PACIFIC AIR FORCES
REGIONAL SUPPORT CENTER

JOINT BASE ELMENDORF-RICHARDSON, ALASKA

PCB-CONTAMINATED SOIL REMOVAL ACTION

2013 FIELDWORK SUMMARY REPORT

PORT HEIDEN, ALASKA

FEBRUARY 2014

PACIFIC AIR FORCES
REGIONAL SUPPORT CENTER

JOINT BASE ELMENDORF-RICHARDSON, ALASKA

PCB-CONTAMINATED SOIL REMOVAL ACTION

2013 FIELDWORK SUMMARY REPORT

PORT HEIDEN, ALASKA

FEBRUARY 2014

TABLE OF CONTENTS

SECTION **PAGE**

ACRONYMS AND ABBREVIATIONS iii
1.0 PROJECT OVERVIEW 1-1
2.0 2013 FIELDWORK 2-1
2.1 STOCKPILE LOADOUT 2-1
2.2 PCB-CONTAMINATED SOIL DISPOSAL 2-3
2.3 ANALYTICAL SAMPLING 2-4
3.0 CONCLUSION AND LOOK AHEAD 3-1
4.0 REFERENCES 4-1

TABLES

Table 2-1 2013 PCB-Contaminated Soil Loading, Transport, and Disposal Totals 2-2

APPENDICES

Appendix A Photograph Log
Appendix B Analytical Data
Appendix C Waste Documentation

(intentionally blank)

ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AFCEC	Air Force Civil Engineer Center
bags	LiftPacs®, Super Sacks®, or an equivalent containment device
CA	Cooperative Agreement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cy	cubic yard
ELM	ELM Solutions Corporation
Jacobs	Jacobs Engineering Group Inc.
PCB	polychlorinated biphenyl
RRS	Radio Relay Station
TSCA	Toxic Substances Control Act
USAF	U.S. Air Force
KEMRON	KEMRON Environmental Services, Inc.

(intentionally blank)

1.0 PROJECT OVERVIEW

This Fieldwork Summary describes the 2013 non-time-critical removal action of polychlorinated biphenyl (PCB)-contaminated soil at the former U.S. Air Force (USAF) Radio Relay Station (RRS) at Port Heiden, Alaska.

This work was conducted in accordance with the 2013 *PCB-Contaminated Soil Excavation and Removal Action Work Plan* prepared by KEMRON Environmental Services, Inc. (KEMRON) (USAF 2013), with support from Jacobs Engineering Group Inc. (Jacobs) and ELM Solutions Corporation (ELM). This work was conducted for the Air Force Civil Engineer Center (AFCEC) under the U.S. Army Corps of Engineers, Alaska District Worldwide Environmental Remediation Services Contract No. W912DY-10-D-0027, Task Order ZJ01. Work was performed in accordance with the requirements of the Alaska Administrative Code (AAC), Title 18, Section 75.360 (Alaska Department of Environmental Conservation [ADEC] 2012) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

During 2013, PCB-contaminated soil was loaded into LiftPacs®, SuperSacks®, or equivalent containment devices (referred to throughout this document as 'bags') from pre-existing soil stockpiles, and was transported via truck, barge, and rail to the final disposal facility. A total of 10770.88 tons of PCB-contaminated soil was removed from the site and properly disposed of in 2013. PCB-contaminated soil excavation activities were not conducted under this contract in 2013.

The following appendices have been provided to supplement the information presented in this report:

- Appendix A –Photograph Log
- Appendix B – Analytical Data
- Appendix C – Waste Documentation

(intentionally blank)

2.0 2013 FIELDWORK

Between 28 June to 25 September 2013, 1,624 LiftPacs®, SuperSacks®, or the equivalent containment device (herein referred to as "bags") of PCB-contaminated soil were generated. The contaminated soil was characterized under the Toxic Substances Control Act (TSCA) of 1976 (Title 15 of the U.S. Code [USC], Section 2605) as either TSCA (PCB concentrations equal to or greater than 50 milligrams per kilogram [mg/kg]) or non-TSCA (PCB concentrations less than 50 mg/kg).

