ATTACHMENT 12

OU-6 Extent of Contamination, Source Removal Areas, and IC Boundaries

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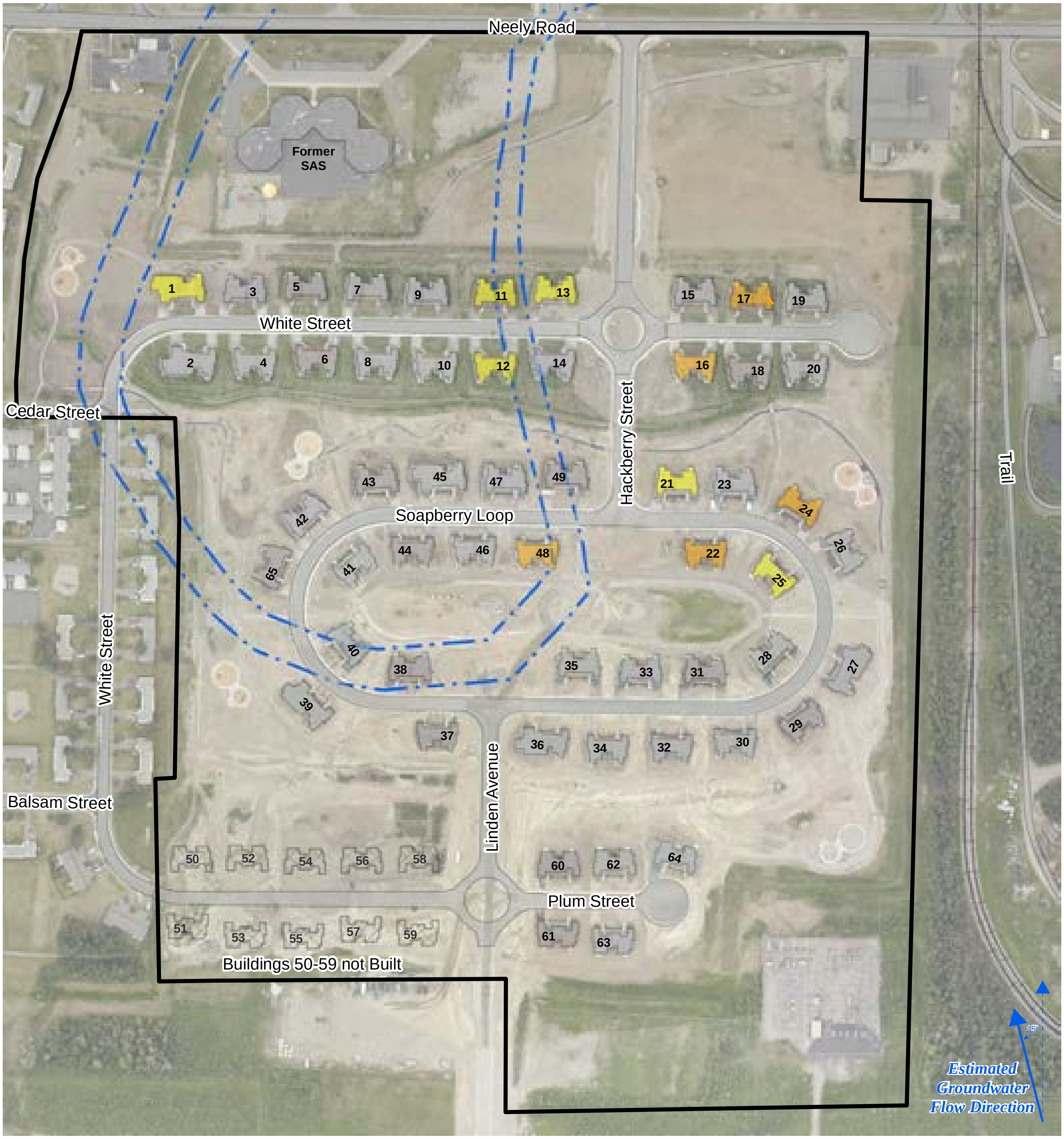
PATH: C:\Project Drawings\Taku FILE: 353-001-FT-F2.DWG PLOTTED: 8/3/06

DATE AUGUST 2006 CHKD C.M.B. DRAWN C.E.H. PROJ. NO 353-001	oasis ENVIRONMENTAL 825 W. 8TH AVENUE, SUITE 200 ANCHORAGE, ALASKA 99501	**SOURCE AREAS** PRELIMINARY SOURCE EVALUATION NARRATIVE REPORT TAKU FAMILY HOUSING SITE Fort Wainwright, Alaska	APPENDIX C



Operable Unit 6

Former Hoppe's Slough

Building Not Built

Building

Building with Observed Debris Beneath Foundation

Building with Possible Debris Beneath Foundation

N

All Locations Are Approximate

0 100 200 300 400

Feet

WGS 1984 UTM Zone 6N

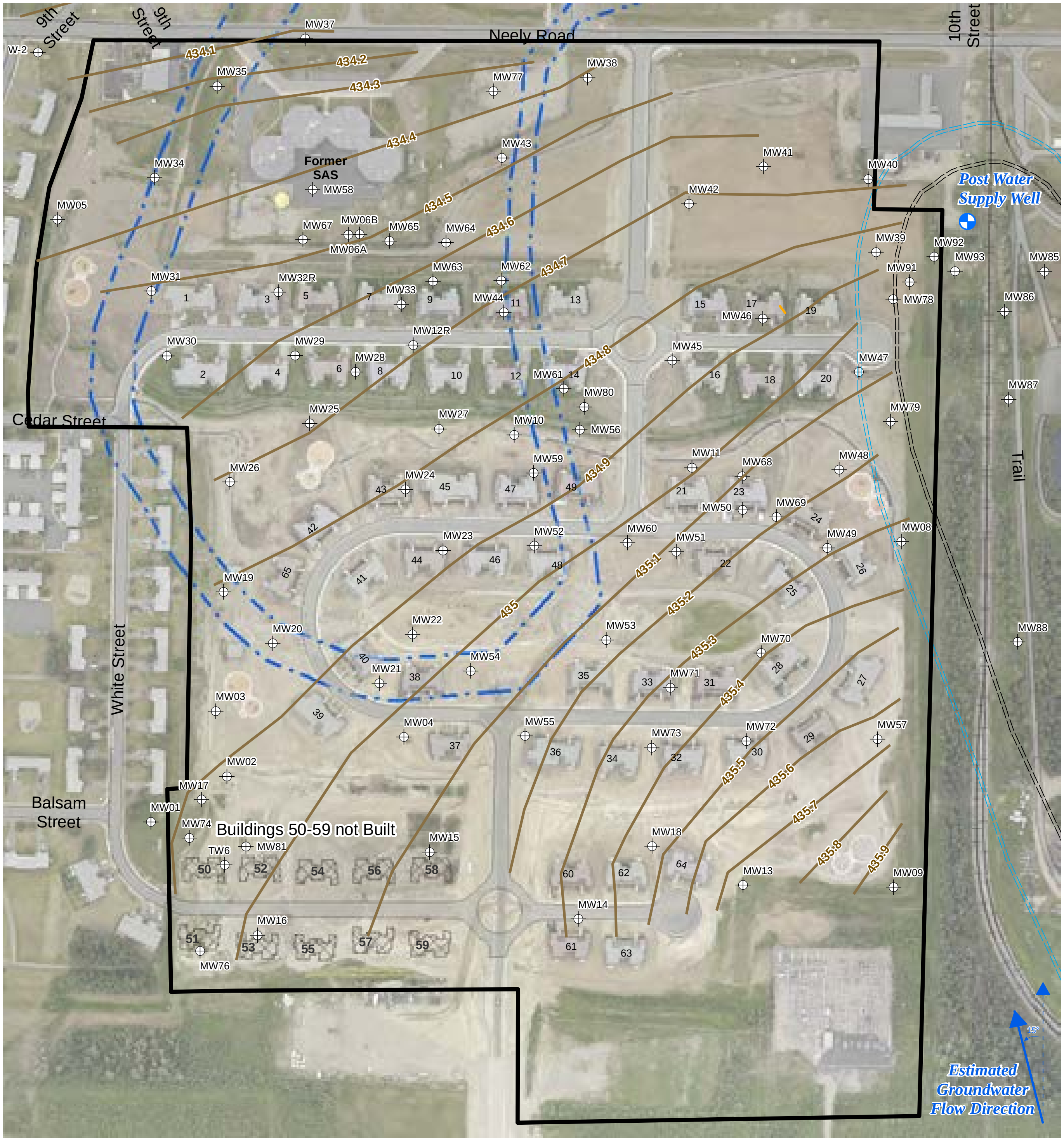
Sources:
1. Imagery - U.S. Army Corps of Engineers, 2012
2. USACE. 2010 (December). *Final Remedial Investigation, FWA 102 Former Communications Site, Fort Wainwright, Alaska.*

OPERABLE UNIT 6
BUILDINGS WITH POSSIBLE DEBRIS BENEATH FOUNDATION

FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS	DATE: 08 APR 2015	PROJECT MANAGER: S. RICHMOND	FIGURE NO: A-5

P:\FCS\2014_RD_RA_WP\MXD\A5_BuildingWithDebris.mxd wattta



Post Water Supply Well

Building not Built

Former Hoppe's Slough

Elevation Contour

Operable Unit 6

1,000 gpm Pumping Rate Water Supply Capture Zone

1,700 gpm Pumping Rate Water Supply Capture Zone

Monitoring Well

N

All Locations Are Approximate

0 100 200 300 400

Feet

WGS 1984 UTM Zone 6N

Sources:
1. Imagery - U.S. Army Corps of Engineers, May 2012
2. USACE. 2010 (December). *Final Remedial Investigation, FWA 102 Former Communications Site, Fort Wainwright, Alaska.*

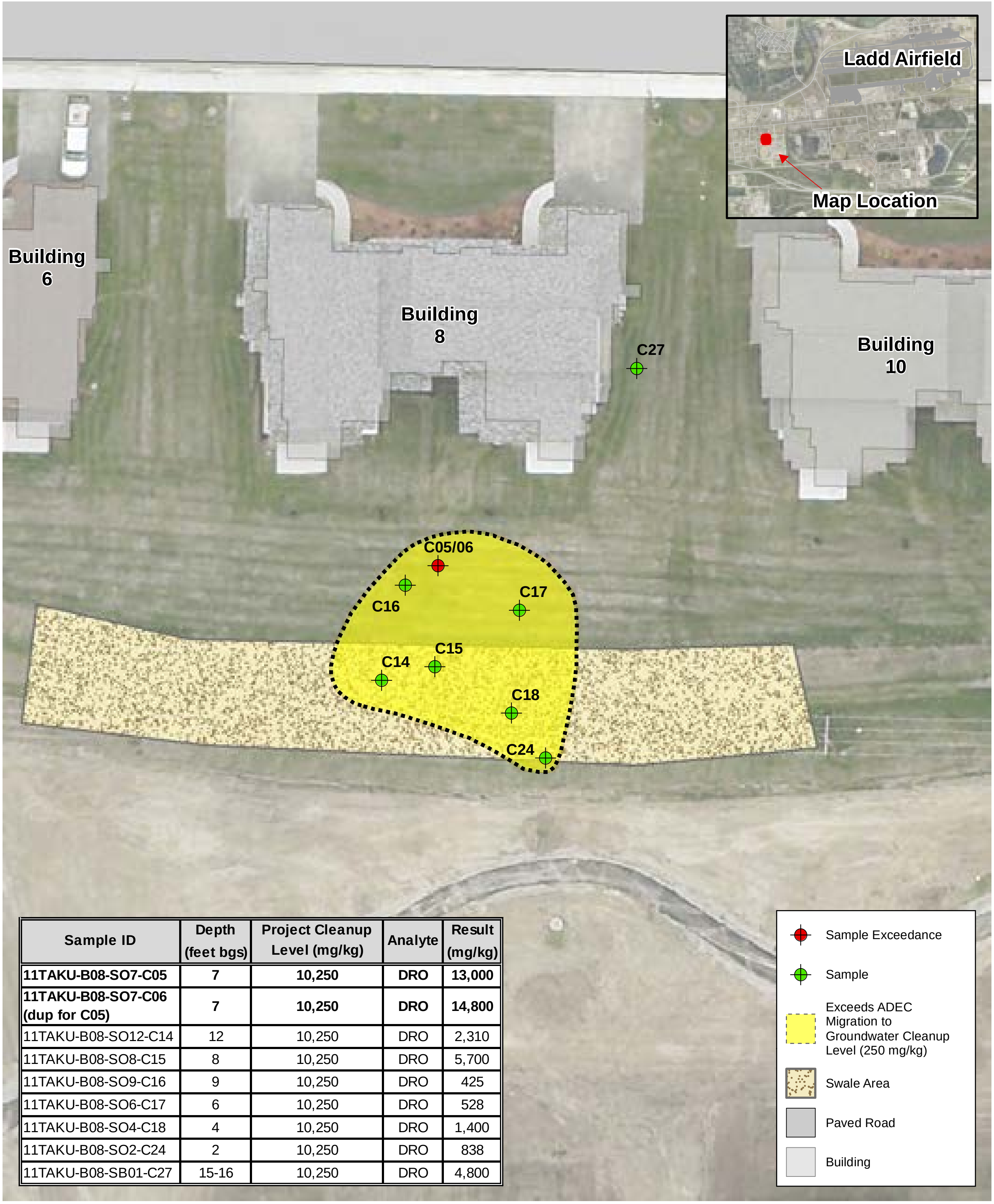
OPERABLE UNIT 6
GROUNDWATER ELEVATION CONTOUR MAP

FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS

DATE:	PROJECT MANAGER:	FIGURE NO:
12 MAR 2015	S. RICHMOND	A-6

P:\FCS\2014_RD_RA_WP\MXD\A6_2013_FCS_OU6_GW_Contours.mxd beatycj



Sample ID	Depth (feet bgs)	Project Cleanup Level (mg/kg)	Analyte	Result (mg/kg)
11TAKU-B08-SO7-C05	**7**	**10,250**	**DRO**	**13,000**
11TAKU-B08-SO7-C06 (dup for C05)	**7**	**10,250**	**DRO**	**14,800**
11TAKU-B08-SO12-C14	12	10,250	DRO	2,310
11TAKU-B08-SO8-C15	8	10,250	DRO	5,700
11TAKU-B08-SO9-C16	9	10,250	DRO	425
11TAKU-B08-SO6-C17	6	10,250	DRO	528
11TAKU-B08-SO4-C18	4	10,250	DRO	1,400
11TAKU-B08-SO2-C24	2	10,250	DRO	838
11TAKU-B08-SB01-C27	15-16	10,250	DRO	4,800

All Locations Are Approximate

N

0 10 20 30 40

Feet

UTM, Z6N

Imagery: U.S. Army Corps of Engineers, May 2012

OPERABLE UNIT 6 - BUILDING 08
DISTRIBUTION OF DIESEL RANGE ORGANICS IN SUBSURFACE SOIL

FORT WAINWRIGHT, FAIRBANKS, ALASKA

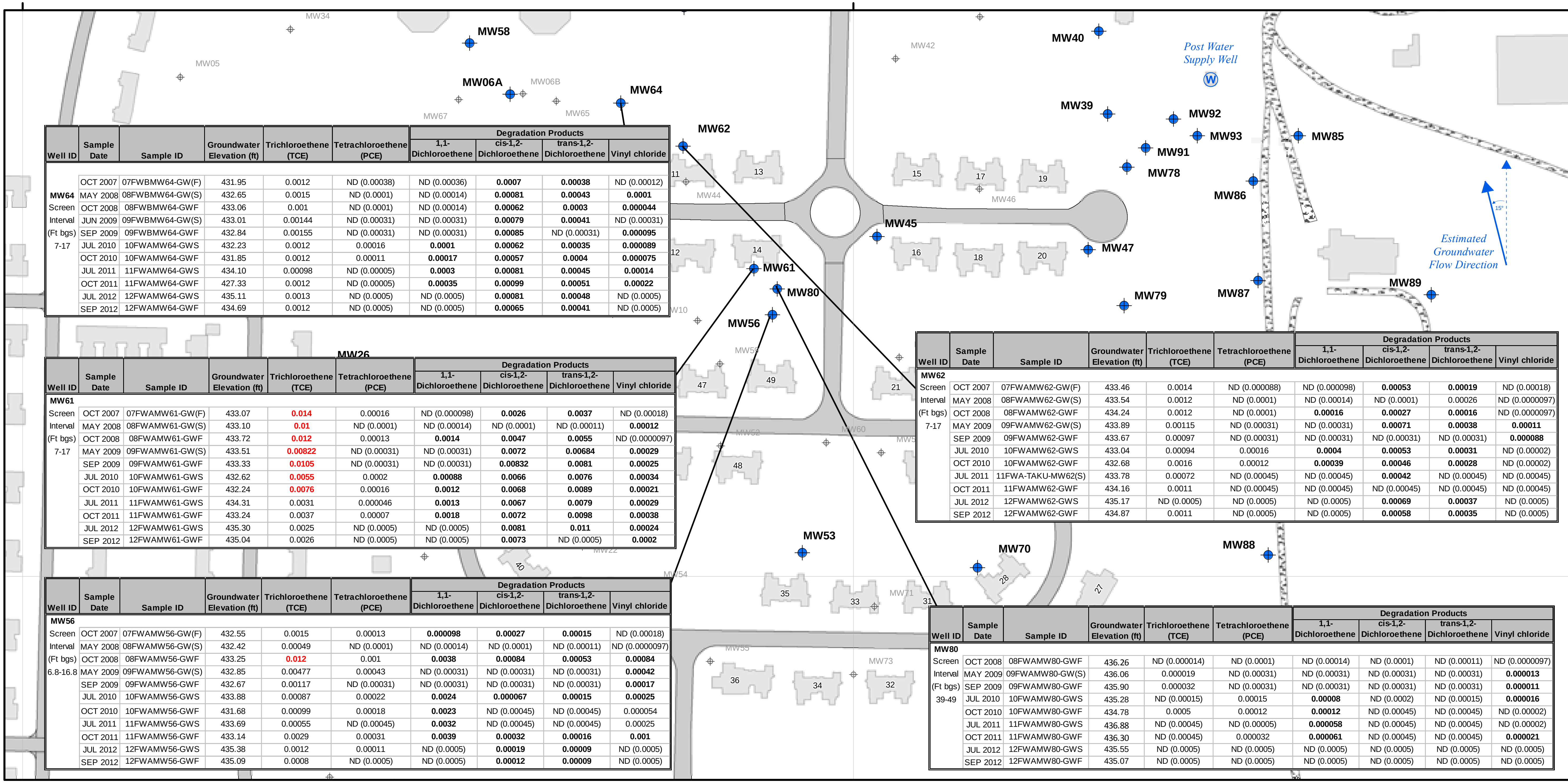
JACOBS

DATE: 12 MAR 2015

PROJECT MANAGER: S. RICHMOND

FIGURE NO: A-7

P:\FCS\2014_RD_RA_WP\MXD\A7_DistributionOfHydrocarbons.mxd beatycj



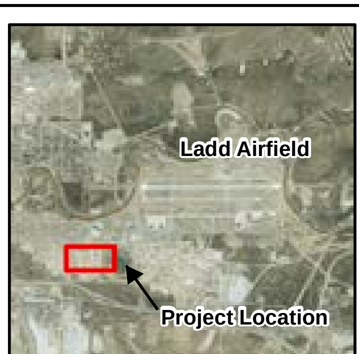
Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
	OCT 2007	07FWBMW64-GW(F)	431.95	0.0012	ND (0.00038)	ND (0.00036)	**0.0007**	**0.00038**	ND (0.00012)
MW64	MAY 2008	08FWBMW64-GW(S)	432.65	0.0015	ND (0.0001)	ND (0.00014)	**0.00081**	**0.00043**	**0.0001**
Screen	OCT 2008	08FWBMW64-GWF	433.06	0.001	ND (0.0001)	ND (0.00014)	**0.00062**	**0.0003**	**0.000044**
Interval	JUN 2009	09FWBMW64-GW(S)	433.01	0.00144	ND (0.00031)	ND (0.00031)	**0.00079**	**0.00041**	ND (0.00031)
(Ft bgs)	SEP 2009	09FWBMW64-GWF	432.84	0.00155	ND (0.00031)	ND (0.00031)	**0.00085**	ND (0.00031)	**0.000095**
7-17	JUL 2010	10FWAMW64-GWS	432.23	0.0012	0.00016	**0.0001**	**0.00062**	**0.00035**	**0.000089**
	OCT 2010	10FWAMW64-GWF	431.85	0.0012	0.00011	**0.00017**	**0.00057**	**0.0004**	**0.000075**
	JUL 2011	11FWAMW64-GWS	434.10	0.00098	ND (0.00005)	**0.0003**	**0.00081**	**0.00045**	**0.00014**
	OCT 2011	11FWAMW64-GWF	427.33	0.0012	ND (0.00005)	**0.00035**	**0.00099**	**0.00051**	**0.00022**
	JUL 2012	12FWAMW64-GWS	435.11	0.0013	ND (0.0005)	ND (0.0005)	**0.00081**	**0.00048**	ND (0.0005)
	SEP 2012	12FWAMW64-GWF	434.69	0.0012	ND (0.0005)	ND (0.0005)	**0.00065**	**0.00041**	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW61									
Screen	OCT 2007	07FWAMW61-GW(F)	433.07	0.014	0.00016	ND (0.000098)	**0.0026**	**0.0037**	ND (0.00018)
Interval	MAY 2008	08FWAMW61-GW(S)	433.10	0.01	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.00011)	**0.00012**
(Ft bgs)	OCT 2008	08FWAMW61-GWF	433.72	0.012	0.00013	**0.0014**	**0.0047**	**0.0055**	ND (0.0000097)
7-17	MAY 2009	09FWAMW61-GW(S)	433.51	0.00822	ND (0.00031)	ND (0.00031)	**0.0072**	**0.00684**	**0.00029**
	SEP 2009	09FWAMW61-GWF	433.33	0.0105	ND (0.00031)	ND (0.00031)	**0.00832**	**0.0081**	**0.00025**
	JUL 2010	10FWAMW61-GWS	432.62	0.0055	0.0002	**0.00088**	**0.0066**	**0.0076**	**0.00034**
	OCT 2010	10FWAMW61-GWF	432.24	0.0076	0.00016	**0.0012**	**0.0068**	**0.0089**	**0.00021**
	JUL 2011	11FWAMW61-GWS	434.31	0.0031	0.000046	**0.0013**	**0.0067**	**0.0079**	**0.00029**
	OCT 2011	11FWAMW61-GWF	433.24	0.0037	0.00007	**0.0018**	**0.0072**	**0.0098**	**0.00038**
	JUL 2012	12FWAMW61-GWS	435.30	0.0025	ND (0.0005)	ND (0.0005)	**0.0081**	**0.011**	**0.00024**
	SEP 2012	12FWAMW61-GWF	435.04	0.0026	ND (0.0005)	ND (0.0005)	**0.0073**	ND (0.0005)	**0.0002**

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW56									
Screen	OCT 2007	07FWAMW56-GW(F)	432.55	0.0015	0.00013	**0.000098**	**0.00027**	**0.00015**	ND (0.00018)
Interval	MAY 2008	08FWAMW56-GW(S)	432.42	0.00049	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.00011)	ND (0.0000097)
(Ft bgs)	OCT 2008	08FWAMW56-GWF	433.25	0.012	0.001	**0.0038**	**0.00084**	**0.00053**	**0.00084**
6.8-16.8	MAY 2009	09FWAMW56-GW(S)	432.85	0.00477	0.00043	ND (0.00031)	ND (0.00031)	ND (0.00031)	**0.00042**
	SEP 2009	09FWAMW56-GWF	432.67	0.00117	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	**0.00017**
	JUL 2010	10FWAMW56-GWS	433.88	0.00087	0.00022	**0.0024**	**0.000067**	**0.00015**	**0.00025**
	OCT 2010	10FWAMW56-GWF	431.68	0.00099	0.00018	**0.0023**	ND (0.00045)	ND (0.00045)	0.000054
	JUL 2011	11FWAMW56-GWS	433.69	0.00055	ND (0.00045)	**0.0032**	ND (0.00045)	ND (0.00045)	0.00025
	OCT 2011	11FWAMW56-GWF	433.14	0.0029	0.00031	**0.0039**	**0.00032**	**0.00016**	**0.001**
	JUL 2012	12FWAMW56-GWS	435.38	0.0012	0.00011	ND (0.0005)	**0.00019**	**0.00009**	ND (0.0005)
	SEP 2012	12FWAMW56-GWF	435.09	0.0008	ND (0.0005)	ND (0.0005)	**0.00012**	**0.00009**	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW62									
Screen	OCT 2007	07FWAMW62-GW(F)	433.46	0.0014	ND (0.000088)	ND (0.000098)	**0.00053**	**0.00019**	ND (0.00018)
Interval	MAY 2008	08FWAMW62-GW(S)	433.54	0.0012	ND (0.0001)	ND (0.00014)	ND (0.0001)	0.00026	ND (0.0000097)
(Ft bgs)	OCT 2008	08FWAMW62-GWF	434.24	0.0012	ND (0.0001)	**0.00016**	**0.00027**	**0.00016**	ND (0.0000097)
7-17	MAY 2009	09FWAMW62-GW(S)	433.89	0.00115	ND (0.00031)	ND (0.00031)	**0.00071**	**0.00038**	**0.00011**
	SEP 2009	09FWAMW62-GWF	433.67	0.00097	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	**0.000088**
	JUL 2010	10FWAMW62-GWS	433.04	0.00094	0.00016	**0.0004**	**0.00053**	**0.00031**	ND (0.00002)
	OCT 2010	10FWAMW62-GWF	432.68	0.0016	0.00012	**0.00039**	**0.00046**	**0.00028**	ND (0.00002)
	JUL 2011	11FWA-TAKU-MW62(S)	433.78	0.00072	ND (0.00045)	ND (0.00045)	**0.00042**	ND (0.00045)	ND (0.00045)
	OCT 2011	11FWAMW62-GWF	434.16	0.0011	ND (0.00045)	ND (0.00045)	ND (0.00045)	ND (0.00045)	ND (0.00045)
	JUL 2012	12FWAMW62-GWS	435.17	ND (0.0005)	ND (0.0005)	ND (0.0005)	**0.00069**	**0.00037**	ND (0.0005)
	SEP 2012	12FWAMW62-GWF	434.87	0.0011	ND (0.0005)	ND (0.0005)	**0.00058**	**0.00035**	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW80									
Screen	OCT 2008	08FWAMW80-GWF	436.26	ND (0.000014)	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.00011)	ND (0.0000097)
Interval	MAY 2009	09FWAMW80-GW(S)	436.06	0.000019	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	**0.000013**
(Ft bgs)	SEP 2009	09FWAMW80-GWF	435.90	0.000032	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	**0.000011**
39-49	JUL 2010	10FWAMW80-GWS	435.28	ND (0.00015)	0.00015	**0.00008**	ND (0.0002)	ND (0.00015)	**0.000016**
	OCT 2010	10FWAMW80-GWF	434.78	0.0005	0.00012	**0.00012**	ND (0.00045)	ND (0.00045)	ND (0.00002)
	JUL 2011	11FWAMW80-GWS	436.88	ND (0.00045)	ND (0.00005)	**0.000058**	ND (0.00045)	ND (0.00045)	ND (0.00002)
	OCT 2011	11FWAMW80-GWF	436.30	ND (0.00045)	0.000032	**0.000061**	ND (0.00045)	ND (0.00045)	**0.000021**
	JUL 2012	12FWAMW80-GWS	435.55	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW80-GWF	435.07	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)



2012 Sampled Well - TCE Exceedance

2012 Sampled Well - No TCE Exceedance

Onsite Well

Post Water Supply Well

Notes:
Units: mg/L
ND: not detected
Ft bgs: feet below ground surface
Trichloroethene (TCE) Project Cleanup Level = 0.005 mg/L
cis-1,2-Dichloroethene Project Cleanup Level = 0.07 mg/L
1,1-Dichloroethene Project Cleanup Level = 0.007 mg/L
trans-1,2-Dichloroethene Project Cleanup Level = 0.1 mg/L
Vinyl chloride Project Cleanup Level = 0.002 mg/L
Tetrachloroethene (PCE) Project Cleanup Level = 0.005 mg/L

The F or S at the end of the sample ID indicates the Spring or Fall sampling event.
(F) or (S) is appended to the sample ID where the original sample ID did not include an F or an S.
Results are presented without qualifiers.
RED exceeded the project cleanup level.
BOLD detections of degradation products.

All Locations Are Approximate

0 150 300 450 600
Feet

WGS 1984 UTM Zone 6N

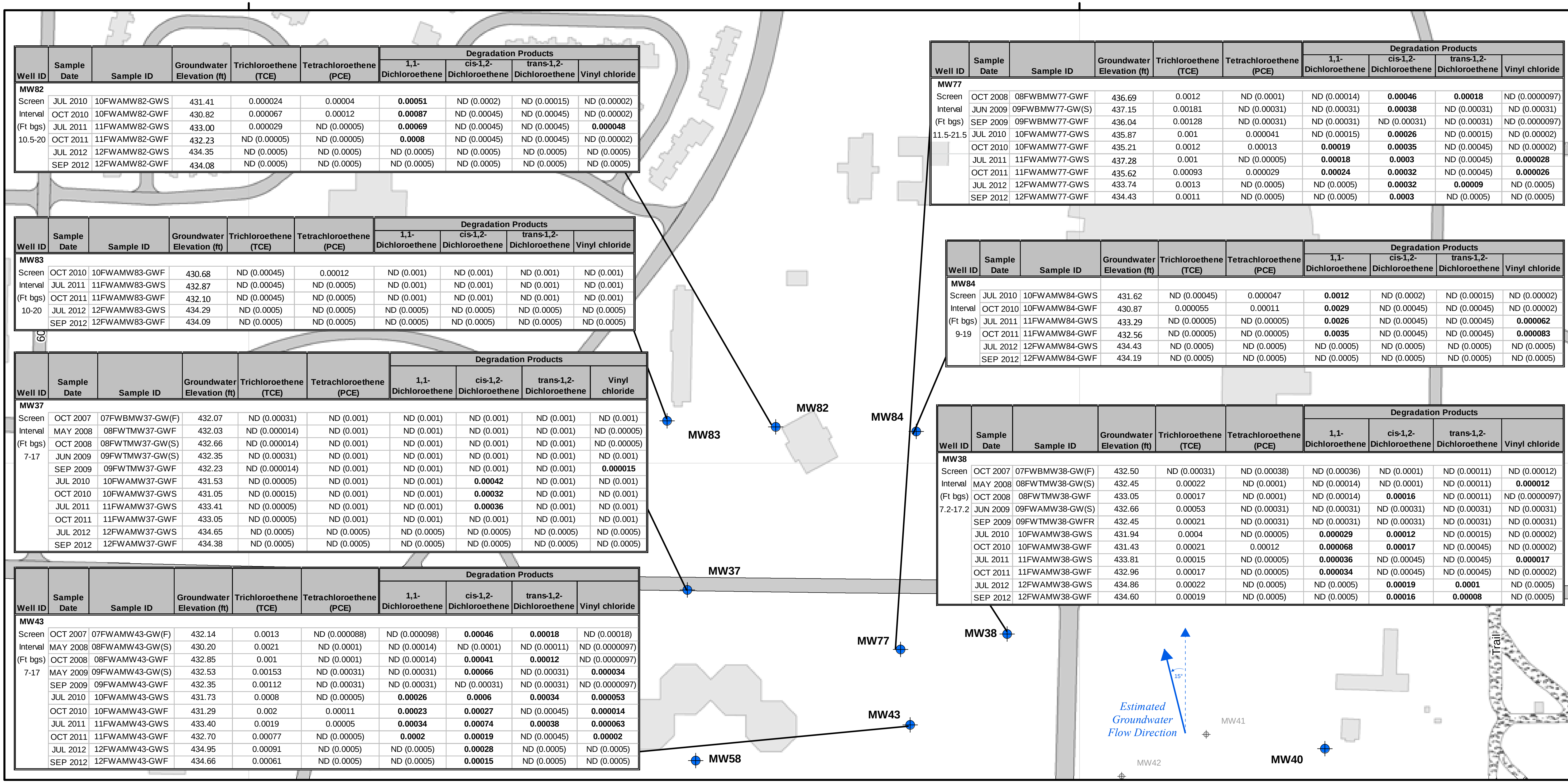
N

OPERABLE UNIT 6 (SOUTH)
TRICHLOROETHENE (TCE) RESULTS
FOR IN-PLUME AND SURROUNDING WELLS
FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS

DATE:	PROJECT MANAGER:	FIGURE NO:
08 APR 2015	S. RICHMOND	A-8

P:\FCS\2014_RD_RA_WP\MXD\A8_2013_Taku_GWMP_TCE_Con_S.mxd wattta



Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW82									
Screen	JUL 2010	10FWAMW82-GWS	431.41	0.000024	0.00004	**0.00051**	ND (0.0002)	ND (0.00015)	ND (0.00002)
Interval	OCT 2010	10FWAMW82-GWF	430.82	0.000067	0.00012	**0.00087**	ND (0.00045)	ND (0.00045)	ND (0.00002)
(Ft bgs)	JUL 2011	11FWAMW82-GWS	433.00	0.000029	ND (0.00005)	**0.00069**	ND (0.00045)	ND (0.00045)	**0.000048**
10.5-20	OCT 2011	11FWAMW82-GWF	432.23	ND (0.00005)	ND (0.00005)	**0.0008**	ND (0.00045)	ND (0.00045)	ND (0.00002)
	JUL 2012	12FWAMW82-GWS	434.35	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW82-GWF	434.08	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW83									
Screen	OCT 2010	10FWAMW83-GWF	430.68	ND (0.00045)	0.00012	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Interval	JUL 2011	11FWAMW83-GWS	432.87	ND (0.00045)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
(Ft bgs)	OCT 2011	11FWAMW83-GWF	432.10	ND (0.00045)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
10-20	JUL 2012	12FWAMW83-GWS	434.29	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW83-GWF	434.09	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW37									
Screen	OCT 2007	07FWBMW37-GW(F)	432.07	ND (0.00031)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Interval	MAY 2008	08FWTMW37-GWF	432.03	ND (0.000014)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00005)
(Ft bgs)	OCT 2008	08FWTMW37-GW(S)	432.66	ND (0.000014)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00005)
7-17	JUN 2009	09FWTMW37-GW(S)	432.35	ND (0.00031)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	SEP 2009	09FWTMW37-GWF	432.23	ND (0.000014)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	**0.000015**
	JUL 2010	10FWAMW37-GWF	431.53	ND (0.00005)	ND (0.001)	ND (0.001)	**0.00042**	ND (0.001)	ND (0.001)
	OCT 2010	10FWAMW37-GWS	431.05	ND (0.00015)	ND (0.001)	ND (0.001)	**0.00032**	ND (0.001)	ND (0.001)
	JUL 2011	11FWAMW37-GWS	433.41	ND (0.00005)	ND (0.001)	ND (0.001)	**0.00036**	ND (0.001)	ND (0.001)
	OCT 2011	11FWAMW37-GWF	433.05	ND (0.00005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	JUL 2012	12FWAMW37-GWS	434.65	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW37-GWF	434.38	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW43									
Screen	OCT 2007	07FWAMW43-GW(F)	432.14	0.0013	ND (0.000088)	ND (0.000098)	**0.00046**	**0.00018**	ND (0.00018)
Interval	MAY 2008	08FWAMW43-GW(S)	430.20	0.0021	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.00011)	ND (0.0000097)
(Ft bgs)	OCT 2008	08FWAMW43-GWF	432.85	0.001	ND (0.0001)	ND (0.00014)	**0.00041**	**0.00012**	ND (0.0000097)
7-17	MAY 2009	09FWAMW43-GW(S)	432.53	0.00153	ND (0.00031)	ND (0.00031)	**0.00066**	ND (0.00031)	**0.000034**
	SEP 2009	09FWAMW43-GWF	432.35	0.00112	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.0000097)
	JUL 2010	10FWAMW43-GWS	431.73	0.0008	ND (0.00005)	**0.00026**	**0.0006**	**0.00034**	**0.000053**
	OCT 2010	10FWAMW43-GWF	431.29	0.002	0.00011	**0.00023**	**0.00027**	ND (0.00045)	**0.000014**
	JUL 2011	11FWAMW43-GWS	433.40	0.0019	0.00005	**0.00034**	**0.00074**	**0.00038**	**0.000063**
	OCT 2011	11FWAMW43-GWF	432.70	0.00077	ND (0.00005)	**0.0002**	**0.00019**	ND (0.00045)	**0.00002**
	JUL 2012	12FWAMW43-GWS	434.95	0.00091	ND (0.0005)	ND (0.0005)	**0.00028**	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW43-GWF	434.66	0.00061	ND (0.0005)	ND (0.0005)	**0.00015**	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW77									
Screen	OCT 2008	08FWBMW77-GWF	436.69	0.0012	ND (0.0001)	ND (0.00014)	**0.00046**	**0.00018**	ND (0.0000097)
Interval	JUN 2009	09FWBMW77-GW(S)	437.15	0.00181	ND (0.00031)	ND (0.00031)	**0.00038**	ND (0.00031)	ND (0.00031)
(Ft bgs)	SEP 2009	09FWBMW77-GWF	436.04	0.00128	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.0000097)
11.5-21.5	JUL 2010	10FWAMW77-GWS	435.87	0.001	0.000041	ND (0.00015)	**0.00026**	ND (0.00015)	ND (0.00002)
	OCT 2010	10FWAMW77-GWF	435.21	0.0012	0.00013	**0.00019**	**0.00035**	ND (0.00045)	ND (0.00002)
	JUL 2011	11FWAMW77-GWS	437.28	0.001	ND (0.00005)	**0.00018**	**0.0003**	ND (0.00045)	**0.000028**
	OCT 2011	11FWAMW77-GWF	435.62	0.00093	0.000029	**0.00024**	**0.00032**	ND (0.00045)	**0.000026**
	JUL 2012	12FWAMW77-GWS	433.74	0.0013	ND (0.0005)	ND (0.0005)	**0.00032**	**0.00009**	ND (0.0005)
	SEP 2012	12FWAMW77-GWF	434.43	0.0011	ND (0.0005)	ND (0.0005)	**0.0003**	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW84									
Screen	JUL 2010	10FWAMW84-GWS	431.62	ND (0.00045)	0.000047	**0.0012**	ND (0.0002)	ND (0.00015)	ND (0.00002)
Interval	OCT 2010	10FWAMW84-GWF	430.87	0.000055	0.00011	**0.0029**	ND (0.00045)	ND (0.00045)	ND (0.00002)
(Ft bgs)	JUL 2011	11FWAMW84-GWS	433.29	ND (0.00005)	ND (0.00005)	**0.0026**	ND (0.00045)	ND (0.00045)	**0.000062**
9-19	OCT 2011	11FWAMW84-GWF	432.56	ND (0.00005)	ND (0.00005)	**0.0035**	ND (0.00045)	ND (0.00045)	**0.000083**
	JUL 2012	12FWAMW84-GWS	434.43	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
	SEP 2012	12FWAMW84-GWF	434.19	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Degradation Products			
						1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
MW38									
Screen	OCT 2007	07FWBMW38-GW(F)	432.50	ND (0.00031)	ND (0.00038)	ND (0.00036)	ND (0.0001)	ND (0.00011)	ND (0.00012)
Interval	MAY 2008	08FWTMW38-GW(S)	432.45	0.00022	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.00011)	**0.000012**
(Ft bgs)	OCT 2008	08FWTMW38-GWF	433.05	0.00017	ND (0.0001)	ND (0.00014)	**0.00016**	ND (0.00011)	ND (0.0000097)
7.2-17.2	JUN 2009	09FWAMW38-GW(S)	432.66	0.00053	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)
	SEP 2009	09FWTMW38-GWFR	432.45	0.00021	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)	ND (0.00031)
	JUL 2010	10FWAMW38-GWS	431.94	0.0004	ND (0.00005)	**0.000029**	**0.00012**	ND (0.00015)	ND (0.00002)
	OCT 2010	10FWAMW38-GWF	431.43	0.00021	0.00012	**0.000068**	**0.00017**	ND (0.00045)	ND (0.00002)
	JUL 2011	11FWAMW38-GWS	433.81	0.00015	ND (0.00005)	**0.000036**	ND (0.00045)	ND (0.00045)	**0.000017**
	OCT 2011	11FWAMW38-GWF	432.96	0.00017	ND (0.00005)	**0.000034**	ND (0.00045)	ND (0.00045)	ND (0.00002)
	JUL 2012	12FWAMW38-GWS	434.86	0.00022	ND (0.0005)	ND (0.0005)	**0.00019**	**0.0001**	ND (0.0005)
	SEP 2012	12FWAMW38-GWF	434.60	0.00019	ND (0.0005)	ND (0.0005)	**0.00016**	**0.00008**	ND (0.0005)

2012 Sampled Well - TCE Exceedance

2012 Sampled Well - No TCE Exceedance

Onsite Well

Post Water Supply Well

Notes:
Units: mg/L
ND: not detected
Ft bgs: feet below ground surface
Trichloroethene (TCE) Project Cleanup Level = 0.005 mg/L
cis-1,2-Dichloroethene Project Cleanup Level = 0.07 mg/L
1,1-Dichloroethene Project Cleanup Level = 0.007 mg/L
trans-1,2-Dichloroethene Project Cleanup Level = 0.1 mg/L
Vinyl chloride Project Cleanup Level = 0.002 mg/L
Tetrachloroethene (PCE) Project Cleanup Level = 0.005 mg/L

The F or S at the end of the sample ID indicates the Spring or Fall sampling event.
(F) or (S) is appended to the sample ID where the original sample ID did not include an F or an S.
Results are presented without qualifiers.
RED exceeded the project cleanup level.
BOLD detections of degradation products.

