

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 84-7302

Exam Date: 9/15/2014

1. Current Owner: UNITED STATES OF AMERICA ACTING THROUGH
DOE - BONNEVILLE POWER ADMIN
MANAGER, REAL PROPERTY FIELD SERVICES
PO BOX 3621
PORTLAND OR 97208-3621
(503)230-5572
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

Please Note: CC Aaron Penney and
Heidi Haserot at
Bonneville Power Administration
Attention/Heidi Haserot TERR-3
PO Box 3621
Portland Oregon 97232

3. SOURCE TRIBUTARY
YOOSA CREEK LOLO CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 84-7303
2. Other water rights with the same point of diversion: NONE

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

YOOSA CREEK SE1/4SE1/4 Sec. 1, Twp 35N, Rge 06E, B.M. IDAHO County

Method of Determination: GPS and Visual Inspection

2.

PLACE OF USE: FISH PROPAGATION

Twp	Rge	Sec	NE				NW				SW				SE				
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
35N	06E	1															X		

PLACE OF USE: FISH PROPAGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
35N	06E	1															X		

DIVERSION TO STORAGE same as FISH PROPAGATION
STORAGE

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
Yoosa Creek Diversion	None	N/A	N/A	N/A	Buried 12 " Steel Pipe 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
Flow Meter	Polysonic	Thyme Flyte				March

2. Measurements: The flow was measured using a polysonic Thyme Flyte flow meter. The readings appear to be fairly good.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

This facility uses two sources Camp Creek and Yoosa Creek. The Camp Creek pipeline was buried, but a measurement was possible on the Yoosa Creek pipeline. I was also able to measure the outflow from the facility. Therefore, I measured the out flow and subtracted the Yoosa Creek diversion to attain the camp creek diversion. There could be a minimal amount of water lost due to evaporation, but these are very small ponds, so evaporation would be minimal. The calculations are below:

Total out flow measurement = 3.55 cfs

Measured flow from Yoosa Creek = 1.64 cfs

3.55 cfs – 1.64 cfs = 1.91 cfs diverted from Camp Creek.

Yoosa Creek permit allowed 2.50 cfs, but only 1.64 cfs was measured at the time of the exam. I am recommending that permit 84-7302 be licensed for 1.64 cfs.

Camp Creek permit allowed 2.50 cfs, but only 1.91 cfs was measured at the time of the exam. I am recommending that permit 84-7303 be licensed for 1.91 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V\text{- I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\text{N/A}}$$

$$V\text{- D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\text{N/A}}$$

$$V = \text{Smaller of } V\text{- I.R. and } V\text{- D.R.} = \underline{\text{N/A}}$$

2. Volume Calculations for Other Uses:

Both water right permits 84-7302 and 84-7303 allowed a volume for storage of 0.4 af. Upon reviewing the files, the storage volume for the ponds did not include seepage or evaporation losses. The ponds were estimated at a volume of 17,386 cubic feet or 0.399 af (See permit maps for pond calculations). During my exam, I found that the fingerling ponds were pretty much identical with a surface area of 0.08 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:

0.08 acres surface area X (6.5 ft max depth X 0.4 coefficient) = 0.208 acre feet of volume per pond or 9122 cubic feet per pond. The facility volume/capacity would be 0.2 X 2 ponds = 0.4 af total facility volume or 18,244 cubic feet.

Since the spawning ponds are not used any longer, there is no need to account for that volume, especially since the fingerling ponds uses up all of the storage volume. The storage component for this license should be limited to the permitted amount of 0.4 af. Both water rights 84-7302 and 84-7303 list a storage volume of 0.4 af, but the permit describes the same 0.4 af ponds. Therefore, there will need to be a condition that limits the Fish Propagation Storage to 0.4 af when water rights 84-7302 and 84-7303 are combined.

The fish propagation portion of these two permits should be limited to diversion rate for the 84 days. Therefore the following would be the fish propagation limits:

Yoosa Creek = $1.64 \text{ cfs} \times 1.9835 \times 84 \text{ days} = 273 \text{ af}$
Camp Creek = $1.91 \text{ cfs} \times 1.9835 \times 84 \text{ days} = 318 \text{ af}$
Total = 591 af

When both water rights are combined this facility should be limit to the fish propagation amount of 591 af plus the 0.4 af of storage for a total volume amount of 591.4 af.

