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Project No. 126-05-2011

Beneficial Use Field Exam Pahsimeroi Upper Fish Hatchery Water Right 73-11961

Prepared for:

Idaho Power Company
Pahsimeroi River Fish Hatchery

May 31, 2011

For information concerning this report, contact
Charles E. Brockway, Ph.D., P.E.



CHARLES E. BROCKWAY, PH.D., P.E.
CHARLES G. BROCKWAY, PH.D., P.E.

2016 NORTH WASHINGTON, SUITE 4
TWIN FALLS, IDAHO 83301

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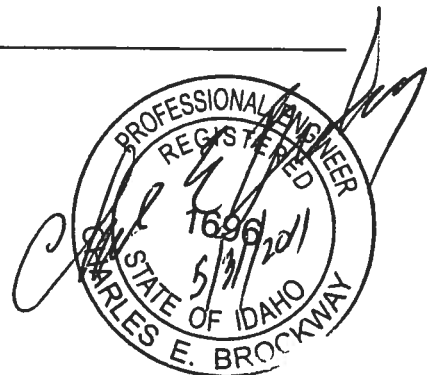


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Overview

A field examination for a proof of beneficial use for water right 73-11961 was performed by Brockway Engineering PLLC on May 3, 2011. The examiner, Charles E. Brockway P.E. was accompanied during the exam by David Blew, Hydrologist II with Idaho Power Company, owner of the water right. Also accompanying the examiner was Paul Abbott, Idaho Power Company fisheries biologist and Todd Garlie, hatchery manager. Mike Campbell and Carl Rundberg – Idaho Power Company, assisted in water measurement.

This ground water right for fish propagation includes diversion from shallow groundwater adjacent to the Pahsimeroi River in the Section 21 T15 N R21 E. The hatchery is located adjacent to the Pahsimeroi river, approximately 5.5 miles upstream of the town of Ellis which is near the confluence of the Pahsimeroi River and Salmon River. This hatchery is referred to as the 'upper hatchery' whereas there is a 'lower hatchery' on the Pahsimeroi River located approximately 4.5 miles downstream of this 'upper hatchery', Figure 1.

Water Right Description

Water right 73-11961 serves as a groundwater source which, along with water rights 73- 7051 and 73 - 2168, diverting from the Pahsimeroi river, provide the water supply for the upper hatchery. Water right 73-11961 is permitted for 14 cfs diverting from the NE1/4 NW1/4NW1/4 Section 21 the permit does not indicate how many wells are included in the 10 acre POD. The upper hatchery is currently permitted for up to 14 cfs of groundwater diversion and water rights 73- 7051 and 73 -2168 authorize 20 cfs from the Pahsimeroi River, for a total of 34 cfs. Three wells, all located in the NE1/4 NW1/4NW1/4 Section 21, supply water to the hatchery vat room and incubation room, Figure 1 and Figure 2. Driller's logs for the three wells are shown in Appendix E. Figure 3 shows the schematic diagram of water flow from the three wells. All wells have variable frequency motors and are numbered Well 2, Well 3 and Well 4. Well 1 is the domestic well for the hatchery complex and is not included in water right 73-11961. Each well is metered and the well pump, motor and flow meter data are shown on Table 1. Flow meters are factory calibrated but field fitted for depth of insertion.

Table 1 Well Data-Pahsimeroi Upper Hatchery

Well Number	2	3	4
Motor Type	Emerson Vertical	Emerson	Emerson
Motor Model Number	BF 564	BF66	BF50A
Motor Serial Number		H0100V29L6	H050V2BL6
Motor Horsepower	60	100	50
Pump Type	Pump Tech	Pump Tech	Pump Tech
Pump Model	4 Stage 10ZC	2 Stage 14LC	2 Stage 13MC
Pump Serial Number	2K60432	2K60454	2K60453
Flow Meter Type	Thermo Polysonics	Thermo Polysonics	SeaMetrics Insertion
Flow Meter Model	DCT1088-2-2-1-30A-A	DCT1088-2-2-1-30A-A	IP 215-S-07 w/ FT 420-M Flow Computer
Pipe Size	8 inch	8inch	12 inch

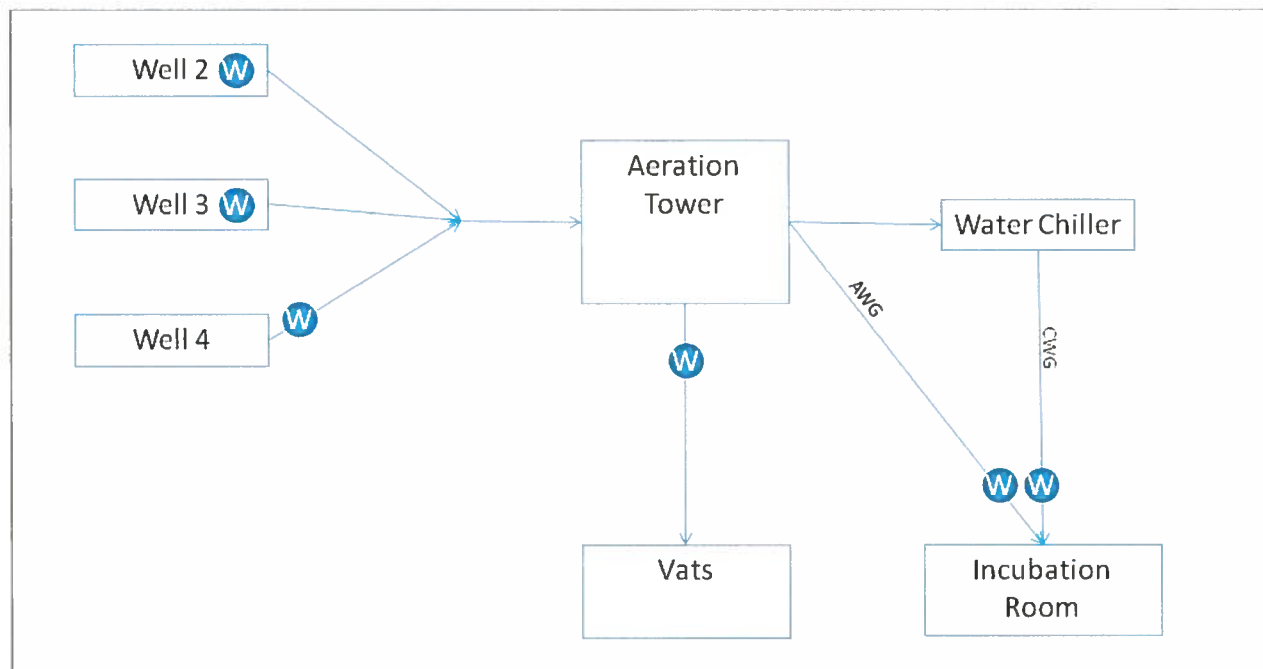


Figure 3: General schematic of wells, vats, AWG, CWG and meters at the Pahsimeroi hatchery.

Photos of the three wells and flowmeter installation are shown in Appendix A.

Water from each well is pumped in a separate pipeline to an aeration tower. Water from the aeration tower then flows by gravity to the hatchery vat room and/or incubation room, see Figure 3. There is one supply line that leads to the vat room and two lines that lead to the incubation room. One of the lines to the incubation room carries chilled ground water (CGW) and the other carries aerated ground water (AGW), Table 1. The meters used on these lines are insertion type meters as follows:

Vat room line - SeaMetrics IP 215-S-07 with FT 420-M Flow computer

CGW (Chilled Ground Water) Incubation - SeaMetrics IP 115-S-07 with FT 420-M Flow computer

AGW (Aerated Ground Water) Incubation - SeaMetrics IP 115-S-07 with FT 420-M Flow computer

Since all of the water from the three wells discharges into the aeration tank and all water from the aeration tank flows either into the vat room or the incubation room, the sum of flow from Well 2, Well 3 and Well 4 should equal the sum of flow through the vat room line, CGW line and AGW line. The depth of insertion and K factors as recommended by the manufacturer were checked for each flow meter.

Operational Data Logging

A SCADA system is in use at the upper hatchery which measures and records data on water flow, temperature, line pressures, and other water quality data through a local area network with output on the computer monitor in the hatchery office. The sensors can be set to record at essentially any interval and the output is utilized to monitor and adjust input to meet water quality and flow requirements depending on the nature and stocking loads of fish.

Historical Flow Data

Data from the six flow meters for the 2010 period was provided by the permit owner and was analyzed to determine if the sum of the meters at Well 2, Well 3 and Well 4 equaled the sum of the meters at the vats, AGW and CGW. This data, from all six meters, was recorded in approximately 80 minute time steps was edited to exclude periods in which no wells were running or in cases in which the vat meter was non-operational. The data set reviewed is a contiguous data set during a period of normal water use from 1/11/2010 to 5/16/2010 and represents approximately 2,165 data points. Figure 4 shows a plot of the total well discharge (inflow) and the sum of the 3 outflow meters (outflow) for a period 1/11/2010 through 5/16/2010. With the exception of a period from 2/3/2010 through 3/1/2010, the outflow and inflow track well with an average difference of about .64%.

Water Measurement- Beneficial Use Examination

On May 3, 2011, measurements of the well discharge and outflow from the aeration tank were performed by C.E. Brockway P.E. utilizing the six installed flow meters. The pumps for the three wells were turned on and well water was utilized exclusively in the hatchery. No discharge from the Pahsimeroi River into the hatchery was occurring. All well water was flowing through the aeration tower and into the vat room and incubation room and all discharge flowed into the settling pond located just north of the main hatchery, Figure 2. All flow from the settling pond exited through a full-width overflow section into a pipe and thence into the Pahsimeroi River.

Diversion Discharge Measurement

All three wells were discharging at maximum capacity beginning about 9:00 am, Figure 5, and continued at the same setting until about 1:00 pm. The outflow from the aeration tank through three pipes (CGW, AGW, and VAT) was also logged. Discharge through each meter was logged on the computer every 60 seconds for the full test period. Computer printout is shown in Appendix C. From 9:08 AM to 11:00AM, the printout of the VAT flow meter showed a constant flow of 5000gpm. It was determined that the computer software had been set to limit the printout from this meter to 5000 gpm. This condition was remedied at 11:00 AM and the correct VAT flow was printed throughout the remainder of the flow test. Figure 5 shows the plot of the measured inflow from each of the three wells and the total inflow. Figure 6 is a plot of the individual pipeline discharge (VAT, CGW, AGW) and the total discharge during the flow test. Note that the VAT pipeline carries most of the discharge. Figure 7 shows the total well inflow, total pipe outflow and the difference (inflow-outflow) for the test period. During the period of maximum pumping (11:08 am to 1:00pm) the average total outflow was 6073 gpm (13.53 cfs) and the difference between total inflow and total outflow was -4.38%.

Annual Volume Use

The annual volume used at the hatchery can vary on an annual basis depending upon hydrologic conditions. Water from the wells may be used on a year round basis but again, flows can fluctuate depending upon operational needs and hydrologic conditions. Summer Chinook are the primary fish species raised at the hatchery with a yearly target of 1,000,000 fish annually. The fish production goals for the hatchery are set forth in the 1980 Hells Canyon Settlement Agreement: a court approved document with participants include the states of Oregon, Washington, Idaho, the USFWS, the NMFS and the FERC. Ground water is used to incubate and rear summer Chinook eggs and fry; preventing their

expose to whirling disease commonly found in local surface waters. In September eggs are brought to the hatchery for incubation. From September through mid-December flows are generally low as well water is primarily used to supply water to the incubation room. Flows for the incubation room are generally 1 cfs or less. Upon hatching the Chinook fry are moved to large indoor raceways where they will be reared for up to six months. Flows are increased in December as fish are moved to the indoor raceways and begin to grow. Flows to the indoor raceways are steadily increased as fish continue to grow and more flow is required to maintain health and metabolic needs. In March the hatchery begins incubation of steelhead eggs and flows are increased as water demands in the incubation room increase. Steelhead egg incubation continues well into June annually. In late May or June of each year the Chinook are marked and moved from the indoor raceways to large outdoor, but covered ponds. The fish are maintained in the outdoor raceways for up to one year. The outdoor raceways are primarily supplied with surface water from the Pahsimeroi River. However, in dry years or when water temperatures are high, ground water can be diverted into the outdoor ponds to maintain adequate flow and appropriate rearing temperatures. Ground water diversions from July – September can be high in order to maintain appropriate flow and temperature in the outdoor ponds. The monthly use of the ground water may vary from near zero to the full system capacity depending upon fish inventory and hydrologic conditions.

Flow data collected from the SCADA system for the 2010 year shows the approximate seasonal distribution of water use at the upper hatchery. The monthly average percent is shown in Table 2. Table 2 also shows the total annual and seasonal distribution of well water use expected for the design of the hatchery by FishPro. The total annual use expected was 6,669 acre feet. The average monthly ground water diversions based on the 2010 monthly distribution and estimated design uses are shown in Table 2.

Table 2 Seasonal Water Use-Idaho Power Company Pahsimeroi Hatchery

Month	Percent of Annual Discharge 2010	Monthly (FishPro) Design Discharge cfs	Monthly(FishPro) Design Volume acre feet (assumes continuous flow)	Monthly Well Water Use(Based on 2010 percentage)
January	7.1	6.7	413	473
February	10.9	9.1	506	727
March	17.8	12.1	745	1187
April	26.7	13.0	775	1781
May	15.7	13.0	801	1047
June	1.6	13.0	775	107
July	3.2	13.0	801	213
August	2.0	13.0	801	133
September	4.8	13.0	775	320
October	1.6	-		107
November	2.2	-		147
December	6.4	4.5	277	427
Total Annual	100.0		6669	6669

Settling Pond Outflow

Discharge from the settling pond back to the Pahsimeroi River was measured on 5/3/2011 during the beneficial use exam. Measurements were made by Mike Campbell and Carl Rundberg of the Stream Gaging group at Idaho Power. Measurements were conducted in the settling pond above the point where water from the hatchery discharges to the Pahsimeroi River, Appendix C. Only well water was run through the settling pond and measurements were conducted after the wells reached their maximum discharge. Two methods were employed in the measurement of the discharge water. A Stream Pro ADCP was employed and post processing of data provided an average total discharge of 10.9 cfs (4892 gpm). A FlowTracker was also employed and yielded a total discharge of 10.84 cfs (4865 gpm). Statistical analysis of both measurement methods showed high confidence in each measurement. The data analysis sheets for each method is shown in Appendix D.

Results

All elements of permit 73-11961 have been met. Flow measurement devices are adequate and installed and maintained properly. Flow meters on wells have instantaneous and integrated volume readout of diverted water and both real time and historical data is available on a SCADA system.

The permit application lists only one 10 acre parcel for groundwater development inferring that their may be only one well. However, finding of fact 23 of the final order for the permit lists three (3) wells for the diversion.

The average total ground water diversion during the period of the test was 13.53 cfs.