All Locations Are Approximate

0 150 300 450 600
Feet

WGS 1984 UTM Zone 6N

N

OPERABLE UNIT 6 (NORTH) TRICHLOROETHENE (TCE) RESULTS FOR IN-PLUME AND SURROUNDING WELLS

FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS

DATE:	PROJECT MANAGER:	FIGURE NO:
08 APR 2015	S. RICHMOND	A-9

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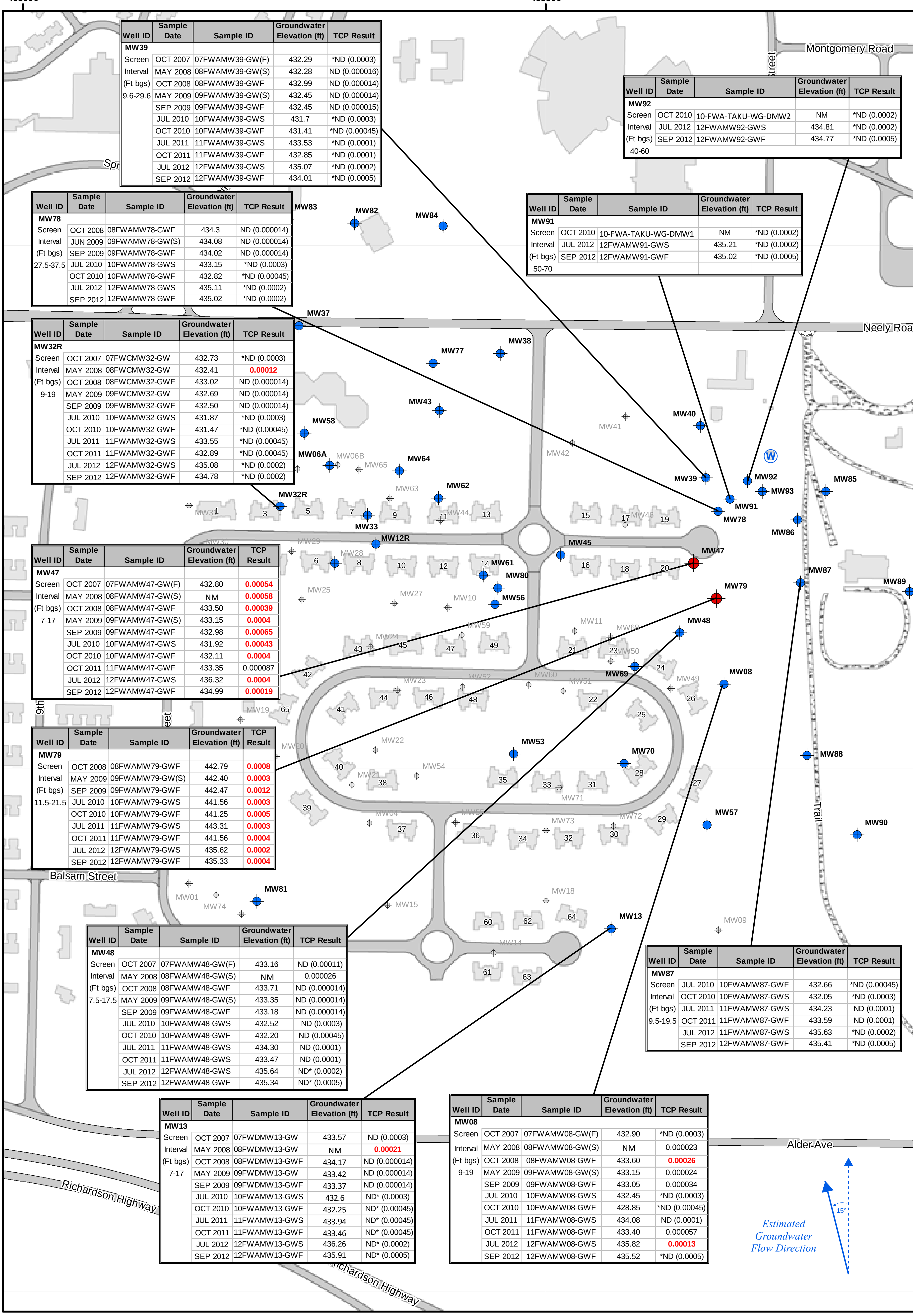


Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW39				
Screen	OCT 2007	07FWAMW39-GW(F)	432.29	*ND (0.0003)
Interval	MAY 2008	08FWAMW39-GW(S)	432.28	ND (0.000016)
(Ft bgs)	OCT 2008	08FWAMW39-GWF	432.99	ND (0.000014)
9.6-29.6	MAY 2009	09FWAMW39-GW(S)	432.45	ND (0.000014)
	SEP 2009	09FWAMW39-GWF	432.45	ND (0.000015)
	JUL 2010	10FWAMW39-GWS	431.7	*ND (0.0003)
	OCT 2010	10FWAMW39-GWF	431.41	*ND (0.00045)
	JUL 2011	11FWAMW39-GWS	433.53	*ND (0.0001)
	OCT 2011	11FWAMW39-GWF	432.85	*ND (0.0001)
	JUL 2012	12FWAMW39-GWS	435.07	*ND (0.0002)
	SEP 2012	12FWAMW39-GWF	434.01	*ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW92				
Screen	OCT 2010	10-FWA-TAKU-WG-DMW2	NM	*ND (0.0002)
Interval	JUL 2012	12FWAMW92-GWS	434.81	*ND (0.0002)
(Ft bgs)	SEP 2012	12FWAMW92-GWF	434.77	*ND (0.0005)
40-60				

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW78				
Screen	OCT 2008	08FWAMW78-GWF	434.3	ND (0.000014)
Interval	JUN 2009	09FWAMW78-GW(S)	434.08	ND (0.000014)
(Ft bgs)	SEP 2009	09FWAMW78-GWF	434.02	ND (0.000014)
27.5-37.5	JUL 2010	10FWAMW78-GWS	433.15	*ND (0.0003)
	OCT 2010	10FWAMW78-GWF	432.82	*ND (0.00045)
	JUL 2012	12FWAMW78-GWS	435.11	*ND (0.0002)
	SEP 2012	12FWAMW78-GWF	435.02	*ND (0.0002)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW91				
Screen	OCT 2010	10-FWA-TAKU-WG-DMW1	NM	*ND (0.0002)
Interval	JUL 2012	12FWAMW91-GWS	435.21	*ND (0.0002)
(Ft bgs)	SEP 2012	12FWAMW91-GWF	435.02	*ND (0.0005)
50-70				

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW32R				
Screen	OCT 2007	07FWCMW32-GW	432.73	*ND (0.0003)
Interval	MAY 2008	08FWCMW32-GW	432.41	0.00012
(Ft bgs)	OCT 2008	08FWCMW32-GWF	433.02	ND (0.000014)
9-19	MAY 2009	09FWCMW32-GW	432.69	ND (0.000014)
	SEP 2009	09FWBMW32-GWF	432.50	ND (0.000014)
	JUL 2010	10FWAMW32-GWS	431.87	*ND (0.0003)
	OCT 2010	10FWAMW32-GWF	431.47	*ND (0.00045)
	JUL 2011	11FWAMW32-GWS	433.55	*ND (0.00045)
	OCT 2011	11FWAMW32-GWF	432.89	*ND (0.00045)
	JUL 2012	12FWAMW32-GWS	435.08	*ND (0.0002)
	SEP 2012	12FWAMW32-GWF	434.78	*ND (0.0002)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW47				
Screen	OCT 2007	07FWAMW47-GW(F)	432.80	0.00054
Interval	MAY 2008	08FWAMW47-GW(S)	NM	0.00058
(Ft bgs)	OCT 2008	08FWAMW47-GWF	433.50	0.00039
7-17	MAY 2009	09FWAMW47-GW(S)	433.15	0.0004
	SEP 2009	09FWAMW47-GWF	432.98	0.00065
	JUL 2010	10FWAMW47-GWS	431.92	0.00043
	OCT 2010	10FWAMW47-GWF	432.11	0.0004
	OCT 2011	11FWAMW47-GWF	433.35	0.000087
	JUL 2012	12FWAMW47-GWS	436.32	0.0004
	SEP 2012	12FWAMW47-GWF	434.99	0.0019

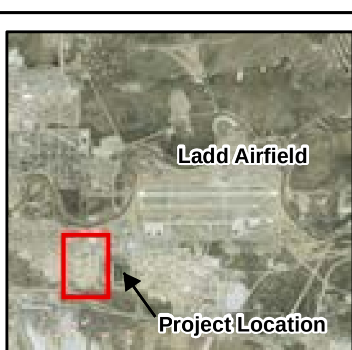
Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW79				
Screen	OCT 2008	08FWAMW79-GWF	442.79	0.0008
Interval	MAY 2009	09FWAMW79-GW(S)	442.40	0.0003
(Ft bgs)	SEP 2009	09FWAMW79-GWF	442.47	0.0012
11.5-21.5	JUL 2010	10FWAMW79-GWS	441.56	0.0003
	OCT 2010	10FWAMW79-GWF	441.25	0.0005
	JUL 2011	11FWAMW79-GWS	443.31	0.0003
	OCT 2011	11FWAMW79-GWF	441.56	0.0004
	JUL 2012	12FWAMW79-GWS	435.62	0.0002
	SEP 2012	12FWAMW79-GWF	435.33	0.0004

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW48				
Screen	OCT 2007	07FWAMW48-GW(F)	433.16	ND (0.00011)
Interval	MAY 2008	08FWAMW48-GW(S)	NM	0.000026
(Ft bgs)	OCT 2008	08FWAMW48-GWF	433.71	ND (0.000014)
7.5-17.5	MAY 2009	09FWAMW48-GW(S)	433.35	ND (0.000014)
	SEP 2009	09FWAMW48-GWF	433.18	ND (0.000014)
	JUL 2010	10FWAMW48-GWS	432.52	ND (0.0003)
	OCT 2010	10FWAMW48-GWF	432.20	ND (0.00045)
	JUL 2011	11FWAMW48-GWS	434.30	ND (0.0001)
	OCT 2011	11FWAMW48-GWF	433.47	ND (0.0001)
	JUL 2012	12FWAMW48-GWS	435.64	ND* (0.0002)
	SEP 2012	12FWAMW48-GWF	435.34	ND* (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW87				
Screen	JUL 2010	10FWAMW87-GWF	432.66	*ND (0.00045)
Interval	OCT 2010	10FWAMW87-GWS	432.05	*ND (0.0003)
(Ft bgs)	JUL 2011	11FWAMW87-GWS	434.23	ND (0.0001)
9.5-19.5	OCT 2011	11FWAMW87-GWF	433.59	ND (0.0001)
	JUL 2012	11FWAMW87-GWS	435.63	*ND (0.0002)
	SEP 2012	12FWAMW87-GWF	435.41	*ND (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW13				
Screen	OCT 2007	07FWDMW13-GW	433.57	ND (0.0003)
Interval	MAY 2008	08FWDMW13-GW	NM	0.00021
(Ft bgs)	OCT 2008	08FWDMW13-GWF	434.17	ND (0.000014)
7-17	MAY 2009	09FWDMW13-GW	433.42	ND (0.000014)
	SEP 2009	09FWDMW13-GWF	433.37	ND (0.000014)
	JUL 2010	10FWAMW13-GWS	432.6	ND* (0.0003)
	OCT 2010	10FWAMW13-GWF	432.25	ND* (0.00045)
	JUL 2011	11FWAMW13-GWS	433.94	ND* (0.00045)
	OCT 2011	11FWAMW13-GWF	433.46	ND* (0.00045)
	JUL 2012	12FWAMW13-GWS	436.26	ND* (0.0002)
	SEP 2012	12FWAMW13-GWF	435.91	ND* (0.0005)

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	TCP Result
MW08				
Screen	OCT 2007	07FWAMW08-GW(F)	432.90	*ND (0.0003)
Interval	MAY 2008	08FWAMW08-GW(S)	NM	0.000023
(Ft bgs)	OCT 2008	08FWAMW08-GWF	433.60	0.00026
9-19	MAY 2009	09FWAMW08-GW(S)	433.15	0.000024
	SEP 2009	09FWAMW08-GWF	433.05	0.000034
	JUL 2010	10FWAMW08-GWS	432.45	*ND (0.0003)
	OCT 2010	10FWAMW08-GWF	428.85	*ND (0.00045)
	JUL 2011	11FWAMW08-GWS	434.08	ND (0.0001)
	OCT 2011	11FWAMW08-GWF	433.40	0.000057
	JUL 2012	12FWAMW08-GWS	435.82	0.00013
	SEP 2012	12FWAMW08-GWF	435.52	*ND (0.0005)



2012 Sampled Well - TCP Exceedance

2012 Sampled Well - No TCP Exceedance

Onsite Well

Post Water Supply Well

Notes:
Project Cleanup Level: 0.00012
Units: mg/L
Method: SW8260, SW8260SIM

The F or S at the end of the sample ID indicates Spring or Fall sampling.

RED exceeded the project cleanup level.
TCP: 1,2,3-Trichloropropane
Results are presented without qualifiers.
ND = not detected
*ND = not detected but limit of quantitation exceeds project cleanup level.

All Locations Are Approximate

0 250 500 750 1,000
Feet

WGS 1984 UTM Zone 6N

N

OPERABLE UNIT 6
1,2,3-TRICHLOROPROPANE (TCP)
RESULTS FOR IN-PLUME AND SURROUNDING WELLS
FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS | DATE: 08 APR 2015 | PROJECT MANAGER: S. RICHMOND | FIGURE NO: A-10

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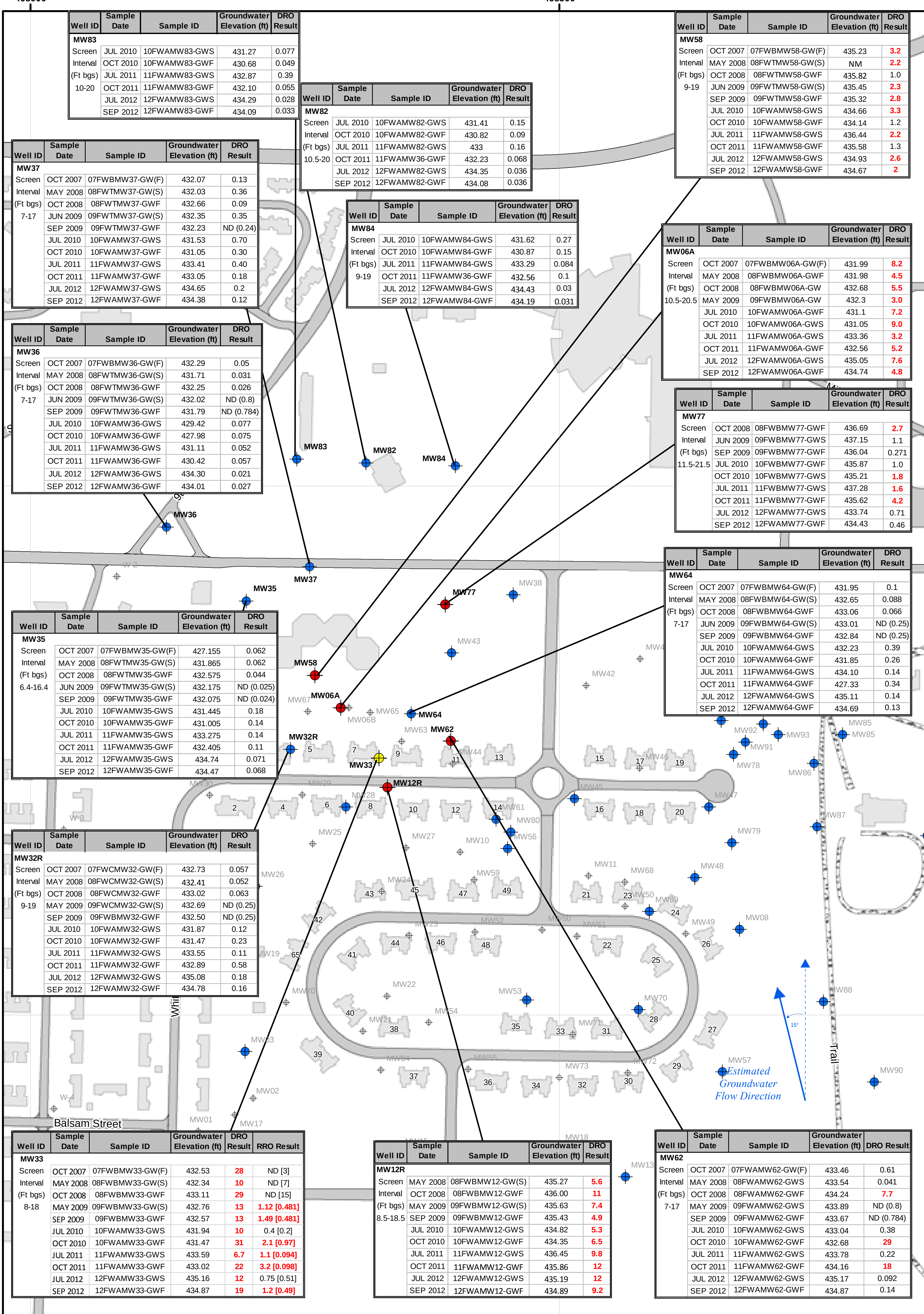


MW83

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 10-20	JUL 2010	10FWAMW83-GWS	431.27	0.077
	OCT 2010	10FWAMW83-GWF	430.68	0.049
	JUL 2011	11FWAMW83-GWS	432.87	0.39
	OCT 2011	11FWAMW83-GWF	432.10	0.055
	JUL 2012	12FWAMW83-GWS	434.29	0.028
	SEP 2012	12FWAMW83-GWF	434.09	0.033

MW82

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 10.5-20	JUL 2010	10FWAMW82-GWS	431.41	0.15
	OCT 2010	10FWAMW82-GWF	430.82	0.09
	JUL 2011	11FWAMW82-GWS	433	0.16
	OCT 2011	11FWAMW36-GWF	432.23	0.068
	JUL 2012	12FWAMW82-GWS	434.35	0.036
	SEP 2012	12FWAMW82-GWF	434.08	0.036

MW58

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 9-19	OCT 2007	07FWBMW58-GW(F)	435.23	3.2
	MAY 2008	08FWTMW58-GW(S)	NM	2.2
	OCT 2008	08FWTMW58-GWF	435.82	1.0
	JUN 2009	09FWTMW58-GW(S)	435.45	2.3
	SEP 2009	09FWTMW58-GWF	435.32	2.8
	JUL 2010	10FWAMW58-GWS	434.66	3.3
	OCT 2010	10FWAMW58-GWF	434.14	1.2
	JUL 2011	11FWAMW58-GWS	436.44	2.2
	OCT 2011	11FWAMW58-GWF	435.58	1.3
	JUL 2012	12FWAMW58-GWS	434.93	2.6
	SEP 2012	12FWAMW58-GWF	434.67	2

MW37

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 7-17	OCT 2007	07FWBMW37-GW(F)	432.07	0.13
	MAY 2008	08FWTMW37-GW(S)	432.03	0.36
	OCT 2008	08FWTMW37-GWF	432.66	0.09
	JUN 2009	09FWTMW37-GW(S)	432.35	0.35
	SEP 2009	09FWTMW37-GWF	432.23	ND (0.24)
	JUL 2010	10FWAMW37-GWS	431.53	0.70
	OCT 2010	10FWAMW37-GWF	431.05	0.30
	JUL 2011	11FWAMW37-GWS	433.41	0.40
	OCT 2011	11FWAMW37-GWF	433.05	0.18
	JUL 2012	12FWAMW37-GWS	434.65	0.2
	SEP 2012	12FWAMW37-GWF	434.38	0.12

MW84

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 9-19	JUL 2010	10FWAMW84-GWS	431.62	0.27
	OCT 2010	10FWAMW84-GWF	430.87	0.15
	JUL 2011	11FWAMW84-GWS	433.29	0.084
	OCT 2011	11FWAMW36-GWF	432.56	0.1
	JUL 2012	12FWAMW84-GWS	434.43	0.03
	SEP 2012	12FWAMW84-GWF	434.19	0.031

MW06A

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 10.5-20.5	OCT 2007	07FWBMW06A-GW(F)	431.99	8.2
	MAY 2008	08FWBMW06A-GWF	431.98	4.5
	OCT 2008	08FWBMW06A-GWF	432.68	5.5
	MAY 2009	09FWBMW06A-GW	432.3	3.0
	JUL 2010	10FWAMW06A-GWF	431.1	7.2
	OCT 2010	10FWAMW06A-GWS	431.05	9.0
	JUL 2011	11FWAMW06A-GWS	433.36	3.2
	OCT 2011	11FWAMW06A-GWF	432.56	5.2
	JUL 2012	12FWAMW06A-GWS	435.05	7.6
	SEP 2012	12FWAMW06A-GWF	434.74	4.8

MW36

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 7-17	OCT 2007	07FWBMW36-GW(F)	432.29	0.05
	MAY 2008	08FWTMW36-GW(S)	431.71	0.031
	OCT 2008	08FWTMW36-GWF	432.25	0.026
	JUN 2009	09FWTMW36-GW(S)	432.02	ND (0.8)
	SEP 2009	09FWTMW36-GWF	431.79	ND (0.784)
	JUL 2010	10FWAMW36-GWS	429.42	0.077
	OCT 2010	10FWAMW36-GWF	427.98	0.075
	JUL 2011	11FWAMW36-GWS	431.11	0.052
	OCT 2011	11FWAMW36-GWF	430.42	0.057
	JUL 2012	12FWAMW36-GWS	434.30	0.021
	SEP 2012	12FWAMW36-GWF	434.01	0.027

MW77

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 11.5-21.5	OCT 2008	08FWBMW77-GWF	436.69	2.7
	JUN 2009	09FWBMW77-GWS	437.15	1.1
	SEP 2009	09FWBMW77-GWF	436.04	0.271
	JUL 2010	10FWBMW77-GWF	435.87	1.0
	OCT 2010	10FWAMW77-GWS	435.21	1.8
	JUL 2011	11FWBMW77-GWS	437.28	1.6
	OCT 2011	11FWBMW77-GWF	435.62	4.2
	JUL 2012	12FWAMW77-GWS	433.74	0.71
	SEP 2012	12FWAMW77-GWF	434.43	0.46

MW64

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 7-17	OCT 2007	07FWBMW64-GW(F)	431.95	0.1
	MAY 2008	08FWBMW64-GW(S)	432.65	0.088
	OCT 2008	08FWBMW64-GWF	433.06	0.066
	JUN 2009	09FWBMW64-GW(S)	433.01	ND (0.25)
	SEP 2009	09FWBMW64-GWF	432.84	ND (0.25)
	JUL 2010	10FWAMW64-GWS	432.23	0.39
	OCT 2010	10FWAMW64-GWF	431.85	0.26
	JUL 2011	11FWAMW64-GWS	434.10	0.14
	OCT 2011	11FWAMW64-GWF	427.33	0.34
	JUL 2012	12FWAMW64-GWS	435.11	0.14
	SEP 2012	12FWAMW64-GWF	434.69	0.13

MW35

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 6.4-16.4	OCT 2007	07FWBMW35-GW(F)	427.155	0.062
	MAY 2008	08FWTMW35-GW(S)	431.865	0.062
	OCT 2008	08FWTMW35-GWF	432.575	0.044
	JUN 2009	09FWTMW35-GW(S)	432.175	ND (0.025)
	SEP 2009	09FWTMW35-GWF	432.075	ND (0.024)
	JUL 2010	10FWAMW35-GWS	431.445	0.18
	OCT 2010	10FWAMW35-GWF	431.005	0.14
	JUL 2011	11FWAMW35-GWS	433.275	0.14
	OCT 2011	11FWAMW35-GWF	432.405	0.11
	JUL 2012	12FWAMW35-GWS	434.74	0.071
	SEP 2012	12FWAMW35-GWF	434.47	0.068

MW32R

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 9-19	OCT 2007	07FWCMW32-GW(F)	432.73	0.057
	MAY 2008	08FWCMW32-GW(S)	432.41	0.052
	OCT 2008	08FWCMW32-GWF	433.02	0.063
	MAY 2009	09FWCMW32-GW(S)	432.69	ND (0.25)
	SEP 2009	09FWBMW32-GWF	432.50	ND (0.25)
	JUL 2010	10FWAMW32-GWS	431.87	0.12
	OCT 2010	10FWAMW32-GWF	431.47	0.23
	JUL 2011	11FWAMW32-GWS	433.55	0.11
	OCT 2011	11FWAMW32-GWF	432.89	0.58
	JUL 2012	12FWAMW32-GWS	435.08	0.18
	SEP 2012	12FWAMW32-GWF	434.78	0.16

MW33

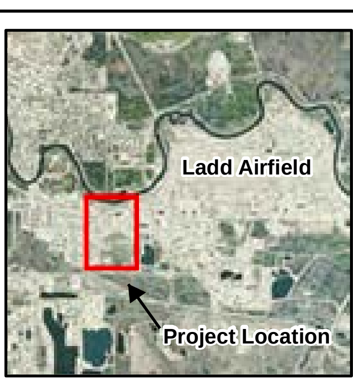
Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result	RRO Result
Screen Interval (Ft bgs) 8-18	OCT 2007	07FWBMW33-GW(F)	432.53	28	ND [3]
	MAY 2008	08FWBMW33-GW(S)	432.34	10	ND [7]
	OCT 2008	08FWBMW33-GWF	433.11	29	ND [15]
	MAY 2009	09FWBMW33-GW(S)	432.76	13	1.12 [0.481]
	SEP 2009	09FWBMW33-GWF	432.57	13	1.49 [0.481]
	JUL 2010	10FWAMW33-GWS	431.94	10	0.4 [0.2]
	OCT 2010	10FWAMW33-GWF	431.47	31	2.1 [0.97]
	JUL 2011	11FWAMW33-GWS	433.59	6.7	1.1 [0.094]
	OCT 2011	11FWAMW33-GWF	433.02	22	3.2 [0.098]
	JUL 2012	12FWAMW33-GWS	435.16	12	0.75 [0.51]
	SEP 2012	12FWAMW33-GWF	434.87	19	1.2 [0.49]

MW12R

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 8.5-18.5	MAY 2008	08FWBMW12-GW(S)	435.27	5.6
	OCT 2008	08FWBMW12-GWF	436.00	11
	MAY 2009	09FWBMW12-GW(S)	435.63	7.4
	SEP 2009	09FWBMW12-GWF	435.43	4.9
	JUL 2010	10FWAMW12-GWS	434.82	5.3
	OCT 2010	10FWAMW12-GWF	434.35	6.5
	JUL 2011	11FWAMW12-GWS	436.45	9.8
	OCT 2011	11FWAMW12-GWF	435.86	12
	JUL 2012	12FWAMW12-GWS	435.19	12
	SEP 2012	12FWAMW12-GWF	434.89	9.2

MW62

Well ID	Sample Date	Sample ID	Groundwater Elevation (ft)	DRO Result
Screen Interval (Ft bgs) 7-17	OCT 2007	07FWAMW62-GW(F)	433.46	0.61
	MAY 2008	08FWAMW62-GWS	433.54	0.041
	OCT 2008	08FWAMW62-GWF	434.24	7.7
	MAY 2009	09FWAMW62-GWS	433.89	ND (0.8)
	SEP 2009	09FWAMW62-GWF	433.67	ND (0.784)
	JUL 2010	10FWAMW62-GWS	433.04	0.38
	OCT 2010	10FWAMW62-GWF	432.68	29
	JUL 2011	11FWAMW62-GWS	433.78	0.22
	OCT 2011	11FWAMW62-GWF	434.16	18
	JUL 2012	12FWAMW62-GWS	435.17	0.092
	SEP 2012	12FWAMW62-GWF	434.87	0.14



- 2012 Sampled Well - DRO & RRO Exceedance
- 2012 Sampled Well - DRO Exceedance
- 2012 Sampled Well - No DRO or RRO Exceedance
- Onsite Well
- Post Water Supply Well

Notes:
Project Cleanup Level: 1.5
Units: mg/L
Method: AK102

The F or S at the end of the sample ID indicates Spring or Fall sampling.

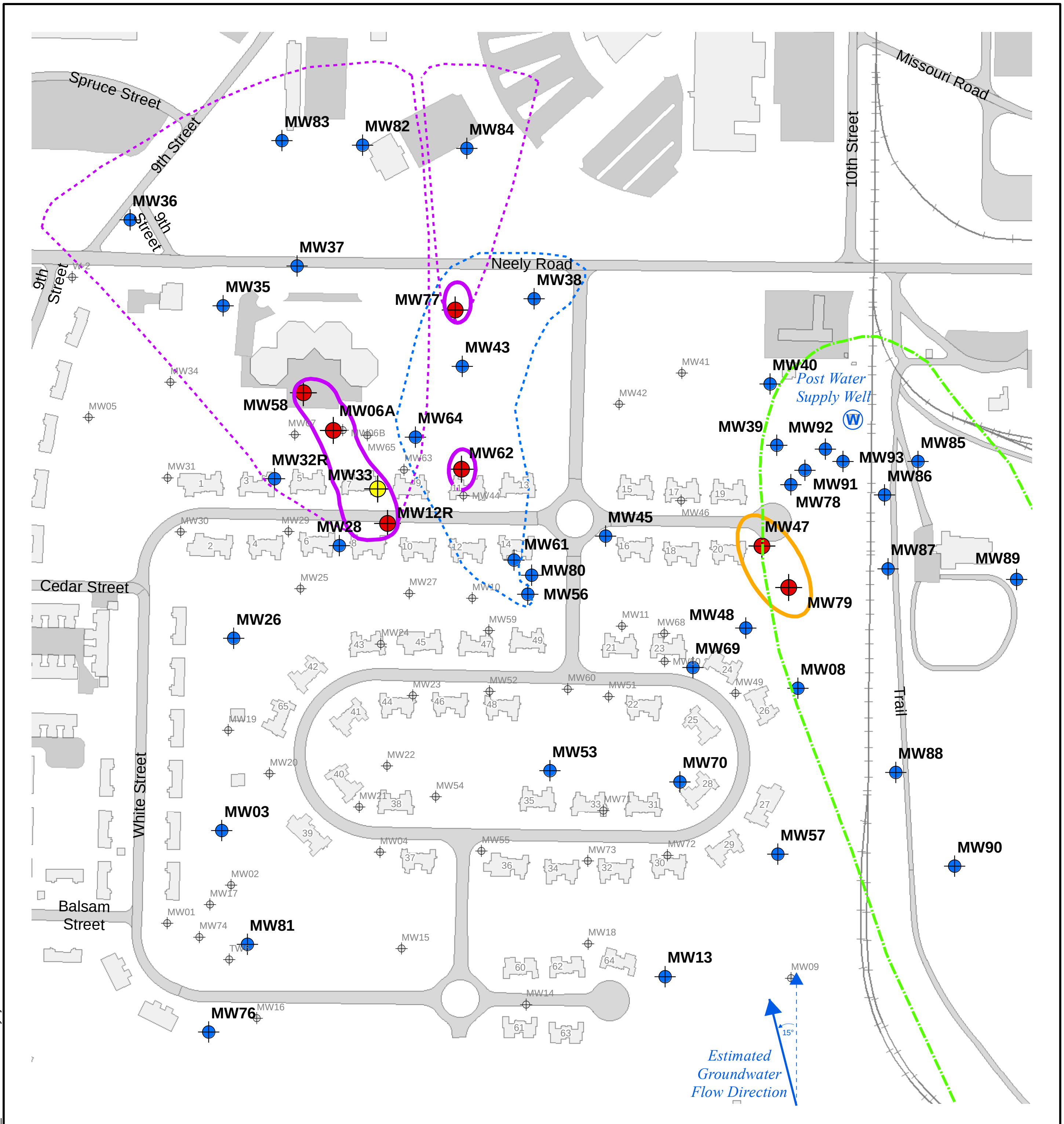
RED exceeded the Project Cleanup Level.
DRO: Diesel Range Organics (C10-C25)
Results presented without qualifiers.
ND = not detected

All Locations Are Approximate
0 250 500 750 1,000
Feet
WGS 1984 UTM Zone 6N
N

OPERABLE UNIT 6
DIESEL RANGE ORGANICS (DRO) & RESIDUAL RANGE ORGANICS (RRO)
RESULTS FOR IN-PLUME AND SURROUNDING WELLS
FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS | DATE: 08 APR 2015 | PROJECT MANAGER: S. RICHMOND | FIGURE NO: A-11

P:\FCS\2014_RD_RA_WP\MXD\A11__2013_Taku_GWMP_DRO.mxd watta



PostWaterSupplyWell_CaptureZone

DRO Above ADEC Criteria (Plume Area)

TCP Above ADEC Criteria (Plume Area)

DRO Below ADEC Criteria (Leading Plume Edge)

TCE Below ADEC Criteria (Leading Plume Edge)

TCP Below ADEC Criteria (Leading Plume Edge)

2011 & 2012 Sampled Well - DRO & RRO Exceedance

2011 & 2012 Sampled Well - Exceedance

2011 & 2012 Sampled Well - No Exceedance

Onsite Well

Post Water Supply Well

Building

Railroad

Road or Trail

TCP: 1,2,3-Trichloropropane

*Modeled by CH2M Hill (USACE 2010 Appendix B), for a pumping rate of 1,700 gpm.

All Locations Are Approximate

0 250 500 750 1,000

Feet

WGS 1984 UTM Zone 6N

N

OPERABLE UNIT 6

2011 & 2012 GROUNDWATER MONITORING EXCEEDANCES AND PLUME BOUNDARIES

FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS	DATE: 26 MAR 2015	PROJECT MANAGER: S. RICHMOND	FIGURE NO: A-12

P:\FCS\2014_RD_RA_WP\MXD\A12_OU6_GWexceed_Plumes.mxd beatycj

Image Source: Fort Wainwright DPW - ENV, 2012

Fence

OU6 Institutional Control Boundary

Buildings 50-59 Not Built

Building

Paved Road

Unpaved Road

All Locations Are Approximate

0 100 200 300 400

Feet

Alaska State Plane Zone 3
Transverse Mercator

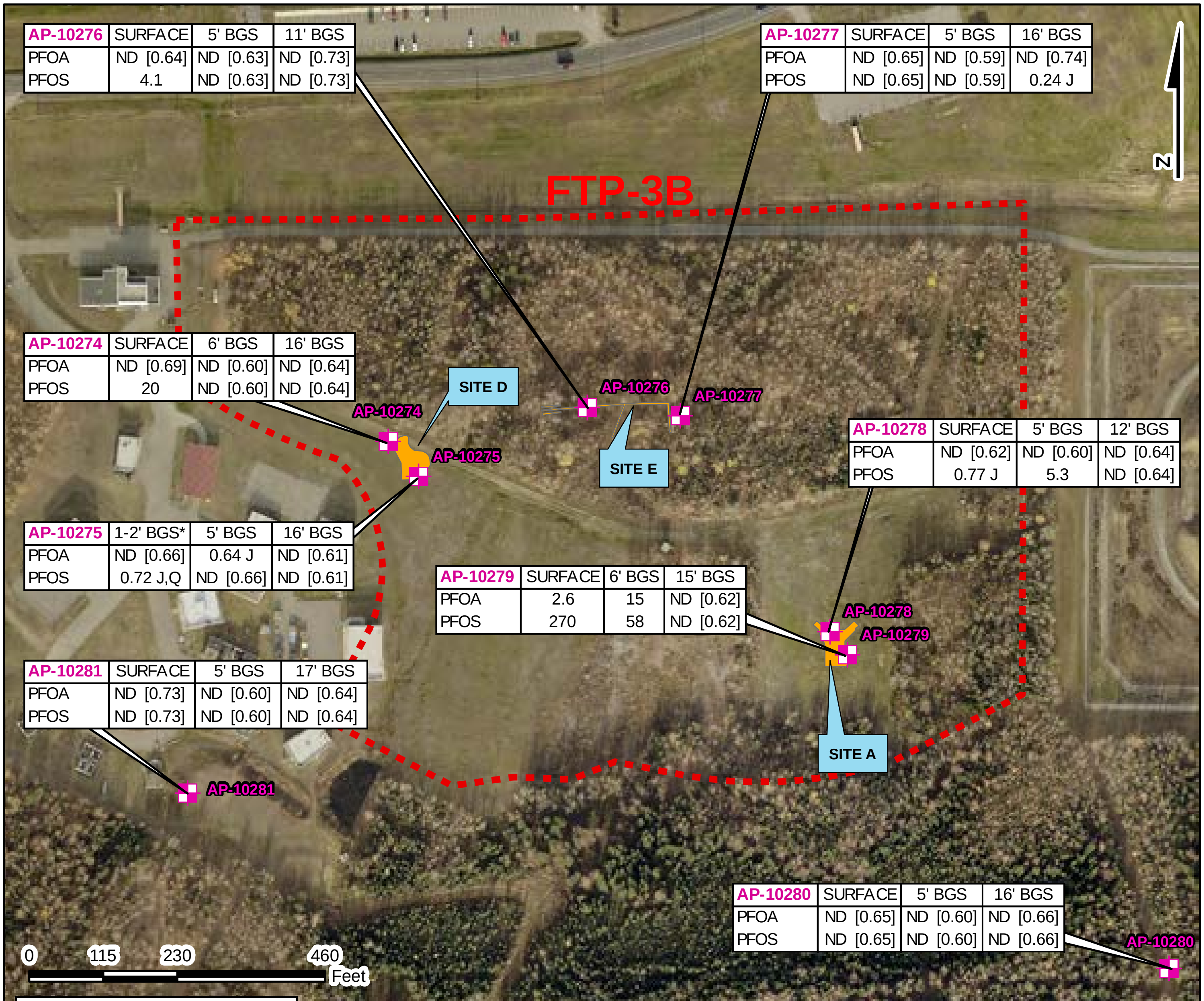
N

OPERABLE UNIT 6
SOIL AND GROUNDWATER
INSTITUTIONAL CONTROL BOUNDARY

FORT WAINWRIGHT, FAIRBANKS, ALASKA

JACOBS	DATE: 23 JUN 2014	PROJECT MANAGER: S. RICHMOND	FIGURE NO: A-15

P:\FCS\2014_RD_RA_WP\MXD\A15_2013_IC_Boundary.mxd beatycj



AP-10276	SURFACE	5' BGS	11' BGS
PFOA	ND [0.64]	ND [0.63]	ND [0.73]
PFOS	4.1	ND [0.63]	ND [0.73]

AP-10277	SURFACE	5' BGS	16' BGS
PFOA	ND [0.65]	ND [0.59]	ND [0.74]
PFOS	ND [0.65]	ND [0.59]	0.24 J

AP-10274	SURFACE	6' BGS	16' BGS
PFOA	ND [0.69]	ND [0.60]	ND [0.64]
PFOS	20	ND [0.60]	ND [0.64]

AP-10278	SURFACE	5' BGS	12' BGS
PFOA	ND [0.62]	ND [0.60]	ND [0.64]
PFOS	0.77 J	5.3	ND [0.64]

AP-10275	1-2' BGS*	5' BGS	16' BGS
PFOA	ND [0.66]	0.64 J	ND [0.61]
PFOS	0.72 J,Q	ND [0.66]	ND [0.61]

AP-10279	SURFACE	6' BGS	15' BGS
PFOA	2.6	15	ND [0.62]
PFOS	270	58	ND [0.62]

AP-10281	SURFACE	5' BGS	17' BGS
PFOA	ND [0.73]	ND [0.60]	ND [0.64]
PFOS	ND [0.73]	ND [0.60]	ND [0.64]

AP-10280	SURFACE	5' BGS	16' BGS
PFOA	ND [0.65]	ND [0.60]	ND [0.66]
PFOS	ND [0.65]	ND [0.60]	ND [0.66]

ADEC SCREENING LEVELS:

	Human Health µg/kg	Migration to Groundwater µg/kg
PFOA	2,030	142
PFOS	3,040	571

EPA REGION 4 RESIDENTIAL SOIL SCREENING LEVELS IN µg/kg

PFOA	16,000
PFOS	6,000

LEGEND:

AP-10279 Borehole (2013)

Excavated Area

Former FTP Area

PFOA Perfluorooctanoic Acid
PFOS Perfluorooctane Sulfonate
BGS Below Ground Surface
FTP Fire Training Pit

µg/kg Micrograms per Kilogram
ND Not Detected [LOD Presented in Brackets]
LOD Limit of Detection
LOQ Limit of Quantitation
J Result Qualified as Estimate because it is less than the LOQ
Q Result Considered an Estimate due to Matrix Interference

NOTES:

1. The proposed ADEC cleanup levels are from the Public Comment Draft of the revision to 18 AAC 75, Oil and Other Hazardous Substances Pollution Control (ADEC, 2015)

2. EPA Region 4 Residential Soil Screening Levels from "Soil Screening Levels for Perfluorooctanaoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)." (EPA, 2009b)

3. * Denotes the top foot of the sample core was fill gravel so a sample was collected from 1-2 BGS

4. Coordinate System - Projection: World Geodetic System of 1984 (WGS84) Universal Transverse Mercator (UTM), Zone 6N, Meters

5. Aerial imagery obtained from USAG Fort Wainwright DPW Environmental, 2014

KEY:

Boring Location
Depth in feet BGS

AP-10279	SURFACE	6' BGS	15' BGS
PFOA	2.6	15	ND [0.62]
PFOS	270	58	ND [0.62]

Results shown in µg/kg

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

PFOS and PFOA Concentrations in FTP-3B Soil Samples
Fire Training Pits Investigation
Fort Wainwright, Alaska

