
Date 5 February 2018
To Ronni Wilcock (AFCEC)
From Claire Costello (Eagle Eye)
Phyllys Callina (Jacobs)
Subject JBER DA115 PCB Soil Pile LFI: Phase I Results

Introduction

This technical memorandum describes the results of Phase I of the limited field investigation (LFI) activities planned for the DA115 polychlorinated biphenyl (PCB) soil pile located on Joint Base Elmendorf-Richardson (JBER), Alaska (Figure 1). This work is being performed on behalf of the U.S. Air Force (USAF) by Eagle Eye Electric, LLC (Eagle Eye), a subsidiary of the Bering Straits Native Corporation and their teaming partner, Jacobs Engineering Group Inc. (Jacobs), under U.S. Army Corps of Engineers (USACE), Alaska District Contract No. W911KB-15-C-0028. These activities are being conducted pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the federal facility agreement for JBER-Elmendorf (USAF 1991), and in accordance with both the U.S. Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (ADEC) site cleanup regulations (Alaska Administrative Code [AAC] Title 18, Chapter 75 [18 AAC 75], §325–390 (ADEC 2017)).

The purpose of the LFI is to determine whether the site poses a risk to human health, evaluate the potential for groundwater contamination, and limit the scope of further investigations. Previous investigations at DA115 identified contamination, including PCBs, fuels, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons, and metals above the project screening levels (PSLs) (USAF 2017).

This technical memorandum provides a brief description of Phase I activities and the Phase I analytical sample results. Full details of all LFI activities will be included in a forthcoming LFI report.

Phase I Activities

Phase I of the DA115 LFI was completed between 24 October and 6 November 2017. One soil boring was advanced to 30 feet below ground surface (bgs) in the center of the DA115 PCB Soil

Pile and developed as a groundwater monitoring well; groundwater was encountered at 18.6 feet bgs.

Six surface soil samples were collected from the 1- to 2-foot depth interval (USACE 2017). Three subsurface soil samples were collected from the boring: one from the 0- to 2-foot interval, one from the 7 to 9-foot interval, and one from the 17- to 20-foot interval. Six surface soil samples were collected from locations that visually appeared to be outside of the DA115 PCB Soil Pile footprint. All soil samples were analyzed for gasoline-range organics (GRO), diesel-range organics (DRO), residual-range organics (RRO), VOCs, semivolatile organic compounds (SVOCs), PCBs, pesticides, herbicides, and Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), plus nickel and vanadium.

One groundwater sample was collected from the monitoring well and analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, pesticides, herbicides, RCRA metals, nickel, vanadium, and 1,2-dibromoethane (EDB).

Phase I Sample Results Summary

Most of the PSL exceedances detected in the soil samples were located in the surface samples (0- to 2-foot bgs interval). PCB-1260 likely related to the PCB Soil Pile was detected above the PSL of 0.24 milligram per kilogram (mg/kg) in all surface soil samples, at concentrations ranging from 0.48 mg/kg to 760 mg/kg. The pesticide dichlorodiphenyltrichloroethane (DDT), benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, and benzo(a)anthracene were also detected above PSLs in this soil interval. Trichloroethene (TCE) was detected above the PSL in both surface and subsurface soil: 20 mg/kg in surface soil samples and 12 mg/kg in MW01 at 7 feet bgs. Barium, cadmium, and lead concentrations exceeded the PSLs in only the surface soil samples and are likely related to the DA115 PCB Soil Pile. Arsenic and vanadium were detected above the PSLs in all soil samples; however, these analytes are naturally occurring in this area and were below the background threshold values (USAF 1993). The soil sample exceedances are presented in Tables 1 and 2, and on Figure 2.

Tetrachloroethylene (PCE) and arsenic were the only analytes detected above the PSLs in the groundwater sample. Though no background values for water have been established at JBER, arsenic is naturally occurring in this area, and all of the arsenic detections in soil were below soil background concentrations (USAF 1993). The groundwater sample exceedances are presented in Table 3 and Figure 3.