Use of the ground water diversion can be considered fully non-consumptive since all containment facilities are concrete or impermeable material. There is storage in the hatchery raceways and tanks, however, the storage is considered an integral part of hatchery operation and incidental in the water right. Storage in the tanks, raceways, and settling pond results in some time delays between inflow and outflow during periods when inflow is changing rapidly. This time delay was obvious during the beneficial use exam when the well diversions increased rapidly. The current meter measurements at the outflow of the settling basin were significantly lower than the diversions from the wells and the VAT, AGW and CGW flow measurements. The time delay due to storage in the system is likely a major cause of this difference.

Condition 5 of the permit requires the evaluation of any alleged interference to senior ground water users within 3300 feet of the Upper hatchery and curtailment of the project diversion if it is determined by the Director that the senior user is being materially affected or the senior right is not being satisfied. No claims or allegations have been lodged at this time by other ground water users.

Recommended discharge for licensing of water right 73-11961 is 13.53 cfs and the annual volume recommendation is 6669 acre feet.

Figures



0 355 710 1,420 Feet

**FIGURE 1 - IDAHO POWER COMPANY PAHSIMERO
HATCHERY PERMIT 73-11961 LOCATION
NAIP 2009 AERIAL**

Legend

- 73-11961_Permit_POU
- Wells
- Township_Range
- Sections
- QQ_lines



Figure 4 IPCO Pahsimeroi Hatchery Inflow and Outflow
Jan.-June 2010

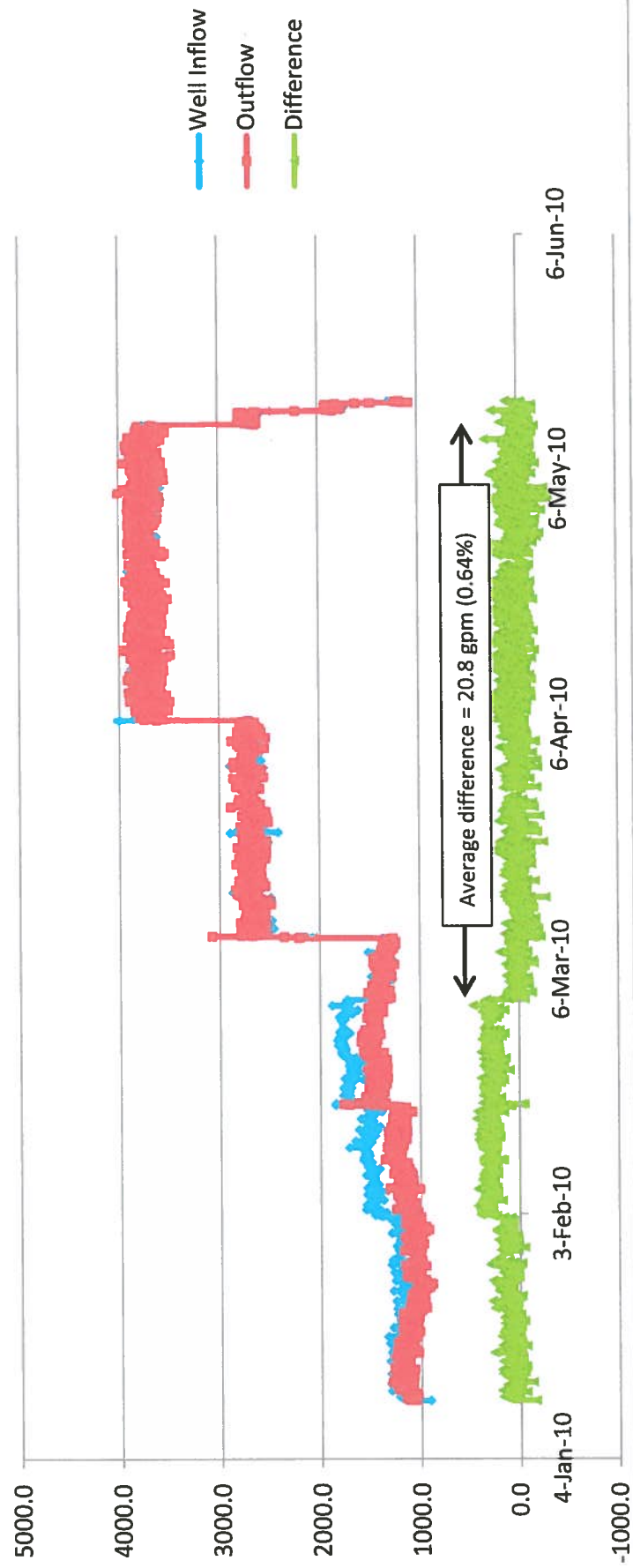


**Figure 5 IPCO Pahsimeroi Hatchery Well Discharge
Beneficial Use Field Exam May, 3, 2011**

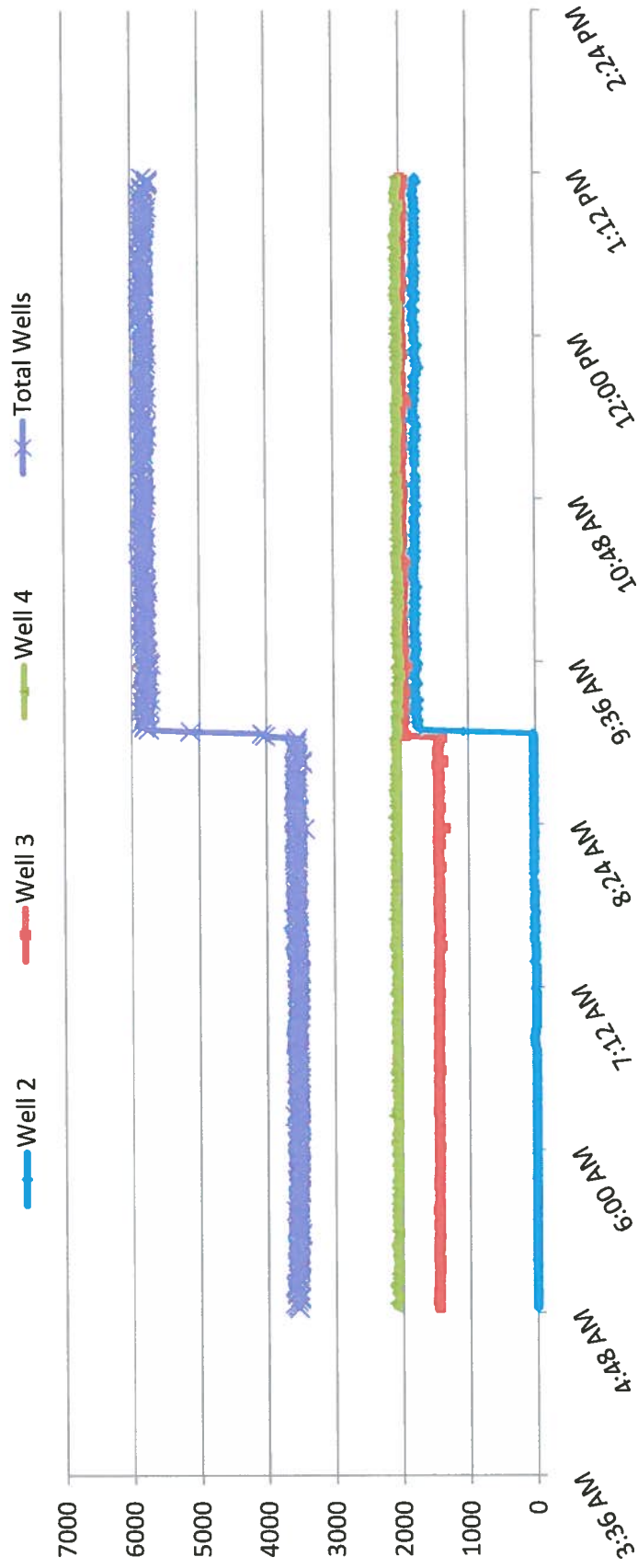


**Figure 6 IPCO Pahsimeroi Hatchery Outflow
Beneficial Use Field Exam May 3, 2011 Flow Meters**

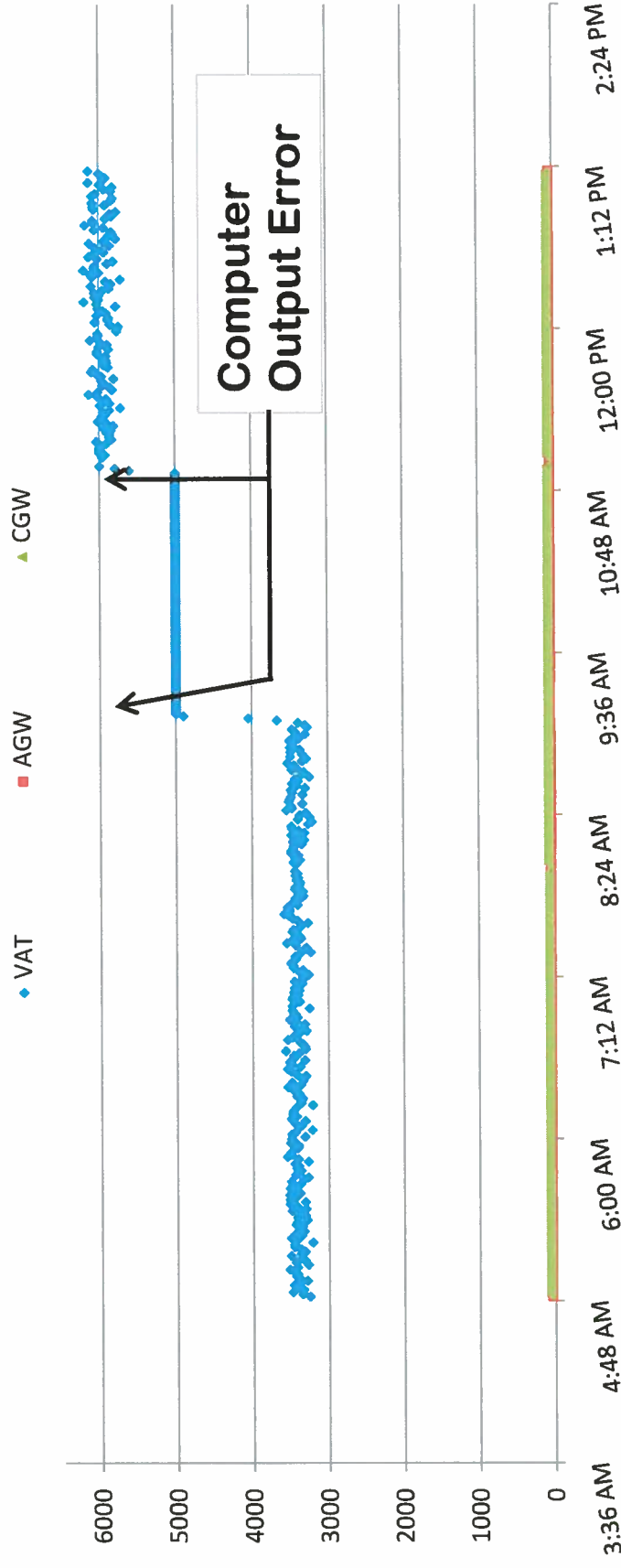
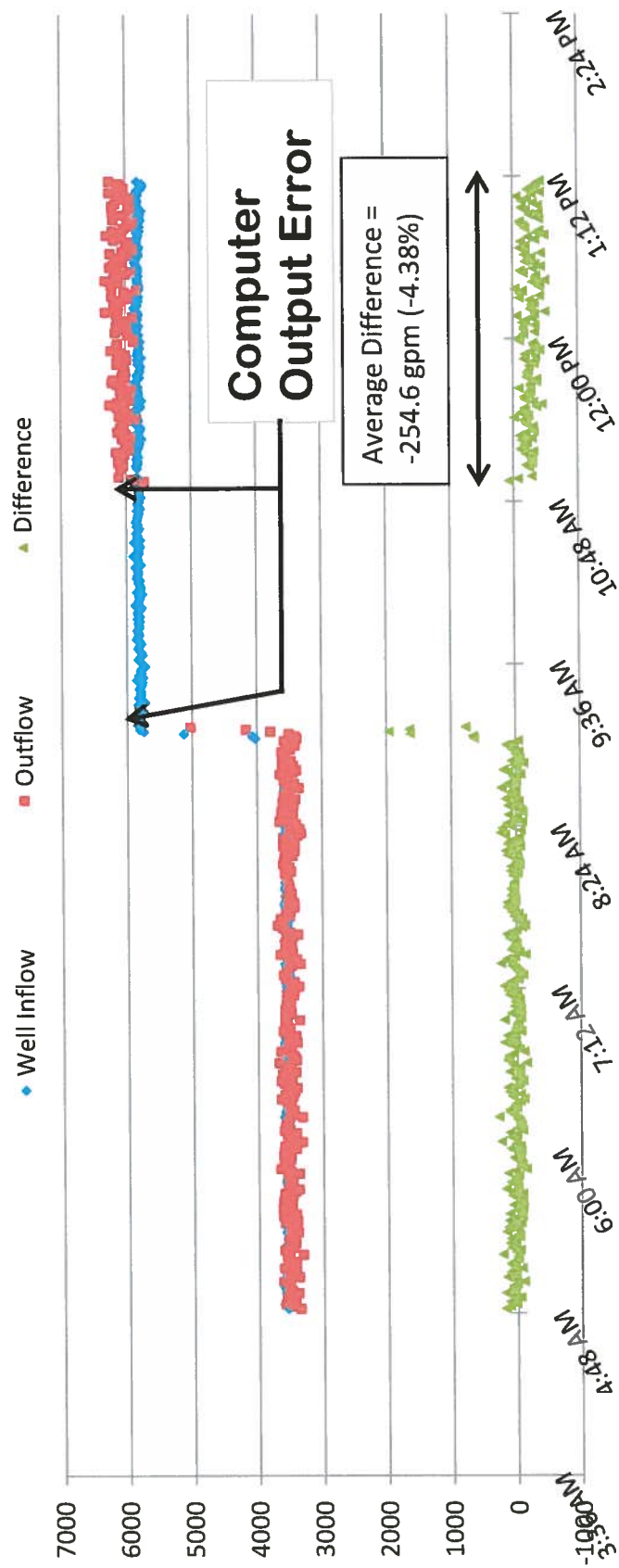


**Figure 7 IPCO Pahsimeroi Hatchery Inflow and Outflow
Beneficial Use Field Exam May 3, 2011**



Appendix A

Photos of Wells and Flowmeters



Figure A1: Meter placement on Well 3. This configuration is similar to that of Well 2.



Figure A2: Hatch to vat room meter. Similar configuration for Well 4.



Figure A3: SeaMetrics meter on Well 4.



Figure A4: SeaMetrics meter on line to VAT room.



Figure A5: SeaMetrics meter on AGW in incubation room.



Figure A6: SeaMetrics meter on CGW in incubation room

Appendix B
Beneficial Use Field Report

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
STATEMENT OF COMPLETION
FOR SUBMITTING PROOF OF BENEFICIAL USE

FOR OFFICE USE ONLY
Amt. of Fee \$: _____
Receipt No. _____
Receipt By: _____
Date Received: _____

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has completed all work that will occur for the development of a water right and that water has been applied to beneficial use(s) to the extent described below. This form must be accompanied by a license examination fee, when necessary, or accompanied by a completed Beneficial Use Field Report prepared by a certified water right examiner. If you no longer own the property and want to convey this permit to the new owner, please complete an Assignment of Permit form and send it to the Department with a \$25.00 filing fee. Assignment forms are available from any Department office or at www.idwr.idaho.gov.