Contract: W911KB-12-D-0001 | Figure: 4-2 | Date: 1/16

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/[1,2] EPA Screening Level[3]	13FWFP01SO	13FWFP02SO	13FWFP03SO	13FWFP04SO	13FWFP05SO	13FWFP06SO	13FWFP07SO	13FWFP08SO	13FWFP09SO	13FWFP10SO	13FWFP11SO	13FWFP12SO	13FWFP13SO	13FWFP14SO	13FWFP15SO	13FWFP16SO	13FWFP17SO	13FWFP18SO	13FWFP19SO
Boring ID				AP-10261	AP-10261	AP-10262	AP-10262	AP-10263	AP-10263	AP-10263	AP-10264	AP-10264	AP-10265	AP-10265	AP-10266	AP-10266	AP-10267	AP-10267	AP-10267	AP-10268	AP-10268	AP-10269
Location ID				BH0106	BH0115	BH0206	BH0215	BH0306	BH0317	BH03	BH0406	BH0416	BH0506	BH0515	BH0606	BH0616	BH0706	BH0716	BH07	BH0806	BH0816	BH0906
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48825-2	48825-3	48825-5	48825-6	48825-8	48825-9	48825-10	48825-12	48825-13	48840-2	48840-3	48825-16	48825-17	48840-5	48840-6	48840-7	48840-9	48840-10	48840-12
Collect Date				10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Gasoline Range Organics (C6-C10)	AK101	mg/kg	300	4.20 [0.39] B	0.54 [0.56] J,B	1.40 [0.48] B	0.65 [0.44] B,QL	1.40 [0.47] B	0.9 [0.55] B,QL,Q	0.68[0.55]J,B,QL,Q	1.40 [0.41] B	ND [0.71] QL	1.60 [0.41] B	0.39[0.79] J,B,QL	0.32[0.37] J,B	0.31[0.63] J,B,QL	1.70[0.50] J,B,ML	1.40[0.47] B,Q	0.51[0.45] J,B,Q	0.66[0.50] J,B	0.28[0.48] J,B,QL	0.34[0.46] J,B
Diesel Range Organics (C10-C25)	AK102	mg/kg	250	1.6 [2.0] J	3.8 [2.2] J	1.5 [2.2] J	1.5 [2.0] J	1.8 [2.2] J	2.7 [2.3] J	1.3 [2.3] J	1.7 [2.0] J	2.7 [2.6] J	1.6 [2.0] J	1.4 [2.5] J	ND [2.0]	ND [2.4]	1.2 [2.1] J	1.3 [2.2] J	1.4 [2.2] J	2.1 [2.2] J	1.7 [2.1] J	1.0 [2.1] J
Residual Range Organics (C25-C36)	AK103	mg/kg	11000	ND [9.8]	ND [11]	ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [9.8]	ND [13] QL	ND [10]	ND [13]	ND [9.9]	ND [12]	ND [11]	ND [11]	ND [11]	ND [11]	ND [11]	ND [11]
Arsenic	SW6020A	µg/kg	3900	2500 [140]	2800 [160]	**7100 [160]**	**5300 [140]**	**8800 [140]**	1800 [180]	1500 [150]	**5000 [140]**	2900 [190]	**7200 [160]**	2600 [170]	**4500 [140]**	**4700 [170]**	**7100 [160]**	2400 [160]	2500 [150]	**10000 [160]**	2600 [160]	**7400 [160]**
Barium	SW6020A	µg/kg	1100000	46000 [190]	75000 [210]	77000 [220]	70000 [180]	98000 [190]	71000 [230]	64000 [200]	60000 [190]	78000 [250]	81000 [210]	58000 [220]	60000 [190]	62000 [220]	87000 [210]	51000 [210]	37000 [200]	100000 [220]	47000 [220]	85000 [220]
Cadmium	SW6020A	µg/kg	5000	38 [24] J	56 [27] J	110 [27]	22 [23] J	150 [24]	35 [29] J	39 [25] J	79 [24] J	67 [31] J	150 [26]	110 [28]	76 [23] J	37 [28] J	170 [26]	100 [27] J	73 [25] J	210 [27]	95 [27] J	180 [27]
Chromium	SW6020A	µg/kg	25000	9000 [160]	7700 [190]	14000 [190]	6300 [160]	17000 [170]	7100 [210]	8800 [180]	12000 [170]	13000 [220]	15000 [180]	11000 [190]	12000 [160]	11000 [190]	15000 [180]	7400 [190]	8500 [170]	18000 [190]	9900 [190]	14000 [190]
Lead	SW6020A	µg/kg	400000	3300 [47]	2800 [54]	4900 [54]	3300 [45]	5700 [48]	2200 [59]	2200 [50]	3800 [48]	4000 [63]	4800 [52]	3300 [55]	3900 [47]	2900 [56]	4800 [52]	3000 [53]	2400 [49]	6600 [54]	2900 [55]	5000 [55]
Selenium	SW6020A	µg/kg	3400	ND [240]	ND [270]	170 [270] J	ND [230]	250 [240] J	ND [290]	ND [250]	ND [240]	ND [310]	1200 [260]	900 [280]	ND [230]	ND [280]	1200 [260]	580 [270]	630 [250]	1600 [270]	770 [270]	1300 [270]
Silver	SW6020A	µg/kg	11200	30 [56] J	22 [64] J	38 [65] J	58 [54] J	56 [58] J	ND [70]	ND [60]	43 [57] J	41 [75] J	51 [62] J	27 [66] J	27 [56] J	ND [67]	41 [62] J	69 [64] J,Q	25 [59] J,Q	72 [65] J	28 [66] J	70 [66] J
Mercury	SW7471B	µg/kg	1400	ND [15]	250 [18]	ND [16]	ND [15]	10 [16] J	ND [18]	ND [17]	ND [14]	14 [20] J	13 [15] J	ND [18]	ND [14]	ND [19]	11 [15] J	6.8 [16] J,Q	67 [16] Q	19 [15]	9.1 [17] J	29 [16]
1,1,1,2-Tetrachloroethane	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1,1-Trichloroethane	SW8260B	µg/kg	820	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1,2,2-Tetrachloroethane	SW8260B	µg/kg	17	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1,2-Trichloroethane	SW8260B	µg/kg	18	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1-Dichloroethane	SW8260B	µg/kg	25000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1-Dichloroethene	SW8260B	µg/kg	30	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,1-Dichloropropene	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2,3-Trichlorobenzene	SW8260B	µg/kg	NE	ND [14]	ND [21]	ND [18]	ND [16]	ND [18]	ND [20]	ND [20]	ND [15]	ND [26]	ND [15]	ND [30]	ND [0.044]	ND [23]	ND [19]	ND [17]	ND [17]	ND [19]	ND [18]	ND [17]
1,2,3-Trichloropropane	SW8260B	µg/kg	0.53	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2,4-Trichlorobenzene	SW8260B	µg/kg	850	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2,4-Trimethylbenzene	SW8260B	µg/kg	23000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2-Dibromo-3-chloropropane	SW8260B	µg/kg	NE	ND [48]	ND [70]	ND [59]	ND [55]	ND [59]	ND [68]	ND [68]	ND [51]	ND [88]	ND [50]	ND [100]	ND [0.15]	ND [78]	ND [63]	ND [58]	ND [55]	ND [63]	ND [59]	ND [57]
1,2-Dibromoethane	SW8260B	µg/kg	0.16	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2-Dichlorobenzene	SW8260B	µg/kg	5100	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2-Dichloroethane	SW8260B	µg/kg	16	ND [7.7]	ND [11]	ND [9.5]	ND [8.7]	ND [9.4]	ND [11]	ND [11]	ND [8.1]	ND [14]	ND [8.0]	ND [16]	ND [0.024]	ND [13]	ND [10] ML	ND [9.3]	ND [8.8]	ND [10]	ND [9.4]	ND [9.2]
1,2-Dichloroethene, Total	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2-Dichloropropane	SW8260B	µg/kg	18	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,3,5-Trimethylbenzene	SW8260B	µg/kg	23000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,3-Dichlorobenzene	SW8260B	µg/kg	28000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,3-Dichloropropane	SW8260B	µg/kg	33	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,4-Dichlorobenzene	SW8260B	µg/kg	640	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
2,2-Dichloropropane	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
2-Butanone	SW8260B	µg/kg	59000	ND [39]	ND [56]	ND [48]	ND [44]	ND [47]	ND [55]	ND [54]	ND [41]	ND [70]	ND [40]	ND [80]	ND [0.12]	ND [63]	ND [50]	ND [46]	ND [44]	ND [50]	ND [47]	ND [46]
2-Chlorotoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
2-Hexanone	SW8260B	µg/kg	NE	ND [39]	ND [56]	ND [48]	ND [44]	ND [47]	ND [55]	ND [54]	ND [41]	ND [70]	ND [40]	ND [80]	ND [0.12]	ND [63]	ND [50] R	ND [46]	ND [44]	ND [50]	ND [47]	ND [46]
4-Chlorotoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
4-Isopropyltoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
4-Methyl-2-pentanone	SW8260B	µg/kg	8100	ND [39]	ND [56]	ND [48]	ND [44]	ND [47]	ND [55]	ND [54]	ND [41]	ND [70]	ND [40]	ND [80]	ND [0.12]	ND [63]	ND [50] R	ND [46]	ND [44]	ND [50]	ND [47]	ND [46]
Acetone	SW8260B	µg/kg	88000	ND [96]	ND [140]	ND [120]	ND [110]	ND [120]	ND [140]	ND [140]	ND [100]	ND [180]	ND [100]	ND [200]	ND [0.30]	ND [160]	ND [130]	ND [120]	ND [110]	ND [130]	ND [120]	ND [110]
Benzene	SW8260B	µg/kg	25	ND [3.9]	ND [5.6]	ND [4.8]	ND [4.4]	ND [4.7]	ND [5.5]	ND [5.4]	ND [4.1]	ND [7.0]	ND [4.0]	ND [8.0]	ND [0.012]	ND [6.3]	ND [5.0] R	ND [4.6]	ND [4.4]	ND [5.0]	ND [4.7]	ND [4.6]
Bromobenzene	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Bromochloromethane	SW8260B	µg/kg	NE	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Bromodichloromethane	SW8260B	µg/kg	44	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Bromoform	SW8260B	µg/kg	340	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Bromomethane	SW8260B	µg/kg	160	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] R	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Carbon disulfide	SW8260B	µg/kg	12000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] R	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Carbon tetrachloride	SW8260B	µg/kg	23	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Chlorobenzene	SW8260B	µg/kg	630	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Chloroethane	SW8260B	µg/kg	580000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Chloroform	SW8260B	µg/kg	460	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Chloromethane	SW8260B	µg/kg	210	ND [12]	ND [17]	ND [15]	ND [14]	ND [15]	ND [17]	ND [17]	ND [13]	ND [22]	ND [13]	ND [25]	ND [0.037]	ND [20]	ND [16] R	ND [14]	ND [14]	ND [16]	ND [15]	ND [14]
Dibromochloromethane	SW8260B	µg/kg	32	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Dibromomethane	SW8260B	µg/kg	1100	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Dichlorodifluoromethane	SW8260B	µg/kg	140000	ND [19]	ND [28]	ND [24]	ND [22]	ND [23]	ND [27]	ND [27]	ND [20]	ND [35]	ND [20]	ND [40]	ND [0.059]	ND [31]	ND [25] R	ND [23]	ND [22]	ND [25]	ND [23]	ND [23]
Ethylbenzene	SW8260B	µg/kg	6900	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Hexachlorobutadiene	SW8260B	µg/kg	120	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Isopropylbenzene	SW8260B	µg/kg	51000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Methyl-tert-butyl ether (MTBE)	SW8260B	µg/kg	1300	ND [48]	ND [70]	ND [59]	ND [55]	ND [59]	ND [68]	ND [68]	ND [51]	ND [88]	ND [50]	ND [100]	ND [0.15]	ND [78]	ND [63]	ND [58]	ND [55]	ND [63]	ND [59]	ND [57]
Methylene chloride	SW8260B	µg/kg	16	ND [19]	ND [28]	ND [24]	ND [22]	ND [23]	ND [27]	ND [27]	ND [20]	ND [35]	ND [20]	ND [40]	ND [0.059]	ND [31]	ND [25] ML	ND [23]	ND [22]	ND [25]	ND [23]	ND [23]
Naphthalene	SW8260B	µg/kg	20000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Styrene	SW8260B	µg/kg	960	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Tetrachloroethene (PCE)	SW8260B	µg/kg	24	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Toluene	SW8260B	µg/kg	6500	22 [9.6]	ND [14]	11 [12] J	11 [11] J	16 [12] J	11 [14] J	11 [14] J	7.1 [10] J	ND [18]	8.3 [10] J	9.0 [20] J	ND [0.030]	ND [16]	9.7 [13] ML	9.8 [12] J	ND [11]	ND [13]	5.2 [12] J	6.3 [11] J
Trichloroethene (TCE)	SW8260B	µg/kg	20	2.5 [9.6] J	4.9 [14] J	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Trichlorofluoromethane	SW8260B	µg/kg	86000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
Vinyl chloride	SW8260B	µg/kg	8.5	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] R	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/[1,2] EPA Screening Level[3]	13FWFP01SO	13FWFP02SO	13FWFP03SO	13FWFP04SO	13FWFP05SO	13FWFP06SO	13FWFP07SO	13FWFP08SO	13FWFP09SO	13FWFP10SO	13FWFP11SO	13FWFP12SO	13FWFP13SO	13FWFP14SO	13FWFP15SO	13FWFP16SO	13FWFP17SO	13FWFP18SO	13FWFP19SO
Boring ID				AP-10261	AP-10261	AP-10262	AP-10262	AP-10263	AP-10263	AP-10263	AP-10264	AP-10264	AP-10265	AP-10265	AP-10266	AP-10266	AP-10267	AP-10267	AP-10267	AP-10268	AP-10268	AP-10269
Location ID				BH0106	BH0115	BH0206	BH0215	BH0306	BH0317	BH03	BH0406	BH0416	BH0506	BH0515	BH0606	BH0616	BH0706	BH0716	BH07	BH0806	BH0816	BH0906
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48825-2	48825-3	48825-5	48825-6	48825-8	48825-9	48825-10	48825-12	48825-13	48840-2	48840-3	48825-16	48825-17	48840-5	48840-6	48840-7	48840-9	48840-10	48840-12
Collect Date				10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Xylene, Isomers m & p	SW8260B	µg/kg	63000	9.1 [19] J	ND [28]	ND [24]	ND [22]	ND [23]	ND [27]	ND [27]	ND [20]	ND [35]	ND [20]	ND [40]	ND [0.059]	ND [31]	ND [25] ML	ND [23]	ND [22]	ND [25]	ND [23]	ND [23]
cis-1,2-Dichloroethene	SW8260B	µg/kg	240	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
cis-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
n-Butylbenzene	SW8260B	µg/kg	15000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
n-Propylbenzene	SW8260B	µg/kg	15000	ND [14]	ND [21]	ND [18]	ND [16]	ND [18]	ND [20]	ND [20]	ND [15]	ND [26]	ND [15]	ND [30]	ND [0.044]	ND [23]	ND [19]	ND [17]	ND [17]	ND [19]	ND [18]	ND [17]
o-Xylene	SW8260B	µg/kg	63000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
sec-Butylbenzene	SW8260B	µg/kg	12000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
tert-Butylbenzene	SW8260B	µg/kg	12000	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
trans-1,2-Dichloroethene	SW8260B	µg/kg	370	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13] ML	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
trans-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [9.6]	ND [14]	ND [12]	ND [11]	ND [12]	ND [14]	ND [14]	ND [10]	ND [18]	ND [10]	ND [20]	ND [0.030]	ND [16]	ND [13]	ND [12]	ND [11]	ND [13]	ND [12]	ND [11]
1,2,4-Trichlorobenzene	SW8270D	µg/kg	850	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
1,2-Dichlorobenzene	SW8270D	µg/kg	5100	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
1,2-Diphenylhydrazine	SW8270D	µg/kg	28000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
1,3-Dichlorobenzene	SW8270D	µg/kg	22000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
1,4-Dichlorobenzene	SW8270D	µg/kg	6200	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
2,4,5-Trichlorophenol	SW8270D	µg/kg	67000	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
2,4,6-Trichlorophenol	SW8270D	µg/kg	1400	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
2,4-Dichlorophenol	SW8270D	µg/kg	1300	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
2,4-Dimethylphenol	SW8270D	µg/kg	8800	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
2,4-Dinitrophenol	SW8270D	µg/kg	540	ND [680]	ND [780]	ND [730]	ND [700]	ND [740]	ND [770]	ND [720]	ND [670]	ND [850]	ND [650]	ND [820]	ND [660]	ND [830]	ND [680]	ND [750]	ND [720]	ND [700]	ND [680]	ND [730]
2,4-Dinitrotoluene	SW8270D	µg/kg	9.3	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
2,6-Dichlorophenol	SW8270D	µg/kg	NE	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
2,6-Dinitrotoluene	SW8270D	µg/kg	9.4	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
2-Chloronaphthalene	SW8270D	µg/kg	120000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
2-Chlorophenol	SW8270D	µg/kg	1500	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
2-Methyl-4,6-dinitrophenol	SW8270D	µg/kg	NE	ND [670]	ND [770]	ND [720]	ND [690]	ND [730]	ND [760]	ND [710]	ND [660]	ND [840]	ND [640]	ND [810]	ND [650]	ND [820]	ND [670]	ND [730]	ND [710]	ND [690]	ND [670]	ND [710]
2-Methylnaphthalene	SW8270D	µg/kg	6100	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
2-Methylphenol (o-Cresol)	SW8270D	µg/kg	15000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
2-Nitroaniline	SW8270D	µg/kg	NE	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
2-Nitrophenol	SW8270D	µg/kg	NE	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
3,3'-Dichlorobenzidine	SW8270D	µg/kg	190	ND [340]	ND [390]	ND [360]	ND [340]	ND [360]	ND [380]	ND [350]	ND [330]	ND [420]	ND [320]	ND [410]	ND [330]	ND [410]	ND [330]	ND [370]	ND [350]	ND [350]	ND [340]	ND [360]
3-Methylphenol/4-Methylphenol Coelution	SW8270D	µg/kg	1500	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
3-Nitroaniline	SW8270D	µg/kg	NE	ND [140]	ND [160]	ND [140]	ND [140]	ND [150]	ND [150]	ND [140]	ND [130]	ND [170]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [150]	ND [140]	ND [140]	ND [140]	ND [140]
4-Bromophenyl phenyl ether	SW8270D	µg/kg	NE	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
4-Chloro-3-methylphenol	SW8270D	µg/kg	NE	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
4-Chloroaniline	SW8270D	µg/kg	57	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
4-Chlorophenyl phenyl ether	SW8270D	µg/kg	NE	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
4-Nitroaniline	SW8270D	µg/kg	NE	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
4-Nitrophenol	SW8270D	µg/kg	NE	ND [340]	ND [390]	ND [360]	ND [340]	ND [360]	ND [380]	ND [350]	ND [330]	ND [420]	ND [320]	ND [410]	ND [330]	ND [410]	ND [330]	ND [370]	ND [350]	ND [350]	ND [340]	ND [360]
Acenaphthene	SW8270D	µg/kg	180000	ND [17]	ND [20]	ND [19]	ND [18]	ND [19]	ND [20]	ND [18]	ND [17]	ND [22]	ND [17]	ND [21]	ND [17]	ND [21]	ND [17]	ND [19]	ND [18]	ND [18]	ND [17]	ND [18]
Acenaphthylene	SW8270D	µg/kg	180000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Anthracene	SW8270D	µg/kg	3000000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzidine	SW8270D	µg/kg	NE	ND [4000]	ND [4600]	ND [4300]	ND [4100]	ND [4400]	ND [4500]	ND [4200]	ND [3900]	ND [5000]	ND [3800]	ND [4900]	ND [3900]	ND [4900]	ND [4000]	ND [4400]	ND [4200]	ND [4100]	ND [4000]	ND [4300]
Benzo(a)anthracene	SW8270D	µg/kg	3600	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzo(a)pyrene	SW8270D	µg/kg	2100	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzo(b)fluoranthene	SW8270D	µg/kg	12000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzo(g,h,i)perylene	SW8270D	µg/kg	38700000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzo(k)fluoranthene	SW8270D	µg/kg	120000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Benzoic acid	SW8270D	µg/kg	410000	ND [670]	ND [770]	ND [720]	ND [690]	ND [730]	ND [760]	ND [710]	ND [660]	ND [840]	ND [640]	ND [810]	ND [650]	ND [820]	ND [670]	ND [730]	ND [710]	ND [690]	ND [670]	ND [710]
Benzyl alcohol	SW8270D	µg/kg	NE	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Benzyl butyl phthalate	SW8270D	µg/kg	920000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Carbazole	SW8270D	µg/kg	6500	ND [68]	ND [78]	ND [73]	ND [70]	ND [74]	ND [77]	ND [72]	ND [67]	ND [85]	ND [65]	ND [82]	ND [66]	ND [83]	ND [68]	ND [75]	ND [72]	ND [70]	ND [68]	ND [73]
Chrysene	SW8270D	µg/kg	360000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Di-n-butyl phthalate	SW8270D	µg/kg	80000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Di-n-octyl phthalate	SW8270D	µg/kg	3800000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Dibenzo(a,h)anthracene	SW8270D	µg/kg	4000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Dibenzofuran	SW8270D	µg/kg	11000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Diethyl phthalate	SW8270D	µg/kg	130000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Dimethyl phthalate	SW8270D	µg/kg	1100000	ND [34]	ND [39]	ND [36]	ND [34]	30 [36] J	ND [38] Q	200 [35] J,Q	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	57 [41] J	ND [33]	ND [37]	ND [35]	76 [35] J	ND [34]	ND [36]
Fluoranthene	SW8270D	µg/kg	1400000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Fluorene	SW8270D	µg/kg	220000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Hexachlorobenzene	SW8270D	µg/kg	47	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Hexachlorobutadiene	SW8270D	µg/kg	120	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Hexachloroethane	SW8270D	µg/kg	210	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Indeno(1,2,3-cd)pyrene	SW8270D	µg/kg	41000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Isophorone	SW8270D	µg/kg	3100	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Naphthalene	SW8270D	µg/kg	20000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
Nitrobenzene	SW8270D	µg/kg	94	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP01SO	13FWFP02SO	13FWFP03SO	13FWFP04SO	13FWFP05SO	13FWFP06SO	13FWFP07SO	13FWFP08SO	13FWFP09SO	13FWFP10SO	13FWFP11SO	13FWFP12SO	13FWFP13SO	13FWFP14SO	13FWFP15SO	13FWFP16SO	13FWFP17SO	13FWFP18SO	13FWFP19SO
Boring ID				AP-10261	AP-10261	AP-10262	AP-10262	AP-10263	AP-10263	AP-10263	AP-10264	AP-10264	AP-10265	AP-10265	AP-10266	AP-10266	AP-10267	AP-10267	AP-10267	AP-10268	AP-10268	AP-10269
Location ID				BH0106	BH0115	BH0206	BH0215	BH0306	BH0317	BH03	BH0406	BH0416	BH0506	BH0515	BH0606	BH0616	BH0706	BH0716	BH07	BH0806	BH0816	BH0906
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48825-2	48825-3	48825-5	48825-6	48825-8	48825-9	48825-10	48825-12	48825-13	48840-2	48840-3	48825-16	48825-17	48840-5	48840-6	48840-7	48840-9	48840-10	48840-12
Collect Date				10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Pentachlorophenol	SW8270D	µg/kg	47	ND [680]	ND [780]	ND [730]	ND [700]	ND [740]	ND [770]	ND [720]	ND [670]	ND [850]	ND [650]	ND [820]	ND [660]	ND [830]	ND [680]	ND [750]	ND [720]	ND [700]	ND [680]	ND [730]
Phenanthrene	SW8270D	µg/kg	3000000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Phenol	SW8270D	µg/kg	68000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
Pyrene	SW8270D	µg/kg	1000000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
bis(2-Chloroisopropyl)ether	SW8270D	µg/kg	NE	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
bis-(2-Chloroethoxy)methane	SW8270D	µg/kg	NE	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
bis-(2-Chloroethyl)ether	SW8270D	µg/kg	2.2	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
bis-(2-Ethylhexyl)phthalate	SW8270D	µg/kg	13000	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
n-Nitrosodi-n-propylamine	SW8270D	µg/kg	1.1	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
n-Nitrosodimethylamine	SW8270D	µg/kg	0.053	ND [67]	ND [77]	ND [72]	ND [69]	ND [73]	ND [76]	ND [71]	ND [66]	ND [84]	ND [64]	ND [81]	ND [65]	ND [82]	ND [67]	ND [73]	ND [71]	ND [69]	ND [67]	ND [71]
n-Nitrosodiphenylamine	SW8270D	µg/kg	15000	ND [34]	ND [39]	ND [36]	ND [34]	ND [36]	ND [38]	ND [35]	ND [33]	ND [42]	ND [32]	ND [41]	ND [33]	ND [41]	ND [33]	ND [37]	ND [35]	ND [35]	ND [34]	ND [36]
n-Nitrosopyrrolidine	SW8270D	µg/kg	NE	ND [130]	ND [150]	ND [140]	ND [130]	ND [140]	ND [150]	ND [140]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [160]	ND [130]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]
4,4'-DDD	SW8081B	µg/kg	7200	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
4,4'-DDE	SW8081B	µg/kg	5100	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	1.6 [0.50] J	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	0.74 [0.48] J
4,4'-DDT	SW8081B	µg/kg	7300	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	3.2 [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	1.1 [0.72] J,QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	1.1 [0.71] J
Aldrin	SW8081B	µg/kg	70	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
alpha-BHC	SW8081B	µg/kg	6.4	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
alpha-Chlordane	SW8081B	µg/kg	2300	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
beta-BHC	SW8081B	µg/kg	22	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] ML,QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
delta-BHC	SW8081B	µg/kg	NE	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
Dieldrin	SW8081B	µg/kg	7.6	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endosulfan I	SW8081B	µg/kg	64000	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endosulfan II	SW8081B	µg/kg	64000	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endosulfan sulfate	SW8081B	µg/kg	NE	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endrin	SW8081B	µg/kg	290	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endrin aldehyde	SW8081B	µg/kg	NE	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Endrin ketone	SW8081B	µg/kg	NE	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
gamma-BHC (Lindane)	SW8081B	µg/kg	9.5	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
gamma-Chlordane	SW8081B	µg/kg	2300	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
Heptachlor	SW8081B	µg/kg	280	ND [0.43]	ND [0.50]	ND [0.47]	ND [0.50]	ND [0.50]	ND [0.51]	ND [0.50]	ND [0.44]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]	ND [0.53]	ND [0.48] QL	ND [0.47]	ND [0.50]	ND [0.49] QL	ND [0.48]	ND [0.48]
Heptachlor epoxide	SW8081B	µg/kg	14	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
Methoxychlor	SW8081B	µg/kg	23000	ND [0.65]	ND [0.75]	ND [0.71]	ND [0.74]	ND [0.75]	ND [0.76]	ND [0.75]	ND [0.66]	ND [0.83]	ND [0.69]	ND [0.86]	ND [0.69]	ND [0.79]	ND [0.72] QL	ND [0.71]	ND [0.75]	ND [0.74] QL	ND [0.71]	ND [0.71]
Toxaphene	SW8081B	µg/kg	3900	ND [25]	ND [30]	ND [28]	ND [29]	ND [29]	ND [30]	ND [29]	ND [26]	ND [32]	ND [27]	ND [34]	ND [27]	ND [31]	ND [28] QL	ND [28]	ND [29]	ND [29] QL	ND [28]	ND [28]
PCB-1016 (Aroclor 1016)	SW8082A	µg/kg	1000	ND [9.4]	ND [11]	ND [10]	ND [11]	ND [11]	ND [11]	ND [11]	ND [9.6]	ND [12]	ND [10]	ND [12]	ND [10]	ND [11]	ND [10]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]
PCB-1221 (Aroclor 1221)	SW8082A	µg/kg		ND [19]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]	ND [22]	ND [19]	ND [24]	ND [20]	ND [25]	ND [20]	ND [23]	ND [21]	ND [21]	ND [22]	ND [21]	ND [21]	ND [21]
PCB-1232 (Aroclor 1232)	SW8082A	µg/kg		ND [14]	ND [16]	ND [15]	ND [16]	ND [16]	ND [17]	ND [16]	ND [14]	ND [18]	ND [15]	ND [19]	ND [15]	ND [17]	ND [16]	ND [15]	ND [16]	ND [16]	ND [16]	ND [16]
PCB-1242 (Aroclor 1242)	SW8082A	µg/kg		ND [9.4]	ND [11]	ND [10]	ND [11]	ND [11]	ND [11]	ND [11]	ND [9.6]	ND [12]	ND [10]	ND [12]	ND [10]	ND [11]	ND [10]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]
PCB-1248 (Aroclor 1248)	SW8082A	µg/kg		ND [9.4]	ND [11]	ND [10]	ND [11]	ND [11]	ND [11]	ND [11]	ND [9.6]	ND [12]	ND [10]	ND [12]	ND [10]	ND [11]	ND [10]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]
PCB-1254 (Aroclor 1254)	SW8082A	µg/kg		ND [9.4]	ND [11]	ND [10]	ND [11]	ND [11]	ND [11]	ND [11]	ND [9.6]	ND [12]	ND [10]	ND [12]	ND [10]	ND [11]	ND [10]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]
PCB-1260 (Aroclor 1260)	SW8082A	µg/kg		ND [9.4]	ND [11]	ND [10]	ND [11]	ND [11]	ND [11]	ND [11]	ND [9.6]	ND [12]	ND [10]	ND [12]	ND [10]	ND [11]	ND [10]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]
Perfluorobutane Sulfonate (PFBS)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	0.57 [0.62] J	ND [0.75]	0.29 [0.62] J	ND [0.77]	1.6 [0.61]	ND [0.73]	4.1 [0.62]	ND [0.61]	ND [0.66]	2.9 [0.67]	ND [0.63]	2.7 [0.64]
Perfluorobutyric acid (PFBTA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	0.99 [0.62]	ND [0.61]	ND [0.66]	0.58 [0.67] J	ND [0.63]	1.3 [0.64]
Perfluorodecane Sulfonate (PFDCS)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	0.48 [0.65] J	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluorododecanoic acid (PFDOA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluorohexanoic acid (PFHA)	DVLC012	µg/kg	NE	0.14 [0.57] J	ND [0.66]	ND [0.64]	ND [0.61]	0.22 [0.65] J	ND [0.70]	ND [0.69]	2.9 [0.62]	ND [0.75]	1.3 [0.62]	ND [0.77]	3.4 [0.61]	ND [0.73]	27 [0.62]	ND [0.61]	ND [0.66]	34 [0.67]	0.30 [0.63] J	10 [0.64]
Perfluoroheptanoic acid (PFHPA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	0.55 [0.62] J	ND [0.75]	0.36 [0.62] J	ND [0.77]	0.26 [0.61] J	ND [0.73]	5.9 [0.62]	ND [0.61]	ND [0.66]	11 [0.67]	ND [0.63]	8.0 [0.64]
Perfluorohexane Sulfonate (PFHXS)	DVLC012	µg/kg	NE	1.5 [0.57]	0.86 [0.66] J	11 [0.64]	1.5 [0.61]	3.7 [0.65]	ND [0.70]	ND [0.69]	7.3 [0.62]	0.91 [0.75] J	1.7 [0.62] B	ND [0.77]	0.83 [0.61] B	1.0 [0.73]	160 [0.62]	1.1 [0.61] B	1.0 [0.66] B	3.3 [0.67]	0.87 [0.63] B	55 [0.64]
Perfluorononanoic acid (PFNA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	0.31 [0.64] J	ND [0.61]	0.83 [0.65] J	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	0.25 [0.62] J	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	0.28 [0.64] J
Perfluorodecanoic acid (PFNDCA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluorooctanoic acid (PFOA)	DVLC012	µg/kg	142 / 2030 [2] (16000)[3]	ND [0.57]	ND [0.66]	2.5 [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	16 [0.62]	ND [0.61]	ND [0.66]	0.40 [0.67] J	ND [0.63]	2.7 [0.64]
Perfluorooctane Sulfonate (PFOS)	DVLC012	µg/kg	571 / 3040 [2] (6000)[3]	ND [0.57]	ND [0.66]	65 [0.64]	4.9 [0.61]	200 [0.65]	0.18 [0.70] J,Q	0.32 [0.69] J,Q	0.28 [0.62] J	ND [0.75]	0.42 [0.62] J	ND [0.77]	ND [0.61]	1.3 [0.73]	60 [0.62]	1.2 [0.61] Q	0.60 [0.66] J,Q	0.19 [0.67] J	0.31 [0.63] J	23 [0.64]
Perfluorooctane Sulfonamide (PFOSA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	0.14 [0.64] J	ND [0.61]	0.31 [0.65] J	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluoropentanoic acid (PFPA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	0.44 [0.65] J	ND [0.70]	ND [0.69]	1.5 [0.62]	ND [0.75]	1.0 [0.62]	ND [0.77]	1.1 [0.61]	0.36 [0.73] J	10 [0.62]	ND [0.61]	ND [0.66]	10 [0.67]	ND [0.63]	7.7 [0.64]
Perfluorotetradecanoic acid (PFTEDA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluorotridecanoic acid (PFTRIDA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
Perfluoroundecanoic acid (PFUNDCA)	DVLC012	µg/kg	NE	ND [0.57]	ND [0.66]	ND [0.64]	ND [0.61]	ND [0.65]	ND [0.70]	ND [0.69]	ND [0.62]	ND [0.75]	ND [0.62]	ND [0.77]	ND [0.61]	ND [0.73]	ND [0.62]	ND [0.61]	ND [0.66]	ND [0.67]	ND [0.63]	ND [0.64]
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpC	SW8290A	pg/g	NE	ND [0.037]	0.21[0.055]J,B	0.11[0.047] J,B	0.43[0.11] J,B	0.37[0.063] J,B	ND [0.047]	ND [0.068]	0.93 [0.050] J	0.26[0.064] J,B	ND [0.031]	0.12 [0.040] J	ND [0.029]	ND [0.091]	ND [0.066]	ND [0.068]	ND [0.062]	ND [0.054]	ND [0.051]	0.11[0.025] J,B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxins-C13	SW8290A	pg/g	NE	52 [0]	57 [0]	57 [0]	66 [0]	68 [0]	71 [0]	80 [0]	64 [0]	63 [0]	63 [0]	67 [0]	78 [0]	57 [0]	52 [0]	58 [0]	60 [0]	52 [0]	62 [0]	66 [0]
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	0.44[0.057]J,B	0.37[0.064]J,B	0.35[0.056] J,B	0.61[0.057] J,B	0.76[0.054] J,B	0.59[0.055] J,B,Q	0.99[0.070]J,B,Q	0.43[0.040] J,B	0.75[0.062] J,B	1.3[0.041] J,B	2.6 [0.054] J,B	0.85[0.047] J,B	0.89[0.078] J,B	1.4[0.076] J,B	1.6[0.073] J,B,Q	3.2[0.070] J,B,Q	1.3[0.066] J,B	1.6[0.066] J,B	0.89[0.030] J,B
1,2,3,4,6,7,8-Heptachlorodibenzofurans-C13	SW8290A	pg/g	NE	63 [0]	67 [0]	65 [0]	69 [0]	71 [0]	78 [0]	95 [0]	69 [0]	67 [0]	70 [0]	72 [0]	90 [0]	59 [0]	61 [0]	67 [0]	71 [0]	63 [0]	70 [0]	69 [0]
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	ND [0.067]	ND [0.076]	ND [0.066]	ND [0.068]	ND [0.064]	ND [0.065]	ND [0.082]	ND [0.048]	ND [0.073]	ND [0.048]	ND [0.064]	ND [0.055]	ND [0.092]	ND [0.089]	ND [0.087]	ND [0.082]	ND [0.078]	ND [0.079]	ND [0.035]
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.042]	ND [0.039]	ND [0.036]	ND [0.081]	ND [0.053]	ND [0.040]	ND [0.051]	ND [0.041]	ND [0.048]	ND [0.033]	ND [0.034]	ND [0.033]	ND [0.061]	ND [0.053]	ND [0.051]	ND [0.048]	ND [0.041]	ND [0.040]	ND [0.026]
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.075]	ND [0.048]	ND [0.084]	0.16[0.043] J,B	0.12[0.044] J,B	0.13[0.035] J,B	0.19[0.042] J,B	0.095[0.034]J,B	0.24 [0.040] J,B	0.43[0.037] J,B	0.43 [0.042] J,B	0.19[0.039] J,B	0.23[0.055] J,B	0.19[0.060] J,B	0.24[0.051] J,B,Q	0.75[0.053]J,B,Q	0.26[0.053] J,B	0.38[0.049] J,B	0.13[0.018] J,B
1,2,3,4,7,8-Hexachlorodibenzofuran-C13	SW8290A	pg/g	NE	70 [0]	77 [0]	75 [0]	74 [0]	76 [0]	81 [0]	88 [0]	81 [0]	77 [0]	73 [0]	80 [0]	94 [0]	84 [0]	74 [0]	77 [0]	83 [0]	74 [0]	86 [0]	67 [0]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP01SO	13FWFP02SO	13FWFP03SO	13FWFP04SO	13FWFP05SO	13FWFP06SO	13FWFP07SO	13FWFP08SO	13FWFP09SO	13FWFP10SO
Boring ID				AP-10261	AP-10261	AP-10262	AP-10262	AP-10263	AP-10263	AP-10263	AP-10264	AP-10264	AP-10265
Location ID				BH0106	BH0115	BH0206	BH0215	BH0306	BH0317	BH03	BH0406	BH0416	BH0506
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48825-2	48825-3	48825-5	48825-6	48825-8	48825-9	48825-10	48825-12	48825-13	48840-2
Collect Date				10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013	10/31/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.030]	ND [0.028]	ND [0.026]	ND [0.059]	ND [0.039]	ND [0.029]	ND [0.037]	ND [0.030]	ND [0.035]	ND [0.024]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	66 [0]	70 [0]	72 [0]	64 [0]	65 [0]	73 [0]	73 [0]	71 [0]	74 [0]	71 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.036]	ND [0.037]	ND [0.052]	ND [0.033]	ND [0.053]	ND [0.027]	ND [0.032]	ND [0.026]	ND [0.030]	ND [0.028]
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.029]	ND [0.027]	ND [0.025]	ND [0.057]	ND [0.038]	ND [0.028]	ND [0.036]	ND [0.029]	ND [0.034]	ND [0.023]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.046]	ND [0.047]	ND [0.038]	ND [0.042]	ND [0.043]	ND [0.034]	ND [0.041]	ND [0.033]	ND [0.039]	ND [0.036]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.046]	ND [0.051]	ND [0.051]	ND [0.069]	ND [0.060]	ND [0.064]	ND [0.066]	ND [0.054]	ND [0.061]	ND [0.037]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	59 [0]	63 [0]	59 [0]	62 [0]	60 [0]	76 [0]	62 [0]	64 [0]	66 [0]	67 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.046]	ND [0.046]	ND [0.041]	ND [0.037]	ND [0.038]	ND [0.032]	ND [0.041]	ND [0.034]	ND [0.044]	ND [0.030]
1,2,3,7,8-Pentachlorodibenzofurans-C13	SW8290A	pg/g	NE	62 [0]	68 [0]	66 [0]	63 [0]	55 [0]	75 [0]	56 [0]	57 [0]	67 [0]	67 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.041]	ND [0.042]	ND [0.034]	ND [0.038]	ND [0.038]	ND [0.031]	ND [0.036]	ND [0.029]	ND [0.034]	ND [0.032]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.047]	ND [0.048]	ND [0.042]	ND [0.039]	ND [0.039]	ND [0.033]	ND [0.043]	ND [0.036]	ND [0.045]	ND [0.031]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	SW8290A	pg/g	47	ND [0.036]	ND [0.045]	ND [0.036]	ND [0.038]	ND [0.030]	ND [0.031]	ND [0.034]	ND [0.029]	ND [0.042]	ND [0.027]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	59 [0]	62 [0]	64 [0]	65 [0]	63 [0]	71 [0]	64 [0]	65 [0]	67 [0]	65 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	SW8290A	pg/g	NE	ND [0.025]	ND [0.027]	ND [0.023]	ND [0.021]	ND [0.021]	ND [0.021]	ND [0.023]	ND [0.017]	ND [0.024]	ND [0.018]
2,3,7,8-Tetrachlorodibenzofuran-C13	SW8290A	pg/g	NE	66 [0]	71 [0]	70 [0]	66 [0]	63 [0]	69 [0]	65 [0]	67 [0]	73 [0]	67 [0]
Octachlorodibenzo-p-dioxin (OCDD)	SW8290A	pg/g	NE	0.97[0.057] J,B	1.4[0.060] J,B	0.87[0.043] J,B	4.3 [0.20] J	4.0 [0.11] J	1.2 [0.081] J,B	1.5 [0.11] J,B	19 [0.085]	1.6 [0.086] J,B	0.58[0.068] J,B
Octachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	46 [0]	49 [0]	50 [0]	66 [0]	76 [0]	76 [0]	78 [0]	70 [0]	54 [0]	56 [0]
Octachlorodibenzofuran (OCDF)	SW8290A	pg/g	NE	0.86[0.10]J,B	0.42[0.12] J,B	0.28[0.098] J,B	0.40[0.078]J,B	0.77[0.083] J,B	0.31[0.068] J,B	0.49 [0.12] J,B	0.80[0.069] J,B	1.4 [0.11] J,B	0.79[0.086] J,B
Total Heptachlorodibenzo-p-dioxins (HpCDD)	SW8290A	pg/g	NE	0.099[0.037]J,B	0.38[0.055]J,B	0.28[0.047] J,B	0.72[0.11] J,B	0.81 [0.063] J	ND [0.047] Q	0.22[0.068] J,B,Q	1.7 [0.050] J	0.48[0.064] J,B	0.16 [0.031] J
Total Heptachlorodibenzofurans (HpCDF)	SW8290A	pg/g	NE	0.44[0.062] J,B	0.37[0.070]J,B	0.35[0.061] J,B	0.61[0.062]J,B	0.94[0.059] J,B	0.59[0.060] J,B,Q	0.99[0.076] J,B,Q	0.43[0.044] J,B	0.75[0.067] J,B	1.3 [0.044] J,B
Total Hexachlorodibenzo-p-dioxins (HxCDD)	SW8290A	pg/g	NE	ND [0.042]	ND [0.039]	ND [0.036]	ND [0.081]	ND [0.077]	ND [0.11]	ND [0.30]	ND [0.14]	ND [0.24]	ND [0.067]
Total Hexachlorodibenzofurans (HxCDF)	SW8290A	pg/g	NE	ND [0.075]	ND [0.048]	ND [0.084]	0.16[0.039]J,B	0.12[0.044] J,B	0.13 [0.032] J,B	0.19 [0.038] J,B	0.095[0.031]J,B	0.24[0.036] J,B	0.43[0.033] J,B
Total Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.046]	ND [0.051]	ND [0.051]	ND [0.069]	ND [0.060]	ND [0.064]	ND [0.066]	ND [0.054]	ND [0.061]	ND [0.037]
Total Pentachlorodibenzofurans (PeCDF)	SW8290A	pg/g	NE	ND [0.047]	ND [0.048]	ND [0.042]	ND [0.039]	ND [0.039]	ND [0.033]	ND [0.043]	ND [0.036]	ND [0.045]	ND [0.031]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	SW8290A	pg/g	NE	ND [0.036]	ND [0.045]	0.11[0.036] J	ND [0.038]	ND [0.030]	ND [0.031]	ND [0.034]	ND [0.029]	ND [0.066]	ND [0.027]
Total Tetrachlorodibenzofurans (TCDF)	SW8290A	pg/g	NE	ND [0.025]	ND [0.027]	ND [0.050]	ND [0.021]	0.091[0.021] J	ND [0.021]	ND [0.023]	ND [0.017]	ND [0.024]	ND [0.018]
Total Dioxin/Furan TEQ	SW8290A	pg/g	47 [4,5]	0.005	0.0064	0.0049	0.028	0.025	0.019	0.03	0.029	0.035	0.056

Sample ID			ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP11SO	13FWFP12SO	13FWFP13SO	13FWFP14SO	13FWFP15SO	13FWFP16SO	13FWFP17SO	13FWFP18SO	13FWFP19SO
Boring ID				AP-10265	AP-10266	AP-10266	AP-10267	AP-10267	AP-10267	AP-10268	AP-10268	AP-10269
Location ID				BH0515	BH0606	BH0616	BH0706	BH0716	BH07	BH0806	BH0816	BH0906
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48840-3	48825-16	48825-17	48840-5	48840-6	48840-7	48840-9	48840-10	48840-12
Collect Date				10/31/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.025]	ND [0.024]	ND [0.044]	ND [0.038]	ND [0.038]	ND [0.035]	ND [0.030]	ND [0.029]	ND [0.030]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	75 [0]	95 [0]	68 [0]	74 [0]	80 [0]	82 [0]	76 [0]	87 [0]	79 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.032]	ND [0.072]	ND [0.042]	ND [0.046]	0.064[0.039] J,Q	0.14 [0.041] J,Q	ND [0.041]	0.11 [0.037] J	ND [0.030]
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.024]	ND [0.023]	ND [0.043]	ND [0.037]	ND [0.036]	ND [0.034]	ND [0.029]	ND [0.028]	ND [0.021]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.041]	ND [0.038]	ND [0.053]	ND [0.058]	ND [0.050]	ND [0.052]	ND [0.052]	ND [0.047]	ND [0.019]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.041]	ND [0.036]	ND [0.062]	ND [0.052]	ND [0.057]	ND [0.059]	ND [0.050]	ND [0.050]	ND [0.047]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	70 [0]	85 [0]	66 [0]	62 [0]	62 [0]	64 [0]	60 [0]	68 [0]	62 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.035]	ND [0.030]	ND [0.047]	ND [0.050]	ND [0.049]	ND [0.048]	ND [0.046]	ND [0.050]	ND [0.034]
1,2,3,7,8-Pentachlorodibenzofurans-C13	SW8290A	pg/g	NE	69 [0]	84 [0]	64 [0]	63 [0]	64 [0]	66 [0]	61 [0]	71 [0]	66 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.036]	ND [0.034]	ND [0.047]	ND [0.052]	ND [0.044]	ND [0.046]	ND [0.046]	ND [0.042]	ND [0.017]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.036]	ND [0.031]	ND [0.049]	ND [0.052]	ND [0.051]	ND [0.050]	ND [0.048]	ND [0.052]	ND [0.036]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	SW8290A	pg/g	47	ND [0.035]	ND [0.033]	ND [0.041]	ND [0.042]	ND [0.042]	ND [0.044]	ND [0.041]	ND [0.039]	ND [0.025]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	71 [0]	85 [0]	65 [0]	69 [0]	71 [0]	70 [0]	66 [0]	76 [0]	70 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	SW8290A	pg/g	NE	ND [0.021]	ND [0.019]	ND [0.028]	ND [0.029]	ND [0.029]	ND [0.028]	ND [0.025]	ND [0.026]	ND [0.027]
2,3,7,8-Tetrachlorodibenzofuran-C13	SW8290A	pg/g	NE	72 [0]	90 [0]	63 [0]	67 [0]	71 [0]	71 [0]	70 [0]	77 [0]	70 [0]
Octachlorodibenzo-p-dioxin (OCDD)	SW8290A	pg/g	NE	0.77[0.062] J,B	0.41[0.055]J,B	0.59 [0.18] J,B	0.48[0.090] J,B	0.35[0.083] J,B	0.38 [0.073] J,B	0.29[0.069] J,B	0.51[0.056] J,B	0.55 [0.049] J,B
Octachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	57 [0]	68 [0]	53 [0]	44 [0]	47 [0]	58 [0]	46 [0]	53 [0]	69 [0]
Octachlorodibenzofuran (OCDF)	SW8290A	pg/g	NE	2.7 [0.10] J,B	0.57 [0.11] J,B	0.82 [0.18] J,B	1.0 [0.16] J,B	0.69[0.14] J,B,Q	1.4[0.14] J,B,Q	0.72[0.16] J,B	1.2 [0.12] J,B	0.60 [0.052] J,B
Total Heptachlorodibenzo-p-dioxins (HpCDD)	SW8290A	pg/g	NE	0.27 [0.040] J	0.16[0.029] J,B	0.19[0.091] J,B	ND [0.14]	ND [0.078]	ND [0.090]	ND [0.054]	0.16 [0.051] J	0.27 [0.025] J,B
Total Heptachlorodibenzofurans (HpCDF)	SW8290A	pg/g	NE	2.6[0.059] J,B	0.85[0.051] J,B	0.89[0.085] J,B	1.4 [0.083] J,B	1.6 [0.080] J,B,Q	3.2[0.076] J,B,Q	1.5 [0.072] J,B	1.6 [0.072] J,B	0.89 [0.032] J,B
Total Hexachlorodibenzo-p-dioxins (HxCDD)	SW8290A	pg/g	NE	ND [0.034]	ND [0.033]	ND [0.061]	ND [0.053]	ND [0.051]	ND [0.048]	ND [0.041]	ND [0.040]	0.065 [0.026] J
Total Hexachlorodibenzofurans (HxCDF)	SW8290A	pg/g	NE	0.43[0.038] J,B	0.19[0.046] J,B	0.23[0.049] J,B	0.19[0.054] J,B	0.31[0.046] J,B,Q	1.3[0.048] J,B,Q	0.26[0.048] J,B	0.62[0.044] J,B	0.19 [0.021] J,B
Total Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.041]	ND [0.036]	ND [0.062]	ND [0.052]	ND [0.057]	ND [0.059]	ND [0.050]	ND [0.050]	ND [0.047]
Total Pentachlorodibenzofurans (PeCDF)	SW8290A	pg/g	NE	ND [0.036]	ND [0.031]	ND [0.049]	ND [0.052]	ND [0.051]	ND [0.088]	ND [0.048]	ND [0.052]	ND [0.036]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	SW8290A	pg/g	NE	ND [0.035]	ND [0.033]	0.20 [0.041] J	ND [0.042]	ND [0.042]	ND [0.044]	ND [0.041]	ND [0.039]	0.20 [0.025] J,B
Total Tetrachlorodibenzofurans (TCDF)	SW8290A	pg/g	NE	ND [0.021]	ND [0.019]	ND [0.028]	ND [0.029]	ND [0.029]	ND [0.028]	0.062[0.025] J	ND [0.026]	ND [0.027]
Total Dioxin/Furan TEQ	SW8290A	pg/g	47 [4,5]	0.071	0.028	0.032	0.033	0.047	0.12	0.039	0.066	0.023

Yellow highlighted and **bolded** results exceed ADEC soil cleanup levels (most stringent pathway).
Green highlighted results exceed ADEC's proposed migration to groundwater cleanup level (applies to PFOA or PFOS only).
Grey highlighted results are non-detect with LODs above cleanup levels.

[1] Cleanup levels are from ADEC Title 18, Alaska Administrative Code, Section 75.341, Tables B1 and B2 (ADEC, 2012).

[2] Proposed cleanup levels for PFOA and PFOS (migration to groundwater / human health) are from the Public Comment Draft of 18 AAC 75 dated August 26, 2015.

[3] EPA Region 4 Residential Soil Screening Levels from "Soil Screening Levels for Perfluorooctanoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)"

[4] Total TEQs are presented for each sample (none of which exceed the ADEC cleanup level). Analyte-specific TEQs are presented in the associated laboratory reports. Total TEQ = $\Sigma(C_i * TEF_i)$
[5] TEFs (used to calculate TEQs) are established from the World Health Organization (WHO, 2005).