Table 1
Phase I Surface Soil Sample Exceedances

Analyte	PSL (mg/kg) ¹	Background Level	17P-SS01-S	17P-SS02-S	17P-SS03-S	17P-SS04-S	17P-SS05-S	17P-SS06-S
DDT	1.9	-	-	-	11	-	-	-
TCE	0.41	-	-	-	1.2	-	-	-
Benzo(a)pyrene	0.11	-	0.58	1	-	1.5	-	-
Benzo(b)fluoranthene	1.1	-	-	1.5	-	1.9	-	-
Bis(2-ethylhexyl)Phthalate	39	-	-	-	50	-	-	-
Benzo(a)anthracene	1.1	-	-	-	-	1.2	-	-
PCB-1260	0.24	-	2	0.48	760	16	2.9	67
Arsenic	0.68	16.18	<i>7.63</i>	<i>9.16</i>	<i>9.58</i>	<i>11.6</i>	<i>6.71</i>	<i>8.49</i>
Barium	1,500	201.7	-	-	-	-	-	-
Cadmium	7	3.01	-	-	-	-	-	-
Lead	400	13.3	-	-	-	-	429	-
Vanadium	39	118.6	<i>57.9</i>	<i>46.5</i>	<i>56.2</i>	<i>73.4</i>	<i>54.5</i>	<i>61</i>

Notes:

¹ EPA RSL (USAF 2017) for resident soil (target risk=1x10⁻⁶ and hazard quotient=0.1).

- = not applicable

Italicized results are less than the background level.

Technical Memorandum

Table 2
Phase I Soil Boring Sample Exceedances

Analyte	PSL (mg/kg) ¹	Background Level	17P-MW01-00-S (0-2 feet)	17P-MW01-00-SA (0-2 feet)	17P-MW01-07-S (7-9 feet)	17P-MW01-17-S (17-20 feet)
DDT	1.9	-	-	-	-	-
TCE	0.41	-	15	20	12	-
Benzo(a)pyrene	0.11	-	0.43	-	-	-
Benzo(b)fluoranthene	1.1	-	-	-	-	-
Bis(2-ethylhexyl)Phthalate	39	-	-	-	-	-
Benzo(a)anthracene	1.1	-	-	-	-	-
PCB-1260	0.24	-	12	370	-	-
Arsenic	0.68	16.18	<i>9.11</i>	<i>9.69</i>	<i>9.19</i>	<i>4.8</i>
Barium	1,500	201.7	1,720	1,990	-	-
Cadmium	7	3.01	20	27.1	-	-
Lead	400	13.3	-	-	-	-
Vanadium	39	118.6	<i>77.1</i>	<i>85.6</i>	<i>69.5</i>	<i>44.6</i>

Notes:
¹ EPA RSL (USAF 2017) for resident soil (target risk=1×10⁻⁶ and hazard quotient=0.1).

Italicized results are less than the background level.

Table 3
Phase I Groundwater Sample Exceedances

Analyte	PSL (mg/L) ¹	17P-MW01-GW	17P-MW01-GWA
PCE	0.0041	0.036	0.017
Arsenic	0.000052	0.000124	0.000102

Note:
¹ EPA RSL (USAF 2017) for resident soil (target risk=1×10⁻⁶ and hazard quotient=0.1).

Phase II Recommendations

Phase II will be conducted as stated in the DA115 LFI work plan (USACE 2017), which recommended advancing six soil borings (two of which would be developed as monitoring wells), collecting three soil samples from each soil boring, and collecting one groundwater sample from each monitoring well.

References

ADEC. 2017 (July). *Oil and Other Hazardous Substances Pollution Control*. Division of Spill Prevention and Response. Contaminated Sites Program. 18 AAC 75.

USACE. 2017 (September). *DA115 PCB Soil Pile Limited Field Investigation Work Plan*.

USAF. 1991 (as amended 23 March 2017). *Federal Facility Agreement Under CERCLA Section 120*. Elmendorf Air Force Base, Anchorage, Alaska. Administrative Docket Number: 1089-07-19-120.

