UNITED STATES AIR FORCE
JOINT BASE ELMENDORF-RICHARDSON, ALASKA

ENVIRONMENTAL COMPLIANCE RESTORATION PROGRAM

POST ROAD FISH HATCHERY INVESTIGATIVE SAMPLING REPORT

FINAL

NOVEMBER 2011

FINAL

INVESTIGATIVE SAMPLING REPORT

POST ROAD FISH HATCHERY

Joint Base Elmendorf-Richardson, Alaska

Prepared for:

673d Civil Engineer Squadron, Asset Management Flight, Natural Resource Management Element, Compliance Section

Contract No. W911KB-06-D-0006
November 2011

This page intentionally left blank.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

673 CES	673d Civil Engineer Squadron
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
DRO	diesel-range organics
EPA	U.S. Environmental Protection Agency
GRO	gasoline-range organics
JBER	Joint Base Elmendorf-Richardson
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	photoionization detector
ppm	parts per million
RRO	residual-range organics
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
USAF	U.S. Air Force
VOCs	volatile organic compounds

This page intentionally left blank.

1.0 INTRODUCTION

This report describes investigative sampling conducted in April 2011 at the Post Road Fish Hatchery located adjacent to Joint Base Elmendorf-Richardson (JBER), Alaska. Investigative sampling activities included groundwater and soil sample collection in accordance with the *2010 Investigation and Closure Sampling for Environmental Compliance Restoration Sites Work Plan* (U.S. Air Force [USAF] 2010a) and the *Environmental Sampling at the Fish Hatchery Work Plan Addendum* (USAF 2011).

This report was prepared for the USAF 673d Civil Engineer Squadron (673 CES) Asset Management Flight, Natural Resources Element, Restoration Section by Jacobs Engineering Group Inc. (Jacobs) under the U.S. Army Corps of Engineers (USACE) Environmental Restoration Services Contract W911KB-06-D-0006, Task Order 0025.

1.1 SCOPE AND OBJECTIVE

The objective of this project was to further investigate and delineate the lateral extent of petroleum hydrocarbon concentrations identified in soil and groundwater at the Post Road Fish Hatchery site during November 2007 site characterization activities (Shannon & Wilson 2007) and during 2010 construction activities.

Soil borings were advanced and groundwater grab samples were collected from temporary well points to investigate the current status of contamination and potential for contaminant migration through groundwater. One permanent groundwater well (0U5MW12) was also sampled to investigate the potential for contaminant migration from an upgradient source.

1.2 DOCUMENT ORGANIZATION

This report is organized as follows:

- Section 1 provides the introduction, project scope and objective, and report organization.
- Section 2 discusses the site background, hydrogeology, and historical information based on previous site investigations and actions.
- Section 3 describes the contaminants of concern and cleanup levels.
- Section 4 describes the 2011 field activities and soil and groundwater analysis results.
- Section 5 discusses conclusions and recommendations.
- Section 6 includes references.
- Appendices A through G contain additional support information associated with this project.

This page intentionally left blank.

2.0 SITE BACKGROUND AND SUMMARY OF PREVIOUS SAMPLING

The Post Road Fish Hatchery is located in Anchorage, Alaska, along the north bank of Ship Creek, near the intersection of Reeve Boulevard and Post Road (Figure 2-1). Ship Creek is a popular fishing location for king and silver salmon and is one of the few nonglacial salmon streams in the Anchorage area.

2.1 SITE BACKGROUND

The former Elmendorf State Fish Hatchery was constructed in 1965. It originally consisted of three small, circular wooden ponds (Alaska Department of Fish and Game [ADF&G] 2011). Improvements were made to the facility over the next four decades. Before construction of the new hatchery began in 2009, the area on which the former hatchery existed and an additional portion of the property, located immediately north of the former facility, were leased by ADF&G. This leased area includes the former Elmendorf Air Force Base Power Plant cooling pond and the new hatchery structure, which is located within the former footprint of the cooling pond (Shannon & Wilson 2008). Construction of new hatchery facilities was ongoing during the 2011 field investigation.

2.1.1 Hydrogeology

The Post Road Fish Hatchery lies adjacent to JBER and both lie within the Cook Inlet-Susitna Lowlands, which are bordered on the west by the Alaska Range and on the east by the Kenai, Chugach, and Talkeetna Ranges. The Elmendorf terminal moraine traverses JBER from the northeast to the southwest. The southern boundary of the Elmendorf moraine is a ridgeline running along the north side of the east-west runway. The topography of the Anchorage Plain is primarily a result of repeated Pleistocene glaciations. Surficial soils on the Elmendorf ground moraine are generally either well-drained silty loam or gravelly sand (USAF 2007).

The Bootlegger Cove clay formation is a fine-grained glacioestuarine deposit consisting of silt and clay that underlies the site. This clay forms an aquaclude between the shallow and deep aquifers. The depth of the formation ranges from 1 to 60 feet below ground surface (bgs) near the moraine and from 75 to 100 feet bgs throughout the outwash plain. Overall, the formation is thought to be at least 125 feet thick, with certain locations thought to be more than 250 feet thick.

Based on Elmendorf Well Atlas maps (USAF 2010b), the groundwater gradient across the Fish Hatchery site is thought to be from northeast to southwest. However, groundwater on the site may flow directly towards Ship Creek. The newly installed sheet pile retaining wall is also thought to influence groundwater flow locally on the northeast side of the site.

2.1.2 Previous Site Investigations

Prior to construction of the new hatchery in 2007, five soil samples (B20S2, B25S5, B25S6, B26SS, and S11) were collected from the site and analyzed for diesel-range organics (DRO), gasoline-range organics (GRO), residual-range organics (RRO), benzene, toluene,

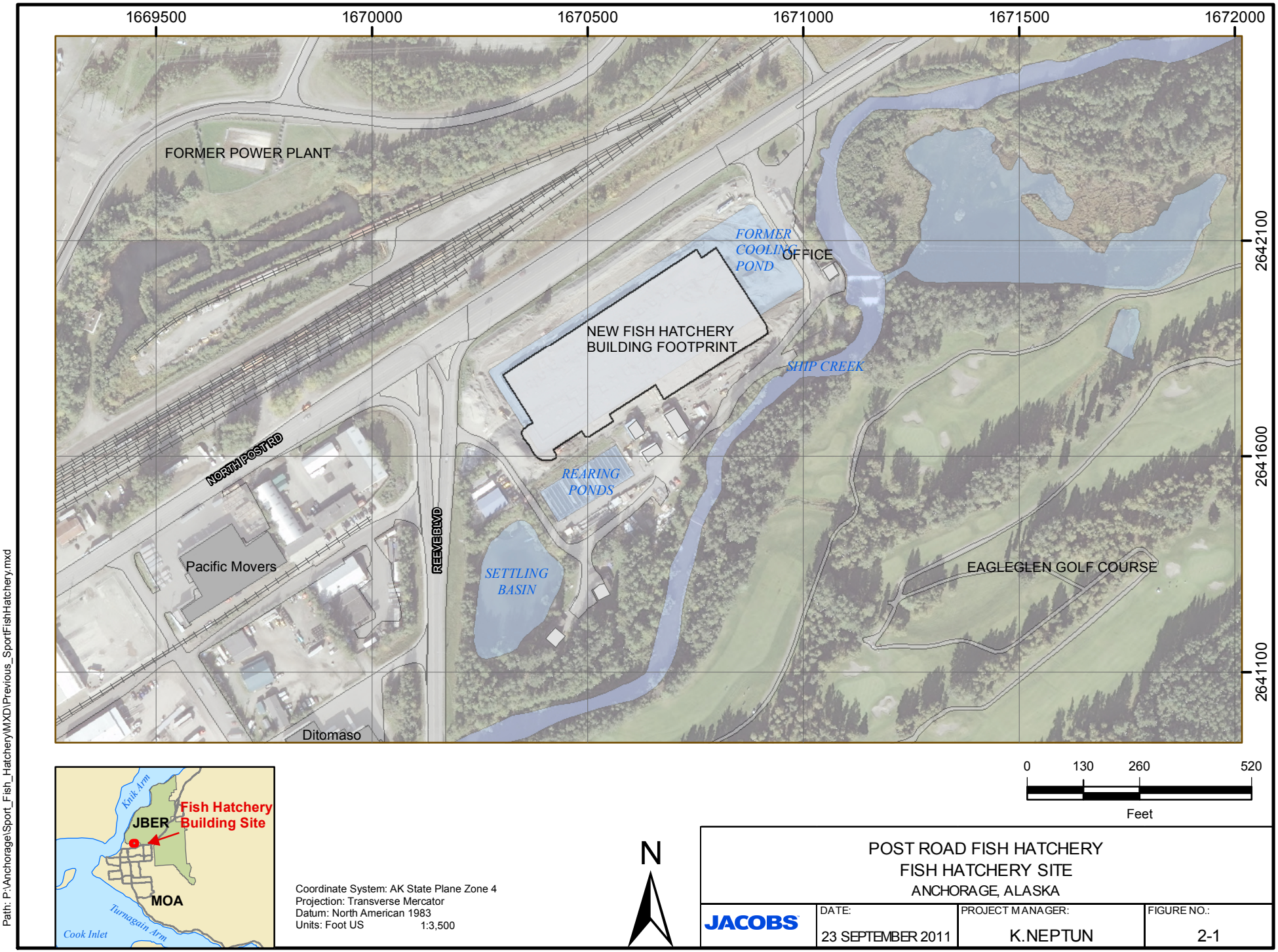
ethylbenzene, and xylenes (BTEX), metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) (Figure 2-2).

Soil samples from two locations (B25 and B26) exceeded the Alaska Department of Environmental Conservation (ADEC) Method Two cleanup criterion for DRO (250 milligrams per kilogram [mg/kg]). Soil samples from three locations (B20, B25, S11) exceeded cleanup criteria for arsenic and chromium. The metal concentrations were believed to be due to background concentrations and did not require further investigation. One DRO exceedance (3,630 mg/kg) was found in Soil Boring B25 on the northeast corner of the former cooling pond at a depth of 8 to 9 feet bgs. The other DRO exceedance (914 mg/kg) was found in a surface sample (B26) collected on the west side of the former hatchery structure (Shannon & Wilson 2007). Approximate locations of these samples are shown on Figure 2-2.

One groundwater grab sample was collected near the northeast corner of the former hatchery structure and analyzed for DRO, GRO, RRO, BTEX, and VOCs. Only DRO exceeded cleanup levels with a concentration of 69.7 milligrams per liter (mg/L) (Shannon & Wilson 2007).

During the construction of a waterline trench in 2010, soils in the vicinity of the 2007 surface soil samples were screened using a photoionization detector (PID) and stockpiled. Soils with screening levels greater than 80 parts per million (ppm) were removed from the site.

Five additional screening samples were collected from the stockpiled material and the highest result was 72 ppm (the remaining four screening sample results ranged from 35 to 45 ppm). This soil was returned to the waterline trench.



Path: P:\Anchorage\Sport_Fish_Hatchery\MXD\Previous_SportFishHatchery.mxd

Coordinate System: AK State Plane Zone 4
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US 1:3,500

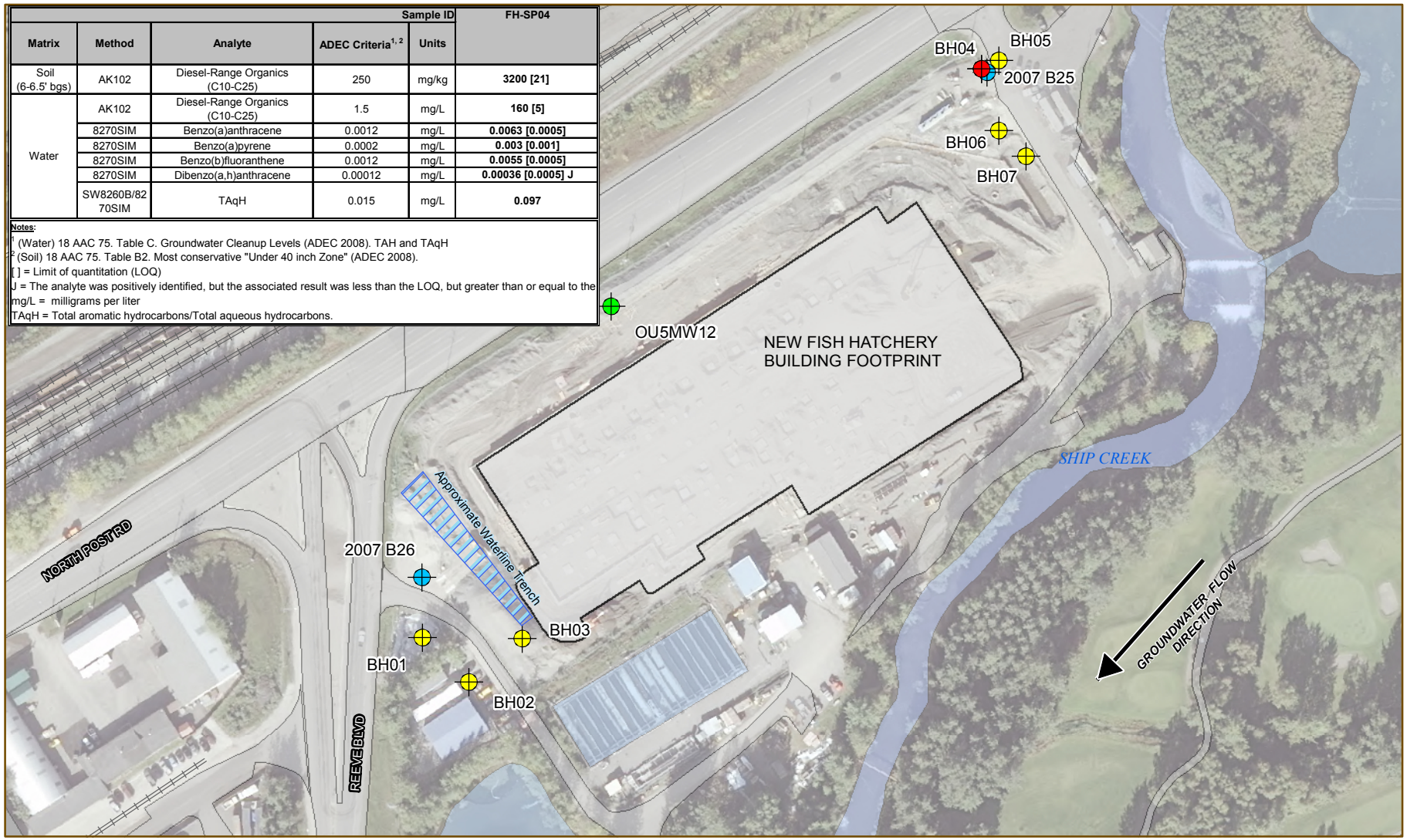
POST ROAD FISH HATCHERY
FISH HATCHERY SITE
ANCHORAGE, ALASKA

JACOBS	DATE:	PROJECT MANAGER:	FIGURE NO.:
	23 SEPTEMBER 2011	K.NEPTUN	2-1

This page intentionally left blank.

		Sample ID			FH-SP04
Matrix	**Method**	**Analyte**	**ADEC Criteria[1, 2]**	**Units**	
Soil (6-6.5' bgs)	AK102	Diesel-Range Organics (C10-C25)	250	mg/kg	**3200 [21]**
Water	AK102	Diesel-Range Organics (C10-C25)	1.5	mg/L	**160 [5]**
	8270SIM	Benzo(a)anthracene	0.0012	mg/L	**0.0063 [0.0005]**
	8270SIM	Benzo(a)pyrene	0.0002	mg/L	**0.003 [0.001]**
	8270SIM	Benzo(b)fluoranthene	0.0012	mg/L	**0.0055 [0.0005]**
	8270SIM	Dibenzo(a,h)anthracene	0.00012	mg/L	**0.00036 [0.0005] J**
	SW8260B/8270SIM	TAqH	0.015	mg/L	**0.097**

Notes:
[1] (Water) 18 AAC 75. Table C. Groundwater Cleanup Levels (ADEC 2008). TAH and TAqH
[2] (Soil) 18 AAC 75. Table B2. Most conservative "Under 40 inch Zone" (ADEC 2008).
[ ] = Limit of quantitation (LOQ)
J = The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the
mg/L = milligrams per liter
TAqH = Total aromatic hydrocarbons/Total aqueous hydrocarbons.



2007 approximate sample locations

2011 analytical sample location with soil and water results exceeding cleanup level

2011 analytical sample locations do not exceed soil or water cleanup levels

Monitoring Well - OU5MW12

Coordinate System: AK State Plane Zone 4
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

1:2,000

N

0 75 150 300
Feet

POST ROAD FISH HATCHERY
SOIL AND GROUNDWATER RESULTS
ANCHORAGE, ALASKA

JACOBS	DATE:	PROJECT MANAGER:	FIGURE NO.:
	22 SEPTEMBER 2011	K.NEPTUN	2-2

Path: P:\Anchorage\Sport_Fish_Hatchery\MXD\SportFishHatchery.mxd

This page intentionally left blank.

3.0 CONTAMINANTS AND CLEANUP LEVELS

The contaminants of potential concern for the hatchery were originally established based on prior geotechnical and environmental investigations conducted in 2007 and 2010. As described in the prior section, DRO exceeded ADEC cleanup levels for both soil and groundwater. Soil results also exceeded cleanup levels for metals, but these exceedances reflect background levels native to the area, so metals are not considered contaminants of concern.

The contaminant list for this investigation was established to reflect compounds that are known or suspected to be present at the site, or compounds that needed to be confirmed below cleanup levels. BTEX and polycyclic aromatic hydrocarbons (PAH) were added to the list of groundwater contaminants of concern to assess the results against surface water criteria (total aromatic hydrocarbons [TAH] and total aqueous hydrocarbons [TAqH]). Table 3-1 includes monitoring parameters for the hatchery.

Table 3-1
Previous and Current Soil and Groundwater Monitoring Parameters

Site Name and Media	Compounds Sampled During Previous Investigations	Compounds Exceeding Cleanup Levels in Previous Investigations	2011 Contaminants of Concern
Post Road Fish Hatchery – Soil	DRO, GRO, RRO, BTEX, VOCs, PCBs, and metals	DRO and metals	DRO
Post Road Fish Hatchery – Groundwater	DRO, GRO, RRO, BTEX, and VOCs	DRO	DRO, BTEX, and PAH

Note: For definitions, see the Acronyms and Abbreviations section.

Analytical results were compared to the cleanup levels listed in Worksheet #15 of the Work Plan (USAF 2010a). Tables 3-2 and 3-3 present cleanup levels and contaminant concentrations for this site. Cleanup levels for soil reflect those listed in Tables B1 and B2 of 18 Alaska Administrative Code (AAC) 75 (ADEC 2008). Cleanup levels for groundwater reflect those listed in Table C of 18 AAC 75 (ADEC 2008) and surface water criteria (18 AAC 70).

Table 3-2
ADEC Soil Cleanup Levels

Analyte	Cleanup Level	Unit
Petroleum Hydrocarbons		
Diesel-range organics	250	mg/kg
Residual-range organics	10,000	mg/kg

Note:
18 AAC 75, Tables B1 and B2, most conservative (under 40-inch zone and migration to groundwater) (ADEC 2008)

Table 3-3
ADEC Groundwater Cleanup Levels

Analyte	Cleanup Level	Unit
Petroleum Hydrocarbons		
Diesel-range organics	1.5	mg/L
Volatile Organic Compounds		
Benzene	0.005	mg/L
Toluene	1	mg/L
Ethylbenzene	0.7	mg/L
m-Xylene & p-Xylene	10	mg/L
o-Xylene	10	mg/L
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	2.2	mg/L
Acenaphthylene	2.2	mg/L
Anthracene	11	mg/L
Benzo(a)anthracene	0.0012	mg/L
Benzo(a)pyrene	0.0002	mg/L
Benzo(b)fluoranthene	0.0012	mg/L
Benzo(g,h,i)perylene	1.1	mg/L
Benzo(k)fluoranthene	0.012	mg/L
Chrysene	0.12	mg/L
Dibenzo(a,h)anthracene	0.00012	mg/L
Fluoranthene	1.5	mg/L
Fluorene	1.5	mg/L
Indeno(1,2,3-c,d)pyrene	0.0012	mg/L
Naphthalene	0.73	mg/L
Phenanthrene	11	mg/L
Pyrene	1.1	mg/L
TAH	0.01	mg/L
TAqH	0.015	mg/L

Notes:
18 AAC 75, Table C, Groundwater Cleanup Levels
TAH/TAqH = Total aromatic hydrocarbons/Total aqueous hydrocarbons. TAH is the sum of benzene, toluene, ethylbenzene, and xylenes isomers (BTEX) results. TAqH is the sum of BTEX and polycyclic aromatic hydrocarbons (PAH).

4.0 2011 FIELD ACTIVITIES AND RESULTS

Soil and groundwater sampling was conducted to delineate the lateral and vertical extent of contamination and to assess potential contaminant migration to groundwater in the northeast corner of the fish hatchery and around the backfilled waterline. Groundwater samples were collected to assess whether contamination has migrated to groundwater or is currently migrating from an upgradient source.