LOD - limit of detection
LOQ - limit of quantitation
μg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
NA - not applicable
NE - not established
PFC - perfluorinated compounds
pg/g - picograms per gram
QC - quality control
SO - subsurface soil matrix
SQ - soil QC
TADC - TestAmerica Laboratories of Denver, CO
TEF - toxicity equivalency factor
TEQ - toxicity equivalence, where Total TEQ = $\Sigma(C_i * TEF_i)$

Data Qualifiers:
B - result may be due to cross-contamination
J - result qualified as estimate because it is less than the LOQ
M - result considered an estimate (L - low; H - high) due to matrix interference
ND - non-detect (LOD in parentheses)
Q - result considered an estimate (L - low; H - high) due to a QC failure
R - result rejected due to QC issue

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

		Sample ID	ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP20SO	13FWFP21SO	13FWFP22S0	13FWFP23SO	13FWFP24SO	13FWFP25SO	13FWFP26SO	13FWFP27SO	13FWFP28SO	13FWFP29SO	13FWFP30SO	13FWFP31SO	13FWFP32SO	13FWFP33SO	13FWFP34SO	13FWFP35SO	13FWFP36SO	13FWFP37SO	13FWFP38SO
		Boring ID		AP-10269	AP-10270	AP-10270	AP-10271	AP-10271	AP-10271	AP-10272	AP-10272	AP-10272	AP-10273	AP-10273	AP-10274	AP-10274	AP-10275	AP-10275	AP-10276	AP-10276	AP-10277	AP-10277
		Location ID		BH0918	BH1006	BH1016	BH1106	BH11	BH1116	BH1206	BH1216	BH12	BH1306	BH1319	BH1406	BH1416	BH1505	BH1516	BH1605	BH1611	BH1705	BH1716
		Laboratory		TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
		Lab Sample ID		48840-13	48809-10	48809-11	48840-15	48840-16	48840-17	48809-13	48809-14	48809-15	48809-17	48809-18	48809-2	48809-3	48809-6	48809-7	48971-2	48971-3	48971-5	48971-6
		Collect Date		11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013
		Matrix		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
		Sample Type		Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Gasoline Range Organics (C6-C10)	AK101	mg/kg	300	0.51[0.47] J,B	0.58[0.47] J,B	0.33[0.47] J,B	ND[0.78] B,QL	ND[0.75] B,QL	0.79[0.67] J,QL	0.56 [0.36] B	0.74[0.67]J,QL,Q,B	0.31[0.68]J,QL,Q,B	1.50 [0.41] B	0.61[0.56]J,QL,B	0.36 [0.51] J,B	0.54[0.47] J,B	0.52[0.61]J,M,B	1.60[0.47] B	1.7[0.440] B	0.41[0.70]J,B,QL	2.10[0.46]B	0.65[0.68]J,B,QL
Diesel Range Organics (C10-C25)	AK102	mg/kg	250	1.6 [2.1] J	1.4 [2.1] J	ND [2.2]	1.7 [2.5] J	1.5 [2.4] J	2.1 [2.4] J	ND [2.0]	ND [2.5]	ND [2.5]	1.3 [2.1] J	1.4 [2.3] J	4.2 [2.1] J	2.0 [2.2] J	3.7 [2.3] J	1.7 [2.1] J	8.7 [2.0]	2.3 [2.5] J,QL	1.4 [1.9] J	ND [2.5]
Residual Range Organics (C25-C36)	AK103	mg/kg	11000	ND [10]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [10]	ND [13]	ND [12]	ND [10]	ND [11]	ND [11]	ND [11]	14 [12]	ND [11]	43 [10]	ND [13]	ND [9.6]	ND [13]
Arsenic	SW6020A	μg/kg	3900	3100 [160]	**5500 [150]**	2200 [140]	**12000 [190]**	**13000 [170]**	**3700 [160]**	3600 [130]	2100 [160]	2100 [170]	**5800 [160]**	1700 [150]	**9300 [150]**	**4300 [170]**	**12000 [170]**	**2900 [160]**	**4400 [140]**	2500 [180]	**6800 [150]**	3000 [170]
Barium	SW6020A	μg/kg	1100000	160000 [210]	73000 [210]	45000 [190]	130000 [250]	120000 [230]	57000 [210]	120000 [170]	51000 [220]	53000 [220]	64000 [210]	42000 [200]	100000 [210]	38000 [220]	130000 [230] J	58000 [210]	79000 [180]	69000 [230]	83000 [200]	55000 [230]
Cadmium	SW6020A	μg/kg	5000	64 [26] J	97 [26] J	38 [23] J	230 [31]	260 [28]	96 [27] J	170 [22]	79 [27] J	80 [28] J	92 [26] J	27 [25] J	190 [26]	83 [28] J	280 [28]	100 [27] J	120 [23]	92 [29] J	98 [25]	81 [29] J
Chromium	SW6020A	μg/kg	25000	7700 [180]	13000 [180]	6600 [160]	22000 [220]	21000 [200]	12000 [190]	12000 [150]	9200 [190]	9700 [190]	12000 [180]	7100 [170]	17000 [180]	7300 [190]	20000 [200]	9600 [190]	14000 [160]	11000 [200]	15000 [170]	11000 [200]
Lead	SW6020A	μg/kg	400000	1800 [52]	4400 [52]	3000 [47]	7600 [62]	7800 [57]	3300 [53]	3400 [43]	3100 [54]	3000 [55]	3800 [52]	2000 [49]	5800 [51]	2200 [55]	7300 [56]	2600 [53]	4500 [46]	3200 [59]	4500 [49]	3100 [57]
Selenium	SW6020A	μg/kg	3400	640 [260]	140 [260] J	ND [230]	1800 [310]	1800 [280]	900 [270]	ND [220]	ND [270]	ND [280]	ND [260]	ND [250]	1400 [260]	610 [280]	1700 [280]	820 [270]	230 [230] J	ND [290]	170 [250] J	ND [290]
Silver	SW6020A	μg/kg	11200	26 [63] J	47 [62] J	21 [56] J	86 [75] J	79 [68] J	33 [64] J	52 [52] J	22 [65] J	24 [66] J	34 [62] J	20 [59] J	61 [62] J	40 [66] J	71 [68] J	33 [64] J	43 [55] J	31 [70] J	32 [59] J	ND [69]
Mercury	SW7471B	μg/kg	1400	ND [18]	6.1 [15] J	ND [15]	20 [17] J	23 [19] J	ND [17]	24 [14]	ND [18]	ND [21]	18 [14]	ND [18]	28 [15]	ND [16]	21 [19] J	ND [16]	16 [15] J	7.6 [18] J	13 [14] J	ND [19]
1,1,1,2-Tetrachloroethane	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1,1-Trichloroethane	SW8260B	μg/kg	820	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1,2,2-Tetrachloroethane	SW8260B	μg/kg	17	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1,2-Trichloroethane	SW8260B	μg/kg	18	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1-Dichloroethane	SW8260B	μg/kg	25000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1-Dichloroethene	SW8260B	μg/kg	30	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,1-Dichloropropene	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2,3-Trichlorobenzene	SW8260B	μg/kg	NE	ND [18]	ND [18]	ND [18]	ND [29]	ND [28]	ND [25]	ND [13]	ND [25]	ND [26]	ND [15]	ND [21]	ND [19]	ND [18]	ND [23]	ND [18]	ND [16]	ND [26]	ND [17]	ND [25]
1,2,3-Trichloropropane	SW8260B	μg/kg	0.53	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2,4-Trichlorobenzene	SW8260B	μg/kg	850	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2,4-Trimethylbenzene	SW8260B	μg/kg	23000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2-Dibromo-3-chloropropane	SW8260B	μg/kg	NE	ND [59]	ND [58]	ND [59]	ND [98]	ND [92]	ND [83]	ND [45]	ND [83]	ND [85]	ND [51]	ND [69]	ND [63]	ND [58]	ND [76]	ND [58]	ND [54]	ND [88]	ND [57]	ND [85]
1,2-Dibromoethane	SW8260B	μg/kg	0.16	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2-Dichlorobenzene	SW8260B	μg/kg	5100	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2-Dichloroethane	SW8260B	μg/kg	16	ND [9.4]	ND [9.3]	ND [9.4]	ND [16]	ND [15]	ND [13]	ND [7.2]	ND [13]	ND [14]	ND [8.1]	ND [11]	ND [10]	ND [9.3]	ND [12] ML	ND [9.4]	ND [8.6]	ND [14]	ND [9.1]	ND [14]
1,2-Dichloroethene, Total	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2-Dichloropropane	SW8260B	μg/kg	18	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,3,5-Trimethylbenzene	SW8260B	μg/kg	23000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,3-Dichlorobenzene	SW8260B	μg/kg	28000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,3-Dichloropropane	SW8260B	μg/kg	33	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,4-Dichlorobenzene	SW8260B	μg/kg	640	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
2,2-Dichloropropane	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
2-Butanone	SW8260B	μg/kg	59000	ND [47]	ND [47]	ND [47]	ND [78]	ND [74]	ND [67]	ND [36]	ND [66]	ND [68]	ND [40]	ND [56]	ND [51]	ND [47]	ND [61]	ND [47]	ND [43]	ND [70]	ND [45]	ND [68]
2-Chlorotoluene	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
2-Hexanone	SW8260B	μg/kg	NE	ND [47]	ND [47]	ND [47]	ND [78]	ND [74]	ND [67]	ND [36]	ND [66]	ND [68]	ND [40]	ND [56]	ND [51]	ND [47]	ND [61] R	ND [47]	ND [43]	ND [70]	ND [45]	ND [68]
4-Chlorotoluene	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
4-Isopropyltoluene	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
4-Methyl-2-pentanone	SW8260B	μg/kg	8100	ND [47]	ND [47]	ND [47]	ND [78]	ND [74]	ND [67]	ND [36]	ND [66]	ND [68]	ND [40]	ND [56]	ND [51]	ND [47]	ND [61] ML	ND [47]	ND [43]	ND [70]	ND [45]	ND [68]
Acetone	SW8260B	μg/kg	88000	ND [120]	ND [120]	ND [120]	ND [200]	ND [180]	ND [170]	ND [90]	ND [170]	ND [170]	ND [100]	ND [140]	ND [130]	ND [120]	ND [150]	ND [120]	ND [110]	ND [180]	ND [110]	ND [170]
Benzene	SW8260B	μg/kg	25	ND [4.7]	ND [4.7]	ND [4.7]	ND [7.8]	ND [7.4]	ND [6.7]	ND [3.6]	ND [6.6]	ND [6.8]	ND [4.0]	ND [5.6]	ND [5.1]	ND [4.7]	ND [6.1] ML	ND [4.7]	ND [4.3]	ND [7.0]	ND [4.5]	ND [6.8]
Bromobenzene	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Bromochloromethane	SW8260B	μg/kg	NE	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Bromodichloromethane	SW8260B	μg/kg	44	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Bromoform	SW8260B	μg/kg	340	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Bromomethane	SW8260B	μg/kg	160	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Carbon disulfide	SW8260B	μg/kg	12000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] R, ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Carbon tetrachloride	SW8260B	μg/kg	23	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Chlorobenzene	SW8260B	μg/kg	630	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Chloroethane	SW8260B	μg/kg	580000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Chloroform	SW8260B	μg/kg	460	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Chloromethane	SW8260B	μg/kg	210	ND [15]	ND [15]	ND [15]	ND [24]	ND [23]	ND [21]	ND [11]	ND [21]	ND [21]	ND [13]	ND [17]	ND [16]	ND [15]	ND [19] R	ND [15]	ND [13]	ND [22]	ND [14]	ND [21]
Dibromochloromethane	SW8260B	μg/kg	32	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Dibromomethane	SW8260B	μg/kg	1100	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Dichlorodifluoromethane	SW8260B	μg/kg	140000	ND [23]	ND [23]	ND [23]	ND [39]	ND [37]	ND [33]	ND [18]	ND [33]	ND [34]	ND [20]	ND [28]	ND [25]	ND [23]	ND [30] ML	ND [23]	ND [22]	ND [35]	ND [23]	ND [34]
Ethylbenzene	SW8260B	μg/kg	6900	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Hexachlorobutadiene	SW8260B	μg/kg	120	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Isopropylbenzene	SW8260B	μg/kg	51000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Methyl-tert-butyl ether (MTBE)	SW8260B	μg/kg	1300	ND [59]	ND [58]	ND [59]	ND [98]	ND [92]	ND [83]	ND [45]	ND [83]	ND [85]	ND [51]	ND [69]	ND [63]	ND [58]	ND [76]	ND [58]	ND [54]	ND [88]	ND [57]	ND [85]
Methylene chloride	SW8260B	μg/kg	16	ND [23]	ND [23]	ND [23]	ND [39]	ND [37]	ND [33]	ND [18]	ND [33]	ND [34]	ND [20]	ND [28]	ND [25]	ND [23]	ND [30] ML	ND [23]	ND [22]	ND [35]	ND [23]	ND [34]
Naphthalene	SW8260B	μg/kg	20000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Styrene	SW8260B	μg/kg	960	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Tetrachloroethene (PCE)	SW8260B	μg/kg	24	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Toluene	SW8260B	μg/kg	6500	7.5 [12] J	ND [12]	ND [12]	9.4 [20] J	7.6 [18] J	8.3 [17] J	3.8 [9.0] J,B	6.7 [17] J,B,Q	ND [17] Q	10 [10] J,B	6.1 [14] J,B	ND [13]	ND [12]	ND [15] ML	7.2 [12] J,B	11 [11] J,B	ND [18]	14 [11] J,B	7.3 [17] J,B
Trichloroethene (TCE)	SW8260B	μg/kg	20	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	6.4 [17] J	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	11 [13] J	ND [12]	9.0 [15] J,ML	4.5 [12] J	6.5 [11] J	11 [18] J	4.7 [11] J	ND [17]
Trichlorofluoromethane	SW8260B	μg/kg	86000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
Vinyl chloride	SW8260B	μg/kg	8.5	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

		Sample ID	ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP20SO	13FWFP21SO	13FWFP22S0	13FWFP23SO	13FWFP24SO	13FWFP25SO	13FWFP26SO	13FWFP27SO	13FWFP28SO	13FWFP29SO	13FWFP30SO	13FWFP31SO	13FWFP32SO	13FWFP33SO	13FWFP34SO	13FWFP35SO	13FWFP36SO	13FWFP37SO	13FWFP38SO
		Boring ID		AP-10269	AP-10270	AP-10270	AP-10271	AP-10271	AP-10271	AP-10272	AP-10272	AP-10272	AP-10273	AP-10273	AP-10274	AP-10274	AP-10275	AP-10275	AP-10276	AP-10276	AP-10277	AP-10277
		Location ID		BH0918	BH1006	BH1016	BH1106	BH11	BH1116	BH1206	BH1216	BH12	BH1306	BH1319	BH1406	BH1416	BH1505	BH1516	BH1605	BH1611	BH1705	BH1716
		Laboratory		TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
		Lab Sample ID		48840-13	48809-10	48809-11	48840-15	48840-16	48840-17	48809-13	48809-14	48809-15	48809-17	48809-18	48809-2	48809-3	48809-6	48809-7	48971-2	48971-3	48971-5	48971-6
		Collect Date		11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013
		Matrix		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
		Sample Type		Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Xylene, Isomers m & p	SW8260B	µg/kg	63000	ND [23]	ND [23]	ND [23]	ND [39]	ND [37]	ND [33]	ND [18]	ND [33]	ND [34]	ND [20]	ND [28]	ND [25]	ND [23]	ND [30] ML	ND [23]	ND [22]	ND [35]	ND [23]	ND [34]
cis-1,2-Dichloroethene	SW8260B	µg/kg	240	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
cis-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
n-Butylbenzene	SW8260B	µg/kg	15000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
n-Propylbenzene	SW8260B	µg/kg	15000	ND [18]	ND [18]	ND [18]	ND [29]	ND [28]	ND [25]	ND [13]	ND [25]	ND [26]	ND [15]	ND [21]	ND [19]	ND [18]	ND [23]	ND [18]	ND [16]	ND [26]	ND [17]	ND [25]
o-Xylene	SW8260B	µg/kg	63000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
sec-Butylbenzene	SW8260B	µg/kg	12000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
tert-Butylbenzene	SW8260B	µg/kg	12000	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
trans-1,2-Dichloroethene	SW8260B	µg/kg	370	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15] ML	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
trans-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [12]	ND [12]	ND [12]	ND [20]	ND [18]	ND [17]	ND [9.0]	ND [17]	ND [17]	ND [10]	ND [14]	ND [13]	ND [12]	ND [15]	ND [12]	ND [11]	ND [18]	ND [11]	ND [17]
1,2,4-Trichlorobenzene	SW8270D	µg/kg	850	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
1,2-Dichlorobenzene	SW8270D	µg/kg	5100	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
1,2-Diphenylhydrazine	SW8270D	µg/kg	28000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
1,3-Dichlorobenzene	SW8270D	µg/kg	22000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
1,4-Dichlorobenzene	SW8270D	µg/kg	6200	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
2,4,5-Trichlorophenol	SW8270D	µg/kg	67000	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
2,4,6-Trichlorophenol	SW8270D	µg/kg	1400	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
2,4-Dichlorophenol	SW8270D	µg/kg	1300	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
2,4-Dimethylphenol	SW8270D	µg/kg	8800	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
2,4-Dinitrophenol	SW8270D	µg/kg	540	ND [720]	ND [690]	ND [730]	ND [840]	ND [850]	ND [790]	ND [670]	ND [800]	ND [820]	ND [700]	ND [730]	ND [710]	ND [710]	ND [730]	ND [720]	ND [700]	ND [860]	ND [670]	ND [800]
2,4-Dinitrotoluene	SW8270D	µg/kg	9.3	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
2,6-Dichlorophenol	SW8270D	µg/kg	NE	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
2,6-Dinitrotoluene	SW8270D	µg/kg	9.4	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
2-Chloronaphthalene	SW8270D	µg/kg	120000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
2-Chlorophenol	SW8270D	µg/kg	1500	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
2-Methyl-4,6-dinitrophenol	SW8270D	µg/kg	NE	ND [700]	ND [680]	ND [720]	ND [830]	ND [840]	ND [780]	ND [660]	ND [790]	ND [810]	ND [690]	ND [720]	ND [700]	ND [700]	ND [720]	ND [710]	ND [690]	ND [850]	ND [660]	ND [790]
2-Methylnaphthalene	SW8270D	µg/kg	6100	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
2-Methylphenol (o-Cresol)	SW8270D	µg/kg	15000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
2-Nitroaniline	SW8270D	µg/kg	NE	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
2-Nitrophenol	SW8270D	µg/kg	NE	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
3,3'-Dichlorobenzidine	SW8270D	µg/kg	190	ND [350]	ND [340]	ND [360]	ND [410]	ND [420]	ND [390]	ND [330]	ND [390]	ND [400]	ND [350]	ND [360]	ND [350]	ND [350]	ND [360]	ND [350]	ND [350]	ND [420]	ND [330]	ND [400]
3-Methylphenol/4-Methylphenol Coelution	SW8270D	µg/kg	1500	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
3-Nitroaniline	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [150]	ND [170]	ND [170]	ND [160]	ND [130]	ND [160]	ND [160]	ND [140]	ND [150]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
4-Bromophenyl phenyl ether	SW8270D	µg/kg	NE	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
4-Chloro-3-methylphenol	SW8270D	µg/kg	NE	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
4-Chloroaniline	SW8270D	µg/kg	57	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
4-Chlorophenyl phenyl ether	SW8270D	µg/kg	NE	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
4-Nitroaniline	SW8270D	µg/kg	NE	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
4-Nitrophenol	SW8270D	µg/kg	NE	ND [350]	ND [340]	ND [360]	ND [410]	ND [420]	ND [390]	ND [330]	ND [390]	ND [400]	ND [350]	ND [360]	ND [350]	ND [350]	ND [360]	ND [350]	ND [350]	ND [420]	ND [330]	ND [400]
Acenaphthene	SW8270D	µg/kg	180000	ND [18]	ND [17]	ND [19]	ND [21]	ND [22]	ND [20]	ND [17]	ND [20]	ND [21]	ND [18]	ND [19]	ND [18]	ND [18]	ND [19]	ND [18]	ND [18]	ND [22]	ND [17]	ND [20]
Acenaphthylene	SW8270D	µg/kg	180000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Anthracene	SW8270D	µg/kg	3000000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzidine	SW8270D	µg/kg	NE	ND [4200]	ND [4100]	ND [4300]	ND [5000]	ND [5000]	ND [4700]	ND [4000]	ND [4700]	ND [4900]	ND [4200]	ND [4300]	ND [4200]	ND [4200]	ND [4300]	ND [4300]	ND [4200]	ND [5100]	ND [4000]	ND [4700]
Benzo(a)anthracene	SW8270D	µg/kg	3600	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzo(a)pyrene	SW8270D	µg/kg	2100	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzo(b)fluoranthene	SW8270D	µg/kg	12000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzo(g,h,i)perylene	SW8270D	µg/kg	38700000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzo(k)fluoranthene	SW8270D	µg/kg	120000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Benzoic acid	SW8270D	µg/kg	410000	ND [700]	ND [680]	ND [720]	ND [830]	ND [840]	ND [780]	ND [660]	ND [790]	ND [810]	ND [690]	ND [720]	ND [700]	ND [700]	ND [720]	ND [710]	ND [690]	ND [850]	ND [660]	ND [790]
Benzyl alcohol	SW8270D	µg/kg	NE	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Benzyl butyl phthalate	SW8270D	µg/kg	920000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Carbazole	SW8270D	µg/kg	6500	ND [72]	ND [69]	ND [73]	ND [84]	ND [85]	ND [79]	ND [67]	ND [80]	ND [82]	ND [70]	ND [73]	ND [71]	ND [71]	ND [73]	ND [72]	ND [70]	ND [86]	ND [67]	ND [80]
Chrysene	SW8270D	µg/kg	360000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Di-n-butyl phthalate	SW8270D	µg/kg	80000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Di-n-octyl phthalate	SW8270D	µg/kg	3800000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Dibenzo(a,h)anthracene	SW8270D	µg/kg	4000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Dibenzofuran	SW8270D	µg/kg	11000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Diethyl phthalate	SW8270D	µg/kg	130000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Dimethyl phthalate	SW8270D	µg/kg	1100000	ND [35]	ND [34]	ND [36]	120 [41] J,B	110 [42] J,B	530 [39] B	ND [33]	36 [39] J	ND [40]	ND [35]	ND [36]	170 [35] J	140 [35] J	150 [36] J	39 [35] J	47 [35] J	35 [42] J	23 [33] J	30 [40] J
Fluoranthene	SW8270D	µg/kg	1400000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Fluorene	SW8270D	µg/kg	220000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Hexachlorobenzene	SW8270D	µg/kg	47	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Hexachlorobutadiene	SW8270D	µg/kg	120	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Hexachloroethane	SW8270D	µg/kg	210	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Indeno(1,2,3-cd)pyrene	SW8270D	µg/kg	41000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Isophorone	SW8270D	µg/kg	3100	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Naphthalene	SW8270D	µg/kg	20000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
Nitrobenzene	SW8270D	µg/kg	94	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/ 1,2 EPA Screening Level3	13FWFP20SO	13FWFP21SO	13FWFP22S0	13FWFP23SO	13FWFP24SO	13FWFP25SO	13FWFP26SO	13FWFP27SO	13FWFP28SO	13FWFP29SO	13FWFP30SO	13FWFP31SO	13FWFP32SO	13FWFP33SO	13FWFP34SO	13FWFP35SO	13FWFP36SO	13FWFP37SO	13FWFP38SO
Boring ID				AP-10269	AP-10270	AP-10270	AP-10271	AP-10271	AP-10271	AP-10272	AP-10272	AP-10272	AP-10273	AP-10273	AP-10274	AP-10274	AP-10275	AP-10275	AP-10276	AP-10276	AP-10277	AP-10277
Location ID				BH0918	BH1006	BH1016	BH1106	BH11	BH1116	BH1206	BH1216	BH12	BH1306	BH1319	BH1406	BH1416	BH1505	BH1516	BH1605	BH1611	BH1705	BH1716
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48840-13	48809-10	48809-11	48840-15	48840-16	48840-17	48809-13	48809-14	48809-15	48809-17	48809-18	48809-2	48809-3	48809-6	48809-7	48971-2	48971-3	48971-5	48971-6
Collect Date				11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Pentachlorophenol	SW8270D	µg/kg	47	ND [720]	ND [690]	ND [730]	ND [840]	ND [850]	ND [790]	ND [670]	ND [800]	ND [820]	ND [700]	ND [730]	ND [710]	ND [710]	ND [730]	ND [720]	ND [700]	ND [860]	ND [670]	ND [800]
Phenanthrene	SW8270D	µg/kg	3000000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Phenol	SW8270D	µg/kg	68000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
Pyrene	SW8270D	µg/kg	1000000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
bis(2-Chloroisopropyl)ether	SW8270D	µg/kg	NE	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
bis-(2-Chloroethoxy)methane	SW8270D	µg/kg	NE	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
bis-(2-Chloroethyl)ether	SW8270D	µg/kg	2.2	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
bis-(2-Ethylhexyl)phthalate	SW8270D	µg/kg	13000	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
n-Nitrosodi-n-propylamine	SW8270D	µg/kg	1.1	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
n-Nitrosodimethylamine	SW8270D	µg/kg	0.053	ND [70]	ND [68]	ND [72]	ND [83]	ND [84]	ND [78]	ND [66]	ND [79]	ND [81]	ND [69]	ND [72]	ND [70]	ND [70]	ND [72]	ND [71]	ND [69]	ND [85]	ND [66]	ND [79]
n-Nitrosodiphenylamine	SW8270D	µg/kg	15000	ND [35]	ND [34]	ND [36]	ND [41]	ND [42]	ND [39]	ND [33]	ND [39]	ND [40]	ND [35]	ND [36]	ND [35]	ND [35]	ND [36]	ND [35]	ND [35]	ND [42]	ND [33]	ND [40]
n-Nitrosopyrrolidine	SW8270D	µg/kg	NE	ND [140]	ND [130]	ND [140]	ND [160]	ND [160]	ND [150]	ND [130]	ND [160]	ND [160]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [140]	ND [170]	ND [130]	ND [160]
4,4'-DDD	SW8081B	µg/kg	7200	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
4,4'-DDE	SW8081B	µg/kg	5100	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
4,4'-DDT	SW8081B	µg/kg	7300	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	0.91 [0.66] J	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.71]	1.9 [0.88] J	ND [0.66]	ND [0.85]
Aldrin	SW8081B	µg/kg	70	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
alpha-BHC	SW8081B	µg/kg	6.4	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
alpha-Chlordane	SW8081B	µg/kg	2300	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
beta-BHC	SW8081B	µg/kg	22	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
delta-BHC	SW8081B	µg/kg	NE	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
Dieldrin	SW8081B	µg/kg	7.6	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
Endosulfan I	SW8081B	µg/kg	64000	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
Endosulfan II	SW8081B	µg/kg	64000	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Endosulfan sulfate	SW8081B	µg/kg	NE	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
Endrin	SW8081B	µg/kg	290	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Endrin aldehyde	SW8081B	µg/kg	NE	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Endrin ketone	SW8081B	µg/kg	NE	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [28]	ND [35]	ND [26]	ND [33]
gamma-BHC (Lindane)	SW8081B	µg/kg	9.5	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
gamma-Chlordane	SW8081B	µg/kg	2300	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.47]	ND [0.59]	ND [0.44]	ND [0.56]
Heptachlor	SW8081B	µg/kg	280	ND [0.50]	ND [0.47]	ND [0.49]	ND [0.57]	ND [0.54]	ND [0.55]	ND [0.44]	ND [0.55]	ND [0.55]	ND [0.44]	ND [0.52]	ND [0.46]	ND [0.50]	ND [0.52]	ND [0.46]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Heptachlor epoxide	SW8081B	µg/kg	14	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Methoxychlor	SW8081B	µg/kg	23000	ND [0.76]	ND [0.70]	ND [0.73]	ND [0.85]	ND [0.81]	ND [0.83]	ND [0.66]	ND [0.83]	ND [0.82]	ND [0.67]	ND [0.77]	ND [0.69]	ND [0.74]	ND [0.78]	ND [0.70]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
Toxaphene	SW8081B	µg/kg	3900	ND [30]	ND [28]	ND [29]	ND [33]	ND [32]	ND [32]	ND [26]	ND [32]	ND [32]	ND [26]	ND [30]	ND [27]	ND [29]	ND [31]	ND [27]	ND [0.71]	ND [0.88]	ND [0.66]	ND [0.85]
PCB-1016 (Aroclor 1016)	SW8082A	µg/kg	1000	ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [9.6]	ND [12]	ND [12]	ND [9.6]	ND [11]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]	ND [13]	ND [9.6]	ND [12]
PCB-1221 (Aroclor 1221)	SW8082A	µg/kg		ND [22]	ND [20]	ND [21]	ND [25]	ND [24]	ND [24]	ND [19]	ND [24]	ND [24]	ND [19]	ND [22]	ND [20]	ND [22]	ND [23]	ND [20]	ND [20]	ND [26]	ND [19]	ND [25]
PCB-1232 (Aroclor 1232)	SW8082A	µg/kg		ND [16]	ND [15]	ND [16]	ND [19]	ND [18]	ND [18]	ND [14]	ND [18]	ND [18]	ND [14]	ND [17]	ND [15]	ND [16]	ND [17]	ND [15]	ND [15]	ND [19]	ND [14]	ND [18]
PCB-1242 (Aroclor 1242)	SW8082A	µg/kg		ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [9.6]	ND [12]	ND [12]	ND [9.6]	ND [11]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]	ND [13]	ND [9.6]	ND [12]
PCB-1248 (Aroclor 1248)	SW8082A	µg/kg		ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [9.6]	ND [12]	ND [12]	ND [9.6]	ND [11]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]	ND [13]	ND [9.6]	ND [12]
PCB-1254 (Aroclor 1254)	SW8082A	µg/kg		ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [9.6]	ND [12]	ND [12]	ND [9.6]	ND [11]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]	ND [13]	ND [9.6]	ND [12]
PCB-1260 (Aroclor 1260)	SW8082A	µg/kg		ND [11]	ND [10]	ND [11]	ND [12]	ND [12]	ND [12]	ND [9.6]	ND [12]	ND [12]	ND [9.6]	ND [11]	ND [10]	ND [11]	ND [11]	ND [10]	ND [10]	ND [13]	ND [9.6]	ND [12]
Perfluorobutane Sulfonate (PFBS)	DVLC012	µg/kg	NE	ND [0.61]	0.89 [0.60]	ND [0.62]	65 [0.72]	54 [0.72]	0.33 [0.71] J	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorobutyric acid (PFBTA)	DVLC012	µg/kg	NE	ND [0.61]	0.39 [0.60] J	ND [0.62]	10 [0.72]	11 [0.72]	ND [0.71]	0.79 [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorodecane Sulfonate (PFDCS)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorododecanoic acid (PFDOA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	1.3 [0.58] J	2.0 [0.76] J,Q	ND [0.72] Q	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorohexanoic acid (PFHA)	DVLC012	µg/kg	NE	ND [0.61]	1.9 [0.60]	ND [0.62]	100 [0.72]	100 [0.72]	1.2 [0.71]	0.78 [0.58]	0.26 [0.76] J	0.18 [0.72] J	0.27 [0.60] J	ND [0.65]	0.15 [0.60] J	ND [0.64]	0.25 [0.66] J	ND [0.61]	0.47 [0.63] J	ND [0.73]	ND [0.59]	ND [0.74]
Perfluoroheptanoic acid (PFHPA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	15 [0.72]	15 [0.72]	ND [0.71]	0.31 [0.58] J	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorohexane Sulfonate (PFHXS)	DVLC012	µg/kg	NE	ND [0.61]	0.90 [0.60]	0.12 [0.62] J	160 [0.72]	130 [0.72]	3.5 [0.71]	7.8 [0.58]	ND [0.76]	ND [0.72]	0.94 [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	3.5 [0.66]	ND [0.61]	1.3 [0.63]	ND [0.73]	ND [0.59]	1.0 [0.74]
Perfluorononanoic acid (PFNA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorodecanoic acid (PFNDCA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorooctanoic acid (PFOA)	DVLC012	µg/kg	142 / 2030 [2] (16000)[3]	ND [0.61]	0.25 [0.60] J	ND [0.62]	8.4 [0.72]	8.5 [0.72]	0.40 [0.71] J	0.48 [0.58] J	ND [0.76]	ND [0.72]	0.60 [0.60] J	ND [0.65]	ND [0.60]	ND [0.64]	0.64 [0.66] J	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorooctane Sulfonate (PFOS)	DVLC012	µg/kg	571 / 3040 [2] (6000)[3]	ND [0.61]	0.43 [0.60] J	0.22 [0.62] J	150 [0.72]	190 [0.72]	16 [0.71]	2.1 [0.58]	0.60 [0.76] J	0.41 [0.72] J	22 [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	0.24 [0.74] J
Perfluorooctane Sulfonamide (PFOSA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	0.13 [0.72] J	0.15 [0.72] J	ND [0.71]	ND [0.58]	0.12 [0.76] J,Q	ND [0.72] Q	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluoropentanoic acid (PFPA)	DVLC012	µg/kg	NE	ND [0.61]	1.4 [0.60]	0.59 [0.62] J	41 [0.72]	41 [0.72]	0.69 [0.71] J	1.0 [0.58]	0.37 [0.76] J	0.48 [0.72] J	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	0.29 [0.66] J	ND [0.61]	ND [0.63]	ND [0.73]	0.37 [0.59] J	ND [0.74]
Perfluorotetradecanoic acid (PFTEDA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluorotridecanoic acid (PFTRIDA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
Perfluoroundecanoic acid (PFUNDCA)	DVLC012	µg/kg	NE	ND [0.61]	ND [0.60]	ND [0.62]	ND [0.72]	ND [0.72]	ND [0.71]	ND [0.58]	ND [0.76]	ND [0.72]	ND [0.60]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.66]	ND [0.61]	ND [0.63]	ND [0.73]	ND [0.59]	ND [0.74]
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (Hp	SW8290A	pg/g	NE	ND [0.059]	0.45[0.044] J,B	0.098[0.026] J,B	0.11 [0.037] J,B	0.067[0.046] J,B	ND [0.038]	ND [0.084]	ND [0.12]	ND [0.13]	0.23 [0.085] J	ND [0.11]	0.12 [0.033] J	0.13 [0.050] J	ND [0.060]	0.10 [0.042] J	ND [0.045]	ND [0.16]	0.084 [0.067] J	ND [0.054]
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxins-C13	SW8290A	pg/g	NE	62 [0]	76 [0]	66 [0]	71 [0]	66 [0]	67 [0]	62 [0]	62 [0]	53 [0]	64 [0]	54 [0]	73 [0]	64 [0]	75 [0]	62 [0]	72 [0]	60 [0]	58 [0]	70 [0]
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	0.25[0.029] J,B	17 [0.24]	2.1 [0.054] J,B	0.53[0.025] J,B,Q	4.0 [0.073] J,B,Q	0.98[0.051] J,B	1.1 [0.16] J,B	4.9 [0.30] J,B	3.8 [0.21] J,B	0.76 [0.15] J,B	2.5[0.18] J,B	1.7[0.071] J,B	0.51[0.056] J,B	0.46[0.051] J,B	0.55[0.060] J,B	0.61[0.046] J,B	0.56[0.090] J	0.23 [0.067] J	0.29 [0.038] J
1,2,3,4,6,7,8-Heptachlorodibenzofurans-C13	SW8290A	pg/g	NE	67 [0]	85 [0]	71 [0]	75 [0]	72 [0]	73 [0]	65 [0]	70 [0]	65 [0]	71 [0]	61 [0]	71 [0]	63 [0]	73 [0]	56 [0]	66 [0]	49 [0]	50 [0]	64 [0]
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	ND [0.034]	1.0 [0.28] J	ND [0.064]	ND [0.029]	ND [0.085]	ND [0.060]	ND [0.19]	ND [0.35]	ND [0.25]	ND [0.18]	ND [0.21]	ND [0.085]	ND [0.067]	ND [0.061]	ND [0.071]	ND [0.055]	ND [0.11]	ND [0.080]	ND [0.045]
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.034]	ND [0.025]	ND [0.036]	ND [0.024]	ND [0.033]	ND [0.030]	ND [0.077]	ND [0.12]	ND [0.11]	ND [0.087]	ND [0.13]	ND [0.062]	ND [0.078]	ND [0.067]	ND [0.085]	ND [0.052]	ND [0.10]	ND [0.058]	ND [0.060]
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	0.086[0.026] J,B	1.4[0.038] J,B	0.37 [0.042] J,B	0.18[0.021] J,B,Q	1.7 [0.047] J,B,Q	0.38[0.025] J,B	0.22 [0.15] J	0.96 [0.22] J	0.68 [0.18] J	0.39 [0.13] J	ND [0.17]	0.63 [0.095] J	ND [0.11]	ND [0.093]	ND [0.12]	ND [0.061]	0.24 [0.071] J	ND [0.043]	0.10 [0.039] J
1,2,3,4,7,8-Hexachlorodibenzofuran-C13	SW8290A	pg/g	NE	66 [0]	84 [0]	76 [0]	72 [0]	73 [0]	76 [0]	71 [0]	69 [0]	67 [0]	75 [0]	64 [0]	66 [0]	59 [0]	68 [0]	52 [0]	59 [0]	47 [0]	49 [0]	63 [0]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Analyte	Method	Units	ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP20SO	13FWFP21SO	13FWFP22S0	13FWFP23SO	13FWFP24SO	13FWFP25SO	13FWFP26SO	13FWFP27SO	13FWFP28SO
Boring ID				AP-10269	AP-10270	AP-10270	AP-10271	AP-10271	AP-10271	AP-10272	AP-10272	AP-10272
Location ID				BH0918	BH1006	BH1016	BH1106	BH11	BH1116	BH1206	BH1216	BH12
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48840-13	48809-10	48809-11	48840-15	48840-16	48840-17	48809-13	48809-14	48809-15
Collect Date				11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate
				Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.027]	ND [0.020]	ND [0.029]	ND [0.019]	ND [0.031]	ND [0.024]	ND [0.056]	ND [0.091]	ND [0.080]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	76 [0]	95 [0]	81 [0]	83 [0]	85 [0]	86 [0]	75 [0]	79 [0]	72 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.022]	0.14[0.033] J,B	0.13 [0.036] J,B	0.041[0.018]J,B,Q	0.21[0.041]J,B,Q	0.062[0.022] J,B	ND [0.11]	0.39[0.17] J,Q	ND [0.14] Q
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.027]	ND [0.020]	ND [0.029]	ND [0.019]	ND [0.027]	ND [0.024]	ND [0.054]	ND [0.088]	ND [0.077]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.027]	ND [0.040]	ND [0.044]	ND [0.022]	ND [0.049]	ND [0.027]	ND [0.14]	ND [0.21]	ND [0.18]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.070]	ND [0.053]	ND [0.063]	ND [0.044]	ND [0.071]	ND [0.052]	ND [0.13]	ND [0.13]	ND [0.13]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	58 [0]	73 [0]	62 [0]	73 [0]	64 [0]	68 [0]	57 [0]	60 [0]	53 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.057]	ND [0.035]	ND [0.049]	ND [0.033]	ND [0.059]	ND [0.042]	ND [0.11]	ND [0.16]	ND [0.15]
1,2,3,7,8-Pentachlorodibenzofurans-C13	SW8290A	pg/g	NE	61 [0]	78 [0]	67 [0]	80 [0]	66 [0]	70 [0]	60 [0]	61 [0]	59 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.024]	0.089[0.036] J	ND [0.039]	ND [0.020]	ND [0.044]	ND [0.024]	ND [0.13]	ND [0.19]	ND [0.16]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.059]	ND [0.037]	ND [0.051]	ND [0.034]	ND [0.062]	ND [0.043]	ND [0.12]	ND [0.17]	ND [0.15]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	SW8290A	pg/g	47	ND [0.035]	ND [0.030]	ND [0.059]	ND [0.027]	ND [0.058]	ND [0.033]	ND [0.078]	ND [0.11]	ND [0.086]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	63 [0]	79 [0]	68 [0]	75 [0]	68 [0]	73 [0]	63 [0]	61 [0]	60 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	SW8290A	pg/g	NE	ND [0.029]	ND [0.21]	ND [0.029]	ND [0.026]	ND [0.26]	ND [0.026]	ND [0.071]	ND [0.10]	ND [0.083]
2,3,7,8-Tetrachlorodibenzofuran-C13	SW8290A	pg/g	NE	65 [0]	75 [0]	74 [0]	77 [0]	65 [0]	77 [0]	63 [0]	62 [0]	60 [0]
Octachlorodibenzo-p-dioxin (OCDD)	SW8290A	pg/g	NE	0.31 [0.060] J,B	8.7 [0.091] J,B	0.60 [0.048] J,B	0.43[0.036] J,B	0.38 [0.047] J,B	0.46[0.043] J,B	1.0 [0.098] J	1.1[0.17] J,Q	0.61 [0.12] J,Q
Octachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	59 [0]	78 [0]	64 [0]	73 [0]	63 [0]	64 [0]	54 [0]	53 [0]	49 [0]
Octachlorodibenzofuran (OCDF)	SW8290A	pg/g	NE	0.18[0.080] J,B	230 [2.1]	7.8 [0.10] J,B	0.59 [0.050] J,B,Q	1.2[0.077] J,B,Q	3.1[0.13] J,B	1.2 [0.25] J	17 [0.45] Q	9.3 [0.37] J,Q
Total Heptachlorodibenzo-p-dioxins (HpCDD)	SW8290A	pg/g	NE	ND [0.059]	0.82[0.044] J,B	0.27[0.026] J,B	0.23 [0.037] J,B	0.18 [0.046] J,B	0.11[0.038] J,B	0.15 [0.084] J	ND [0.12]	ND [0.13]
Total Heptachlorodibenzofurans (HpCDF)	SW8290A	pg/g	NE	0.25[0.032] J,B	21 [0.26]	2.5 [0.059] J,B	0.63 [0.027] J,B,Q	4.0[0.079] J,B,Q	1.1[0.055] J,B	1.1 [0.18] J,B	6.3 [0.32] B	3.8 [0.23] J,B
Total Hexachlorodibenzo-p-dioxins (HxCDD)	SW8290A	pg/g	NE	ND [0.034]	ND [0.065]	ND [0.036]	ND [0.024]	ND [0.051]	ND [0.12]	ND [0.077]	ND [0.12]	ND [0.11]
Total Hexachlorodibenzofurans (HxCDF)	SW8290A	pg/g	NE	0.086[0.025]J,B	2.1[0.037] J,B	0.65 [0.040] J,B	0.30 [0.020] J,B,Q	3.3[0.045] J,B,Q	0.67[0.025] J,B	0.22 [0.13] J	1.4[0.20] J,Q	0.68 [0.16] J,Q
Total Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.070]	ND [0.053]	ND [0.063]	ND [0.044]	ND [0.071]	ND [0.052]	ND [0.13]	ND [0.13]	ND [0.13]
Total Pentachlorodibenzofurans (PeCDF)	SW8290A	pg/g	NE	ND [0.059]	0.19 [0.036] J,B	0.087[0.050] J,B	ND [0.034] Q	1.1[0.061] J,B,Q	0.10 [0.042] J,B	ND [0.12]	ND [0.17]	ND [0.15]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	SW8290A	pg/g	NE	0.17[0.035] J,B	ND [0.030]	ND [0.059]	ND [0.027]	ND [0.075]	ND [0.033]	ND [0.078]	ND [0.11]	ND [0.086]
Total Tetrachlorodibenzofurans (TCDF)	SW8290A	pg/g	NE	ND [0.029]	0.088[0.025]J,B	0.16 [0.029] J,B	ND [0.034] Q	0.27[0.041] J,B,Q	ND [0.026]	ND [0.071]	ND [0.10]	ND [0.083]
Total Dioxin/Furan TEQ	SW8290A	pg/g	47 [4,5]	0.011	0.42	0.074	0.029	0.23	0.055	0.034	0.19	0.11

Analyte	13FWFP29SO	13FWFP30SO	13FWFP31SO	13FWFP32SO	13FWFP33SO	13FWFP34SO	13FWFP35SO	13FWFP36SO	13FWFP37SO	13FWFP38SO
Boring ID	AP-10273	AP-10273	AP-10274	AP-10274	AP-10275	AP-10275	AP-10276	AP-10276	AP-10277	AP-10277
Location ID	BH1306	BH1319	BH1406	BH1416	BH1505	BH1516	BH1605	BH1611	BH1705	BH1716
Laboratory	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID	48809-17	48809-18	48809-2	48809-3	48809-6	48809-7	48971-2	48971-3	48971-5	48971-6
Collect Date	11/01/2013	11/01/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013
Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier	Result[LOD] Qualifier
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	ND [0.064]	ND [0.092]	ND [0.065]	ND [0.082]	ND [0.070]	ND [0.090]	ND [0.055]	ND [0.080]	ND [0.047]	ND [0.048]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	85 [0]	68 [0]	96 [0]	78 [0]	89 [0]	65 [0]	75 [0]	61 [0]	68 [0]	78 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ND [0.10]	ND [0.13]	ND [0.092]	ND [0.11]	ND [0.090]	ND [0.12]	ND [0.059]	ND [0.059]	ND [0.036]	ND [0.032]
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	ND [0.061]	ND [0.088]	ND [0.054]	ND [0.068]	ND [0.058]	ND [0.074]	ND [0.045]	ND [0.078]	ND [0.045]	ND [0.047]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ND [0.13]	ND [0.17]	ND [0.10]	ND [0.12]	ND [0.098]	ND [0.13]	ND [0.064]	ND [0.074]	ND [0.045]	ND [0.041]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	ND [0.14]	ND [0.10]	ND [0.14]	ND [0.21]	ND [0.15]	ND [0.17]	ND [0.17]	ND [0.13]	ND [0.11]	ND [0.11]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	61 [0]	51 [0]	69 [0]	58 [0]	68 [0]	55 [0]	55 [0]	72 [0]	69 [0]	78 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ND [0.11]	ND [0.14]	ND [0.27]	ND [0.34]	ND [0.35]	ND [0.35]	ND [0.29]	ND [0.093]	ND [0.085]	ND [0.052]
1,2,3,7,8-Pentachlorodibenzofurans-C13	65 [0]	52 [0]	63 [0]	51 [0]	57 [0]	46 [0]	46 [0]	65 [0]	62 [0]	71 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ND [0.11]	ND [0.15]	ND [0.095]	ND [0.11]	ND [0.093]	ND [0.12]	ND [0.061]	ND [0.066]	ND [0.040]	ND [0.036]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND [0.11]	ND [0.14]	ND [0.28]	ND [0.35]	ND [0.37]	ND [0.36]	ND [0.30]	ND [0.098]	ND [0.090]	ND [0.054]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND [0.084]	ND [0.10]	ND [0.071]	ND [0.079]	ND [0.078]	ND [0.091]	ND [0.083]	ND [0.095]	ND [0.052]	ND [0.066]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	67 [0]	58 [0]	75 [0]	63 [0]	71 [0]	58 [0]	60 [0]	71 [0]	69 [0]	78 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND [0.069]	ND [0.083]	ND [0.12]	ND [0.15]	ND [0.082]	ND [0.14]	ND [0.11]	ND [0.083]	ND [0.058]	ND [0.059]
2,3,7,8-Tetrachlorodibenzofuran-C13	68 [0]	56 [0]	69 [0]	60 [0]	65 [0]	53 [0]	53 [0]	67 [0]	67 [0]	74 [0]
Octachlorodibenzo-p-dioxin (OCDD)	3.1 [0.11] J	ND [0.13]	0.56 [0.086] J	1.3 [0.079] J	0.80 [0.11] J	0.47 [0.069] J	0.30 [0.053] J	0.95[0.092] J	0.60 [0.093] J	0.23 [0.082] J
Octachlorodibenzo-p-dioxin-C13	46 [0]	40 [0]	64 [0]	57 [0]	64 [0]	56 [0]	66 [0]	56 [0]	51 [0]	57 [0]
Octachlorodibenzofuran (OCDF)	0.74 [0.22] J	1.1 [0.32] J	0.79 [0.064] J	0.32 [0.074] J	0.80[0.082] J	0.60 [0.069] J	0.39 [0.055] J	ND [0.16]	ND [0.072]	0.36[0.074]J,B
Total Heptachlorodibenzo-p-dioxins (HpCDD)	0.23 [0.085] J	ND [0.11]	0.32 [0.033] J	0.45 [0.050] J	0.23 [0.060] J	0.27[0.042] J	0.12 [0.045] J	ND [0.18]	0.20[0.067] J,B	ND [0.054]
Total Heptachlorodibenzofurans (HpCDF)	0.76[0.17] J,B	2.5[0.20] J,B	1.7[0.078] J,B	0.51[0.062]J,B	0.46[0.056]J,B	0.55[0.066] J,B	0.61[0.051]J,B	0.56[0.099] J	0.23 [0.073] J	0.29 [0.041] J
Total Hexachlorodibenzo-p-dioxins (HxCDD)	ND [0.087]	ND [0.13]	ND [0.25]	ND [0.12]	ND [0.33]	ND [0.090]	ND [0.12]	ND [0.10]	ND [0.058]	ND [0.060]
Total Hexachlorodibenzofurans (HxCDF)	0.39 [0.12] J	ND [0.17]	0.63 [0.095] J	ND [0.12]	ND [0.098]	ND [0.13]	ND [0.064]	0.24[0.067] J	ND [0.045]	0.10 [0.037] J
Total Pentachlorodibenzo-p-dioxin (PeCDD)	ND [0.14]	ND [0.10]	0.32 [0.14] J	ND [0.21]	ND [0.15]	ND [0.17]	ND [0.17]	ND [0.13]	ND [0.11]	ND [0.11]
Total Pentachlorodibenzofurans (PeCDF)	ND [0.11]	ND [0.14]	ND [0.28]	ND [0.35]	ND [0.37]	ND [0.36]	ND [0.30]	ND [0.098]	ND [0.090]	ND [0.054]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	ND [0.084]	ND [0.11]	0.40 [0.071] J	ND [0.17]	ND [0.15]	0.39[0.091] J	ND [0.17]	ND [0.095]	ND [0.052]	ND [0.066]
Total Tetrachlorodibenzofurans (TCDF)	ND [0.069]	ND [0.083]	ND [0.12]	ND [0.15]	ND [0.082]	ND [0.14]	ND [0.11]	ND [0.083]	ND [0.058]	ND [0.059]
Total Dioxin/Furan TEQ	0.05	0.025	0.082	0.0069	0.0051	0.0068	0.0063	0.03	0.0033	0.013

Yellow highlighted and **bolded** results exceed ADEC soil cleanup levels (most stringent pathway).
Green highlighted results exceed ADEC's proposed migration to groundwater cleanup level (applies to PFOA or PFOS only).
Grey highlighted results are non-detect with LODs above cleanup levels.

[1] Cleanup levels are from ADEC Title 18, Alaska Administrative Code, Section 75.341, Tables B1 and B2 (ADEC, 2012).

[2] Proposed cleanup levels for PFOA and PFOS (migration to groundwater / human health) are from the Public Comment Draft of 18 AAC 75 dated August 26, 2015.

[3] EPA Region 4 Residential Soil Screening Levels from "Soil Screening Levels for Perfluorooctanoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)"

[4] Total TEQs are presented for each sample (none of which exceed the ADEC cleanup level). Analyte-specific TEQs are presented in the associated laboratory reports. Total TEQ = $\Sigma(C_i * TEF_i)$
[5] TEFs (used to calculate TEQs) are established from the World Health Organization (WHO, 2005).