G. NARRATIVE/REMARKS/COMMENTS

Water for permits 84-7302 and 84-7303 are diverted from two creeks. The first point of diversion is from Yoosa Creek (84-7302). The water diverted from Yoosa Creek runs through a mainline to a distribution box on the east side of the facility. The second diversion comes from Camp Creek (84-7303) and it also runs a mainline to the same distribution box. At the distribution box the water is diverted one of three ways. The water can be diverted to one or both of the two fingerling ponds or diverted through the spawning raceway. 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 raceways for spawning since the first few attempts.

According to the hatchery manager Aaron Penny, this facility runs between 100,000 and 150,000 fingerlings depending on the main hatchery's output, and cannot run the adult spawning facility that was done originally. Therefore, there shouldn't be any issues in allowing the full 150,000 fingerlings under this permit and not allow any use for the adult spawning through this facility.

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

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
FISH PROPAGATION	01/01 to 12/31	1.640 CFS	591.00 AF
FISH PROPAGATION STORAGE	01/01 to 12/31		0.40 AF
DIVERSION TO STORAGE	01/01 to 12/31	1.640 CFS	
	<u>Totals:</u>	2.500 CFS	591.40 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

11-25-14

Reviewer

Date

COANNED
DEC 01 2014



Permits 84-7302 and 84-7303 System Diagram

Water for these two permits are diverted from two creeks. The first point of diversion is from Yousa Creek. The water diverted from Yousa Creek runs through a mainline to a distribution box on the east side of the facility. The second diversion comes from Camp Creek and it also runs a mainline to the same distribution box. At the distribution box the water is diverted one of three ways. The water can be diverted to one or both of the two fingerling ponds or diverted through the spawning raceway. The spawning raceway is no longer used, since they couldn't control diseases and other issues in this small system.

Fish Propagation Worksheet

**Determination of Density Index =
Weight of Fish Produced in pounds/
(Fish length in inches X Facility Volume
in ft³)**

Fish Weight	5,172.00	
Length	3.00	
Volume	17,424.00	
Density Index	0.10	

Under Ideal Conditions, Density Index
should be between 0.4 and 1

**Determination of Flow Index = Weight in Pounds/ (Fish
Length X Diversion Rate in gpm).**

Fish Weight	5,172.00	
Length	3.00	
Diversion Rate	1,593.00	
Flow Index	1.08	

Under Ideal Conditions, Flow Index should be between
0.83 and 2.7

**Determination of facility exchange =
Diversion Rate in cfs X 3600/ Facility
Volume in ft³**

Diversion Rate	3.55	
Facility Volume	17,424.00	
Exchanges per Hour	0.73	

Under Ideal Conditions, Exchanges per
Day should be 2.5 for Trout.

**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	0.10	
Actual Exchanges Per Hour	0.73	
Adjusted Density Index	0.34	

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.

**Diversion Capacity Calculation =
Diversion Rate in cfs X 1.9835 X 84 days**

Diversion Rate	3.55	
Total Volume	591.4797	

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

The Yoosa 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 pond 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. Therefore, they are looking for a larger facility (less Density) and maintenance of water temperature. This rate and flow seem reasonable for this facility.

11:41+729.114E 00GPM 00R
 +00000 *10 G 00R
 -00000 *10 G 00R
 11:42+749.984E 00GPM 00R
 +00070 *10 G 00R
 -00000 *10 G 00R
 11:43+730.435E 00GPM 00R
 +00145 *10 G 00R
 -00000 *10 G 00R
 11:44+731.756E 00GPM 00R
 +00217 *10 G 00R
 -00000 *10 G 00R
 11:45+738.889E 00GPM 00R
 +00291 *10 G 00R
 -00000 *10 G 00R
 11:46+753.683E 00GPM 00R
 +00364 *10 G 00R
 -00000 *10 G 00R
 11:47+735.455E 00GPM 00R
 +00439 *10 G 00R
 -00000 *10 G 00R
 11:48+749.984E 00GPM 00R
 +00510 *10 G 00R
 -00000 *10 G 00R
 11:49+757.381E 00GPM 00R
 +00587 *10 G 00R
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 11:50+751.385E 00GPM 00R
 +00658 *10 G 00R
 -00000 *10 G 00R
 11:51+735.455E 00GPM 00R
 +00734 *10 G 00R
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09-15 11:3200
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MODE SELECT
 TO CHECK

0477.5 MMSEC
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MODE SELECT *ER
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MODE SELECT
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OUTER DIAMETER
 12.790 IN

PIPE MATERIAL
 ? CS, SS

WALL THICKNESS
 0.2330 IN

INNER LINING
 ? NO LING.