All of the 82 5-cubic yard (cy) bags containing TSCA soil were transferred to barges contracted by ELM and transported to Chemical Waste Management in Arlington, Oregon. Of the 1,542 8.9-cy bags containing non-TSCA soil generated in 2013, 1,347 bags were transferred to barges contracted by ELM and transported to Columbia Ridge Landfill in Arlington, Oregon. An additional 195 8.9-cy bags (estimated at 1,532 tons) of non-TSCA soil were generated and remain staged onsite for the 2014 field season.

All of the bags generated during 2013 were filled from pre-existing soil stockpiles that were constructed by Jacobs (Stockpiles J 1.2, J 1.4, and J 1.6) and the Native Village of Port Heiden Cooperative Agreement (CA). The stockpiled soil was containerized under this contract, but the final decommissioning and post-construction sampling was conducted by the original contractor (Native Village of Port Heiden) who constructed the stockpiles (USAF 2013).

2.1 STOCKPILE LOADOUT

Jacobs loaded the TSCA soil into the 5-cy bags in 2012 under a previous contract (USAF 2012a). In 2013, the majority of the non-TSCA soil was loaded into 8.9-cy bags. Bags were loaded via aboveground 5-cy bag frames positioned near stockpiles or excavation cells (2012) for TSCA hazardous soil and partially buried 8.9-cy bag frames positioned near stockpiles for nonhazardous soil (2013). Bags were mounted on the frames manually, filled by an excavator, unhooked from the frames and sealed manually, and moved to an initial staging area using a

loader and rack. A semi-truck and lowboy trailer transported the bags from the Storage Areas to the barge landing area.

The weight of each bag was measured onsite using scales integrated into the loaders. These weights are considered estimates because these are not certified scales. Certified scales at the disposal facilities were used to provide the actual weight of the soil. The variance on the site scales and the certified scales for the nonhazardous material was 134.27 tons total, or 1.3 percent less at the certified scales. The variance on the scales for the TSCA material was 14 tons more at the certified scales, or 4 percent of the total weight. Overall the variance was 1.1 percent between the site scales and the certified scales at the landfill. Table 2-1 presents the PCB-contaminated soil loading, transport, and disposal totals for 2013. Photographs are presented in Appendix A.

Table 2-1
2013 PCB-Contaminated Soil Loading, Transport, and Disposal Totals

Contents	Bag Size (cy)	Total Bags Generated	Total Estimated Weight Generated (tons)	Total Bags Transferred	Total Estimated Weight Transferred (tons)	Total Weight Disposed (tons)
PCB Soil (TSCA Non-hazardous)	8.9	1,542	12,089	1,347	10,557	10,422.73
PCB Soil (TSCA Hazardous)	5	82	334	82	334	348.15
Total	N/A	1,624	12,423	1,429	10,891	10,770.88

Note:
N/A = not applicable

Soil from four storage areas (J 1, CA 1, CA 2, and CA 4) was containerized in the 2013 field season. Storage Area J 1 is located near the airport, across Airport Road from the Red Building and was constructed by Jacobs under Task Order 46 (UASF 2012b). "CA" Storage Areas are located near the former RRS site at the north end of Airport Road and were constructed by the Native Village of Port Heiden CA. Eight of the eleven stockpiles located within these four storage areas were emptied, and three were decommissioned by the original contractor (Native Village of Port Heiden).

Details are provided below:

- TSCA soil from Stockpile J 1.2 was containerized in 5-cy bags in 2012 by Jacobs under a separate contract and stored onsite. All of the 5-cy bags from this stockpile were transported and disposed of in 2013. Following the removal of the bagged soil, the stockpile was then used to store nonhazardous soil.
- Stockpiles J 1.2, J 1.4, and J 1.6 were emptied of all contaminated material, including the bottom liner, and were decommissioned by Jacobs under a separate contract. Details of the decommissioning activities will be presented in the *2013/2014 After Action Report* that is currently being drafted.
- Stockpiles CA 1 B, CA 2 A, CA 2 B, CA 4 B, and CA 4 C were emptied of all contaminated material, including the bottom liner, and were left for the original contractor (Native Village of Port Heiden) to decommission.