4.1 DEVIATION FROM THE WORKPLAN

The original scope of work as proposed in the Work Plan Addendum (USAF 2011) included collecting groundwater samples from each boring location using an inertial pump (a check valve at the bottom of a sample tube). Due to high turbidity conditions, additional samples were collected from two borings (SP03 and SP04) using a peristaltic pump for comparison.

Additionally, the original scope of work included a third soil boring on the northeast side, downgradient of B25. The presence of heavy utilities located both above and below the ground surface as well as in the roadway prevented the advancement of a boring in this area.

4.2 SOIL SAMPLING LOCATIONS AND RESULTS

In April 2011, seven soil borings were advanced on the hatchery site. Three soil borings (BH01, BH02, and BH03) were advanced downgradient of the 2007 surface sample location (B26) in the southwestern section of the site (Figure 2-2). These borings also surrounded the backfilled waterline trench where field-screened contaminated soil was placed during construction. In the northeastern portion of the site, two soil borings were advanced upgradient (BH04 and BH05) and two were advanced downgradient (BH06 and BH07) of the 2007 temporary monitoring well (B25) location in the northeastern section of the site (Figure 2-2).

Borings were advanced to 10 feet bgs with the exception of BH01, which was advanced to 15 feet bgs. Groundwater was encountered between 6 to 9 feet bgs at all soil boring locations. Soil samples were field screened for total petroleum hydrocarbons using PetroFLAG® at a frequency of one sample per 5 feet of continuous-core boring advanced with the exception of soil borings BH03 and BH05, which were screened twice at the 0- to 5-feet bgs interval. Two analytical samples were collected from each of two different intervals: the upper 5 feet bgs (0 to 5 feet bgs) and at or near the water table (6 to 10 feet bgs), with the exception of soil borings BH03 and BH05 where three analytical soil samples were collected. Table 4-1 presents the PetroFLAG® screening results and DRO analytical results.

Table 4-1
Hatchery PetroFLAG® Screening and Analytical Results

Soil Boring	Field Screening ID/ Sample ID	Depth (feet bgs)	PetroFLAG® Result (ppm)	DRO Result (mg/kg)
BH01	FH-BH01A-0-5-SO FH-BH01A-6-9-SO	0 to 5 6 to 9	91 15	19J 97
BH02	FH-BH02A-0-5-SO FH-BH01A-6-8.5-SO	0 to 5 6 to 8.5	571 295	79 57
BH03	FH-BH03A-0-5-SO FH-BH03B-0-5-SO FH-BH03A-6-10-SO	0 to 5 0 to 5 6 to 10	157 157 345	20 17J 55
BH04	FH-BH04A-0-5-SO FH-BH04A-6-6.5-SO	0 to 5 6 to 6.5	723 OR	24 3200
BH05	FH-BH05A-0-5-SO FH-BH05B-0-5-SO FH-BH05A-6-10-SO	0 to 5 0 to 5 6 to 10	220 220 203	47 42 13J
BH06	FH-BH06A-0-5-SO FH-BH06A-6-10-SO	0 to 5 6 to 10	690 254	71 19J
BH07	FH-BH07A-0-5-SO FH-BH07A-6-10-SO	0 to 5 6 to 10	5 47	37 13J

Notes:
bgs = below ground surface
DRO = Diesel-range organics
mg/kg = milligrams per kilogram
OR = Over calibration range of PetroFLAG Instrument
ppm = parts per million
J = The analyte was positively identified, but the associated result was less than the LOQ but greater than or equal to the DL.

One DRO result for Sample FH-BH04A-6-6.5-SO exceeded the ADEC cleanup level of 250 mg/kg at 3,200 mg/kg (Table 4-1). This sample was collected from the interval between 6 and 6.5 feet bgs, which is just above the groundwater interface. All other analytical results for samples collected from this boring and the other six borings were below ADEC cleanup levels and U.S. Environmental Protection Agency (EPA) regional screening levels. Appendix A includes the analytical data table.

4.2.1 Groundwater Sampling Locations and Results

Groundwater grab sampling was conducted via SP16 from each of the seven boring locations and analyzed for DRO, BTEX, and PAH. One groundwater sample from each location was collected using an inertial pump (a check valve at the bottom of a sample tube) as proposed in the Work Plan Addendum (USAF 2011).

Three groundwater locations (BH01, BH02, and BH03) were sampled on the western side of the hatchery building to triangulate the possible downgradient groundwater flow from the contaminated soils that were returned to the waterline trench. Four additional groundwater locations (BH04, BH05, BH06, and BH07) were sampled on the northeastern section of the site. The sample locations are in an assumed upgradient and downgradient location from B25. The sample locations assume groundwater movement downgradient from the northeast corner

of the site, flowing around the retaining wall to the south. Sample locations are shown on Figure 2-2.

One additional groundwater sample was collected from the existing monitoring well OU5MW-12 on the north side of the site. This sample was collected with a submersible pump using low-flow procedures as detailed in the Work Plan (USAF 2010a). Table 4-2 presents field parameters for OU5MW-12.

Table 4-2
2011 Field Parameters in Monitoring Well OU5MW12

Parameter	Levels
Odor	None
Sheen	None
Temperature(ºC)	2.83
Turbidity (NTU)	0.5
pH (Standard Units)	6.69
DO (mg/L)	0.58
ORP (mV)	110.1
Conductivity (µS/cm)	287

As described previously, analytical samples for groundwater were analyzed for DRO, BTEX, and PAHs. Sample FH-SPO4A-WG-IP exceeded ADEC Table C cleanup criteria for DRO, PAHs, and TAqH (see Table 3-2). This sample was collected using the inertial pump. A second primary sample was collected using a peristaltic pump instead of an inertial pump for comparative reasons (due to high turbidity). Analytical results from the sample collected using the peristaltic pump did not exceed ADEC cleanup methods.

Sample vials shipped to the laboratory contained headspace bubbles that exceeded ADEC guidelines of < 6 millimeters in diameter. VOC results with headspace bubbles > 6 millimeters are not acceptable for use as data for demonstrating compliance. These samples are flagged in the data tables included in Appendix B.

Results for both sample collection methods are presented in Figure 2-2 and in Appendix A. Analytical results exceeding cleanup levels for Sample FH-SPO4A-WG-IP are listed in Table 4-3. All other analytical results for groundwater samples collected from the boring locations were below ADEC Table C cleanup criteria, and surface water criteria. Appendix A includes the full analytical data table.

Table 4-3
Hatchery Analytical Results for Groundwater Exceeding the ADEC Cleanup Level

Sample ID	Method	Analyte	Result	ADEC Cleanup Level
FH-SP04A-WG-IP	AK102	Diesel-range organics (C10-C25)	160 (mg/L)	1.5
FH-SP04A-WG-IP	8270SIM	Benzo(a)anthracene	0.0063 (mg/L)	0.0012
FH-SP04A-WG-IP	8270SIM	Benzo(a)pyrene	0.003 (mg/L)	0.0002
FH-SP04A-WG-IP	8270SIM	Benzo(b)fluoranthene	0.0055 (mg/L)	0.0012
FH-SP04A-WG-IP	8270SIM	Dibenzo(a,h)anthracene	0.00036 (mg/L)	0.00012
FH-SP04A-WG-IP	SW8260/ 8270SIM	TAqH	0.096 (mg/L)	0.015

5.0 CONCLUSIONS AND RECOMMENDATIONS

Analytical results for the 2011 Post Road Fish Hatchery sample investigation confirm DRO contamination above ADEC cleanup criteria at soil boring BH04, which is located in the northeastern portion of the site. In addition, concentrations of DRO, PAH, and TAqH at this location exceeded the ADEC Table C criteria for groundwater in a turbid grab sample. The less turbid peristaltic sample did not exceed groundwater or surface water criteria.

DRO levels in soil and groundwater above ADEC cleanup criteria had been previously documented at the area near BH04.

Based on these results and the history of contamination in the general vicinity, groundwater impacts may be present; however, groundwater analytical results are confounded by turbidity in the sample. As such, the recommended remedial action for the contaminated soil at the Fish hatchery is monitored natural attenuation and annual groundwater sampling. Three permanent monitoring wells should be installed at the following locations to further determine the degree and extent of potential groundwater impacts: one at BH04, a second hydraulically upgradient of BH04, and a third downgradient of BH04, adjacent to Ship Creek. Ongoing monitoring activities should include analysis for DRO, BTEX, and PAHs for both groundwater and soil samples. Additionally, groundwater monitoring well samples should be analyzed for TAH and TAqH.

This page intentionally left blank.

6.0 REFERENCES

ADEC (Alaska Department of Environmental Conservation). 2008. 18 AAC 75.

ADEC. 2011 (May). 18 AAC 70. Water Quality Standards.

ADF&G (Alaska Department of Fish and Game). 2011. http://www.adfg.alaska.gov. Accessed in August 2011.

Shannon & Wilson. 2008 (July). *Anchorage Fish Hatchery Environmental Management Plan*. Elmendorf AFB, Alaska. Prepared by Shannon & Wilson, Inc. for HDR Alaska, Inc.

Shannon & Wilson. 2007 (November). *Anchorage Fish Hatchery Site Characterization*. Elmendorf AFB, Alaska. Prepared by Shannon & Wilson, Inc for HDR Alaska, Inc.

USAF (U.S. Air Force). 2011. *Environmental Sampling at the Fish Hatchery Work Plan Addendum*. Joint Base Elmendorf-Richardson (JBER)-Elmendorf. Prepared by Jacobs Engineering Group Inc.

USAF. 2010a (September). *2010 Investigation and Closure Sampling for Environmental Compliance Restoration Sites Work Plan*. Final. JBER-Elmendorf. Prepared by Jacobs Engineering Group Inc.

USAF. 2010b (May). *Environmental Restoration Program Atlas.* Elmendorf Air Force Base, Alaska.

USAF 2007 (September). *Elmendorf Management Action Plan*. Elmendorf Air Force Base, Alaska.

This page intentionally left blank.

APPENDIX A

Analytical Data

2011 Post Road Fish Hatchery Soil Analytical Results

				Location ID	FH-BH01	FH-BH01	FH-BH02	FH-BH02
				Sample ID	FH-BH01A-0-5-SO	FH-BH01A-6-9-SO	FH-BH02A-0-5-SO	FH-BH02A-6-8_5-SO
				Lab Sample ID	25610-1	25610-2	25610-3	25610-4
				Collection Date	4/12/2011	4/12/2011	4/12/2011	4/12/2011
				Matrix	SO	SO	SO	SO
				Laboratory	TATW	TATW	TATW	TATW
				QA/QC	Primary	Primary	Primary	Primary
Method	**Analyte**	**ADEC Criteria[1]**	**Unit**					
E160.3M	Solids, Percent	–	Percent		86 [0.1]	66 [0.1]	87 [0.1]	76 [0.1]
AK102	Diesel-Range Organics (C10-C25)	250	mg/kg		19 [22] J	97 [28]	79 [22]	57 [24]
AK103	Residual-Range Organics (C25-C36)	10000	mg/kg		73 [55]	700 [71]	350 [54]	320 [61]

Notes:

[1] 18 AAC 75. Table B2. Most conservative "Under 40 inch Zone" (ADEC 2008).

Bold - Sample result exceeds ADEC criteria.

[ ] - Limit of quantitation (LOQ)

J - The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the DL.

mg/kg - milligrams per kilogram

ND - Nondetect

QA/QC - Quality Assurance/Quality Control

TATW - TestAmerica Seattle

2011 Post Road Fish Hatchery Soil Analytical Results

				Location ID	FH-BH03	FH-BH03	FH-BH03	FH-BH04
				Sample ID	FH-BH03A-0-5-SO	FH-BH03B-0-5-SO	FH-BH03A-6-10-SO	FH-BH04A-0-5-SO
				Lab Sample ID	25610-5	25610-15	25610-6	25610-7
				Collection Date	4/12/2011	4/12/2011	4/12/2011	4/12/2011
				Matrix	SO	SO	SO	SO
				Laboratory	TATW	TATW	TATW	TATW
				QA/QC	Primary	Duplicate	Primary	Primary
Method	**Analyte**	**ADEC Criteria[1]**	**Unit**					
E160.3M	Solids, Percent	–	Percent		95 [0.1]	93 [0.1]	90 [0.1]	84 [0.1]
AK102	Diesel-Range Organics (C10-C25)	250	mg/kg		20 [19]	17 [21] J	55 [21]	24 [23]
AK103	Residual-Range Organics (C25-C36)	10000	mg/kg		42 [49] J	42 [51] J	96 [53]	160 [57]

Notes:

[1] 18 AAC 75. Table B2. Most conservative "Under 40 inch Zone" (ADEC 2008).

Bold - Sample result exceeds ADEC criteria.

[ ] - Limit of quantitation (LOQ)

J - The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the DL.

mg/kg - milligrams per kilogram

ND - Nondetect

QA/QC - Quality Assurance/Quality Control

TATW - TestAmerica Seattle

2011 Post Road Fish Hatchery Soil Analytical Results

			Location ID	FH-BH04	FH-BH05	FH-BH05	FH-BH05
			Sample ID	FH-BH04A-6-6.5-SO	FH-BH05A-0-5-SO	FH-BH05A-6-10-SO	FH-BH05B-0-5-SO
			Lab Sample ID	25610-8	25610-9	25610-10	25610-16
			Collection Date	4/12/2011	4/12/2011	4/12/2011	4/12/2011
			Matrix	SO	SO	SO	SO
			Laboratory	TATW	TATW	TATW	TATW
			QA/QC	Primary	Primary	Primary	Duplicate
Method	**Analyte**	**ADEC Criteria[1]**	**Unit**				
E160.3M	Solids, Percent	–	Percent	89 [0.1]	82 [0.1]	92 [0.1]	84 [0.1]
AK102	Diesel-Range Organics (C10-C25)	250	mg/kg	**3200 [21]**	47 [24]	13 [21] J	42 [23]
AK103	Residual-Range Organics (C25-C36)	10000	mg/kg	38 [51] J	320 [60]	66 [53]	310 [57]

Notes:

[1] 18 AAC 75. Table B2. Most conservative "Under 40 inch Zone" (ADEC 2008).

Bold - Sample result exceeds ADEC criteria.

[ ] - Limit of quantitation (LOQ)

J - The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the DL.

mg/kg - milligrams per kilogram

ND - Nondetect

QA/QC - Quality Assurance/Quality Control

TATW - TestAmerica Seattle

2011 Post Road Fish Hatchery Soil Analytical Results

				Location ID	FH-BH06	FH-BH06	FH-BH07	FH-BH07
				Sample ID	FH-BH06A-0-5-SO	FH-BH06A-6-10-SO	FH-BH07A-0-5-SO	FH-BH07A-6-10-SO
				Lab Sample ID	25610-11	25610-12	25610-13	25610-14
				Collection Date	4/12/2011	4/12/2011	4/12/2011	4/12/2011
				Matrix	SO	SO	SO	SO
				Laboratory	TATW	TATW	TATW	TATW
				QA/QC	Primary	Primary	Primary	Primary
Method	**Analyte**	**ADEC Criteria[1]**	**Unit**					
E160.3M	Solids, Percent	–	Percent		78 [0.1]	93 [0.1]	93 [0.1]	92 [0.1]
AK102	Diesel-Range Organics (C10-C25)	250	mg/kg		71 [24]	19 [21] J	37 [20]	13 [21] J
AK103	Residual-Range Organics (C25-C36)	10000	mg/kg		520 [59]	69 [52]	40 [51] J	28 [52] J

Notes:

[1] 18 AAC 75. Table B2. Most conservative "Under 40 inch Zone" (ADEC 2008).

Bold - Sample result exceeds ADEC criteria.

[ ] - Limit of quantitation (LOQ)

J - The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the DL.

mg/kg - milligrams per kilogram

ND - Nondetect

QA/QC - Quality Assurance/Quality Control

TATW - TestAmerica Seattle

2011 Post Road Fish Hatchery Groundwater Analytical Results

				Location ID Sample ID Lab Sample ID Collection Date Matrix Laboratory QA/QC	FH-SP01 FH-SP01A-WG 25659-1 4/13/2011 WG TATW Primary	FH-SP02 FH-SP02A-WG 25659-2 4/13/2011 WG TATW Primary	FH-SP03 FH-SP03A-WG-IP 25659-3 4/14/2011 WG TATW Primary	FH-SP03 FH-SP03A-WG-PP 25659-8 4/14/2011 WG TATW Primary	FH-SP04 FH-SP04A-WG-IP 25659-4 4/14/2011 WG TATW Primary	FH-SP04 FH-SP04A-WG-PP 25659-9 4/14/2011 WG TATW Primary	FH-SP05 FH-SP05A-WG 25659-5 4/14/2011 WG TATW Primary	FH-SP06 FH-SP06A-WG 25659-6 4/14/2011 WG TATW Primary	FH-SP07 FH-SP07A-WG 25659-7 4/14/2011 WG TATW Primary	FH-SP07 FH-SP07B-WG 25659-10 4/14/2011 WG TATW Duplicate	OU5MW12 OU5MW12-2011-WG 25659-12 4/15/2011 WG TATW Primary	TB FH-TB-WG 25659-11 4/13/2011 WG TATW Trip Blank
Method	**Analyte**	**ADEC Criteria[1]**	**Units**													
AK102	Diesel-Range Organics (C10-C25)	1.5	mg/L	0.13 [0.096]	0.25 [0.095]	0.16 [0.1]	0.15 [0.1]	**160 [5]**	0.57 [0.1]	0.15 [0.099]	0.83 [0.099] J	0.12 [0.099]	0.12 [0.1]	0.13 [0.1]	--
SW8260B	Benzene	0.005	mg/L	0.00023 [0.001] J, JP-	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	0.00015 [0.001] J	ND [0.001]	ND [0.001] JP-	ND [0.001]
SW8260B	Ethylbenzene	0.7	mg/L	ND [0.001] JP-	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001] JP-	ND [0.001]
SW8260B	o-Xylene	10	mg/L	ND [0.001] JP-	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001] JP-	ND [0.001]
SW8260B	Toluene	1	mg/L	0.00021 [0.001] J, JP-	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	ND [0.001]	0.0026 [0.001]	ND [0.001]	ND [0.001]	ND [0.001] JP-	ND [0.001]
SW8260B	Xylene, Isomers m & p	10	mg/L	ND [0.002] JP-	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002]	ND [0.002] JP-	ND [0.002]
8270SIM	1-Methylnaphthalene[2]	0.15	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.013 [0.0005]	0.0012 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.0001]	--	--
8270SIM	2-Methylnaphthalene[2]	0.15	mg/L	ND [0.00013]	ND [0.00013]	ND [0.00013]	ND [0.00013]	0.0088 [0.00065]	0.00013 [0.00013]	ND [0.00013]	ND [0.00013]	ND [0.00013]	ND [0.00013]	ND [0.00013]	--
8270SIM	Acenaphthene	2.2	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.002 [0.0005]	0.00058 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Acenaphthylene	2.2	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0062 [0.0005]	0.00015 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Anthracene	11	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0038 [0.0005]	0.000033 [0.0001] J	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Benzo(a)anthracene	0.0012	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	**0.0063 [0.0005]**	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Benzo(a)pyrene	0.0002	mg/L	ND [0.00019]	ND [0.0002]	ND [0.0002]	ND [0.0002]	**0.003 [0.001]**	ND [0.0002]	ND [0.0002]	ND [0.0002]	ND [0.0002]	ND [0.0002]	ND [0.0002]	--
8270SIM	Benzo(b)fluoranthene	0.0012	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	**0.0055 [0.0005]**	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Benzo(g,h,i)perylene	1.1	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.00098 [0.0005]	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Benzo(k)fluoranthene	0.012	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0023 [0.0005]	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Chrysene	0.12	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0065 [0.0005]	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Dibenzo(a,h)anthracene	0.00012	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	**0.00036 [0.0005] J**	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Fluoranthene	1.5	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.018 [0.0005]	0.00011 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Fluorene	1.5	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0077 [0.0005]	0.00059 [0.0001]	0.00003 [0.0001] J	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Indeno(1,2,3-cd)pyrene	0.0012	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.001 [0.0005]	ND [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Naphthalene	0.73	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.0032 [0.0005]	0.00018 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	0.000037 [0.000099] J	ND [0.0001]	--
8270SIM	Phenanthrene	11	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.013 [0.0005]	0.00033 [0.0001]	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
8270SIM	Pyrene	1.1	mg/L	ND [0.000097]	ND [0.0001]	ND [0.0001]	ND [0.0001]	0.014 [0.0005]	0.000082 [0.0001] J	ND [0.0001]	ND [0.000099]	ND [0.000098]	ND [0.000099]	ND [0.0001]	--
SW8260B	TAH	0.01	mg/L	0.0022	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.00485	0.0024	0.0027	0.0027	--
SW8260B/8270SIM	TAqH	0.015	mg/L	0.0034	0.0039	0.0039	0.0039	**0.097**	0.0054	0.0039	0.0060	0.0036	0.0038	0.0039	--

Notes:

[1] 18 AAC 75. Table C. Groundwater Cleanup Levels (ADEC 2008). TAH and TAqH are from 18 AAC 70.

[2] Analytes 1-methylnaphthalene and 2-methylnaphthalene were reported by the laboratory, but were not included in the TAqH calculation.

Bold = Sample result exceeds ADEC criteria.