KIND OF FLUID
 ? WATER

SENSOR MOUNTING
 ? U

TYPE OF SENSOR
 ? SMALL

DATA CHANGE
 ? NO

SPACING
 10.121 IN U

ZERO MODE
 CLEAR

ZERO MODE
 AUT ZERO

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09-15 11:3200
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MODE SELECT
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11:41+729.114E 00GPM 00R
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 11:42+749.984E 00GPM 00R
 +00070 *10 G 00R
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 +00587 *10 G 00R
 -00000 *10 G 00R
 11:50+751.385E 00GPM 00R
 +00658 *10 G 00R
 -00000 *10 G 00R
 11:51+735.455E 00GPM 00R
 +00734 *10 G 00R
 -00000 *10 G 00R
 11:52+771.756E 00GPM 00R
 AUT Z 00R

734 gpm.

Youisa Creek.

1.64 cfs

Discharge Measurement Summary

Date Generated: Thu Sep 18 2014

File Information

File Name YOOSAOUT.WAD
Start Date and Time 2014/09/15 11:10:43

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	0.4%	3.8%
Velocity	1.2%	3.3%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	3.6%	-
Overall	4.5%	5.1%

Summary

Averaging Int.	40	# Stations	14
Start Edge	LEW	Total Width	7.400
Mean SNR	41.9 dB	Total Area	4.280
Mean Temp	43.31 °F	Mean Depth	0.578
Disch. Equation	Mid-Section	Mean Velocity	0.8291
		Total Discharge	3.5482

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:10	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:11	1.50	0.6	0.300	0.6	0.120	1.0919	1.00	1.0919	0.150	0.1637	4.6
2	11:12	2.00	0.6	0.400	0.6	0.160	1.1834	1.00	1.1834	0.200	0.2366	6.7
3	11:14	2.50	0.6	0.400	0.6	0.160	1.4751	1.00	1.4751	0.200	0.2950	8.3
4	11:15	3.00	0.6	0.800	0.6	0.320	1.1729	1.00	1.1729	0.400	0.4691	13.2
5	11:16	3.50	0.6	0.800	0.6	0.320	1.0361	1.00	1.0361	0.400	0.4144	11.7
6	11:17	4.00	0.6	0.900	0.6	0.360	0.7910	1.00	0.7910	0.450	0.3559	10.0
7	11:18	4.50	0.6	1.000	0.6	0.400	0.6739	1.00	0.6739	0.500	0.3369	9.5
8	11:19	5.00	0.6	1.000	0.6	0.400	0.6506	1.00	0.6506	0.500	0.3253	9.2
9	11:20	5.50	0.6	0.900	0.6	0.360	0.6302	1.00	0.6302	0.450	0.2836	8.0
10	11:21	6.00	0.6	0.700	0.6	0.280	0.6942	1.00	0.6942	0.350	0.2430	6.8
11	11:22	6.50	0.6	0.600	0.6	0.240	0.7054	1.00	0.7054	0.300	0.2116	6.0
12	11:25	7.00	0.6	0.400	0.6	0.160	0.5607	1.00	0.5607	0.380	0.2130	6.0
13	11:25	8.40	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.

3.55 cfs total both gages.
- 1.64 cfs yousa creek.

1.91 cfs camp creek.