2.2 PCB-CONTAMINATED SOIL TRANSPORTAION AND DISPOSAL

The first barge, Klinkwan, arrived 2 September at Port Heiden. The barge was loaded using a lighterage barge to transfer approximately 1,000 tons per load of non-TSCA soil. The loading of the Klinkwan was completed on 9 September 2013, and the barge began its voyage to Seattle. The Klinkwan arrived at the Alaska Street Transfer Station in Seattle on 27 September, after a voyage that included 31 hours of weather-related delays. In Seattle, ELM transferred the non-TSCA soil to rail cars from 2 October to 6 October. The material arrived at its final disposal facility, Columbia Ridge Landfill, on 8 October. Certificates of Disposal for the non-TSCA soils from the Klinkwan were issued on 10 October (Appendix C).

The second barge, Seabeck, shipped bags containing both TSCA soil and non-TSCA soil. The Seabeck arrived at Port Heiden on 15 September. The loading was completed from 15 September to 19 September using the lighterage barge as described above. The Seabeck set sail on 19 September and arrived at the Alaska Street Transfer Station in Seattle 17 October, after a voyage that included 9.5 days of weather delays at multiple locations along the route. The non-TSCA soil was transferred to rail cars from 17 October to 22 October and arrived at its final disposal facility, Columbia Ridge Landfill, on 24 October. The TSCA soil was loaded in their bags into Roadlink intermodal containers from 26 to 29 October and transported on Union Pacific Railroad intermodal rail cars. The intermodal containers were shipped 29 October and arrived at Chemical Waste Landfill in Arlington, Oregon on 31 October,

where the TSCA waste was then transferred from the rail cars and into the landfill from 1 November to 7 November. Certificates of Disposal were issued for the material on 12 November (Appendix C).

The estimated total tonnage shipped in 2013 (based on weights measured onsite) was 334 tons of TSCA soil and 10,557 tons of non-TSCA soil. The actual tonnage (measured by certified scales at the disposal facilities) was 348.15 tons of TSCA soil and 10,442.73 tons of non-TSCA soil.

2.3 ANALYTICAL SAMPLING

Prior to the construction of a temporary staging location for filled bags awaiting transport at the barge landing area, pre-construction samples were collected since contaminated soil had previously been staged there by other contractors. PCBs were not detected in any of the analytical samples collected from the barge landing area. Post-construction samples have not yet been collected at this location as it will continue to be used to stage bags during the 2014 field season. In addition, characterization samples were collected from Storage Area CA 1 prior to 2013 site work to verify that contamination was not present where personnel and equipment would be working. Analytical results showed no PCB exceedances in that area.

All analytical laboratory support was provided by ALS Environmental Services in Kelso, Washington. Analytical data, including sample summary, analytical results tables, and ADEC Laboratory Data Review Checklists, can be found in Appendix B. The data quality was found to be acceptable for the purposes of this project.

3.0 CONCLUSION AND LOOK AHEAD

In the 2013 field season, 1,429 bags totaling 10,770.88 tons of PCB-contaminated soil was transported to disposal facilities in Arlington, Oregon. The waste included 82 bags (348.15tons) of TSCA-regulated soil and 1,347 bags (10,442.73 tons) of non-TSCA soil.

A further 195 bags (estimated 1,532 tons) of non-TSCA soil were generated in 2013 and remain staged onsite at Storage Area J 1 for transport and disposal during the 2014 field season. Additionally, approximately 4,790 tons non-TSCA soil currently stockpiled at Storage Areas J 1, CA 1 and CA 4 will need to be containerized before it is transported for disposal in 2014.

Finally, an estimated 2,260 tons of TSCA soil and 2,309 tons of non-TSCA soil will be excavated along the southern edge of the RRS site (USAF 2013). This soil is also scheduled to be containerized, transported, and disposed of during 2014.

(intentionally blank)

4.0 REFERENCES

ADEC (Alaska Department of Environmental Conservation). 2012 (April). *Oil and Other Hazardous Pollution Control Regulations – Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances*. 18 AAC 75.

USAF (U.S. Air Force). 2013 (August). *PCB-Contaminated Soil Excavation and Removal Action: 2013 Work Plan.* Prepared by KEMRON Environmental Services Inc.

USAF. 2012a (July). *Site Road PCB-Contaminated Soil Removal: 2012 After Action Report.* Task Order 46. Final. Prepared by Jacobs Engineering Group Inc.

USAF. 2012b (May). *Site Road PCB-Contaminated Soil Removal Action: 2012 Work Plan.* Task Order 46. Final. Prepared by Jacobs Engineering Group Inc.

