Quality Assurance Plan

May 20, 2010

NPDES Permit Number IDG-13-0004

Effective: January 1, 2010 – November 30, 2012

Hagerman National Fish Hatchery
U.S. Fish and Wildlife Service
3059-D National Fish Hatchery Road
Hagerman, ID 88832

Phone: (208) 837-4896
Fax: (208) 837- 6225

Project Manager Signature: _____

Name (printed): Bryan Kenworthy
Position: Supervisory Fish Biologist and Project Leader

QA Manager Signature: _____

Name (printed): Nate Wiese
Position: Supervisory Fish Biologist, Assistant Project Leader

EPA Approval Signature: _____

Name (printed) /Title/Date: _____

A. Project Management

A2. Table of Contents

Contents

A. Project Management 2
A2. Table of Contents 2
A3. Distribution List 3
A4. Project/Task Organization 4
A5. Problem definition and background 6
A6. Project/Task Description 10
A7. Quality objectives and criteria 12
A8. Special training/certifications 13
A9. Documentation and records 13
B. Data Generation and Acquisition 14
Parameter 1: Flow discharging directly to receiving water 14
Parameter 2: Flow passing through off-line settling basin (OLSB) 19
Parameter 3: Total settleable solids (TSS) discharging directly to receiving water 21
Parameter 4: Total suspended solids passing through OLSB 24
Parameter 5: Total phosphorus discharging directly into receiving water 27
Parameter 6: Total phosphorus passing through OLSB 29
Parameter 7: Total ammonia as N passing through OLSB 31
Parameter 8: Temperature and pH passing through OLSB 33
Parameter 9: Total ammonia as N receiving water upstream from outfall 35
Parameter 10: Temperature and pH receiving water upstream from outfall 37
C. Assessment and Oversight 39
C1. Assessments and response actions 39
C2. Reports to management 39
D. Data Validation and Usability 40
D1. Data review, verification, and validation 40
D2. Verification and validation of methods 40
D3. Reconciliation with user requirements 40
Appendix 42

A3. Distribution List

Table 1. Individuals who are to receive a copy of the QA Project Plan.

Name	Title/Affiliation	Role
Rich Johnson	Fisheries Supervisor, USFWS Portland, OR	Informational
Julie Collins	Field Support Manager, USFWS Portland, OR	Informational
Don Campton	Science Support Advisor Portland, OR	Informational
Bryan Kenworthy	Project Leader, USFWS Hagerman NFH, Hagerman, ID	QA Project Officer
Nate Wiese	Assistant Project Leader, USFWS Hagerman NFH, Hagerman, ID	QA Project Manager
Jeremy Trimpey	Fish Biologist, USFWS Hagerman NFH, Hagerman, ID	Carry out QA Project Plan
Brian Clifford	Motor Vehicle Operator, USFWS Hagerman NFH, Hagerman, ID	Carry out QA Project Plan
Eric Willet	Motor Vehicle Operator, USFWS Hagerman NFH, Hagerman, ID	Carry out QA Project Plan
Adam Leija	Animal Caretaker, USFWS Hagerman NFH, Hagerman, ID	Carry out QA Project Plan
Andy Eiman	Temporary Animal Caretaker, USFWS Hagerman NFH, Hagerman, ID	Carry out QA Project Plan

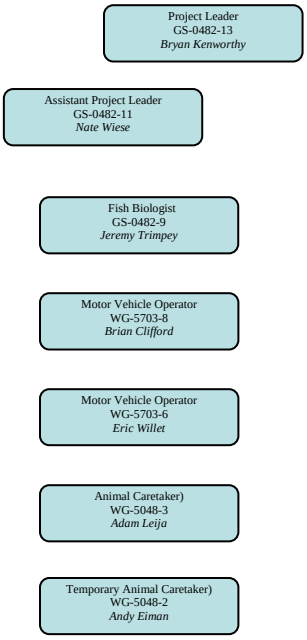
A4. Project/Task Organization

1. Project staff and responsibilities

Table 2. USFWS personnel responsible for implementation of the QA Plan.

Personnel	Position	Contact Information	QA Plan Responsibilities
Bryan Kenworthy	Project Leader	bryan_kenworthy@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	QA Project Officer, Chief Supervisor
Nate Wiese	Assistant Project Leader	nate_wiese@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	QA Project Manager • Direct supervision to crew • Alternate for collecting water quality samples • Alternate for preparing DMRs
Jeremy Trimpey	Fish Biologist	jeremy_trimpey@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	• Prepares monthly DMRs, • Collects water quality samples, • Implements BMP's on daily basis
Brian Clifford	Motor Vehicle Operator	brian_clifford@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	• Implements BMP's on daily basis • Alternate for collecting water quality samples • Alternate for preparing DMRs
Eric Willet	Motor Vehicle Operator	eric_willet@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	• Implements BMP's on daily basis • Alternate for collecting water quality samples • Alternate for preparing DMR
Adam Leija	Animal Caretaker	adam_leija@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	• Implements BMP's on daily basis • Alternate for collecting water quality samples • Alternate for preparing DMR
Andy Eiman	Animal Caretaker	andy_eiman@fws.gov TEL: 208-837-4896 FAX: 208-837-6225	• Implements BMP's on daily basis • Alternate for collecting water quality samples • Alternate for preparing DMR

Figure 1. Organization chart for USFWS personnel responsible for implementation of the QA Plan.



2. Contractors

Table 3. Contractors directly involved with implementation of the QA Plan.

Contractor	Address	Responsibilities
Rangen Aquaculture Research Center	2928 South 1175 East Hagerman, ID 88832	• Estimate Total Suspended Solids, Total Phosphorus, and Total Ammonia as N
Pacific Equipment	301 South Kings Road Nampa, ID 83651	• Vendor for Sigma Flow Meter for Flow measurement through Off-Line Settling Basin

A5. Problem definition and background

1. Description of current facility and infrastructure

The Hagerman National Fish Hatchery (Hatchery) is located along the Snake River, about 30 miles west of Twin Falls, Idaho at a point three miles south and two miles east of Hagerman, Idaho.