1. Permit No. 73-11961 Telephone No. (208) 388-2905
2. Name of Permit Holder(s): Idaho Power Company
3. Mailing Address: C/O John Bowling, P.O. Box 70 City Boise
State ID Zip 83707 Email: WaterRights@idahopower.com
4. Source of Water: Groundwater If **GROUND WATER** (well), Date Drilled: mo. 2001, 2004, 2005 / yr. _____
Well Driller: Multiple Wells Drilling Permit Number: _____
See Attachment
5. Extent of use(s) completed (as authorized by the water right permit):
Domestic (No. of households): _____ Stockwater (No. and type of stock): _____
Irrigation (No. of acres): _____ Other: cfs Fish Propagation
6. Total rate of diversion or storage volume for which proof is submitted: 13.53 cfs OR _____ acre-feet.
7. Compliance with a Measuring Device requirement and/or other Conditions of Permit: *(Refer to the approval conditions on your permit and respond accordingly.)*

Measuring Device: Is a measuring device required?
If yes, has the measuring device been installed?

Yes ☒	or No ☐
Yes ☒	or No ☐

Conditions of Permit: Does your permit require you to submit additional information in connection with your proof of beneficial use? (If yes, please list the conditions below and provide documents if necessary.)

Completed?

Completed?

Yes ☐	or No ☒
Yes ☐	or No ☒

8. Fee Enclosed: \$ _____ (See Fee Schedule on back of the instructions for filing proof of beneficial use. Proofs filed without an appropriate fee, will be considered incomplete.)
9. Person to contact to accompany the Department representative during field examination of the water system.

Name: _____ Telephone Number: _____
Mailing Address: _____ City _____
State _____ Zip _____ Email: _____

10. The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted and applied to a beneficial use. I understand that any undeveloped portion of the permit is relinquished to the State of Idaho.

Signature of permit holder: [Signature]
(include your title, if on behalf of company or organization)

Date: May 27, 2011

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No.: 73-11961

1. Owner: Idaho Power Company

Phone No.: (208) 388-2905

Current Address: P.O. Box 70, Boise, ID 83707

2. Accompanied by: David Blew, Hydrologist, Paul Abbott, Biologist, Todd Garlie, Hatchery Mgr

Exam Date: 5/3/2011

Address: IPCO, P.O. Box 70, Boise, ID 83707

Phone No.: (208) 388-2905

Relationship to Permit Holder: _____

3. Source: Groundwater tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 73-7051, 73-2168

2. Other water rights with the same point of diversion: NA

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident No	Gov't Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Method of Determination / Remarks
		NW	NE	NW	21	15N	21E	Lemhi	Well #2, Aerial Photo, USGS Topos
		SW	NE	NW	21	15N	21E	Lemhi	Well #3
		SE	NE	NW	21	15N	21E	Lemhi	Well #4

2. Place(s) of Use:

Indicate Method of Determination: Aerial Photo

TWP	RNG	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
15N	21E	21					F												

F = Fish Propagation

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ ditch size/ pipe i.d. as applicable.

See Attached Grid sheet and Narrative

- ☐ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use *(required)*.
☒ Aerial photo attached *(required for irrigation of 10+ acres)*.
☒ Photo of diversion and system attached.

4. See Attached Narrative

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

D. FLOW MEASUREMENTS

1. See Attached Narrative

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration

2. Measurements: Six (6) flowmeters for diversion from three (3) wells and three (3) returns from ponds and hatchery

E. NARRATIVE / REMARKS / COMMENTS

See Attached Narrative

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

☒ Additional Computation Sheets Attached

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\text{NA}}$$
$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = \underline{\hspace{2cm}}$$
$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} = \underline{\hspace{10cm}}$$

See narrative for annual and seasonal volumes

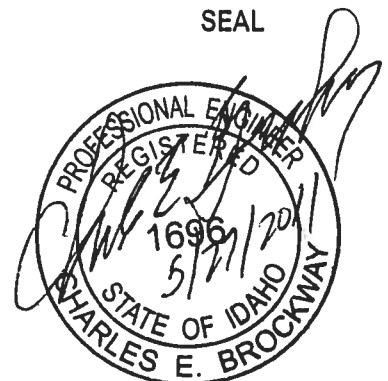
1 Recommended Amounts

2 Recommended Amendments

- ## AUTHENTICATION

Reviewer: _____ Date: _____

SEAL



Appendix C

Computer Printout - SCADA

IPCO Pahsimeroi Hatchery - Water Measurement Monitor
 Output - Beneficial Use Exam
 5/3/2011 C.S. Brockley P.E.

Date Time	WELL 2 FLOW GPM	WELL3 FLOW GPM	WELL 4 FLOW GPM	VAT FLOW GPM	AGW FLOW GPM	CGW FLOW GPM	Inflow From Wells GPM B+C+D	Outflow to Hatchery GPM E+F+G	Diff. GPM I-H	% Diff. of Inflow J/H	WELL3_L VL_SCLD
5/3/11 4:49 AM	0	1460	2091	3255	43	64	3551	3363	189	5.31%	98.4
5/3/11 4:50 AM	0	1471	2107	3348	43	64	3578	3454	124	3.46%	98.5
5/3/11 4:51 AM	0	1468	2143	3482	44	63	3611	3588	22	0.62%	98.1
5/3/11 4:52 AM	0	1484	2085	3339	44	64	3570	3447	123	3.44%	98.4
5/3/11 4:53 AM	0	1469	2066	3397	44	63	3535	3504	32	0.90%	98.1
5/3/11 4:54 AM	0	1461	2073	3465	43	64	3534	3572	-38	-1.08%	98.5
5/3/11 4:55 AM	0	1473	2104	3392	43	64	3577	3500	78	2.18%	98.3
5/3/11 4:56 AM	0	1483	2103	3290	43	63	3586	3396	191	5.31%	98.2
5/3/11 4:57 AM	0	1459	2088	3391	43	64	3547	3498	50	1.41%	98.3
5/3/11 4:58 AM	0	1469	2128	3433	43	62	3597	3538	59	1.64%	98.3
5/3/11 4:59 AM	0	1466	2137	3419	43	63	3603	3525	77	2.14%	98.2
5/3/11 5:00 AM	0	1465	2119	3458	44	65	3584	3567	17	0.47%	98.5
5/3/11 5:01 AM	0	1468	2067	3521	43	64	3535	3628	-93	-2.63%	98.3
5/3/11 5:02 AM	0	1466	2103	3417	45	63	3569	3525	44	1.23%	98.4
5/3/11 5:03 AM	0	1474	2076	3276	43	64	3550	3384	166	4.69%	98.3
5/3/11 5:04 AM	0	1460	2119	3439	44	64	3579	3547	32	0.89%	98.1
5/3/11 5:05 AM	0	1458	2079	3320	43	63	3536	3426	110	3.11%	98.0
5/3/11 5:06 AM	5	1450	2088	3363	43	64	3543	3470	73	2.05%	98.2
5/3/11 5:07 AM	0	1465	2085	3505	44	65	3550	3614	-64	-1.80%	98.3
5/3/11 5:08 AM	0	1471	2076	3371	44	64	3547	3478	68	1.93%	98.4
5/3/11 5:09 AM	0	1460	2073	3319	43	64	3532	3426	106	3.00%	98.1
5/3/11 5:10 AM	7	1447	2075	3376	43	64	3528	3482	46	1.31%	98.3
5/3/11 5:11 AM	0	1476	2084	3455	43	64	3560	3561	-1	-0.03%	98.4
5/3/11 5:12 AM	0	1471	2100	3457	45	65	3572	3567	5	0.14%	98.0
5/3/11 5:13 AM	0	1476	2082	3217	44	63	3558	3324	234	6.58%	98.2
5/3/11 5:14 AM	0	1468	2085	3426	45	63	3553	3534	20	0.55%	98.2
5/3/11 5:15 AM	0	1475	2104	3501	43	64	3579	3609	-30	-0.83%	98.5
5/3/11 5:16 AM	0	1460	2112	3367	42	64	3573	3473	99	2.78%	98.3
5/3/11 5:17 AM	0	1471	2116	3434	43	65	3587	3542	45	1.26%	98.3
5/3/11 5:18 AM	0	1458	2100	3332	43	63	3558	3438	120	3.37%	98.2
5/3/11 5:19 AM	0	1461	2076	3389	43	64	3537	3497	41	1.15%	98.4
5/3/11 5:20 AM	0	1471	2089	3352	43	63	3560	3458	102	2.87%	98.3
5/3/11 5:21 AM	0	1450	2070	3438	43	64	3520	3544	-24	-0.69%	98.2
5/3/11 5:22 AM	0	1455	2054	3418	43	62	3509	3523	-13	-0.38%	98.0
5/3/11 5:23 AM	0	1461	2113	3290	44	63	3573	3397	176	4.93%	98.4
5/3/11 5:24 AM	0	1460	2070	3415	44	64	3530	3522	8	0.22%	98.1
5/3/11 5:25 AM	0	1475	2088	3312	44	64	3562	3420	142	3.98%	98.2
5/3/11 5:26 AM	0	1472	2097	3362	43	64	3568	3469	99	2.78%	98.4
5/3/11 5:27 AM	0	1466	2088	3491	44	64	3554	3598	-44	-1.24%	98.3
5/3/11 5:28 AM	9	1456	2082	3305	43	63	3547	3412	135	3.82%	98.2
5/3/11 5:29 AM	0	1460	2106	3421	43	63	3567	3526	40	1.13%	98.2
5/3/11 5:30 AM	0	1460	2097	3517	44	63	3558	3624	-67	-1.87%	98.3
5/3/11 5:31 AM	0	1464	2088	3315	45	64	3552	3423	129	3.62%	98.2
5/3/11 5:32 AM	6	1481	2106	3518	42	64	3593	3624	-31	-0.86%	98.3
5/3/11 5:33 AM	0	1454	2097	3443	45	63	3551	3551	0	0.00%	98.1
5/3/11 5:34 AM	0	1468	2079	3518	45	65	3548	3628	-80	-2.26%	98.3
5/3/11 5:35 AM	0	1449	2113	3384	43	63	3562	3491	71	1.99%	98.2
5/3/11 5:36 AM	0	1460	2082	3444	44	65	3542	3553	-11	-0.30%	98.1
5/3/11 5:37 AM	0	1458	2088	3512	43	63	3546	3618	-72	-2.03%	98.3
5/3/11 5:38 AM	0	1460	2085	3490	44	65	3546	3599	-53	-1.50%	98.2
5/3/11 5:39 AM	0	1458	2106	3376	43	64	3565	3484	81	2.27%	98.5
5/3/11 5:40 AM	0	1461	2067	3497	44	64	3528	3605	-77	-2.19%	98.4
5/3/11 5:41 AM	0	1459	2073	3333	43	63	3532	3439	93	2.64%	98.3
5/3/11 5:42 AM	0	1453	2109	3276	45	63	3562	3383	179	5.01%	98.2
5/3/11 5:43 AM	0	1470	2073	3440	44	63	3543	3547	-4	-0.12%	98.2
5/3/11 5:44 AM	0	1464	2091	3415	44	64	3556	3523	33	0.92%	98.4
5/3/11 5:45 AM	0	1465	2104	3367	43	63	3569	3473	96	2.68%	98.2

5/3/11 5:46 AM	7	1470	2091	3421	43	63	3568	3528	40	1.12%	98.2
5/3/11 5:47 AM	0	1457	2067	3399	44	64	3524	3507	17	0.48%	98.2
5/3/11 5:48 AM	0	1458	2076	3445	44	63	3534	3552	-18	-0.51%	98.3
5/3/11 5:49 AM	0	1456	2066	3269	44	63	3522	3376	146	4.14%	98.5
5/3/11 5:50 AM	0	1460	2085	3405	43	64	3545	3512	33	0.94%	98.3
5/3/11 5:51 AM	0	1456	2070	3550	44	63	3526	3657	-131	-3.73%	98.1
5/3/11 5:52 AM	0	1451	2104	3498	43	63	3555	3604	-49	-1.38%	98.4
5/3/11 5:53 AM	0	1448	2089	3500	43	63	3536	3606	-70	-1.98%	98.3
5/3/11 5:54 AM	0	1450	2075	3464	43	64	3525	3571	-45	-1.29%	98.0
5/3/11 5:55 AM	0	1462	2076	3410	43	64	3538	3516	21	0.60%	98.4
5/3/11 5:56 AM	0	1460	2097	3399	43	64	3557	3506	51	1.43%	98.4
5/3/11 5:57 AM	6	1456	2110	3507	46	63	3572	3616	-43	-1.21%	98.4
5/3/11 5:58 AM	0	1459	2088	3458	45	64	3548	3567	-19	-0.54%	98.2
5/3/11 5:59 AM	0	1461	2088	3495	44	64	3549	3603	-53	-1.50%	98.2
5/3/11 6:00 AM	0	1441	2076	3314	43	64	3517	3421	96	2.72%	98.3
5/3/11 6:01 AM	0	1457	2103	3490	46	64	3560	3600	-40	-1.11%	98.3
5/3/11 6:02 AM	0	1458	2113	3439	44	62	3570	3545	26	0.72%	98.2
5/3/11 6:03 AM	0	1459	2113	3218	44	63	3572	3325	247	6.90%	98.2
5/3/11 6:04 AM	0	1460	2070	3397	43	64	3530	3504	26	0.73%	98.1
5/3/11 6:05 AM	0	1463	2098	3362	43	64	3561	3469	92	2.59%	98.3
5/3/11 6:06 AM	0	1460	2106	3447	44	63	3566	3554	13	0.35%	98.2
5/3/11 6:07 AM	0	1447	2088	3311	44	64	3535	3419	116	3.28%	98.4
5/3/11 6:08 AM	0	1446	2076	3497	45	62	3522	3604	-81	-2.31%	98.3
5/3/11 6:09 AM	0	1457	2073	3427	44	63	3530	3534	-4	-0.12%	98.4
5/3/11 6:10 AM	0	1454	2060	3473	43	62	3514	3578	-64	-1.82%	98.3
5/3/11 6:11 AM	0	1457	2076	3469	43	64	3533	3576	-43	-1.22%	98.6
5/3/11 6:12 AM	0	1455	2070	3454	43	64	3524	3561	-36	-1.03%	98.7
5/3/11 6:13 AM	0	1452	2081	3426	43	63	3533	3532	1	0.03%	98.3
5/3/11 6:14 AM	0	1460	2144	3212	43	65	3604	3321	283	7.86%	98.3
5/3/11 6:15 AM	0	1463	2066	3364	44	63	3529	3471	58	1.65%	98.4
5/3/11 6:16 AM	0	1473	2103	3363	43	63	3576	3469	107	3.00%	98.4
5/3/11 6:17 AM	0	1465	2106	3346	44	63	3571	3453	118	3.30%	98.3
5/3/11 6:18 AM	6	1450	2080	3418	44	63	3537	3525	11	0.32%	98.4
5/3/11 6:19 AM	0	1454	2076	3391	44	63	3530	3498	32	0.90%	98.4
5/3/11 6:20 AM	9	1470	2082	3447	43	63	3561	3553	8	0.23%	98.3
5/3/11 6:21 AM	0	1457	2066	3462	42	64	3523	3568	-45	-1.28%	98.5
5/3/11 6:22 AM	0	1458	2082	3541	44	63	3541	3648	-107	-3.02%	98.6
5/3/11 6:23 AM	0	1456	2091	3369	44	63	3547	3476	71	2.00%	98.3
5/3/11 6:24 AM	0	1460	2073	3482	43	62	3533	3587	-54	-1.52%	98.4
5/3/11 6:25 AM	0	1451	2112	3338	43	64	3563	3446	117	3.29%	98.3
5/3/11 6:26 AM	0	1453	2085	3367	43	62	3538	3472	66	1.87%	98.4
5/3/11 6:27 AM	0	1461	2088	3298	43	65	3548	3406	143	4.02%	98.3
5/3/11 6:28 AM	5	1465	2067	3436	44	63	3538	3544	-6	-0.17%	98.5
5/3/11 6:29 AM	0	1460	2107	3496	43	64	3566	3603	-37	-1.04%	98.4
5/3/11 6:30 AM	0	1466	2091	3542	45	63	3558	3650	-93	-2.60%	98.5
5/3/11 6:31 AM	0	1455	2057	3376	43	64	3513	3483	30	0.85%	98.3
5/3/11 6:32 AM	0	1449	2100	3482	43	64	3550	3589	-39	-1.11%	98.3
5/3/11 6:33 AM	0	1457	2122	3515	43	64	3579	3622	-43	-1.19%	98.4
5/3/11 6:34 AM	0	1435	2100	3312	43	64	3535	3419	116	3.29%	98.5
5/3/11 6:35 AM	0	1467	2091	3455	43	65	3559	3563	-5	-0.13%	98.3
5/3/11 6:36 AM	0	1450	2072	3456	44	63	3523	3564	-41	-1.17%	98.4
5/3/11 6:37 AM	0	1450	2107	3391	43	64	3557	3498	59	1.66%	98.3
5/3/11 6:38 AM	0	1451	2076	3569	43	64	3526	3675	-149	-4.22%	98.5
5/3/11 6:39 AM	0	1458	2100	3303	45	64	3558	3413	145	4.08%	98.4
5/3/11 6:40 AM	0	1453	2088	3315	44	63	3541	3422	119	3.37%	98.3
5/3/11 6:41 AM	0	1474	2091	3337	45	63	3565	3445	120	3.38%	98.5
5/3/11 6:42 AM	0	1457	2079	3375	44	64	3536	3482	54	1.53%	98.2
5/3/11 6:43 AM	0	1454	2082	3541	44	64	3535	3648	-113	-3.19%	98.4
5/3/11 6:44 AM	9	1458	2079	3474	44	62	3546	3580	-34	-0.95%	98.3
5/3/11 6:45 AM	27	1459	2079	3447	44	63	3564	3554	10	0.29%	98.4
5/3/11 6:46 AM	23	1459	2104	3391	43	64	3587	3498	89	2.49%	98.4
5/3/11 6:47 AM	28	1452	2106	3290	44	63	3587	3397	190	5.29%	98.2
5/3/11 6:48 AM	34	1460	2077	3344	44	64	3570	3452	118	3.30%	98.3