(intentionally blank)

APPENDIX A

Photograph Log

APPENDIX A – PHOTOGRAPH LOG
TABLE OF CONTENTS

Photo Number **Page**

Photo No. 1 – 27 July 2013 Worker is guiding placement of frame #1 for loading bags at Storage Area CA 2, looking south. A-1

Photo No. 2 – 27 July 2013 Frame #1 in place at Storage Area CA 2 with established exclusion zone, looking southeast. A-1

Photo No. 3 – 27 July 2013 Loader lifting a bag full of soil out of frame at Storage Area CA 1, looking northeast. A-2

Photo No. 4 – 17 August 2013 Excavator filling bag from Stockpile J 1.4, looking west. A-2

Photo No. 5 – 27 July 2013 Worker providing guidance for staging a bag on visqeen near the CA stockpiles, looking north. A-3

Photo No. 6 – 31 July 2013 Loader loading bags on a Lowboy near CA stockpiles, looking south. A-3

Photo No. 7 – 2 August 2013 Loader staging a bag at the barge landing area, looking north. A-4

Photo No. 8 – 5 August 2013 Loader is organizing rows of bags at the barge landing area, looking north. A-4

Photo No. 9 – 15 August 2013 Loader is loading bags onto Lowboy from J 1.4 stockpile, looking northeast A-5

Photo No. 10 – 16 August 2013 Aniakchak crew closing/sealing a bag from Storage Area CA 1, looking southeast. A-5

Photo No. 11 – 16 August 2013 Aniakchak crew recording Bag ID and weight at CA 1, looking northwest. A-6

Photo No. 12 – 2 September 2013 Staged bags at the barge landing area, looking south. A-6

(intentionally blank)

Photo No. 1 – 27 July 2013
Worker is guiding placement of frame #1 for loading bags at Storage Area CA 2, looking south.

Photo No. 2 – 27 July 2013
Frame #1 in place at Storage Area CA 2 with established exclusion zone, looking southeast.

Photo No. 3 – 27 July 2013
Loader lifting a bag full of soil out of frame at Storage Area CA 1, looking northeast.

Photo No. 4 – 17 August 2013
Excavator filling bag from Stockpile J 1.4, looking west.

Photo No. 5 – 27 July 2013
Worker providing guidance for staging a bag on visqeen near the CA stockpiles, looking north.

Photo No. 6 – 31 July 2013
Loader loading bags on a Lowboy near CA stockpiles, looking south.

Photo No. 7 – 2 August 2013
Loader staging a bag at the barge landing area, looking north.

Photo No. 8 – 5 August 2013
Loader is organizing rows of bags at the barge landing area, looking north.

Photo No. 9 – 15 August 2013
Loader is loading bags onto Lowboy from J 1.4 stockpile, looking northeast

Photo No. 10 – 16 August 2013
Aniakchak crew closing/sealing a bag from Storage Area CA 1, looking southeast.

Photo No. 11 – 16 August 2013
Aniakchak crew recording Bag ID and weight at CA 1, looking northwest.

Photo No. 12 – 2 September 2013
Staged bags at the barge landing area, looking south.

APPENDIX B

Analytical Data

Sample Summary

Analytical Results Table

ADEC Laboratory Data Review Checklists

Laboratory Deliverables (available separately on CD)