[ ] = Limit of quantitation (LOQ)

J = The analyte was positively identified, but the associated result was less than the LOQ, but greater than or equal to the DL.

JP- = The result was considered an estimated value (biased low) because incorrect or inadequate preservation methods were used and/or head space was present in a VOA vial.

mg/L = milligrams per liter

ND - Nondetect

QA/QC = Quality Assurance/Quality Control

TAH/TAqH = Total aromatic hydrocarbons/Total aqueous hydrocarbons. TAH is the sum of benzene, toluene, ethylbenzene, and xylene isomers (BTEX) results. TAqH is the sum of BTEX and polycyclic aromatic hydrocarbons (PAH). For ND results the limit of detection (LOD) was used in the ND result's place.

TATW = TestAmerica Seattle

APPENDIX B

Data Quality Assessment and Supporting Documentation

FINAL

INVESTIGATIVE SAMPLING REPORT

APPENDIX B: DATA QUALITY ASSESSMENT

POST ROAD FISH HATCHERY

Joint Base Elmendorf-Richardson, Alaska

Prepared for:

673d Civil Engineer Squadron, Asset Management Flight, Natural Resource Management Element, Compliance Section

Contract No. W911KB-06-D-0006

NOVEMBER 2011

This page intentionally left blank.

TABLE OF CONTENTS

ATTACHMENTS

This page intentionally left blank.

LIST OF ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BTEX	benzene, toluene, ethylene, and xylenes
DL	detection limit
DoD	Department of Defense
DQA	Data Quality Assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
Jacobs	Jacobs Engineering Group Inc.
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
MS	matrix spike
MSD	matrix spike duplicate
ND	nondetect
QC	quality control
USAF	U.S. Air Force
°C	degrees Celsius

This page intentionally left blank.

1.0 INTRODUCTION

This Data Quality Assessment (DQA) was performed to assess the overall quality and usability of the data collected to support the investigation of the potential for and/or extent of soil and groundwater contamination at the Post Road Fish Hatchery adjacent to Joint Base Elmendorf-Richardson (JBER), Alaska. TestAmerica Laboratories, of Seattle, Washington, provided the primary analytical support. TestAmerica Laboratories of Anchorage, Alaska provided logistical support.

This appendix to the *Post Road Fish Hatchery Investigative Sampling Report* contains this DQA, sample documentation, and a sample summary. Attachment B-1 provides the Alaska Department of Environmental Conservation (ADEC) laboratory data review checklists, case narratives, and cooler receipt information. Attachment B-2 provides the sample summary. Analytical results tables are presented in Appendix A.

Jacobs Engineering Group Inc. (Jacobs) performed this DQA and completed ADEC Laboratory Data Review Checklists for the records associated with the analytical data. The data review and DQA were performed in accordance with the *2010 Investigation and Closure Sampling for Environmental Compliance Restoration Sites Work Plan* (U.S. Air Force [USAF] 2010). A completeness check of the analytical data was performed to verify that the data packages and electronic files included all information requested.

1.1 DATA REVIEW AND QUALIFICATION

All analytical data were reviewed by the Jacobs Project Chemist. This evaluation consisted of a review of chain-of-custody and sample receipt records; laboratory case narratives; laboratory data including analytical methodology, sample holding times, laboratory blanks, detection limits (DL), limits of detection (LOD), limits of quantitation (LOQ), surrogate recoveries, laboratory control sample (LCS) and LCS duplicate (LCSD) recoveries, matrix spike (MS) and MS duplicate (MSD) recoveries; and precision. Analytical data quality objectives (DQO) were considered met when the quality of the sample data met precision, accuracy, representativeness, completeness, comparability, and sensitivity requirements specified in the Work Plan (USAF 2010).

Analytical results were evaluated using the measurement performance criteria specified in Section 12.0 (Worksheet #12) of the Work Plan (USAF 2010); Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories*, Version 4.2 (DoD 2010); *Environmental Laboratory Data and Quality Assurance Requirements Technical Memorandum* (ADEC 2009); analytical methods (ADEC 2002; U.S. Environmental Protection Agency [EPA] 1996); and laboratory limits. If a result or recovery fell outside the control limits, a qualifier code was applied to that datum.

Qualifiers that were applied to the analytical data set, as appropriate, include the following:

J The analyte was positively identified, but the associated result was less than the LOQ but greater than or equal to the DL.

– The result is biased low.

JP(-) The result was considered an estimated value because incorrect or inadequate preservation methods were used.

Qualification was not required in the following circumstances:

- Surrogate or MS recoveries were outside quality control (QC) limits, and the sample was diluted by a factor of 5 or greater.
- MS recoveries were outside QC limits, and the spiked concentration was less than that of the parent sample.
- An analyte was detected in the method blank, but there was no detection in the sample.
- MS or LCS recoveries exceeded upper control limits, and there was no detection in the sample(s).

2.0 DATA QUALITY SUMMARY

A review of the analytical results and associated QC samples determined the overall quality of the project data to be acceptable. One QC issue was identified that had a negative impact on the data set, sample preservation, which is discussed below. Complete details of the evaluation, including analytical results that did not meet project DQOs or measurement performance criteria, are provided in the ADEC Laboratory Data Review Checklists (Attachment B-1). These data are considered usable with the limitations discussed in this DQA and the ADEC checklists with regard to laboratory qualifiers (Section 1.1). Qualified results are considered estimated and, whenever possible, indicated as either biased high (+) or low (–).

Project data included in this DQA are the results for samples included in TestAmerica sample delivery groups 580-25610-1 and 580-25659-1. Completeness is a quantitative evaluation indicating the percentage of the data that was considered usable for the intent of the project. No data were rejected and all data are considered usable; therefore, the 95-percent completeness goal was met.

2.1 THERMAL PRESERVATION

A total of nine coolers were submitted to TestAmerica. Eight coolers were received at TestAmerica-Seattle with temperature readings below 2 degrees Celsius (°C).

All coolers were hand-delivered to TestAmerica-Anchorage following sample collection and were received with temperatures within specified range of 4 ± 2°C. TestAmerica-Anchorage shipped the samples to TestAmerica-Seattle on the same day. The coolers arrived at TestAmerica-Seattle with the temperature blanks measurements ranging from -0.3 to 3.2°C. The samples contained within coolers with temperature readings less than 2°C were not

frozen; therefore, there is no effect on the data quality or usability so these results were not qualified.

2.2 HEADSPACE/INADEQUATE CHEMICAL PRESERVATION

A total of five vials submitted for the analysis of benzene, toluene, ethylbenzene, and xylene isomers (BTEX) by method SW8260 were received by the laboratory with bubbles greater than 6 millimeters. Two vials with headspace, one each for samples FH-SPO1A-WG and OU5MW12-2011-WG, were used for the analysis. For sample FH-SPO1A-WG the pH was greater than 2, indicating inadequate chemical preservation. The SW8260 BTEX sample results for FH-SPO1A-WG and OU5MW12-2011-WG have been qualified JP-, indicating an estimated result with a potential low bias due to headspace and/or inadequate chemical preservation. Although the data quality has been affected, the sample results were considered usable for investigative purposes.

3.0 CONCLUSION

The overall quality of the project data was acceptable, and the 95-percent completeness goal was met. All data were considered usable for the purposes of investigative sampling at the Post Road Fish Hatchery, with the limitations discussed in this DQA and the ADEC Laboratory Data Review Checklists (Attachment B-1).

4.0 REFERENCES

ADEC (Alaska Department of Environmental Conservation). 2009 (March). *Environmental Laboratory Data and Quality Assurance Requirements.* Technical Memorandum.

ADEC. 2002 (November). *Underground Storage Tanks Procedures Manual: Guidance for Treatment of Petroleum Contaminated Soil and Water and Standard Sampling Procedures*.

DoD (U.S. Department of Defense). 2010 (October). *Department of Defense Quality Systems Manual for Environmental Laboratories.* DoD Environmental Quality Workgroup, Department of the Navy, Lead Service. Version 4.2, Final.

EPA (U.S. Environmental Protection Agency). 1996 (September). *Test Methods for Evaluating Solid Waste*. Third Edition, Final Update IV, SW-846.

USAF (U.S. Air Force). 2010 (September). *2010 Investigation and Closure Sampling for Environmental Compliance Restoration Sites Work Plan.* Prepared by Jacobs Engineering Group Inc.

This page intentionally left blank.

ATTACHMENT B-1

Sample Documentation

Case Narratives
Cooler Receipt Information
ADEC Laboratory Data Review Checklists

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 580-25610-1

Job Description: 05-F525-07-D-010-0013 TO 25, EAFB, AK

Contract Number: W911KB-04-A-0009

For:
Jacobs Engineering Group, Inc.
4300 B Street, Suite 600
Anchorage, AK 99503-5922

Attention: Ms. Sara Hadden

Approved for release.
Terri L Torres
Project Manager II
4/25/2011 2:43 PM

Terri L Torres
Project Manager II
terri.torres@testamericainc.com
04/25/2011

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC and the DOD QSM V4.2 (10/25/2010). All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

CASE NARRATIVE

Client: Jacobs Engineering Group, Inc.
Project: 05-F525-07-D-010-0013 TO 25, EAFB, AK
Report Number: 580-25610-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interfererences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 04/14/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.1 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

DIESEL AND MOTOR OIL RANGE ORGANICS
Samples FH-BH01A-0-5-SO (580-25610-1), FH-BH01A-6-9-SO (580-25610-2), FH-BH02A-0-5-SO (580-25610-3), FH-BH02A-6-8.5-SO (580-25610-4), FH-BH03A-0-5-SO (580-25610-5), FH-BH03A-6-10-SO (580-25610-6), FH-BH04A-0-5-SO (580-25610-7), FH-BH04A-6-6.5-SO (580-25610-8), FH-BH05A-0-5-SO (580-25610-9), FH-BH05A-6-10-SO (580-25610-10), FH-BH06A-0-5-SO (580-25610-11), FH-BH06A-6-10-SO (580-25610-12), FH-BH07A-0-5-SO (580-25610-13), FH-BH07A-6-10-SO (580-25610-14), FH-BH03B-0-5-SO (580-25610-15) and FH-BH05B-0-5-SO (580-25610-16) were analyzed for diesel and motor oil range organics in accordance with AK102 and AK103. The samples were prepared on 04/18/2011 and analyzed on 04/21/2011.

DRO (nC10-<nC25) was detected in method blank MB 580-84177/1-A at a level that was above the detection limit but below ½ the limit of quantitation. The value should be considered an estimate, and has been flagged "J".

For samples FH-BH01A-6-9-SO (580-25610-2), FH-BH02A-0-5-SO (580-25610-3), FH-BH02A-6-8.5-SO (580-25610-4), FH-BH03A-0-5-SO (580-25610-5), FH-BH04A-0-5-SO (580-25610-7), FH-BH05A-0-5-SO (580-25610-9), FH-BH06A-0-5-SO (580-25610-11) and FH-BH05B-0-5-SO (580-25610-16) the results in the C10-C25 (DRO) range are due primarily overlapping results from the motor oil range and partially to biogenic interference.

For samples FH-BH03A-6-10-SO (580-25610-6), FH-BH04A-6-6.5-SO (580-25610-8) and FH-BH07A-0-5-SO (580-25610-13) the results in the C10-C25 (DRO) range are due to heavily weathered diesel fuel and/or possibly biogenic interference.

No other difficulties were encountered during the DRO and RRO analyses.

All other quality control parameters were within the acceptance limits.

PERCENT SOLIDS
Samples FH-BH01A-0-5-SO (580-25610-1), FH-BH01A-6-9-SO (580-25610-2), FH-BH02A-0-5-SO (580-25610-3), FH-BH02A-6-8.5-SO (580-25610-4), FH-BH03A-0-5-SO (580-25610-5), FH-BH03A-6-10-SO (580-25610-6), FH-BH04A-0-5-SO (580-25610-7), FH-BH04A-6-6.5-SO (580-25610-8), FH-BH05A-0-5-SO (580-25610-9), FH-BH05A-6-10-SO (580-25610-10), FH-BH06A-0-5-SO (580-25610-11), FH-BH06A-6-10-SO (580-25610-12), FH-BH07A-0-5-SO (580-25610-13), FH-BH07A-6-10-SO (580-25610-14), FH-BH03B-0-5-SO (580-25610-15) and FH-BH05B-0-5-SO (580-25610-16) were analyzed for percent solids in accordance with EPA SW846 3550C. The samples were analyzed on 04/18/2011.

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

Chain-of-Custody Report

Collection Organization: JEGA | **Chain-of-Custody:** 11ELM01 | **Cooler ID:** Rainbow Trout

Project Number: 05F52507 | **Laboratory:** Test America | **Bill To:** JEGA | **Report To:** JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	Notes	TAT	Notes:
FH-BH01A-0-5-SO	FH-BH01	4/12/2011	11:31	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH01A-6-9-SO	FH-BH01	4/12/2011	11:52	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH02A-0-5-SO	FH-BH02	4/12/2011	12:16	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH02A-6-8.5-SO	FH-BH02	4/12/2011	12:35	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH03A-0-5-SO	FH-BH03	4/12/2011	13:10	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH03A-6-10-SO	FH-BH03	4/12/2011	13:15	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH04A-0-5-SO	FH-BH04	4/12/2011	14:47	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH04A-6-6.5-SO	FH-BH04	4/12/2011	14:52	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH05A-0-5-SO	FH-BH05	4/12/2011	15:28	CT/EB-K	2	Amber glass	8 oz	4C	SO	AK102	MS/MSD	30-day	
FH-BH05A-6-10-SO	FH-BH05	4/12/2011	16:06	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH06A-0-5-SO	FH-BH06	4/12/2011	17:05	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH06A-6-10-SO	FH-BH06	4/12/2011	17:25	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH07A-0-5-SO	FH-BH07	4/12/2011	17:37	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH07A-6-10-SO	FH-BH07	4/12/2011	17:56	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH03B-0-5-SO	FH-BH03	4/12/2011	13:10	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	
FH-BH05B-0-5-SO	FH-BH03	4/12/2011	15:28	CT/EB-K	1	Amber glass	8 oz	4C	SO	AK102		30-day	

Special Instructions:

Relinquish By: Catherine Treanor — 4/13/11 2030 (Date/Time)

Relinquish By: Kristi Hopton — 4/13/11 1215 (Date/Time)

Received By: — 4/13/11 0930

Received By: Johanna Drahn — 04/13/11 @ 1215

Signature/Printed Name: Johanna Drahn 04/13/11 1745 — Date/Time

Signature/Printed Name: Samantha H. Kalick — Date/Time 4/14/11 13:10

Arc temp: TB = 4.9°C, cooler = 4.5°C

04/25/2011

Page 219 of 224

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11 ELM 01 (One receipt form per cooler)
Cooler Number/Name on CoC Rainbow Trout
Laboratory and Location Test America - Anchorage
Lab SDG NA
Cooler forwarded to Test America

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? (NA)		
	Were signatures and dates correct? (NA)	YES	NO
2.	Were custody papers taped to lid inside of cooler?	YES	(NO)
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place? (NA)	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	YES	NO
6.	What kind of packing material was used? Card board	(YES)	NO
7.	Was sufficient ice used (if appropriate)?	YES	(NO) *
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(NA) YES	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11 ELM 01		
	Temperature blank reading 4.9°C		
	Cooler temperature. 4.5°C		
	Identification number of thermometer rec # 5		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	(NA) YES	NO
	CORRECTIVE ACTION FORM ATTACHED	(NA) YES	NO

Jacobs Project Chemist contacted? Date/Time NO

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: * cooler dropped off at TestAmerica Anchorage to be packed + shipped to TestAmerica - Seattle

C:\Documents and Settings\downiek\Local Settings\Temporary Internet Files\OLKB\Cooler Receipt NEW2001B1.doc

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number: 11ELM01 (One receipt form per cooler)
Cooler Number/Name on CoC: Rainbow Trout
Laboratory and Location: TestAmerica Seattle
Lab SDG: 580-25610

		(YES)	NO
1.	Were custody seals on outside of cooler? If yes, how many and where? 2, Front Left, Back Right		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	(YES)	NO
6.	What kind of packing material was used? Bubble wrap		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO Blue Ice
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(YES)	NO N/A
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: 11ELM01		
	Temperature blank reading: Corr-3.2, Uncorr-3.1 °C		
	Cooler temperature: Corr-5.3, Uncorr-5.2 °C		
	Identification number of thermometer: 101844641		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	~~YES~~	~~NO~~ N/A
	CORRECTIVE ACTION FORM ATTACHED	~~YES~~	~~NO~~ N/A

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

1

Front Left

Back Right

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459113

Custody Seal
DATE 4/13
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459114

Custody Seal
DATE 4/13/11
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459113

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459114

Alaska Air Cargo™
ALASKA AIRLINES & HORIZON AIR

P.O. BOX 68900 SEATTLE, WA 98168
800-225-2752 ALASKACARGO.COM

SHIPPER
TESTAMERICA LABORATORIES INC
2000 W International Airport Rd
Ste 10A
Anchorage, AK 99502

CONSIGNEE
Test America Laboratories Inc
5755 8TH STREET E
TACOMA, WA 98498

AWB Number	Pieces	Weight	Origin / Dest	Nature of Goods	Arriving Flight Details	Customs
027-92428055	1	32.0 Lb	ANC-SEA	SOIL SAMPLES	AS 106 14-Apr-2011	

Storage Locations: COOLER 1

LOCAL CHARGES :

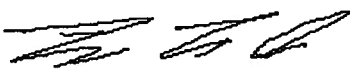
Bonded Warehouse ☐

Total Local Charges:	USD	0.00
VAT 0.70%:	USD	0.00
Grand Total:	USD	**0.00**

PO Number

RECEIPT STATEMENT

The undersigned acknowledge the receipt of above mentioned consignment complete and in good condition.

Date: 14-Apr-2011
Time: 12:29
Driver: FRANCISCO LUNA
Registration: .....
Signature: 

027 ANC 9242 8055 027-9242 8055

Shipper's Name and Address TESTAMERICA LABORA 2000 W International Airport Rd Ste 10A Anchorage, AK 99502 USA Tel: 9075639200	**Shipper's Account Number** 27442464535 **Customer's ID Number** 30049
Not Negotiable **Air Waybill** **Issued By** Alaska Air Cargo ALASKA AIRLINES & HORIZON AIR P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM	
Consignee's Name and Address Test America Laboratories 5755 8TH STREET E TACOMA, WA 98498 USA Tel: 2539222310	**Consignee's Account Number** 27442464535
Also notify NTFD LMSG 4/14 Tel:	
Issuing Carrier's Agent and City	**Accounting Information** 30049 TESTAMERICA LABORATORIES INC 2000 W International Airport Rd Ste 10A Anchorage, AK 99502 USA GoldStreak
Agent's IATA Code / **Account No.**	
Airport of Departure (Addr. of First Carrier) and Requested Routing Anchorage	

To	By First Carrier	To / By	To / By	Currency	WT/VAL	Other	Declared Value For Carriage	Declared Value For Customs
SEA	Alaska Airlines			USD PX	X	X	NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Seattle	AS 106/13		XXX

Handling Information
X-RAY ONLY
NOA 1-253-922-2310

SCI

No of Pieces	Gross Weight	kg / lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
1	32.0	L		32.0		AS AGREED	SOIL SAMPLES Dims: 24 x 13 x14 x 1 GSX PER
1	32.0					AS AGREED	Volume: 2.528

Prepaid	Weight Charge	Collect
AS AGREED		
Valuation Charge		
Tax		
Total Other Charges Due Agent		
Total Other Charges Due Carrier		
Total Prepaid	**Total Collect**	
AS AGREED		

Other Charges
MYC 6.40
SCC 2.00

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.

For: TESTAMERICA LABORATORIES INC

Signature of Shipper or his Agent

[AB] THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

[ ] THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

Executed On (Date)	at (Place)	Signature of Issuing Carrier or its Agent
13 Apr 2011 17:57	Anchorage	Alaska Airlines

027-9242 8055

Laboratory Data Review Checklist

Completed by: David Summerville

Title: Chemist Date: 6-8-2011

CS Report Name: Fish Hatchery Investigative Sampling Report Date: June 2011

Consultant Firm: Jacobs Engineering Group Inc.

Laboratory Name: TestAmerica Seattle Laboratory Report Number: 580-25610-1

ADEC File Number: ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ●Yes □ No □NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      □Yes □ No ●NA (Please explain.) Comments:

      All samples were analyzed by TestAmerica Seattle.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ●Yes □ No □NA (Please explain.) Comments:

   b. Correct analyses requested?
      ●Yes □ No □NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ●Yes □ No □NA (Please explain.) Comments:

      For cooler "Rainbow Trout" the temperatures upon receipt at Seattle were 3.2° C (temp blank) and 5.3° C (cooler).

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
●Yes □ No □NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
●Yes □ No □NA (Please explain.) Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
□Yes □ No ●NA (Please explain.) Comments:

There were no discrepancies noted on the cooler receipt form.

e. Data quality or usability affected? (Please explain.)
Comments:

The data quality and usability was not affected.

4. Case Narrative
a. Present and understandable?
●Yes □ No □NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
●Yes □ No □NA (Please explain.) Comments:

c. Were all corrective actions documented?
●Yes □ No □NA (Please explain.) Comments:

d. What is the effect on data quality/usability according to the case narrative?
Comments:

The data quality and usability was not affected according to the case narrative

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
●Yes □ No □NA (Please explain.) Comments:

b. All applicable holding times met?