5/3/11 6:49 AM	34	1463	2081	3448	44	63	3577	3555	23	0.63%	98.3
5/3/11 6:50 AM	22	1461	2082	3312	44	63	3565	3419	147	4.11%	98.3
5/3/11 6:51 AM	18	1457	2088	3429	44	64	3563	3537	25	0.71%	98.4
5/3/11 6:52 AM	21	1460	2076	3512	43	63	3557	3618	-61	-1.72%	98.3
5/3/11 6:53 AM	0	1454	2085	3410	43	64	3539	3517	23	0.64%	98.4
5/3/11 6:54 AM	0	1445	2097	3432	43	64	3542	3539	3	0.08%	98.2
5/3/11 6:55 AM	0	1448	2110	3454	44	64	3559	3562	-4	-0.10%	98.2
5/3/11 6:56 AM	0	1466	2094	3476	45	63	3560	3583	-23	-0.63%	98.3
5/3/11 6:57 AM	0	1455	2094	3251	43	64	3548	3358	190	5.35%	98.2
5/3/11 6:58 AM	0	1445	2076	3477	44	64	3521	3584	-63	-1.79%	98.3
5/3/11 6:59 AM	0	1455	2098	3447	43	64	3553	3554	-1	-0.03%	98.4
5/3/11 7:00 AM	0	1459	2107	3381	43	64	3566	3488	78	2.18%	98.2
5/3/11 7:01 AM	0	1442	2079	3477	44	63	3521	3584	-64	-1.81%	98.3
5/3/11 7:02 AM	0	1457	2064	3471	44	64	3520	3579	-58	-1.66%	98.3
5/3/11 7:03 AM	0	1453	2088	3398	43	63	3541	3504	37	1.05%	98.2
5/3/11 7:04 AM	0	1462	2085	3455	42	63	3547	3561	-14	-0.41%	98.3
5/3/11 7:05 AM	0	1456	2063	3386	44	64	3519	3495	24	0.69%	98.2
5/3/11 7:06 AM	0	1445	2064	3447	45	63	3509	3555	-46	-1.31%	98.3
5/3/11 7:07 AM	0	1452	2101	3404	45	63	3553	3512	41	1.15%	98.2
5/3/11 7:08 AM	0	1438	2125	3344	43	62	3563	3449	114	3.20%	98.3
5/3/11 7:09 AM	0	1452	2094	3448	43	63	3546	3554	-8	-0.23%	98.2
5/3/11 7:10 AM	17	1460	2093	3334	43	63	3569	3440	129	3.62%	98.2
5/3/11 7:11 AM	6	1459	2066	3331	43	64	3530	3439	92	2.60%	98.1
5/3/11 7:12 AM	0	1456	2100	3260	44	64	3557	3368	188	5.29%	98.2
5/3/11 7:13 AM	0	1456	2078	3374	44	64	3535	3482	53	1.50%	98.2
5/3/11 7:14 AM	0	1449	2079	3334	42	64	3528	3440	89	2.51%	98.5
5/3/11 7:15 AM	0	1461	2088	3459	45	65	3549	3569	-20	-0.57%	98.2
5/3/11 7:16 AM	0	1457	2082	3462	44	64	3539	3570	-31	-0.88%	98.2
5/3/11 7:17 AM	0	1443	2066	3495	44	65	3509	3603	-94	-2.68%	98.1
5/3/11 7:18 AM	0	1445	2076	3455	44	63	3521	3562	-41	-1.16%	98.2
5/3/11 7:19 AM	0	1438	2091	3427	42	63	3529	3532	-3	-0.09%	98.2
5/3/11 7:20 AM	0	1448	2116	3434	43	64	3564	3541	23	0.64%	98.3
5/3/11 7:21 AM	7	1459	2097	3382	42	65	3562	3490	73	2.04%	98.2
5/3/11 7:22 AM	37	1445	2097	3232	44	63	3579	3339	240	6.69%	98.2
5/3/11 7:23 AM	10	1446	2076	3325	43	62	3531	3430	101	2.85%	98.2
5/3/11 7:24 AM	0	1447	2100	3288	43	63	3547	3394	153	4.30%	98.2
5/3/11 7:25 AM	0	1457	2100	3426	43	64	3557	3533	24	0.66%	98.0
5/3/11 7:26 AM	0	1445	2067	3547	42	64	3512	3653	-141	-4.02%	98.3
5/3/11 7:27 AM	0	1448	2094	3480	44	63	3542	3586	-45	-1.26%	98.5
5/3/11 7:28 AM	5	1431	2113	3362	43	64	3549	3468	81	2.28%	98.2
5/3/11 7:29 AM	13	1401	2124	3374	43	64	3538	3481	57	1.62%	98.2
5/3/11 7:30 AM	0	1439	2122	3426	44	64	3561	3534	26	0.73%	98.3
5/3/11 7:31 AM	26	1456	2095	3475	43	62	3577	3580	-3	-0.09%	98.0
5/3/11 7:32 AM	34	1458	2106	3456	44	66	3598	3566	32	0.88%	98.2
5/3/11 7:33 AM	32	1453	2100	3377	43	64	3585	3483	102	2.84%	98.3
5/3/11 7:34 AM	35	1447	2082	3347	44	64	3565	3456	109	3.06%	98.2
5/3/11 7:35 AM	11	1425	2088	3269	44	64	3523	3377	147	4.16%	98.2
5/3/11 7:36 AM	10	1440	2097	3398	43	64	3548	3505	43	1.21%	98.2
5/3/11 7:37 AM	38	1442	2097	3467	44	64	3576	3575	2	0.05%	98.3
5/3/11 7:38 AM	0	1438	2094	3514	42	62	3532	3619	-87	-2.47%	98.2
5/3/11 7:39 AM	25	1430	2098	3582	44	64	3554	3690	-136	-3.82%	98.2
5/3/11 7:40 AM	16	1448	2078	3512	43	64	3541	3619	-78	-2.19%	98.3
5/3/11 7:41 AM	29	1453	2134	3511	43	63	3616	3617	-1	-0.03%	98.2
5/3/11 7:42 AM	23	1450	2084	3536	45	63	3557	3644	-87	-2.44%	98.2
5/3/11 7:43 AM	13	1440	2094	3401	44	64	3547	3510	37	1.05%	98.1
5/3/11 7:44 AM	0	1457	2078	3461	42	64	3535	3567	-32	-0.92%	98.3
5/3/11 7:45 AM	16	1433	2122	3390	42	63	3571	3495	76	2.12%	98.5
5/3/11 7:46 AM	26	1460	2081	3431	43	64	3567	3538	29	0.82%	98.2
5/3/11 7:47 AM	18	1444	2103	3324	44	64	3566	3433	133	3.73%	98.3
5/3/11 7:48 AM	28	1449	2107	3383	44	64	3583	3492	91	2.54%	98.1
5/3/11 7:49 AM	27	1462	2091	3332	43	64	3580	3439	141	3.95%	98.3
5/3/11 7:50 AM	26	1429	2099	3436	44	64	3555	3544	11	0.30%	98.0
5/3/11 7:51 AM	19	1450	2087	3426	44	63	3557	3533	24	0.67%	98.2

5/3/11 7:52 AM	12	1450	2107	3381	44	64	3569	3488	81	2.28%	98.4
5/3/11 7:53 AM	7	1434	2087	3368	44	64	3528	3475	52	1.48%	98.2
5/3/11 7:54 AM	34	1447	2072	3418	43	64	3553	3525	28	0.79%	98.2
5/3/11 7:55 AM	26	1450	2104	3395	43	63	3580	3501	79	2.19%	98.1
5/3/11 7:56 AM	30	1449	2090	3431	43	65	3569	3539	31	0.86%	98.4
5/3/11 7:57 AM	32	1433	2085	3404	48	64	3550	3516	34	0.95%	98.2
5/3/11 7:58 AM	31	1442	2100	3433	48	64	3573	3544	29	0.81%	98.4
5/3/11 7:59 AM											
5/3/11 8:00 AM											
5/3/11 8:01 AM	41	1448	2096	3419	41	75	3586	3536	50	1.38%	98.2
5/3/11 8:02 AM	22	1450	2081	3456	43	75	3553	3573	-20	-0.57%	98.2
5/3/11 8:03 AM	29	1434	2105	3369	42	75	3568	3485	83	2.32%	98.2
5/3/11 8:04 AM	31	1412	2106	3436	42	75	3549	3553	-4	-0.10%	98.2
5/3/11 8:05 AM	36	1453	2096	3393	42	74	3586	3509	77	2.15%	98.1
5/3/11 8:06 AM	27	1442	2081	3485	43	74	3550	3602	-52	-1.46%	98.2
5/3/11 8:07 AM	30	1459	2106	3481	42	74	3595	3597	-2	-0.04%	98.5
5/3/11 8:08 AM	19	1457	2069	3458	42	73	3545	3574	-28	-0.80%	98.4
5/3/11 8:09 AM	25	1445	2079	3454	42	73	3549	3569	-20	-0.56%	98.4
5/3/11 8:10 AM	29	1451	2110	3348	40	73	3590	3460	130	3.63%	98.4
5/3/11 8:11 AM	18	1457	2091	3460	41	72	3566	3574	-8	-0.21%	98.3
5/3/11 8:12 AM	30	1455	2098	3311	42	72	3582	3426	157	4.38%	98.3
5/3/11 8:13 AM	29	1451	2072	3383	41	73	3552	3497	55	1.55%	98.4
5/3/11 8:14 AM	29	1420	2087	3483	42	74	3536	3599	-63	-1.79%	98.3
5/3/11 8:15 AM	30	1438	2080	3309	42	73	3549	3423	125	3.54%	98.2
5/3/11 8:16 AM	30	1465	2100	3382	40	73	3595	3495	100	2.78%	98.3
5/3/11 8:17 AM	21	1446	2124	3478	42	74	3591	3593	-2	-0.06%	98.2
5/3/11 8:18 AM	29	1452	2071	3483	42	72	3552	3597	-45	-1.26%	98.2
5/3/11 8:19 AM	14	1426	2104	3261	41	74	3544	3376	168	4.73%	98.4
5/3/11 8:20 AM	21	1457	2091	3213	41	72	3569	3327	242	6.77%	98.4
5/3/11 8:21 AM	29	1346	2066	3397	42	73	3441	3511	-70	-2.04%	98.3
5/3/11 8:22 AM	29	1437	2096	3240	41	74	3562	3356	206	5.79%	98.3
5/3/11 8:23 AM	28	1446	2093	3366	42	72	3568	3480	87	2.45%	98.1
5/3/11 8:24 AM	27	1448	2068	3290	43	74	3544	3407	137	3.87%	98.3
5/3/11 8:25 AM	21	1454	2089	3546	41	73	3564	3660	-96	-2.70%	98.2
5/3/11 8:26 AM	27	1442	2135	3471	43	71	3603	3585	18	0.50%	98.3
5/3/11 8:27 AM	33	1454	2099	3486	41	74	3586	3601	-15	-0.41%	98.2
5/3/11 8:28 AM	29	1450	2082	3334	43	73	3562	3450	112	3.14%	98.2
5/3/11 8:29 AM	26	1438	2059	3515	42	74	3523	3631	-108	-3.05%	98.2
5/3/11 8:30 AM	28	1420	2088	3502	41	73	3536	3617	-81	-2.29%	98.0
5/3/11 8:31 AM	33	1450	2119	3486	42	74	3602	3602	0	-0.01%	98.2
5/3/11 8:32 AM	30	1459	2074	3333	42	72	3563	3448	115	3.23%	98.3
5/3/11 8:33 AM	26	1444	2103	3470	42	73	3573	3585	-12	-0.33%	98.3
5/3/11 8:34 AM	28	1448	2079	3488	41	72	3556	3601	-46	-1.28%	98.2
5/3/11 8:35 AM	20	1447	2095	3297	41	72	3562	3410	151	4.25%	98.4
5/3/11 8:36 AM	31	1439	2112	3413	42	73	3582	3528	54	1.50%	98.1
5/3/11 8:37 AM	25	1449	2110	3469	41	73	3583	3583	0	-0.01%	98.3
5/3/11 8:38 AM	35	1429	2126	3393	42	73	3591	3508	82	2.30%	98.2
5/3/11 8:39 AM	28	1457	2065	3432	43	72	3550	3547	2	0.06%	98.3
5/3/11 8:40 AM	27	1446	2106	3244	41	73	3579	3359	221	6.17%	98.3
5/3/11 8:41 AM	25	1442	2093	3343	41	74	3559	3458	101	2.84%	98.1
5/3/11 8:42 AM	30	1442	2069	3318	41	73	3541	3433	108	3.05%	98.1
5/3/11 8:43 AM	30	1453	2100	3475	42	73	3582	3590	-8	-0.22%	98.1
5/3/11 8:44 AM	24	1435	2075	3414	42	72	3534	3528	6	0.18%	98.0
5/3/11 8:45 AM	28	1445	2118	3440	41	72	3591	3554	37	1.03%	98.4
5/3/11 8:46 AM	29	1460	2081	3532	42	74	3571	3648	-77	-2.16%	98.4
5/3/11 8:47 AM	26	1441	2094	3335	41	75	3561	3451	110	3.09%	98.2
5/3/11 8:48 AM	30	1456	2094	3282	41	72	3579	3395	184	5.13%	98.4
5/3/11 8:49 AM	26	1470	2097	3494	42	73	3593	3609	-16	-0.44%	98.2
5/3/11 8:50 AM	23	1380	2069	3333	41	73	3472	3447	26	0.74%	98.1
5/3/11 8:51 AM	29	1381	2070	3490	43	71	3480	3604	-124	-3.56%	98.3
5/3/11 8:52 AM	26	1445	2072	3370	41	73	3543	3484	59	1.68%	98.3
5/3/11 8:53 AM	27	1453	2072	3498	42	74	3551	3614	-63	-1.77%	98.1
5/3/11 8:54 AM	22	1455	2065	3461	42	73	3541	3577	-35	-0.99%	98.3