2013 Port Heiden PCB-Contaminated Soil Removal
Sample Summary

Sample ID	Location ID	Collection Date	Collection Time	Sampler	QTY	Container Type	Container Volume	Preservative	Matrix	Analytical Method	QC Type	TAT	CoC Number	Cooler Name	Lab	SDG Number	Sample Depth (feet bgs)
13PH-BR-01	BR-01	23-Jul-13	1132	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-02	BR-02	23-Jul-13	1135	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-03	BR-03	23-Jul-13	1137	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-04	BR-04	23-Jul-13	1140	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-05	BR-05	23-Jul-13	1143	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-06	BR-06	23-Jul-13	1145	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-07	BR-07	23-Jul-13	1147	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-08	BR-08	23-Jul-13	1149	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-09	BR-09	23-Jul-13	1332	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-10	BR-10	23-Jul-13	1334	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-10X	BR-10	23-Jul-13	1334	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082	Dup	30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-11	BR-11	23-Jul-13	1336	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-12	BR-12	23-Jul-13	1338	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-13	BR-13	23-Jul-13	1340	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-14	BR-14	23-Jul-13	1342	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-15	BR-15	23-Jul-13	1344	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-16	BR-16	23-Jul-13	1346	CJ/KP	2	Amber	4 oz	4 ºC	SO	SW8082	MS/D	30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-17	BR-17	23-Jul-13	1348	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-18	BR-18	23-Jul-13	1350	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-19	BR-19	23-Jul-13	1352	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307446	0 - 0.5
13PH-BR-20	BR-20	23-Jul-13	1354	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-20X	BR-20	23-Jul-13	1354	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082	Dup	30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-21	BR-21	23-Jul-13	1356	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-22	BR-22	23-Jul-13	1358	CJ/KP	2	Amber	4 oz	4 ºC	SO	SW8082	MS/D	30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-23	BR-23	23-Jul-13	1400	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-23X	BR-23	23-Jul-13	1400	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-BR-24	BR-24	23-Jul-13	1402	CJ/KP	1	Amber	4 oz	4 ºC	SO	SW8082		30 day	13PHWERS01	Elk	ALS	K1307447	0 - 0.5
13PH-PR-CA1-1	PR-CA1-1	26-Jul-13	1800	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-10	PR-CA1-10	26-Jul-13	1822	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-11	PR-CA1-11	26-Jul-13	1825	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-2	PR-CA1-2	26-Jul-13	1802	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-3	PR-CA1-3	26-Jul-13	1805	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-4	PR-CA1-4	26-Jul-13	1807	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-5	PR-CA1-5	26-Jul-13	1810	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-6	PR-CA1-6	26-Jul-13	1812	CJ/DS	2	Amber	4 oz	4 ºC	SO	SW8082	MS/D	1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-7	PR-CA1-7	26-Jul-13	1815	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-8	PR-CA1-8	26-Jul-13	1817	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-9	PR-CA1-9	26-Jul-13	1820	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082		1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5
13PH-PR-CA1-9X	PR-CA1-9	26-Jul-13	1820	CJ/DS	1	Amber	4 oz	4 ºC	SO	SW8082	Dup	1 day	13PHWERS02	Geese	ALS	K1307491	0 - 0.5

Notes:
bgs - below ground surface
CoC - chain-of-custody
Dup - field duplicate
MS/D - matrix spike/matrix spike duplicate
QC - quality control
SDG - sample delivery group
SO - soil
TAT - turnaround time

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	BR-01	BR-02	BR-03	BR-04	BR-05	BR-06
			Sample ID	13PH-BR-01	13PH-BR-02	13PH-BR-03	13PH-BR-04	13PH-BR-05	13PH-BR-06
			Lab Sample ID	K130744601	K130744602	K130744603	K130744604	K130744605	K130744606
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Primary	Primary	Primary	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	67.2	81.4	84.8	85	83.3	85.6
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.057]	ND [0.047]	ND [0.045]	ND [0.045]	ND [0.076]	ND [0.044]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct Contact Cleanup Level (ADEC 2012)

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) of Kelso, WA.

J - The analyte was positively identified, but the result was less than the LOQ and greater than the DL.

JD - The RPD of the sample and field duplicate results was greater than 50%. The LOD was used in place of ND results in the RPD calculation.

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	BR-07	BR-08	BR-09	BR-10	BR-10	BR-11
			Sample ID	13PH-BR-07	13PH-BR-08	13PH-BR-09	13PH-BR-10	13PH-BR-10X	13PH-BR-11
			Lab Sample ID	K130744607	K130744608	K130744609	K130744610	K130744611	K130744612
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Primary	Primary	Primary	Duplicate	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	87.5	85.1	86	83	81.2	83.9
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.044]	ND [0.045]	ND [0.044]	ND [0.046]	ND [0.047]	ND [0.045]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) c

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	BR-12	BR-13	BR-14	BR-15	BR-16	BR-17
			Sample ID	13PH-BR-12	13PH-BR-13	13PH-BR-14	13PH-BR-15	13PH-BR-16	13PH-BR-17
			Lab Sample ID	K130744613	K130744614	K130744615	K130744616	K130744617	K130744618
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Primary	Primary	Primary	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	83.9	87.8	88.1	82	84.1	85.2
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.046]	ND [0.044]	ND [0.043]	ND [0.046]	ND [0.046]	ND [0.044]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) c