LOD - limit of detection
LOQ - limit of quantitation
μg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
NA - not applicable
NE - not established
PFC - perfluorinated compounds
pg/g - picograms per gram
QC - quality control
SO - subsurface soil matrix
SQ - soil QC
TADC - TestAmerica Laboratories of Denver, CO
TEF - toxicity equivalency factor
TEQ - toxicity equivalence, where Total TEQ = $\Sigma(C_i * TEF_i)$

Data Qualifiers:
B - result may be due to cross-contamination
J - result qualified as estimate because it is less than the LOQ
M - result considered an estimate (L - low; H - high) due to matrix interference
ND - non-detect (LOD in parentheses)
Q - result considered an estimate (L - low; H - high) due to a QC failure
R - result rejected due to QC issue

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

		Sample ID	ADEC Cleanup Level/[1,2] EPA Screening Level[3]	13FWFP39SO	13FWFP40SO	13FWFP41SO	13FWFP42SO	13FWFP43SO	13FWFP44SO	13FWFP45SO	13FWFP46SO	13FWFP47SO	13FWFP48SO	13FWFP49SO	13FWFP50SO	13FWFP51SO	13FWFP52SO	13FWFP53SO	13FWFP54SO	13FWFP55SO	13FWFP56SO
		Boring ID		AP-10278	AP-10278	AP-10279	AP-10279	AP-10280	AP-10280	AP-10280	AP-10281	AP-10281	AP-10282	AP-10282	AP-10282	AP-10283	AP-10283	AP-10283	AP-10284	AP-10284	AP-10285
		Location ID		BH1805	BH1812	BH1906	BH1915	BH2005	BH2016	BH20	BH2105	BH2117	BH2206	BH22	BH2216	BH2306	BH2315	BH23	BH2406	BH2415	BH2506
		Laboratory		TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
		Lab Sample ID		48971-8	48971-9	48971-12	48971-13	48971-15	48971-16	48971-17	48964-2	48964-3	48964-5	48964-6	48964-7	48964-9	48964-10	48964-11	48964-13	48964-14	48964-16
		Collect Date		11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013
		Matrix		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
		Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Gasoline Range Organics (C6-C10)	AK101	mg/kg	300	6.20[0.39]B	1.60 [0.48] B,QL	0.53 [0.37] J,B	0.52 [0.47] J,B	4.20[0.39] B	0.48 [0.48] J,B	0.34 [0.46] J,B	2.20[0.40] B,ML	0.47 [0.40] J,B	0.58 [0.38] B	0.44 [0.38] J,B	0.30[0.67] J,B,QL	1.10 [0.34] B	0.39[0.69] J,B,QL	0.32[0.69] J,B,QL	2.60 [0.60] B	0.35[0.67] J,B,QL	0.29[0.45] J,B
Diesel Range Organics (C10-C25)	AK102	mg/kg	250	1.4 [2.0] J	1.2 [2.2] J	1.1 [1.9] J,QL	1.1 [2.0] J	1.4 [2.0] J	1.3 [2.1] J,QL	1.4 [2.1] J	ND [2.0]	ND [2.1]	2.6 [2.0] J	2.0 [1.9] J	ND [2.5]	ND [1.9]	ND [2.4]	ND [2.4]	1.7 [2.0] J	ND [2.5]	1.1 [2.2] J
Residual Range Organics (C25-C36)	AK103	mg/kg	11000	ND [10]	ND [11]	ND [9.4]	ND [10]	ND [10]	ND [10]	ND [11]	ND [10]	ND [10]	ND [10]	ND [9.6]	ND [13]	ND [9.7]	ND [12]	ND [12]	7.6 [9.8] J	ND [13]	ND [11]
Arsenic	SW6020A	µg/kg	3900	3200 [140]	1500 [160]	3400 [150]	2200 [150]	5100 [130]	3000 [150]	3500 [160]	7100 [140]	4900 [160]	3900 [140]	3800 [150]	2600 [160]	3900 [150]	6100 [160]	4600 [170]	11000 [140]	6300 [160]	7700 [150]
Barium	SW6020A	µg/kg	1100000	63000 [190]	55000 [210]	50000 [200]	40000 [210]	68000 [180]	44000 [200]	33000 [210]	73000 [190] J	33000 [210]	52000 [180]	47000 [190]	57000 [220]	55000 [200]	62000 [220]	62000 [230]	92000 [180]	64000 [220]	94000 [210]
Cadmium	SW6020A	µg/kg	5000	71 [24] J	41 [26] J	51 [25] J	37 [26] J	94 [22]	69 [25] J	54 [26] J	120 [24] J,ML	25 [26] J	54 [23] J	70 [24] J	80 [27] J	62 [26] J	55 [27] J	47 [29] J	120 [23]	55 [27] J	150 [26]
Chromium	SW6020A	µg/kg	25000	12000 [170]	6000 [180]	9000 [180]	6300 [180]	13000 [160]	9000 [180]	8800 [190]	13000 [170]	8300 [180]	8800 [160]	8700 [170]	9900 [190]	11000 [180]	10000 [190]	9900 [200]	17000 [160]	11000 [190]	15000 [180]
Lead	SW6020A	µg/kg	400000	3700 [48]	2200 [52]	5000 [50]	2600 [51]	3900 [45]	2800 [51]	3500 [53]	4700 [47]	2500 [53]	3100 [46]	3000 [49]	3100 [55]	2900 [51]	3400 [55]	3200 [57]	5900 [46]	3600 [54]	4800 [51]
Selenium	SW6020A	µg/kg	3400	ND [240]	ND [260]	ND [250]	ND [260]	ND [220]	ND [250]	ND [260]	170 [240] J	ND [260]	ND [230]	ND [240]	ND [270]	ND [260]	ND [270]	ND [290]	250 [230] J	ND [270]	140 [260] J
Silver	SW6020A	µg/kg	11200	23 [58] J	27 [63] J	35 [60] J	26 [62] J	28 [54] J	28 [61] J,Q	ND [64] Q	39 [57] J	ND [63]	23 [55] J	28 [58] J	23 [66] J	24 [61] J	26 [66] J	27 [69] J	54 [55] J	32 [65] J	52 [62] J
Mercury	SW7471B	µg/kg	1400	6.6 [15] J	ND [15]	ND [15]	ND [16]	ND [15]	ND [16]	ND [16]	6.4 [15] J	73 [14]	ND [14]	11 [15] J	ND [20]	9.9 [16] J	ND [20]	ND [20]	13 [15] J	9.8 [18] J	25 [17]
1,1,1,2-Tetrachloroethane	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1,1-Trichloroethane	SW8260B	µg/kg	820	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1,2,2-Tetrachloroethane	SW8260B	µg/kg	17	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1,2-Trichloroethane	SW8260B	µg/kg	18	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1-Dichloroethane	SW8260B	µg/kg	25000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1-Dichloroethene	SW8260B	µg/kg	30	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,1-Dichloropropene	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2,3-Trichlorobenzene	SW8260B	µg/kg	NE	ND [14]	ND [18]	ND [14]	ND [17]	ND [14]	ND [18]	ND [17]	ND [15]	ND [15]	ND [14]	ND [14]	ND [25]	ND [13]	ND [26]	ND [26]	ND [22]	ND [25]	ND [17]
1,2,3-Trichloropropane	SW8260B	µg/kg	0.53	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2,4-Trichlorobenzene	SW8260B	µg/kg	850	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2,4-Trimethylbenzene	SW8260B	µg/kg	23000	ND [9.6]	ND [12]	ND [9.2]	2.6 [12] J,B	ND [9.6]	ND [12]	ND [11]	1.8 [9.9] J,B	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2-Dibromo-3-chloropropane	SW8260B	µg/kg	NE	ND [48]	ND [59]	ND [46]	ND [58]	ND [48]	ND [59]	ND [56]	ND [50]	ND [49]	ND [47]	ND [47]	ND [84]	ND [42]	ND [87]	ND [87]	ND [74]	ND [84]	ND [56]
1,2-Dibromoethane	SW8260B	µg/kg	0.16	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2-Dichlorobenzene	SW8260B	µg/kg	5100	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2-Dichloroethane	SW8260B	µg/kg	16	ND [7.7]	ND [9.5]	ND [7.3]	ND [9.2]	ND [7.7]	ND [9.4]	ND [9.0]	ND [7.9] ML	ND [7.8]	ND [7.5]	ND [7.5]	ND [13]	ND [6.8]	ND [14]	ND [14]	ND [12]	ND [14]	ND [9.0]
1,2-Dichloroethene, Total	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2-Dichloropropane	SW8260B	µg/kg	18	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,3,5-Trimethylbenzene	SW8260B	µg/kg	23000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,3-Dichlorobenzene	SW8260B	µg/kg	28000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,3-Dichloropropane	SW8260B	µg/kg	33	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,4-Dichlorobenzene	SW8260B	µg/kg	640	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
2,2-Dichloropropane	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
2-Butanone	SW8260B	µg/kg	59000	ND [38]	ND [48]	ND [37]	ND [46]	ND [38]	ND [47]	ND [45]	ND [40]	ND [39]	ND [38]	ND [38]	ND [67]	ND [34]	ND [69]	ND [70]	ND [59]	ND [68]	ND [45]
2-Chlorotoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
2-Hexanone	SW8260B	µg/kg	NE	ND [38]	ND [48]	ND [37]	ND [46]	ND [38]	ND [47]	ND [45]	ND [40] R	ND [39]	ND [38]	ND [38]	ND [67]	ND [34]	ND [69]	ND [70]	ND [59]	ND [68]	ND [45]
4-Chlorotoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
4-Isopropyltoluene	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
4-Methyl-2-pentanone	SW8260B	µg/kg	8100	ND [38]	ND [48]	ND [37]	ND [46]	ND [38]	ND [47]	ND [45]	ND [40] R	ND [39]	ND [38]	ND [38]	ND [67]	ND [34]	ND [69]	ND [70]	ND [59]	ND [68]	ND [45]
Acetone	SW8260B	µg/kg	88000	ND [96]	ND [120]	ND [92]	ND [120]	ND [96]	ND [120]	ND [110]	ND [99]	ND [98]	ND [94]	ND [94]	ND [170]	ND [85]	ND [170]	ND [170]	ND [150]	ND [170]	ND [110]
Benzene	SW8260B	µg/kg	25	ND [3.8]	ND [4.8]	ND [3.7]	ND [4.6]	ND [3.8]	ND [4.7]	ND [4.5]	ND [4.0] ML	ND [3.9]	ND [3.8]	ND [3.8]	ND [6.7]	ND [3.4]	ND [6.9]	ND [7.0]	ND [5.9]	ND [6.8]	ND [4.5]
Bromobenzene	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Bromochloromethane	SW8260B	µg/kg	NE	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Bromodichloromethane	SW8260B	µg/kg	44	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Bromoform	SW8260B	µg/kg	340	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Bromomethane	SW8260B	µg/kg	160	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] R	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Carbon disulfide	SW8260B	µg/kg	12000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] R	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Carbon tetrachloride	SW8260B	µg/kg	23	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Chlorobenzene	SW8260B	µg/kg	630	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Chloroethane	SW8260B	µg/kg	580000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Chloroform	SW8260B	µg/kg	460	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Chloromethane	SW8260B	µg/kg	210	ND [12]	ND [15]	ND [11]	ND [14]	ND [12]	ND [15]	ND [14]	ND [12] R	ND [12]	ND [12]	ND [12]	ND [21]	ND [11]	ND [22]	ND [22]	ND [19]	ND [21]	ND [14]
Dibromochloromethane	SW8260B	µg/kg	32	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Dibromomethane	SW8260B	µg/kg	1100	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Dichlorodifluoromethane	SW8260B	µg/kg	140000	ND [19]	ND [24]	ND [18]	ND [23]	ND [19]	ND [24]	ND [23]	ND [20] ML	ND [20]	ND [19]	ND [19]	ND [34]	ND [17]	ND [35]	ND [35]	ND [30]	ND [34]	ND [23]
Ethylbenzene	SW8260B	µg/kg	6900	3.5 [9.6] J	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Hexachlorobutadiene	SW8260B	µg/kg	120	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Isopropylbenzene	SW8260B	µg/kg	51000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Methyl-tert-butyl ether (MTBE)	SW8260B	µg/kg	1300	ND [48]	ND [59]	ND [46]	ND [58]	ND [48]	ND [59]	ND [56]	ND [50]	ND [49]	ND [47]	ND [47]	ND [84]	ND [42]	ND [87]	ND [87]	ND [74]	ND [84]	ND [56]
Methylene chloride	SW8260B	µg/kg	16	ND [19]	ND [24]	ND [18]	ND [23]	ND [19]	ND [24]	ND [23]	ND [20] ML	ND [20]	ND [19]	ND [19]	ND [34]	ND [17]	ND [35]	ND [35]	ND [30]	ND [34]	ND [23]
Naphthalene	SW8260B	µg/kg	20000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Styrene	SW8260B	µg/kg	960	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Tetrachloroethene (PCE)	SW8260B	µg/kg	24	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Toluene	SW8260B	µg/kg	6500	33 [9.6] B	12 [12] J,B	4.8 [9.2] J,B	7.7 [12] J,B	27 [9.6] B	5.1 [12] J,B,Q	ND [11] Q	4.3 [9.9] J,ML,B	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	5.4 [8.5] J,B	ND [17]	ND [17]	16 [15] J,B	ND [17]	5.6 [11] J,B
Trichloroethene (TCE)	SW8260B	µg/kg	20	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	4.1 [9.4] J,Q	ND [9.4] Q	16 [17] J	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Trichlorofluoromethane	SW8260B	µg/kg	86000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
Vinyl chloride	SW8260B	µg/kg	8.5	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] R	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

		Sample ID	ADEC Cleanup Level/ 1,2 EPA Screening Level3	13FWFP39SO	13FWFP40SO	13FWFP41SO	13FWFP42SO	13FWFP43SO	13FWFP44SO	13FWFP45SO	13FWFP46SO	13FWFP47SO	13FWFP48SO	13FWFP49SO	13FWFP50SO	13FWFP51SO	13FWFP52SO	13FWFP53SO	13FWFP54SO	13FWFP55SO	13FWFP56SO
		Boring ID		AP-10278	AP-10278	AP-10279	AP-10279	AP-10280	AP-10280	AP-10280	AP-10281	AP-10281	AP-10282	AP-10282	AP-10282	AP-10283	AP-10283	AP-10283	AP-10284	AP-10284	AP-10285
		Location ID		BH1805	BH1812	BH1906	BH1915	BH2005	BH2016	BH20	BH2105	BH2117	BH2206	BH22	BH2216	BH2306	BH2315	BH23	BH2406	BH2415	BH2506
		Laboratory		TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
		Lab Sample ID		48971-8	48971-9	48971-12	48971-13	48971-15	48971-16	48971-17	48964-2	48964-3	48964-5	48964-6	48964-7	48964-9	48964-10	48964-11	48964-13	48964-14	48964-16
		Collect Date		11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013
		Matrix		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
		Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Xylene, Isomers m & p	SW8260B	µg/kg	63000	9.6 [19] J	ND [24]	ND [18]	ND [23]	ND [19]	ND [24]	ND [23]	ND [20] ML	ND [20]	ND [19]	ND [19]	ND [34]	ND [17]	ND [35]	ND [35]	ND [30]	ND [34]	ND [23]
cis-1,2-Dichloroethene	SW8260B	µg/kg	240	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
cis-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
n-Butylbenzene	SW8260B	µg/kg	15000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
n-Propylbenzene	SW8260B	µg/kg	15000	ND [14]	ND [18]	ND [14]	ND [17]	ND [14]	ND [18]	ND [17]	ND [15]	ND [15]	ND [14]	ND [14]	ND [25]	ND [13]	ND [26]	ND [26]	ND [22]	ND [25]	ND [17]
o-Xylene	SW8260B	µg/kg	63000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
sec-Butylbenzene	SW8260B	µg/kg	12000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
tert-Butylbenzene	SW8260B	µg/kg	12000	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9]	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
trans-1,2-Dichloroethene	SW8260B	µg/kg	370	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
trans-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [9.6]	ND [12]	ND [9.2]	ND [12]	ND [9.6]	ND [12]	ND [11]	ND [9.9] ML	ND [9.8]	ND [9.4]	ND [9.4]	ND [17]	ND [8.5]	ND [17]	ND [17]	ND [15]	ND [17]	ND [11]
1,2,4-Trichlorobenzene	SW8270D	µg/kg	850	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
1,2-Dichlorobenzene	SW8270D	µg/kg	5100	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
1,2-Diphenylhydrazine	SW8270D	µg/kg	28000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
1,3-Dichlorobenzene	SW8270D	µg/kg	22000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
1,4-Dichlorobenzene	SW8270D	µg/kg	6200	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
2,4,5-Trichlorophenol	SW8270D	µg/kg	67000	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
2,4,6-Trichlorophenol	SW8270D	µg/kg	1400	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
2,4-Dichlorophenol	SW8270D	µg/kg	1300	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
2,4-Dimethylphenol	SW8270D	µg/kg	8800	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
2,4-Dinitrophenol	SW8270D	µg/kg	540	ND [700]	ND [720]	ND [690]	ND [710]	ND [640]	ND [680]	ND [710]	ND [670]	ND [670]	ND [670]	ND [660]	ND [850]	ND [680]	ND [840]	ND [860]	ND [680]	ND [820]	ND [710]
2,4-Dinitrotoluene	SW8270D	µg/kg	9.3	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
2,6-Dichlorophenol	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
2,6-Dinitrotoluene	SW8270D	µg/kg	9.4	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
2-Chloronaphthalene	SW8270D	µg/kg	120000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
2-Chlorophenol	SW8270D	µg/kg	1500	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
2-Methyl-4,6-dinitrophenol	SW8270D	µg/kg	NE	ND [690]	ND [710]	ND [680]	ND [700]	ND [630]	ND [670]	ND [700]	ND [660]	ND [660]	ND [660]	ND [650]	ND [840]	ND [670]	ND [820]	ND [840]	ND [670]	ND [810]	ND [700]
2-Methylnaphthalene	SW8270D	µg/kg	6100	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
2-Methylphenol (o-Cresol)	SW8270D	µg/kg	15000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
2-Nitroaniline	SW8270D	µg/kg	NE	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
2-Nitrophenol	SW8270D	µg/kg	NE	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
3,3'-Dichlorobenzidine	SW8270D	µg/kg	190	ND [340]	ND [360]	ND [340]	ND [350]	ND [310]	ND [340]	ND [350]	ND [330]	ND [330]	ND [330]	ND [330]	ND [420]	ND [340]	ND [410]	ND [420]	ND [340]	ND [410]	ND [350]
3-Methylphenol/4-Methylphenol Coelution	SW8270D	µg/kg	1500	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
3-Nitroaniline	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [140]	ND [140]	ND [130]	ND [140]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [140]	ND [170]	ND [170]	ND [140]	ND [160]	ND [140]
4-Bromophenyl phenyl ether	SW8270D	µg/kg	NE	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
4-Chloro-3-methylphenol	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
4-Chloroaniline	SW8270D	µg/kg	57	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
4-Chlorophenyl phenyl ether	SW8270D	µg/kg	NE	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
4-Nitroaniline	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
4-Nitrophenol	SW8270D	µg/kg	NE	ND [340]	ND [360]	ND [340]	ND [350]	ND [310]	ND [340]	ND [350]	ND [330]	ND [330]	ND [330]	ND [330]	ND [420]	ND [340]	ND [410]	ND [420]	ND [340]	ND [410]	ND [350]
Acenaphthene	SW8270D	µg/kg	180000	ND [18]	ND [18]	ND [17]	ND [18]	ND [16]	ND [17]	ND [18]	ND [17]	ND [17]	ND [17]	ND [17]	ND [22]	ND [17]	ND [21]	ND [22]	ND [17]	ND [21]	ND [18]
Acenaphthylene	SW8270D	µg/kg	180000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Anthracene	SW8270D	µg/kg	3000000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzidine	SW8270D	µg/kg	NE	ND [4100]	ND [4300]	ND [4100]	ND [4200]	ND [3800]	ND [4000]	ND [4200]	ND [4000]	ND [4000]	ND [4000]	ND [3900]	ND [5000]	ND [4000]	ND [4900]	ND [5100]	ND [4000]	ND [4900]	ND [4200]
Benzo(a)anthracene	SW8270D	µg/kg	3600	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzo(a)pyrene	SW8270D	µg/kg	2100	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzo(b)fluoranthene	SW8270D	µg/kg	12000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzo(g,h,i)perylene	SW8270D	µg/kg	38700000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzo(k)fluoranthene	SW8270D	µg/kg	120000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Benzoic acid	SW8270D	µg/kg	410000	ND [690]	ND [710]	ND [680]	ND [700]	ND [630]	ND [670]	ND [700]	ND [660]	ND [660]	ND [660]	ND [650]	ND [840]	ND [670]	ND [820]	ND [840]	ND [670]	ND [810]	ND [700]
Benzyl alcohol	SW8270D	µg/kg	NE	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Benzyl butyl phthalate	SW8270D	µg/kg	920000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Carbazole	SW8270D	µg/kg	6500	ND [70]	ND [72]	ND [69]	ND [71]	ND [64]	ND [68]	ND [71]	ND [67]	ND [67]	ND [67]	ND [66]	ND [85]	ND [68]	ND [84]	ND [86]	ND [68]	ND [82]	ND [71]
Chrysene	SW8270D	µg/kg	360000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Di-n-butyl phthalate	SW8270D	µg/kg	80000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Di-n-octyl phthalate	SW8270D	µg/kg	3800000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Dibenzo(a,h)anthracene	SW8270D	µg/kg	4000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Dibenzofuran	SW8270D	µg/kg	11000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Diethyl phthalate	SW8270D	µg/kg	130000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Dimethyl phthalate	SW8270D	µg/kg	1100000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	30 [34] J	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	34 [35] J
Fluoranthene	SW8270D	µg/kg	1400000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Fluorene	SW8270D	µg/kg	220000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Hexachlorobenzene	SW8270D	µg/kg	47	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Hexachlorobutadiene	SW8270D	µg/kg	120	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Hexachloroethane	SW8270D	µg/kg	210	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Indeno(1,2,3-cd)pyrene	SW8270D	µg/kg	41000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Isophorone	SW8270D	µg/kg	3100	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Naphthalene	SW8270D	µg/kg	20000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
Nitrobenzene	SW8270D	µg/kg	94	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level[1,2] / EPA Screening Level[3]	13FWFP39SO	13FWFP40SO	13FWFP41SO	13FWFP42SO	13FWFP43SO	13FWFP44SO	13FWFP45SO	13FWFP46SO	13FWFP47SO	13FWFP48SO	13FWFP49SO	13FWFP50SO	13FWFP51SO	13FWFP52SO	13FWFP53SO	13FWFP54SO	13FWFP55SO	13FWFP56SO
Boring ID				AP-10278	AP-10278	AP-10279	AP-10279	AP-10280	AP-10280	AP-10280	AP-10281	AP-10281	AP-10282	AP-10282	AP-10282	AP-10283	AP-10283	AP-10283	AP-10284	AP-10284	AP-10285
Location ID				BH1805	BH1812	BH1906	BH1915	BH2005	BH2016	BH20	BH2105	BH2117	BH2206	BH22	BH2216	BH2306	BH2315	BH23	BH2406	BH2415	BH2506
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48971-8	48971-9	48971-12	48971-13	48971-15	48971-16	48971-17	48964-2	48964-3	48964-5	48964-6	48964-7	48964-9	48964-10	48964-11	48964-13	48964-14	48964-16
Collect Date				11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013
Matrix				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Pentachlorophenol	SW8270D	µg/kg	47	ND [700]	ND [720]	ND [690]	ND [710]	ND [640]	ND [680]	ND [710]	ND [670]	ND [670]	ND [670]	ND [660]	ND [850]	ND [680]	ND [840]	ND [860]	ND [680]	ND [820]	ND [710]
Phenanthrene	SW8270D	µg/kg	3000000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Phenol	SW8270D	µg/kg	68000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
Pyrene	SW8270D	µg/kg	1000000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
bis(2-Chloroisopropyl)ether	SW8270D	µg/kg	NE	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
bis-(2-Chloroethoxy)methane	SW8270D	µg/kg	NE	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
bis-(2-Chloroethyl)ether	SW8270D	µg/kg	2.2	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
bis-(2-Ethylhexyl)phthalate	SW8270D	µg/kg	13000	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
n-Nitrosodi-n-propylamine	SW8270D	µg/kg	1.1	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
n-Nitrosodimethylamine	SW8270D	µg/kg	0.053	ND [69]	ND [71]	ND [68]	ND [70]	ND [63]	ND [67]	ND [70]	ND [66]	ND [66]	ND [66]	ND [65]	ND [84]	ND [67]	ND [82]	ND [84]	ND [67]	ND [81]	ND [70]
n-Nitrosodiphenylamine	SW8270D	µg/kg	15000	ND [34]	ND [36]	ND [34]	ND [35]	ND [31]	ND [34]	ND [35]	ND [33]	ND [33]	ND [33]	ND [33]	ND [42]	ND [34]	ND [41]	ND [42]	ND [34]	ND [41]	ND [35]
n-Nitrosopyrrolidine	SW8270D	µg/kg	NE	ND [140]	ND [140]	ND [130]	ND [140]	ND [120]	ND [130]	ND [140]	ND [130]	ND [130]	ND [130]	ND [130]	ND [170]	ND [130]	ND [160]	ND [170]	ND [130]	ND [160]	ND [140]
4,4'-DDD	SW8081B	µg/kg	7200	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
4,4'-DDE	SW8081B	µg/kg	5100	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	0.46 [0.45] J	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
4,4'-DDT	SW8081B	µg/kg	7300	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	4.2 [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Aldrin	SW8081B	µg/kg	70	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
alpha-BHC	SW8081B	µg/kg	6.4	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
alpha-Chlordane	SW8081B	µg/kg	2300	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
beta-BHC	SW8081B	µg/kg	22	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
delta-BHC	SW8081B	µg/kg	NE	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
Dieldrin	SW8081B	µg/kg	7.6	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
Endosulfan I	SW8081B	µg/kg	64000	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
Endosulfan II	SW8081B	µg/kg	64000	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Endosulfan sulfate	SW8081B	µg/kg	NE	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
Endrin	SW8081B	µg/kg	290	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Endrin aldehyde	SW8081B	µg/kg	NE	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Endrin ketone	SW8081B	µg/kg	NE	ND [26]	ND [28]	ND [26]	ND [28]	ND [27] QL	ND [28]	ND [29]	ND [26]	ND [28]	ND [27]	ND [26]	ND [33]	ND [26]	ND [32]	ND [32]	ND [27]	ND [33]	ND [27]
gamma-BHC (Lindane)	SW8081B	µg/kg	9.5	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
gamma-Chlordane	SW8081B	µg/kg	2300	ND [0.44]	ND [0.48]	ND [0.45]	ND [0.48]	ND [0.46] QL	ND [0.48]	ND [0.50]	ND [0.45]	ND [0.48]	ND [0.47]	ND [0.44]	ND [0.56]	ND [0.45]	ND [0.54]	ND [0.55]	ND [0.46]	ND [0.57]	ND [0.46]
Heptachlor	SW8081B	µg/kg	280	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Heptachlor epoxide	SW8081B	µg/kg	14	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Methoxychlor	SW8081B	µg/kg	23000	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
Toxaphene	SW8081B	µg/kg	3900	ND [0.66]	ND [0.72]	ND [0.67]	ND [0.71]	ND [0.69] QL	ND [0.72]	ND [0.75]	ND [0.67]	ND [0.72]	ND [0.70]	ND [0.66]	ND [0.84]	ND [0.67]	ND [0.81]	ND [0.83]	ND [0.69]	ND [0.85]	ND [0.70]
PCB-1016 (Aroclor 1016)	SW8082A	µg/kg		ND [9.6]	ND [10]	ND [9.8]	ND [10]	ND [10]	ND [10]	ND [11]	ND [9.8]	ND [10]	ND [10]	ND [9.6]	ND [12]	ND [9.7]	ND [12]	ND [12]	ND [10]	ND [12]	ND [10]
PCB-1221 (Aroclor 1221)	SW8082A	µg/kg		ND [19]	ND [21]	ND [20]	ND [21]	ND [20]	ND [21]	ND [22]	ND [20]	ND [21]	ND [20]	ND [19]	ND [24]	ND [19]	ND [24]	ND [24]	ND [20]	ND [25]	ND [20]
PCB-1232 (Aroclor 1232)	SW8082A	µg/kg		ND [14]	ND [16]	ND [15]	ND [16]	ND [15]	ND [16]	ND [16]	ND [15]	ND [16]	ND [15]	ND [14]	ND [18]	ND [15]	ND [18]	ND [18]	ND [15]	ND [18]	ND [15]
PCB-1242 (Aroclor 1242)	SW8082A	µg/kg	1000	ND [9.6]	ND [10]	ND [9.8]	ND [10]	ND [10]	ND [10]	ND [11]	ND [9.8]	ND [10]	ND [10]	ND [9.6]	ND [12]	ND [9.7]	ND [12]	ND [12]	ND [10]	ND [12]	ND [10]
PCB-1248 (Aroclor 1248)	SW8082A	µg/kg		ND [9.6]	ND [10]	ND [9.8]	ND [10]	ND [10]	ND [10]	ND [11]	ND [9.8]	ND [10]	ND [10]	ND [9.6]	ND [12]	ND [9.7]	ND [12]	ND [12]	ND [10]	ND [12]	ND [10]
PCB-1254 (Aroclor 1254)	SW8082A	µg/kg		ND [9.6]	ND [10]	ND [9.8]	ND [10]	ND [10]	ND [10]	ND [11]	ND [9.8]	ND [10]	ND [10]	ND [9.6]	ND [12]	ND [9.7]	ND [12]	ND [12]	ND [10]	ND [12]	ND [10]
PCB-1260 (Aroclor 1260)	SW8082A	µg/kg		ND [9.6]	ND [10]	ND [9.8]	ND [10]	ND [10]	ND [10]	ND [11]	ND [9.8]	ND [10]	ND [10]	ND [9.6]	ND [12]	ND [9.7]	ND [12]	ND [12]	ND [10]	ND [12]	ND [10]
Perfluorobutane Sulfonate (PFBS)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	0.48 [0.59] J	0.37 [0.60] J	ND [0.76]	0.92 [0.61]	0.28 [0.74] J	0.29 [0.73] J	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorobutyric acid (PFBTA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	0.25 [0.61] J	ND [0.74] Q	0.32 [0.73] J,Q	0.19 [0.62] J	ND [0.74]	ND [0.65]
Perfluorodecane Sulfonate (PFDCS)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	0.86 [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorododecanoic acid (PFDOA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	ND [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorohexanoic acid (PFHA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	1.2 [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	1.8 [0.59]	2.1 [0.60]	ND [0.76]	3.7 [0.61]	0.63 [0.74] J	0.55 [0.73] J	1.4 [0.62]	ND [0.74]	ND [0.65]
Perfluoroheptanoic acid (PFHPA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	0.71 [0.59] J	0.86 [0.60]	ND [0.76]	0.73 [0.61] J	ND [0.74]	ND [0.73]	0.17 [0.62] J	ND [0.74]	0.18 [0.65] J
Perfluorohexane Sulfonate (PFHXS)	DVLC012	µg/kg	NE	2.0 [0.60]	0.91 [0.64]	36 [0.61]	0.64 [0.62] J	0.65 [0.60] J	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	17 [0.59]	18 [0.60]	0.92 [0.76] J	14 [0.61]	1.0 [0.74]	ND [0.73]	1.0 [0.62]	ND [0.74]	1.4 [0.65]
Perfluorononanoic acid (PFNA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	0.62 [0.61] J	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorodecanoic acid (PFNDCA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	ND [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorooctanoic acid (PFOA)	DVLC012	µg/kg	142 / 2030 [2] (16000)[3]	ND [0.60]	ND [0.64]	15 [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	1.0 [0.59]	1.5 [0.60]	ND [0.76]	2.4 [0.61]	ND [0.74]	ND [0.73]	0.24 [0.62] J	ND [0.74]	0.40 [0.65] J
Perfluorooctane Sulfonate (PFOS)	DVLC012	µg/kg	571 / 3040 [2] (6000)[3]	5.3 [0.60]	ND [0.64]	58 [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	0.79 [0.59]	0.96 [0.60]	ND [0.76]	**710 [0.61]**	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	4.0 [0.65]
Perfluorooctane Sulfonamide (PFOSA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	0.11 [0.61] J	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	0.40 [0.61] J	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluoropentanoic acid (PFPA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	0.33 [0.60] J	ND [0.64]	0.83 [0.59]	1.3 [0.60]	ND [0.76]	1.6 [0.61]	0.60 [0.74] J	0.56 [0.73] J	3.7 [0.62]	ND [0.74]	ND [0.65]
Perfluorotetradecanoic acid (PFTEDA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	ND [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluorotridecanoic acid (PFTRIDA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	ND [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
Perfluoroundecanoic acid (PFUNDCA)	DVLC012	µg/kg	NE	ND [0.60]	ND [0.64]	ND [0.61]	ND [0.62]	ND [0.60]	ND [0.66]	ND [0.65]	ND [0.60]	ND [0.64]	ND [0.59]	ND [0.60]	ND [0.76]	ND [0.61]	ND [0.74]	ND [0.73]	ND [0.62]	ND [0.74]	ND [0.65]
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpC	SW8290A	pg/g	NE	0.67 [0.088] J	0.38 [0.076] J	0.22 [0.085] J	ND [0.088]	ND [0.14]	ND [0.14]	ND [0.15]	0.22 [0.052] J	0.26 [0.039] J,B	0.064[0.025]J,B,Q	5.6 [0.087] Q	ND [0.038]	0.069[0.031] J,B	ND [0.033]	ND [0.030]	0.46 [0.038] J,B	0.59[0.044] J,B	0.17[0.046] J,B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxins-C13	SW8290A	pg/g	NE	66 [0]	64 [0]	58 [0]	67 [0]	59 [0]	61 [0]	58 [0]	48 [0]	63 [0]	79 [0]	70 [0]	73 [0]	74 [0]	78 [0]	74 [0]	75 [0]	69 [0]	80 [0]
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	0.48 [0.084] J	0.30 [0.059] J	0.34 [0.058] J	0.15 [0.050] J	0.30 [0.075] J	0.12 [0.076] J,Q	0.30 [0.094] J,Q	1.3 [0.055] J,B	0.89 [0.035] J,B	0.23[0.022] J,B,Q	310 [0.24] Q	0.50 [0.038] J,B	0.30[0.024] J,B	0.35[0.030] J,B	0.54[0.033] J,B	0.33[0.024] J,B	0.82[0.035] J,B	0.60[0.051] J,B
1,2,3,4,6,7,8-Heptachlorodibenzofurans-C13	SW8290A	pg/g	NE	55 [0]	55 [0]	50 [0]	62 [0]	54 [0]	59 [0]	53 [0]	58 [0]	60 [0]	72 [0]	67 [0]	68 [0]	69 [0]	73 [0]	69 [0]	71 [0]	65 [0]	73 [0]
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	ND [0.099]	ND [0.071]	ND [0.069]	ND [0.060]	ND [0.089]	ND [0.090]	ND [0.11]	ND [0.066]	ND [0.042]	ND [0.026] Q	9.5 [0.29] Q	ND [0.045]	ND [0.028]	ND [0.035]	ND [0.039]	ND [0.028]	ND [0.041]	ND [0.060]
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCD	SW8290A	pg/g	NE	ND [0.061]	ND [0.065]	ND [0.048]	ND [0.069]	ND [0.082]	ND [0.071]	ND [0.12]	ND [0.043]	ND [0.048]	ND [0.027] Q	0.22[0.039]J,Q	ND [0.034]	ND [0.027]	ND [0.030]	ND [0.033]	ND [0.029]	ND [0.030]	ND [0.054]
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.12]	ND [0.042]	ND [0.056]	ND [0.057]	ND [0.051]	ND [0.074]	ND [0.095]	0.24 [0.050] J,B	0.21 [0.032] J,B	0.077[0.024]J,B,Q	93 [0.11] Q	0.20[0.035] J,B	0.098[0.023] J,B	0.17[0.027] J,B	0.14[0.030] J,B	ND [0.024]	0.36[0.029] J,B	0.29[0.047] J,B
1,2,3,4,7,8-Hexachlorodibenzofuran-C13	SW8290A	pg/g	NE	56 [0]	54 [0]	50 [0]	59 [0]	56 [0]	58 [0]	56 [0]	64 [0]	51 [0]	65 [0]	57 [0]	61 [0]	59 [0]	66 [0]	62 [0]	61 [0]	56 [0]	66 [0]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/[1,2] EPA Screening Level[3]	13FWFP39SO	13FWFP40SO	13FWFP41SO	13FWFP42SO	13FWFP43SO	13FWFP44SO	13FWFP45SO
Boring ID				AP-10278	AP-10278	AP-10279	AP-10279	AP-10280	AP-10280	AP-10280
Location ID				BH1805	BH1812	BH1906	BH1915	BH2005	BH2016	BH20
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48971-8	48971-9	48971-12	48971-13	48971-15	48971-16	48971-17
Collect Date				11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013	11/02/2013
Matrix				SO	SO	SO	SO	SO	SO	SO
Sample Type				Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.049]	ND [0.052]	ND [0.039]	ND [0.056]	ND [0.066]	ND [0.057]	ND [0.097]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	75 [0]	74 [0]	72 [0]	80 [0]	78 [0]	77 [0]	77 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.044]	ND [0.035]	ND [0.047]	ND [0.047]	ND [0.042]	ND [0.061]	ND [0.079]
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.048]	ND [0.051]	ND [0.037]	ND [0.054]	ND [0.064]	ND [0.055]	ND [0.094]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.055]	ND [0.044]	ND [0.058]	ND [0.059]	ND [0.053]	ND [0.077]	ND [0.099]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.15]	ND [0.14]	ND [0.12]	ND [0.20]	ND [0.22]	ND [0.25]	ND [0.24]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	74 [0]	76 [0]	64 [0]	68 [0]	65 [0]	63 [0]	61 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.091]	ND [0.11]	ND [0.069]	ND [0.12]	ND [0.16]	ND [0.19]	ND [0.21]
1,2,3,7,8-Pentachlorodibenzofurans-C13	SW8290A	pg/g	NE	67 [0]	65 [0]	59 [0]	63 [0]	58 [0]	57 [0]	57 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.050]	ND [0.039]	ND [0.052]	ND [0.053]	ND [0.047]	ND [0.069]	ND [0.089]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.096]	ND [0.11]	ND [0.073]	ND [0.12]	ND [0.17]	ND [0.20]	ND [0.22]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	SW8290A	pg/g	47	ND [0.082]	ND [0.079]	ND [0.089]	ND [0.093]	ND [0.10]	ND [0.13]	ND [0.15]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	73 [0]	71 [0]	63 [0]	76 [0]	72 [0]	70 [0]	71 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	SW8290A	pg/g	NE	ND [0.091]	ND [0.082]	ND [0.074]	ND [0.12]	ND [0.13]	ND [0.13]	ND [0.17]
2,3,7,8-Tetrachlorodibenzofuran-C13	SW8290A	pg/g	NE	70 [0]	66 [0]	63 [0]	73 [0]	69 [0]	69 [0]	67 [0]
Octachlorodibenzo-p-dioxin (OCDD)	SW8290A	pg/g	NE	5.9 [0.16] J	1.9 [0.089] J	1.9 [0.15] J	0.089[0.075] J	ND [0.14]	ND [0.17]	ND [0.24]
Octachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	60 [0]	57 [0]	53 [0]	64 [0]	51 [0]	56 [0]	50 [0]
Octachlorodibenzofuran (OCDF)	SW8290A	pg/g	NE	0.50[0.12] J,B	0.41[0.11] J,B	0.33[0.11] J,B	ND [0.093]	ND [0.22]	ND [0.14]	ND [0.28]
Total Heptachlorodibenzo-p-dioxins (HpCDD)	SW8290A	pg/g	NE	1.3[0.088] J,B	0.69[0.076] J,B	0.53[0.085] J,B	ND [0.12]	ND [0.14]	ND [0.14]	ND [0.15]
Total Heptachlorodibenzofurans (HpCDF)	SW8290A	pg/g	NE	0.48[0.092] J	0.30 [0.065] J	0.34 [0.063] J	0.15[0.055] J	0.30[0.082] J	0.12[0.083] J,Q	0.30 [0.10] J,Q
Total Hexachlorodibenzo-p-dioxins (HxCDD)	SW8290A	pg/g	NE	ND [0.061]	ND [0.065]	ND [0.048]	ND [0.069]	0.17[0.070] J	ND [0.071]	ND [0.12]
Total Hexachlorodibenzofurans (HxCDF)	SW8290A	pg/g	NE	ND [0.12]	ND [0.044]	ND [0.058]	ND [0.059]	ND [0.053]	ND [0.077]	ND [0.099]
Total Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.15]	ND [0.14]	ND [0.12]	ND [0.20]	ND [0.22]	ND [0.25]	ND [0.24]
Total Pentachlorodibenzofurans (PeCDF)	SW8290A	pg/g	NE	ND [0.096]	ND [0.11]	ND [0.073]	ND [0.12]	ND [0.17]	ND [0.20]	ND [0.22]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	SW8290A	pg/g	NE	ND [0.082]	ND [0.079]	ND [0.094]	ND [0.093]	ND [0.10]	ND [0.13]	ND [0.15]
Total Tetrachlorodibenzofurans (TCDF)	SW8290A	pg/g	NE	ND [0.091]	ND [0.082]	ND [0.14]	ND [0.12]	ND [0.13]	ND [0.13]	ND [0.17]
Total Dioxin/Furan TEQ	SW8290A	pg/g	47 [4,5]	0.013	0.0075	0.0063	0.0015	0.003	0.0012	0.003

Sample ID	13FWFP46SO	13FWFP47SO	13FWFP48SO	13FWFP49SO	13FWFP50SO	13FWFP51SO	13FWFP52SO	13FWFP53SO	13FWFP54SO	13FWFP55SO	13FWFP56SO
Boring ID	AP-10281	AP-10281	AP-10282	AP-10282	AP-10282	AP-10283	AP-10283	AP-10283	AP-10284	AP-10284	AP-10285
Location ID	BH2105	BH2117	BH2206	BH22	BH2216	BH2306	BH2315	BH23	BH2406	BH2415	BH2506
Laboratory	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID	48964-2	48964-3	48964-5	48964-6	48964-7	48964-9	48964-10	48964-11	48964-13	48964-14	48964-16
Collect Date	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013
Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary	Field Duplicate	Primary	Primary	Primary
Analyte	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	ND [0.032]	ND [0.034]	ND [0.019] Q	0.58[0.028] J,Q	ND [0.024]	ND [0.019]	ND [0.021]	ND [0.023]	ND [0.021]	ND [0.021]	ND [0.038]
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	60 [0]	50 [0]	65 [0]	57 [0]	62 [0]	64 [0]	67 [0]	63 [0]	63 [0]	56 [0]	65 [0]
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ND [0.038]	ND [0.024]	0.032[0.018] J,Q	13 [0.082] Q	0.082 [0.026] J	0.057 [0.017] J	0.11[0.020] J,Q	ND [0.022] Q	ND [0.041]	ND [0.022]	ND [0.088]
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	ND [0.030]	ND [0.035]	ND [0.019] Q	0.37[0.028] J,Q	ND [0.025]	ND [0.020]	ND [0.026]	ND [0.024]	ND [0.021]	0.14 [0.022] J	ND [0.039]
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ND [0.049]	ND [0.031]	ND [0.023] Q	ND [0.11] Q	ND [0.034]	ND [0.023]	ND [0.026]	ND [0.029]	ND [0.023]	ND [0.028]	ND [0.045]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	ND [0.058]	ND [0.048]	ND [0.031] Q	0.18[0.045] J,Q	ND [0.045]	ND [0.033]	ND [0.037]	ND [0.042]	ND [0.037]	ND [0.039]	ND [0.065]
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	58 [0]	49 [0]	62 [0]	57 [0]	59 [0]	59 [0]	62 [0]	62 [0]	60 [0]	57 [0]	64 [0]
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ND [0.050]	ND [0.039]	ND [0.026] Q	0.75[0.071] J,Q	ND [0.039]	ND [0.029]	ND [0.032]	ND [0.032]	ND [0.025]	ND [0.038]	ND [0.053]
1,2,3,7,8-Pentachlorodibenzofurans-C13	61 [0]	47 [0]	61 [0]	55 [0]	58 [0]	58 [0]	61 [0]	59 [0]	58 [0]	55 [0]	61 [0]
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ND [0.043]	0.051 [0.028] J	ND [0.021] Q	3.9 [0.096] J,Q	ND [0.031]	ND [0.020]	ND [0.023]	ND [0.026]	ND [0.021]	ND [0.026]	ND [0.041]
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND [0.052]	ND [0.041]	ND [0.027] Q	5.5 [0.074] Q	ND [0.041]	ND [0.030]	ND [0.034]	ND [0.034]	ND [0.026]	ND [0.035]	ND [0.055]
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND [0.040]	ND [0.039]	ND [0.026]	ND [0.033]	ND [0.034]	ND [0.025]	ND [0.032]	ND [0.037]	ND [0.027]	ND [0.034]	ND [0.050]
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	57 [0]	50 [0]	64 [0]	59 [0]	62 [0]	63 [0]	64 [0]	61 [0]	63 [0]	58 [0]	68 [0]
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND [0.028]	ND [0.032]	ND [0.020] Q	ND [0.15] Q	ND [0.025]	ND [0.023]	ND [0.026]	ND [0.024]	ND [0.020]	ND [0.027]	ND [0.034]
2,3,7,8-Tetrachlorodibenzofuran-C13	64 [0]	45 [0]	58 [0]	61 [0]	55 [0]	56 [0]	58 [0]	56 [0]	56 [0]	53 [0]	59 [0]
Octachlorodibenzo-p-dioxin (OCDD)	0.74[0.059] J,B	2.5 [0.061] J,B	0.26 [0.033] J,B,Q	65 [0.14] Q	0.37[0.047] J,B	1.1 [0.038] J,B	0.42 [0.045] J,B	0.52 [0.051] J,B	3.2[0.052] J,B	3.4 [0.057] J,B	0.81 [0.068] J,B
Octachlorodibenzo-p-dioxin-C13	45 [0]	67 [0]	80 [0]	71 [0]	72 [0]	75 [0]	79 [0]	75 [0]	75 [0]	72 [0]	81 [0]
Octachlorodibenzofuran (OCDF)	0.96[0.11] J,B	0.55 [0.063] J,B	ND [0.039] Q	530 [0.40] Q	0.39[0.065]J,B	0.73[0.049] J,B	0.12[0.062]J,B,Q	0.36[0.063]J,B,Q	0.34[0.047] J,B	0.97[0.051] J,B	0.71[0.083] J,B
Total Heptachlorodibenzo-p-dioxins (HpCDD)	0.78 [0.052] J,B	0.52 [0.039] J,B	0.17[0.025] J,B,Q	12 [0.087] Q	0.12[0.038]J,B	0.21[0.031] J,B	0.14 [0.033] J,B	0.12 [0.030] J,B	0.91[0.038] J,B	1.4 [0.044] J,B	0.40[0.046] J,B
Total Heptachlorodibenzofurans (HpCDF)	1.3 [0.060] J,B	0.89 [0.038] J,B	0.23[0.024] J,B,Q	360 [0.26] Q	0.50[0.041]J,B	0.30[0.026] J,B	0.35 [0.032] J,B	0.54 [0.036] J,B	0.40[0.026] J,B	1.1 [0.038] J,B	0.60[0.056] J,B
Total Hexachlorodibenzo-p-dioxins (HxCDD)	ND [0.043]	ND [0.048]	ND [0.027] Q	4.4[0.032] J,Q	ND [0.034]	ND [0.027]	ND [0.030]	ND [0.033]	ND [0.094]	0.22 [0.024] J	0.084[0.044] J
Total Hexachlorodibenzofurans (HxCDF)	0.24[0.045] J,B	0.26 [0.029] J,B	0.11[0.021] J,B,Q	160 [0.099] Q	0.33[0.032]J,B	0.16[0.021] J,B	0.62[0.024]J,B,Q	0.14[0.027]J,B,Q	ND [0.041]	0.46[0.026]J,B	0.29[0.055] J,B
Total Pentachlorodibenzo-p-dioxin (PeCDD)	ND [0.058]	ND [0.048]	ND [0.057] Q	1.8[0.045] J,Q	ND [0.045]	ND [0.033]	ND [0.037]	ND [0.042]	ND [0.037]	ND [0.039]	ND [0.065]
Total Pentachlorodibenzofurans (PeCDF)	ND [0.052]	ND [0.041]	ND [0.027] Q	32 [0.072] Q	ND [0.041]	ND [0.030]	0.11[0.033] J,Q	ND [0.034] Q	ND [0.026]	0.11 [0.036] J	ND [0.055]
Total Tetrachlorodibenzo-p-dioxins (TCDD)	ND [0.040]	0.22 [0.039] J	0.045[0.026] J,Q	0.32[0.033]J,Q	0.12[0.034] J	0.11 [0.025] J	ND [0.032] Q	0.22 [0.037] J,Q	0.061[0.027] J	0.27 [0.034] J	0.31[0.050] J
Total Tetrachlorodibenzofurans (TCDF)	ND [0.028]	ND [0.032]	ND [0.020] Q	4.4 [0.033] Q	ND [0.025]	ND [0.023]	0.099[0.026]J,Q	ND [0.024] Q	0.054[0.020] J	ND [0.027]	ND [0.034]
Total Dioxin/Furan TEQ	0.04	0.039	0.014	16	0.033	0.02	0.032	0.02	0.009	0.065	0.037

Yellow highlighted and **bolded** results exceed ADEC soil cleanup levels (most stringent pathway).