5/3/11 8:55 AM	27	1468	2076	3457	42	72	3571	3571	0	0.00%	98.4
5/3/11 8:56 AM	26	1457	2094	3504	42	74	3577	3620	-43	-1.19%	98.2
5/3/11 8:57 AM	28	1447	2073	3378	43	72	3548	3493	55	1.54%	98.1
5/3/11 8:58 AM	26	1448	2102	3433	41	72	3576	3546	30	0.83%	98.1
5/3/11 8:59 AM	28	1432	2094	3297	42	73	3554	3412	142	3.98%	98.3
5/3/11 9:00 AM	31	1443	2091	3426	43	72	3565	3541	24	0.68%	98.4
5/3/11 9:01 AM	28	1393	2115	3469	42	71	3536	3582	-46	-1.30%	98.3
5/3/11 9:02 AM	32	1926	2063	3269	43	74	4022	3386	635	15.80%	86.5
5/3/11 9:03 AM	39	1957	2074	3297	46	71	4070	3415	655	16.09%	84.2
5/3/11 9:04 AM	1075	1987	2069	3388	47	71	5131	3506	1625	31.66%	84.4
5/3/11 9:05 AM	1713	1980	2054	3668	51	72	5747	3792	1955	34.02%	84.0
5/3/11 9:06 AM	1762	1970	2078	4046	52	72	5809	4170	1639	28.22%	84.0
5/3/11 9:07 AM	1751	1976	2070	4904	51	73	5796	5028	768	13.26%	83.7
5/3/11 9:08 AM	1780	1978	2085	5000	51	72	5843	5124	719	12.31%	84.0
5/3/11 9:09 AM	1743	1941	2073	5000	52	71	5757	5122	635	11.03%	84.0
5/3/11 9:10 AM	1771	1948	2093	5000	51	72	5811	5124	687	11.83%	83.7
5/3/11 9:11 AM	1762	1954	2084	5000	51	72	5800	5122	678	11.69%	83.7
5/3/11 9:12 AM	1777	1968	2036	5000	51	72	5781	5122	658	11.39%	83.9
5/3/11 9:13 AM	1835	1948	2075	5000	51	72	5858	5123	734	12.54%	83.8
5/3/11 9:14 AM	1740	1940	2063	5000	50	73	5743	5123	620	10.80%	83.3
5/3/11 9:15 AM	1758	1986	2075	5000	51	72	5819	5123	697	11.97%	83.4
5/3/11 9:16 AM	1791	1950	2082	5000	51	72	5823	5123	700	12.03%	83.5
5/3/11 9:17 AM	1778	1966	2088	5000	50	71	5832	5121	711	12.19%	83.6
5/3/11 9:18 AM	1730	1949	2047	5000	51	73	5726	5124	602	10.52%	83.7
5/3/11 9:19 AM	1788	1964	2042	5000	51	72	5794	5122	671	11.59%	83.5
5/3/11 9:20 AM	1825	1944	2057	5000	48	72	5826	5120	706	12.11%	83.7
5/3/11 9:21 AM	1786	1933	2078	5000	48	73	5797	5121	676	11.67%	83.4
5/3/11 9:22 AM	1794	1935	2066	5000	48	73	5795	5121	674	11.63%	83.7
5/3/11 9:23 AM	1797	1945	2043	5000	47	74	5785	5121	664	11.48%	83.3
5/3/11 9:24 AM	1801	1956	2057	5000	45	73	5814	5118	696	11.98%	83.5
5/3/11 9:25 AM	1745	1959	2087	5000	45	73	5791	5118	674	11.63%	83.3
5/3/11 9:26 AM	1758	1978	2038	5000	47	73	5775	5120	654	11.33%	83.3
5/3/11 9:27 AM	1778	1956	2032	5000	46	72	5766	5118	648	11.24%	83.3
5/3/11 9:28 AM	1818	1964	2070	5000	46	72	5851	5118	734	12.54%	83.4
5/3/11 9:29 AM	1794	1947	2011	5000	47	72	5752	5119	633	11.00%	83.6
5/3/11 9:30 AM	1793	1972	2057	5000	45	72	5823	5117	706	12.13%	83.4
5/3/11 9:31 AM	1775	1960	2047	5000	44	73	5782	5117	665	11.50%	83.2
5/3/11 9:32 AM	1761	1947	2084	5000	44	74	5792	5118	674	11.63%	83.4
5/3/11 9:33 AM	1802	1900	2076	5000	44	72	5778	5116	662	11.45%	83.2
5/3/11 9:34 AM	1741	1949	2032	5000	45	72	5723	5117	606	10.59%	83.2
5/3/11 9:35 AM	1760	1969	2022	5000	45	73	5751	5118	633	11.01%	83.3
5/3/11 9:36 AM	1792	1961	2036	5000	43	74	5789	5117	672	11.62%	83.4
5/3/11 9:37 AM	1793	1965	2071	5000	44	72	5829	5116	713	12.23%	83.0
5/3/11 9:38 AM	1779	1969	2050	5000	45	72	5798	5117	681	11.75%	83.0
5/3/11 9:39 AM	1776	1943	2045	5000	44	74	5764	5118	646	11.21%	83.0
5/3/11 9:40 AM	1762	1961	2054	5000	45	73	5776	5117	659	11.41%	83.2
5/3/11 9:41 AM	1764	1977	2062	5000	44	72	5803	5116	687	11.84%	83.2
5/3/11 9:42 AM	1808	1978	2045	5000	44	72	5831	5116	715	12.26%	83.2
5/3/11 9:43 AM	1760	1961	2088	5000	44	73	5809	5117	692	11.92%	83.0
5/3/11 9:44 AM	1782	1950	2047	5000	44	73	5779	5117	662	11.45%	83.1
5/3/11 9:45 AM	1787	1959	2057	5000	44	72	5803	5116	687	11.84%	83.0
5/3/11 9:46 AM	1799	1978	2071	5000	44	72	5848	5116	732	12.52%	83.3
5/3/11 9:47 AM	1763	1975	2097	5000	45	73	5834	5117	716	12.28%	82.6
5/3/11 9:48 AM	1790	1961	2060	5000	44	71	5811	5115	696	11.97%	82.9
5/3/11 9:49 AM	1797	1967	2059	5000	43	73	5823	5116	707	12.13%	82.9
5/3/11 9:50 AM	1799	1960	2081	5000	44	73	5840	5117	724	12.39%	82.9
5/3/11 9:51 AM	1788	1969	2057	5000	45	73	5815	5118	697	11.98%	82.7
5/3/11 9:52 AM	1784	1970	2054	5000	44	72	5808	5116	692	11.91%	83.1
5/3/11 9:53 AM	1789	1972	2063	5000	44	72	5825	5116	708	12.16%	83.2
5/3/11 9:54 AM	1783	1976	2041	5000	44	72	5800	5116	684	11.79%	83.3
5/3/11 9:55 AM	1820	1958	2060	5000	43	72	5838	5115	723	12.39%	83.1
5/3/11 9:56 AM	1768	1973	2057	5000	44	71	5798	5115	682	11.77%	83.0
5/3/11 9:57 AM	1808	1968	2051	5000	44	73	5828	5117	711	12.19%	83.1

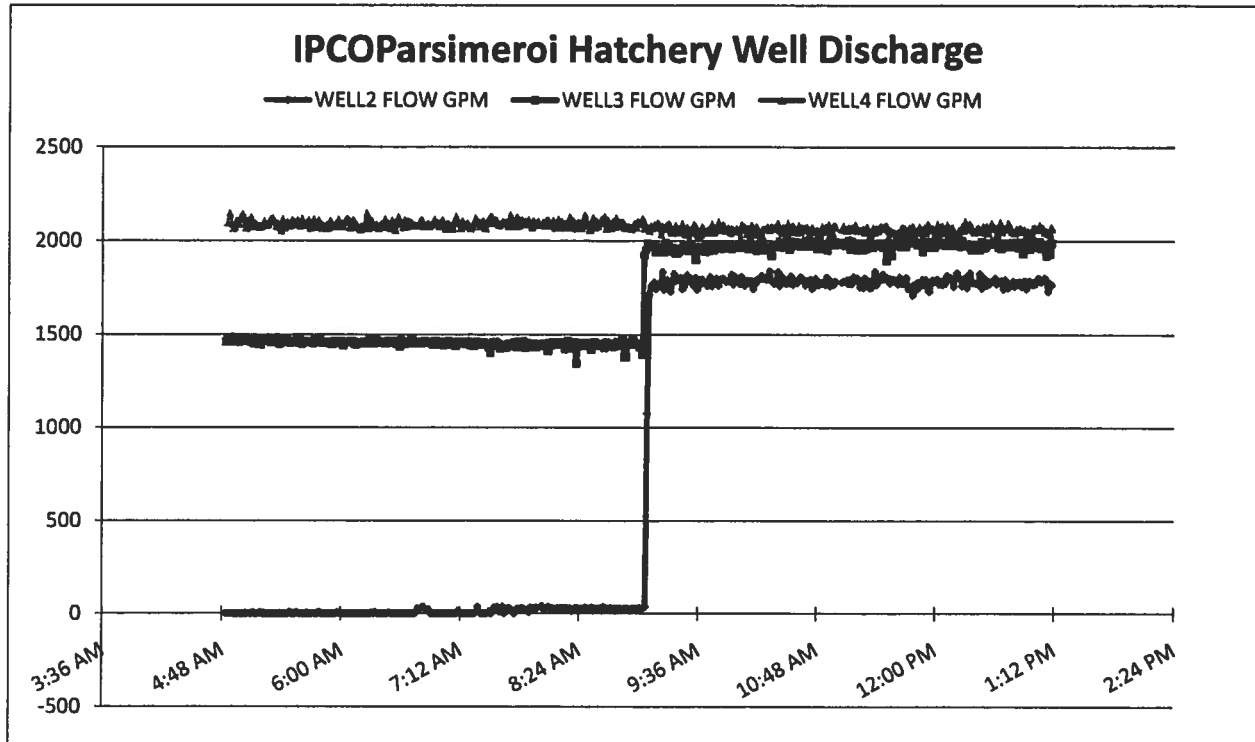
5/3/11 9:58 AM	1803	1966	2064	5000	44	73	5833	5117	716	12.27%	83.0
5/3/11 9:59 AM	1782	1965	2050	5000	43	73	5797	5117	680	11.73%	82.7
5/3/11 10:00 AM	1770	1981	2021	5000	44	71	5773	5115	658	11.40%	82.8
5/3/11 10:01 AM	1808	1975	2084	5000	44	72	5867	5117	750	12.78%	83.6
5/3/11 10:02 AM	1796	1968	2063	5000	45	72	5826	5116	710	12.19%	82.8
5/3/11 10:03 AM	1764	1984	2069	5000	44	71	5817	5116	702	12.06%	82.8
5/3/11 10:04 AM	1785	1983	2035	5000	44	75	5802	5119	683	11.78%	82.9
5/3/11 10:05 AM	1788	1959	2065	5000	44	73	5812	5116	696	11.97%	83.0
5/3/11 10:06 AM	1774	1969	2020	5000	44	72	5764	5116	648	11.24%	83.2
5/3/11 10:07 AM	1787	1980	2078	5000	44	73	5845	5116	728	12.46%	82.7
5/3/11 10:08 AM	1745	1979	2065	5000	44	73	5789	5117	672	11.61%	83.1
5/3/11 10:09 AM	1786	1964	2035	5000	45	72	5786	5117	669	11.57%	82.9
5/3/11 10:10 AM	1780	1949	2072	5000	44	73	5801	5116	685	11.81%	82.9
5/3/11 10:11 AM	1799	1969	2050	5000	44	73	5818	5117	702	12.06%	83.1
5/3/11 10:12 AM	1798	1963	2033	5000	44	72	5795	5116	678	11.71%	82.7
5/3/11 10:13 AM	1815	1998	2032	5000	44	73	5845	5117	728	12.45%	82.9
5/3/11 10:14 AM	1798	1974	2063	5000	46	72	5835	5118	717	12.29%	82.9
5/3/11 10:15 AM	1806	1952	2063	5000	44	71	5820	5116	705	12.11%	83.0
5/3/11 10:16 AM	1793	1964	2065	5000	43	71	5822	5114	708	12.17%	82.6
5/3/11 10:17 AM	1797	1965	2073	5000	44	72	5835	5117	718	12.31%	82.8
5/3/11 10:18 AM	1839	1965	2060	5000	45	71	5863	5116	747	12.74%	83.2
5/3/11 10:19 AM	1789	1922	2072	5000	44	72	5783	5116	667	11.53%	82.8
5/3/11 10:20 AM	1779	1972	2066	5000	44	72	5817	5116	701	12.05%	83.1
5/3/11 10:21 AM	1772	1979	2073	5000	43	72	5823	5115	708	12.16%	82.7
5/3/11 10:22 AM	1792	1974	2072	5000	44	72	5837	5116	721	12.36%	82.5
5/3/11 10:23 AM	1832	1973	2091	5000	44	71	5897	5115	781	13.25%	82.6
5/3/11 10:24 AM	1761	1998	2052	5000	42	71	5811	5113	698	12.01%	82.8
5/3/11 10:25 AM	1811	1968	2038	5000	43	71	5817	5115	702	12.08%	82.7
5/3/11 10:26 AM	1780	1971	2069	5000	44	72	5820	5117	703	12.08%	82.7
5/3/11 10:27 AM	1780	1983	2029	5000	46	71	5792	5116	675	11.66%	82.8
5/3/11 10:28 AM	1774	2002	2032	5000	44	72	5809	5115	693	11.94%	82.6
5/3/11 10:29 AM	1794	1999	2091	5000	44	71	5884	5115	769	13.07%	82.9
5/3/11 10:30 AM	1776	1955	2057	5000	44	73	5788	5117	671	11.60%	82.9
5/3/11 10:31 AM	1812	1973	2048	5000	46	72	5832	5118	715	12.25%	82.7
5/3/11 10:32 AM	1768	1986	2075	5000	43	71	5830	5114	715	12.27%	82.8