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	BR-18	BR-19	BR-20	BR-20	BR-21	BR-22
			Sample ID	13PH-BR-18	13PH-BR-19	13PH-BR-20	13PH-BR-20X	13PH-BR-21	13PH-BR-22
			Lab Sample ID	K130744619	K130744620	K130744701	K130744702	K130744703	K130744704
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Primary	Primary	Duplicate	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	83.4	80.9	85.5	85.8	81.5	78.2
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.045]	ND [0.047]	ND [0.075]	ND [0.076]	ND [0.076]	ND [0.075]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) c

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	BR-23	BR-23	BR-24	PR-CA1-1	PR-CA1-2	PR-CA1-3
			Sample ID	13PH-BR-23	13PH-BR-23X	13PH-BR-24	13PH-PR-CA1-1	13PH-PR-CA1-2	13PH-PR-CA1-3
			Lab Sample ID	K130744705	K130744706	K130744707	K130749101	K130749102	K130749103
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Duplicate	Primary	Primary	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	87.2	86.6	88.3	88.9	92.6	95.6
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	0.062 [0.043]	0.059 [0.041]	0.056 [0.04]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.076]	ND [0.076]	ND [0.075]	ND [0.043]	ND [0.041]	ND [0.04]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) c

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	PR-CA1-4	PR-CA1-5	PR-CA1-6	PR-CA1-7	PR-CA1-8	PR-CA1-9
			Sample ID	13PH-PR-CA1-4	13PH-PR-CA1-5	13PH-PR-CA1-6	13PH-PR-CA1-7	13PH-PR-CA1-8	13PH-PR-CA1-9
			Lab Sample ID	K130749104	K130749105	K130749106	K130749107	K130749108	K130749109
			Matrix	SO	SO	SO	SO	SO	SO
			Laboratory	ALS	ALS	ALS	ALS	ALS	ALS
			QA/QC	Primary	Primary	Primary	Primary	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**						
E160.3M	Total Solids	percent	–	91.2	95.5	92.1	90.9	92.9	92.6
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	0.053 [0.042]	0.033 [0.04] J	0.066 [0.041]	0.041 [0.042] J	0.051 [0.041]	0.012 [0.042] J, JD
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.042]	ND [0.04]	ND [0.041]	ND [0.042]	ND [0.041]	ND [0.042]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) c

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

2013 Port Heiden PCB-Contaminated Soil Removal Fieldwork Summary
Analytical Results

			Location ID	PR-CA1-9	PR-CA1-10	PR-CA1-11
			Sample ID	13PH-PR-CA1-9X	13PH-PR-CA1-10	13PH-PR-CA1-11
			Lab Sample ID	K130749110	K130749111	K130749112
			Matrix	SO	SO	SO
			Laboratory	ALS	ALS	ALS
			QA/QC	Duplicate	Primary	Primary
Method	**Analyte**	**Units**	**ADEC Cleanup Level[1]**			
E160.3M	Total Solids	percent	–	92	87.9	90.4
SW8082A	PCB-1016 (Aroclor 1016)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1221 (Aroclor 1221)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1232 (Aroclor 1232)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1242 (Aroclor 1242)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1248 (Aroclor 1248)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1254 (Aroclor 1254)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]
SW8082A	PCB-1260 (Aroclor 1260)	mg/kg	1	ND [0.042] JD	ND [0.044]	0.047 [0.043]
SW8082A	PCB-1262 (Aroclor 1262)	mg/kg	1	ND [0.042]	ND [0.044]	ND [0.043]

Notes:

[1] 18 AAC 75. Table B1. Method Two, Under 40 Inch Zone, Direct C

[ ] - limit of detection

ALS - ALS Environmental (formely Columbia Analytical Services) o

J - The analyte was positively identified, but the result was less tha

JD - The RPD of the sample and field duplicate results was greater

mg/kg - milligrams per kilogram

QA/QC - quality assurance/quality control

SO - soil

Laboratory Data Review Checklist

Completed by:	David Summerville		
Title:	Project Chemist	**Date:**	12-2-13
CS Report Name:	2013 Port Heiden PCB RA Summary	**Report Date:**	January 2014
Consultant Firm:	Jacobs Engineering Group Inc.		
Laboratory Name:	ALS	**Laboratory Report Number:**	K1307446
ADEC File Number:	2637.38.002	**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 ALS of Kelso, WA.

