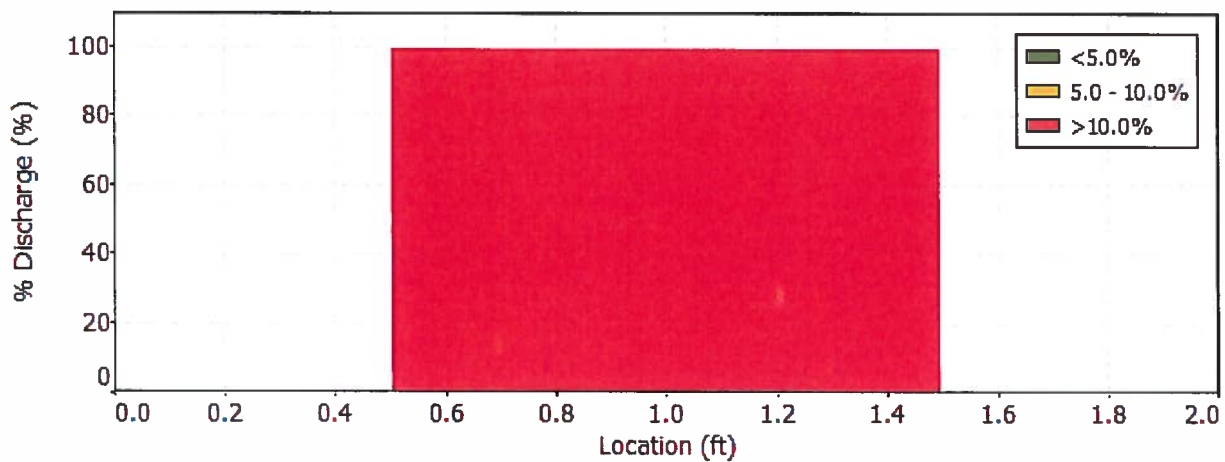
Date Generated: Thu Sep 18 2014

File Information

File Name NEWSOME.WAD
Start Date and Time 2014/09/15 14:53:17

Site Details

Site Name
Operator(s) DAN



Discharge Measurement Summary

Date Generated: Thu Sep 18 2014

File Information

File Name NEWSOME.WAD
Start Date and Time 2014/09/15 14:53:17

Site Details

Site Name
Operator(s) DAN

Quality Control

St	Loc	%Dep	Message
No Quality Control warnings			

Discharge Measurement Summary

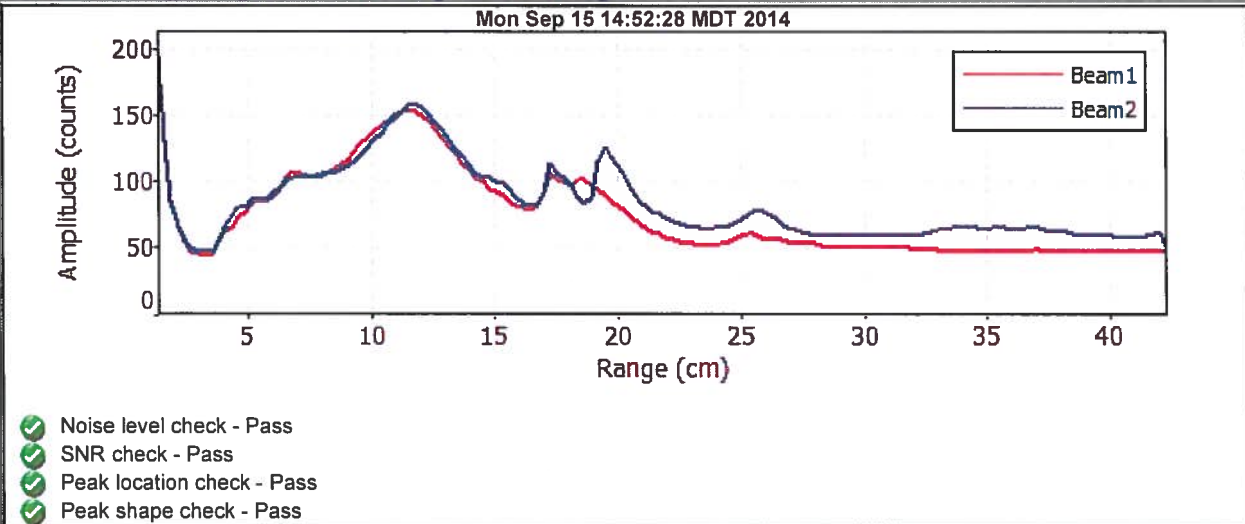
Date Generated: Thu Sep 18 2014

File Information

File Name NEWSOME.WAD
Start Date and Time 2014/09/15 14:53:17

Site Details

Site Name
Operator(s) DAN

Automatic Quality Control Test (BeamCheck)

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/15/2014

FILE NUMBER 82-7205



The photo above left shows the distribution box at the head of the fingerling pond at the facility. The water from the diversion is transported to the box and then diverted into the pond. The water can also be diverted to the spawning raceway that is no longer used. The pictures on the right and below left show the fingerling pond. The picture below right shows the fingerlings in the pond.



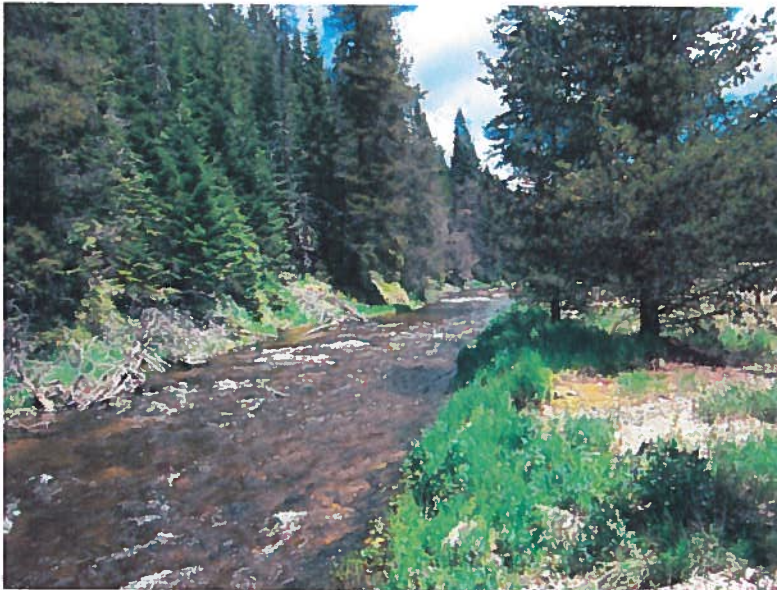
The photo above left shows the distance of the fingerling pond on the right to the spawning raceway on the left. The photo on the right shows the spawning raceway. The spawning raceway is no longer used, because it caused diseases and created a dangerous situation for the fish.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/15/2014

FILE NUMBER 82-7205



The photo above shows the 10 inch pipeline that was measured. This pipeline carries the outflow water from the hatchery back to Newsome Creek. The photo below shows the point where water is diverted back into the creek. The discharge point is just this side of the tree.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/15/2014

FILE NUMBER 82-7205

Intake Screen



The top picture shows the point of diversion. You can see the screen in the dam across the creek that allows water to travel to the distribution box.



This photo shows the distribution box and the dam in the creek. This picture was taken at a different time of year than the one above.



This photo show the site tag that is attached to the top of the distribution box.