●Yes □ No □NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?

●Yes □ No □NA (Please explain.) Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

●Yes □ No □NA (Please explain.) Comments:

e. Data quality or usability affected?

Comments:

The data quality and usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

●Yes □ No □NA (Please explain.) Comments:

ii. All method blank results less than PQL?

□Yes □ No □NA (Please explain.) Comments:

All method blank results were less than ½ the LOQ.

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

□Yes □ No ●NA (Please explain.) Comments:

No data flags were required.

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

●Yes □ No □NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

□Yes □ No ●NA (Please explain.) Comments:

No metal/inorganic analyses were requested.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

●Yes □ No □NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

●Yes □ No □NA (Please explain.) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

□Yes □ No ●NA (Please explain.) Comments:

No data flags were required.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and usability was not affected.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

●Yes □ No □NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

●Yes □ No □NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

□Yes □ No ●NA (Please explain.) Comments:

No data flags were required.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

The data quality and usability was not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

□Yes □ No ●NA (Please explain.) Comments:

No volatile analyses were requested.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

□Yes □ No □NA (Please explain.) Comments:

iii. All results less than PQL?

□Yes □ No ●NA (Please explain.) Comments:

N/A

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

●Yes □ No □NA (Please explain.) Comments:

ii. Submitted blind to lab?

●Yes □ No □NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

●Yes □ No □NA (Please explain.) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality and usability was not affected.

f. Decontamination or Equipment Blank (If not used explain why).

□Yes □ No ●NA (Please explain.) Comments:

No decontamination or equipment blanks were collected.

i. All results less than PQL?

□Yes □ No ●NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
    a. Defined and appropriate?
        ●Yes □ No □NA (Please explain.) Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 580-25659-1

Job Description: 05-F525-07-D-010-0013 TO 25, EAFB, AK

Contract Number: W911KB-04-A-0009

For:
Jacobs Engineering Group, Inc.
4300 B Street, Suite 600
Anchorage, AK 99503-5922

Attention: Ms. Sara Hadden

Approved for release.
Terri L Torres
Project Manager II
4/27/2011 5:16 PM

Terri L Torres
Project Manager II
terri.torres@testamericainc.com
04/27/2011

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC and the DOD QSM V4.2 (10/25/2010). All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

CASE NARRATIVE

Client: Jacobs Engineering Group, Inc.
Project: 05-F525-07-D-010-0013 TO 25, EAFB, AK
Report Number: 580-25659-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interfererences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 04/18/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.1, 0.3, -0.3, 0.7 and 1.2 C.

The following samples were received with headspace in the sample vial: FH-SP01A-WG, FH-SP02A-WG and FH-SP03A-WG all have one VOA vial with headspace.

For sample FH-07A-WG the amber bottles were labeled as FH-07B-WG. Client wrote 07A on the caps of the amber bottles. All containers for FH-07B-WG were accounted for and labeled correctly by the client. Lined samples up per sample caps and logged in as FH-07A-WG.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples FH-SP01A-WG (580-25659-1), FH-SP02A-WG (580-25659-2), FH-SP03A-WG-IP (580-25659-3), FH-SP04A-WG-IP (580-25659-4), FH-SP05A-WG (580-25659-5), FH-SP06A-WG (580-25659-6), FH-SP07A-WG (580-25659-7), FH-SP03A-WG-PP (580-25659-8), FH-SP04A-WG-PP (580-25659-9), FH-SP07B-WG (580-25659-10), FH-TB-WG (580-25659-11) and OU5MW12-2011-WG (580-25659-12) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 04/19/2011 and 04/21/2011.

The following samples were received with headspace in the sample vial: FH-SP01A-WG (580-25659-1) and OU5MW12-2011-WG (580-25659-12). Sample 580-25659-1 had an 8 mm air bubble of headspace in one vial used and 10 mm air bubble in the second vial used. Sample 580-25659-12 had a 6 mm air bubble of headspace.

Due to the large amount of sediment present in the sample vial, the following samples were centrifuged prior to analysis: FH-SP01A-WG (580-25659-1), FH-SP03A-WG-IP (580-25659-3), FH-SP07A-WG (580-25659-7), FH-SP07B-WG (580-25659-10) and OU5MW12-2011-WG (580-25659-12).

Sample FH-SP01A-WG (580-25659-1) was re-analyzed in analytical batch 580-84535 due to surrogate failure in the initial analysis and pH >2 in the first re-analysis.

No other difficulties were encountered during the VOC analyses.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)
Samples FH-SP01A-WG (580-25659-1), FH-SP02A-WG (580-25659-2), FH-SP03A-WG-IP (580-25659-3), FH-SP04A-WG-IP (580-25659-4), FH-SP05A-WG (580-25659-5), FH-SP06A-WG (580-25659-6), FH-SP07A-WG (580-25659-7), FH-SP03A-WG-PP

(580-25659-8), FH-SP04A-WG-PP (580-25659-9), FH-SP07B-WG (580-25659-10) and OU5MW12-2011-WG (580-25659-12) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with EPA SW-846 Method 8270C SIM. The samples were prepared on 04/20/2011 and analyzed on 04/22/2011 and 04/25/2011.

Sample FH-SP04A-WG-IP (580-25659-4)[5X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the SVOC SIM analyses.

All quality control parameters were within the acceptance limits.

DIESEL AND MOTOR OIL RANGE ORGANICS

Samples FH-SP01A-WG (580-25659-1), FH-SP02A-WG (580-25659-2), FH-SP03A-WG-IP (580-25659-3), FH-SP04A-WG-IP (580-25659-4), FH-SP05A-WG (580-25659-5), FH-SP06A-WG (580-25659-6), FH-SP07A-WG (580-25659-7), FH-SP03A-WG-PP (580-25659-8), FH-SP04A-WG-PP (580-25659-9), FH-SP07B-WG (580-25659-10) and OU5MW12-2011-WG (580-25659-12) were analyzed for diesel and motor oil range organics in accordance with AK102 and AK103. The samples were prepared on 04/20/2011 and analyzed on 04/22/2011.

Sample FH-SP04A-WG-IP (580-25659-4)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Surrogate recovery for FH-SP04A-WG-IP (580-25659-4) was not determined due to the required dilution.

Recovery and RPD values for DRO (nC10-<nC25) in the matrix spike/matrix spike duplicate of sample FH-SP06A-WG (580-25659-6) in batch 580-84541 were outside advisory QC limits. Matrix interference is indicated based on acceptable LCS/LCSD recovery and RPD.

For samples FH-SP01A-WG (580-25659-1), FH-SP02A-WG (580-25659-2), FH-SP03A-WG-IP (580-25659-3), FH-SP03A-WG-PP (580-25659-8) and OU5MW12-2011-WG (580-25659-12) the results in the nC10-<nC25 (DRO) range are due to what most closely resembles a mineral/transformer oil range product.

For samples FH-SP04A-WG-IP (580-25659-4), FH-SP05A-WG (580-25659-5), FH-SP06A-WG (580-25659-6), FH-SP07A-WG (580-25659-7), FH-SP04A-WG-PP (580-25659-9) and FH-SP07B-WG (580-25659-10) the results in the nC10-<nC25 (DRO) range are due to heavily weathered diesel fuel and/or possibly biogenic interference.

No other difficulties were encountered during the DRO and RRO analyses.

All other quality control parameters were within the acceptance limits.

25159
~~25509~~ CC 4/18

Chain-of-Custody Report

Collection Organization: JEGA **Chain-of-Custody:** 11ELM02 **Cooler ID:** Pink

Project Number: 05F52507 **Laboratory:** Test America **Bill To:** JEGA **Report To:** JEGA

	COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
1	FH-SP01A-WG	FH-SP01	4/13/2011	10:15	CT/EB	3	VOA	40 ml	4C, HCl	WG	SW8260			
2	FH-SP02A-WG	FH-SP02	4/13/2011	11:50	CT/EB	3	VOA	40 ml	4C, HCl	WG	SW8260			
	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
3	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			
4	FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
5	FH-SP05A-WG	FH-SP05	4/14/2011	12:27	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
6	FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	9	VOA	40 ml	4C, HCl	WG	SW8260	MS/MSD		
7	FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
8	FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
9	FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
10	FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	3	VOA	40 ml	4C, HCl	WG	SW8260			
11	FH-TB-WG	TB	4/13/2011	8:00	CT/EB	3	VOA	40 ml	4C, HCl	WG	SW8260	TB		
12	OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	3	VOA	40 ml	4C, HCl	WG	SW8260			

Special Instructions:

Relinquish By: Catherine Trampe — 4/15/11 18:25 (Date/Time) — Relinquish By: Troy Engstrom (Signature/Printed Name) — 4-16-11/11:05 (Date/Time)

Received By: [signature] — 04/15/11 1825 (Date/Time) — Received By: Cathy Gamble (Signature/Printed Name) — Cathy Gamble 4/18/11 (Date/Time)

g:45

Anchorage

Cooler: 4.8°C

TB. 2.7°C

~~25549~~ Ch 4/18

25659

Chain-of-Custody Report

Collection Organization: JEGA | **Chain-of-Custody:** 11ELM09 | **Cooler ID:** Arctic Grayling

Project Number: 05F52507 | **Laboratory:** Test America | **Bill To:** JEGA | **Report To:** JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP01A-WG	FH-SP01	Collection Date	10:15	CT/EB	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP01A-WG	FH-SP01	Collection Date	10:15	CT/EB	2	Amber glass	1 L	4C, HCl	WG	AK102			
FH-SP02A-WG	FH-SP02	Collection Date	11:50	CT/EB	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP02A-WG	FH-SP02	Collection Date	11:50	CT/EB	2	Amber glass	1 L	4C, HCl	WG	AK102			

Special Instructions:

Relinquish By: [signature] | 4/15/11 18:25 (Date/Time) | Relinquish By: [signature] Troy Engstrom (Signature/Printed Name) | HC 4-16-11 11:05 (Date/Time)

Received By: [signature] (Signature/Printed Name) | 04/15/11 1825 (Date/Time) | Received By: [signature] Cathy Gramble (Signature/Printed Name) | TAL-ANC 4/18/11 8:45 (Date/Time)

Anchorage
Cooler – 4.7°C
TB – 7.2°C

25059

Chain-of-Custody Report

Collection Organization: JEGA | **Chain-of-Custody:** 11ELM03 | **Cooler ID:** Sockeye

Project Number: 05F52507 | **Laboratory:** Test America | **Bill To:** JEGA | **Report To:** JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
~~FH-SP03A-WG-IP~~	~~FH-SP03~~	~~4/14/2011~~	~~10:04~~	~~CT/KC~~	~~2~~	~~Amber glass~~	~~1 L~~	~~4C~~	~~WG~~	~~SW8270~~	CT		
~~FH-SP03A-WG-IP~~	~~FH-SP03~~	~~4/14/2011~~	~~10:04~~	~~CT/KC~~	~~2~~	~~Amber glass~~	~~1 L~~	~~4C, HCl~~	~~WG~~	~~AK102~~	CT		
FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			

Special Instructions:

Relinquish By: Catherine Tempe — 4/15/11 6:25 (Signature/Printed Name — Date/Time)

Relinquish By: Troy Engstrom — 4-16-11 / 11:05 (Signature/Printed Name — Date/Time)

Received By: [signature] — 04/15/11 @ 1825. (Signature/Printed Name — Date/Time)

Received By: Cathy Gamble TAL-ANC — 4/16/11 8:45 (Signature/Printed Name — Date/Time)

Anc Cooler: 2.9°C

Anc TB: 7.9°C

25659

Chain-of-Custody Report

Collection Organization: JEGA **Chain-of-Custody:** 11ELM04 **Cooler ID:** Chum

Project Number: 05F52507 **Laboratory:** Test America **Bill To:** JEGA **Report To:** JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP05A-WG	FH-SP05	4/14/2011	12:27	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP05A-WG	FH-SP05	4/14/2011	12:27	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			
FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			

Special Instructions:

Relinquish By: [signature] [signature] — Signature/Printed Name — 4/15/11 18:25 — Date/Time

Relinquish By: [signature] Troy Engstrom TAL-ANC — Signature/Printed Name — 4-16-11 1105 — Date/Time

Received By: [signature] [signature] — Signature/Printed Name — 1825 04/15/11 — Date/Time

Received By: Cathy Crumble — Signature/Printed Name — 4/18/11 8:45 — Date/Time

Anchorage
Cooler - 3.7°C
TB - 4.8°C

25659

Chain-of-Custody Report

Collection Organization: JEGA
Project Number: 05F52507

Chain-of-Custody: 11ELM05
Laboratory: Test America

Cooler ID: Chinook
Bill To: JEGA

Report To: JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Quantity	Container Type	Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			
FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			

Special Instructions:

Relinquish By: [signature] Date/Time 4/15/11 18:25

Relinquish By: [signature] Troy Engstrom Signature/Printed Name 4-16-11 11:05 Date/Time

Received By: [signature] Signature/Printed Name 04/15/11 @ 1825 Date/Time

Received By: Cathy Gamble Signature/Printed Name 4/18/11 Date/Time

Anchorage
Cooler: 4.3°C
TB: 4.2°C

25659

Chain-of-Custody Report

Collection Organization: JEGA
Project Number: 05F52507

Chain-of-Custody: 11ELM06
Laboratory: Test America

Cooler ID: Coho
Bill To: JEGA

Report To: JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Quantity	Container Type.	Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	6	Amber glass	1 L	4C	WG	SW8270	MS/MSD		

Special Instructions:

Relinquish By: Catherine Trevenyer 4/15/11 18:25 (Date/Time)

Relinquish By: [signature] / Troy Engstrom (Signature/Printed Name) 4-16-11 / 11:05 (Date/Time)

Received By: [signature] (Signature/Printed Name) 04/15/11 @ 1625 (Date/Time)

Received By: Cathy Gamble Cathy Gamble TAL-ANC (Signature/Printed Name) 4/18/11 8:45 (Date/Time)

Anchorage
cooler: 4.3°C
TB: 4.4°C

25059

Chain-of-Custody Report

Collection Organization: JEGA
Project Number: 05F52507
Chain-of-Custody: 11ELM07
Laboratory: Test America
Cooler ID: Arctic Char
Bill To: JEGA
Report To: JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Container Quantity	Container Type	Container Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	6	Amber glass	1 L	4C, HCl	WG	AK102	MS/MSD		

Special Instructions:

Relinquish By: Catherine Trempe — 4/15/11 18:25 (Date/Time) — Relinquish By: Troy Engstrom TALS ANC — 4-16-11/11:05 (Date/Time)

Received By: John Dull — 04/15/11 @ 1825 (Signature/Printed Name; Date/Time) — Received By: Kathy Gamble — 4/18/11 9:45 (Signature/Printed Name; Date/Time)

Anchorage
Cooler: 2.9°C
TB: 2.7°C

25059

Chain-of-Custody Report

Collection Organization: JEGA
Project Number: 05F52507
Chain-of-Custody: 11ELM08
Laboratory:
Cooler ID: Fishie
Bill To: JEGA
Report To: JEGA

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Quantity	Container Type	Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:
FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber glass	1 L	4C	WG	SW8270			
FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber glass	1 L	4C, HCl	WG	AK102			
OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	2	Amber glass	1 L	4C	WG	SW8270			
OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	2	Amber glass	1 L	4C, HCl	WG	AK102			

Special Instructions:

Relinquish By: Catherine Trevenyan — Signature/Printed Name — 4/15/11 18:25 — Date/Time

Relinquish By: Troy Engstrom — Signature/Printed Name — 4-16-11 11:05 — Date/Time

Received By: _____ — Signature/Printed Name — _____ — Date/Time

Received By: Cathy Gamble Cathy Gamble — Signature/Printed Name — 4/18/11 8:75 — Date/Time

Anchorage
Cooler: 4.7°C
TB: 4.9°C

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

(One receipt form per cooler)

CoC Number: 11ELM02
Cooler Number/Name on CoC: Pink
Laboratory and Location: Test America Anchorage
Lab SDG: –

1.	Were custody seals on outside of cooler?		YES (NO)
	If yes, how many and where?	NA ↓	YES NO
	Were signatures and dates correct?		YES (NO)
2.	Were custody papers taped to lid inside of cooler?		(YES) NO
3.	~~Were custody papers properly filled out (ink, signed, etc.)?~~		(YES) NO
4.	Did you sign custody papers in the appropriate place?		(NA) YES NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used?	bubble Wrap	
7.	Was sufficient ice used (if appropriate)?		(YES) NO
8.	Were all bottles sealed in separate plastic bags?		YES (NO)
9.	Did all bottles arrive in good condition?		YES NO * not checked in Anchorage
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?		YES NO *
11.	Did all bottle labels and tags agree with custody papers?		YES NO *
12.	Were correct bottles used for the tests?		(YES) NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?		(NA) YES NO *
14.	Was sufficient amount of sample sent in each bottle?		(YES) NO
15.	Chain-of-custody identification number.	11ELM02 / Pink	
	Temperature blank reading	2.7°C ~~Pink~~ 04/15/11	
	Cooler temperature.	4.8°C	
	Identification number of thermometer	rec #5	
16.	Is temperature within 4+/- 2°C?	~ see above	YES NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?		(NA) YES NO

CORRECTIVE ACTION FORM ATTACHED (NA) *YES NO*

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: repack + ship to SEATTLE

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11 ELM 02 (One receipt form per cooler)
Cooler Number/Name on CoC Pink
Laboratory and Location TA-Sun
Lab SDG 580-25659-1

1.	Were custody seals on outside of cooler?	YES	NO
	If yes, how many and where? 2 / front / back		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	YES	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO
4.	Did you sign custody papers in the appropriate place?	YES	NO
5.	Did you attach shipper's packing slip to this form?	YES	NO
6.	What kind of packing material was used? Bubble bag		
7.	Was sufficient ice used (if appropriate)?	YES	NO
8.	Were all bottles sealed in separate plastic bags?	YES	NO
9.	Did all bottles arrive in good condition?	YES	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO
11.	Did all bottle labels and tags agree with custody papers?	YES	NO
12.	Were correct bottles used for the tests?	YES	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	YES	NO
14.	Was sufficient amount of sample sent in each bottle?	YES	NO
15.	Chain-of-custody identification number: 11ELM02		
	Temperature blank reading -0.2 / -0.3	#2	
	Cooler temperature. 0.4 / 0.3		
	Identification number of thermometer IR 8446 #1		
16.	Is temperature within 4+/- 2°C?	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO

CORRECTIVE ACTION FORM ATTACHED ~~YES~~ ~~NO~~ N/A JJ

Jacobs Project Chemist contacted? Date/Time 4-18-11 4:30 via Sample Confirmation

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies:

Page 677 of 705

NCM ID: 580-35938
NCM Type: Headspace
Lab Section: login

Date Opened: 04/18/2011
Date Closed:
Date Verified:

Narrative

The following samples were received with headspace in the sample vial:
FH-SP01A-WG
FH-SP02A-WG
FH-SP03A-WG all have1 voa vial with headspace.