Green highlighted results exceed ADEC's proposed migration to groundwater cleanup level (applies to PFOA or PFOS only).

Grey highlighted results are non-detect with LODs above cleanup levels.

[1] Cleanup levels are from ADEC Title 18, Alaska Administrative Code, Section 75.341, Tables B1 and B2 (ADEC, 2012).

[2] Proposed cleanup levels for PFOA and PFOS (migration to groundwater / human health) are from the Public Comment Draft of 18 AAC 75 dated August 26, 2015.

[3] EPA Region 4 Residential Soil Screening Levels from "Soil Screening Levels for Perfluorooctanoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)"

[4] Total TEQs are presented for each sample (none of which exceed the ADEC cleanup level). Analyte-specific TEQs are presented in the associated laboratory reports. Total TEQ = $\Sigma(C_i * TEF_i)$

[5] TEFs (used to calculate TEQs) are established from the World Health Organization (WHO, 2005).

LOD - limit of detection
LOQ - limit of quantitation
µg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
NA - not applicable
NE - not established
PFC - perfluorinated compounds
pg/g - picograms per gram
QC - quality control
SO - subsurface soil matrix
SQ - soil QC
TADC - TestAmerica Laboratories of Denver, CO
TEF - toxicity equivalency factor
TEQ - toxicity equivalence, where Total TEQ = $\Sigma(C_i * TEF_i)$

Data Qualifiers:
B - result may be due to cross-contamination
J - result qualified as estimate because it is less than the LOQ
M - result considered an estimate (L - low; H - high) due to matrix interference
ND - non-detect (LOD in parentheses)
Q - result considered an estimate (L - low; H - high) due to a QC failure
R - result rejected due to QC issue

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

			ADEC Cleanup Level/ [1,2] EPA Screening Level [3]						
Sample ID				13FWFP57SO	13M27SQ	13M28SQ	13M29SQ	13M30SQ	13M31SQ
Boring ID				AP-10285	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Location ID				BH2515	NA	NA	NA	NA	NA
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48964-17	48825-18	48840-18	48809-8	48971-18	48964-18
Collect Date				11/04/2013	10/31/2013	10/31/2013	11/01/2013	11/02/2013	11/04/2013
Matrix				SO	SQ	SQ	SQ	SQ	SQ
Sample Type				Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Gasoline Range Organics (C6-C10)	AK101	mg/kg	300	ND [0.41]	5.70 [0.91]	1.50 [0.88]	1.00 [0.88] J	4.60 [0.90]	0.60[0.88] J
Diesel Range Organics (C10-C25)	AK102	mg/kg	250	ND [2.0]	-	-	-	-	-
Residual Range Organics (C25-C36)	AK103	mg/kg	11000	ND [9.9]	-	-	-	-	-
Arsenic	SW6020A	µg/kg	3900	**8800 [140]**	-	-	-	-	-
Barium	SW6020A	µg/kg	1100000	40000 [180]	-	-	-	-	-
Cadmium	SW6020A	µg/kg	5000	59 [23] J	-	-	-	-	-
Chromium	SW6020A	µg/kg	25000	5700 [160]	-	-	-	-	-
Lead	SW6020A	µg/kg	400000	6900 [45]	-	-	-	-	-
Selenium	SW6020A	µg/kg	3400	120 [230] J	-	-	-	-	-
Silver	SW6020A	µg/kg	11200	44 [54] J	-	-	-	-	-
Mercury	SW7471B	µg/kg	1400	ND [15]	-	-	-	-	-
1,1,1,2-Tetrachloroethane	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1,1-Trichloroethane	SW8260B	µg/kg	820	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1,2,2-Tetrachloroethane	SW8260B	µg/kg	17	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1,2-Trichloroethane	SW8260B	µg/kg	18	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1-Dichloroethane	SW8260B	µg/kg	25000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1-Dichloroethene	SW8260B	µg/kg	30	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,1-Dichloropropene	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2,3-Trichlorobenzene	SW8260B	µg/kg	NE	ND [15]	ND [33]	ND [30]	ND [33]	ND [33]	ND [33]
1,2,3-Trichloropropane	SW8260B	µg/kg	0.53	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2,4-Trichlorobenzene	SW8260B	µg/kg	850	ND [10]	12 [22] J	ND [20]	ND [22]	ND [22]	ND [22]
1,2,4-Trimethylbenzene	SW8260B	µg/kg	23000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2-Dibromo-3-chloropropane	SW8260B	µg/kg	NE	ND [51]	ND [110]	ND [100]	ND [110]	ND [110]	ND [110]
1,2-Dibromoethane	SW8260B	µg/kg	0.16	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2-Dichlorobenzene	SW8260B	µg/kg	5100	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2-Dichloroethane	SW8260B	µg/kg	16	ND [8.1]	ND [18]	ND [16]	ND [17]	ND [18]	ND [17]
1,2-Dichloroethene, Total	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2-Dichloropropane	SW8260B	µg/kg	18	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,3,5-Trimethylbenzene	SW8260B	µg/kg	23000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,3-Dichlorobenzene	SW8260B	µg/kg	28000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,3-Dichloropropane	SW8260B	µg/kg	33	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,4-Dichlorobenzene	SW8260B	µg/kg	640	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
2,2-Dichloropropane	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
2-Butanone	SW8260B	µg/kg	59000	ND [41]	ND [89]	ND [80]	ND [87]	ND [88]	ND [87]
2-Chlorotoluene	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
2-Hexanone	SW8260B	µg/kg	NE	ND [41]	ND [89]	ND [80]	ND [87]	ND [88]	ND [87]
4-Chlorotoluene	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
4-Isopropyltoluene	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
4-Methyl-2-pentanone	SW8260B	µg/kg	8100	ND [41]	ND [89]	ND [80]	ND [87]	ND [88]	ND [87]
Acetone	SW8260B	µg/kg	88000	ND [100]	ND [220]	ND [200]	ND [220]	ND [220]	ND [220]
Benzene	SW8260B	µg/kg	25	ND [4.1]	ND [8.9]	ND [8.0]	ND [8.7]	ND [8.8]	ND [8.7]
Bromobenzene	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Bromochloromethane	SW8260B	µg/kg	NE	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Bromodichloromethane	SW8260B	µg/kg	44	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Bromoform	SW8260B	µg/kg	340	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Bromomethane	SW8260B	µg/kg	160	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Carbon disulfide	SW8260B	µg/kg	12000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Carbon tetrachloride	SW8260B	µg/kg	23	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Chlorobenzene	SW8260B	µg/kg	630	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Chloroethane	SW8260B	µg/kg	580000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Chloroform	SW8260B	µg/kg	460	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Chloromethane	SW8260B	µg/kg	210	ND [13]	ND [28]	ND [25]	ND [27]	ND [28]	ND [27]
Dibromochloromethane	SW8260B	µg/kg	32	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Dibromomethane	SW8260B	µg/kg	1100	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Dichlorodifluoromethane	SW8260B	µg/kg	140000	ND [20]	ND [45]	ND [40]	ND [43]	ND [44]	ND [43]
Ethylbenzene	SW8260B	µg/kg	6900	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Hexachlorobutadiene	SW8260B	µg/kg	120	ND [10]	22 [22] J	ND [20]	ND [22]	ND [22]	ND [22]
Isopropylbenzene	SW8260B	µg/kg	51000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Methyl-tert-butyl ether (MTBE)	SW8260B	µg/kg	1300	ND [51]	ND [110]	ND [100]	ND [110]	ND [110]	ND [110]
Methylene chloride	SW8260B	µg/kg	16	ND [20]	ND [45]	ND [40]	ND [43]	ND [44]	ND [43]
Naphthalene	SW8260B	µg/kg	20000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Styrene	SW8260B	µg/kg	960	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Tetrachloroethene (PCE)	SW8260B	µg/kg	24	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Toluene	SW8260B	µg/kg	6500	ND [10]	ND [22]	ND [20]	10 [22] J	8.7[22] J,B	ND [22]
Trichloroethene (TCE)	SW8260B	µg/kg	20	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Trichlorofluoromethane	SW8260B	µg/kg	86000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
Vinyl chloride	SW8260B	µg/kg	8.5	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP57SO	13M27SQ	13M28SQ	13M29SQ	13M30SQ	13M31SQ
Boring ID				AP-10285	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Location ID				BH2515	NA	NA	NA	NA	NA
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48964-17	48825-18	48840-18	48809-8	48971-18	48964-18
Collect Date				11/04/2013	10/31/2013	10/31/2013	11/01/2013	11/02/2013	11/04/2013
Matrix				SO	SQ	SQ	SQ	SQ	SQ
Sample Type				Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Xylene, Isomers m & p	SW8260B	µg/kg	63000	ND [20]	ND [45]	ND [40]	ND [43]	ND [44]	ND [43]
cis-1,2-Dichloroethene	SW8260B	µg/kg	240	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
cis-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
n-Butylbenzene	SW8260B	µg/kg	15000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
n-Propylbenzene	SW8260B	µg/kg	15000	ND [15]	ND [33]	ND [30]	ND [33]	ND [33]	ND [33]
o-Xylene	SW8260B	µg/kg	63000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
sec-Butylbenzene	SW8260B	µg/kg	12000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
tert-Butylbenzene	SW8260B	µg/kg	12000	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
trans-1,2-Dichloroethene	SW8260B	µg/kg	370	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
trans-1,3-Dichloropropene	SW8260B	µg/kg	33	ND [10]	ND [22]	ND [20]	ND [22]	ND [22]	ND [22]
1,2,4-Trichlorobenzene	SW8270D	µg/kg	850	ND [33]	-	-	-	-	-
1,2-Dichlorobenzene	SW8270D	µg/kg	5100	ND [33]	-	-	-	-	-
1,2-Diphenylhydrazine	SW8270D	µg/kg	28000	ND [33]	-	-	-	-	-
1,3-Dichlorobenzene	SW8270D	µg/kg	22000	ND [33]	-	-	-	-	-
1,4-Dichlorobenzene	SW8270D	µg/kg	6200	ND [33]	-	-	-	-	-
2,4,5-Trichlorophenol	SW8270D	µg/kg	67000	ND [130]	-	-	-	-	-
2,4,6-Trichlorophenol	SW8270D	µg/kg	1400	ND [67]	-	-	-	-	-
2,4-Dichlorophenol	SW8270D	µg/kg	1300	ND [67]	-	-	-	-	-
2,4-Dimethylphenol	SW8270D	µg/kg	8800	ND [130]	-	-	-	-	-
2,4-Dinitrophenol	SW8270D	µg/kg	540	ND [680]	-	-	-	-	-
2,4-Dinitrotoluene	SW8270D	µg/kg	9.3	ND [130]	-	-	-	-	-
2,6-Dichlorophenol	SW8270D	µg/kg	NE	ND [130]	-	-	-	-	-
2,6-Dinitrotoluene	SW8270D	µg/kg	9.4	ND [67]	-	-	-	-	-
2-Chloronaphthalene	SW8270D	µg/kg	120000	ND [33]	-	-	-	-	-
2-Chlorophenol	SW8270D	µg/kg	1500	ND [33]	-	-	-	-	-
2-Methyl-4,6-dinitrophenol	SW8270D	µg/kg	NE	ND [670]	-	-	-	-	-
2-Methylnaphthalene	SW8270D	µg/kg	6100	ND [33]	-	-	-	-	-
2-Methylphenol (o-Cresol)	SW8270D	µg/kg	15000	ND [33]	-	-	-	-	-
2-Nitroaniline	SW8270D	µg/kg	NE	ND [67]	-	-	-	-	-
2-Nitrophenol	SW8270D	µg/kg	NE	ND [67]	-	-	-	-	-
3,3'-Dichlorobenzidine	SW8270D	µg/kg	190	ND [330]	-	-	-	-	-
3-Methylphenol/4-Methylphenol Coelution	SW8270D	µg/kg	1500	ND [67]	-	-	-	-	-
3-Nitroaniline	SW8270D	µg/kg	NE	ND [130]	-	-	-	-	-
4-Bromophenyl phenyl ether	SW8270D	µg/kg	NE	ND [33]	-	-	-	-	-
4-Chloro-3-methylphenol	SW8270D	µg/kg	NE	ND [130]	-	-	-	-	-
4-Chloroaniline	SW8270D	µg/kg	57	ND [130]	-	-	-	-	-
4-Chlorophenyl phenyl ether	SW8270D	µg/kg	NE	ND [67]	-	-	-	-	-
4-Nitroaniline	SW8270D	µg/kg	NE	ND [130]	-	-	-	-	-
4-Nitrophenol	SW8270D	µg/kg	NE	ND [330]	-	-	-	-	-
Acenaphthene	SW8270D	µg/kg	180000	ND [17]	-	-	-	-	-
Acenaphthylene	SW8270D	µg/kg	180000	ND [33]	-	-	-	-	-
Anthracene	SW8270D	µg/kg	3000000	ND [33]	-	-	-	-	-
Benzidine	SW8270D	µg/kg	NE	ND [4000]	-	-	-	-	-
Benzo(a)anthracene	SW8270D	µg/kg	3600	ND [33]	-	-	-	-	-
Benzo(a)pyrene	SW8270D	µg/kg	2100	ND [33]	-	-	-	-	-
Benzo(b)fluoranthene	SW8270D	µg/kg	12000	ND [33]	-	-	-	-	-
Benzo(g,h,i)perylene	SW8270D	µg/kg	38700000	ND [33]	-	-	-	-	-
Benzo(k)fluoranthene	SW8270D	µg/kg	120000	ND [67]	-	-	-	-	-
Benzoic acid	SW8270D	µg/kg	410000	ND [670]	-	-	-	-	-
Benzyl alcohol	SW8270D	µg/kg	NE	ND [33]	-	-	-	-	-
Benzyl butyl phthalate	SW8270D	µg/kg	920000	ND [67]	-	-	-	-	-
Carbazole	SW8270D	µg/kg	6500	ND [68]	-	-	-	-	-
Chrysene	SW8270D	µg/kg	360000	ND [33]	-	-	-	-	-
Di-n-butyl phthalate	SW8270D	µg/kg	80000	ND [33]	-	-	-	-	-
Di-n-octyl phthalate	SW8270D	µg/kg	3800000	ND [67]	-	-	-	-	-
Dibenzo(a,h)anthracene	SW8270D	µg/kg	4000	ND [33]	-	-	-	-	-
Dibenzofuran	SW8270D	µg/kg	11000	ND [33]	-	-	-	-	-
Diethyl phthalate	SW8270D	µg/kg	130000	ND [33]	-	-	-	-	-
Dimethyl phthalate	SW8270D	µg/kg	1100000	ND [33]	-	-	-	-	-
Fluoranthene	SW8270D	µg/kg	1400000	ND [67]	-	-	-	-	-
Fluorene	SW8270D	µg/kg	220000	ND [33]	-	-	-	-	-
Hexachlorobenzene	SW8270D	µg/kg	47	ND [67]	-	-	-	-	-
Hexachlorobutadiene	SW8270D	µg/kg	120	ND [67]	-	-	-	-	-
Hexachloroethane	SW8270D	µg/kg	210	ND [33]	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	SW8270D	µg/kg	41000	ND [33]	-	-	-	-	-
Isophorone	SW8270D	µg/kg	3100	ND [33]	-	-	-	-	-
Naphthalene	SW8270D	µg/kg	20000	ND [67]	-	-	-	-	-
Nitrobenzene	SW8270D	µg/kg	94	ND [33]	-	-	-	-	-

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

Sample ID			ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP57SO	13M27SQ	13M28SQ	13M29SQ	13M30SQ	13M31SQ
Boring ID				AP-10285	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Location ID				BH2515	NA	NA	NA	NA	NA
Laboratory				TADC	TADC	TADC	TADC	TADC	TADC
Lab Sample ID				48964-17	48825-18	48840-18	48809-8	48971-18	48964-18
Collect Date				11/04/2013	10/31/2013	10/31/2013	11/01/2013	11/02/2013	11/04/2013
Matrix				SO	SQ	SQ	SQ	SQ	SQ
Sample Type				Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
Pentachlorophenol	SW8270D	µg/kg	47	ND [680]	-	-	-	-	-
Phenanthrene	SW8270D	µg/kg	3000000	ND [33]	-	-	-	-	-
Phenol	SW8270D	µg/kg	68000	ND [33]	-	-	-	-	-
Pyrene	SW8270D	µg/kg	1000000	ND [33]	-	-	-	-	-
bis(2-Chloroisopropyl)ether	SW8270D	µg/kg	NE	ND [33]	-	-	-	-	-
bis-(2-Chloroethoxy)methane	SW8270D	µg/kg	NE	ND [67]	-	-	-	-	-
bis-(2-Chloroethyl)ether	SW8270D	µg/kg	2.2	ND [33]	-	-	-	-	-
bis-(2-Ethylhexyl)phthalate	SW8270D	µg/kg	13000	ND [67]	-	-	-	-	-
n-Nitrosodi-n-propylamine	SW8270D	µg/kg	1.1	ND [67]	-	-	-	-	-
n-Nitrosodimethylamine	SW8270D	µg/kg	0.053	ND [67]	-	-	-	-	-
n-Nitrosodiphenylamine	SW8270D	µg/kg	15000	ND [33]	-	-	-	-	-
n-Nitrosopyrrolidine	SW8270D	µg/kg	NE	ND [130]	-	-	-	-	-
4,4'-DDD	SW8081B	µg/kg	7200	ND [0.70]	-	-	-	-	-
4,4'-DDE	SW8081B	µg/kg	5100	ND [0.47]	-	-	-	-	-
4,4'-DDT	SW8081B	µg/kg	7300	ND [0.70]	-	-	-	-	-
Aldrin	SW8081B	µg/kg	70	ND [0.47]	-	-	-	-	-
alpha-BHC	SW8081B	µg/kg	6.4	ND [0.47]	-	-	-	-	-
alpha-Chlordane	SW8081B	µg/kg	2300	ND [0.47]	-	-	-	-	-
beta-BHC	SW8081B	µg/kg	22	ND [0.47]	-	-	-	-	-
delta-BHC	SW8081B	µg/kg	NE	ND [0.47]	-	-	-	-	-
Dieldrin	SW8081B	µg/kg	7.6	ND [0.47]	-	-	-	-	-
Endosulfan I	SW8081B	µg/kg	64000	ND [0.47]	-	-	-	-	-
Endosulfan II	SW8081B	µg/kg	64000	ND [0.70]	-	-	-	-	-
Endosulfan sulfate	SW8081B	µg/kg	NE	ND [0.47]	-	-	-	-	-
Endrin	SW8081B	µg/kg	290	ND [0.70]	-	-	-	-	-
Endrin aldehyde	SW8081B	µg/kg	NE	ND [0.70]	-	-	-	-	-
Endrin ketone	SW8081B	µg/kg	NE	ND [27]	-	-	-	-	-
gamma-BHC (Lindane)	SW8081B	µg/kg	9.5	ND [0.47]	-	-	-	-	-
gamma-Chlordane	SW8081B	µg/kg	2300	ND [0.47]	-	-	-	-	-
Heptachlor	SW8081B	µg/kg	280	ND [0.70]	-	-	-	-	-
Heptachlor epoxide	SW8081B	µg/kg	14	ND [0.70]	-	-	-	-	-
Methoxychlor	SW8081B	µg/kg	23000	ND [0.70]	-	-	-	-	-
Toxaphene	SW8081B	µg/kg	3900	ND [0.70]	-	-	-	-	-
PCB-1016 (Aroclor 1016)	SW8082A	µg/kg		ND [10]	-	-	-	-	-
PCB-1221 (Aroclor 1221)	SW8082A	µg/kg		ND [20]	-	-	-	-	-
PCB-1232 (Aroclor 1232)	SW8082A	µg/kg		ND [15]	-	-	-	-	-
PCB-1242 (Aroclor 1242)	SW8082A	µg/kg	1000	ND [10]	-	-	-	-	-
PCB-1248 (Aroclor 1248)	SW8082A	µg/kg		ND [10]	-	-	-	-	-
PCB-1254 (Aroclor 1254)	SW8082A	µg/kg		ND [10]	-	-	-	-	-
PCB-1260 (Aroclor 1260)	SW8082A	µg/kg		ND [10]	-	-	-	-	-
Perfluorobutane Sulfonate (PFBS)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorobutyric acid (PFBTA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorodecane Sulfonate (PFDCS)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorododecanoic acid (PFDOA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorohexanoic acid (PFHA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluoroheptanoic acid (PFHPA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorohexane Sulfonate (PFHXS)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorononanoic acid (PFNA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorodecanoic acid (PFNDCA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	DVLC012	µg/kg	142 / 2030 [2] (16000)[3]	ND [0.59]	-	-	-	-	-
Perfluorooctane Sulfonate (PFOS)	DVLC012	µg/kg	571 / 3040 [2] (6000)[3]	ND [0.59]	-	-	-	-	-
Perfluorooctane Sulfonamide (PFOSA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluoropentanoic acid (PFPA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorotetradecanoic acid (PFTEDA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluorotridecanoic acid (PFTRIDA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
Perfluoroundecanoic acid (PFUNDCA)	DVLC012	µg/kg	NE	ND [0.59]	-	-	-	-	-
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (Hp(	SW8290A	pg/g	NE	ND [0.028]	-	-	-	-	-
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxins-C13	SW8290A	pg/g	NE	79 [0]	-	-	-	-	-
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	0.34[0.027] J,B	-	-	-	-	-
1,2,3,4,6,7,8-Heptachlorodibenzofurans-C13	SW8290A	pg/g	NE	71 [0]	-	-	-	-	-
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	SW8290A	pg/g	NE	ND [0.032]	-	-	-	-	-
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.025]	-	-	-	-	-
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	0.069[0.024] J,B	-	-	-	-	-
1,2,3,4,7,8-Hexachlorodibenzofuran-C13	SW8290A	pg/g	NE	64 [0]	-	-	-	-	-

Table A-4 Subsurface Soil Sample Results
Fire Training Pits Investigation
Fort Wainwright, Alaska

		Sample ID	ADEC Cleanup Level/ [1,2] EPA Screening Level[3]	13FWFP57SO	13M27SQ	13M28SQ	13M29SQ	13M30SQ	13M31SQ
		Boring ID		AP-10285	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
		Location ID		BH2515	NA	NA	NA	NA	NA
		Laboratory		TADC	TADC	TADC	TADC	TADC	TADC
		Lab Sample ID		48964-17	48825-18	48840-18	48809-8	48971-18	48964-18
		Collect Date		11/04/2013	10/31/2013	10/31/2013	11/01/2013	11/02/2013	11/04/2013
		Matrix		SO	SQ	SQ	SQ	SQ	SQ
		Sample Type		Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Analyte	**Method**	**Units**		**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**	**Result[LOD] Qualifier**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.018]	-	-	-	-	-
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	66 [0]	-	-	-	-	-
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	0.029[0.018] J	-	-	-	-	-
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD	SW8290A	pg/g	NE	ND [0.018]	-	-	-	-	-
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.023]	-	-	-	-	-
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.031]	-	-	-	-	-
1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	62 [0]	-	-	-	-	-
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.029]	-	-	-	-	-
1,2,3,7,8-Pentachlorodibenzofurans-C13	SW8290A	pg/g	NE	60 [0]	-	-	-	-	-
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	SW8290A	pg/g	NE	ND [0.021]	-	-	-	-	-
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	SW8290A	pg/g	NE	ND [0.030]	-	-	-	-	-
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	SW8290A	pg/g	47	ND [0.028]	-	-	-	-	-
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	64 [0]	-	-	-	-	-
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	SW8290A	pg/g	NE	ND [0.022]	-	-	-	-	-
2,3,7,8-Tetrachlorodibenzofuran-C13	SW8290A	pg/g	NE	57 [0]	-	-	-	-	-
Octachlorodibenzo-p-dioxin (OCDD)	SW8290A	pg/g	NE	0.35[0.035] J,B	-	-	-	-	-
Octachlorodibenzo-p-dioxin-C13	SW8290A	pg/g	NE	77 [0]	-	-	-	-	-
Octachlorodibenzofuran (OCDF)	SW8290A	pg/g	NE	0.33[0.045] J,B	-	-	-	-	-
Total Heptachlorodibenzo-p-dioxins (HpCDD)	SW8290A	pg/g	NE	0.091[0.028] J,B	-	-	-	-	-
Total Heptachlorodibenzofurans (HpCDF)	SW8290A	pg/g	NE	0.34[0.029] J,B	-	-	-	-	-
Total Hexachlorodibenzo-p-dioxins (HxCDD)	SW8290A	pg/g	NE	ND [0.078]	-	-	-	-	-
Total Hexachlorodibenzofurans (HxCDF)	SW8290A	pg/g	NE	0.16[0.021] J,B	-	-	-	-	-
Total Pentachlorodibenzo-p-dioxin (PeCDD)	SW8290A	pg/g	NE	ND [0.031]	-	-	-	-	-
Total Pentachlorodibenzofurans (PeCDF)	SW8290A	pg/g	NE	ND [0.030]	-	-	-	-	-
Total Tetrachlorodibenzo-p-dioxins (TCDD)	SW8290A	pg/g	NE	0.23[0.028] J	-	-	-	-	-
Total Tetrachlorodibenzofurans (TCDF)	SW8290A	pg/g	NE	0.093[0.022] J	-	-	-	-	-
Total Dioxin/Furan TEQ	SW8290A	pg/g	47 [4,5]	0.013	-	-	-	-	-

Yellow highlighted and **bolded** results exceed ADEC soil cleanup levels (most stringent pathway).

Green highlighted results exceed ADEC's proposed migration to groundwater cleanup level (applies to PFOA or PFOS only).

Grey highlighted results are non-detect with LODs above cleanup levels.

[1] Cleanup levels are from ADEC Title 18, Alaska Administrative Code, Section 75.341, Tables B1 and B2 (ADEC, 2012).

[2] Proposed cleanup levels for PFOA and PFOS (migration to groundwater / human health) are from the Public Comment Draft of 18 AAC 75 dated August 26, 2015.

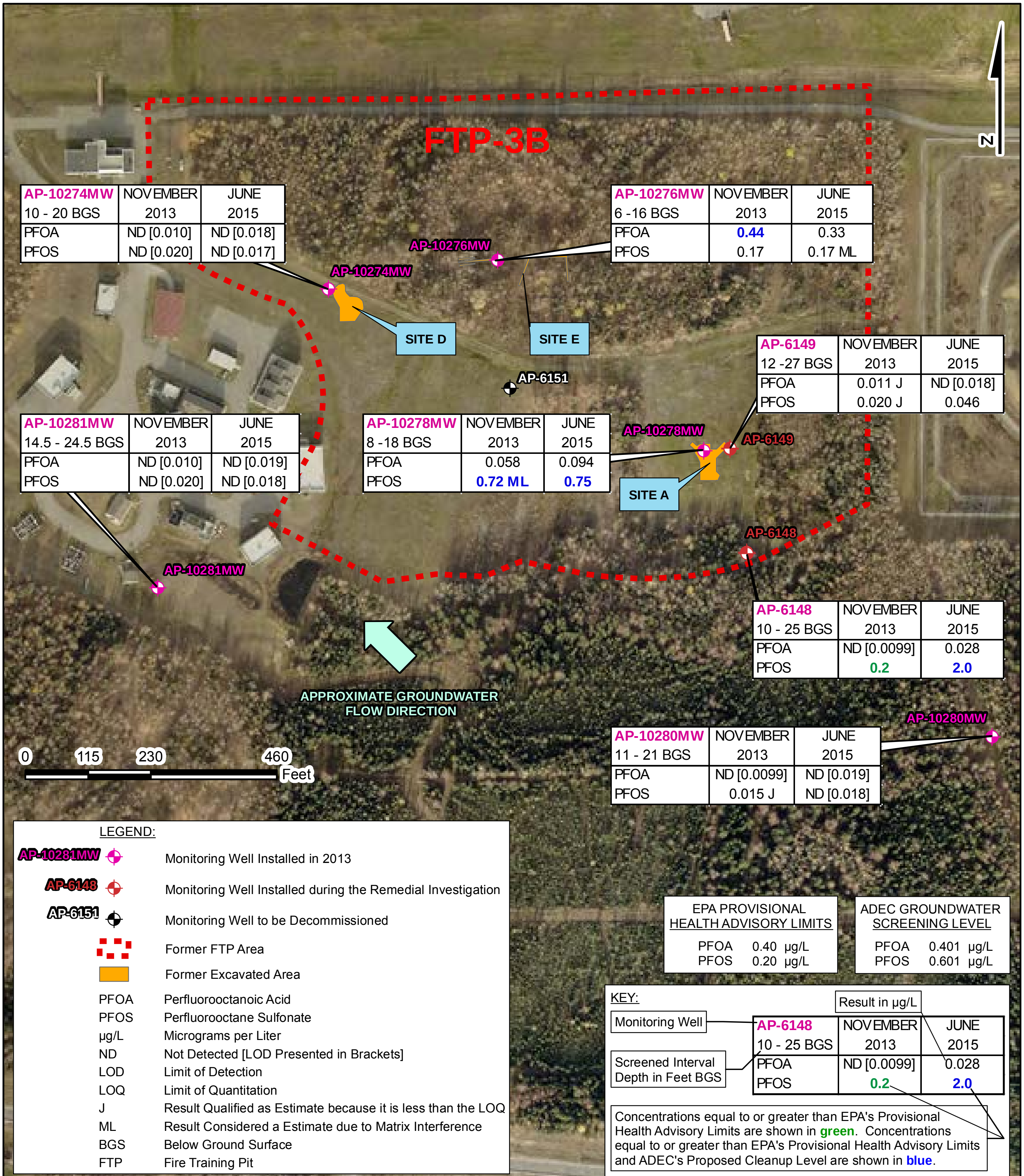
[3] EPA Region 4 Residential Soil Screening Levels from "Soil Screening Levels for Perfluorooctanoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)"

[4] Total TEQs are presented for each sample (none of which exceed the ADEC cleanup level). Analyte-specific TEQs are presented in the associated laboratory reports. Total TEQ = $\Sigma(C_i * TEF_i)$

[5] TEFs (used to calculate TEQs) are established from the World Health Organization (WHO, 2005).

LOD - limit of detection
LOQ - limit of quantitation
µg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
NA - not applicable
NE - not established
PFC - perfluorinated compounds
pg/g - picograms per gram
QC - quality control
SO - subsurface soil matrix
SQ - soil QC
TADC - TestAmerica Laboratories of Denver, CO
TEF - toxicity equivalency factor
TEQ - toxicity equivalence, where Total TEQ = $\Sigma(C_i * TEF_i)$

Data Qualifiers:
B - result may be due to cross-contamination
J - result qualified as estimate because it is less than the LOQ
M - result considered an estimate (L - low; H - high) due to matrix interference
ND - non-detect (LOD in parentheses)
Q - result considered an estimate (L - low; H - high) due to a QC failure
R - result rejected due to QC issue



AP-10274MW	NOVEMBER	JUNE
10 - 20 BGS	2013	2015
PFOA	ND [0.010]	ND [0.018]
PFOS	ND [0.020]	ND [0.017]

AP-10276MW	NOVEMBER	JUNE
6 -16 BGS	2013	2015
PFOA	0.44	0.33
PFOS	0.17	0.17 ML

AP-6149	NOVEMBER	JUNE
12 -27 BGS	2013	2015
PFOA	0.011 J	ND [0.018]
PFOS	0.020 J	0.046

AP-10281MW	NOVEMBER	JUNE
14.5 - 24.5 BGS	2013	2015
PFOA	ND [0.010]	ND [0.019]
PFOS	ND [0.020]	ND [0.018]

AP-10278MW	NOVEMBER	JUNE
8 -18 BGS	2013	2015
PFOA	0.058	0.094
PFOS	0.72 ML	0.75

AP-6148	NOVEMBER	JUNE
10 - 25 BGS	2013	2015
PFOA	ND [0.0099]	0.028
PFOS	0.2	2.0

AP-10280MW	NOVEMBER	JUNE
11 - 21 BGS	2013	2015
PFOA	ND [0.0099]	ND [0.019]
PFOS	0.015 J	ND [0.018]

LEGEND:

AP-10281MW	Monitoring Well Installed in 2013
AP-6148	Monitoring Well Installed during the Remedial Investigation
AP-6151	Monitoring Well to be Decommissioned
	Former FTP Area
	Former Excavated Area
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
µg/L	Micrograms per Liter
ND	Not Detected [LOD Presented in Brackets]
LOD	Limit of Detection
LOQ	Limit of Quantitation
J	Result Qualified as Estimate because it is less than the LOQ
ML	Result Considered a Estimate due to Matrix Interference
BGS	Below Ground Surface
FTP	Fire Training Pit

EPA PROVISIONAL HEALTH ADVISORY LIMITS

PFOA 0.40 µg/L
PFOS 0.20 µg/L

ADEC GROUNDWATER SCREENING LEVEL

PFOA 0.401 µg/L
PFOS 0.601 µg/L

KEY:

Monitoring Well

Screened Interval Depth in Feet BGS

Result in µg/L

AP-6148	NOVEMBER	JUNE
10 - 25 BGS	2013	2015
PFOA	ND [0.0099]	0.028
PFOS	0.2	2.0

Concentrations equal to or greater than EPA's Provisional Health Advisory Limits are shown in **green**. Concentrations equal to or greater than EPA's Provisional Health Advisory Limits and ADEC's Proposed Cleanup Level are shown in **blue**.

NOTES:

1. The proposed ADEC cleanup levels are from the Public Comment Draft of the revision to 18 AAC 75, Oil and Other Hazardous Substances Pollution Control (ADEC, 2015)

2. EPA Provisional Health Advisory levels from "Provisional Health Advisories for Perfluorooctanaoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)." (EPA, 2009a).

3. * A sample was not collected from AP-6151 because the well was broken below ground surface.

4. Coordinate System - Projection: World Geodetic System of 1984 (WGS84) Universal Transverse Mercator (UTM), Zone 6N, Meters

5. Aerial imagery obtained from Department of Public Works (DPW) Environmental, 2014

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

PFOA and PFOS Concentrations in FTP-3B Groundwater Samples

Fire Training Pits Investigation
Fort Wainwright, Alaska

Contract: W911KB-12-D-0001	Figure: 4-4	Date: 1/16

Table A-6 - 2015 Groundwater Sample Results
Fire Training Pit
Fort Wainwright, Alaska

		Sample ID	Cleanup Level / Advisory Level[1,2]	15FWFP01WG	15FWFP02WG	15FWFP03WG	15FWFP04WG	15FWFP05WG	15FWFP06WG	15FWFP07WG	15FWFP08WG	15FWFP09WG	15FWFP10WG	15FWFP11WG	15FWFP12WG	15FWFP13WG	15FWFP14WG	15FWFP15WG	15FWFP16WQ
		Location ID		AP-10280MW	AP-6149	AP-6148	AP-10278MW	AP-10276MW	AP-10276MW	AP-10274MW	AP-10281MW	AP-10261MW	AP-10267MW	AP-10267MW	AP-10285MW	AP-10266MW	AP-10283MW	AP-10265MW	TRIP BLANK
		Sample Data Group		280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1
		Laboratory ID		70727-1	70727-2	70727-3	70727-4	70727-5	70727-6	70727-7	70727-8	70727-9	70727-10	70727-11	70727-12	70727-13	70727-14	70727-15	70727-16
		Collection Date		6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/11/2015	6/11/2015	6/9/2015
		Matirx		WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WQ
		Sample Type		Primary	Primary	Primary	Primary	Primary/MS/MSD	Field Duplicate	Primary	Primary	Primary	Primary/MS/MSD	Field Duplicate	Primary	Primary	Primary	Primary	Trip Blank
Analyte	**Method**	**Units**		**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**
Gasoline Range Organics (C6-C10)	AK101	mg/L	2.2	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]	ND [0.015]
Diesel Range Organics (C10-C25)	AK102	mg/L	1.5	ND [0.13]	ND [0.12]	0.075 [0.13] J	0.11 [0.13] J	0.12 [0.12] J	0.11 [0.12] J	ND [0.12]	ND [0.13]	ND [0.12]	ND [0.13]	ND [0.12]	ND [0.12]	0.14 [0.13] J	ND [0.12]	ND [0.12]	-
Residual Range Organics (C25-C36)	AK103	mg/L	1.1	ND [0.14]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	ND [0.13]	0.078 [0.13] J	ND [0.13]	ND [0.13]	-
1,1,1,2-Tetrachloroethane	SW8260B	µg/L	NE	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,1,1-Trichloroethane	SW8260B	µg/L	200	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	4.30	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,1,2-Trichloroethane	SW8260B	µg/L	5	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,1-Dichloroethane	SW8260B	µg/L	7,300	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,1-Dichloroethene	SW8260B	µg/L	7	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,1-Dichloropropene	SW8260B	µg/L	NE	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,2,3-Trichlorobenzene	SW8260B	µg/L	NE	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,2,3-Trichloropropane	SW8260B	µg/L	0.12	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,2,4-Trichlorobenzene	SW8260B	µg/L	70	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,2,4-Trimethylbenzene	SW8260B	µg/L	1,800	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,2-Dibromo-3-chloropropane	SW8260B	µg/L	NE	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]
1,2-Dibromoethane	SW8260B	µg/L	0.05	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,2-Dichlorobenzene	SW8260B	µg/L	600	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,2-Dichloroethane	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,2-Dichloroethene, Total	SW8260B	µg/L	NE	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	2 [0.2]	1.9 [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]
1,2-Dichloropropane	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,3,5-Trimethylbenzene	SW8260B	µg/L	1,800	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,3-Dichlorobenzene	SW8260B	µg/L	3,300	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
1,3-Dichloropropane	SW8260B	µg/L	8.5	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8] ML	ND [0.8] ML	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
1,4-Dichlorobenzene	SW8260B	µg/L	75	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
2,2-Dichloropropane	SW8260B	µg/L	NE	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
2-Butanone	SW8260B	µg/L	22,000	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]
2-Chlorotoluene	SW8260B	µg/L	NE	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
2-Hexanone	SW8260B	µg/L	NE	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]	ND [4]
4-Chlorotoluene	SW8260B	µg/L	NE	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
4-Isopropyltoluene	SW8260B	µg/L	NE	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
4-Methyl-2-pentanone	SW8260B	µg/L	2,900	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]	ND [3.2]
Acetone	SW8260B	µg/L	33,000	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]	ND [6.4]
Benzene	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Bromobenzene	SW8260B	µg/L	NE	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Bromochloromethane	SW8260B	µg/L	NE	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]
Bromodichloromethane	SW8260B	µg/L	14	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Bromoform	SW8260B	µg/L	110	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Bromomethane	SW8260B	µg/L	51	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Carbon disulfide	SW8260B	µg/L	3,700	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]
Carbon tetrachloride	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Chlorobenzene	SW8260B	µg/L	100	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Chloroethane	SW8260B	µg/L	290	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]	ND [1.6]
Chloroform	SW8260B	µg/L	140	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Chloromethane	SW8260B	µg/L	66	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
cis-1,2-Dichloroethene	SW8260B	µg/L	70	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	1.1 [0.4]	1.1 [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
cis-1,3-Dichloropropene	SW8260B	µg/L	8.5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Dibromochloromethane	SW8260B	µg/L	10	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Dibromomethane	SW8260B	µg/L	370	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Dichlorodifluoromethane	SW8260B	µg/L	7,300	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Ethylbenzene	SW8260B	µg/L	700	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Hexachlorobutadiene	SW8260B	µg/L	7.3	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Isopropylbenzene	SW8260B	µg/L	3,700	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Methylene chloride	SW8260B	µg/L	5	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Methyl-tert-butyl ether (MTBE)	SW8260B	µg/L	470	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Naphthalene	SW8260B	µg/L	730	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
n-Butylbenzene	SW8260B	µg/L	370	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
n-Propylbenzene	SW8260B	µg/L	370	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
o-Xylene	SW8260B	µg/L	10,000	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
sec-Butylbenzene	SW8260B	µg/L	370	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Styrene	SW8260B	µg/L	100	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]

Table A-6 - 2015 Groundwater Sample Results
Fire Training Pit
Fort Wainwright, Alaska

Sample ID			Cleanup Level / Advisory Level[1,2]	15FWFP01WG	15FWFP02WG	15FWFP03WG	15FWFP04WG	15FWFP05WG	15FWFP06WG	15FWFP07WG	15FWFP08WG	15FWFP09WG	15FWFP10WG	15FWFP11WG	15FWFP12WG	15FWFP13WG	15FWFP14WG	15FWFP15WG	15FWFP16WQ
Location ID				AP-10280MW	AP-6149	AP-6148	AP-10278MW	AP-10276MW	AP-10276MW	AP-10274MW	AP-10281MW	AP-10261MW	AP-10267MW	AP-10267MW	AP-10285MW	AP-10266MW	AP-10283MW	AP-10265MW	TRIP BLANK
Sample Data Group				280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1	280-70727-1
Laboratory ID				70727-1	70727-2	70727-3	70727-4	70727-5	70727-6	70727-7	70727-8	70727-9	70727-10	70727-11	70727-12	70727-13	70727-14	70727-15	70727-16
Collection Date				6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/10/2015	6/11/2015	6/11/2015	6/9/2015
Matirx				WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WQ
Sample Type				Primary	Primary	Primary	Primary	Primary/MS/MSD	Field Duplicate	Primary	Primary	Primary	Primary/MS/MSD	Field Duplicate	Primary	Primary	Primary	Primary	Trip Blank
Analyte	**Method**	**Units**		**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**	**Result [LOD] Qualifier**
tert-Butylbenzene	SW8260B	µg/L	370	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Tetrachloroethene (PCE)	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Toluene	SW8260B	µg/L	1,000	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
trans-1,2-Dichloroethene	SW8260B	µg/L	100	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	0.94 [0.4] J	0.84 [0.4] J	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
trans-1,3-Dichloropropene	SW8260B	µg/L	8.5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]
Trichloroethene (TCE)	SW8260B	µg/L	5	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	0.58 [0.4] J	0.63 [0.4] J	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	ND [0.4]	0.29 [0.4] J	0.34 [0.4] J	ND [0.4]	ND [0.4]
Trichlorofluoromethane	SW8260B	µg/L	11,000	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Vinyl chloride	SW8260B	µg/L	2	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]	ND [0.2]
Xylene, Isomers m & p	SW8260B	µg/L	10,000	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]	ND [0.8]
Perfluorooctanoic acid (PFOA)	DVLC012	µg/L	0.401 (0.4)[2]	ND [0.019]	ND [0.018]	0.028 [0.018]	0.094 [0.019]	0.33 [0.019]	0.29 [0.019]	ND [0.018]	ND [0.019]	ND [0.019]	0.064 [0.019]	0.064 [0.019]	ND [0.019]	**0.40 [0.018]**	0.053 [0.019]	0.014 [0.018] J	-
Perfluorooctane Sulfonate (PFOS)	DVLC012	µg/L	0.601 (0.2)[2]	ND [0.018]	0.046 [0.017]	**2.0 [0.07]**	**0.75 [0.018]**	0.17 [0.018] ML	0.13 [0.018] ML	ND [0.017]	ND [0.018]	ND [0.018]	ND [0.018]	ND [0.018]	0.017 [0.018] J	**0.74 [0.017]**	ND [0.018]	ND [0.018]	-

Yellow highlighted results exceed groundwater cleanup levels.
Green highlighted results meet or exceed EPA's Provisional Health Advisory Level.
Blue highlighted results exceed EPA's Provisional Health Advisory Level and ADEC's Proposed Cleanup Level.
Grey highlighted results are non-detect with LODs above cleanup levels.

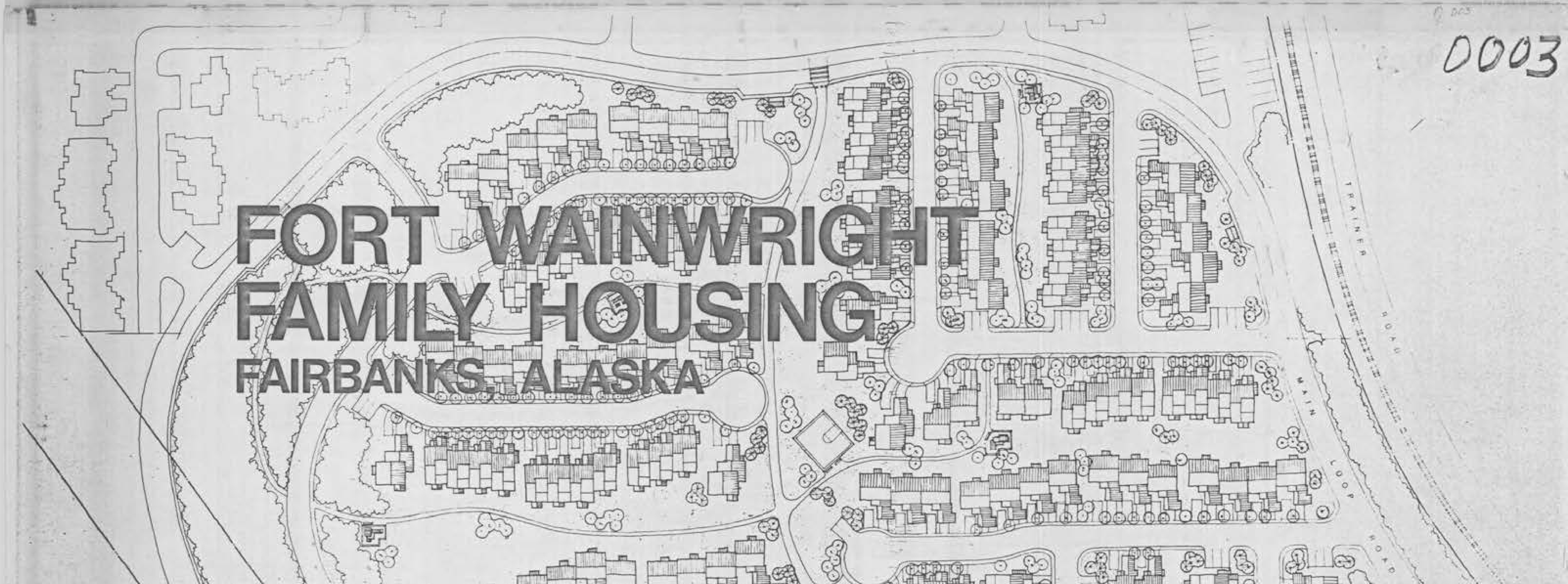
[1] Cleanup levels were established from ADEC Title 18, Alaska Administrative Code, Section 75.345, Table C (ADEC, 2015). Proposed PFOA and PFOS cleanup levels are from the Public Comment Draft of 18 AAC 75 dated August 26, 2015.
[2] EPA Provisional Health Advisory levels (shown in parentheses) are from "Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctyl Sulfonate (PFOS)" (EPA, 2009a).