5/3/11 11:01 AM												
5/3/11 11:02 AM	1778	1992	2064	5962	44	72	5834	6079	-245	-4.20%	-4.20%	82.9
5/3/11 11:03 AM	1787	1982	2075	5926	44	72	5844	6042	-198	-3.40%	-3.40%	82.8
5/3/11 11:04 AM	1784	1975	2060	6000	43	70	5819	6114	-295	-5.07%	-5.07%	82.9
5/3/11 11:05 AM	1791	1980	2055	6000	43	72	5826	6115	-289	-4.96%	-4.96%	82.6
5/3/11 11:06 AM	1771	2002	2067	6000	45	70	5840	6115	-275	-4.71%	-4.71%	82.7
5/3/11 11:07 AM	1794	1956	2061	5962	44	71	5811	6077	-266	-4.57%	-4.57%	82.7
5/3/11 11:08 AM	1771	1996	2069	5910	43	72	5836	6024	-188	-3.23%	-3.23%	82.7
5/3/11 11:09 AM	1808	1972	2063	6040	44	70	5843	6155	-312	-5.34%	-5.34%	82.7
5/3/11 11:10 AM	1790	1978	2081	5843	44	70	5850	5957	-107	-1.84%	-1.84%	82.5
5/3/11 11:11 AM	1803	1951	2057	5868	44	71	5810	5982	-172	-2.96%	-2.96%	82.3
5/3/11 11:12 AM	1798	1955	2054	5866	43	70	5807	5979	-173	-2.98%	-2.98%	82.6
5/3/11 11:13 AM	1755	1986	2054	5897	43	71	5796	6011	-216	-3.72%	-3.72%	82.6
5/3/11 11:14 AM	1787	1986	2057	5847	43	71	5830	5961	-131	-2.24%	-2.24%	82.6
5/3/11 11:15 AM	1751	1955	2059	5943	44	70	5764	6057	-293	-5.08%	-5.08%	82.8
5/3/11 11:16 AM	1801	1985	2044	5817	45	70	5830	5932	-102	-1.75%	-1.75%	82.7
5/3/11 11:17 AM	1779	1961	2072	5896	44	71	5812	6010	-198	-3.41%	-3.41%	82.4
5/3/11 11:18 AM	1775	1976	2055	6014	44	71	5806	6129	-323	-5.56%	-5.56%	82.5
5/3/11 11:19 AM	1749	1998	2035	5975	44	70	5782	6089	-306	-5.30%	-5.30%	82.5
5/3/11 11:20 AM	1755	1975	2044	5967	44	72	5774	6083	-309	-5.35%	-5.35%	82.7
5/3/11 11:21 AM	1799	1967	2068	5923	44	70	5834	6037	-202	-3.47%	-3.47%	82.5
5/3/11 11:22 AM	1837	1980	2050	5934	44	70	5867	6048	-181	-3.08%	-3.08%	82.2
5/3/11 11:23 AM	1769	1979	2066	5867	43	70	5813	5981	-167	-2.88%	-2.88%	82.4
5/3/11 11:24 AM	1790	1980	2055	5723	43	72	5826	5838	-12	-0.21%	-0.21%	82.3
5/3/11 11:25 AM	1806	1989	2072	5990	43	71	5866	6104	-238	-4.05%	-4.05%	82.4
5/3/11 11:26 AM	1797	1988	2076	5862	42	71	5861	5975	-114	-1.95%	-1.95%	82.6
5/3/11 11:27 AM	1822	1966	2066	5933	43	71	5854	6047	-193	-3.30%	-3.30%	82.7
5/3/11 11:28 AM	1798	1978	2075	5905	44	71	5851	6020	-169	-2.88%	-2.88%	82.4
5/3/11 11:29 AM	1804	1897	2075	6024	44	72	5776	6140	-363	-6.29%	-6.29%	82.5
5/3/11 11:30 AM	1784	1986	2029	6136	43	70	5799	6249	-450	-7.76%	-7.76%	82.5
5/3/11 11:31 AM	1775	1990	2051	6017	44	71	5816	6132	-316	-5.44%	-5.44%	82.5
5/3/11 11:32 AM	1795	1923	2047	5831	44	71	5765	5946	-181	-3.15%	-3.15%	83.0
5/3/11 11:33 AM	1794	1977	2042	5861	44	71	5813	5976	-164	-2.82%	-2.82%	82.4
5/3/11 11:34 AM	1783	1989	2041	5954	44	69	5814	6067	-253	-4.36%	-4.36%	82.4
5/3/11 11:35 AM	1784	1989	2036	5936	44	70	5808	6049	-241	-4.15%	-4.15%	82.7
5/3/11 11:36 AM	1771	1997	2045	5970	42	71	5812	6084	-272	-4.67%	-4.67%	82.7
5/3/11 11:37 AM	1808	1988	2044	5810	43	71	5840	5924	-84	-1.43%	-1.43%	82.4
5/3/11 11:38 AM	1777	1970	2067	5968	43	71	5814	6082	-268	-4.61%	-4.61%	82.3
5/3/11 11:39 AM	1775	2023	2069	6026	44	70	5867	6139	-272	-4.64%	-4.64%	82.6
5/3/11 11:40 AM	1795	1994	2066	6101	44	71	5855	6217	-362	-6.18%	-6.18%	82.4
5/3/11 11:41 AM	1802	1973	2055	6080	44	70	5829	6194	-365	-6.26%	-6.26%	82.6
5/3/11 11:42 AM	1745	1999	2049	5882	44	73	5793	5999	-206	-3.56%	-3.56%	82.7
5/3/11 11:43 AM	1756	2005	2069	5940	44	70	5830	6053	-223	-3.83%	-3.83%	82.3
5/3/11 11:44 AM	1753	1992	2053	5901	43	70	5797	6014	-217	-3.75%	-3.75%	82.6
5/3/11 11:45 AM	1711	2000	2076	5909	44	70	5787	6023	-237	-4.09%	-4.09%	82.3
5/3/11 11:46 AM	1767		2030	5953	44	69						82.3
5/3/11 11:47 AM	1741	1992	2045	5912	45	70	5778	6027	-249	-4.30%	-4.30%	82.7
5/3/11 11:48 AM	1778	1980	2060	6024	44	69	5817	6138	-320	-5.51%	-5.51%	82.8
5/3/11 11:49 AM	1756	1980	2072	6023	44	70	5808	6137	-328	-5.65%	-5.65%	82.5
5/3/11 11:50 AM	1770	1989	2063	5876	43	70	5822	5989	-167	-2.86%	-2.86%	82.5
5/3/11 11:51 AM	1795	1945	2022	6002	44	70	5762	6116	-354	-6.14%	-6.14%	82.4
5/3/11 11:52 AM	1774	1978	2072	5894	43	70	5824	6008	-184	-3.16%	-3.16%	82.3
5/3/11 11:53 AM	1793	1975	2043	5982	43	70	5812	6095	-283	-4.87%	-4.87%	82.5
5/3/11 11:54 AM	1751	1973	2087	6116	44	70	5811	6230	-419	-7.22%	-7.22%	82.7
5/3/11 11:55 AM	1732	1993	2070	6032	44	70	5795	6146	-351	-6.05%	-6.05%	82.4
5/3/11 11:56 AM	1771	1969	2060	6010	43	71	5800	6124	-324	-5.58%	-5.58%	82.7
5/3/11 11:57 AM	1792	1968	2063	6017	44	70	5823	6131	-308	-5.29%	-5.29%	82.7
5/3/11 11:58 AM	1783	1967	2030	5769	44	70	5780	5883	-103	-1.79%	-1.79%	82.7
5/3/11 11:59 AM	1792	1980	2039	5767	44	70	5811	5881	-70	-1.21%	-1.21%	82.3
5/3/11 12:00 PM	1795		2086	5745	43	70						82.3
5/3/11 12:01 PM	1771	1992	2038	5854	43	71	5801	5967	-166	-2.87%	-2.87%	82.3
5/3/11 12:02 PM	1775	1984	2072	6052	43	70	5830	6165	-334	-5.73%	-5.73%	82.4
5/3/11 12:03 PM	1768	1993	2075	5881	44	69	5835	5994	-159	-2.73%	-2.73%	82.3

5/3/11 12:04 PM	1795	1985	2048	5874	44	70	5827	5988	-160	-2.75%	-2.75%	82.3
5/3/11 12:05 PM	1776	1978	2044	6028	45	69	5798	6142	-344	-5.94%	-5.94%	82.6
5/3/11 12:06 PM	1817	1979	2081	5906	44	70	5877	6020	-143	-2.43%	-2.43%	82.4
5/3/11 12:07 PM	1802	1999	2069	5947	45	69	5870	6061	-191	-3.25%	-3.25%	82.4
5/3/11 12:08 PM	1805	1981	2032	6010	42	69	5818	6121	-304	-5.22%	-5.22%	82.7
5/3/11 12:09 PM	1795	1977	2067	5780	43	72	5839	5896	-57	-0.98%	-0.98%	82.5
5/3/11 12:10 PM	1758	2002	2045	6031	43	70	5804	6144	-340	-5.86%	-5.86%	82.6
5/3/11 12:11 PM	1807	1980	2032	6200	43	70	5818	6313	-494	-8.50%	-8.50%	82.7
5/3/11 12:12 PM	1829	1999	2027	6004	44	69	5856	6117	-262	-4.47%	-4.47%	82.3
5/3/11 12:13 PM	1809	2006	2057	6053	43	69	5872	6165	-294	-5.00%	-5.00%	82.3
5/3/11 12:14 PM	1797	1970	2055	5996	43	70	5823	6109	-287	-4.92%	-4.92%	82.3
5/3/11 12:15 PM	1760	1999	2079	6060	44	70	5838	6174	-336	-5.76%	-5.76%	82.4
5/3/11 12:16 PM	1770	1979	2057	5953	44	69	5806	6066	-259	-4.47%	-4.47%	82.4
5/3/11 12:17 PM	1803	1982	2101	5867	43	71	5885	5981	-96	-1.63%	-1.63%	83.0
5/3/11 12:18 PM	1751	1978	2069	6102	43	71	5798	6215	-418	-7.20%	-7.20%	82.3
5/3/11 12:19 PM	1818	1980	2061	5845	44	69	5860	5958	-98	-1.67%	-1.67%	82.5
5/3/11 12:20 PM	1829	1965	2086	5910	44	70	5879	6025	-145	-2.47%	-2.47%	82.5
5/3/11 12:21 PM	1781	1952	2068	5719	43	70	5800	5832	-32	-0.56%	-0.56%	82.5
5/3/11 12:22 PM	1779	1967	2051	6089	44	70	5797	6203	-406	-7.00%	-7.00%	82.5
5/3/11 12:23 PM	1777	1979	2045	6111	43	69	5801	6223	-423	-7.29%	-7.29%	82.5
5/3/11 12:24 PM	1773	1977	2063	5998	45	70	5813	6113	-299	-5.15%	-5.15%	81.9
5/3/11 12:25 PM	1770	1979	2069	6203	45	70	5818	6318	-500	-8.60%	-8.60%	82.6
5/3/11 12:26 PM	1824	1955	2050	6061	43	71	5829	6175	-346	-5.93%	-5.93%	82.5
5/3/11 12:27 PM	1749	1998	2057	6053	44	70	5803	6167	-364	-6.28%	-6.28%	82.2
5/3/11 12:28 PM	1798	1965	2078	5889	44	69	5841	6002	-161	-2.75%	-2.75%	82.7
5/3/11 12:29 PM	1797	1970	2045	5811	43	69	5812	5924	-112	-1.93%	-1.93%	82.3
5/3/11 12:30 PM	1765	1979	2075	6019	43	69	5819	6131	-313	-5.37%	-5.37%	82.1
5/3/11 12:31 PM	1784	1988	2041	6131	44	70	5813	6245	-432	-7.43%	-7.43%	82.6
5/3/11 12:32 PM	1776	1989	2075	6076	45	68	5840	6189	-349	-5.98%	-5.98%	82.6
5/3/11 12:33 PM	1784	1985	2090	5934	44	70	5859	6048	-189	-3.22%	-3.22%	82.5
5/3/11 12:34 PM	1788	1991	2072	5966	43	71	5851	6080	-228	-3.90%	-3.90%	82.5
5/3/11 12:35 PM	1801	2000	2070	6045	43	71	5871	6159	-288	-4.90%	-4.90%	82.5
5/3/11 12:36 PM	1771	1996	2035	5859	44	70	5802	5974	-172	-2.97%	-2.97%	82.1
5/3/11 12:37 PM	1786	1966	2054	6125	43	69	5806	6237	-432	-7.43%	-7.43%	82.6
5/3/11 12:38 PM	1782	1973	2096	5932	43	70	5851	6045	-195	-3.32%	-3.32%	82.6
5/3/11 12:39 PM	1787	1960	2050	5778	44	71	5798	5892	-94	-1.63%	-1.63%	82.1
5/3/11 12:40 PM	1745	1986	2063	5874	43	71	5794	5989	-194	-3.35%	-3.35%	81.9
5/3/11 12:41 PM	1794		2064	5820	46	68						82.3
5/3/11 12:42 PM	1769	1988	2076	5838	49	69	5833	5956	-123	-2.10%	-2.10%	82.2
5/3/11 12:43 PM	1750	1987	2091	6060	46	69	5828	6175	-346	-5.94%	-5.94%	82.5
5/3/11 12:44 PM	1772	1971	2079	5939	48	70	5821	6057	-235	-4.04%	-4.04%	82.6
5/3/11 12:45 PM	1764	1991	2051	6181	46	68	5806	6296	-489	-8.43%	-8.43%	82.5
5/3/11 12:46 PM	1786	1992	2048	6074	48	70	5825	6191	-366	-6.29%	-6.29%	82.3
5/3/11 12:47 PM	1760	1983	2041	6083	48	68	5784	6198	-415	-7.17%	-7.17%	82.4
5/3/11 12:48 PM	1778	1994	2062	5910	47	68	5835	6025	-190	-3.26%	-3.26%	82.3
5/3/11 12:49 PM	1770	1964	2051	5833	46	68	5784	5948	-164	-2.83%	-2.83%	82.3
5/3/11 12:50 PM	1783	1994	2066	5847	46	69	5843	5962	-119	-2.03%	-2.03%	82.5
5/3/11 12:51 PM	1758	1966	2060	5774	48	69	5784	5890	-106	-1.83%	-1.83%	82.4
5/3/11 12:52 PM	1784	1932	2053	6068	47	70	5769	6184	-415	-7.20%	-7.20%	82.5
5/3/11 12:53 PM	1786	1994	2057	6075	45	68	5837	6189	-352	-6.02%	-6.02%	82.3
5/3/11 12:54 PM	1747	1993	2035	5917	46	69	5774	6032	-257	-4.46%	-4.46%	82.4
5/3/11 12:55 PM	1765	1985	2048	6086	47	68	5798	6201	-403	-6.95%	-6.95%	82.4
5/3/11 12:56 PM	1787	1957	2011	5838	47	69	5755	5953	-198	-3.44%	-3.44%	82.3
5/3/11 12:57 PM	1780	2008	2014	5822	47	68	5802	5936	-134	-2.31%	-2.31%	82.4
5/3/11 12:58 PM	1769	1978	2069	6091	48	68	5816	6208	-392	-6.74%	-6.74%	82.3
5/3/11 12:59 PM	1784	1994	2069	6042	47	68	5847	6157	-310	-5.29%	-5.29%	82.5
5/3/11 1:00 PM	1776	1975	2063	5839	47	68	5814	5955	-140	-2.41%	-2.41%	82.4
5/3/11 1:01 PM	1803	1968	2063	5931	46	70	5833	6047	-214	-3.67%	-3.67%	82.5
5/3/11 1:02 PM	1798	1996	2081	5821	48	69	5875	5938	-63	-1.08%	-1.08%	82.5
5/3/11 1:03 PM	1784	1961	2063	5989	47	69	5808	6105	-298	-5.13%	-5.13%	82.0
5/3/11 1:04 PM	1791	1966	2066	6137	46	67	5823	6251	-428	-7.36%	-7.36%	82.3
5/3/11 1:05 PM	1802	1974	2049	5937	47	68	5825	6052	-227	-3.89%	-3.89%	82.3
5/3/11 1:06 PM	1783	1923	2048	5912	47	71	5755	6030	-275	-4.78%	-4.78%	82.3