Discharge Measurement Summary

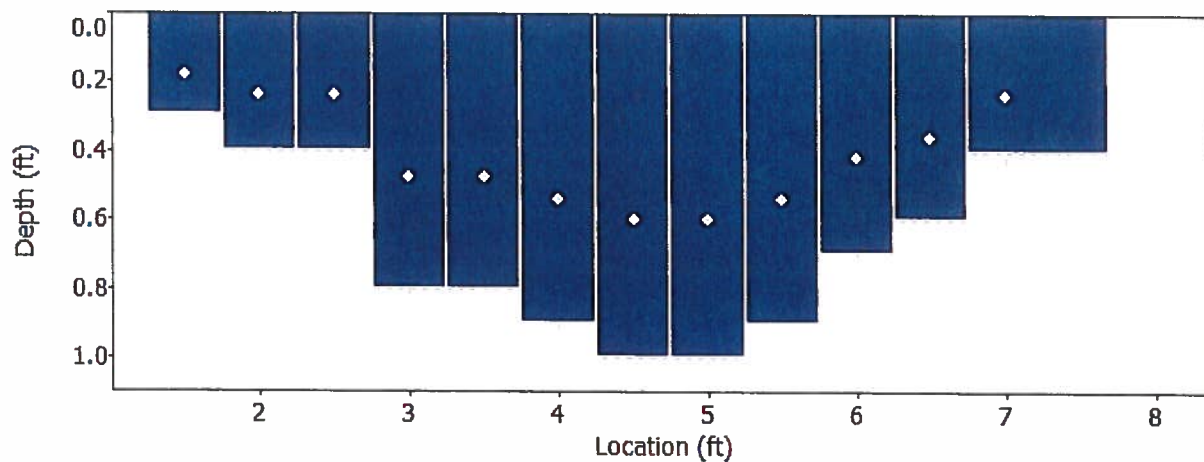
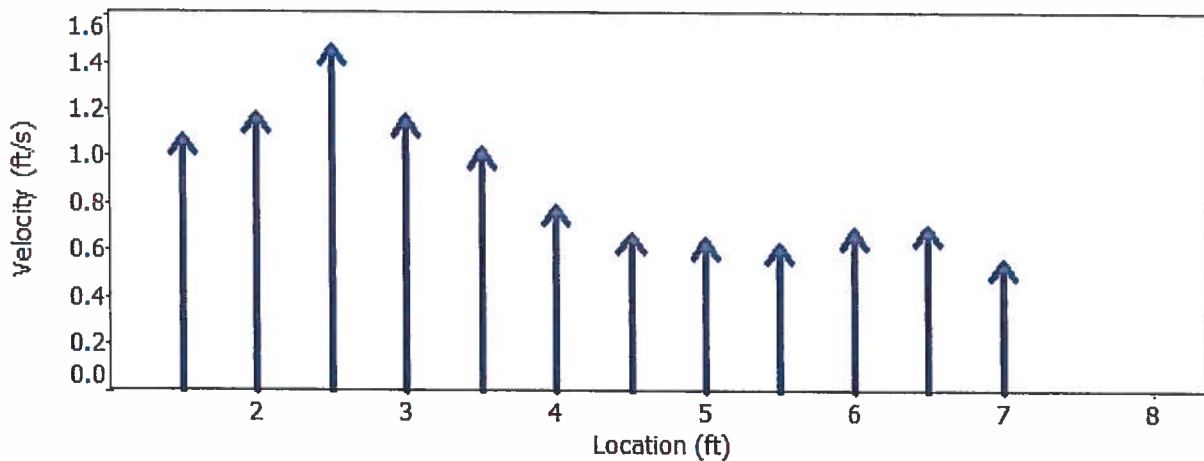
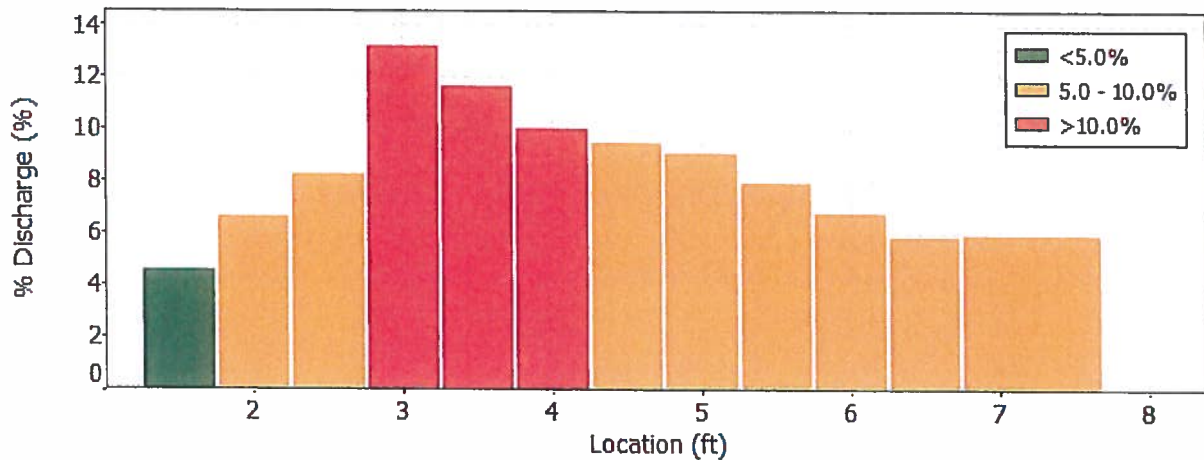
Date Generated: Thu Sep 18 2014

File Information

File Name YOOSAOUT.WAD
Start Date and Time 2014/09/15 11:10:43

Site Details

Site Name
Operator(s) DAN



Discharge Measurement Summary

Date Generated: Thu Sep 18 2014

File Information

File Name YOOSAOUT.WAD
Start Date and Time 2014/09/15 11:10:43

Site Details

Site Name
Operator(s) DAN

Quality Control

St	Loc	%Dep	Message
1	1.50	0.6	High standard error: 0.067
2	2.00	0.6	High standard error: 0.073
4	3.00	0.6	High angle: 28
5	3.50	0.6	High angle: 23
6	4.00	0.6	High angle: 32
7	4.50	0.6	High angle: 32