Relevant facilities which comprise the Hagerman NFH are:

1 Intake structure on the Brailsford Ditch
1 Pump Back Structure
1 Pollution Abatement Pond
1 New Hatchery Building (40 start tanks)
1 Old Hatchery Building (20 start tanks)
66 - 10' x 103' Raceways
12 - 8' x 70' Raceways
1 Display Pond

The water supply for the Hatchery emanates from the Eastern Snake Plain Aquifer (Aquifer) through a complex of springs diverted for Hatchery operations. Under the administration of the Idaho Department of Water Resources, the U.S. Fish and Wildlife Service has surface water rights for 109.74 cubic feet per second (cfs) flow for fish propagation, irrigation, domestic use and stock water. However, this is not a cumulative total due to the fact that there are multiple rights to several spring diversions with different priority dates, seasons of use, and for different types and places of use or, in the case of Spring 16 (Len Lewis Spring), subordinate to a senior user during the irrigation season (February 15 to November 30). Moreover, not all water sources can be diverted to all outside rearing units. Spring 17 is only plumbed to the Trout Raceways; Riley Creek and Bickel springs are only plumbed to the Steelhead Raceways. The priority dates for the Hatchery's water rights range from 1889 to 2002, the majority of which are in the early 1930's to 1950. Assuming all the Springs were flowing at the full water right, of the total, 84.59 cfs could be diverted for fish production at the Hatchery; another 4.6 cfs could be diverted to operations at the Hagerman Fish Culture Experiment Station (HFCES). The Fish and Wildlife Service provides water to the HFCES under a Memorandum of Understanding with the University of Idaho.

Effluent water from raceways is normally discharged directly to Riley Creek or pumped to the Hagerman Wildlife Management Area, but the cleaning water from each raceway is diverted into the settling pond prior to release into Riley Creek.

2. History of facility and programs

The Hatchery was authorized by 46 Sta. 371 on May 31, 1930 and was established in 1931. Construction of physical facilities commenced in 1932 and the first trout eggs were received for incubation in 1933. Expansion and modernization has occurred on several occasions, most notably in 1951, 1982, 2001, and 2006. The storage barn is the only remaining building from the 1932 construction. Remaining structures from the 1951 construction include four residences, office, garage-shop, and oil-paint storage buildings. The 1983 expansion added Hatchery Building II, Administration Building, Water Service Building, Brailsford Intake, and raceways 1-12, and 37-102. A new Hatchery I building was constructed in 2001 replacing the old Hatchery I building which was demolished in 2006. Also in 2006, a set of 24 old 8 X 80 concrete raceways (13 -36) were demolished and a new building was constructed to house the water chiller which is used during fish distribution. Other projects included several pipe line replacements, improvements to water diversions, and completion of the Riley Creek Pump-back system.

Principal production from 1933 to 1979 was rainbow trout for stocking in Idaho, eastern Oregon and northern Nevada. Lahontan cutthroat trout were also reared for release into Pyramid Lake, Nevada.

A major change in the production occurred in 1979 with phased-out elimination of the resident rainbow trout program in favor of anadromous species. The Hatchery became a steelhead mitigation project under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP). The 1983 construction, costing $6.5 million, was funded by the Corps of Engineers as part of the Lower Snake project. Current steelhead production is 1.4 million steelhead smolts at 4 to 5 fish per pound. The hatchery also raises 140,000 resident rainbow trout as part of the Dworshak Reservoir Program.

3. Regulatory information and legal mandates for programs

Legal authorization of the Hagerman NFH falls under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) which was authorized by the Water Resources Development Act of 1976, Public Law 94-587 and U.S. vs. Oregon tribal treaty agreements.

4. Summer steelhead program

Program Goals: The primary goal of the summer steelhead program is mitigation (commercial, tribal, and sport) for fish habitat lost due to the construction of Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Dams on the lower Snake River. The secondary goal of the program is conservation of ESA listed summer steelhead in the East Fork of the Salmon River.

Program Summary: The current production goal is 1.46 million juvenile summer steelhead to the Salmon River at Sawtooth Fish Hatchery, Yankee Fork Acclimation Ponds, and East Fork trap site at a size of 4.5 fish per pound (average total weight of 340,000 pounds annually). Production goals are set annually by the Salmon River Annual Operating Plan. The Hatchery receives eyed eggs annually from Sawtooth Fish Hatchery in order to fulfill this production goal. Broodstock is collected using a fish trap and adult holding pond at Sawtooth Fish Hatchery. Spawned out carcasses are donated to tribal members, the general public, and food banks.

5. Rainbow trout program

Program Goals: The primary goal of the rainbow trout program is mitigation for fish habitat lost due to the construction of Dworshak Dam.

Program Summary: The current production goal is to release 90,000 juvenile and 40,000 catchable rainbow trout to reservoirs in southern Idaho annually as an in-kind exchange with the Idaho Department of Fish and Game (IDFG). IDFG releases trout in Dworshak Reservoir and the Hatchery releases trout in southern Idaho in exchange. Juvenile trout are released at a size of 17 fish per pound (average total weight of 5,000 pounds annually). Catchable rainbow trout are released at a size of 2.9 fish per pound (average total weight 19,000 pounds). Eggs for the program are received from Hayspur State Fish Hatchery. Broodstock is maintained by Hayspur State Fish Hatchery and mortalities are disposed of according to their standard operating procedures.

6. Fish production and feed use

Table 4. Pounds (lbs.) of fish produced and pounds of feed used at Hagerman NFH, 2005-2009.

Fiscal Year	Total no. of lbs. of fish produced	Total no. of lbs. of feed used	Max. no. of lbs. of feed/month	Maximum feed month
2005	335,439	331,201	68,219	March
2006	310,261	321,606	66,867	March
2007	358,177	365,011	61,304	April
2008	353,937	381,323	87,229	March
2009	340,864	357,298	72,413	March

Fiscal Years are from October 1 to September 30th. Data taken from Hatchery Production Summaries, 2004-2008.

8. Chemicals used

Table 5. Chemicals used at Hagerman NFH, 2004-2009. See page 38 and Appendix G of General Permit for maintaining records of use.