5/3/11 1:07 PM	1733	1962	2041	5961	46	69	5736	6076	-340	-5.92%	-5.92%	82.7
5/3/11 1:08 PM	1773	1932	2039	5997	46	68	5743	6111	-368	-6.40%	-6.40%	82.4
5/3/11 1:09 PM	1765	1989	2069	6137	47	68	5823	6252	-429	-7.36%	-7.36%	82.2
Average							4655.1	4535.6	119.5	2.28%	-4.38%	

11:00-1:09



Appendix D

Return Flow Measurement Data

Station Number:

Meas. No: 1

Station Name: Pahsimeroi Hatchery Outflow

Date: 05/03/2011

Party: MC/CR

Boat/Motor: StreamPro 404

Gage Height: 0.00 ft

Width: 30.2 ft

Area: 71.5 ft²

G.H.Change: 0.000 ft

Processed by: MC

Mean Velocity: 0.152 ft/s

Discharge: 10.9 ft³/s

Area Method: Avg. Course

Nav. Method: Bottom Track

MagVar Method: None (0.0°)

Depth Sounder: Not Used

ADCP Depth: 0.089 ft

Shore Ens.:10

Bottom Est: Power (0.0100)

Top Est: Power (0.0100)

Index Vel.: 0.00 ft/s

Adj.Mean Vel: 0.00 ft/s

Rated Area: 0.000 ft²

Control1: Unspecified

Control2: Unspecified

Control3: Unspecified

Rating No.: 1

Qm Rating: P

Diff.: 0.000%

Screening Thresholds:

BT 3-Beam Solution: YES

WT 3-Beam Solution: NO

BT Error Vel.: 32.81 ft/s

WT Error Vel.: 32.81 ft/s

BT Up Vel.: 32.81 ft/s

WT Up Vel.: 32.81 ft/s

Use Weighted Mean Depth: YES

Max. Vel.: 12.0 ft/s

Max. Depth: 2.57 ft

Mean Depth: 2.37 ft

% Meas.: 56.60

Water Temp.: 49.6 °F

ADCP Temp.: 49.5 °F

ADCP:

Type/Freq.: Rio Grande/600 kHz

Serial #: Firmware: 0.00

Bin Size: 4 cm Blank: 3 cm

BT Mode: 0 BT Pings: 0

WT Mode: 12 WT Pings: 6

WV : 0 WO : 1, 4

Performed Diag. Test: NO

Performed Moving Bed Test: NO

Performed Compass Test: NO

Meas. Location: In concrete flume of hatchery outflow.

Project Name: pahhatch-5-3-11000r.mmt

Software: 2.07

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	1	1	79	1.62	6.64	2.08	0.530	0.530	11.4	31	75	09:26	09:27	0.34	0.15	3	7
001	R	1	1	81	1.80	5.23	2.51	0.494	0.247	10.3	30	73	09:27	09:29	0.33	0.14	2	0
002	L	1	1	77	1.98	7.45	2.72	0.530	0.177	12.9	30	72	09:29	09:31	0.34	0.18	3	6
003	R	1	1	89	1.84	6.96	2.33	-0.247	0.953	11.9	30	73	09:31	09:33	0.29	0.16	2	9
004	L	1	1	80	1.06	3.92	1.38	0.494	-0.283	6.57	30	71	09:33	09:35	0.33	0.09	3	7
005	R	1	1	93	2.05	7.73	2.72	0.494	0.636	13.6	30	72	09:35	09:37	0.28	0.19	2	8
006	L	1	1	96	1.38	5.16	1.91	0.600	0.424	9.46	30	71	09:37	09:39	0.28	0.13	2	8
007	R	1	1	75	1.52	5.72	1.91	0.530	0.424	10.1	30	70	09:39	09:41	0.34	0.14	3	7
008	L	1	1	82	1.66	5.23	1.17	0.600	0.459	9.08	30	71	09:41	09:43	0.33	0.13	2	7
009	R	1	1	85	1.48	5.51	1.94	0.459	0.565	9.96	30	70	09:43	09:45	0.31	0.14	2	10
010	L	1	1	83	1.77	6.64	2.37	0.177	0.247	11.2	30	71	09:46	09:48	0.32	0.16	2	7
011	R	1	1	90	2.05	7.52	2.79	0.494	0.953	13.8	30	70	09:48	09:50	0.30	0.20	2	8
Mean		1	1	84	1.68	6.14	2.15	0.430	0.444	10.9	30	72	Total	00:24	0.32	0.15	2	7
SDev		0	0	7	0.294	1.19	0.522	0.239	0.338	2.07	0.2	1.5			0.02	0.03		
SD/M		0.00	0.00	0.08	0.17	0.19	0.24	0.56	0.76	0.19	0.01	0.02			0.08	0.19		

Remarks:

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Discharge Measurement Summary

Date Generated: Mon May 9 2011

File Information

File Name PAHFISH.wad
Start Date and Time 2011/05/03 10:02:12

Site Details

Site Name
Operator(s) CR

System Information

Sensor Type FlowTracker
Serial # P195
CPU Firmware Version 3.7
Software Ver 2.20

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	0.0%
Velocity	0.3%	0.7%
Width	0.1%	0.1%
Method	0.6%	-
# Stations	1.7%	-
Overall	2.1%	1.2%

Summary

Averaging Int.	40	# Stations	30
Start Edge	LEW	Total Width	30.000
Mean SNR	6.3 dB	Total Area	38.996
Mean Temp	49.90 °F	Mean Depth	1.300
Disch. Equation	Mid-Section	Mean Velocity	0.2781
		Total Discharge	10.8432

Discharge Measurement Summary

Date Generated: Mon May 9 2011

File Information

File Name PAHFISH.wad
Start Date and Time 2011/05/03 10:02:12

Site Details

Site Name
Operator(s) CR

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:02	1.50	None	1.300	0.0	0.0	0.0000	0.90	0.2453	0.325	0.0797	0.7
1	10:03	2.00	0.2/0.6/0.8	1.300	0.2	1.040	0.2592	1.00	0.2726	1.300	0.3543	3.3
1	10:04	2.00	0.2/0.6/0.8	1.300	0.6	0.520	0.2818					
1	10:02	2.00	0.2/0.6/0.8	1.300	0.8	0.260	0.2674					
2	10:08	3.50	0.8/0.6/0.2	1.300	0.2	1.040	0.2779	1.00	0.2838	1.950	0.5533	5.1
2	10:07	3.50	0.8/0.6/0.2	1.300	0.6	0.520	0.2851					
2	10:06	3.50	0.8/0.6/0.2	1.300	0.8	0.260	0.2871					
3	10:09	5.00	0.2/0.6/0.8	1.300	0.2	1.040	0.2700	1.00	0.2740	1.625	0.4451	4.1
3	10:10	5.00	0.2/0.6/0.8	1.300	0.6	0.520	0.2726					
3	10:12	5.00	0.2/0.6/0.8	1.300	0.8	0.260	0.2805					
4	10:15	6.00	0.8/0.6/0.2	1.300	0.2	1.040	0.2982	1.00	0.2819	1.300	0.3664	3.4
4	10:14	6.00	0.8/0.6/0.2	1.300	0.6	0.520	0.2759					
4	10:13	6.00	0.8/0.6/0.2	1.300	0.8	0.260	0.2776					
5	10:16	7.00	0.2/0.6/0.8	1.300	0.2	1.040	0.2920	1.00	0.2847	1.300	0.3701	3.4
5	10:17	7.00	0.2/0.6/0.8	1.300	0.6	0.520	0.2808					
5	10:18	7.00	0.2/0.6/0.8	1.300	0.8	0.260	0.2851					
6	10:21	8.00	0.8/0.6/0.2	1.300	0.2	1.040	0.2877	1.00	0.3089	1.300	0.4015	3.7
6	10:20	8.00	0.8/0.6/0.2	1.300	0.6	0.520	0.3222					
6	10:19	8.00	0.8/0.6/0.2	1.300	0.8	0.260	0.3035					
7	10:22	9.00	0.2/0.6/0.8	1.300	0.2	1.040	0.2881	1.00	0.2912	1.300	0.3785	3.5
7	10:23	9.00	0.2/0.6/0.8	1.300	0.6	0.520	0.2999					
7	10:24	9.00	0.2/0.6/0.8	1.300	0.8	0.260	0.2769					
8	10:26	10.00	0.8/0.2	1.300	0.2	1.040	0.2943	1.00	0.2874	1.300	0.3736	3.4
8	10:25	10.00	0.8/0.2	1.300	0.8	0.260	0.2805					
9	10:27	11.00	0.2/0.8	1.300	0.2	1.040	0.2743	1.00	0.2851	1.300	0.3706	3.4
9	10:28	11.00	0.2/0.8	1.300	0.8	0.260	0.2959					
10	10:30	12.00	0.8/0.2	1.300	0.2	1.040	0.2986	1.00	0.2869	1.300	0.3729	3.4
10	10:29	12.00	0.8/0.2	1.300	0.8	0.260	0.2753					
11	10:31	13.00	0.2/0.8	1.300	0.2	1.040	0.3120	1.00	0.2992	1.300	0.3889	3.6
11	10:32	13.00	0.2/0.8	1.300	0.8	0.260	0.2864					
12	10:34	14.00	0.8/0.2	1.300	0.2	1.040	0.2972	1.00	0.2936	1.300	0.3817	3.5
12	10:33	14.00	0.8/0.2	1.300	0.8	0.260	0.2900					
13	10:35	15.00	0.2/0.8	1.300	0.2	1.040	0.2890	1.00	0.2971	1.300	0.3862	3.6
13	10:36	15.00	0.2/0.8	1.300	0.8	0.260	0.3051					
14	10:38	16.00	0.8/0.2	1.300	0.2	1.040	0.2943	1.00	0.3015	1.300	0.3919	3.6
14	10:37	16.00	0.8/0.2	1.300	0.8	0.260	0.3087					
15	10:39	17.00	0.2/0.8	1.300	0.2	1.040	0.2963	1.00	0.2895	1.300	0.3764	3.5
15	10:40	17.00	0.2/0.8	1.300	0.8	0.260	0.2828					
16	10:42	18.00	0.8/0.2	1.300	0.2	1.040	0.2917	1.00	0.2833	1.300	0.3683	3.4
16	10:41	18.00	0.8/0.2	1.300	0.8	0.260	0.2749					
17	10:44	19.00	0.2/0.8	1.300	0.2	1.040	0.2103	1.00	0.2408	1.300	0.3130	2.9
17	10:45	19.00	0.2/0.8	1.300	0.8	0.260	0.2713					
18	10:47	20.00	0.2/0.6/0.8	1.300	0.2	1.040	0.2818	1.00	0.2851	1.300	0.3706	3.4
18	10:48	20.00	0.2/0.6/0.8	1.300	0.6	0.520	0.2746					
18	10:46	20.00	0.2/0.6/0.8	1.300	0.8	0.260	0.3094					
19	10:52	21.00	0.8/0.2	1.300	0.2	1.040	0.2772	1.00	0.2835	1.300	0.3685	3.4
19	10:51	21.00	0.8/0.2	1.300	0.8	0.260	0.2897					
20	10:53	22.00	0.2/0.8	1.300	0.2	1.040	0.2667	1.00	0.2758	1.300	0.3584	3.3
20	10:54	22.00	0.2/0.8	1.300	0.8	0.260	0.2848					
21	10:57	23.00	0.8/0.2	1.300	0.2	1.040	0.2664	1.00	0.2721	1.300	0.3538	3.3
21	10:55	23.00	0.8/0.2	1.300	0.8	0.260	0.2779					
22	10:58	24.00	0.2/0.8	1.300	0.2	1.040	0.2411	1.00	0.2505	1.300	0.3256	3.0
22	10:59	24.00	0.2/0.8	1.300	0.8	0.260	0.2598					
23	11:01	25.00	0.8/0.2	1.300	0.2	1.040	0.2844	1.00	0.2715	1.300	0.3529	3.3
23	11:00	25.00	0.8/0.2	1.300	0.8	0.260	0.2585					
24	11:02	26.00	0.2/0.8	1.300	0.2	1.040	0.2854	1.00	0.2822	1.300	0.3668	3.4
24	11:03	26.00	0.2/0.8	1.300	0.8	0.260	0.2789					
25	11:05	27.00	0.8/0.2	1.300	0.2	1.040	0.2598	1.00	0.2653	1.625	0.4310	4.0
25	11:04	27.00	0.8/0.2	1.300	0.8	0.260	0.2707					
26	11:06	28.50	0.2/0.8	1.300	0.2	1.040	0.2684	1.00	0.2548	1.950	0.4967	4.6
26	11:06	28.50	0.2/0.8	1.300	0.8	0.260	0.2411					
27	11:09	30.00	0.8/0.2	1.300	0.2	1.040	0.2644	1.00	0.2590	1.625	0.4209	3.9
27	11:07	30.00	0.8/0.2	1.300	0.8	0.260	0.2536					
28	11:09	31.00	0.2/0.8	1.300	0.2	1.040	0.2572	1.00	0.2569	0.975	0.2504	2.3
28	11:10	31.00	0.2/0.8	1.300	0.8	0.260	0.2566					
29	11:10	31.50	None	1.300	0.0	0.0	0.0000	0.90	0.2312	0.325	0.0751	0.7