Discharge Measurement Summary

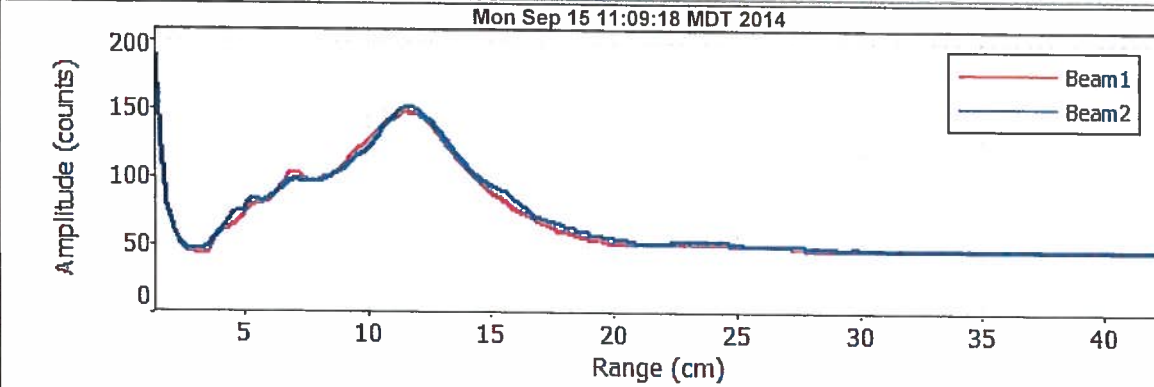
Date Generated: Thu Sep 18 2014

File Information

File Name YOOSAOUT.WAD
Start Date and Time 2014/09/15 11:10:43

Site Details

Site Name
Operator(s) DAN

Automatic Quality Control Test (BeamCheck)

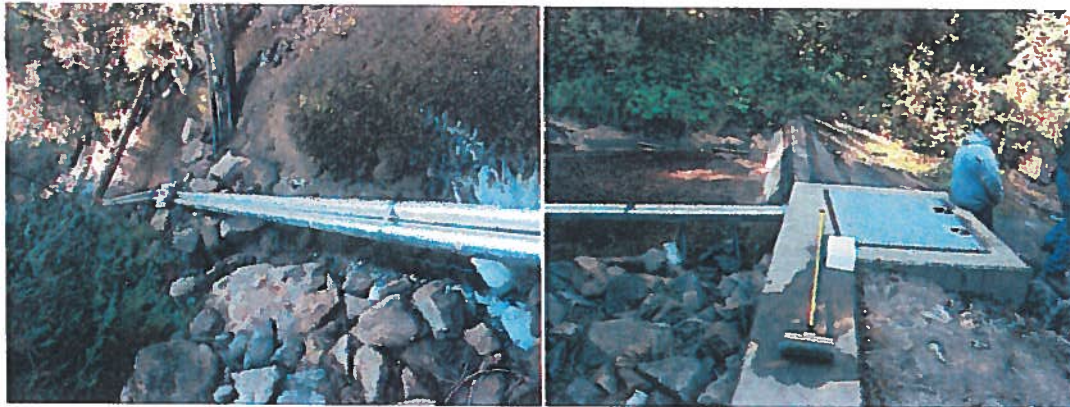
- ✓ Noise level check - Pass
- ✓ SNR check - Pass
- ✓ Peak location check - Pass
- ✓ Peak shape check - Pass

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

FILE NUMBER 84-7302 and 84-7303



These photos show the point of diversion on Yousa Creek. As you can see, the owner's have installed portable aluminum pipe to collect water further upstream. The reason for this is because the diversion dam has been compromised and allows water to leak around the edge closest to the road. This appears to be a temporary fix. The screen in the dam is the actual point of diversion.



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

FILE NUMBER 84-7302 and 84-7303



These are photos of the diversion at Camp Creek. The screen goes into the distribution box show below.



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

FILE NUMBER 84-7302 and 84-7303



The photo top left is the junction box the diverts the water from the two creeks to spawning raceway and the two fingerling ponds. The top right photo is the spawning raceway.



The photos on the second row shows the first fingerling pond.



The photos in the bottom row are of the second fingerling pond and a photo of the fish in the pond.