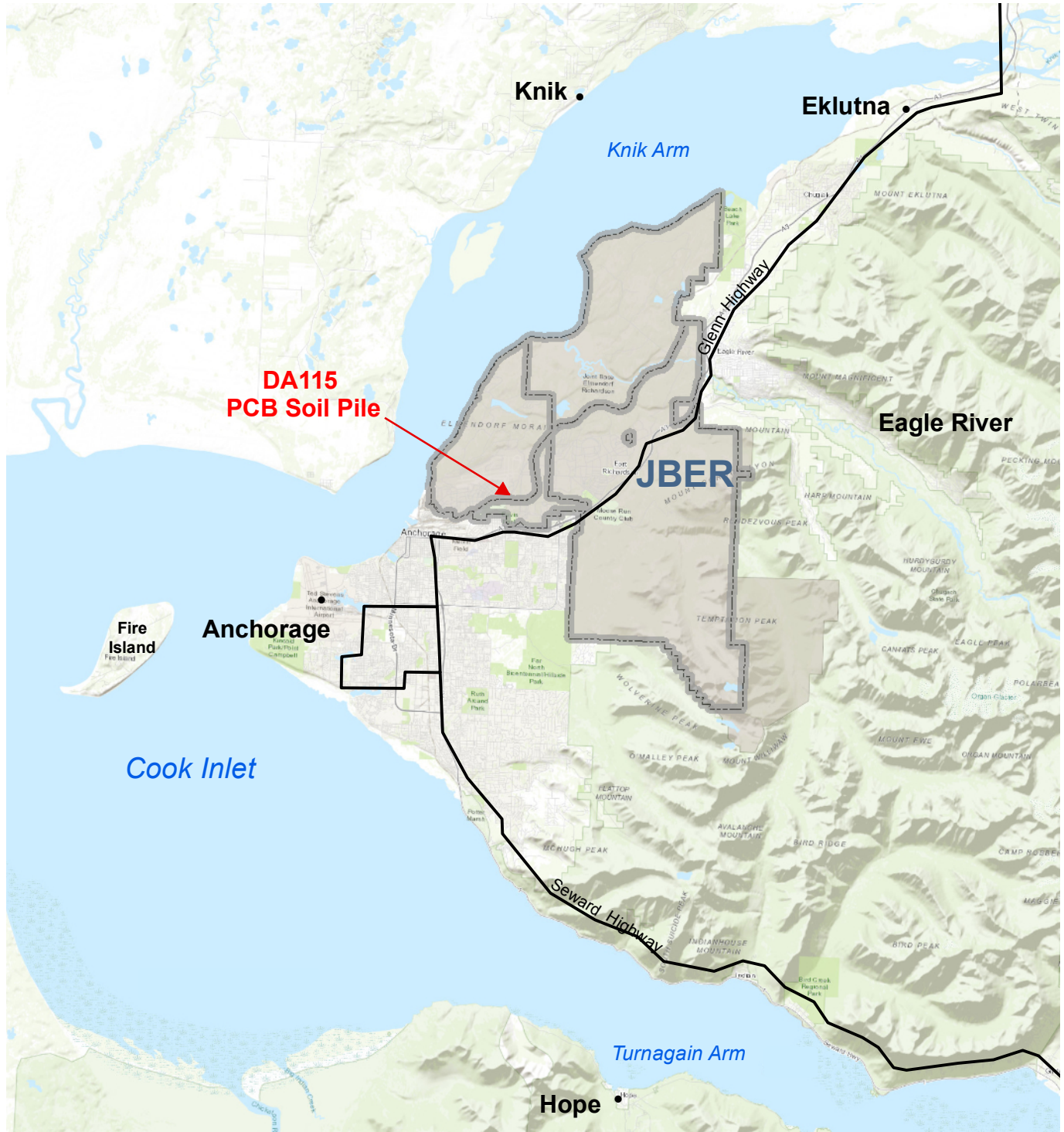
USAF. 1993 (January). *Basewide Background Sampling Report*. Elmendorf AFB, Alaska.