LOD - limit of detection
LOQ - limit of quantitation
µg/L - micrograms per liter
mg/L - milligrams per liter
NE - not established
PFOA - perfluorooctanoic acid
PFOS - perfluorooctane sulfonate
QC - quality control
WG - groundwater
WQ - water QC

Data Qualifiers:
J - result qualified as estimate because it is less than the LOQ
M - result considered an estimate (L - low; H - high) due to matrix interference
ND - non-detect [LOD in brackets]

0003

FORT WAINWRIGHT FAMILY HOUSING
FAIRBANKS, ALASKA



APPLICABLE CODES, ZONING PERMITS
REFERENCE GUIDES

UNIFORM BUILDING CODE 1979
With Amendments (Ord. No. 3852 and 4200)
Expect Approval UBC 1985

UNIFORM HOUSING CODE 1979

NATIONAL ELECTRIC CODE 1978
Expect Approval by Summer 1985

UNIFORM PLUMBING CODE 1982
Expect Approval 1985 by Summer 1986

STATE OF ALASKA FIRE SAFETY CODE OR UNIFORM FIRE CODE 1979
(1982 by Summer) Whichever is Most Restrictive

STATE AND BASE FIRE MARSHALL REVIEW

HANDICAPPED BUILDING CODE

FAIRBANKS GENERAL CODE OF ORDINANCES

CITY OF FAIRBANKS:
Design Guidelines for Streets and Drainage
Design Guidelines for Water Distribution System
Design Guidelines for Wastewater Collection System
Technical Requirements for Street Illumination Maintenance

FAIRBANKS STORM WATER RUNOFF STUDY 1982

Field Determination of Chena River Surface Elevation Immediately East of the Site of May 25, 1985. (Synchronizing with the Closing of the Gates at Moose Creek Dam on That Date) (By Civil Engineer)

Field Confirmed Aerial Mapping and Topographic Studies of Site - By Civil

FAIRBANKS NORTH STAR BOROUGH CODE
Title 18 (49) Zoning R31 Multi-Res.

FAIRBANKS NORTH STAR BOROUGH CODE
Title 17 - Subdivisions

FAIRBANKS COMPREHENSIVE DEVELOPMENT PLAN

FAIRBANKS CITY COUNCIL MAY WANT REVIEW AND INPUT
Paul Whitney 452-4761

HAMILTON ACRES RESIDENTS WILL WANT REVIEW AND INPUT ON TRAFFIC GENERATION AND BUFFER SPACE
George Roderic 452-5419

DEPARTMENT OF TRANSPORTATION
Will Want Review and Input on Traffic Generation Access, Direction and Public Bus System Generation
Charitt Fector

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Will Require Review of Storm Water Runoff Into River
Pete McGee 452-1714

DEPARTMENT OF LABOR AND SAFETY REVIEW

DEPARTMENT OF NATURAL RESOURCES REVIEW

NORTH STAR BOROUGH SCHOOL DISTRICT REVIEW AND INPUT ON
School Assignments, Number of School Kids, Grades, Method of Transportation and On Site School Bus Locations
Bob Shefchik 452-2000

ALASKA RAILROAD CORPORATION WILL REQUIRE REVIEW AND INPUT FOR VERIFICATION OF ROW AND ACCESS CONFORMANCE
O.B. Weeks 265-2417

UNITED STATES POSTAL SERVICE WILL REQUIRE REVIEW AND INPUT ON MAIL DELIVERY SYSTEM

GOLDEN VALLEY ELECTRIC
- Review on all Site Electrical Distribution
Steve Hagesen

TELEPHONE UTILITY OF ALASKA
Will Review and Install Site Telephone System.
Developer Coordinated 356-1000

ALASKAN CABLE NETWORK
Will Review and Install Site System
Developer Coordinated 452-7191

TRASH COLLECTION
By Developer

FORT WAINWRIGHT FIRE AND POLICY DEPARTMENT REVIEW & INPUT

FHA (1 AND 2 FAMILY) AND DEPARTMENT OF DEFENSE GUIDELINES AND SPECIFICATIONS AND HUD MINIMUM PROPERTY STANDARDS

Design Reviews by the Corps of Engineers and Environmental Protection Agency

"Handbook of Steel Drainage and Highway Construction Products"

A Policy on Geometric Design of Highways and Streets; 1984, AASHTO

Highway Preconstruction Manual, Part II, Chapt. 11, Alaska Department of Transportation and Public Facilities

Guide for Development of New Bicycle Facilities, 1981, AASHTO

An Informational Guide for Roadway Lighting, 1976, AASHTO

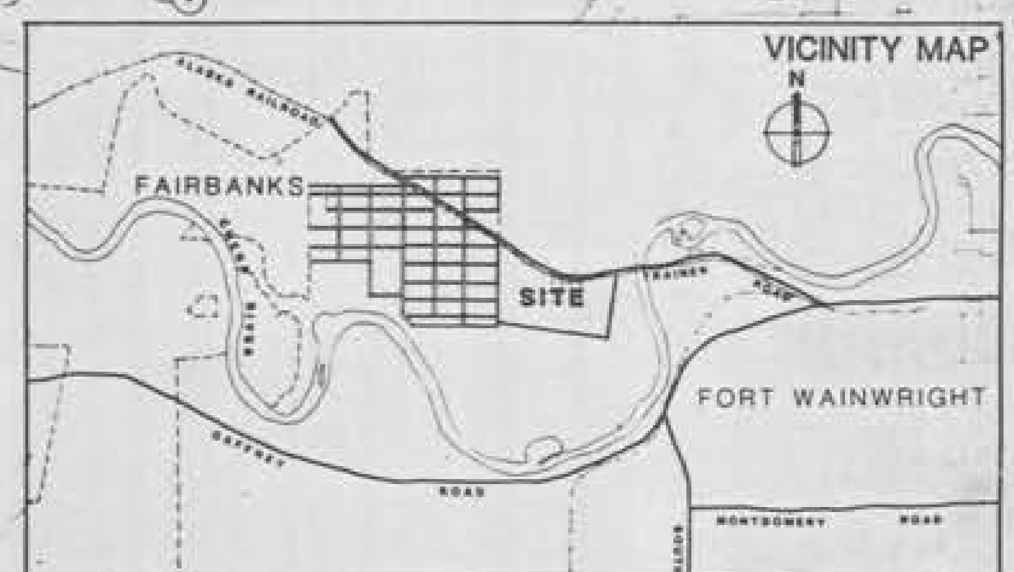
Preliminary Modeling and Balancing of the Water System by the "WOOD'S" Program (University of Kentucky). (Final Modeling to be Per WATEIM per RFP)

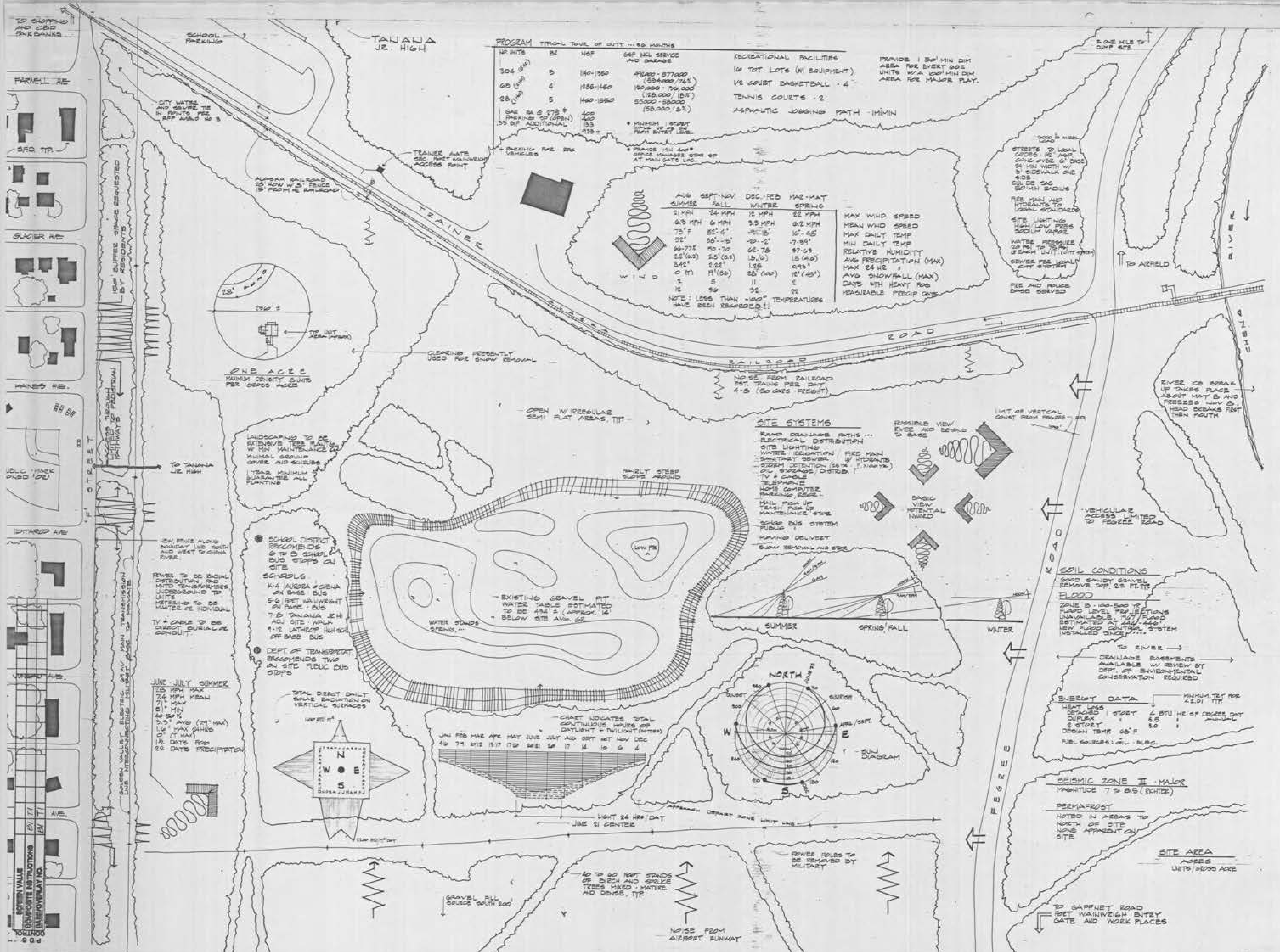
"Handbook - Ductile Iron Pipe", Cast Iron Pipe Research Association. Water Design

Schematic Design Review by the Fire Chief at Fort Wainwright

Arctic/Subarctic Urban Housing: Responses to the Northern Climate
By John Ross - 1967

Pattern Language
By Christopher Alexander - 1977



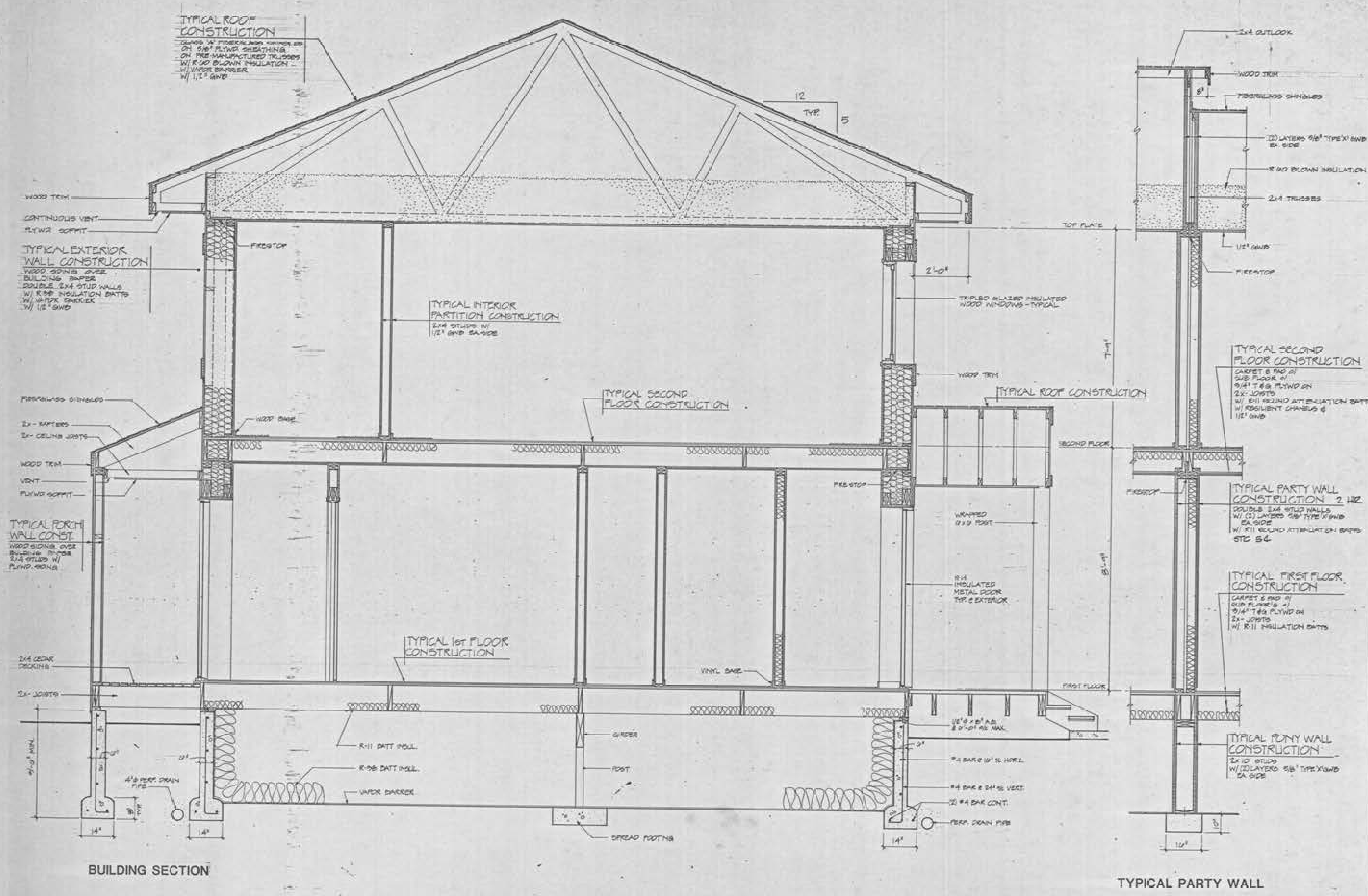


RFP NO. DACA85-85-R-0019
BID NO. FW0019003
JUNE 1985

FORT WAINWRIGHT FAMILY HOUSING
400 TOWNHOUSES
FAIRBANKS, ALASKA

SITE ANALYSIS

2



FORT WAINWRIGHT FAMILY HOUSING
400 TOWNHOUSES
FAIRBANKS, ALASKA

TYP. BUILDING SECTION

33

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ATTACHMENT 13

Responses to Regulator Review Comments

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U.S. Army Responses to EPA Technical Review Comments, Draft Fort Wainwright Fourth Five Year Review, Fairbanks, Alaska, June 2016

GENERAL COMMENTS

EPA received the Draft Fort Wainwright Fourth Five Year Review, June 2016, for review transmitted electronically via AMRDEC on June 24, 2016. Due to the complexity of the review, EPA notified the Army of an extension for submission of comments. This comment table includes all EPA comments on the Draft Fort Wainwright Fourth Five Year Review (both regional and HQ and includes CERCLA and RCRA programs).

EPA comments were transmitted to the Army on August 10, 2016. Initial U.S. Army responses received September 12, 2016. EPA rebuttals and or suggested changes to Army response provided September 19, 2016. **A teleconference was held September 21, 2016. Revised Army responses are provided below (in blue) September 29, 2016.**

The filename transmitted by AMRDEC "FYR_FWA_Draft Final_2016-06_compressed.pdf˝ suggests this is the Draft Final version of the Fort Wainwright Fourth Five Year Review. EPA considers this as the draft version of the document.

Number	Page	Section	Comment
1.	-	General Comment Report Format	The Draft Fourth Five-Year Review Report, Fort Wainwright, Alaska, dated June 2016 (the FYR) does not include all of the content outlined in Exhibit 3-3 of the *Comprehensive Five-Year Review Guidance* (the FYR Guidance), dated June 2001. The following contents are not included in the FYR: • The introduction text does not discuss the status of other five-year reviews, Operable Units (OUs), and/or areas of the entire site. **Response:** The introduction will be revised to include a brief discussion of other operable units and/or areas of the site and the previously completed first, second, and third reviews for Fort Wainwright Alaska (FWA). • The Question A discussions for each site do not include the early indicators of potential remedy problems. **Response:** Where appropriate, early indicators of potential problems will be discussed under the "Question A" headings. • The Question A discussions for each site do include the costs of the system operations/operations and maintenance (O&M). If the costs are not applicable, then this should be stated, but costs associated with maintenance and monitoring of groundwater monitoring networks should be included. **Response:** None of the OUs/sites evaluated contained operating remediation systems during the five-year review period. On-going remedial actions consisted of natural attenuation with groundwater monitoring and/or

			LUC/ICs. Costs to maintain the groundwater monitoring wells and monitor groundwater are not readily available. OSWER No. 9355.7-03B-P (Section 4.1.2) provides the following guidance, *"Review and consider system operations/O&M costs if they are available. Compare actual/current annual O&M costs to the original cost estimate; large variances from the original cost estimate might indicate potential remedy problems."* • The technical assessment discussions do not include a summary of findings and conclusions. **Response:** A fourth level section, "Technical Assessment Summary" will be added. Does this site qualify for a site-wide protectiveness statement? If construction is complete, then a site-wide protectiveness statement is required. **Response:** Remedial construction is not complete at FWA and the NPL site does not qualify for a site-wide protectiveness statement. New remedial actions have been constructed at FWA since the 2002 construction complete concurrence. They include, but are not limited to: • Expansion of the AS/SVE system at OU-3 ROLF; Eight-Car Header, Central Header, and Former Building 1144 (2004) • Building 1191 Landfill Caterpillar Shed preliminary investigation conducted (2012) In addition, remedial actions have not been completed at OU-3 Remedial Area 3, FEP Mileposts 2.7 and 3.0. Additionally, the electronic version of the document does not include bookmarks, making navigation and review of the electronic version difficult. Please revise the FYR to include all applicable content outlined in Exhibit 3-3 of the FYR Guidance and include bookmarks to at least the major sections of the report in any future electronic versions. **Response:** The FYR will be revised to include all applicable content outlined in Exhibit 3-3 of the FYR Guidance. Bookmarks will be provided in the electronic version of the report. Please contact us for assistance if the bookmarks are not present.
2.	-	General Comment IC boundaries	The figures included in the FYR do not provide sufficient information about the extent of remaining contamination and the extent of institutional control (IC) boundaries. For example, the site-specific figures in Attachment 1, Figures, do not depict the extent of groundwater plumes or IC boundaries. Attachment 10, Groundwater Monitoring Data, depicts plume extents for some contaminants of concern (COCs) at some sites, but does not consistently present this information

			for each site. Section 3.5 of the memorandum Recommended Evaluation of Institutional Controls: Supplement to the Comprehensive Five-Year Review Guidance (the Supplemental IC Evaluation), dated September 2011, recommends including "Maps that illustrate the areas of remaining contamination (e.g., contaminated ground water plume), parcel boundaries, and an overlay of any ICs that may be in place." In addition, it is important to show the extent of IC boundaries relative to the extent of contamination so that the adequacy of the IC boundaries can be evaluated. It is noted that Attachment 11 provides the extent of contamination and of IC boundaries for OU-6, but this information is not clearly provided for OU-1 through OU-5. Please revise the FYR to ensure site figures depict both the extent of contamination above cleanup goals and the extent of IC boundaries. **Response:** The five-year review figures will be modified to illustrate IC boundaries. Limited information on boundaries is available for OU-5 OB/OD. An updated figure will be added to the five-year review. More information will be collected during site closure activities once the range is no longer active. Figures illustrating groundwater plume are provided in Attachment 10. They will be updated to reflect any new information received since the draft June 2016 five year review report was issued.
3.		OU5 ROD as Basis of ICs	The 1999 OU5 ROD states (page 94): *"The FFA reflects the intent to have the ROD for OU5 serve as a comprehensive Sitewide document (see FFA, Attachment 1, page 6). The institutional-control actions at Fort Wainwright will apply on a site-wide basis to all areas, including those in OUs 1, 2, 3, 4 and 5. The ROD requires the U.S. Army Alaska (USARAK) to develop standard operating procedures (SOPs) to identify all land areas under restriction; identify the objectives that must be met by the restrictions; and specify the particular restrictions, controls, and mechanisms that will be used to achieve the identified objectives. These SOPs are intended to help assure that the institutional controls selected in this and other OU RODs at Fort Wainwright are carried out and remain in place until the EPA, ADEC, and USARAK determine they are no longer needed to protect the public and the environment. Upon concurrence by the EPA and ADEC, the SOPs will be incorporated by adoption as part of the OU5 ROD, to serve as a single site-wide source documenting all institutional controls being implemented at Fort Wainwright."* The ROD goes on to give the minimum requirements of SOP. However the SOP developed by the Army is not an enforceable document by the regulatory agencies, and does not provide specificity for individual site ICs. The Army recognizes the need to re-establish a robust institutional control program in the recommendation in Table 6-2. *"The site-wide SOP does not include documentation and information regarding all LUCs required*

			throughout FWA". EPA agrees a site-wide enforceable IC program should be developed with regulatory approval, however ICs do affect protectiveness and this recommendation should be moved to Table 6-1: Issues that Affect Protectiveness. The Army must develop an institutional control program containing details of the post-wide ICs. For example at OU5 OBOD, EPA would expect to see details such as 1) the rate of occurrence of patrols 2) the area covered by patrols 3) the location and number of signs prohibiting access. 4) pictures and location of the gate. While the 5 Year Review mentions the "Range Control Standard Operating Procedure," the 1999 ROD requires a post-wide IC SOP be developed and that the SOP becomes incorporated into the ROD. **Response:** The Army agrees to develop a revised site-wide IC program and has included this recommendation in the five-year review (see Table 6-2). The activities performed to date at the OB/OD (i.e., inspection, access control maintenance, etc.) have mitigated the potential for human exposure to unexploded ordnance specifically within the OU-5 OB/OD footprint. The formalizing of the administrative component of these activities does not affect protectiveness.
4.	-	General Comment Are exposure assumptions still valid?	The FYR Report does not discuss the source(s) of the exposure factors used in the original human health risk assessment (HHRA). As such it is unclear whether any of the risk and hazard estimates warrant revision. It is noted that since September 29, 2011, EPA has published several resources with more current exposure factors, including the Exposure Factors Handbook: 2011 Edition, dated September 2011; and OSWER Directive 9200.1-120 (Update of Standard Default Exposure Parameters), dated February 6, 2014. EPA has also promulgated a document to supplement aspects of the 2014 Update of Standard Default Exposure Parameters. This supplementary document, OSWER Directive 9285.6-03, originally dated February 6, 2014, was updated September 14, 2015 and is titled Frequently Asked Questions (FAQs) About Update of Standard Default Exposure Factors (EPA, 2015). The FYR should clarify if any of the exposure factors used in the original HHRA have changed since that time, and if so, if the changes are deemed substantive and necessitate re-calculations of risk and hazard. In evaluating exposure assumptions, EPA's FYR Guidance also states that the FYR should evaluate "whether there are changed or new land uses, including zoning changes, **changed or new routes of exposure or receptors**, **changed physical site conditions that may affect the protectiveness of the remedy, new contaminants**, or a new understanding of geological conditions." While it is understood that Attachment 8, Risk Assessment and Toxicology Evaluation, includes some discussion, the focus of this attachment is the vapor intrusion (VI) pathway and the comparison of groundwater concentrations to vapor

			intrusion screening levels (VISLs), so it is unclear whether there are changes related to other exposure factors and exposure assumptions. Please revise the FYR to include an in-depth evaluation of changes in exposure factors and exposure assumptions, including exposure pathways and receptors, and clarify if any of these changes affect the protectiveness of the remedy. **Response:** Please refer to the more comprehensive review of exposure assumptions provided in Attachment 8. A new paragraph will be added after the introductory paragraph in Attachment 8 stating the following, "*Note that for all of the OUs, older exposure factor values were utilized in assessing risk than what is currently recommended by the USEPA (USEPA 2014). However, the newly recommended exposure parameter values are generally less conservative than what was used in the past, and would not affect the protectiveness of the remedy. Therefore, this review will focus on aspects of updates to risk assessment methodology, exposure assessment, and toxicity criteria changes that may have occurred that could affect the protectiveness of the remedy.*" The USEPA 2014 OSWER Directive regarding updated recommended exposure factor values is included in the list of documents referenced in Attachment 8. Other aspects of the exposure assessment that may affect the protectiveness of the remedy, such as exposure pathways and site-specific exposure factor values, are discussed in more detail in the OU-specific evaluations that are presented in Attachment 8. The exposure pathways reviewed to verify whether there are changed or new land uses, changed or new routes of exposure or receptors, and changed physical site conditions that may affect protectiveness of the remedy.
5.	-	General Comment Toxicity Criteria	The FYR does not include sufficient comparisons of the toxicity criteria employed in the original HHRA to current toxicity criteria for each COC at each site. As such, it is unclear whether any of the risk and hazard estimates warrant revision. For example, the toxicity criteria for trichloroethene were updated in November 2011 and it was also reclassified as a mutagen. Similarly, toxicity criteria for tetrachloroethene were updated in May 2012. Note that this list of examples may not be exhaustive. Please revise the FYR to provide a comparison of the toxicity criteria used in the original HHRA to current toxicity criteria for each COC. Please also clarify if any re-calculations of risk and hazard are necessary to demonstrate continued protectiveness of the remedy and/or if cleanup goals should be revised on the basis that improved approaches are available for calculating new/current cleanup standards. **Response:** In Attachment 8, tables and accompanying text will be developed summarizing changes in toxicity values and assumptions used for cleanup goal development for each COC. For those constituents which are being cleaned up to a risk-based concentration (e.g., aldrin and dieldrin in OU-1, trimethylbenzenes in OU-3, tetrachloroethane in OU-4, bis(2-chloroethyl)ether in

			OU-5, and aluminum and manganese in OU-6), an explicit review of toxicity criteria utilized in developing the risk-based concentration is provided in Attachment 8 (text and supporting tables). Although the risk assessment which formed the basis for need for remedial action for other constituents (such as TCE and PCE) utilized toxicity criteria which may have since been updated, these constituents are being addressed using ARAR-based cleanup goals. As stated in Attachment 7 (ARAR review), there are no newly promulgated or modified requirements of federal and state environmental laws that would change the protectiveness of the remedies in any of the OUs. Therefore at this point, protectiveness of the remedy for those constituents that are covered by ARAR-based cleanup goals is determined via comparison to the ARAR, since the ARAR is by definition deemed to be protective. No re-calculations of risk or hazard are necessary for these constituents. The answers to Question B provided for each OU include this toxicity criteria (provided in more detail in Attachment 8) and ARAR review (provided in more detail in Attachment 7) for all constituents identified in each ROD.
6.	-	General Comment Vapor Intrusion	The FYR does not include any recommendations related to VI. Although Attachment 8 compares current groundwater concentrations to VISLs, this is insufficient to determine whether VI is a concern. EPA's *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (OSWER Publication 9200.2-154, June 2015) strongly recommends the use of multiple lines of evidence paired with site-specific information (building construction, hydrology, geology, preferential pathways, etc.) in assessing the vapor intrusion exposure pathway. EPA also strongly recommends both current and future land use should be considered during the VI assessment. For example, page A8-4 of Attachment 8 states that *"Because the housing development is downgradient of groundwater that contains elevated VOCs [volatile organic compounds] in wells AP-6326 and AP-6327, and the full nature and extent of groundwater contamination in this area does not appear to be well defined from the groundwater results provided in the last five years (e.g., wells that surround wells AP-6326 and AP-6327 have not been sampled for VOCs in the past 10 years), there is uncertainty whether or not a vapor intrusion issue is present in the 801 Military Housing Area."* In addition, Attachment 8 includes recommendations that have not been incorporated into the Summary Form of the main text of the FYR. For example, page A8-4 of Attachment 8 states *"it is recommended that future sampling events include analysis of samples obtained from AP10042-MW and AP-7162 for VOCs,"* and *"it would be prudent to sample AP-6327, AP-6326, AP10042-MW and AP-7162 more frequently than every five years;"* however, neither of these recommendations are included for the OU-1 801 Drum

			Burial Site. Please revise the FYR to include recommendations related to VI and indicate how uncertainties related to VI impact protectiveness for any sites with VOCs in groundwater. Please also ensure any recommendations discussed in Attachment 8 are incorporated into the Summary Form of the main text of the FYR. **Response:** The recommendation to perform additional sample collection and assessment for vapor intrusion will be included in the main body of the five-year review. The recommendation will specifically include the collection of samples from wells AP-6327, AP-6326, AP-10042, and AP-7162 for analysis for VOCs and a subsequent VI assessment in accordance with OSWER Publication 9200.2-154. The site conceptual model and groundwater monitoring data were reviewed to assess protectiveness of the site. The Army concluded that there is no known VI impact on the housing development. • No VOCs currently exceed USEPA VISL at well AP-6326, the well closest to the housing development included in the monitoring program. The 2015 monitoring report included both a Mann-Kendall and linear regression trend analysis. No trend was identified using the Mann-Kendall trend analysis and a stable trend was identified using linear regression. • The monitoring wells located closest to the housing development were not sampled as agreed by RPMs based on recommendations generated in a Cleanup Operations and Site Exit Strategy (CLOSES) evaluation performed in 2004. • In the 19 years since the OU-1 ROD was signed, monitoring results have indicated that the groundwater plume is not moving or migrating but rather is stable. The protectiveness statement will correspondingly be changed to short term protective.
7.	-	General Comment Groundwater Trends	Some of the trend diagrams included in the FYR show increasing concentration trends; however, the FYR does not discuss how increasing concentration trends relate to remedy performance (i.e., is the remedy functioning as intended if concentrations are increasing). For example, Section 5.3.5 indicates that tetrachloroethene (PCE) and trichloroethene (TCE) in well AP-10017 have increasing trends and TCE has increasing trends in wells AP-8914R and AP-10016 at the OU-2 Defense Reutilization Maintenance Operation (DRMO) Yard. While increases in vinyl chloride concentrations are expected during reductive dechlorination, it is unclear why PCE and TCE concentrations are increasing at DRMO-1. Another example is found in Section 5.4.5, which indicates that 1,2-dichloroethane (1,2-DCA) concentrations are increasing in nine bedrock wells and four alluvium wells at the OU-3 Remedial Area 1B (Birch Hill Tank Farm [BHTF]). It should be noted that trend diagrams have only been provided in Attachment 10 for select COCs and

			sampling locations, so additional COCs and/or sampling locations may exhibit increasing trends beyond those identified in the text of the FYR. Please revise the FYR to discuss how increasing concentration trends relate to remedy performance (i.e., is the remedy functioning as intended if concentrations are increasing). If increasing concentrations are determined to indicate that the remedy is not performing as designed, then the FYR should be revised to indicate this and to include recommendations to address wells with increasing concentration trends. Please also revise Attachment 10 to provide trend diagrams for all COCs at each site. **Response:** Attachment 10 and the five-year review will be revised to evaluate increasing trends observed in the groundwater monitoring data for the COCs and sampling locations required to assess the performance of the remedies implemented at FWA (consistent with the data presented in reviewed and approved monitoring reports). Additional studies have been recommended for several sites (OU-3 Remedial Area 1B, OU-3 Remedial Area 2, OU-3 Remedial Area 3, OU-5 WQFS). The ICs in place across these areas prevent adverse exposures from impacts to these sites. These remedies are short term protective.
8.	-	General Comment MNA Cleanup Timeframes	The FYR should discuss the time estimated in the Records of Decision (RODs) to reach cleanup goals for all sites with monitored natural attenuation (MNA) as the ongoing remedy and whether cleanup goals will be achieved within that time period. If the estimated time has already passed without levels decreasing to concentrations below cleanup goals, then the FYR should explain why and provide a new estimate. For example, Sections 5.1 and 5.2 do not indicate the time estimated to reach cleanup goals for the OU-1 801 Drum Burial Site and the OU-2 Building 1168 Leach Well, respectively. Another example is found in Section 5.3.6.1, which indicates that reaching cleanup levels at the OU-2 DRMO Yard "is taking longer than the 15 years assumed in the ROD," but the FYR does not explain why or provide a new time estimate. In addition, where the RODs do not indicate a time period for reaching cleanup goals, the FYR does not include an estimation for the time period to reach cleanup goals. Please revise the FYR to discuss the time estimated in the RODs to reach cleanup goals for all sites with MNA as the ongoing remedy and whether cleanup goals will be achieved within these time periods. If the estimated time has already passed without levels decreasing to concentrations below cleanup goals, please revise the FYR to explain why and provide a new estimate of time to reach cleanup goals. Please also revise the FYR to include an estimation for the time period to reach cleanup goals in cases where the RODs do not specify a time period for reaching cleanup goals.

			Response: Estimated times provided in the RODs to reach groundwater cleanup goals and progress since implementation are discussed below. This information will be added to the FYR report. • OU-1 – The estimated time frame to reach the cleanup goals is 10 years (VOCs) and 100 years (pesticides) (ROD Section 5.5.4, p. 5-7). The remedy, monitored natural attenuation (MNA), was implemented in 1997. Benzene, cis-1,2-DCE, and dieldrin exceeded their cleanup goals in the most recent monitoring event (May 2015). The estimated time frame to reach the cleanup goals has passed for benzene and 1,2-DCE. However since the plume remains stable and there are no complete exposure pathways there is no increased risk to human health or the environment. • OU-2 – The estimated timeframe to reach the cleanup goals is 15 years (ROD Section 5.4.1.3, p. 83). o The remedy at Building 1168 Leach Well was fully implemented in 1997. Monitoring data indicate that the cleanup goals have been attained. o The AS/SVE remedy at DRMO Yard 1 (DRMO-1) was implemented in 1997 and shut down in 2005. In-situ chemical reduction (ISCR) substrates, zero valent iron, and organic material were injected in the aquifer in 2009 and 2010 to stimulate reductive dechlorination. PCE has exceeded the cleanup goal in one source area well (AP-10016); the estimated time frame has passed. However since the plume remains stable and there are no complete exposure pathways there is no increased risk to human health or the environment. All other COCs have been below the site cleanup goals. The most recent data (2015) indicate that PCE and TCE concentrations are increasing in upgradient well AP-10017. TCE is also increasing in source area wells AP-8914R and AP-10016. o Groundwater monitoring has been performed at DRMO-4 since the ROD was issued in 1997 (i.e. start of the remedial action). ISCR injections were conducted in 2009 and 2011. PCE concentrations have fluctuated above and below the site cleanup goals in two of three wells sampled; the estimated time frame has passed. Increasing trends are not identified for PCE. All other COCs have been below the site cleanup goals. TCE exhibits a potentially increasing trend in source area well PO5.

			• OU-3 – The estimated timeframe to reach the cleanup goals is no more than 30 years (ROD Section 10.0, p. 114). o The AS/SVE remedy at Remedial Area 1B (BHTF) was implemented in 1996 and terminated in 2005. A dual-phase product recovery system was installed in 1998. Groundwater monitoring has been performed since the ROD was signed in 1996. All COCs have attenuated to below the site cleanup goals in alluvial aquifer. 1,2-DCA exhibits increasing trends in four alluvial wells. COCs are still present in the bedrock aquifer above the site cleanup goals. Benzene, 1,2-DCA, and 1,2-EDB exhibit increasing trends in some of the bedrock wells. o The AS/SVE remedy at Remedial Area 2 (Valve Pits and Rail Off-loading Facility) was implemented in 1996 (six areas) and expanded in 1997 and 1998. The systems were terminated during 2009 to 2012. An ISCO treatability study was conducted in 2010. Toluene, 1,2-EDB, 1,2-DCA, 1,2,4-TMB, and 1,3,5-TMB have attenuated to the cleanup goals. Benzene exceeded the cleanup goal at five Valve Pit A wells in 2014, which is attributed to desorption from soil caused by flooding and an elevated water table. Benzene in two alluvial aquifer wells (1144-MP8 [Rail Off-loading Facility] and VPA-MP5 [Valve Pit A]) exhibit increasing trends and concentrations have exceeded the cleanup goal. Ethylbenzene (703 µg/L) in one alluvial aquifer well (GWP 49 [Rail Off-loading Facility] exceeded the cleanup goal in 2014. Ethylbenzene has either been not detected or present at trace levels in all 16 previous monitoring episodes. Other fuel-related VOCs (benzene and toluene) did not exhibit similar increases in 2014. o The AS/SVE remedy was not fully implemented at the Fairbanks-Eielson Pipeline Milepost 2.7 and 3.0 sites due to low soil permeabilities. Treatability studies were subsequently performed that involved excavation with ex-situ treatment and in situ treatment using an ORC. Benzene, toluene, 1,2-EDB, and 1,2-DCA exceed the cleanup goals. As discussed in the draft five-year review report (Section 5.6.5), the estimated timeframes to reach the cleanup goals were revisited in a 2011 monitoring report. The results ranged from three to 46 years at Milepost 2.7 and 32 years at Milepost 3.0. A data gap analysis has been performed at these sites to determine if there has been another potential source of groundwater contamination and to recommend future actions.

			• OU-4 – The estimated timeframes to reach the cleanup goals are 70 years (Landfill Source Area, [ROD Section 7.1, p. 94]) and 9 years (Coal Storage Yard [ROD Section 5.5.2.6, p. 81]). o A landfill cap was installed at the Landfill Source Area in 1997 and groundwater monitoring has been performed since the ROD was issued in 1996. The five-year review report discusses progress towards attaining the remediation goals (Section 5.7.5, page 79). o As discussed in the five-year review report (Section 5.8.2.2), an AS/SVE system was installed at the Coal Storage Yard in 1997 and shut down in 2000. Groundwater COCs have not been detected above the cleanup goals since 2001 and the Remedial Project Managers decided to discontinue the monitoring program in 2003 because the remedial action objectives had been met. • OU-5 o The estimated timeframes to reach the cleanup goals at the West Quartermaster's Fueling System (WQFS) are two years (WQFS1 source area) and 10 years (WQFS1 at Chena River) (ROD Section 7.1.3, p. 97). A source area AS/SVE system was installed in 1997 and expanded through 2001. It was shut down in 2005. A horizontal well AS/SVE system was installed in 1997 and expanded through 2001. It was shut down in 2005. Recent monitoring data indicates that diesel range organics (DRO), gasoline range organics (GRO), and benzene exceed their cleanup goals. The estimated time frames have passed. As indicated in the five year review report (Section 5.9.5, page 98), benzene trends are generally stable or decreasing, GRO concentrations are decreasing, and DRO concentrations remain stable. o The estimated timeframes to reach the cleanup goals are five years (WQFS2 source area) and five to 10 years (WQFS2 at Chena River) (ROD Section 7.1.4, p. 98). DRO and benzene have exceeded their cleanup goals; the estimated timeframes have passed. As indicated in the five year review report (Section 5.9.5, page 98), benzene trends are generally stable or decreasing, GRO concentrations are decreasing, and DRO concentrations remain stable. o The estimated timeframes to reach the cleanup goals are five years (WQFS3 source area) and five to 10 years (WQFS3 at Chena River) (ROD Section 7.1.5, p. 99). An AS/SVE system was installed in 2000. It was shut down in 2003 because benzene

			concentrations reached the cleanup goal. All COCs at this location are below the cleanup goals. o The estimated timeframe to reach the cleanup goal at the East Quartermaster's Fueling System (EQFS) is five years (EQFS treatability study area) (ROD Section 7.1.6, p. 10). An AS/SVE system was operated as a treatability study in 1994 prior to issuing the ROD in 1999. It was shut down 2005 because the groundwater cleanup goals were achieved. All COC concentrations are below the cleanup goals.
9.	-	General Comment MNA Geochemical Parameters	The site-specific remedial action discussions do not include information about the geochemical parameters used to assess MNA (e.g., whether they are analyzed, frequency at which they are analyzed, whether they indicate MNA is occurring, etc.). The FYR should include a discussion of geochemical parameters in the assessments of MNA performance monitoring for any site where natural attenuation is a remedy component, including an assessment of changes in the geochemical setting as indicated by geochemical parameters, particularly parameters such as the oxidation-reduction (redox) potential, dissolved oxygen, nitrate/nitrite, manganese (II), iron (II), sulfate, and methane, may suggest there are changes in biotic or abiotic processes affecting the rate and extent of natural attenuation, so monitoring of these parameters is key for performance monitoring of MNA. Please expand the site-specific remedial action discussions to include a discussion of geochemical parameters and a summary of what the parameters indicate about MNA for each site where MNA is a remedy component. **Response:** Information about the geochemical parameters used to assess MNA and a discussion of the results is provided for the OU-4 Landfill. CERCLA COCs have reached their cleanup goals at the OU-Building 1168 Leach Well site, the OU-4 Coal Storage Yard, the OU-5 WQFS3 site, and the OU-5 EQFS site. A discussion of geochemical parameters used in the assessment of MNA is unnecessary for these sites. Information about the geochemical parameters used to assess MNA and a discussion of the results will not be provided for OU-3 Remedial Area 3 FEP Mileposts 2.7 and 3.0 sites because they are undergoing a data gap analysis to determine the source(s) of groundwater contamination and recommend future actions. Information about geochemical parameters used to assess MNA and a discussion of the results will be provided for the OU-1 801 Drum Burial Site, the OU-2 DRMO Yard, OU-3 Remedial Area 1B (BHTF), OU-3 Remedial Area 2 (Valve Pits and ROLF), OU-5 WQFS1, and OU-5 WQFS2.