Chemical	Purpose	Frequency of use[1]	Date last used
Argyntyne	Disinfectant, eggs	occasionally	6/17/08
Bleach	Disinfectant, tools and equipment	occasionally	3/15/08
Cond Calibration Sol	Calibrate meters	occasionally	12/15/08
Electrode Clean Sol	Clean meters	occasionally	11/13/08
Formalin	Parasite control, juvenile fish	rarely	7/2/07
Iodine	Disinfectant, eggs and equipment	rarely	6/17/06
K-cide	Disinfectant, footbath and equipment	occasionally	8/14/08
MS 222	Fish Anesthetic	occasionally	11/19/09
Nesslers Solution	Fish Health	rarely	3/12/09
pH Calibration Sol	Calibrate meters	occasionally	1/8/08
Rochelle Salt	Fish Health	rarely	3/12/09
Starch Indicator	Fish Health	rarely	3/12/09
Sodium Thiosulfate	Neutralize disinfectants	occasionally	9/2/08
Vidalife	Water Conditioner	rarely	8/18/09

[1]Daily, weekly, monthly, occasionally, or rarely.

9. Therapeutants and drugs used

Table 6. Therapeutants used at Hagerman NFH, 2004-2009. See page 38 and Appendix G of General Permit for maintaining records of use.

Therapeutant/drug	Purpose	Frequency of Use[1]	Date last used
Florfenicol – med feed	Treatment of cold water disease	rarely	11/6/09
Sulfadimethoxine – med feed	Treatment of furunculosis	rarely	12/31/09
Ormetoprim – med feed	Treatment of furunculosis	rarely	12/31/09

[1]Daily, weekly, monthly, occasionally, or rarely.

10. Monitoring needs.

Hagerman NFH rears more than 20,000 pounds of fish per calendar year and/or feeds more than 5,000 pounds of feed in one or more calendar months. As a result, Hagerman NFH is required to have a site-specific NPDES discharge permit for effluent discharged into public waters of the state of Idaho, in accordance with General Permit No. IDG-13-0004. The required water quality monitoring program is summarized in section A6 below.

A6. Project/Task Description

1. Water quality parameters to be monitored

Table 7. Water quality parameters to be monitored at Hagerman NFH.

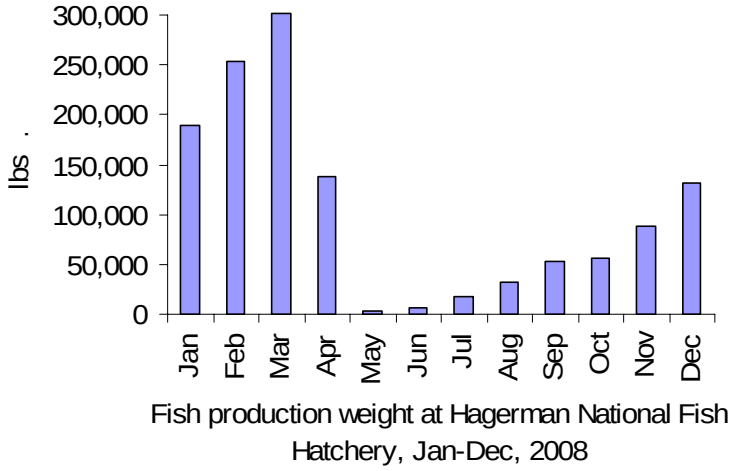
Parameter	Required? (Y or N)	Measured Units	Sample Type	Sample Frequency	Water Source of samples
Raceways					
1. Flow	Yes	cfs	Approved Method	Monthly	Effluent
2. Total suspended solids	Yes	lbs/day mg/L	Composite	Quarterly	Influent and Effluent
3. Total phosphorus	Yes	lbs/day mg/L	Composite	Quarterly	Influent and Effluent
4. Temperature	Yes	°Celsius	Grab	Quarterly	Influent and Effluent
OLSB					
1. Flow	Yes	cfs	Approved Method	Monthly	Effluent
2. Total suspended solids	Yes	lbs/day mg/L % Removal	Composite	Quarterly	Influent and Effluent
3. Total phosphorus	Yes	lbs/day mg/L	Composite	Quarterly	Influent and Effluent
4. Temperature	Yes	°Celsius	Grab	Quarterly	Influent and Effluent
5. pH	Yes	s.u.	Grab	Quarterly	Effluent
6. Total ammonia as N	Yes	mg/L	Composite	Quarterly	Effluent
Receiving Waters					
1. Temperature	Yes	°Celsius	Grab	Quarterly	Riley Creek
2. pH	Yes	s.u.	Grab	Quarterly	Riley Creek
3. Total ammonia as N	Yes	mg/L	Grab	Quarterly	Riley Creek

2. Water monitoring schedule

Flow to the raceways is monitored monthly from total spring discharge diverted to fish rearing units. Flow from the OLSB is measured from insert-style flow sensors/meters. Total suspended solids, total phosphorus, total ammonia as N, temperature, pH, and receiving water conditions are monitored quarterly. These parameters are monitored quarterly because facilities that produce between 100,000 and 500,000 pounds annually are required to report once per calendar quarter as stated on page 31(footnote 16) of the permit. If any chelated copper or copper sulfate compounds are used, total recoverable copper and hardness will also be measured. All water quality parameters will be measured during normal hatchery raceway cleaning practices.

Sampling will occur in March (first quarter), April (second quarter), September (third quarter), and December (fourth quarter). These months represent the greatest anticipated fish (steelhead and trout) production during their respective quarters. DMR sampling generally occurs on raceway cleaning days to correlate with the highest expected

phosphorus discharge from the facility. Additional monitoring may be conducted on alternate days depending on variations in the feeding/cleaning schedules.