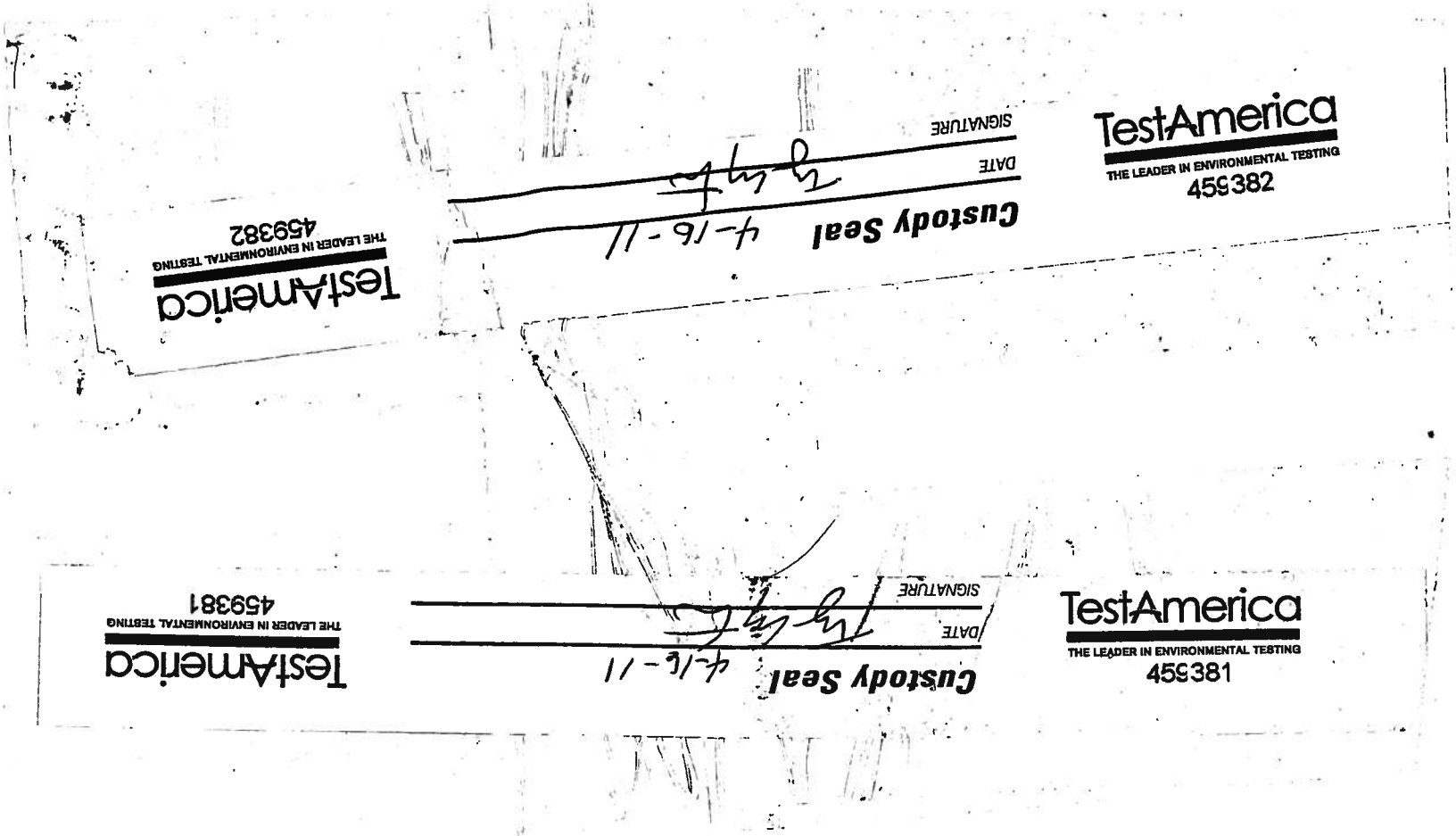
Affected Items

Description	Project Manager
Login: 580-25659	Torres, Terri L
Sample: 580-25659-1	Torres, Terri L
Sample: 580-25659-3	Torres, Terri L
Sample: 580-25659-2	Torres, Terri L

Notifications

User Full Name	Date	Date	Notice Level	Verification Type
Torres, Terri L	04/18/2011		Level 1	Notify
Wunderlich, David	04/18/2011		Level 1	Review

Pink


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459382
Custody Seal
DATE
SIGNATURE
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459381
Custody Seal
DATE
SIGNATURE

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11 ELM 09 (One receipt form per cooler)
Cooler Number/Name on CoC Krake Grayling
Laboratory and Location TestAmerica Anchorage
Lab SDG

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? NA		
	Were signatures and dates correct? NA	YES	NO
2.	Were custody papers taped to lid inside of cooler?	YES	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	NA YES	NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used? bubble Wrap	(YES)	NO
7.	Was sufficient ice used (if appropriate)?	YES	(NO)
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	YES	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(NA) YES	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11ELM09 / Arctic Grayling		
	Temperature blank reading 7.2°C		
	Cooler temperature. 4.7°C		
	Identification number of thermometer recTS		
16.	Is temperature within 4+/- 2°C? -Surrogate	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)? (NA) (NA)	YES	NO

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Cooler dropped off at Test America for shipment to Seattle

(not checked in Anchorage)

04/27/2011

Page 680 of 705

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11 ELM 09 (One receipt form per cooler)
Cooler Number/Name on CoC Arctic Grayling
Laboratory and Location TA Sla
Lab SDG 580-25659-1

1.	Were custody seals on outside of cooler?	(YES)	NO
	If yes, how many and where? 2 / front / back		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	(YES)	NO
6.	What kind of packing material was used? Bubble bag		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	YES	NO NA
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: 11 ELM 09		
	Temperature blank reading 0.8 / 0.7		
	Cooler temperature. 1.3 / 1.2		
	Identification number of thermometer		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO NA

CORRECTIVE ACTION FORM ATTACHED YES NO N/A

Jacobs Project Chemist contacted? Date/Time

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies:

Page 681 of 705

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459388

Custody Seal 4-16-11
DATE
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459387

Custody Seal 4-16-11
DATE
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459387

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM03 (One receipt form per cooler)
Cooler Number/Name on CoC SouLeg
Laboratory and Location TestAmerica - Anchorage
Lab SDG

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(NA) YES	NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used? bubble wrap	YES	NO
7.	Was sufficient ice used (if appropriate)?	YES	(NO)
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO *not checked in Anchorage*
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(NA) YES	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11ELM03		
	Temperature blank reading 04/15/09 7.9°C		
	Cooler temperature. 04/15/09 2.9°C		
	Identification number of thermometer		
16.	Is temperature within 4+/- 2°C? TB cooler TB yes ND	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Coolers to be packed for shipment to Seattle by TestAmerica Anchorage

Page 683 of 705

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number: 11 ELM 03 (One receipt form per cooler)
Cooler Number/Name on CoC: Sachuse
Laboratory and Location: TA-Sta
Lab SDG: 580-25659-1

1.	Were custody seals on outside of cooler?	(YES)	NO
	If yes, how many and where? 2 1 front 1 back		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	(YES)	NO
6.	What kind of packing material was used? Bubble bag	(YES)	NO Gel
7.	Was sufficient ice used (If appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	YES	NO NA
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: 11 ELM 03		
	Temperature blank reading Unc.=0.3 Corr.=0.4		
	Cooler temperature. Unc. 0.0 Corr.+0.1		
	Identification number of thermometer ID-94464		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO NA

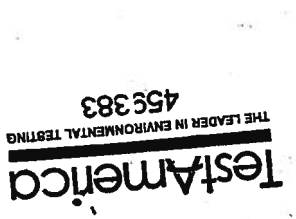
CORRECTIVE ACTION FORM ATTACHED YES NO NA

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

Page 684 of 705

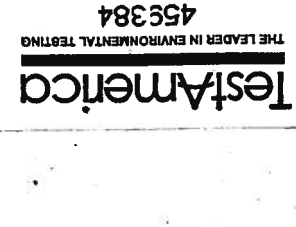


Custody Seal 4-16-11

DATE

SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459383



Custody Seal 4-16-11

DATE

SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459384

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM04 (One receipt form per cooler)
Cooler Number/Name on CoC Chum
Laboratory and Location Test America Anchorage
Lab SDG

		YES	(NO)
1.	Were custody seals on outside of cooler?		
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	YES	(NO)
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	(NA)	YES NO
6.	What kind of packing material was used? bubble wrap	(YES)	NO (to outside)
7.	Was sufficient ice used (if appropriate)?	YES	(NO)
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	YES	NO*
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO*
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(NA)	YES NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?		(YES) NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11ELM04/Chum		
	Temperature blank reading 4.8°C		
	Cooler temperature. 3.7°C		
	Identification number of thermometer rec#5		
16.	Is temperature within 4+/- 2°C? see above		YES NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	(NA)	YES NO

CORRECTIVE ACTION FORM ATTACHED (NA) YES NO

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Coolers to be packed and shipped to Seattle

* Not checked in Anchorage

04/27/2011

Page 686 of 705

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM04 (One receipt form per cooler)
Cooler Number/Name on CoC Chum
Laboratory and Location TA-Sac
Lab SDG 580-25659-1

1.	Were custody seals on outside of cooler?	(YES)	NO
	If yes, how many and where? 2 1 front 1 back		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	(YES)	NO
6.	What kind of packing material was used? Bubble bag		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	(NO) See NCM
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	YES	NO na
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11ELM04		
	Temperature blank reading 0.2 / 0.2		
	Cooler temperature. 0.4 / 0.3		
	Identification number of thermometer 101844641		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO na

CORRECTIVE ACTION FORM ATTACHED (YES) NO DHA 4-19-11

Jacobs Project Chemist contacted? Date/Time 4-18-11 4:30 via Sample confirmation

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies:

Page 687 of 705

NCM ID: 580-35939
NCM Type: Receiving - COC & Samples Do Not Match
Lab Section: login

Date Opened: 04/18/2011
Date Closed:
Date Verified:

Narrative

FH-07A-WG: the ambers are labeled as FH-07B-WG. Client wrote 07A on the caps of the ambers. All containers for FH-07B-WG were accounted for and labeled correctly by the client. Lined samples up per sample caps and logged in as FH-07A-WG.

Affected Items

Description	Project Manager
Login: 580-25659	Torres, Terri L
Sample: 580-25659-1	Torres, Terri L
Sample: 580-25659-3	Torres, Terri L
Sample: 580-25659-2	Torres, Terri L

Notifications

User Full Name	Date	Date	Notice Level	Verification Type
Torres, Terri L	04/18/2011		Level 1	Notify
Wunderlich, David	04/18/2011		Level 1	Review

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459405

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459406

Custody Seal
DATE 4/16-11
SIGNATURE Trudy Eastman

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459406

Goldstreak

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459405

Custody Seal
DATE 4-16-11
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459405

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number HELMOS (One receipt form per cooler)
Cooler Number/Name on CoC Chinook
Laboratory and Location ~~Test America~~ Anchorage
Lab SDG

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	YES	NO
5.	Did you attach shipper's packing slip to this form? (NA)		
6.	What kind of packing material was used? bubble wrap		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	YES	(NO)
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	*YES	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted? (NA)	YES	NO
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: HELMOS/Chinook		
	Temperature blank reading 4.2°C		
	Cooler temperature. 4.3°C		
	Identification number of thermometer rec#5		
16.	Is temperature within 4+/- 2°C? see above —	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)? (NA)	YES	NO

* Not checked in Anchorage

CORRECTIVE ACTION FORM ATTACHED (NA)

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Cooler to be repacked & shipped to Seattle

Page 690 of 705

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM05 (One receipt form per cooler)
Cooler Number/Name on CoC Chinook
Laboratory and Location TA-Sea
Lab SDG 580-25659-1

1.	Were custody seals on outside of cooler?	(YES)	NO
	If yes, how many and where? 2 1 front 1 back		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used? Bubble bag	(YES)	NO
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	YES	NO NA
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11ELM05		
	Temperature blank reading 0.2 / 0.1		
	Cooler temperature. -0.2 / -0.5		
	Identification number of thermometer 101844641		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO NA

CORRECTIVE ACTION FORM ATTACHED ~~YES~~ ~~NO~~ NA

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

Page 691 of 705

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459402

Custody Seal
DATE 4-14-11
SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459401

Custody Seal
DATE 4-14-11
SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459402

Custody Seal
DATE 4-14-11
SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459401

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number HELM06 (One receipt form per cooler)
Cooler Number/Name on CoC Coho
Laboratory and Location TestAmerica Anchorage
Lab SDG NA

		YES	(NO)
1.	Were custody seals on outside of cooler?		
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	YES	(NO)
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?	NA YES	NO
6.	What kind of packing material was used? bubble wrap		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	YES	(NO)
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO ~~x~~ (not checked)
11.	Did all bottle labels and tags agree with custody papers?	YES	NO ~~x~~ in anchorage
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted? NA	YES	NO
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: HELM06 / Coho		
	Temperature blank reading 4.4°C		
	Cooler temperature. 4.3°C		
	Identification number of thermometer rec #5		
16.	Is temperature within 4+/- 2°C? Sredouc	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	(NA) YES	NO
		(NA) YES	NO

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: repack and ship to Seattle

Page 693 of 705

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number: 11E1M06 (One receipt form per cooler)
Cooler Number/Name on CoC: Coho
Laboratory and Location: TA-Sea
Lab SDG: 580-25659

		(YES)	NO
1.	Were custody seals on outside of cooler? If yes, how many and where? 2 / front / back	(YES)	NO
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used? Bubble bag	(YES)	NO
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	YES	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11E1M06		
	Temperature blank reading 0.7 / 0.6		
	Cooler temperature. 1.2 / 1.1		
	Identification number of thermometer 101844641		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO NA

CORRECTIVE ACTION FORM ATTACHED ~~YES NO NA~~

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

04/27/2011

Page 694 of 705

Coho

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459407

Custody Seal
DATE 4-18-11
SIGNATURE Troy Engstrom

8 - 1

res'd

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459407

3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459408

Custody Seal
DATE 4-18-11
SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459408

04/27/2011

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM07 (One receipt form per cooler)
Cooler Number/Name on CoC Arctic Char
Laboratory and Location Test America Anchorage
Lab SDG

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	YES	NO
5.	Did you attach shipper's packing slip to this form? (NA)	YES	NO
6.	What kind of packing material was used? Bubble Wrap		
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	YES	(NO)
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO + not checked in anchorage
11.	Did all bottle labels and tags agree with custody papers?	YES	NO
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted? NA	YES	NO
14.	Was sufficient amount of sample sent in each bottle?	YES	NO
15.	Chain-of-custody identification number: 11ELM07		
	Temperature blank reading 2.7°C		
	Cooler temperature. 2.9°C		
	Identification number of thermometer Refer 5 - Seabee -		
16.	Is temperature within 4+/- 2°C?	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)? (NA)	YES	NO

CORRECTIVE ACTION FORM ATTACHED (NA)

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Coolers to be packed and shipped to Seattle.

Page 696 of 764

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11 ELM07 (One receipt form per cooler)
Cooler Number/Name on CoC Arctic Char
Laboratory and Location TA Sac
Lab SDG 580-25659

1.	Were custody seals on outside of cooler?	YES NO
	If yes, how many and where? 2 1 back 1 front	
	Were signatures and dates correct?	YES NO
2.	Were custody papers taped to lid inside of cooler?	YES NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	YES NO
4.	Did you sign custody papers in the appropriate place?	YES NO
5.	Did you attach shipper's packing slip to this form?	YES NO
6.	What kind of packing material was used? Bubble bags	
7.	Was sufficient ice used (if appropriate)?	YES NO
8.	Were all bottles sealed in separate plastic bags?	YES NO
9.	Did all bottles arrive in good condition?	YES NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES NO
11.	Did all bottle labels and tags agree with custody papers?	YES NO
12.	Were correct bottles used for the tests?	YES NO na
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	YES NO
14.	Was sufficient amount of sample sent in each bottle?	YES NO
15.	Chain-of-custody identification number: 11 ELM07	
	Temperature blank reading 0.5 / 0.4	
	Cooler temperature. 0.8 / 0.7	
	Identification number of thermometer T01844641	
16.	Is temperature within 4+/- 2°C?	YES NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES NO

~~YES NO~~ N/A

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

Page 697 of 705

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459385

Custody Seal 4-16-11

DATE

SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459386

Custody Seal 4-16-11

DATE

SIGNATURE

Temp Blank
10 - 1 L amber w/HCL

Arctic Env

295-5510

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459385

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459386

Shipping Summary

Client Samples:

Sets	Bottles/Set	Bottle Type Description	Preservative	Method	Matrix	Comments
1	1	Amber Glass 1 liter - Hydrochloric	Hydrochloric Acid	1664A_Calc - Polar and Nonpolar Oil and Grease	Water	FOG
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	
				1664A_Calc - Polar and Nonpolar Oil and Grease	Water	

Please notify us immediately if an error is found in shipment

ATTACHMENT C
COOLER RECEIPT FORM

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number 11ELM08 (One receipt form per cooler)
Cooler Number/Name on CoC 11ELM08 / Fishie
Laboratory and Location Test America - Anchorage
Lab SDG

1.	Were custody seals on outside of cooler?	YES	(NO)
	If yes, how many and where? NA		
	Were signatures and dates correct?	YES	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place? NA.	YES	NO
5.	Did you attach shipper's packing slip to this form?	(YES)	NO
6.	What kind of packing material was used? bubble wrap	YES	(NO)
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	YES	NO*
9.	Did all bottles arrive in good condition?		* not checked in Anchorage
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	YES	NO*
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	(YES)	NO
13.	Were VOA vials checked for absence of air bubbles, and if present noted? NA	YES	NO
14.	Was sufficient amount of sample sent in each bottle?	(YES)	NO
15.	Chain-of-custody identification number: 11ELM08 / Fishie		
	Temperature blank reading 4.9°C		
	Cooler temperature. 4.7°C		
	Identification number of thermometer rec#5		
16.	Is temperature within 4+/- 2°C? — see above —	YES	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	(NA) YES	NO

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time NA

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: Cooler dropped off at test America Anchorage for shipment to Seattle.

04/27/2011

Page 700 of 705

ATTACHMENT C
COOLER RECEIPT FORM

04/27/2011

Fax this form and the CoC records to Jacobs Program/Project Chemist within 24 hours of receiving sample.

CoC Number: 11 ELM 06 (One receipt form per cooler)
Cooler Number/Name on CoC: Fishie
Laboratory and Location: TA-Sea
Lab SDG: 580-25659-1

1.	Were custody seals on outside of cooler?	(YES)	NO
	If yes, how many and where? 2 1/front 1/back		
	Were signatures and dates correct?	(YES)	NO
2.	Were custody papers taped to lid inside of cooler?	(YES)	NO
3.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
4.	Did you sign custody papers in the appropriate place?	(YES)	NO
5.	Did you attach shipper's packing slip to this form?		
6.	What kind of packing material was used? Bubble bag	(YES)	NO
7.	Was sufficient ice used (if appropriate)?	(YES)	NO
8.	Were all bottles sealed in separate plastic bags?	(YES)	NO
9.	Did all bottles arrive in good condition?	(YES)	NO
10.	Were all bottle labels complete (number, date, signed, analysis, pres., etc.)?	(YES)	NO
11.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
12.	Were correct bottles used for the tests?	YES	NO na
13.	Were VOA vials checked for absence of air bubbles, and if present noted?	(YES)	NO
14.	Was sufficient amount of sample sent in each bottle?		
15.	Chain-of-custody identification number: 11 ELM 06		
	Temperature blank reading 1.2 / 1.1		
	Cooler temperature. 1.3 / 1.2		
	Identification number of thermometer 101844641		
16.	Is temperature within 4+/- 2°C?	(YES)	NO
17.	Were labels correctly associated with pre-tared containers? (not placed directly on jars)?	YES	NO NA

~~YES NO~~ N/A

CORRECTIVE ACTION FORM ATTACHED

Jacobs Project Chemist contacted? Date/Time _____

Attach associated CoC record and Conversation Confirmer forms.

Explain any discrepancies: _____

Page 701 of 705

Custody Seal 4-16-11

DATE

SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459410

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459409

Custody Seal 4-16-11

DATE

SIGNATURE Troy Engstrom

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
459409

Goldstreak

SEA

027 ANC 9242 8033

AS	098	SEA	1720

Date
16 APR 11

Pieces
8

Total Weight
414

Piece Weight

Box Number
2

SHIPPER
PHONE #
9075639200

CONSIGNEE
PHONE #
2539222310

Goldstreak Goldstreak

Alaska Air Cargo

www.alaskaair.com

04/27/2011

Alaska Air Cargo™
ALASKA AIRLINES & HORIZON AIR

P.O. BOX 68900 SEATTLE, WA 98168
800-225-2752 ALASKACARGO.COM

SHIPPER
TESTAMERICA LABORATORIES INC
2000 W International Airport Rd
Ste 10A
Anchorage, AK 99502

CONSIGNEE
Test America Laboratories Inc
5755 8TH STREET E
TACOMA, WA 98498

AWB Number	Pieces	Weight	Origin / Dest	Nature of Goods	Arriving Flight Details	Customs
027-92428033	8	414.0 Lb	ANC-SEA	H2O SAMPLES	AS 098 16-Apr-2011	

Storage Locations: COOLER 8

LOCAL CHARGES :

Bonded Warehouse ☐

Total Local Charges:	USD	0.00
VAT 0.70%:	USD	0.00
Grand Total:	USD	**0.00**

PO Number

RECEIPT STATEMENT

The undersigned acknowledge the receipt of above mentioned consignment complete and in good condition.

Date: 18-Apr-2011
Time: 08:15
Driver: CURTIS ARMSTRONG

Registration: .....
Signature: 

027 ANC 9242 8033 027-9242 8033

04/27/2011

Page 704 of 705

Not Negotiable

Air Waybill

Issued By

Alaska Air Cargo™
ALASKA AIRLINES & HORIZON AIR
P.O. BOX 68900 SEATTLE, WA 98168
800-225-2752 ALASKACARGO.COM

Shipper's Name and Address
TESTAMERICA LABORA
2000 W International Airport Rd
Ste 10A
Anchorage, AK 99502
USA
Tel: 9075639200

Shipper's Account Number: 27442464535
Customer's ID Number: 30049

Consignee's Name and Address
Test America Laboratories
5755 8TH STREET E
TACOMA, WA 98498
USA
Tel: 2539222310

Consignee's Account Number: 27442464535

Also notify
Tel:

Issuing Carrier's Agent and City

Accounting Information: 13446
Test America Laboratories Inc
5755 8TH STREET E
TACOMA, WA 98498
USA

Agent's IATA Code

Account No.

Airport of Departure (Addr. of First Carrier) and Requested Routing
Anchorage

GoldStreak

To	By First Carrier	To / By	To / By	Currency		WT/VAL		Other		Declared Value For Carriage	Declared Value For Customs
SEA	Alaska Airlines			USD	PX	X		X		NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Seattle	AS 098/16		XXX

Handling Information
NOA 253 922 2310 ETA 932
XRAY ONLY PLS ** JACOBS COOLERS **

SCI

No of Pieces	Gross Weight	kg lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
8	414.0	L Q		414.0		AS AGREED	H2O SAMPLES Dims: 23 x 13 x13 x 4 24 x 13 x14 x 1 26 x 13 x16 x 1 26 x 13 x13 x 1 GSX PER 23 x14 x 1
8	414.0					AS AGREED	Volume: 19.620

Prepaid	Weight Charge	Collect
AS AGREED		

Valuation Charge

Tax

Total Other Charges Due Agent

Total Other Charges Due Carrier

Total Prepaid	Total Collect
AS AGREED	

Other Charges
MYC 82.80
SCC 8.28

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.