Figures

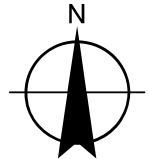
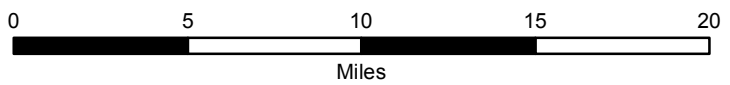
Figure 1 Location and Vicinity Map

Figure 2 DA115 Preliminary Soil Results – Phase I

Figure 3 DA115 Preliminary Water Results – Phase I

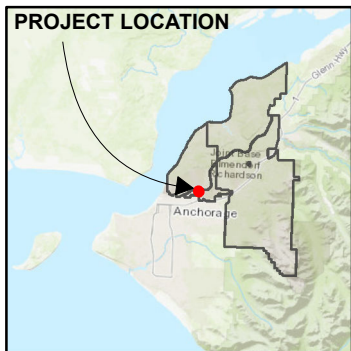
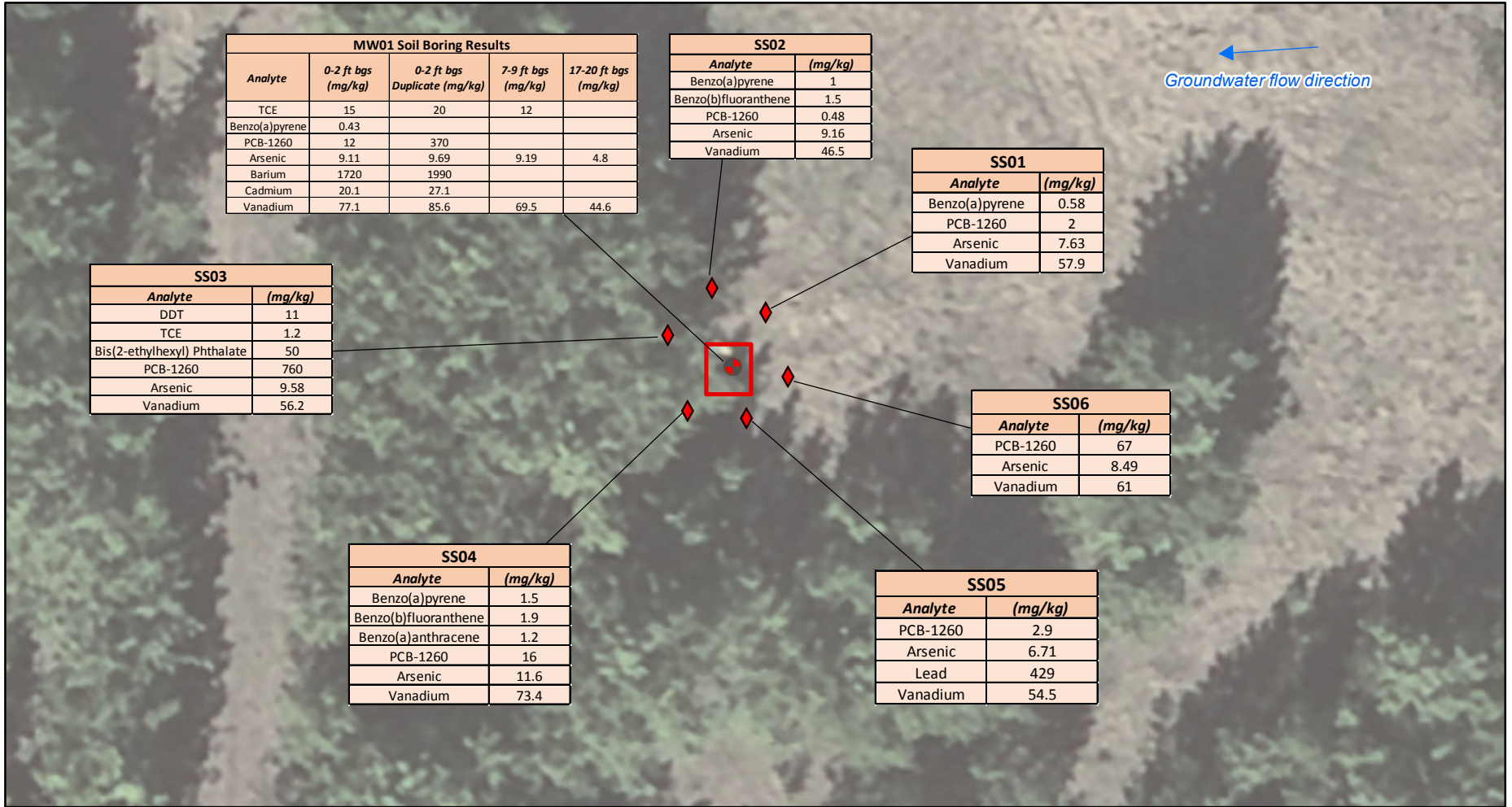