3. Water monitoring locations

Appendix A illustrates all water sampling and flow measurement locations as described below:

Sample Site 1: Steelhead Influent located where mixing chamber empties into headbox.
Sample Site 2: Steelhead Effluent located in tailbox in front of blue pumps.
Sample Site 3: Display Pond Influent located at head end of raceway.
Sample Site 4: Display Pond Effluent located at tail end of raceway.
Sample Site 5: Trout Influent located where spring 17 discharges into head box.
Sample Site 6: Trout Effluent located in tailbox prior to discharge into Riley Creek.
Sample Site 7: Hatch I Influent located in Hatch I at first hose bib.
Sample Site 8: Hatch I Effluent located in manhole in Admin Building back lawn.
Sample Site 9: OLSB Influent located at head end of cell 2.
Sample Site 10: OLSB Effluent located in tailbox at discharge site into Riley Creek.
Sample Site 11: Receiving Water Site located at electric weir.

4. Resource and time constraints

N/A

A7. Quality objectives and criteria

1. Seasonal effluent limitations.

Table 8. Seasonal Effluent Limitations from Table 3 from the Permit

Facility Name	Season	Limitations (lbs/day)			
		Net TSS		Net Total Phosphorus	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Hagerman Natl. (USFWS)	Jan. – Apr.	2068.2	3929.5	17.8	26.3
	May – Aug.	697.4	1325.1	6.0	8.9
	Sep. – Dec.	1487.0	2825.3	12.8	18.9

2. Off-line settling basin effluent limitations.

Table 9. Off-Line Settling Basin Effluent Limitations from Table 11 from the Permit

Parameter	Average Monthly	Maximum Daily
Total Suspended Solids	67 mg/L*	100 mg/L* & ≥90% Removal

* Limit is *Net*: OLSB effluent – facility influent

3. Required sensitivity detection limits

Table 10. Method Detection Limits from Table 15 from the Permit

Parameter	Method Detection Limit (MDL)
Total Phosphorus	0.005 mg/l
Total Suspended Solids	2 mg/l
Ammonia Nitrogen as N	0.01 mg/l
Nitrate	0.1 mg/l
Nitrite	0.01 mg/l
Total Kjeldahl Nitrogen (TKN)	0.03 mg/l
pH	0.1 S.U.
Temperature	0.1°C
Copper	3µg/l
Hardness	10 mg/l

4. Bias, precision, completeness, representativeness, comparability, and sensitivity of measurements

See Section B (Data Generation and Acquisition) for discussion of specific methods for each measured parameter.

A8. Special training/certifications

Personnel training for water sample collection and data recording (e.g., water flow measurements) are conducted on the job as needed. The Assistant Project Leader is responsible for certifying that this training is obtained. All analytical chemical analyses are performed by a certified water quality laboratory via contract with the USFWS (Table 3).

A9. Documentation and records

Water flow measurements, and any other pertinent information, are recorded in a Rite in the Rain notebook which is kept in the EPA file drawer. Hard copies of lab test results, discharge monitoring reports, and water sampling spreadsheets are kept in the EPA file drawer located in the biologist/motor vehicle operator office. Electronic copies are maintained on the Biologist's computer.

The Assistant Project Leader is responsible for ensuring that the collection of all water flow data and water samples at Hagerman NFH comply with the required criteria of the NPDES permit. The Assistant Project Leader is also responsible for ensuring that all hatchery personnel involved with implementation of the QA Plan have access to a copy of the Plan.

B. Data Generation and Acquisition

Parameter 1: Flow discharging directly to receiving water

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:**
   a. Steelhead Raceways

Steelhead Raceway (SST) flow (cfs) is calculated by adding the flows passing through the Main Spring Flume (M) and over the Bickle (B) and Riley (R) broad-crested weirs and subtracting flows passing through the Hatchery 1 flume (H1), gravity fed to the Bickle Ditch (BD), through the Display Pond flume (DP), and diverted from Main Spring to the Rainbow Trout Raceways (MR).

SST Flow = (M + B + R) – (H1 + BD + DP + MR)\

Individual site descriptions:

Main Spring (M) - Location No. 3, Site No. 423003

At location No. 3 there is a 4 foot concrete Parshall Flume approximately 25 feet north of the domestic water service building and above the screen chamber. A staff gauge is located in the stilling well beside the Parshall Flume. The rating table for location No. 3 is attached in Appendix A. The rating formula is:

$$Q = 4W(Ha^{(1.522)})(W^{(0.026)})$$

Bickle Lake (B) – Location No. 11, Site No. 423011

At location No. 11 there is a 15 foot Cipoletti weir located at the screen chamber and outlet of Bickle Lake. A staff gauge is located above the weir. The rating table for location No. 11 is attached in Appendix B. The rating formula is:

$$Q = 3.367LH^{(3/2)}$$

Riley Lake (R) – Location No. 8, Site No. 423008

At location No. 8 there is a 7 foot Cipoletti weir located at the screen chamber and outlet of Riley Lake. A staff gauge is located above the weir. The rating table for location No. 8 is attached in Appendix C. The rating formula is:

$$Q = 3.367LH^{(3/2)}$$

Hatchery 1 (H1) – Location No. 6, Site No. 423006

At location No. 6 there is a 9” fiberglass Parshall Flume located in a metering manhole approximately fifty feet from the west corner of the Hatchery 1 Building. A staff gauge is located on the side of the Parshall Flume. The rating table for location No. 6 is attached in Appendix D. The rating formula is:

$$Q = 3.07H^{(1.53)}$$

Bickle Ditch (BD) – Location No. 12, Site No. 423012

At location No. 12 there is a 15 foot Cipoletti weir on the Bickel Ditch located approximately 370 yards downstream from the Hatchery entrance sign. The ditch is either supplied by gravity feed water from Main Spring or from a pump system on the bottom deck of Steelhead raceways. Location No. 12 is only used for Steelhead raceway flow calculations when it is supplied with gravity feed water from Main Spring. A staff gauge is located above the weir. The rating table for location No. 12 is attached in Appendix B. The rating formula is:

$$Q = 3.367LH^{(3/2)}$$

Display Pond (DP) – Location No. 5, Site No. 423005

At location No. 5 there is a 2 foot concrete Parshall Flume located approximately 50 feet upstream of the Display Pond. Water is maintained to the Display Pond from overflow from the Main Spring diversion. A staff gauge is located on the side of the Parshall Flume and a rating table is provided in Appendix E.

$$Q = 4W(Ha^{(1.522)})(W^{(0.026)})$$

Main Spring to Rainbow Trout Raceways (MR)

Water can be diverted to the Rainbow Trout Raceways via a 20” supply line from the 24” supply line to Bickle Ditch and Hatchery 1 from Main Spring. The amount of water flowing through the 20” supply line is calculated by measuring the staff gauge height at

Location No. 5 as water is diverted to the Rainbow Trout Raceways. After the gauge height has stabilized, a difference in water volumes is calculated and this process is repeated until the desired water volume is attained.

b. Rainbow Trout Raceways

Flow (cfs) in the Rainbow Trout Raceways is automatically calculated using Spring 17 (S17) measurements and an estimate of water diverted from Main Spring to the Rainbow Trout Raceways (MR).