For: TESTAMERICA LABORATORIES INC

Signature of Shipper or his Agent

[X] THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

[ ] THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

16 Apr 2011 13:02 — Executed On (Date)
Anchorage — at (Place)
Alaska Airlines — Signature of Issuing Carrier or its Agent

027-9242 8033

CoC VARIANCE REQUEST

Change Requestor:	Sara Hadden	Laboratory Project Manager:	Terri Torres
Date/Time Requested:	4/19/11	Jacobs Project Chemist:	Sara Hadden
Jacobs Site Manager:	Cathy Truemper	Jacobs Contracts Administrator	Sarah Nutt
Project Name/Number	Cherry Hill TO25		

Laboratory Sample Delivery Group Number: 580-25659

Action to be taken (add analyses, change turnaround time, delete analysis, etc.): Change sample time

Specific Requirements

Jacobs Sample Number	Lab Sample Number	Action	Added Cost
FH-SP05A-WG	580-25659-5	Please change the sample collection time from 1227 to 1427.	N/A
		Total Additional Cost:	0

Comments/Justification:

Authorization: To ensure proper action is authorized, transmit this form via facsimile to Jacobs Project Chemist for signature approval. Jacobs Project Chemist will sign and return this form via facsimile to the Laboratory Project Manager to initiate change implementation.

Client Approval: Sara B Hadden Date: 4/19/11

This form will be used to track changes to the chain-of-custody record and will not be used to modify or increase the value of a delivery order.

Signed Copy Routing: Jacobs Project Chemist, Jacobs Site Manager, Jacobs Contracts Administrator

Laboratory Data Review Checklist

Completed by: David Summerville

Title: Chemist Date: 6-8-2011

CS Report Name: Fish Hatchery Investigative Sampling Report Date: June 2011

Consultant Firm: Jacobs Engineering Group Inc.

Laboratory Name: TestAmerica Seattle Laboratory Report Number: 580-25659-1

ADEC File Number: ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ●Yes □ No □NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      □Yes □ No ●NA (Please explain.) Comments:

      All samples were analyzed by TestAmerica Seattle.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ●Yes □ No □NA (Please explain.) Comments:

   b. Correct analyses requested?
      ●Yes □ No □NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

□Yes ● No □NA (Please explain.) Comments:

For cooler "Pink" the temperatures upon receipt at Seattle were -0.3° C (temp blank) and 0.3° C (cooler). For cooler "Arctic Grayling" the temperatures upon receipt at Seattle were 0.7° C (temp blank) and 1.2° C (cooler). For cooler "Sockeye" the temperatures upon receipt at Seattle were 0.3° C (temp blank) and 0.0° C (cooler). For cooler "Chum" the temperatures upon receipt at Seattle were 0.2° C (temp blank) and 0.3° C (cooler). For cooler "Chinook" the temperatures upon receipt at Seattle were 0.2° C (temp blank) and -0.2° C (cooler). For cooler "Coho" the temperatures upon receipt at Seattle were 0.6° C (temp blank) and 1.1° C (cooler). For cooler "Arctic Char" the temperatures upon receipt at Seattle were 0.4° C (temp blank) and 0.7° C (cooler). For cooler "Fishie" the temperatures upon receipt at Seattle were 1.1° C (temp blank) and 1.2° C (cooler).

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

●Yes □ No □NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

●Yes □ No □NA (Please explain.) Comments:

One VOA vial each from samples FH-SP01A-WG, FH-SP02A-WG, FH-SP03A-WG had headspace. Prior to analysis it was noted that an additional vial from FH-SPO1A-WG and one vial from sample OU5MW12-2011-WG also had headspace.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

●Yes □ No □NA (Please explain.) Comments:

For sample FH-07A-WG the amber bottles were labeled as FH-07B-WG. 07A was written on the caps of the amber bottles. All containers for FH-07B-WG were accounted for and labeled correctly. Lined samples up per sample caps and logged in as FH-07A-WG.

The VOA vials with headspace and temperatures outside of 4° ± 2° C were documented on the cooler receipt forms.

e. Data quality or usability affected? (Please explain.)

Comments:

The data quality is affected for vials with headspace used for the analysis of 8260 BTEX. The BTEX results may be biased slightly low for sample FH-SP01A-2011-WG and OU5MW12-2011-WG. The sample temperatures outside of acceptable range do not affect the data quality or usability, since there was no note of frozen samples.

4. Case Narrative
    a. Present and understandable?
        ●Yes □ No □NA (Please explain.) Comments:

    b. Discrepancies, errors or QC failures identified by the lab?
        ●Yes □ No □NA (Please explain.) Comments:

QC failures are discussed in the relevant sections of this checklist. Additional items identified by the laboratory include:

SW8260 - Several vials had headspace upon receipt at the laboratory (one vial each for samples FH-SP01A-WG, FH-SP02A-WG, FH-SP03A-WG). Two more vials were identified prior to analysis (one vial each for FH-SP01A-WG and OU5MW12-2011-WG). For samples FH-SP01A-WG and OU5MW12-2011-WG, a vial with headspace was used for the analysis. The pH was greater than 2 for sample FH-SP01A-WG. Several samples had significant amounts of sediment and were centrifuged prior to analysis.

    c. Were all corrective actions documented?
        ●Yes □ No □NA (Please explain.) Comments:

    d. What is the effect on data quality/usability according to the case narrative?
        Comments:

The data quality is affected for vials with headspace and/or pH> than 2 used for the analysis of 8260 BTEX. The BTEX results may be biased slightly low for sample FH-SP01A-2011-WG and OU5MW12-2011-WG.

5. Samples Results
    a. Correct analyses performed/reported as requested on COC?
        ●Yes □ No □NA (Please explain.) Comments:

    b. All applicable holding times met?
        ●Yes □ No □NA (Please explain.) Comments:

    c. All soils reported on a dry weight basis?
        Yes □ No ●NA (Please explain.) Comments:

No soil samples were submitted.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

●Yes □ No □NA (Please explain.) Comments:

e. Data quality or usability affected?

Comments:

The data quality and usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

●Yes □ No □NA (Please explain.) Comments:

ii. All method blank results less than PQL?

□Yes □ No □NA (Please explain.) Comments:

All method blank results were less than ½ the LOQ.

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

□Yes □ No ●NA (Please explain.) Comments:

No data flags were required.

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

●Yes □ No □NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

□Yes □ No ●NA (Please explain.) Comments:

No metal/inorganic analyses were requested.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
●Yes □ No □NA (Please explain.) Comments:

AK102 - The DRO MS/MSD recoveries for sample FH-SP06A-WG were outside of QC limits.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
●Yes □ No □NA (Please explain.) Comments:

The DRO MS/MSD RPD for sample FH-SP06A-WG exceeds QC criteria.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments:

FH-SP06A-WG

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
□Yes ● No NA (Please explain.) Comments:

Sample FH-SP06A-WG does not require a data flag. Data flags are not required when the parent sample concentration is greater than the spike concentration

vii. Data quality or usability affected? (Use comment box to explain.)
Comments:

The data quality and usability was not affected.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
●Yes □ No □NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)
●Yes □ No □NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?
□Yes □ No ●NA (Please explain.) Comments:

No data flags were required.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

The data quality and usability was not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

●Yes □ No □NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

●Yes □ No □NA (Please explain.) Comments:

iii. All results less than PQL?

●Yes □ No NA (Please explain.) Comments:

The trip blank results were all less than ½ the LOQ.

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

●Yes □ No □NA (Please explain.) Comments:

ii. Submitted blind to lab?

●Yes □ No □NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

●Yes □ No □NA (Please explain.) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality and usability was not affected.

f. Decontamination or Equipment Blank (If not used explain why).

□Yes □ No ●NA (Please explain.) Comments:

No decontamination or equipment blanks were collected.

i. All results less than PQL?

□Yes □ No ●NA (Please explain.) Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability was not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

●Yes □ No □NA (Please explain.) Comments:

ATTACHMENT B-2

Sample Summary

2011 Fish Hatchery
Sample Summary

CoC ID	Sample ID	Location ID	Collection Date	Time	Sampler	Number of Containers	Container Type	Volume	Preservative	Matrix	Analyses Requested	QC	TAT	Sample Depth (feet bgs)	Laboratory	SDG	Cooler ID
11ELM01	FH-BH01A-0-5-SO	FH-BH01	4/12/2011	11:31	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH01A-6-9-SO	FH-BH01	4/12/2011	11:52	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-9	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH02A-0-5-SO	FH-BH02	4/12/2011	12:16	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH02A-6-8.5-SO	FH-BH02	4/12/2011	12:35	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-8.5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH03A-0-5-SO	FH-BH03	4/12/2011	13:10	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH03A-6-10-SO	FH-BH03	4/12/2011	13:15	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-10	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH04A-0-5-SO	FH-BH04	4/12/2011	14:47	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH04A-6-6.5-SO	FH-BH04	4/12/2011	14:52	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-6.5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH05A-0-5-SO	FH-BH05	4/12/2011	15:28	CT/EB-K	2	Amber	8 oz	4ºC	SO	AK102	MS/MSD	30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH05A-6-10-SO	FH-BH05	4/12/2011	16:06	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-10	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH06A-0-5-SO	FH-BH06	4/12/2011	17:05	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH06A-6-10-SO	FH-BH06	4/12/2011	17:25	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-10	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH07A-0-5-SO	FH-BH07	4/12/2011	17:37	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH07A-6-10-SO	FH-BH07	4/12/2011	17:56	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102		30 day	6-10	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH03B-0-5-SO	FH-BH03	4/12/2011	13:10	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102	DUP	30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM01	FH-BH05B-0-5-SO	FH-BH05	4/12/2011	15:28	CT/EB-K	1	Amber	8 oz	4ºC	SO	AK102	DUP	30 day	0-5	TestAmerica Seattle	580-25610	Rainbow Trout
11ELM02	FH-SP01A-WG	FH-SP01	4/13/2011	10:15	CT/EB	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM09	FH-SP01A-WG	FH-SP01	4/13/2011	10:15	CT/EB	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Arctic Grayling
11ELM09	FH-SP01A-WG	FH-SP01	4/13/2011	10:15	CT/EB	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Arctic Grayling
11ELM02	FH-SP02A-WG	FH-SP02	4/13/2011	11:50	CT/EB	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM09	FH-SP02A-WG	FH-SP02	4/13/2011	11:50	CT/EB	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Arctic Grayling
11ELM09	FH-SP02A-WG	FH-SP02	4/13/2011	11:50	CT/EB	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Arctic Grayling
11ELM02	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM02	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Pink
11ELM02	FH-SP03A-WG-IP	FH-SP03	4/14/2011	10:04	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Pink
11ELM02	FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM03	FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Sockeye
11ELM03	FH-SP04A-WG-IP	FH-SP04	4/14/2011	12:25	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Sockeye
11ELM02	FH-SP05A-WG	FH-SP05	4/14/2011	14:27	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM04	FH-SP05A-WG	FH-SP05	4/14/2011	14:27	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Chum
11ELM04	FH-SP05A-WG	FH-SP05	4/14/2011	14:27	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Chum
11ELM02	FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	9	VOA	40 ml	4ºC, HCl	WG	SW8260	MS/MSD	30 day		TestAmerica Seattle	580-25659	Pink
11ELM06	FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	6	Amber	1 L	4ºC	WG	SW8270	MS/MSD	30 day		TestAmerica Seattle	580-25659	Coho
11ELM07	FH-SP06A-WG	FH-SP06	4/14/2011	15:10	CT/KC	6	Amber	1 L	4ºC, HCl	WG	AK102	MS/MSD	30 day		TestAmerica Seattle	580-25659	Arctic Char
11ELM02	FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM04	FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Chum
11ELM04	FH-SP07A-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Chum
11ELM02	FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM05	FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Chinook
11ELM05	FH-SP03A-WG-PP	FH-SP03	4/14/2011	9:34	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Chinook
11ELM02	FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink
11ELM05	FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Chinook
11ELM05	FH-SP04A-WG-PP	FH-SP04	4/14/2011	12:10	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Chinook
11ELM02	FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	3	VOA	40 ml	4ºC, HCl	WG	SW8260	DUP	30 day		TestAmerica Seattle	580-25659	Pink
11ELM08	FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber	1 L	4ºC	WG	SW8270	DUP	30 day		TestAmerica Seattle	580-25659	Fishie
11ELM08	FH-SP07B-WG	FH-SP07	4/14/2011	13:13	CT/KC	2	Amber	1 L	4ºC, HCl	WG	AK102	DUP	30 day		TestAmerica Seattle	580-25659	Fishie
11ELM02	FH-TB-WG	TB	4/13/2011	8:00	CT/EB	3	VOA	40 ml	4ºC, HCl	WG	SW8260	TB	30 day		TestAmerica Seattle	580-25659	Pink
11ELM08	OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	2	Amber	1 L	4ºC	WG	SW8270		30 day		TestAmerica Seattle	580-25659	Fishie
11ELM08	OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	2	Amber	1 L	4ºC, HCl	WG	AK102		30 day		TestAmerica Seattle	580-25659	Fishie
11ELM02	OU5MW12-2011-WG	OU5MW12	4/15/2011	12:15	CT/EB	3	VOA	40 ml	4ºC, HCl	WG	SW8260		30 day		TestAmerica Seattle	580-25659	Pink

Notes:
L - liter, ml - milliilter, oz - ounces
DUP = duplicate
HCL = hydrochloric acid
MS/MSD = matrix spike/matrix spike duplicate
SO = soil
VOA = volatile organic analysis
WG = groundwater

APPENDIX C

Field Logbook and Data Forms

No. 550 ENVIRONMENTAL - POLY
32281 55011 2
ISBN 978-1-932149-36-4

T025 ELMENDORF COMPLIANCE PROJECTS

"Rite in the Rain"®

ALL-WEATHER

ENVIRONMENTAL

No. 550

05F52507

JUNE 2010 - [illegible]

GROUNDWATER.

22

Location Fish Hatchery Date 9/12/11

Project / Client USAF

CT & EB-K Sunny 40s-50s

7:20 arrive at work site

7:30 Geotek arrives, unload rig after briefly discussing unloading safety procedures

7:45 Personnel to trailer for HASCom & SPA discussions

9:20 unload & set up

Calibrate petroflag
Blank = 0
Cal Std = 1999
- redo -
Blank = 0
Cal Std = 2000

10:39 BH01 complete
Depth = ~15'

10:53 Screening 1 - BH01A - 0-5' 4.5°C 91
GW at 9' 10.0g
utility locate discussion
11:31 1 - DRO 4oz jar DTW = 9'

Location Fish Hatchery Date 9/12/11

Project / Client USAF

CT & EB-K Sunny 40s

11:58 Screening 2 BH01 6-9' 11.52
~~10.7g~~ 9.7g R=15 1 DRO 4oz - Hit
BH02 - 8.5' to groundwater

11:38 Screening 3 BH02 0-5'
9.9g Reading = 571
DRO 4oz jar - 12:16

12:30 Screening 4 BH02 6-8.5'
10.2g Reading = 295
DRO 4oz jar - 12:35

13:00 Screening 5 BH03 0-5'
10.3g Reading = 157
DRO + Dup ~~13:10~~ 13:10 Dup
Depth to water BH03 = 10'

13:15 Screening 6 BH03 6-10'
10.1g Reading = 345
DRO 4oz jar ~~13:15~~ 13:15
BH04 DTW - 6.5

14:38 Screening 7 BH04 0-5'
9.8g Reading = 723
DRO 4oz jar 14:47

14:59 Screening 8 - BH04 6-6.5' (DTW = 6.5')
recal ~~9.8~~ 10.2g Reading = Err 4 (opaque white)
Reading 449 Dirty sample - color
DRO 4oz jar - 14:52

Location Fish Hatchery Date 4/12/11

Project / Client USAF

CT & EB-K + GeoTek

15:56 Screening 9 BH05 0-5'

~~9.8g~~ 10.5g ~~Reading Err~~

9.8g 720

DRO 4oz jar X3 15:28 MS/MSD + Dup2

17:02 Screening 10 BH05 6-10'

~~10.1g~~ Reading = 203

9.9g DRO 4oz jar - 16:06

17:35 Screening 11 BH06 0-5'

Reading = 690

9.8g DRO 4oz jar - 17:05

18:00 Screening 12 BH 06 6-10'

reading = 254

9.9g DRO 4oz jar - 17:25

Screening 13 BH07 0-5'

Reading = 5

9.9g DRO-4oz jar - 17:37

Screening 14 BH07 6-10'

9.9 Reading 47

DRO-4oz jar - 17:56

Location Hatchery Date 4/13/11

Project / Client USAF

CT + EB-K ~~40~~ 23° Sunny

7:30 Arrive onsite - Tailgate

Safety topic - slippery mud, Traffic

8:00 Setup at BH01

Sp 16 Total Depth 17.83'

Stick up = ~~3.3~~' DTW = 11.88

(From top of casing)

purge GW - highly turbid

Turbidity meter = 83

used inertial pump method, then Bailer. Purged ~1gal, no change in turbidity

Called office to discuss use of peristaltic pump tomorrow - will use both inertial method and peristaltic to collect 2 sets of samples from 2 wells tomorrow

Sample FH-SP01A-WG

Collected 10:15

3X 40AS VOCs

2X 1L unpreserved SVOCs

2X 1L HCl preserved DRO

Location Hatchery Date 4/13/11

Project / Client USAF

CT & EBK Sunny

11:29 Drill SP16 at BH02
GW ~ 8.5 put in to ~14'
purge ~1 gal w/ Inertial pump (IP)
Very Turbid (Reading = E3)
Collect Sample at 11:50
3 x VOAs w/HCl VOCs
2 x 1L w/HCl DRO
2 x 1L unpres. SVOCs
Finish at BH02 at 12:20
Pack up & take Lunch

13:00 Arrive back at East Side of Site
Started gathering materials together when Elizabeth was finishing her Lunch. As she was putting on her PPE to join me, she sliced her finger on a broken dog dish in the back of her vehicle.
Cathy drove her to the doctor and the drillers were dismissed after we left. Samples were dropped off in the basement fridge.

20:23 Incident Reporting / SIT rep

Location Hatchery Date 4/14/11

Project / Client USAF

CT & KC (Kenton Curtis) ~ 38 Sunny

7:10 pickup Kenton
7:25 arrive on site Safety mtg
Kenton meets w/ Site Safety Kulwest

Setup at SP03 use peristaltic pump to reduce turbidity

Collect sample from peristaltic 9:34
VOCs, SVOCs, & DRO FH-SP03A-WG-PP
Collect sample from inertial pump at 10:04 VOCs, SVOCs, & DRO (-IP
Do not do East Side of Site

Setup at SP04 (IP & PP)

12:11 Collect SP04A-WG PP (Peristaltic Pump = PP)
2 x 1L unpres. SVOCs
2 x 1L HCl DRO Sample time = 12:10
3 x VOAs VOCs
Turbidity = 41.0

12:25 Collect SP04A-WG IP (Inertial Pump)
Sample time = 12:25
Turbidity = "E3" Highly Turbid
2 x 1L unpres SVOCs

Location Hatchery Date 4/14/11

Project / Client USAF

CT & KC

2 X 1L HCl DRO
3 X 40ml VOAs VOCs

12:~~18~~ CT - Setup at SP07
The turbidity seems to go right back up as soon as the inertial pump is used. SP07, 06, & 05 will be collected with just the inertial pump. Even using the peristaltic pump to purge does not ~~effect~~ reduce the turbidity in the IP Sample.

12:30 Neil Kinnebrew arrives onsite

Load coolers into his vehicle, Call Tracy to demob the tables Coordinate SP06 & SP05 locations for the drillers

13:13 Collect Sample FH-SP07A-W6 w/ Inertial pump. - Turbid
(Dup) Collect Duplicate FH-SP07B-W6
6X 40ml VOAs VOCs

Location Hatchery Date 4/14/11

Project / Client USAF

CT & KC

4 X 1L HCl DRO
4 X 1L unpres. SVOCs
(Neil left the site)

14:18 Set up at SP05 (In Roadway) parked car to block traffic, Set up Orange poles before car, (no Safety tape, must have been taken w/ Knust)

14:27 Collect sample FH-SP05A-W6 w/ inertial pump.
3X VOAs, 2 X 1L, 2X1L w/HCl

Reset SP06 - no water in well & hit Something hard at ~1ft. Reset to ~3ft Southeast of initial point.