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:

The sample/cooler temperatures for cooler "Elk" at receipt were: 3.2°/2.6° C

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 were 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:

No discrepancies were noted.

c. Were all corrective actions documented?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were not affected.

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 were 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:

iii. If above PQL, what samples are affected?

Comments:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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 metals/inorganics reported.

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:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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:

NA

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

Comments:

The data quality and usability were 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 samples reported.

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:

NA

iii. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

iv. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

NA

e. Field Duplicate

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

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

One field duplicate was submitted with this SDG.

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)

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

All sample results were ND, so no precision calculations were required.

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

Comments:

The data quality and usability were not affected.

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

Only disposable sampling equipment was used.

i. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

The data quality and usability were not affected.

7. <u>Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-Specific, etc.)</u>

a. Defined and appropriate?

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

Laboratory Data Review Checklist

Completed by:	David Summerville		
Title:	Project Chemist	**Date:**	12-2-13
CS Report Name:	2013 Port Heiden PCB RA Summary	**Report Date:**	January 2014
Consultant Firm:	Jacobs Engineering Group Inc.		
Laboratory Name:	ALS	**Laboratory Report Number:**	K1307447
ADEC File Number:	2637.38.002	**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 ALS of Kelso, WA.

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:

The sample/cooler temperatures for cooler "Elk" at receipt were: 3.2°/2.6° C

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 were 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:

No discrepancies were noted.

c. Were all corrective actions documented?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were not affected.

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 were 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:

iii. If above PQL, what samples are affected?

Comments:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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 metals/inorganics reported.

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:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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:

NA

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

Comments:

The data quality and usability were 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 samples reported.

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:

NA

iii. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

iv. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

NA

e. Field Duplicate

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

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

One field duplicate was submitted with this SDG.

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)

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

All sample results were ND, so no precision calculations were required.

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

Comments:

The data quality and usability were not affected.

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

Only disposable sampling equipment was used.

i. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

The data quality and usability were not affected.

7. <u>Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-Specific, etc.)</u>

a. Defined and appropriate?

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

Laboratory Data Review Checklist

Completed by:	David Summerville		
Title:	Project Chemist	**Date:**	12-2-13
CS Report Name:	2013 Port Heiden PCB RA Summary	**Report Date:**	January 2014
Consultant Firm:	Jacobs Engineering Group Inc.		
Laboratory Name:	ALS	**Laboratory Report Number:**	K1307491
ADEC File Number:	2637.38.002	**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 ALS of Kelso, WA.

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:

The sample/cooler temperatures for cooler "Geese" at receipt were: 2.2°/5.0° C

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 were 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:

No discrepancies were noted.

c. Were all corrective actions documented?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were not affected.

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 were 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:

iii. If above PQL, what samples are affected?

Comments:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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 metals/inorganics reported.

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:

NA

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

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

Comments:

The data quality and usability were 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:

NA

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

Comments:

The data quality and usability were 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 samples reported.

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:

NA

iii. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

iv. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

NA

e. Field Duplicate

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

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

One field duplicate was submitted with this SDG.

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:

The LOD was used in place of ND results when one result was ND and the other was detected. The Aroclor 1260 RPD in sample/field duplicate 13PH-PR-CA1-9/13PH-PR-CA1-9X was greater than 50% at 111%. The sample 13PH-PR-CA1-9 result (0.012 mg/kg) was just barely above the detection limit of 0.0092 mg/kg. The field duplicate 13PH-PR-CA1-9X result was ND.

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

Comments:

The data quality and usability were not affected. The sample/field duplicate 13PH-PR-CA1-9/13PH-PR-CA1-9X results for Aroclor 1260 were flagged JD due to the RPD greater than 50%. The impact is minimal since the sample detection (0.012 mg/kg) is nearly 100 times less than the ADEC cleanup level of 1 mg/kg.

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

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

Only disposable sampling equipment was used.

i. All results less than PQL?

☐ Yes ☐ No ☑ NA (Please explain.) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

The data quality and usability were not affected.

7. <u>Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-Specific, etc.)</u>

a. Defined and appropriate?

☑ Yes ☐ No ☐ NA (Please explain.) Comments:

APPENDIX C

Waste Documentation

(Available electronically on CD – click the link above to open)