RBT Flow = S17 + MR

Spring 17 (S17) – Location No. 17, Site No. 423017

At location No. 17 there is an in line ultrasonic meter with permanent ports for wetted transducers located approximately 200 feet from the location No. 17 collection box. Measurements are taken with a Panametrics Transport Model PT868 in-line ultrasonic meter.

Main Spring to Rainbow Trout Raceways (MR)

Water can be diverted to the Rainbow Trout Raceways via a 20" supply line from the 24" supply line to Bickle Ditch and Hatchery 1 from Main Spring. The amount of water flowing through the 20" supply line is calculated by measuring the staff gauge height at Location No. 5 as water is diverted to the Rainbow Trout Raceways. After the gauge height has stabilized, a difference in water volumes is calculated and this process is repeated until the desired water volume is attained.

c. Hatchery 1 (H1) – Location No. 6, Site No. 423006

At location No. 6 there is a 9" fiberglass Parshall Flume located in a metering manhole approximately fifty feet from the west corner of the Hatchery 1Building. A staff gauge is located on the side of the Parshall Flume. The rating table for location No. 6 is attached in Appendix D. The rating formula is:

$$Q = 3.07H^{(1.53)}$$

d. Display Pond (DP) – Location No. 5, Site No. 423005

At location No. 5 there is a 2 foot concrete Parshall Flume located approximately 50 feet upstream of the Display Pond. A staff gauge is located on the side of the Parshall Flume and a rating table is provided in Appendix E.

$$Q = 4W(Ha^{(1.522)})(W^{(0.026)})$$

3. **Sample type:** Composite
4. **Sampling frequency:** Monthly. Spring discharged is measured weekly.
5. **Number of samples:** One measurement at each location per spring that is used for fish production.
6. **Sample representation:** The measured quantities estimate the mean volume of water discharged (cubic feet per second) directly to Riley Creek.
7. **Sources of variability:** Incorrectly reading staff gauges, incorrectly converting staff gauge readings to cfs, and/or a non-functioning meter can result in inaccurate flow estimation, although this has been uncommon.

B2. Sampling methods

Flow readings are recorded in the blue water readings books and entered into the water spreadsheet. Steelhead (SST), Display Pond (DP), Rainbow Trout (RBT), and Hatchery 1 (H1) flows are entered into the Discharge Monitoring Report spreadsheet. This spreadsheet also calculates the proportion of each sample to mix a 5000 ml aliquot for water quality samples of raceway influent and effluents by the following:

Total Flow (TF) = SST + DP + RBT + H1

SST proportion = (SST/TF)*5000 ml

DP proportion = (DP/TF)*5000 ml

RBT proportion = (RBT/TF)*5000 ml

H1 proportion = (H1/TF)*5000 ml

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Not applicable.
2. **Sample Chain-of-Custody procedure:** Not applicable.
3. **Sample shipment procedure:** Not applicable.

B4. Analytical methods

1. **Data collecting procedure:** Staff gauges in springs or permanent inline water flow meters.
2. **Person/laboratory responsible for collecting data:** Hagerman National Fish Hatchery Staff.

B5. Quality control

Any unusual readings should be easily recognized during weekly water readings.

B6. Instrument / Equipment: testing, inspection, and maintenance

All maintenance will be carried out by the manufacturer, which is performed on an "as needed" basis.

B7. Instrument / Equipment: calibration and frequency

Calibration procedures are described in the flow meter manual.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded on electronic forms provided by EPA and filed as paper copies on site with originals mailed to EPA monthly.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Assistant Project Leader, Hagerman NFH

Parameter 2: Flow passing through off-line settling basin (OLSB)

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 10. See facility map in Appendix A.
3. **Sample type:** Meter**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** One sample consisting of two readings (one reading at the beginning and one reading at the end of a 24 hour period).
6. **Sample representation:** Total flow passing through the OLSB during a 24 hour period during normal cleaning operations.
7. **Sources of variability:** Malfunctioning meter.

B2. Sampling methods

(Use the Rite in the Rain notebook). Flow is measured with a Sigma Model 950 Flow meter. Record the flow meter reading (cumulative gallons x 100), and the date and time. Record the cumulative volume again at the end of a 24 hour period in the previously mentioned Rite in the Rain notebook. Enter this data into the DMR computer spreadsheet. The spreadsheet determines daily flow (gallons per day) by subtracting the starting volume from the ending volume.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Not applicable.
2. **Sample Chain-of-Custody procedure:** Not applicable.
3. **Sample shipment procedure:** Not applicable.

B4. Analytical methods

1. **Data collecting procedure:** Date, time, and flow are recorded at both ends of a 24 hour period and readings are entered into DMR computer spreadsheet.
2. **Person/laboratory responsible for collecting data:** Hagerman National Fish Hatchery Staff.

B5. Quality control

Any unusual readings should easily be recognized during sampling periods.

B6. Instrument / Equipment: testing, inspection, and maintenance

All maintenance will be carried out by the manufacturer. This is done on an as needed basis.