P:\JBER\W\X\DIS\NC\DA115\FigA-1_JBER_LocVic_DA115.mxd JONESMJ



WGS 1984 UTM Zone 6N

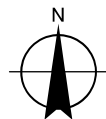
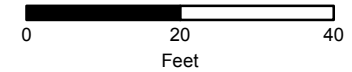
DA115 PCB SOIL PILE LOCATION AND VICINITY			
JOINT BASE ELMENDORF-RICHARDSON, ALASKA			
JACOBS	DATE:	PROJECT MANAGER:	FIGURE NO:
	15 DEC 2017	P. CALLINA	1



PSL

Analyte	(mg/kg)
DDT	1.9
TCE	0.41
Benzo(a)pyrene	0.11
Benzo(b)fluoranthene	1.1
Bis(2-ethylhexyl) Phthalate	39
Benzo(a)anthracene	1.1
PCB-1260	0.24
Arsenic	0.68
Barium	1500
Cadmium	7.1
Lead	400
Vanadium	39

- Monitoring Well, Exceedance
- Surface Soil Sample, Exceedance
- DA115 Former PCB Soil Pile Location



WGS 1984 UTM Zone 6N

DA115 PRELIMINARY SOIL RESULTS - PHASE I

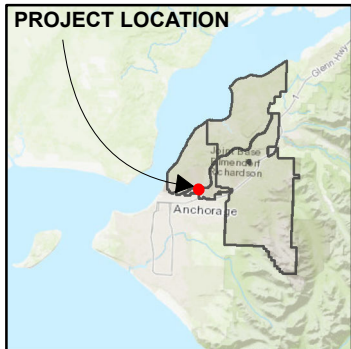
JOINT BASE ELMENDORF-RICHARDSON, ALASKA

JACOBS	DATE:	PROJECT MANAGER:	FIGURE NO.:
	30 JAN 2018	P. CALLINA	2

Notes: Local groundwater flow direction inferred from the Environmental Restoration Program Atlas (USAF 2017). Arsenic and Vanadium results are less than the background levels in soil.

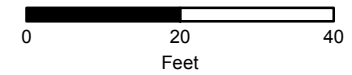


MW01 Monitoring Well Results		
Analyte	17P-MW01-GW (mg/L)	17P-MW01-GWA Duplicate (mg/L)
PCE	0.036	0.017
Arsenic	0.000124	0.000102



PSL	
Analyte	mg/L
PCE	0.0041
Arsenic	0.000052

- Monitoring Well, Exceedance
- DA115 Former PCB Soil Pile Location



WGS 1984 UTM Zone 6N

Notes: Local groundwater flow direction inferred from the Environmental Restoration Program Atlas (USAF 2017).

DA115 PRELIMINARY WATER RESULTS - PHASE I

JOINT BASE ELMENDORF-RICHARDSON, ALASKA



DATE:
30 JAN 2018

PROJECT MANAGER:
P. CALLINA

FIGURE NO.:
3