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

Discharge Measurement Summary

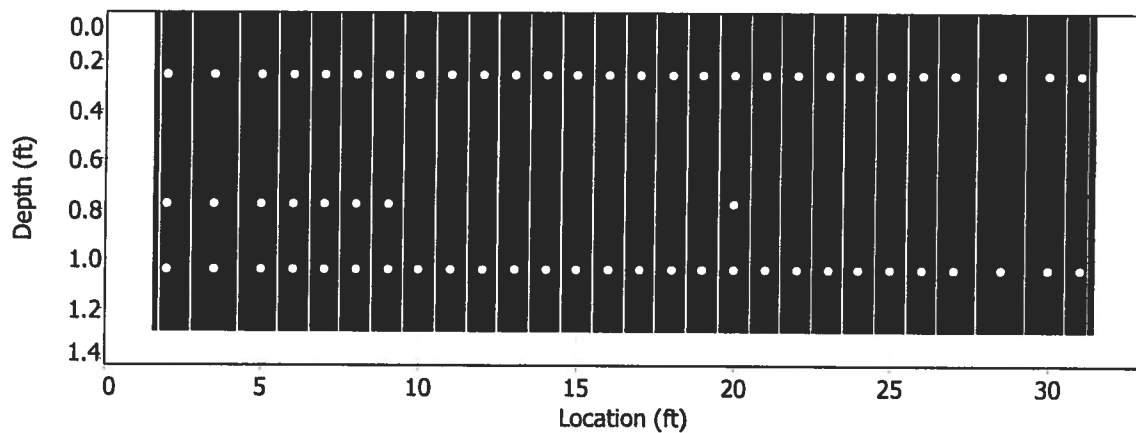
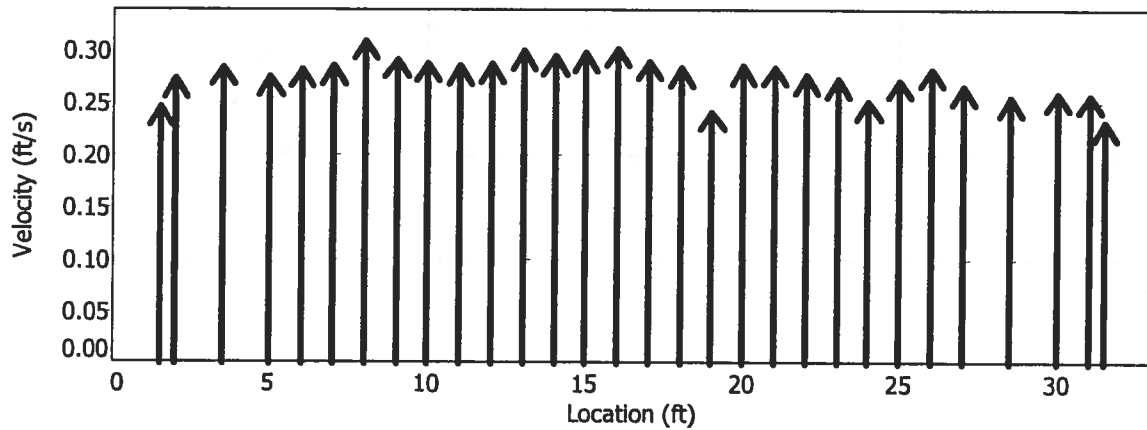
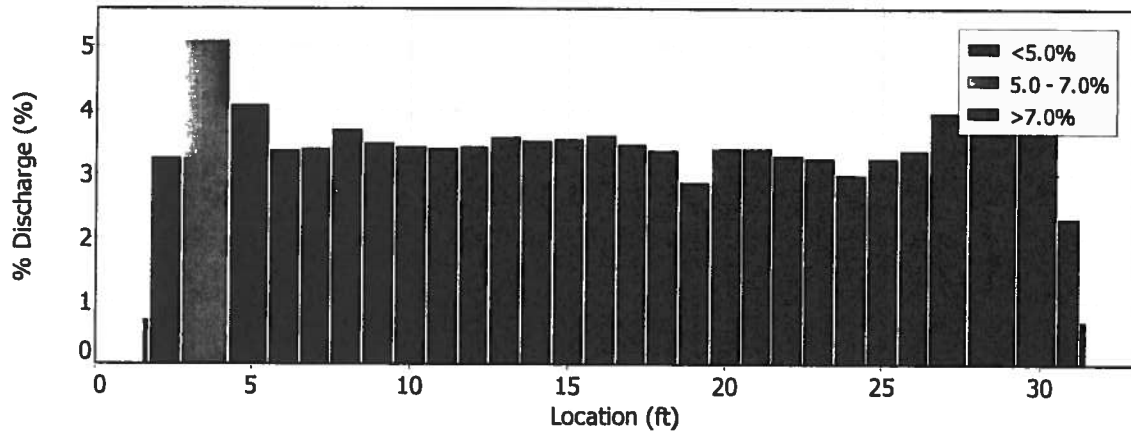
Date Generated: Mon May 9 2011

File Information

File Name PAHFISH.wad
Start Date and Time 2011/05/03 10:02:12

Site Details

Site Name
Operator(s) CR



Appendix E
Well Driller's Log

Permit issued in Boise
IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Inspected by _____			
Twp _____	Rge _____	Sec _____	
_____ 1/4	_____ 1/4	_____ 1/4	
Lat: _____	Long: _____		
☐ Air ☐ Flowing Artesian			

1. WELL TAG NO. D 0020142
DRILLING PERMIT NO. 768908
Other IDWR No. W 11 LD # 340901
2. OWNER: Idaho Power
 Name po box 70
 Address Boise ID 83707
 City _____ State _____ Zip _____

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N S	Twp. <u>15</u>	North ☒ or South ☐
	Rge. <u>21</u>	East ☒ or West ☐
	Sec. <u>21</u>	N/E 1/4 N/E 1/4 N/W 1/4
	Gov't Lot _____	County <u>Lemhi</u>
Lat: _____		Long: _____

Address of Well Site Pahs Imeroi Fish Hatchery-N bank of river off Dayton Ln
 (Give at least name of road + Distance to Road or Landmark)

Ellis, Idaho
 Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☐ Air Rotary ☒ Cable ☒ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK	AMOUNT		METHOD
Material	From	To	
grout	0	32	15 sk poured
grout	32	140	20 sk pumped

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 140
 Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
16	+6"	31'6"	250	steel	☒	☐	☒	☐
12	+4'	140	375	steel	☒	☐	☒	☐

Length of Headpipe 3' Length of Tailpipe 0

9. PERFORATIONS/SCREENS

Perforations _____ Method _____
 Screens Johnson Screen Type V-wire

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
129	148	0		10	stnls	☐	☒
148	248	40		10	stnls	☐	☒

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

_____ ft. below ground Artesian pressure 12 1/2 lb.
 Depth flow encountered 140 ft. Describe access port or control devices: valve cap

11. WELL TESTS:

Yield gal./min.	Drawdown	Pumping Level	Time
1200	11'	7'	8 hrs

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
18	0	4	fill dirt & gravel		X
	4	12	silty soil & gravel	X	
16	12	25	clean pea gravel	X	
12	25	50	pea gravel, getting cemented	X	
	50	105	cemented gravel, clay streaks	X	
	105	138	cemented gravel		X
	138	447	gravel	X	
	447	457	hard clay		X
	457	464	gravel	X	
	464	470	drills like rock, very hard		X
	470	504	gravel	X	
backfilled from 504 to 264 with bentonite grout, 264 to 248 with cement					

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Department of Water Resources

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JUL 13 2001

Department of Water Resources
Eastern Region

Completed _____ Depth 248 (Measurable)
 Date: Started 5/13/01 Completed 6/20/01

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153

Firm Official Ron Stevens Date 7/5/01

and _____
 Driller or Operator _____

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

Office Use Only

Well ID No. _____

Inspected by _____

Twp _____ Rge _____ Sec _____

_____ 1/4 _____ 1/4 _____ 1/4

Lat: : : Long: : :

1. WELL TAG NO. D 0020562
 DRILLING PERMIT NO. 824990
 Water Right or Injection Well No. 73-11961

2. OWNER:

Name Idaho Power Co
Address PO Box 70
City Boise State ID Zip 83707

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 15 North ☒ or South ☐
Rge. 21 East ☐ or West ☐
Sec. 21 ☒ 1/4 ☐ 1/4 ☐ 1/4 ☐ 1/4
Gov't Lot _____
Lat: 44 : 37 : 21N Long: 113 59 10W Lemhi
Address of Well Site _____

~~1/2 mile W of Dowton Rd~~ City ~~May, ID~~

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply

☒ New Well ☐ Modify ☐ Abandonment ☐ Other

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
ben-tonite chips	0	6	20 cu	poured
ben-tonite grout	6	75	4 1/2 yd	pumped
Was drive shoe used?	☒ Y	☐ N	Shoe Depth(s)	120" 6"
Was drive shoe seal tested?	☐ Y	☒ N	How?	

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20	+4'3"	120'6"	375	steel	☐	☐	☐	☐
12	113	123	375	steel	☒	☐	☒	☐
					☒	☐	☒	☐

Length of Headpipe 20' Length of Tailpipe _____
Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method

Screen Type & Method of installation Johnson Window

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
113	214	60	12	304	stnls	☐	☒ XX
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
3/8 gravel	128	155	2½ yd	poured

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

+6' ft.-below ground Artesian pressure 21.8 lb.
Depth flow encountered 132 ft. Describe access port or control devices:

~~8" valve with 20" flange cap on top of well~~

12. WELL TESTS:

☐ Pump ☐ Sailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
1600	92.9	93	24 hr

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments:

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Depth first Water Encounter

[illegible]

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153

Principal Driller [Signature] Date 12/24/04

Driller or Operator II _____ Date _____

Operator | _____ Date | _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

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**Upper Pahsimeroi Fish Hatchery 20-Inch Well #1
Constant-Rate Pumping Test 12/8/04-12/9/04**

14-inch line shaft turbine pump with right-angle diesel drive
103' bloc pump setting depth
measuring point is top of casing; 4.3 feet above ground surface
10"x12" orifice

Time	Elapsed Time (minutes)	Pumping Well Depth to Water (feet)	Draw- down (feet)	Artesian Flow or Pumping Rate (gpm)	Domestic Well Depth to Water (feet)	Test Well Depth to Water (feet)	Remarks
7:50				25			well flowing at 2 gal/5 sec shut in domestic (10 gpm+/-); mp 4.15' above top of casing
7:56					2.77		
7:57						2.07	shut in test well
8:00							Static
8:05		0.10	0.00	25			
8:06	0			1000+/-			
8:08	2						increasing rate; adjusting
8:14	8	88.40	88.30				
8:16	10	91.45	91.35				
8:17	11	91.71	91.61	1800 +/-			1550 plus leaks
8:19	13	91.63	91.53	1800 +/-			
8:20	14	91.80	91.70	1800 +/-			1530 plus leaks
8:22	16			1800 +/-			9.5" (1530 gpm), clear; trace sand
8:24	18	91.95	91.85	1800 +/-			
8:27	21	91.92	91.82	1800 +/-			
8:30	24	92.25	92.15	1800 +/-			
8:34	28			1800 +/-	4.3		9.5"
8:35	29	92.20	92.10	1800 +/-			
8:37	31			1800 +/-		3.78	T=10.5C, SC=283uS
8:44	38	92.30	92.20	1800 +/-			
8:50	44	92.25	92.15	1800 +/-			
8:52	46			1800 +/-			9.5"; clear
9:01	55	92.25	92.15	1800 +/-			
9:12	66			1800 +/-	4.6		
9:14	68			1800 +/-		4.05	
9:17	71			1800 +/-			9.5"; trace sand; clear
9:27	81	92.52	92.42	1800 +/-			
9:38	92	92.50	92.40	1800 +/-			
9:42	96			1800 +/-			T=10.5C, SC=280uS, 9.5"
9:47	101			1800 +/-	4.71		
9:49	103			1800 +/-		4.18	
9:51	105	92.52	92.42	1800 +/-			
10:14	128	92.50	92.40	1800 +/-			
10:56	170	92.88	92.78	1800 +/-			
12:15	249	92.77	92.67	1800 +/-			
14:12	368	92.75	92.65	1800 +/-			
8:03	1437	93.00	92.90	1800 +/-			

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DEC 30 2004

Department of Water Resources
Eastern Region

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

825005

Office Use Only
Well ID No. 395644
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: : : Long: : :

1. WELL TAG NO. D 0020567
DRILLING PERMIT NO. 825005
Water Right or Injection Well No. 73-11961

2. OWNER:

Name Idaho Power
Address PO Box 70
City Boise State ID Zip 83707

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 15 North ☒ or South ☐
Rge. 21 East ☒ or West ☐
Sec. 21 S 1/4 N 1/4 N 1/4
Gov't Lot _____
County Lemhi Long: _____

Address of Well Site 1/2 mile west of Dowton Rd

(Give at least name of road + Distance to Road or Location) City May, ID

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other fish propagation

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☐ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
bentonite chip	0	4	10 bgs	poured
bentonite grout	4	35	20 bgs	pumped

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____

Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
20	+4'3"	139'3"	.375	steel	☒ XX	☐	☐	☐
12	130	145	.375	steel	☐	☒ XX	☐	☐

Length of Headpipe 15 Length of Tailpipe 0

Packer ☐ Y ☒ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation Johnson 304 y wire

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
145	195	40		12	stnls	☐	☒ XX

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
1/2 minus gravel	141	155	1 yd	poured

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

+5 ft. below ground Artesian pressure _____ lb.

Depth flow encountered 145 ft. Describe access port or control devices: _____

8" valve

12. WELL TESTS:

☒ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
590	7.8'	4'5"	30 min
1770	74.8'	70'1"	7 hrs

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
24	0	1	topsoil		X
	1	11	clay & gravel		X
	11	27	muddy gravel	X	
	27	45	cemented gravel	X	
	45	50	gravel	X	
	50	55	cemented gravel	X	
	55	65	sand & gravel	X	
	65	133	sand & gravel/clay streaks	X	
	133	134	silty clay		X
	134	139	tan clay/gravel		X
	139	149	tan clay		X
	149	195	gravel cemented	X	

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JUN 14 2005

WATER RESOURCES
WESTERN REGION

Completed Depth 195' (Measurable)

Date: Started 5/2/05 Completed 6/1/05

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153

Principal Driller _____ Date 6/12/05

Driller or Operator II _____

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

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