B7. Instrument / Equipment: calibration and frequency

Calibration procedures are described in the instrument manual and can be completed on site.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Pacific Equipment (Table 3); Assistant Project Leader, Hagerman NFH

Parameter 3: Total suspended solids (TSS) discharging directly to receiving water

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Sites 1 – 8. See facility map in Appendix A.
3. **Sample type:** Composite**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Must consist of four or more discrete samples taken at one-half hour intervals or greater over a 24-hour period.
6. **Sample representation:** Mean suspended solids (mg/L) generated by the hatchery during normal cleaning practices.
7. **Sources of variability:** Sampling error.

B2. Sampling methods

The following describes how to collect samples for determination of raceway influent TSS. These procedures are followed for collection of samples for determination of raceway effluent TSS, the only difference being the sampling locations. These procedures assume that all raceways are in use.

Flow is determined as outlined in Parameter 1 for each set of raceways (trout raceways and steelhead raceways) and the display pond. Flow proportions are calculated by methods specified in Parameter 1 B2.

Four grab samples are taken throughout the day at each location. Each sample is taken at least a half hour apart from each other. Each sample is gathered with a long handled sampling can and a bucket (there is a separate bucket for each sampling location). The can is first rinsed thoroughly (3x) with the water to be sampled. Then one full can of sample water is poured into the bucket, rinsed, and repeated two more times. Then one full can of sample water from the rinsed can is poured into the rinsed sample bucket. For additional grab samples, the sample can is rinsed thoroughly (3x), but not the sample bucket that already contains the previous grab samples. The samples are cooled to and maintained at 4 degrees Celsius throughout the day using a cooler with ice surrounding the sample bucket. Throughout the sampling day, samples from the display pond and from Hatchery Building 1 are kept in the maintenance office refrigerator that is maintained at 4 degrees Celsius.

Each sample is segregated until the flow proportion of the final solution for delivery to the lab.

To flow proportion the composite samples: First determine the percentage of the total flow from each of the locations. Apply each percentage to a volume sufficient to cover all needed samples. For example, 5-liters of composited sample water should be enough to get 1-liter samples for TSS and TP. Say the steelhead raceways have 75% of the total

flow passing through them. 75% of 5 liters is 3.75-liters. First, rinse the bucket labeled *Raceway Influent Mixing Bucket*, three times with sample water. Then, place 3.75-liters of steelhead raceway influent water in the *Raceway Influent Mixing Bucket*. Determine the correct volumes for each of the other two locations and place representative samples from these locations into this mixing bucket. Swirl the mixing bucket gently, and then rinse a single 1-liter sample bottle with the sample three times. Finally, measure one liter of the sample into the rinsed 1-liter sample bottle.

Do not discard the remaining solution, as it will be used for testing of other water quality parameters.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the Rangen Aquaculture Research Center. Samples are delivered to the lab at the end of the sampling day.
2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:
   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, TSS Method 160.2. This has a Method Detection Limit, or MDL, of 1.0 ppm.
2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center
   2928 South 1175 East
   Hagerman, ID 83332
   TEL: 208-837-6192
   FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Not applicable.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 4: Total suspended solids passing through OLSB

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 9 and 10. See facility map in Appendix A.
3. **Sample type:** Composite**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Must consist of four or more discrete samples taken at one-half hour intervals or greater over a 24-hour period.
6. **Sample representation:** Total suspended solids passing through OLSB.
7. **Sources of variability:** ISCO malfunction.

B2. Sampling methods

Influent sampling**:** OLSB influent is sampled with a plastic hand pump, as this water can only be accessed through a pipe of relatively small diameter. This sampling occurs during rearing unit cleaning.

Place the pump intake hose in the access pipe. Rinse pump and sample bucket with sample water. Next, pump twenty-two compressions into a sample bucket.

Maintain the sample water at 4^0 C throughout the day using a cooler with ice surrounding the sample.

After the fourth sample has been added to the container, swirl gently and fill a labeled 1-liter sample bottle. Do not discard remaining solution, as it will be used for testing of other parameters.

Effluent sampling**:** OLSB effluent is sampled using an ISCO Model 1580 waste water sampling device. Samples are taken every 15 minutes. This device should be on for the duration of other grab samples. Specific operation and maintenance instructions can be found in the factory-supplied instruction manual, on file in the EPA file drawer in the hatchery lab / office.

Place the ISCO near the flow meter station at the downstream end of the OLSB and rinse sample hose three times. Allow it to sample throughout the day in the tailrace of the OLSB. At the end of the sampling period, bring the ISCO to the office. Swirl the water in the ISCO carboy and rinse a 1-liter sample bottle three times with the sample water. Then fill the 1-liter sample bottle with 1 liter of the sample. Do not discard remaining solution, as it will be used for testing of other parameters.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the RARC. Chilling is accomplished with the placement of ice around the ISCO carboy at the start of the day. Influent sample water is kept in a water cooler on ice. Samples are delivered to the RARC at the end of the sampling day.
2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:
   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, TSS Method 160.2. This has an MDL of 2.0 ppm. Blank or spiked samples will be sent to the laboratory at random times.
2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center
   2928 South 1175 East
   Hagerman, ID 83332
   TEL: 208-837-6192
   FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Routine maintenance is described in the ISCO instruction manual. The ISCO water sampler will be sent back to the manufacturer for repairs.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 5: Total phosphorus discharging directly into receiving water

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 1 - 8. See facility map in Appendix A.
3. **Sample type:** Composite**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Must consist of four or more discrete samples taken at one-half hour intervals or greater over a 24-hour period.
6. **Sample representation:** Total phosphorus discharged directly into receiving water.
7. **Sources of variability:** Sampling error.

B2. Sampling methods

The total phosphorus discharge into receiving water is sampled from the remaining sample water that was collected for determination of total suspended solids discharging directly to receiving water. See instructions in Parameter 3 for direction on sample collection and flow proportioning. A single 1-liter sample will be hand delivered to the RARC for determination of all of the above parameters.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the RARC. Samples are not held on site. Samples are delivered to the RARC at the end of the sampling day. Samples are kept on ice throughout the sampling day. Sulfuric acid preservative is not used and is noted on the bottle labels (for total phosphorus samples, and for total ammonia, nitrate - nitrite, and total Kjeldahl nitrogen samples) and on the Chain of Custody form.
2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:
   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, Total Phosphorus Method 365.2. This has a MDL of 0.005 ppm. Blank or spiked samples will be sent to the laboratory at random times.