15:03 Set up at SP06
(MS/MSD) Purge ~0.5 gal w/ Inertial Pump. Sample FH-SP06A-W6 at 15:10 (MS/MSD)
9 X VOAs 6 X 1L w/HCl 6 X 1L
pack SUV, Store purge water

16:30 Demob

Location Hatchery Date 4/15/11

Project / Client USAF

CT & EB-K Sunny

8:00 Calibrate YSI 15°C

pH: 10 → 10.03 → 10.11
7 7.03 → 7.04
4 ~~4.~~ 3.99 → 4.00

Cond 1.147 → 1.147

ORP 246.3 → 201.4

DO 98.2 → 100.9%

9:10 (Tailgate mtg) Indepth hard-safety discussion
~~9:10~~ Mobilize equipment to well
9:40 Monsoon pump doesn't work
open up pump, check motor,
retry - doesn't work, no noise
at all.
YSI ~~value~~ connector broke
off in tubing.

10:54 ~~9:40~~ Begin purging - Good recharge
Take YSI readings
12:15 Sample - ~~FH~~ FH-045MW12A-2011-ND
3X VOAS VOCS
2X 1L w/HCl DRO

Location Hatchery Date 4/15/11

Project / Client USAF

CT & EB-K

2 X 1L unpres SVOCs
12:20 Kelly McGovern stopped to talk
15:00 Decon equipment
Store purge water in Sec. containment
Waste total:
2 X 5 gal Buckets Soil cuttings
4 X 5 gal Buckets (full) of
purge water
1 gal drum of methanol

14:05 Informed DOT we have demobed

14:40 Stopped by TTT to return rentals
- tubing had been taped together
- Monsoon pump - used replacement pump
- Broke connector on YSI

Wrote up COCs for 8 coolers
Labels for 045MW12
18:25 Dropped off samples at 18:25
19:00 Left Lab
20:00 S.t Rep
CJ

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/13/2011 Start Time: 9:15 Finish Time: 11:10 Sampled By: CT/KB PID Reading: Not taken, temporary SP16 well Weather Conditions:	Well ID: FH-SP01 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type: (Oil/Water Interface) Electronic Water Indicator Other_____

Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
2	0.17	0.0069
(0.5)	0.01	0.000434

Purging Information previous location = 11.04 to GW, 12.16 to bottom - ref

Start Time: 9:30
Finish Time: 10:14

Depth to GW: 11.883' (previous)
Total Depth of Casing: 17.83'
Product Level: ——
Amount of Product: ——

Purging Equipment: (Bailer) (Inertial Pump) Submersible Pump

Casing Volume (Gallons) = 3.14 x (0.000434) x (_____ - _____) x 7.48 = _____ Gallons **x 6 =** _____ 6 casing volumes

Casing Radius^2 (ft) | T.D. of Casing (ft) | Depth to GW (ft)

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
9:57	1.0				E3- Turbid			

continued on back of form →

Color: Clear (Cloudy) Yellow (Brown)

Odor: (None) Faint Moderate Strong — Good recharge

Purged Dry? Yes (No)

Sheen? Yes (No)

Meters Used: YSI Horiba U-22 (Hach Turbidimeter)

Discharge Water: Treated Discharged (Stored)

Sampling Information

Date: 4/13/11
Start Time: 10:15
Finish Time: 10:47
Depth of Tubing: 13.2
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer (Inertial Pump) Submersible Pump PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP01 A-WG	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP01 A-WG	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP01 A-WG	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
~~FH-SP~~ B-WG		~~FH-TB01 -WG~~ Site 7
		FH-TB01-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/13/2011 Start Time: 11:29 Finish Time: 12:20 Sampled By: CT/KB PID Reading: Not taken, temporary SP16 well Weather Conditions:	Well ID: FH-SP02 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type:	Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
(Oil/Water Interface)	2	0.17	0.0069
Electronic Water Indicator	(0.5)	0.01	0.000434
Other_____			

Purging Information

Start Time: 11:33 Finish Time: 12:15	Depth to GW: 12.31 Total Depth of Casing: 17.81 Product Level: — Amount of Product: —	**Purging Equipment** Bailer (Inertial Pump) Submersible Pump

Casing Volume (Gallons) = 3.14 x (_0.000434__) x (_____ - _____) x 7.48 = _____ Gallons **x 6** = _____ 6 casing volumes

(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
11:45	1.0				Extra turbid			

continued on back of form —>

Color: Clear; (Cloudy); Yellow; (Brown)

Odor: ~~None~~; Faint; Moderate; Strong

Good Recharge

Purged Dry?: Yes; (No)

Sheen?: Yes; (No)

Meters Used: YSI; Horiba U-22; (Hach Turbidimeter)

Discharge Water: Treated; Discharged; (Stored)

Sampling Information

Date: 4-13-11
Start Time: 11:50
Finish Time: 12:15
Depth of Tubing: 13.87
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer; (Inertial Pump); Submersible Pump; PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP02A-WG	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP02A-WG	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP02A-WG	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP____B-WG		FH-TB01-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/14/2011 Start Time: 8:35 Finish Time: 10:30 Sampled By: CT/~~KB~~ RC PID Reading: Not taken, temporary SP16 well Weather Conditions:	Well ID: FH-SP03 Well Type: (Monitor-SP16) Extraction Well Material: PVC, (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type: (Oil/Water Interface) Electronic Water Indicator Other _____

Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
(2)	0.17	0.0069
(0.5)	0.01	0.000434

Purging Information

Start Time: 9:00
Finish Time: 10:02

Depth to GW: 13.89
Total Depth of Casing: 17.57
Product Level: —
Amount of Product: —

Purging Equipment: Bailer, (Inertial Pump) # Peristaltic, Submersible Pump

Casing Volume (Gallons) = 3.14 x (0.000434) x (_____ - _____) x 7.48 = _____ Gallons x 6 = _____ 6 casing volumes

(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
9:22	~ Peristaltic				377			
9:25					84.1			
9:28					38.6			
9:34					23.5			
10:02	~ Inertial				8.3			
	~ 1 gal total (w/ peristaltic)							

continued on back of form →

Color	Odor	Purged Dry?	Meters Used	Discharge Water
Clear	(None)	Yes (No)	YSI	Treated
(Cloudy)	Faint		Horiba U-22	Discharged
Yellow	Moderate	Sheen?	(Hach Turbidimeter)	(Stored)
Brown	Strong	Yes (No)		

Sampling Information

Date: 4/14/11
Start Time: Peristaltic: 9:34 Inertial: 10:04
Finish Time: P: 9:45 I: 10:20
Depth of Tubing: 15.4
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer (Inertial Pump) ~~Submersible Pump~~ PDB; (Peristaltic Pump) PP

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
Inertial Pump: FH-SP03 A-WG-IP	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP03 A-WG-IP	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP03 A-WG-IP	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	
Peristaltic Pump: FH-SP03A-WG PP	3X 40mL VOA	VOCs	4C, HCl	
FH-SP03A-WG PP	2X1L	DRO	4C, HCl	
FH-SP03A-WG-PP	2X1L	SVOCs	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP___B-WG		FH-TB01-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/14/2011 Start Time: 11:00 Finish Time: 13:10 Sampled By: CT/KC PID Reading: Not taken, temporary SP16 well Weather Conditions:	Well ID: FH-SP04 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type: (Oil/Water Interface) Electronic Water Indicator Other _____

Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
2	0.17	0.0069
(0.5)	0.01	0.000434

Purging Information

Start Time: 11:50
Finish Time:

Depth to GW: 8,01
Total Depth of Casing: 12,79
Product Level: 8,00
Amount of Product: 0,01

Purging Equipment
Bailer (Inertial Pump) (Peristaltic) Submersible Pump

Casing Volume (Gallons) = 3.14 x (_0.000434__) x (_____ - _____) x 7.48 = _____ Gallons **x 6 =** _____ 6 casing volumes
(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
11:53	Peristaltic				83			
11:56					34.4			
11:59					74.2			
12:02	~1 gal				41.0			
12:25	Inertial				83			

continued on back of form →

Color	Odor	Purged Dry?	Meters Used	Discharge Water
Clear	None	Yes (No)	YSI	Treated
(Cloudy)	Faint		Horiba U-22	Discharged
Yellow	Moderate	Sheen?	(Hach Turbidimeter)	(Stored)
Brown	(Strong)	(Yes) No		

Sampling Information

Date: 4-14-11
Start Time: P: 12:10 I: 12:25
Finish Time: P: 12:20 I: 13:00
Depth of Tubing: 10,5
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment
Bailer (Inertial Pump) Submersible Pump PDB
IP & (Peristaltic) PP

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP04 A-WG PP	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP04 A-WG PP	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP04 A-WG PP	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	
FH-SP04A-WG-IP	3X40mL VOA	VOCs	4C HCl	
FH-SP04A-WG-IP	2X1L	DRO	4C, HCl	
FH-SP04A-WG-IP	2X1L	SVOCs	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP___B-WG		FH-TB 01-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/14/2011 Start Time: ~~2:18~~ 14:18 CT Finish Time: ~~3:00~~ 15:00 Sampled By: CT/KB PID Reading: Not taken, temporary SP16 well Weather Conditions: Hot	Well ID: FH-SP05 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type: (Oil/Water Interface) Electronic Water Indicator Other_____

Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
2	0.17	0.0069
(0.5)	0.01	0.000434

Purging Information

Start Time: 14:20
Finish Time: 14:25

Depth to GW: 9.27
Total Depth of Casing: 17.81
Product Level: —
Amount of Product: —

Purging Equipment: Bailer (Inertial Pump) Submersible Pump

Casing Volume (Gallons) = 3.14 x (0.000434) x (_____ - _____) x 7.48 = _____ Gallons x 6 = _____ 6 casing volumes

(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
14:20	0.5 gal				E3			
14:25	0.75 gal				E3			

continued on back of form →

Color: Clear (Cloudy) Yellow Brown

Odor: (None) Faint Moderate Strong

Purged Dry?: Yes (No)

Sheen?: Yes (No)

Meters Used: YSI Horiba U-22 (Hach Turbidimeter)

Discharge Water: Treated Discharged (Stored)

Sampling Information

Date: 4/14/2011
Start Time: ~~12:27~~ 14:27 CT
Finish Time: ~~12:44~~ 14:47
Depth of Tubing: ~~16.31~~
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer (Inertial Pump) Submersible Pump PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP05 A-WG	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP05 A-WG	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP05 A-WG	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP___B-WG		FH-TB01-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/14/2011 Start Time: 1503 Finish Time: 16:30 Sampled By: CT/~~KB~~KC PID Reading: Not taken, temporary SP16 well Weather Conditions: 40s Cloudy	Well ID: FH-SP 06 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type: (Oil/Water Interface) Electronic Water Indicator Other_____

Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
2	0.17	0.0069
(0.5)	0.01	0.000434

Purging Information

Start Time: 15:03
Finish Time: 15:09

Depth to GW: 11.56
Total Depth of Casing: 17.31
Product Level:
Amount of Product:

Purging Equipment: Bailer (Inertial Pump) Submersible Pump

Casing Volume (Gallons) = 3.14 x (_0.000434__) x (_____ - _____) x 7.48 = _____ Gallons x 6 = _____ 6 casing volumes

(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
15:05	0.5				ES			

continued on back of form →

Color	Odor	Purged Dry?	Meters Used	Discharge Water
Clear	None	(Yes) No recharged	YSI	Treated
(Cloudy)	(Faint)	Sheen?	Horiba U-22	Discharged
Yellow	Moderate	Yes (No)	(Hach Turbidimeter)	Stored
Brown	Strong			

Sampling Information

Date: 4/14/11
Start Time: 15:10
Finish Time: 16:00
Depth of Tubing: 16.31 (Low recharge)
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer (Inertial Pump) Submersible Pump PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP 06 A-WG	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP 06 A-WG	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP 06 A-WG	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP____B-WG		FH-TB____-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: **05F52507** Date: 4/4/2011 Start Time: 12:18 Finish Time: 14:00 Sampled By: CT~~AB~~ AC PID Reading: Not taken, temporary SP16 well Weather Conditions:	Well ID: FH-SP07 Well Type: (Monitor-SP16) Extraction Well Material: PVC (Stainless Steel) Well Integrity: (Excellent) Good Fair Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type:	Casing Diameter (in)	Gallons/Linear Foot	Casing Radius^2 (ft)
(Oil/Water Interface)	2	0.17	0.0069
Electronic Water Indicator	(0.5)	0.01	0.000434
Other_____			

Purging Information

Start Time: 13:00
Finish Time: 13:10

Depth to GW: 9.28
Total Depth of Casing: 16.89
Product Level: —
Amount of Product: —

Purging Equipment
Bailer
(Inertial Pump)
Submersible Pump

Casing Volume (Gallons) = 3.14 x (_0.000434__) x (_____-_____) x 7.48 = _____ Gallons x 6 = _____ 6 casing volumes
(Casing Radius^2 (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
13:10	~0.5				83			

continued on back of form →

Color
Clear
(Cloudy)
Yellow
(Brown)

Odor
(None)
~~Faint~~
Moderate
Strong

Purged Dry?
Yes (No)

Sheen?
Yes (No)

Meters Used
YSI
Horiba U-22
(Hach Turbidimeter)

Discharge Water
Treated
Discharged
(Stored)

Sampling Information

Date: 4/14/11
Start Time: 13:13
Finish Time: 13:50
Depth of Tubing: ~10.8
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment
Bailer (Inertial Pump) Submersible Pump PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
FH-SP07A-WG	3 x 40 mL VOA	VOCs (SW8260B)	4C, HCl	
FH-SP07A-WG	2 x 1 L amber glass	DRO (AK 102)	4C, HCl	
FH-SP07A-WG	2 x 1 L amber glass	SVOCs (SW8270C SIM)	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
FH-SP07B-WG		FH-TB___-WG

Groundwater Sampling Form

JACOBS

Site Name: Environmental Compliance Projects Site ID: Ship Creek Fish Hatchery Project #: 05F52507 Date: 4/15/2011 Start Time: 9:40 Finish Time: 13:00 Sampled By: CT/KB PID Reading: ~~Not taken; temporary SP-18 well~~ 0.0 WH 0.0 BZ Weather Conditions: Sunny 38°F	Well ID: OU5MW12 Well Type: Monitor Permanent / Extraction Well Material: PVC Well Integrity: Excellent / Good / Fair / Poor	**Acceptable Range for Well Stabilization Parameters** pH ± 0.1 Conductivity ± 3% Temperature ± 0.1 °C Turbidity ±10% or 1 NTU DO 10% or ± 0.2 mg/L ORP ± 10 mV

Probe Type:	Casing Diameter (in)	Gallons/Linear Foot	Casing Radius² (ft)
Oil/Water Interface	2	0.17	0.0069
Electronic Water Indicator	0.5	0.01	0.000434
Other_____			

Purging Information

Start Time: 10:54 – monsoon motor broken YSI connector Broke
Finish Time: 12:09

Depth to GW: ~~3.78~~ 7.55
Total Depth of Casing:
Product Level: —
Amount of Product: —

Purging Equipment: Bailer / Inertial Pump / Submersible Pump

Casing Volume (Gallons) = 3.14 x (_0.000434__) x (_____ - _____) x 7.48 = _____ Gallons x 6 = _____ 6 casing volumes
(Casing Radius² (ft); T.D. of Casing (ft); Depth to GW (ft))

Actual Volume Purged _____ Gallons

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Water Level (feet btoc)
11:06	0.5	6.67	~~280~~ 276	3.05	33.1	1.07	190.6	7.58
11:11	0.75	6.65 ✓	278 ✓	3.15 ✓	18.3 ✓	0.77 –	193.9 ✓	7.61
11:22	1.0	6.66 ✓	286 ✓	3.07 ✓	18.3 ✓	0.61 –	190.1 ✓	7.61
11:26	1.25	6.66 ✓	283 ✓	2.72 –	3.05 ✓	0.54 ✓	178.2 ✓	7.61
11:30	1.5	6.67 ✓	282 ✓	2.55 –	2.68 ✓	0.52 ✓	163.3 ✓	7.61
11:33	1.75	6.67 ✓	282 ✓	2.5 ✓	1.97 ✓	0.49 ✓	148.0 ✓	7.61
11:36	1.9	6.67 ✓	283 ✓	2.57 ✓	2.10 ✓	0.48 ✓	192.3 ✓	7.62
11:39	2.0	6.70 ✓	285 ✓	2.74 ✓	1.43 ✓	~~3~~ 0.5 ✓	143.1	7.62

continued on back of form →

Color	Odor	Purged Dry?	Meters Used	Discharge Water
Clear	None	Yes / No	YSI	Treated
Cloudy	Faint		Horiba U-22	Discharged
Yellow	Moderate	Sheen?	Hach Turbidimeter	Stored
Brown	Strong	Yes / No		

Sampling Information

Date: 4/15/11
Start Time: 12:15
Finish Time: 12:20
Depth of Tubing: 9.05
Iron (Fe 2+) mg/L: Not sampled

Sampling Equipment: Bailer / ~~Inertial Pump~~ / Submersible Pump / PDB

Sample ID #	Volume/Container	Analysis Requested	Preservative	Comments
~~FH-SP___A-WG~~	~~3 x 40 mL VOA~~	~~VOCs (SW8260B)~~	~~4C, HCl~~	
~~FH-SP___A-WG~~	~~2 x 1 L amber glass~~	~~DRO (AK 102)~~	~~4C, HCl~~	
~~FH-SP___A-WG~~	~~2 x 1 L amber glass~~	~~SVOCs (SW8270C SIM)~~	~~4C~~	
FH-OU5MW12-2011-WG	3X40mL VOA	VOCs	HCl	
FH-OU5MW12-2011-WG	2X1L amber	DRO	HCl	
FH-OU5MW12-2011-WG	2X1L amber	SVOCs	4C	

Other Sample Types

QC Duplicate Sample #	QA Triplicate Sample #	Trip Blank Sample #
~~FH-SP___B-WG~~		FH-TB01-WG

Groundwater Sampling Form (continued)

JACOBS

Site Name: Fish Hatchery Site ID: FH Project #: **05F52507** Date: 4/15/2011	Well ID: ~~FH-SP~~ OU5MW12	**Acceptable Range for Well Stabilization Parameters**	
		pH	± 0.1
		Conductivity	± 3%
		Temperature	± 0.1 °C
		Turbidity	±10% or 1 NTU
		DO	10% or ± 0.2 mg/L
		ORP	± 10 mV

Time (HH:mm)	Volume (Gallons)	pH (S.U.)	Conductivity (µS/cm)	Temperature (°F) (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Other
11:43	2.25	6.67	288	3.05	0.88	0.52	158.2	7.62
11:47	2.5	6.69	289	3.05	1.74	0.51	129.5	7.62
11:50	2.75	6.69	289	3.09	2.04	0.56	127.5	7.62
11:53	3.00	6.69	290	3.21	1.57	.56	123.2	7.62
11:56	3.00	6.70	290	3.22	1.30	.55	118.6	7.62
11:59	3.25	6.69	289	3.25	1.34	0.56	116.9	7.62
12:02	3.28	6.67	287	2.95	1.35	0.56	114.5	7.62
12:03	3.50	6.67	287	2.86	1.48	0.57	113.0	7.63
12:06	3.5	6.68	287	2.98	0.64	0.54	112.0	7.63
12:09	3.6	6.69	287	2.83	0.5	0.58	110.1	7.63

APPENDIX D

Soil Boring Logs

PROJECT:

BORING LOG

BORING NO. BH01	PROJECT NO. 05F52507	LOCATION Anchorage Fish Hatchery	SHEET 1 OF 1
TIME START 1020	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 9/12/11
TIME STOP 1035	DRILLING CREW Scott & Kat	DRILLING METHOD DP.	SAMPLING METHOD Sleeve
TOTAL DEPTH 15'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 9' bgs	FINAL DEPTH TO WATER 9' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
1					GM	Gravel - grey to brown, moist, fine to med grnd, poly gradd, sb angle (60/20/20)
2	GP	1	60"/95%			
3						
4						Same as above
5						
6					SW	Sand - grey, med grnd, dry, poly gradd rndd to sb angle, x-bdd w/ silt. (20/70/10)
7	GP	2	60"/90%			
8					PT	Organic Material - brown, leaves, twigs
9					GW ▽	Gravel - grey to light grey, moist to wet, med grnd, poly gradd (65/25/10)
10						
11					SW	Sand - tan, dense, wet, angle, poly gradd, med grnd (20/70/10)
12	GP	3	60"/80%			
13						
14						
15					TD 15'	
6						
7						
8						
9						

LOGGED BY: N. Kinnebrew OFFICE: Anchorage DATE: 9/12/11

PROJECT: BORING LOG

BORING NO. BHØ2	PROJECT NO. Ø5F52507	LOCATION Anchorage Fish Hatchery	SHEET 1 OF 1
TIME START 1100	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 4/12/11
TIME STOP 1110	DRILLING CREW Scott & Kat	DRILLING METHOD D.P.	SAMPLING METHOD Sleeve
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERED 8.5' bgs	FINAL DEPTH TO WATER 8.5' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
0–5	GP	1	60%/100%		GM	gravel - grayish brown, lrg to med grand, prly srtdd, dry to moist, sb angl (60/20/20)
5–9	GP	2	60%/100%		ML (water level ∇ at 8.5)	Silt - gry, plastic, laminated, sand (10/20/70) some organics
9–10					GW	gravel - gry - light gry, med grand, well srtdd, ~~moist~~ wet, (80/10/10)
10					TD 10'	
11						
12						
13						
14						
15						
16						
17						
18						
19						

LOGGED BY: N. Kinnebrew OFFICE: Anchorage DATE: 4/12/11

PROJECT:

BORING LOG

BORING NO. BH03	PROJECT NO. 05F52507	LOCATION Anchorage Fish Hatchery	SHEET 1 OF 1
TIME START 1120	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 4/12/11
TIME STOP 1135	DRILLING CREW Scott & Kat	DRILLING METHOD D.P.	SAMPLING METHOD Sleeve
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 9.5' bgs	FINAL DEPTH TO WATER 9.5' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
0					GP	gravel - light grey to brown, large to med gravel, poorly sorted, dry to moist, strong rxn. (60/30/10)
1						
2	GP	1	60"/100%			
3						
4						
5						
6						Same as above
7	GP	2	60"/95%			
8						
9						
10						TD: 10'
1						
2						
3						
4						
5						
6						
7						
8						
9						

LOGGED BY: N. Kinebrew OFFICE: Anchorage DATE: 4/12/11

PROJECT: BORING LOG

BORING NO. BH04	PROJECT NO. 05F52507	LOCATION Anchorage Fish Hatchery	SHEET 1 OF 1
TIME START 1415	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 4/12/11
TIME STOP 1423	DRILLING CREW Scott & Kat	DRILLING METHOD D.P.	SAMPLING METHOD Sleeve
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 6.5' bgs	FINAL DEPTH TO WATER 6.5' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
0					GM	gravel - gry to brwn, med grnd, gry sltd, dry to moist, sb angl (65'/25/20)
1						
2	GP	1	60"/90%			
3						
4						
5						
6					▽	
7	GP	2	60"/75%		GW	gravel - blk, med grnd, wll srtd, wet, rndd. Strong odor of diesel
8						
9						
10					TD: 10'	
1						
2						
3						
4						
5						
6						
7						
8						
9						

LOGGED BY: N. Kinnebrew OFFICE: Anchorage DATE: 4/12/11

PROJECT:

BORING LOG

BORING NO.	PROJECT NO.	LOCATION	SHEET
BH05	05F52507	Anchorage Fish Hatchery	1 OF 1
TIME START 1434	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 4/12/11
TIME STOP 1440	DRILLING CREW Scott & Kat	DRILLING METHOD D.P.	SAMPLING METHOD Sleeve
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 6' bgs	FINAL DEPTH TO WATER 6' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
1					GM	Gravel - grey to brown, med grnd poly sctd, moist, sb angl. (65/15/20)
2	GP	1	60"/100%			
3						
4						
5						
6					▽	
7	GP	2	60"/80%			
8					GW	Gravel - blk, med grnd, well sctd, wet, mill. some organics
9						
10					TD:10'	
1						
2						
3						
4						
5						
6						
7						
8						
9						

LOGGED BY: N. Kinnebrew OFFICE: Anchorage DATE: 4/12/11

PROJECT:

BORING LOG

BORING NO. BHØ6	PROJECT NO. Ø5F525Ø7	LOCATION Anchorage Fish Hatchery	SHEET 1 OF 1
TIME START 1510	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT	DATE 4/12/11
TIME STOP 1518	DRILLING CREW Scott & Kat	DRILLING METHOD D.P.	SAMPLING METHOD Sleave
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 9' bgs	FINAL DEPTH TO WATER 9' bgs

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
1					GM	Gravel - Tan-gray, med-lg grnd, dry, poly sctd, sb angl. ~~[illegible]~~ (65/30/15)
2						
3	GP	1	60"/100%			
4						
5						
6						Same as above
7						
8	GP	2	60"/70%			
9					∇	
10						
1						
2						
3						
4						
5						
6						
7						
8						
9						

LOGGED BY: N. Kinnebrew OFFICE: Anchorage DATE: 4/12/11

PROJECT: BORING LOG

BORING NO. BH07	PROJECT NO. 05F52507	LOCATION Anchorage Fish Hatchery		SHEET 1 OF 1
TIME START 1550	DRILLING CONTRACTOR GeoTek	DRILLING EQUIPMENT Geoprobe 6610 DT		DATE 9/12/11
TIME STOP 16	DRILLING CREW Scott & Kat	DRILLING METHOD D. P.	SAMPLING METHOD Sleave	
TOTAL DEPTH 10'	BACKFILL MATERIAL Bentonite	WATER FIRST ENCOUNTERD 7.5 bgs	FINAL DEPTH TO WATER 7.5 bgs	

DEPTH BELOW SURFACE	SAMPLER TYPE	SAMPLE NO.	INCHES DRIVEN/ RECOVERED	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
					GM	Gravel - Tan/gry, med grnd, dry to moist, poly sctd, sb angl (65/30/15)
1						
2	GP	1	60"/100%			
3						
4						
5						
6						Same as above
7	GP	2	60"/70%		∇	
8						
9						
10						
1						
2						
3						
4						
5						
6						
7						
8						
9						

LOGGED BY: N. Kimelman OFFICE: Anchorage DATE: 9/12/11

APPENDIX E

Survey Data

Survey Data

Point ID	Point Class	Date/Time	Latitude	Longitude	Ellip. Hgt.	Posn. + Hgt.	Qlty
RTCM-Ref 0001	Reference	4/12/2011 11:39	61° 10' 30.81303" N	149° 59' 00.29708" W	57.4139	0	
GPS0001	Measured	4/12/2011 11:40	61° 13' 48.69891" N	149° 49' 50.68603" W	35.5625	0.0177	
GPS0002	Measured	4/12/2011 11:41	61° 13' 48.20689" N	149° 49' 49.62033" W	35.3383	0.0162	
GPS0003	Measured	4/12/2011 11:43	61° 13' 48.68681" N	149° 49' 48.39886" W	36.1037	0.0104	
GPS0004	Measured	4/12/2011 14:50	61° 13' 54.98780" N	149° 49' 37.79934" W	38.6324	0.014	
GPS0005	Measured	4/12/2011 14:50	61° 13' 55.08211" N	149° 49' 37.40144" W	38.4648	0.0147	
GPS0006	Measured	4/12/2011 14:51	61° 13' 54.30768" N	149° 49' 37.40585" W	39.2805	0.0136	
GPS0007	Measured	4/12/2011 14:56	61° 13' 54.01807" N	149° 49' 36.78368" W	38.7081	0.0143	

APPENDIX F

Waste Documentation

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AK8570028649

Manifest Document No. 13849

2. Page 1 of 1

3. Generator's Name and Mailing Address
~~ANCHORAGE FISH HATCHERY~~
6326 ARCTIC WARRI
JBER, AK 99506

Site Addr: ANCHORAGE FISH HATCHERY

4. Generator's Phone ((907) 384 2711

5. Transporter 1 Company Name: EMERALD ALASKA, INC

6. US EPA ID Number: AKR000004184

A. State Transporter's ID

B. Transporter 1 Phone: (907) 258-1558

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
EMERALD ALASKA, INC.
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number: AKR000004184

E. State Facility's ID

F. Facility's Phone: (907) 258-1558

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. MATERIAL NOT REGULATE	2	DF	100	P
b. MATERIAL NOT REGULATED BY D.O.T.	4	DF	20	
c.				
d.				

G. Additional Descriptions for Materials Listed Above
1)AK03200 PETROLEUM CONTAMINATED OI
2)AK02906 GROUNDWATER / IDW WATER

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
I hereby certify to the best of my knowledge tha
been mixed with any hazardous waste regulated und
40CFRPart279.

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date (Month Day Year)

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Geoff Griffith | Signature | Date (Month Day Year)

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name | Signature | Date (Month Day Year)

*** IN CASE OF EMERGENCY CALL 1-800-424-9300 ***

95-914-AK13849 (RP)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: AK8570028649

Manifest Document No.: 13849

2. Page 1 of 1

3. Generator's Name and Mailing Address: ~~ANCHORAGE FISH HATCHERY~~ USAF 673 CES
6326 ARCTIC WARRIOR DRIVE
JBER, AK 99506

4. Generator's Phone: (907) 384-2711

Site Address: ANCHORAGE FISH HATCHERY
941 NORTH REEVE BLVD.
ANCHORAGE, AK 99501

5. Transporter 1 Company Name: EMERALD ALASKA, INC

6. US EPA ID Number: AKR000004184

A. State Transporter's ID

B. Transporter 1 Phone: ~~(907) 258-1558~~

C. State Transporter's ID

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter 2 Phone

9. Designated Facility Name and Site Address:
EMERALD ALASKA, INC.
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number: AKR000004184

E. State Facility's ID

F. Facility's Phone: (907) 258-1558

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. MATERIAL NOT REGULATED BY D.O.T.	2	DF	100	P
b. MATERIAL NOT REGULATED BY D.O.T.	4	DF	20	G
c.				
d.				

G. Additional Descriptions for Materials Listed Above

1)AK03200 PETROLEUM CONTAMINATED SOIL
2)AK02906 GROUNDWATER / IDW WATER

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

I hereby certify to the best of my knowledge that this contaminated soil and water has not been mixed with any hazardous waste regulated under 40CFRPart261 or 40CFRPart761 of 40CFRPart279.

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: SCOTT MOREY

Signature

Date: Month 4 Day 20 Year 2011

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Geoff GRIFFITH

Signature

Date: Month 4 Day 21 Year 11

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: CHERYL DUNNE

Signature: Cheryl Dunne

Date: Month 04 Day 25 Year 11

NON-HAZARDOUS WASTE

*** IN CASE OF EMERGENCY CALL 1-800-424-9300 ***

95-914-AK13849 (RP)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: A K 8 5 7 0 0 2 8 6 4 9

Manifest Document No.: 13849

2. Page 1 of 1

3. Generator's Name and Mailing Address: ~~ANCHORAGE FISH HATCHERY~~ USAF 673 CES
6326 ARCTIC WARRIOR DRIVE
JBER, AK 99506

Site Address: ANCHORAGE FISH HATCHERY
941 NORTH REEVE BLVD.
ANCHORAGE, AK 99501

4. Generator's Phone: (907) 384-2711

5. Transporter 1 Company Name: EMERALD ALASKA, INC

6. US EPA ID Number: A K R 0 0 0 0 0 4 1 8 4

A. State Transporter's ID:

B. Transporter 1 Phone: ~~(907) 258-1558~~

7. Transporter 2 Company Name:

8. US EPA ID Number:

C. State Transporter's ID:

D. Transporter 2 Phone:

9. Designated Facility Name and Site Address:
EMERALD ALASKA, INC.
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number: A K R 0 0 0 0 0 4 1 8 4

E. State Facility's ID:

F. Facility's Phone: (907) 258-1558

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. MATERIAL NOT REGULATED BY D.O.T	2	DF	100	P
b. MATERIAL NOT REGULATED BY D.O.T.	4	DF	20	G
c.				
d.				

G. Additional Descriptions for Materials Listed Above:
1)AK03200 PETROLEUM CONTAMINATED SOIL
2)AK02906 GROUNDWATER / IDW WATER

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:
I hereby certify to the best of my knowledge that this contaminated soil and water has not been mixed with any hazardous waste regulated under 40CFRPart261 or 40CFRPart761 of 40CFRPart279.

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations

Printed/Typed Name: [illegible]

Signature:

Date: Month 4 Day 20 Year 2011

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Geoff GRIFFIN

Signature:

Date: Month 4 Day 21 Year 11

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:

Signature:

Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: CHERYL DUNNE

Signature:

Date: Month Day 15 Year 11

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AK8570028649

Manifest Document No. 13849

2. Page 1 of 1

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name: EMERALD ALASKA, INC

6. US EPA ID Number: AKR000004184

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

10. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone (907) 258-1558

C. State Transporter's ID

D. Transporter 2 Phone

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a.	2	DF		
b.	4	DF		
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date: Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name | Signature | Date: Month Day Year

NON-HAZARDOUS WASTE

Tracking Log

Date Received 04/22/2011 Manifest 13849 TSDF EMERALD ALASKA, INC.

PO Number 95-914-AK13849 (RP) Generator ANCHORAGE FISH HATCHE Reported by DARYLG

Page Line	Count	Container	Profile	Sampled	Non-Reg	Lab Pack	Container Size/Type	Oil/Fuel	Water	Antifreeze	Sludge/ Solid Cons	Outbound		Storage Location	Incomplete
												B3 Gls	B3 Lbs		
1	1	ANC060890	AK03200		Y		DF05	-	-	-	3	-	-	PAD - C	
1	2	ANC060891	AK03200		Y		DF05	-	-	-	3	-	-	PAD - C	
2	1	ANC060886	AK02906		Y		DF05	-	5	-	-	-	-	PAD1	
2	2	ANC060887	AK02906		Y		DF05	-	5	-	-	-	-	PAD1	
2	3	ANC060888	AK02906		Y		DF05	-	5	-	-	-	-	PAD1	
2	4	ANC060889	AK02906		Y		DF05	-	5	-	-	-	-	PAD1	
Total	**6**							**0**	**20**	**0**	**6**	**0**	**0**		

Total Gallons: **26**

Received Date
4/26/11 CA

CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR: ANCHORAGE FISH HATCHERY
941 NORTH REEVE BLVD.
ANCHORAGE AK 99501

DISPOSAL FACILITY: EMERALD ALASKA, INC.
2020 VIKING DRIVE
ANCHORAGE AK 99501

EPA ID NUMBER: AK8570028649
MANIFEST/DOCUMENT #: 13849
DATE OF DISPOSAL/RECYCLE: 04/22/2011

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	UOM
1	PETROLEUM CONTAMINATED SOIL	2	DF05	100	P
2	GROUNDWATER / IDW WATER	4	DF05	20	G

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits, and licenses on the date listed above.

PREPARED BY: CHERYL DUNNE

SIGNATURE: Cheryl Dunne **DATE:** 4/25/2011

95-914-AK13849 (RP)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 002948615FLE

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	AK8570028649	3	1-800-424-9300	002948615 FLE

GENERATOR

5. Generator's Name and Mailing Address
USAF 673 CES/CEANR (T. PLUGINSKI
6326 ARCTIC WARRIOR DRIVE
JBER, AK 99506
Generator's Phone: (907) 384-2711

Generator's Site Address (if different than mailing address)
ANCHORAGE FISH HATCHERY
941 NORTH REEVE BLVD.
ANCHORAGE, AK 99501

6. Transporter 1 Company Name: EMERALD ALASKA, INC — U.S. EPA ID Number: AKR000004184

7. Transporter 2 Company Name: WEAVER BROTHERS — U.S. EPA ID Number: AKD002848372

8. Designated Facility Name and Site Address
CLEAN HARBORS (ARAGONITE), LLC
11600 N. APTUS ROAD, EXIT 56
ARAGONITE, UT 84029
Facility's Phone: (435) 884-8100

U.S. EPA ID Number: UTD981552177

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN1993, WASTE FLAMMABLE LIQUIDS, N.O.S. (SOIL, METHANOL), 3, PG-III (FLASHPOINT = 11 C C.C.), ERG#128	1	DF	2	P	F003
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) CH497607 SOIL WITH FREE LIQUID METHANO DRUM SIZE _____

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Scott Mazey — Signature: Scott Mazey — Month 4 Day 20 Year 2011

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: _____
Transporter signature (for exports only): Date leaving U.S.: _____

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Geoff Griffith — Signature: [signature] — Month 4 Day 21 Year 11
Transporter 2 Printed/Typed Name: _____ — Signature: _____ — Month _____ Day _____ Year _____

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number: _____
18b. Alternate Facility (or Generator) — U.S. EPA ID Number: _____
Facility's Phone: _____
18c. Signature of Alternate Facility (or Generator) — Month _____ Day _____ Year _____

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: _____ — Signature: _____ — Month _____ Day _____ Year _____

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

95-914-AK13849 (RP)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number AK8570028649	22. Page 2/ 3	23. Manifest Tracking Number 002948615FLE

24. Generator's Name ~~ANCHORAGE FISH HATCHERY~~ USAF 673 CES
941 NORTH REEVE BLVD.
(907) 384-2711 ANCHORAGE, AK 99501

25. Transporter 3 Company Name TOTEM OCEAN TRAILER EXPRESS — U.S. EPA ID Number WAD070397955

26. Transporter 4 Company Name EMERALD SERVICES, INC. — U.S. EPA ID Number WAD058364647

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

GENERATOR

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

APPENDIX G

Response to Comments

Alaska Department of Environmental Conservation
Comments on the *Post Road Fish Hatchery Investigative Sampling Report* (Draft), September 2011
Commenter: Louis Howard (ADEC) **Comments Developed: October 10, 2011**

Cmt. No.	Pg. & Line		Comment/Recommendation	Response
1	5-1	5.0	The text states that BH04 is located in the northeastern portion of the site. This location is also referenced in the document as being upgradient. Section 4.2 on page 4-1: "In the northeastern portion of the site, two soil borings were advanced upgradient (BH04 and BH05)…" This would lead the reader to believe either the site has not been characterized enough since there is not a well upgradient of it to see if there is on off-site source which is the source of the 160 mg/L DRO. The level of DRO in BH04 exceeds the theoretical solubility limit of DRO. Indicators of the presence of nonaqueous phase liquid (NAPL) include water samples above the solubility limits – in particular, water samples with DRO concentrations above 4 or 6 mg/L. ADEC requests, at a minimum, the Air Force install three permanent wells for the Hatchery site. One monitoring well be installed hydraulically downgradient and one monitoring well be installed hydraulically upgradient of the location of BH04. ADEC concurs with the recommendation that a permanent monitoring well be installed at the location of BH04. Unconsolidated samples for lithologic description shall be obtained at each change in lithology or every 5-foot interval for each of these monitoring wells, *whichever is less* or as specifically stated in the project work plan. Analysis will include DRO, BTEX, PAHs for both groundwater and soil samples. Additionally, groundwater well samples will also be analyzed for TAH and TAqH as was done for this investigation.	Accepted. Section 5 Conclusions and Recommendations, page 5-1, lines 13-17 will be updated as follows. "One permanent monitoring well should be installed at the location of BH04, a second should be installed hydraulically upgradient of BH04, and a third hydraulically downgradient, adjacent to Ship Creek to further determine the degree and extent of potential groundwater impacts. Ongoing monitoring activities should include analysis for DRO, BTEX, and PAHs for both groundwater and soil samples. Additionally, groundwater monitoring well samples should be analyzed for TAH and TAqH."
2	2	2.0	Data Quality Summary ADEC requests the Air Force ensure that the laboratories used are current in their ADEC approval. TestAmerica-Seattle WA (UST-022) certification expires on March 4, 2012 (see ADEC webpage at http://www.dec.state.ak.us/eh/lab/USTLabs.aspx). Instead of repacking the coolers in the TestAmerica Anchorage, Alaska laboratory and shipping off to the TestAmerica Seattle WA laboratory, ADEC requests the Air Force analyze the samples at an Anchorage laboratory. This may minimize the issue with headspace and volatile samples that was experienced with this project.	Noted. Issues with headspace were discussed with the laboratory. Due to contractual obligations, the Air Force relies on a competitive bidding process in order to procure the highest quality service from a myriad of ADEC- approved facilities.

Alaska Department of Environmental Conservation
Comments on the *Post Road Fish Hatchery Investigative Sampling Report* (Draft), September 2011
Commenter: Louis Howard (ADEC) **Comments Developed: October 10, 2011**

Cmt. No.	Pg. & Line		Comment/Recommendation	Response
3	63 of the PDF		Analytical Report Job Number: 580-25659-1 Job Description: 05-F525-07-D-010-0013 TO 25, EAFB, AK Contract number: W911KB-04-A-0009 4/27/2011. Volatile Organic Compounds (GC-MS): "The following samples were received with headspace in the sample vial: FH-SP01A-WG (580-25659-1) and OU5MW12-2011-WG (580-25659-12). Sample 580-25659-1 had an 8 mm air bubble of headspace in one vial used and 10 mm air bubble in the second vial used. Sample 580-25659-12 had a 6 mm air bubble of headspace." AFCEE Guidance for Contract Deliverables Appendix C QAPP Final Version 4.0.02 May 2006, (see AFCEE's webpage for Quality Assurance/Guidance for Contract Deliverables http://www.afcee.af.mil/resources/technologytransfer/guidanceforcontractdeliverables/index.asp) at Section 5.1.2 Sample Volumes, Container Types, and Preservation Requirements Table 5.1.2-1 states for SW8260B, SW8021B sample container - aqueous: "No Headspace. NOTE: Small bubbles may occur during shipping and handling. Samples with bubbles < 6 mm in diameter (pea sized) are acceptable." This implies that aqueous samples with bubbles greater than 6mm in diameter are unacceptable. All VOC results with headspace greater than 6mm, specifically those associated with samples 580-25659-1 and 580-25659-12, will not be accepted by ADEC for demonstrating compliance with 18 AAC 75 Table C groundwater cleanup levels or TAH/TAqH.	Noted. As documented in the ADEC checklist (Appendix B), we recognize that these results are biased low, and will only rely on these results for investigative purposes. Noted. VOC results with headspace greater than 6mm are not acceptable for use as data for demonstrating compliance for TAH/TAqH. The results were flagged on the appropriate data tables as "JP". Section 4.2.1 Groundwater sampling Locations and Results, page 4-3, lines 22-25 will be updated as follows. "Sample vials shipped to the laboratory contained headspace bubbles that exceed ADEC guidelines of <6mm in diameter. VOC results with headspace bubbles greater than 6mm are not acceptable for use as data for demonstrating compliance."