2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center
   2928 South 1175 East
   Hagerman, ID 83332
   TEL: 208-837-6192
   FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Not applicable.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 6: Total phosphorus passing through OLSB

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 9 - 10. See facility map in Appendix A.
3. **Sample type:** Composite**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Must consist of four or more discrete samples taken at one-half hour intervals or greater over a 24-hour period.
6. **Sample representation:** Total phosphorus passing through OLSB.
7. **Sources of variability:** Sampling error.

B2. Sampling methods

The total phosphorus discharge passing through the OLSB is sampled from the remaining sample water that was collected for determination of total suspended solids passing through the OLSB. See Parameter 4 instructions for direction on sample collection**.**

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the RARC. Samples are not held on site. Samples are delivered to the RARC at the end of the sampling day. Samples are kept on ice throughout the sampling day. Sulfuric acid preservative is not used and is noted on the bottle labels (for total phosphorus samples, and for total ammonia, nitrate - nitrite, and total Kjeldahl nitrogen samples) and on the Chain of Custody form.
2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:
   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, Total Phosphorus Method 365.2. This has a MDL of 0.005 ppm. Blank or spiked samples will be sent to the laboratory at random times.

2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center

2928 South 1175 East
Hagerman, ID 83332
TEL: 208-837-6192
FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Not applicable.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 7: Total ammonia as N passing through OLSB

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 10. See facility map in Appendix A.
3. **Sample type:** Composite**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Four or more grab samples taken at one-half hour intervals or greater over a 24-hour period.
6. **Sample representation:** Total ammonia as N passing through OLSB.
7. **Sources of variability:** Sampling error.

B2. Sampling methods

Four grab samples are taken throughout the day in the OLSB effluent channel. Samples are taken at least a half hour apart from each other. Each sample is gathered with a long handled sampling can and a bucket (there is a separate bucket for each sampling location). The can is first rinsed thoroughly (3x) with the water to be sampled. Then one full can of sample water is poured into the bucket, rinsed, and repeated two more times. Then one full can of sample water from the rinsed can is poured into the rinsed sample bucket. For additional grab samples, the sample can is rinsed thoroughly (3x), but not the sample bucket that already contains the previous grab samples. The samples are cooled to and maintained at 4 degrees Celsius throughout the day using a cooler with ice surrounding the sample bucket.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the RARC. Samples are not held on site. Samples are delivered to the RARC at the end of the sampling day. Samples are kept on ice throughout the sampling day. Sulfuric acid preservative is not used and is noted on the bottle labels (for total phosphorus samples, and for total ammonia, nitrate - nitrite, and total Kjeldahl nitrogen samples) and on the Chain of Custody form.
2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:

   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, Total Ammonia Method 350.3. This has a MDL of 0.01 ppm. Blank or spiked samples will be sent to the laboratory at random times.

2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center
   2928 South 1175 East
   Hagerman, ID 83332
   TEL: 208-837-6192
   FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Not applicable.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 8: Temperature and pH passing through OLSB

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 10. See facility map in Appendix A.
3. **Sample type:** Meter**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** Four or more grab samples taken at one-half hour intervals or greater over a 24-hour period in conjunction with the grab samples taken for the composite ammonia samples.
6. **Sample representation:** Temperature and pH passing through OLSB.
7. **Sources of variability:** Meter error.

B2. Sampling methods

This will be a grab sample using the Hanna Instruments Model 98127 handheld pH and temperature meter. The sample will be taken in conjunction with the total ammonia as N passing through OLSB sample before the sample is added to the composite bucket.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Not applicable.
2. **Sample Chain-of-Custody procedure:** Not applicable.
3. **Sample shipment procedure:** Not applicable.

B4. Analytical methods

1. **Data collecting procedure:** The operations manual for the Hanna Instruments Model 98127 handheld pH and temperature meter reports that this meter should be accurate to within +/- 0.5°C and +/- 0.1pH.

2. **Person/laboratory responsible for collecting data:** Hagerman National Fish Hatchery Staff.

B5. Quality control

The meter will test blanks sent by EPA approved lab.

B6. Instrument / Equipment: testing, inspection, and maintenance

Storage and cleaning solution will be kept with the meter. If the electrode is changed it will be recorded by date and logged which is kept with the meter.

B7. Instrument / Equipment: calibration and frequency

Meter will be calibrated before use.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Assistant Project Leader, Hagerman NFH

Parameter 9: Total ammonia as N receiving water upstream from outfall

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 11. See facility map in Appendix A.
3. **Sample type:** Grab**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** One during the same time that effluent composite samples are being taken.
6. **Sample representation:** Total ammonia as N receiving water upstream from outfall.
7. **Sources of variability:** Sampling error.

B2. Sampling methods

A sample will be collected with 1-liter sampling bottle.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Samples are kept in a refrigerated state until delivery to the RARC. Samples are not held on site. Samples are delivered to the RARC at the end of the sampling day. Samples are kept on ice throughout the sampling day. Sulfuric acid preservative is not used and is noted on the bottle labels (for total phosphorus samples, and for total ammonia, nitrate - nitrite, and total Kjeldahl nitrogen samples) and on the Chain of Custody form.

2. **Sample Chain-of-Custody procedure:** One sample chain of custody form is attached to this Quality Assurance Plan. Sample bottles are clearly labeled with the following information:
   Hagerman National Fish Hatchery
   Date of sample collection
   Location of sample collection (for example, raceway effluent)
   Analysis to be done (for example, total suspended solids)
3. **Sample shipment procedure:** Samples are placed in a cooler with ice and delivered to Rangen Aquaculture Research Center by Hatchery staff.

B4. Analytical methods

1. **Data collecting procedure:** The RARC uses Methods for Chemical Analysis of Water and Waste, U.S. EPA, 1983, Total Ammonia Method 350.3. This has a MDL of 0.01 ppm. Blank or spiked samples will be sent to the laboratory at random times.

2. **Person/laboratory responsible for collecting data:**
   Rangen Aquaculture Research Center

2928 South 1175 East
Hagerman, ID 83332
TEL: 208-837-6192
FAX: 208-837-4565

B5. Quality control

Certified laboratory. Duplicate samples will occasionally be delivered to the lab for quality assurance purposes.

B6. Instrument / Equipment: testing, inspection, and maintenance

Not applicable.

B7. Instrument / Equipment: calibration and frequency

Not applicable.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly. Copies of all results from Rangen Aquaculture Research Center are also mailed to EPA and copies kept on site.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Rangen Aquaculture Research Center; Assistant Project Leader, Hagerman NFH

Parameter 10: Temperature and pH receiving water upstream from outfall

B1. Sampling process design

1. **Receiving water:** Riley Creek.
2. **Sample locations:** Site 11. See facility map in Appendix A.
3. **Sample type:** Meter**.**
4. **Sampling frequency:** Quarterly.
5. **Number of samples:** One during the same time that effluent composite samples are being taken.
6. **Sample representation:** Temperature and pH of receiving water upstream from outfall.
7. **Sources of variability:** Meter error.

B2. Sampling methods

Grab sample using the Hanna Instruments Model 98127 handheld pH and temperature meter. The sample is taken in conjunction with the total ammonia as N from receiving water upstream from outfall.

B3. Sample handling and chain of custody

1. **Sample preservation and holding methods:** Not applicable.
2. **Sample Chain-of-Custody procedure:** Not applicable.
3. **Sample shipment procedure:** Not applicable.

B4. Analytical methods

1. **Data collecting procedure:** The operations manual for the Hanna Instruments Model 98127 handheld pH and temperature meter reports that this meter should be accurate to within +/- 0.5°C and +/- 0.1pH.

2. **Person/laboratory responsible for collecting data:** Hagerman National Fish Hatchery Staff.

B5. Quality control

The meter will test blanks sent by EPA approved lab.

B6. Instrument / Equipment: testing, inspection, and maintenance

Storage and cleaning solution will be kept with the meter. If the electrode is changed it will be recorded by date and logged which is kept with the meter.

B7. Instrument / Equipment: calibration and frequency

Meter will be calibrated before use.

B8. Inspection / Acceptance of supplies and consumables

Not applicable.

B9. Non-direct measurements

Not applicable.

B10. Data management

1. **Data storage methods:** Data is recorded in Rite in the Rain notebook and transcribed into the DMR spreadsheet on the biologist's computer. Paper copies are kept on site with copies mailed to EPA and IDEQ monthly.
2. **Person/laboratory/office responsible for data storage:** Fish Biologist, Hagerman NFH
3. **Person/laboratory/office responsible for data analysis:** Assistant Project Leader, Hagerman NFH

C. Assessment and Oversight

C1. Assessments and response actions

1. **Frequency and type of assessments of water quality data:** Data will be reviewed monthly to assess compliance and any potential corrective actions that may need to be implemented at the facility.
2. **Individuals responsible for assessments:** Hatchery Project Leader and/or Assistant Project Leader (Table 2).

Procedures to be followed if NPDES permit maxima are exceeded: The Hatchery Project Leader and/or Assistant Project Leader will report the following occurrences of noncompliance by telephone to the EPA (206-553-1846) as soon as possible, but no later than 24 hours from the time hatchery personnel become aware of the circumstance (for noncompliance that endangers listed Snake River snail species, a permittee also must report within 24 hours to the U.S. Fish and Wildlife Service at 208-378-5243):

a. Any unanticipated bypass that exceeds an effluent limitation in the Permit;
b. Any upset that exceeds an effluent limitation in the permit;

Unless EPA waives the requirement over the phone, a written report must also be submitted within 5 days after the permittee becomes aware of the circumstances. The written submission must contain:

a. Description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. If the noncompliance has not been corrected, the anticipated time it is expected to continue; and

d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

The hatchery biologist will report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports are sent in.

C2. Reports to management

[Note: An annual report of the previous year's operations must be prepared and submitted to EPA by January 20th of each year (see page 40 of General Permit).]

1. **Required reports:** See Sections IV and V of the General Permit, pages 38-43.
2. **Individuals responsible for preparation and submission of oral and written reports as required under Sections IV and V of the General Permit:** See section A4, Table 2 of this document. Current personnel responsible for reporting include the Project Leader, Assistant Project Leader, and Fish Biologist.
3. **Individuals to whom oral and written reports, as required in Sections IV and V of the General Permit are to be submitted:** Sharon Wilson, EPA, Seattle, WA.

D. Data Validation and Usability

D1. Data review, verification, and validation

Data will be reviewed and verified on a monthly basis by the Project Leader and/or Assistant Project Leader.

D2. Verification and validation of methods

Since the facility operations are similar on an annual basis, data will be compared with historical data from previous years (during the same time period) of sampling to evaluate consistency in the data and consistency in sampling methods.

D3. Reconciliation with user requirements

The Hatchery will collect additional samples at the appropriate outfall whenever discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample.

Certification of Completion and Implementation of the Quality Assurance Plan

Hagerman National Fish Hatchery
NPDES Permit Number IDG-13-0004

I have read and been trained in the proper execution of this Quality Assurance Plan.

Bryan Kenworthy Project Leader	Date	Nate Wiese Assistant Project Leader	Date
Jeremy Trimpey Fish Biologist	Date	Brian Clifford Motor Vehicle Operator	Date
Eric Willet Motor Vehicle Operator	Date	Adam Leija Fish Culturist	Date
Andy Eiman Fish Culturist	Date		

Appendix

A. Site Plan Map
B. Chain of Custody Form
C. Rating Table for 4 ft Parshall flume at Main Spring
D. Rating Table for 15 ft Cipoletti Weir at Bickle Lake and State Wildlife Management Area (Bickle Ditch)
E. Rating Table for 7 ft Cipoletti Weir at Riley Lake
F. Rating Table for 9” Parshall flume at Hatchery 1
G. Rating table for 2 ft Parshall flume at Display Pond
H. Rangan Research Method Detection Limits and Quality Assurance Plan
I. Training Certificates and Additional Attachments