10.	-	General Comment Groundwater Contours and Plume Extents	The FYR does not contain a figure(s) displaying groundwater contours or groundwater elevation data to support the flow directions shown on the site-specific figures. Although this information is provided in Attachment 10 for some sites, groundwater contour data should be displayed on figures for all sites evaluated in the FYR, particularly given the complexity of groundwater flow at some sites due to seasonal impacts. In addition, the FYR does not consistently provide figures to display the current plume extents relative to the historic extents. For example, Figure 2-6 of Attachment 10 shows the extents of benzene and free product over time at the OU-3 Remedial Area 1B, but extents over time are not provided for other sites, such as the OU-1 801 Drum Burial Site and the OU-2 Building 1168 Leach Well. The FYR should demonstrate how the plumes have changed since the RODs were signed and since the previous FYR was completed to support statements regarding plume stability. Please revise the FYR to include figures displaying groundwater contours or groundwater elevation data for each site to support the flow directions shown on the site-specific figures. Please also revise the FYR to include figure(s) to display the current plume extents relative to their historic extents. **Response:** Updated figures showing plume extents and groundwater contours/flow directions will be included in Attachment 10. The information is sufficient to make protectiveness determinations.
11.	-	General Comment OU5 OBOD Figure and Site boundaries	The FYR does not provide a figure or a discussion that presents the exact boundaries of OU-5 Open Burning/Open Detonation Area (OB/OD Area), nor present the boundaries where ICs apply at the site. There are no photographs of the OU5 OBOD unit from the site inspection conducted for the FYR in 2015. In addition, it does not appear that the area described (in Section 5.12.1.1 "*The bermed area comprising the OB/OD site measures approximately 150 ft by 450 ft*.") encompasses all of the area required by the Department of Defense Ammunition and Explosives Safety Standards, Volume 5, Enclosure 3 (Areas Used For Intentional Burns And Detonations). While it is understood that a facility established in the 1960s timeframe would not be designed in accordance with today's standards, the current standards are designed using known blast safety and fragmentation distances that would have described the extent to which these traveled in the past. Please revise the FYR to include a text discussion and/or a figure that definitively presents the boundaries of the subject site and any distances to which munitions debris may have been expected from the detonations conducted. **Response:** The five-year review team was not provided access to the site during the inspection because range activities were occurring. However, photos of the site were taken during a metallic

			debris clearance survey conducted in June 2015 and are included in a Safety Clearance Summary Report prepared by the U.S. Army Engineer Research and Development Center (ERDC 2015), which was reviewed as part of this five-year review. The photos will be added to Attachment 5 of the five-year review report. Historical documents will be reviewed for maps/figures of the OB/OD area and all available figures be included in the five-year review. Updated figures will be generated if necessary once closure activities are initiated. The information presented in the safety clearance summary report confirms the Army's understanding of the OB/OD site, in that it verified there is neither surface nor subsurface munitions associated with the OB/OD site. Since the 1980s, this area has continued to be used as part of the operational range and therefore, intended use munitions may be found in the area. Since the OB/OD area is located within an operational range, the controls in place are those associated with the Range. These controls prevent residential exposure, warn the public of risks associated with range activities, and limit access to the site. Recent improvements made to the inspection and access controls at the OB/OD area will be added to the five-year review. A revised installation-wide IC program has been recommended in the five-year review.
12.		General Comment OU5 OBOD Characterization	EPA has acquired credible information during the FYR that contradicts a number of statements on the characterization of the OU5 OBOD unit. A member of the EPA contractor FYR review staff (a former member of the Department of Defense Explosives Safety Board) conducted these operations in the 1965-1966 time period while stationed at Fort Wainwright. The FYR characterization of the OU5 OBOD unit in section 5.12.1 and 5.12.1.3 claims "*The site was used by the U.S. Army from as early as the mid-1960s to as late as the mid-1980s for open burning/open detonation of unexploded ordnance and dud ordnance, unused propellants (black powder), rocket motors and small-arms ammunition.*" The FYR omits any discussion of the destruction of chemical agents at the site. The RCRA Facility Assessment for Fort Wainwright (1990) states *"In 1966 chemical agents were detonated and burned at the post demo range with diesel fuel in a trench"* (RFA, p. 28). According to the review contractor who conducted the operations at Fort Wainwright, there was *"open pit destruction by explosive venting and burning of two or three cylinders of mustard agent (H), a like number of cylinders of phosgene (CG), and a small drum of sodium cyanide. They were steel pressure type cylinders similar to those used today to transport compressed gas (much like a large hand-held carbon dioxide fire extinguisher) only shorter in length, approximately 2 to 2.5 feet in length and about 7 to 8 inches in diameter. The vented cylinders and the sodium cyanide*

			destruction drum were left in place when the burn pit was covered with dirt." Additionally, the last sentence in section 5.12.1.3 claims "*There is no evidence that the OB/OD Area was used to store or bury munitions or munitions debris*". Based on the EPA contractor review staff member's experience at the facility, the statement is incorrect for the following reasons: • In the 1960s (and perhaps later) the Explosive Ordnance Disposal (EOD) unit had a small bermed metal storage building that was used to store donor explosives used for emergency response and for destruction of ammunition by detonation. In addition, a small metal locker was located inside the berms, but outside of the metal building for the storage of blasting caps and detonators. • The site had a small arms popping furnace. In the early-mid 1960s time period, the munitions debris remaining after treatment was buried in shallow trenches near the popping furnace. Please revise the descriptions of the OU5 OBOD unit to more accurately reflect the types of hazardous materials that may have been destroyed, disposed of, or stored at the site. The FYR notes that only surface soil sampling (no lower than 6 inches below ground surface) was accomplished on the OB/OD Area in the past. The results of this would not be indicative of any residual contamination remaining from the subsurface burials conducted in the mid-1960s. The FYR does not evaluate questions A, B, and C for the OU5 OBOD unit. Please revise the FYR to include responses to these evaluation questions, with consideration of the hazardous materials which may have been destroyed, disposed of, or stored at the site. The FYR also does not discuss Issues, Recommendations for Follow-up Actions, or include a Protectiveness Statement for the OU5 OBOD unit. Revise the FYR to include these sections for the OU5 OBOD unit. Revise all sections of the FYR (Protectiveness Statements, Issues and Recommendations, Summary Form) to be explicit for the OU5 OBOD area separate from the other OU5 sites. **Response:** There was other information collected during the RI and at other times, all of which would need to be cited in the 5YR, if specifics about the basis for the no further action determination were to be included. The Army acknowledges that upon closure of the range this site will be evaluated and closed in accordance with an updated closure plan in accordance with the OU-5 ROD and RCRA permit, unless it is determined that closure can no longer be deferred. The ROD was an NFA ROD and the controls that were associated with the area being located within an active range were acknowledged in the ROD as a basis for the deferred closure, but were not part of

			the remedy. Since a remedy was not implemented at the OU5 OB/OD site, evaluation of questions A, B, and C is not applicable. The Army evaluated the OU5 OB/OD in the FYR to determine whether deferred closure remains appropriate, in accordance with the OU5 ROD. The Army review team has not been provided with any credible information contradicting what is known about the OU5 OB/OD. EPA is providing this anecdotal information about the historic use of the OU5 OB/OD which is inconsistent with and not supported by all information gathered closer to the time of use of the OB/OD and subsequently. If the Army receives any credible new information, it will evaluate that information to determine whether deferred closure of the OB/OD is still appropriate. The Army is continuing to review and research all available information on the OB/OD site; the Army awarded a contract in September 2016 for additional historical records research. The Army will reevaluate the site as appropriate based on any new information discovered. (Also see response to General Comment #11.)
13.		General Comment Discussion of all ROD COCs	The Five Year Review report does not discuss the trends and evaluate the remedies for all the Contaminants of Concern that were identified in CERCLA RODs. In particular, Operable Units listed comingled fuel contaminants in the RODs (OU 1, 2, 4, 5, and 6), however there is no discussion of DRO, GRO, RRO trends in this Five Year Review and if the remedies selected in the RODs are operating as expected and are protective. **Response:** See response to General Comment #7. Revise the Five Year Review to include a short discussion for each applicable OU and site with trends of DRO, GRO, and/or RRO and evaluate the protectiveness of the remedy including these contaminants. **Response:** Trends for DRO, GRO, and RRO will be discussed for sites that have these analytes as COCs. Statements about the persistence of DRO, GRO, and RRO will be added to the five-year review report for sites that do not include these analytes as COCs.
14.	-	General Comment Poly and Perfluorinated Compounds	The FYR does not discuss poly and perfluorinated compounds (PFASs), which are a significant emerging contaminant, especially in relation to OU4 which contains the Fire Training Area (deemed No Further Action in the OU4 ROD). The FYR for OU4 should be revised to discuss this emerging contaminant under Question B, *Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of the Remedy Still Valid?* and Question C, *Has any other information come to light that could call into question the protectiveness of the remedy?*

			The Army released a policy directive on June 10, 2016 which states: d. Army cleanup programs – The Army will research and identify locations where PFOS and PFOA are known or suspected to have been released on Army installations. The Army will assess and investigate releases and implement necessary response actions using the authority provided in References 1a-1e and other applicable DERP policies and guidance. Priority will be given to assessing known or suspected releases on Army installations where an Army-owned or operated water system has confirmed PFOS and PFOA levels above the HA, or where Army installations are within 20 miles of non-Army public water systems known to have exceeded the PFOS and PFOA HA levels. The Army will evaluate whether a release from these installations is contributing to the PFOS and PFOA levels in those water systems' source water. Where it is determined that PFASs may be present at a site, the FYR should also discuss how the potential extent of PFAS contamination will be assessed, including recommendations and a timeframe to address the recommendations. Please revise the FYR to discuss PFASs as an emerging contaminant, including recommendations and a timeframe for addressing these recommendations. **Response:** The OU-4 ROD did not require further action at the Fire Training Area and specifically states "the five-year review will not apply to this action" in Appendix A; therefore, this site is not included in the five-year review. The Army will evaluate the potential release of PFCs at the Fire Training Area outside the five-year review in accordance with Army guidance. If it is determined that a potential release has occurred which may pose an unacceptable risk to human health or the environment, the Army will either re-open the site or a new site will be created, as appropriate, and response actions at the site, as necessary, will be performed pursuant to CERCLA and the FFA. The Army has already conducted sampling for PFCs in OU-6. This data and a subsequent discussion of the impacts of detected PFOS and PFOA on the site protectiveness have been added to the five-year review.
15.		General Comment 1, 4 Dioxane	1-4 Dioxane is an emerging contaminant that is found in groundwater plumes in association with TCE and 1,1,1-TCA. Both Operable Unit 2 DRMO and Operable Unit 4 Landfill sites contain TCE contaminants in groundwater. The Five Year Review does not consider this emerging contaminant in the analysis of protectiveness of the remedies at OU2 DRMO and OU4 Landfill. EPA Regional Screening Levels have calculated a screening level of 0.46 micrograms per liter (µg/L) for 1,4-Dioxane in tap water, based on a 1 in 10^{-6} lifetime excess cancer risk and a Hazard

			Quotient = 0.1. This screening level is not enforceable but provides a useful gauge of relative toxicity. Consider the emerging contaminant in the analysis of remedy protectiveness in association with TCE and/or 1,1,1,-TCA groundwater plumes at OU2 DRMO and OU4 Landfill. If data does not exist at these sites, develop a recommendation to assess the presence of this contaminant. **Response:** In accordance with Army guidance on emerging contaminants, the Army will evaluate whether a release of 1, 4 Dioxane may have occurred at these units. The Army will then determine whether the contaminant presents an unacceptable risk to human health or the environment. If an unacceptable risk exists, the Army will evaluate the existing remedy to determine if it will address the unacceptable risk/release. If the remedy will not address the unacceptable risk caused by the release, the DoD Component may need to conduct additional response actions (e.g., focused investigation, risk assessment to evaluate the contaminant release to the environment) and/or prepare additional documentation (e.g., Explanation of Significant Differences (ESD), Record of Decision (ROD) amendment), if required by the NCP. The Army will coordinate these activities with the EPA and ADEC. The Army is aware of and will consider the Air Force Study in addition to scientifically supported studies related to releases of 1,4-dioxane when determining a path forward related to this emerging contaminant. Recommendations for further study are included in the following sites: • OU-1 801 Drum Burial Site • OU-2 Building 1168 Leach Well and DRMO Yard • OU-4 Landfill • OU-5 WQFS and EQFS The five-year review will include an evaluation of potential exposure pathways and potential risk to support the conclusion that existing ICs at these sites maintain short term protectiveness.
16.	-	General Comment Inspection Checklists	It appears that the Inspection Checklists in Attachment 4 were included for each OU rather than for each site. In combining all sites within an OU into one inspection form, there are a number of examples where the information presented is inaccurate. Typically inspections are site-specific since the FYR presents summaries, conclusions and recommendations on a site-specific basis. An Inspection Checklist is completed for each site to support the discussions in the FYR. In addition, Section 3.5.3 of the FYR Guidance states that site inspection should be recent and defines "recent" as "no more than nine months from the expected signature date of the review."

			Please ensure that an Inspection Checklist is completed for each site during future FYRs. Please also ensure site inspections for future FYRs are conducted no more than nine months from the expected signature date. **Response:** Comment noted
17.		Suggested Protectiveness Statements	The following protectiveness statements either use the language provided in the Five Year Review or modify the protectiveness statement from the FYR and suggest additional considerations. The statements do not take into account remedy protectiveness for DRO and RRO contaminants as these were not included in the draft FYR for consideration. <u>OU-1</u> The protectiveness should be deferred at OU1 due to an undefined plume at 801 Burial Drum Site and not enough data to make a conclusion on the VI pathway. VOC groundwater data, particularly in wells near the western boundary with the housing area, will be collected prior to the next FYR and VI assessment performed prior to 2021. **Response:** In accordance with Army response to general comment 6, a recommendation has been added to the five-year review to collect additional groundwater data and assess the VI pathway at OU-1. Information has been provided to support a short term protectiveness statement. Attachment 8 will be revised to indicate that trimethylbenzene (TMB) was not detected in well 6326, which is closer to the housing unit. Because of this, vapor intrusion screening level (VISL) exceedances associated with TMB in wells 6327 and 10101 are not a concern. <u>OU-2 (Bldg. 1168 and DRMO)</u> The remedies at OU-2 are currently protective of human health and the environment because: • All RAOs have been attained at the Building 1168 Leach Well site. • Migration of COCs in groundwater from the DRMO-1 and DRMO-4 source areas has been reduced by the remedial actions and additional in-situ treatment • ICs are in place to ensure that groundwater containing COCs will not be used. However to be protective in the long term:

			• Increasing trends of PCE, TCE in OU2 DRMO1 upgradient well a concern in high groundwater years suggest a source of contaminant remains in soils. • The emerging contaminant 1,4-Dioxane needs to be assessed especially in association with TCE groundwater plumes. **Response:** The increasing concentrations of TCE in source area monitoring well AP-10016 may be associated with attenuation of PCE. The concentrations of PCE at this location are stable. Increasing concentrations of PCE and TCE detected in upgradient monitoring well AP-10017 are not expected to affect protectiveness as the concentrations of these contaminants do not exceed cleanup goals at this location. The highest concentration of PCE was detected in 2014 at 2.0µg/L, less than half the cleanup goal of 5.0µg/L. The PCE concentration detected in 2015 at AP-10017 was 1.3µg/L. The Army will continue to monitor PCE and TCE locations at OU-2 DRMO-1. A recommendation has been added to the five-year review to perform an evaluation for 1,4-dioxane at both the Building 1168 Leach Well site and the DRMO Yard. <u>OU-3</u> The remedies at OU-3 currently protect human health and the environment because: • For all groundwater contaminants except DCA, migration of contaminated groundwater has been reduced by the remedial actions and natural attenuation. • ICs are in place to ensure that groundwater containing COCs will not be used. • Off-post risks associated with the consumption of contaminated groundwater at Remedial Area 1B are mitigated by attenuation of COCs in the alluvial aquifer. However, in order for the remedies to be protective in the long-term, the following action needs to be taken: • Remedial Area 1B – short term protective, no exposure and no risk but time frame for cleanup exceeded, and a migrating groundwater plume. Land use change (both adjacent housing development and removal of ASTs) may affect future protectiveness. • ROLF, Valve Pit A – groundwater timeframes exceeded, increasing trends of benzene with elevated groundwater levels from fall flooding impacts.

			• Re-establish the cleanup goals for 1,2,4-TMB and 1,3,5-TMB in groundwater using either of the following methods: 1) update the RBCs by including the inhalation pathway and using information from a new USEPA IRIS toxicity assessment that is currently under development (scheduled for completion by the end of calendar year 2016), or 2) adopt the cleanup goals established in 18 AAC 75. • Continued Monitoring in OU3 wells for contaminant concentrations, especially after Area 1B land use change. • EDB and DCA increasing trends reveal these groundwater plumes not stable at Remedial Area 1B **Response:** • 2nd paragraph, 1st bullet (Remedial Area 1B); a recommendation has been added to the five-year review to conduct an investigation in this area and the protectiveness statement is short term protective (ICs prevent adverse exposures). • 2nd paragraph, 2nd bullet (ROLF, Valve Pit A); see response to general comment 8. The estimated time frame to reach the cleanup goals is no more than 30 years, or by 2026. A recommendation has been added to the five-year review to conduct an investigation in this area and the protectiveness statement is short term protective (ICs prevent adverse exposures). • 2nd paragraph, 4th bullet (OU3 wells); the five-year review report does not recommend discontinuing groundwater monitoring at the OU-3 sites. It is an on-going activity and not a new action needed to ensure protectiveness of the remedy. • 2nd paragraph, 5th bullet, (EDB and DCA); a recommendation has been added to the five-year review to conduct an investigation in this area and the protectiveness statement is short term protective (ICs prevent adverse exposures). OU-4 The remedies at OU-4 are deferred protective of human health and the environment because: • All RAOs have been attained at the Coal Storage Yard.

			• ICs are in place at the Landfill Source Area to ensure that contaminated groundwater will not be used until the cleanup goals are attained. However to be protective in the long term, the emerging contaminant 1,4-Dioxane must be analyzed in wells, especially deep wells where TCE and 1,1,2-TCA are present. Increasing TCE, cis12-DCE trends in intermediate and deep wells at the OU4 Landfill should continue to be monitored. Presence of Poly and Perfluorinated Compounds at the OU4 Fire Training Area have not been adequately evaluated for human health risk pathway (public water supply and emergency supply wells). **Response:** A recommendation has been added to the five-year review to evaluate the Landfill site for 1,4-dioxane and the site is identified as short term protective. The short term protectiveness statement is supported in the five-year review by assessing potential receptors and exposure pathways should 1,4-dioxane be detected at this site. A recommendation was not added for the OU-4 Fire Training Area because this site is not subject to five-year reviews. The Army will assess this site for PFCs outside the five-year review. <u>OU-5</u> The protectiveness should be deferred at OU5 due to recent institutional control failures and data gaps at the OBOD site to define site boundaries and hazardous constituents. The remedies at OU5 WQFS/EQFS are currently protective of human health and the environment. However at WQFS, mitigation of sheen to the Chena River with an absorbent boom was not a component in the OU5 ROD. Increasing trends of benzene and potential migration of groundwater plumes are evidence of a remedy not fully functioning as intended in the OU5 ROD. **Response:** The referenced institutional control failures are specific to the Tanana River site (which is not subject to the five-year review process) and the Range Control SOP was not in effect at the time the Tanana River site was discovered. The Tanana River site is independent of the OU-5 OB/OD site and the Army has maintained ICs at the OB/OD site as required by the ROD since 1999. The five-year review has been revised to include more details of IC implementation at the OB/OD site. A revised installation-wide IC program is also recommended in the five-year review to supply additional administrative components to the ICs. A protectiveness statement has been added to the five-year review for the OB/OD site based only on information specific to the OB/OD

			site. The Army maintains that the deferred remedy at the OB/OD site is protective because of the implemented ICs. The OU-5 OB/OD site will undergo RCRA closure at a later date. The five-year review has been revised to include a recommendation for an investigation to evaluate whether additional source area(s) are present at the WQFS and the site is short term protective. Despite their persistence, monitoring data has shown that the groundwater plumes are stable. Sheen observations at individual stations along the boom indicates a decreasing trend in NAPL migration to the river. The Risk Assessment and Toxicology Evaluation (Attachment 8 to the five-year review) determined that the WQFS remedy remains protective of the environment (Chena River). OU-6 The remedy at OU-6 is protective of human health and the environment because ICs are in-place to ensure that human exposure to contaminated soil and groundwater will not occur. Protectiveness at OU-6 would be deferred if the area was used as a fire training area during the time frame when Aqueous Fire Fighting Foams were used and if the presence of PFAS in groundwater has not been assessed at the site. **Response:** Investigations were performed at OU-6 to assess the site for the presence of PFCs. The investigation results and an assessment of impacts on the remedy protectiveness have been added to the five-year review. The five-year review maintains the remedy at OU-6 is protective.
SPECIFIC COMMENTS			
1.	xv		Include the OB/OD Area in the list of sites. **Response:** The OU-5 OB/OD area is referenced in the Executive Summary since the OU-5 ROD requires the Army to evaluate deferred closure during FYRs; however, it is not on the list of sites subject to the five-year review because remedial actions have not been taken at the site.
2.	xvi	Bldg 1168 and DRMO Yard	The descriptions of the remedies for these sites includes AS/SVE system, an in-situ chemical oxidation or reduction treatability study, natural attenuation of groundwater with long term monitoring/evaluation, and ICs. Please remove the reference to the ISCO and ISCR treatability studies from the remedy description as these were not actions evaluated nor selected in the OU2 ROD. **Response:** Requested change will be made.

3.	xvii	DRMO Yard	Please add to the list of ICs at DRMO yard the prohibition on the filling of the DRMO yard fire suppression water tank from the existing potable water supply well. **Response:** The fire suppression water tank was re-filled by the existing potable water supply well. The water was tested and no exceedances of the State and Federal MCLs were identified. The Army will restrict future use of the DRMO Yard potable water supply in accordance with the ROD.
4.	xix	OU5 Remedial Area 1A (BHTF AST)	The OU5 ROD states *"Soils containing petroleum and other contaminants will be cleaned up when the tanks are removed under the conditions of the Two-Party Agreement."* As the BHTF AST site was originally in the OU3 ROD, the OU3 ROD discusses the preferred alternative for Remedial Area 1A in section 12 as excavation with soil washing, and a contingency of off-site disposal but defers selection of the remedy to the OU5 ROD. The OU5 ROD does not say 'removal of contaminated soil'. The chosen remedy was Alt 2, ICs and land use restrictions. Throughout the document, correct any reference to the remedy for OU5 Remedial Area 1A BHTF AST as ICs and land use restrictions. Cite the authority for the soil removal action at OU5 Remedial Area 1A. If this site is included in the 2-party agreement, document the removal action under that process. **Response:** Requested changes will be made.
5.	xxii	OU5	Need to break out the OU5 sites in this summary area and be explicit for each site. WQFS, EQFS, OBOD, Remedial Area 1A. What does this mean that the remedies at OU5 have not been completed? The AS/SVE systems have been installed, run, and decommissioned at most of the sites within this OU. If this is referring to the soil removal at OU5 Remedial Area 1A, the authority under the Two Party Agreement to complete this action should be referenced. **Response:** USEPA Guidance (OSWER No. 9355.7-03B-P and OSWER 9200.2-111) requires a separate protectiveness statement for each **operable unit** where the remedial action is currently underway or remedial construction is complete. Exhibit 3-3 of OSWER 9355.7-03B-P further indicates that a protectiveness statement(s) [should be] developed at the **OU level**. The OU-5 protectiveness statement on pages xxii, xxvi, and 131 reflected the least protective determination for OU-5, which was Remedial Area 1A (BHTF ASTs). The determination for this site has been changed to "protective" based on the response to specific question 31. The protectiveness

			determination for OU-5 on pages xxii, xxvi, and 131 will be revised to reflect the least protective determination for all OU-5 sites.
6.	xxii	OU6	Add to the OU6 summary that groundwater monitoring will be part of the evaluation of the remedy in the future. **Response:** Requested changes will be made.
7.	xxiii and 4	Summary Form and Table 2-1	According to the Summary Form, construction complete has not been achieved, but Table 2-1 indicates that a Site-Wide "FWA [Fort Wainwright Alaska] Construction Complete concurrence received from the USEPA" was received in 2002. The EPA database shows Construction Complete in 2002. Fort Wainwright Fairbanks North Star Borough AK6210022426 09/27/2002. Please resolve this discrepancy. **Response:** Remedial actions have not been completed at OU-3 Remedial Area 3 (FEP Mileposts 2.7 and 3.0).
8.	2 through 11	Table 2-1	Table 2-1 is inconsistent across OUs for dates when reports were finalized vs sent to EPA, RDRA workplans, injections as treatability studies, and references draft documents. Also some of the applicable major events not included in Table 2-1. For example, Table 2-1 does not list post-ROD monitoring events. This information should be included in the site chronology because MNA is part of the selected remedy for several sites included in the FYR. Another example is found under the OU-2 DRMO Yard section of Table 2-1, which does not include an entry for the Remedial Investigation (RI). Per Exhibit 3-3 of the FYR Guidance, site chronology should include "decision and enforcement documents, start and completion of remedial and removal actions, construction completion, and prior five-year reviews." Please ensure the site chronology provided in Table 2-1 includes the dates for all major events related to remedy documentation and implementation. **Response:** Table 2-1 will be checked to verify final report dates. Any discrepancies or incorrect dates will be corrected. USEPA Guidance (OSWER No. 9355.7-03B-P, Exhibit 3-3 and Appendix E, Table 1) does not require identifying post-ROD monitoring events in the chronology of site events. To address USEPA's concern, a single entry will be made under each OU heading that identifies completed monitoring events. Final report dates will be added to the "Date" column.

			Make sure the ISCO/ISCR actions are specified as treatability studies, otherwise this is implementing a remedy outside the CERCLA process. **Response:** Concur, all references to the ISCO/ISCR actions will be annotated as treatability studies. Page 8, why are Fire Training Pits showing up here? Was the removed soil placed in the OU4 Landfill? The OU4 ROD was NFA for the Fire Pits, but instead completed a soil removal action? **Response:** The Fire Training Pits soil removal action was inadvertently included in the table. Since this site is not subject to the five-year review, the table has been corrected. Page 9 says the CRAAP investigations were performed in 1997-98 timeframe, but not terminated until 2010. What happened in the intervening years? **Response:** The chronology table will be corrected as follows: Initial investigation 1997-1998 Additional investigation 2002 No further investigation deemed warranted by RPMs 2005 Page 11 should include the date the OU6 RDRA was finalized (June 2015). **Response:** Concur, the table has been updated with the RDRA.
9.	15	4.5	Remove this sentence "*State and Federal regulatory authorities were invited to attend the site inspections but declined.*" This is very disingenuous. EPA was given less than 2 days advance notice of when the site visit would occur. **Response:** Requested changes will be made.
10.	23	5.1.6.2	State the Attachment 8 conclusions in this section. **Response:** Concur, conclusions from Attachment 8 will be added to this section.
11.	24	5.1.8	Bring the Attachment 8 recommendations forward (increased sample frequency, reinstate sampling at wells closest to the housing area). **Response:** Concur, conclusions from Attachment 8 will be added to this sections.

12.	37	5.3.3	Move this sentence "*As a result of this evaluation….*" to just after the MAROS reference. It makes it sound like the EPA Groundwater stats tool led to the 2nd ISCR injection. **Response:** Requested change will be made.
13.	38	Section 5.3.4	Section 5.3.4 states that, *"Some of the probes appeared to be frost-jacked; however, installation staff noted that sampled wells were not affected,"* but any wells retained in the monitoring network should be evaluated for repair or replacement if impacted by frost jacking or other damages as part of remedy O&M. Please revise Section 5.3.4 to include a recommendation to evaluate frost jacked wells for repair or replacement at the OU-2 DRMO Yard. **Response:** Requested change will be made.
14.	38	Section 5.3.5	According to the second to last bullet point on page 38, *"exceedances at AP-10016 were attributed to high water levels that may have caused contaminants on the soil to desorb to groundwater;"* however, it is unclear whether rising groundwater levels are a trend at the OU-2 DRMO Yard or other FWA sites. If groundwater levels continue to rise, desorption of contaminants from soil to groundwater may become an ongoing concern and may warrant additional action. Please revise the FYR to discuss whether rising groundwater levels are a trend at the OU-2 DRMO Yard or other FWA sites and how this may impact groundwater concentrations. **Response:** According to the final 2015 Monitoring Report for OU-2, precipitation was above average in July and August 2015 and the August 2015 groundwater level was higher than average levels measured during fall sampling events. Graphical presentation of groundwater levels provided in the monitoring report illustrates that rising levels are not a trend at the DRMO Yard.
15.	43	Section 5.4.1.2	The first paragraph of Section 5.4.1.2 states, *"Bottled water was supplied to the Steese Chapel, which has been discontinued at their request,"* but the text does not specify when supply ceased or how drinking water is supplied to Steese Chapel (the text indicates that church's supply well is not currently used for drinking water). Please revise Section 5.4.1.2 to specify when bottled water supply was discontinued for the Steese Chapel. Please also revise Section 5.4.1.2 to specify how drinking water is currently supplied to Steese Chapel. **Response:** Bottled water supplied by the Army to Steese Chapel was not being consumed and the chapel verbally requested discontinuing the supply. The chapel has since installed a reverse osmosis treatment system on their water supply well. Water for the Shannon Park Baptist Church

			is supplied by the Army. The church's water tank is filled. This information will be added to the five-year review report.
16.	43	Section 5.4.1.2	Section 5.4.1.2 indicates that 91 of the 220 lots at the Lazelle Estates residential housing development were built by 2007, but does not indicate how many of the lots had been developed at the time of the FYR. Please revise Section 5.4.1.2 to specify how many of the 220 lots at the Lazelle Estates have homes at the time the FYR was prepared. **Response:** The five-year review will be revised to state the number of lots currently developed.
17.	59	Section 5.5.5	The discussion for Valve Pit B indicates that a "*third program well was severely damaged and scheduled for replacement in 2015,*" but it is unclear whether this well was replaced and sampled in 2015. In addition, the discussion for Valve Pit C states well VPCMP6 "was damaged before 2011 and could not be sampled," but it is unclear why this well has not been replaced in the five years since then. Please revise Section 5.5.5 to discuss the damaged wells at Valve Pits B and C and whether data from replacement wells is available. **Response:** The damaged Valve Pit B well, VPB-MP1 (a groundwater probe), was replaced by well AP-10292MW. It was sampled in 2015; results are provided in the 2015 OU-3 monitoring report. VPC-MP6 (a groundwater probe) has not been sampled since it was damaged in 2010. Groundwater samples have since been collected from VPC-MP2, which historically had the next highest contaminant concentrations of the site wells. VPC-MP2 is located upgradient of VPC-MP6, near the former valve pit. (See final 2014 OU-3 Monitoring Report). This information will be added to the five-year review report.
18.	69	Section 5.6.5 and Section 5.6.9	The last paragraph in Section 5.6.5, Data Review states "*This five-year review has determined that permafrost and low permeability soils inhibit groundwater flow and the migration of contaminants from the sites. They also limit the robustness of remedial actions and natural attenuation*". Sufficient data and analyses have not been provided to support these conclusions, in fact the data provided is contrary to these conclusions. The concentration trends in the wells have fluctuated with some wells showing increasing trends for COCs with other wells showing decreasing or stable trends. In addition, the extent of contamination is not fully delineated with no monitoring wells to the north, west and east of monitoring wells with exceedances of ROD Cleanup Levels (see Figure 5-7). Please provide a more robust analysis using the Monitoring and Remediation Optimization System (MAROS) or any other appropriate method that supports the statements that permafrost and low permeability soils inhibit groundwater flow and the migration of contaminants from the sites, and limit the robustness of remedial actions and natural attenuation. If the statements cannot be

			validated by existing data, then please state that the concerns related to the extent of contamination and the migration of contaminants from the sites will be addressed by the proposed data gap investigation. This comment also impacts the presentation in Section 5.6.9 for the Protectiveness Statement. **Response:** The concentrations of benzene in groundwater remain high and exhibit increasing trends in several wells. Analysis has shown that the groundwater cleanup goals will not be achieved at the FEP Milepost 2.7 and 3.0 sites within a reasonable amount of time. The third five-year review estimated the time to reach the cleanup goals is 46 years (Milepost 2.7) and 32 years (Milepost 3.0). The current five-year review acknowledges that, due to the extent and magnitude of groundwater contamination at these sites, a data gap analysis is in progress. It is currently under contract by the Army. The cited statement from the last paragraph in Section 5.6.5 will be removed from the report. The following statement will be added, *"A scheduled data-gap analysis will provide additional source characterization to establish the extent of contamination and identify potential transport pathways. It will support the assessment of exposure risks and selection of any associated remedial measures."*
19.	69	Section 5.6.6.1	To answer Question A whether the remedy is functioning as intended, increasing benzene concentration trends have been called out to indicate that it is not functioning as intended. However, other COCs including gasoline range organics (GRO), toluene, and ethylbenzene have exhibited an increasing trend in at least some of the wells. Please mention the complete list of COCs that have exhibited increasing concentration trends to illustrate that the remedy is not functioning as intended. **Response:** All groundwater COCs that are present above the cleanup goals and exhibit increasing trends will be mentioned.
20.	70	Section 5.6.9	Because the answer to Question A is "no", include a statement about current exposure pathways to complete the justification for protectiveness in the short term. **Response:** The second bullet will be revised as follows: *"There are no complete pathways for human exposure to groundwater. ICs are in-place to ensure that contaminated groundwater will not be used until the cleanup goals are attained."*
21.	79	Section 5.7.5	The first line of the fourth paragraph states "Seven of the 13 monitoring wells sampled contained one or more COC above the cleanup goals." Per the data and review provided in Attachment 10 regarding OU-4 Landfill, nine out of 13 wells contained one or more COC above the cleanup goals.

			Please explain the discrepancy and correct the statement to show the right number of wells if necessary. **Response:** Eight of 13 monitoring wells sampled during the most recent event (October 2014) contained COCs above the cleanup goals. The discussions in Section 5.7.5 and Attachment 10 will be revised as follows, *"8 of 13 monitoring wells sampled since October 2014 contained COCs above the cleanup goals."*
22.	78	Section 5.7.5	The last sentence of the fourth paragraph on Page 78 states *"The increasing TCE concentrations at this location may be a result of abiotic transformation of 1,1,2,2-TCA [1,1,2,2-trichloroethane] or a residual TCE plume from beneath the landfill."* The 1,1,2,2-TCA concentration trend at well AP-5589 seems to mirror the TCE trend at least for the last few sampling events, i.e., the 1,1,2,2-TCA concentration is rising in conjunction with TCE. This would indicate that the TCE concentrations are likely not increasing as a result of 1,1,2,2-TCA degradation, which should be decreasing for that correlation. Please provide more basis for this conclusion or revise this statement to focus just on the residual TCE source. **Response:** Abiotic transformation of 1,1,2,2,-PCA to TCE is documented in EPA/600/R-98/128 (Table B4.1). The statement on page 78 provides a plausible explanation for the observed TCE concentration increases. The monitoring data indicates that TCE has exceeded the 5 µg/L cleanup goal on two occasions since 1997, most recently in November 2009. TCE concentrations in groundwater have been stable since 2009. The estimated time frame to reach the cleanup goals at the OU-4 Landfill is 70 years, or by 2067. Providing possible causes for the presence of TCE in well 5589, either abiotic transformation of 1,1,2,2-PCA and/or a residual source, is unwarranted at this time. The statement *"The increasing TCE concentrations at this location may be a result of abiotic transformation of 1,1,2,2-TCA [1,1,2,2-trichloroethane] or a residual TCE plume from beneath the landfill."* will be removed.
23.	78	Section 5.7.5	The MAROS trend analysis uses all the data post-ROD from 1996 onward. While this provides a good long term analysis, short term trends could be missed. For example, 1,1,2,2-TCA in monitoring well AP-5588 shows a decreasing trend from July 1997 (1,700 micrograms per liter [ug/L]) to October 2014 (1,300 ug/L). However, if a shorter term data-set is used starting from July 2011 (890 ug/L) to October 2014, a rising trend can be observed contrary to the long-term trend. The short term evaluation allows for an analysis of changes that occurred over the last five years, like in the example above. A shorter term MAROS trend analysis using the five-year

			timeframe of the report can provide useful insights as to the progress of the remedy. Please provide the most recent 5-year MAROS trend analysis in addition to the full timespan MAROS analysis and provide an assessment of the results. This approach should also be taken for other sites where there is a greater than 10-year history of groundwater monitoring being used to assess remedy performance. **Response:** The estimated time frame to reach the cleanup goals at the OU-4 Landfill is 70 years, or by 2067. Additional trend analysis using shorter time frames is unwarranted at this time.
24.	81	5.7.6.3	Question C: Include analysis for 1,4-dioxane due to association with TCE and increasing TCE trends in intermediate and deep wells. (1,4-Dioxane is associated with TCE and 1,1,1,-DCA , however this site has TCE and 1,1,2-TCA). **Response:** See response to general comment #15. A recommendation will be added to the five-year review to assess the Landfill site for 1,4-dioxane.
25.	98	Section 5.9.5	The following statement is made in the second paragraph of the Sparge Curtain Area subsection: *"These results indicate that the contaminant plume is not migrating into the Chena River and that the boom is effectively containing sheen releases."* However, an intermittent sheen has been observed on the Chena River. Please clarify whether the sheen was observed only in the area within the boom or if it was also observed outside the boom area. If the sheen was also observed outside the boom indicating that the boom may not be functioning as intended, please provide a statement regarding the effectiveness of the boom, suggest remedial actions to prevent plume migration in Chena River, if needed, and re-evaluate the protectiveness statement in Section 5.9.9, Protectiveness Statement. **Response:** According to the final 2015 Monitoring Report for OU-5, sheen has only been observed within the boom area. The five-year review report will be updated to include this information.
26.	98	Section 5.9.5	The first bullet point under the West Quartermaster's Fueling System (WQFS) Source Area subsection states *"… The benzene trends were generally stable or decreasing and there is no evidence of benzene migration. GRO concentrations continue to decrease and diesel range organics (DRO) concentrations remain stable in this area."* Monitoring wells OU5-TW2, OU5-TW6, OU5-TW7, OU5-TW9, and OU5-TW10 appear to show an increasing trend for DRO and/or benzene concentrations. Please substantiate the called out statements about the benzene and DRO trends using MAROS or other suitable statistical software. If concentrations trends are increasing

			in some of the wells, please discuss these increases and optimizing or augmenting remediation to address these increases and revising the protectiveness statement in Section 5.9.9, Protectiveness Statement. **Response:** Information from the most recent OU-5 monitoring report (2015) will be included in Attachment 10 to substantiate the statements.
27.	100	Section 5.9.8	The first bullet in Section 5.9.8, Recommendations for follow-up Actions, states *"Implement measures to avoid future displacement of the Chena River Boom (e.g., increase height of the support posts)."* This implies that the boom has been displaced previously. Please add data to Section 5.9.4, Site Inspection, or another appropriate Section 5.9 subsection, to describe any past incidents where the Chena River boom has been displaced. **Response:** The first bullet of Section 5.9.7 (Issues) describes displacement of the Chena River boom in 2014.
28.	106	Section 5.10.5	The first paragraph in the Data Review section states *"The 2015 analytical data for six wells sampled in Flowpath D (AP-7490, AP-7752, AP-7753, AP-7754, AP-7755, and AP-7823) showed DRO concentrations below the cleanup goal (Figure 5-11 and Attachment 10). The 2012 results for well AP-7751 indicate that all ROD COCs analyzed were below the cleanup goals (residual range organic [RRO] and (2-chlorethyl)ether were not analyzed)."* Attachment 10 also indicates that only DRO was analyzed in the latest sampling round. However, sufficient explanation has not been provided for why only DRO was sampled instead of all the COCs listed in the ROD. Please provide the basis for sampling only DRO in the latest sampling event. **Response:** The only COC that exceeded the cleanup goals after the treatment system was shut down was DRO. Notes from the Winter 2015 FFA Meeting document a decision to only sample the Flowpath D wells for DRO in 2015.
29.	109	Section 5.10.9	The third bullet in the section for the Protectiveness Statement states "Occurrences of sheen in the Chena River have decreased." No evidence has been provided to substantiate this statement either in the Site Inspection or Data Review sections. Please provide the evidence for this statement in one of the sections mentioned above. **Response:** Sheen observations at individual stations along the boom are summarized in Table 3-6 of the final 2015 Monitoring Report for OU-5. It provides evidence that NAPL migration to the

			river has decreased since start of the remedial action. This information will be added to the five year review report.
30.	112-113	5.11.4	Site land use has changed with aboveground storage tank removal. **Response:** The last sentence of Section 5.11.4 will be revised to indicate that the above ground storage tanks were removed.
31.	114	5.11.9	The Remedy in the ROD was ICs. We don't have a decision document that allowed for soil removal. How to deal with this? **Response:** Acknowledged, the remedy in the OU-5 ROD was institutional controls. Contaminated soil excavation would be conducted under the 2-Party Agreement. The five-year review site inspection and most recent institutional control inspection report indicate that there was no recent evidence of unauthorized use of the site groundwater, no soil disturbing activities, and warning signs were present. This indicates that the remedy is functioning as intended by the ROD (RAO is to limit human and terrestrial exposure to lead contaminated soil). The protectiveness determination will be changed to "protective" as noted below: *The remedy at OU-5 Remedial Area 1A (BHTF ASTs) is protective of human health and the environment because:* • *ICs are in place to limit human and terrestrial receptor exposure to lead contaminated soil* • *There is no evidence of unauthorized installation or use of groundwater wells, no soil disturbing activities, and warning signs are intact.*
32.	115	Section 5.12.1	The first paragraph of this section provides the former title of the site as the "Explosives Ordnance Detonation Area." It should be noted that the original title of the area was the "Explosive Ordnance Disposal (EOD) Range." In addition, it states that, *"The site was used by the U.S. Army from as early as the mid-1960s to as late as the mid-1980s for open burning/open detonation of unexploded ordnance and dud ordnance, unused propellants (black powder), rocket motors and small-arms ammunition."* This statement is also presented in the Executive Summary. While this is likely the case, the following should be noted: • The term "unexploded ordnance" includes "dud ordnance." • The "unused propellants" disposed included propellants other than black powder.

			• All of the unserviceable ammunition stored at the ammunition supply point that was not retrograded to the Continental United States for renovation and/or disposal was destroyed at the site, not just propellants, rocket motors and small-arms ammunition. Please revise the FYR to correct the issues noted in this section, Section 5.12.1.3, the Executive Summary, and at any other locations where the same or similar information is provided. **Response:** No remedial actions were identified for the OB/OD site in the OU-5 ROD and the site received a no further action decision. While the five-year review will continue to present only the currently known information outlined in the document provided for regulatory review, the Army will perform a file review to collect additional information on the site. The discussion in the current five-year review report reflects information in the CERCLA and RCRA records, as well as additional observations and limited geophysical work conducted at the site. (Also see Army response to General Comment #s 11 and 12.)
33.	116	5.12.1.2	This section states that according to DoD policy, the OB/OD Area cannot be used for other purposes or transferred unless clearance techniques ensure the area is free of UXO and related hazards. This section must also state that the unit must also be closed in accordance with the RCRA permit before it is used for other purposes or transferred to the general public. **Response:** The requested change will be made
34.	116-117	5.12.1.3	The second paragraph refers to a site visit. The date of the site visit must be specified. The second paragraph also refers to the collection of soil samples. The number and location of these samples, the sampling and analysis plan, sampling report, analytical data and field notes from the sampling must be referenced. This section states that human access to the area is "*extremely restrictive*" and that "*evaluation of the site indicated that there were no complete exposure pathways for contaminants and that the contaminant levels were found to not pose an unacceptable risk to human health or the environment.*" These were assumptions that were made at the time the ROD was signed. However, the recent failure of institutional controls and discovery of extensive subsurface buried munitions at the nearby Tanana River Site have called these assumptions into question. Without further investigation the assertion that there is no unacceptable risk to human health and the environment is unverifiable. The Five Year Review must address this data gap and new information. **Response:** Available historical files will be reviewed for more information on the site visit performed on the OB/OD area. The requested details will be added to the report if available.

			See the OU-5 portion of the Army response to General Comment #17 and to General Comment #s 11 and 12. The Army asserts that the discovery of the Tanana River site has no direct bearing on the OU-5 OB/OD site.
35.	117	5.12.1.5	This section refers to the OB/OD Area as a RCRA regulated unit located within an operational range in the past tense. The area is still a RCRA regulated unit and is still located within an operational range. It will remain a RCRA unit until it is clean closed in accordance with an updated closure plan, which EPA requested of the Army in a letter dated December 18, 2014. Revise this section to state that the OB/OD Area is a current RCRA regulated unit. It is noted on the Inspection Form for OU5 (page A4-28) that no permits are noted as required. This is incorrect for the OU5 OBOD unit, which provides a specific example of the inaccurate information presented when the site inspections are combined within an OU. **Response:** The Army will clarify that the OB/OD site is a RCRA regulated unit in Section 5.12.1.2 (Land and Resource Use). Following numerous discussions between EPA and the Army, the Army responded to EPA's December 18, 2014 in a letter dated February 1, 2016.
36.	117	~~5.12.1.4~~ 5.12.3	Progress Since the Last Five Year Review references the fourth Five Year Review, which is this current assessment. Please revise this section as there is new information (the nearby Tanana River OBOD site, previously unknown to the Army), expansion of a road to the OU5 OBOD, and a major failure of IC to restrict access within 1000 ft of the OU5 OBOD unit. **Response:** The 1st sentence of Section 5.12.3 will be revised to reference the 3rd five-year review. The discovery of a new source area is not an IC failure; the Army asserts the Tanana River site has no direct bearing on the OU-5 OB/OD site. Also see the OU-5 portion of the Army response to General Comment #17 and to General Comment #s 11 and 12.
37.	118	5.12.5	This section asserts that "*after review of the OU-5 ROD, the RCRA Permit and the Interim Closure Plan, no information has been received to suggest that no action is no longer protective of human health and the environment*." The information in the ROD, Permit and Closure Plan are not sources of new information about current conditions. The new information is the failure of institutional controls and the discovery of subsurface munitions at the Tanana River site. This information is discussed briefly in section 5.12.6, Current Status of the Site. The Data Review section must be revised to include recent information about the OB/OD Area. The ERDC, CRREL 2015 Safety Clearance Report, discussed in this section, was for the limited purpose of determining whether the area was suitable as a staging area for work at the Tanana

			River Site. It did not investigate the entire OB/OD Area and did not show that the current remedy in place is protective of human health and the environment. This section must clearly state the limited purpose of the Safety Clearance Report. **Response:** See the OU-5 portion of the Army response to General Comment #17 and to General Comment #s 11 and 12. The Army asserts the discovery of the Tanana River site has no direct bearing on the OU-5 OB/OD site; therefore, there was not an IC failure at the OU-5 OB/OD site. In addition to criminal prosecution of individuals who trespassed at the Tanana River munitions area, the Army increased controls at the OU-5 OB/OD area. The Army will discuss the increased controls put in place at the range following the discovery of the Tanana River site, and will indicate the CRREL report covering the location of the OU-5 OB/OD was for the purpose of clearing the area to ensure safety of workers and equipment.
38.	118	Section 5.12.6	The Current Status of the Site states that the Fort Wainwright Range Control has reviewed the range controls that are in place, including signs, patrols and an added gate. The new measures are not clearly specified (for example, the frequency of patrols and the area being patrolled) and it is not clear how effective they will be, especially since the boundaries of the unit and extent of the subsurface hazard are unknown. The conclusion that institutional controls are effective and indicate continued delay of closure of the OB/OD Area is appropriate is not supported by the reasons listed and must be revised. The 2nd paragraph in the Current Status section states that "*no new RCRA or munitions rules have been promulgated that would change the unregulated status of intended use munitions or UXO on the operational range*." This statement is inaccurate. In 1997 the military munitions rule clarified EPA's approach to active ranges, clarifying that non-range OB/OD units are not protected by the active range exemption; and in March 7, 2000 the DOD-EPA Principles Agreement stated that all previous geophysical investigations cannot be used for any RCRA or CERCLA no further action or cleanup determinations, except in the very rare instances where the previous efforts complied with the Principles. Revise this section accordingly. The 2nd paragraph in the Current Status section also states "*the ICs required for the OB/OD Area are a result of the regulated unit being located within an operational range, which is and will continue to be subject to the deposition of intended use munitions that may pose an explosive hazard*." However, elsewhere in the document it states that no UXO has been discovered in the area. This area is located on the edge of the safety fan of the small arms firing range. Although it is important to control access because of the potential for new UXO to impact the area, the greater

			hazard by far is the munitions that are potentially in the subsurface due to the open burning and open detonation activities. The IC's required for the area because of the existence of a RCRA regulated OB/OD unit are independent from and in addition to the controls necessary for the small arms firing range. The statement that the area "*continues to be subject to deposition of munitions and munitions constituents*" is misleading, as any new deposition in the area on the surface would be subject to normal range clearance procedures. The subsurface munitions which were the result of historical open burning and open detonation were the main concern at the Tanana River Site and are the main concern at the OU-5 OB/OD Area as well. Revise this section to distinguish the OB/OD Area from the operational small arms firing range. This last sentence in this section states that, *"Therefore, the current ICs are sufficient to protect human health and the environment, and the delay of closure of the OU-5 OB/OD unit continues to be appropriate."* This is correct if the current ICs restrict intrusive activities that may extend past the approximate depth that would allow contact with subsurface burials. Please review the ICs and ensure that this level of intrusion is prohibited. **Response:** See the OU-5 portion of the Army response to General Comment #17 and to General Comment #s 11 and 12. The requested additional information on improvements made to the OU-5 OB/OD ICs will be documented in the five-year review. The Army maintains that the institutional controls at the OU-5 OB/OD site are effective and that a continued delay of closure of the OB/OD area is appropriate. No evidence has been reviewed specifically for this site that would indicate otherwise. The second paragraph in the current status section text will be revised to state that no new RCRA or munitions rules have been promulgated in the last five years that would change the unregulated status of intended use munitions or UXO on the operational range. Additional information has been integrated into the ARAR evaluation to specifically address the OU-5 OB/OD area. Past investigations associated with the OU-5 OB/OD used what was known about practices at this site and this type of site to define the investigation. The limited geophysical work conducted by CRREL for purposes of safety clearance confirmed subsurface munitions are not present at the site. Additionally, maps contained in the RCRA and CERCLA documents indicate the location/boundary of the OU-5 OB/OD area, which is within an operational range. The Army acknowledges that additional site mapping and investigation may be required upon RCRA closure.

			The ICs required in the OU-5 ROD include monitoring and control of access to the site. Since the ICs restrict access to the site, they also restrict access to subsurface soils. These restrictions will be outlined in the site-wide IC program to be updated by the Army.
39.		SECTION 6	The issues in Tables 6-1 and 6-2 may change with evaluation of the ROD comingled DRO/GRO/RRO contaminants and discussions on protectiveness determinations. Tables 6-1 and 6-2 comments are based on EPA review of the draft FYR. **Response:** All recommendations in Tables 6-1 and 6-2 will be reviewed and revised, if necessary, based on the Army responses to USEPA comments.
40.		Table 6-1	Add to the table issues that affect protectiveness (future or deferred): OU1 801 Drum Burial - data collection for VOCs in wells near housing for VI evaluation OU2 DRMO - 1,4-dioxane has not been assessed OU3 - DCA plume migration at OU3 Remedial Area 1A; TMB toxicity levels OU4 Landfill – 1,4-Dioxane has not been assessed OU4 Fire Training Pits – PFAS contaminants have not been assessed for exposure pathway OU5 WQFS – potential migrating benzene plume; use of the absorbent boom to mitigate sheen on the Chena is not sustainable as a long term remedy OU5 OBOD – better characterization required for hazardous constituents and unit boundaries, define site specific ICs From Table 6-2 Move the site-wide recommendation for an SOP for all LUCs/ICs on FWA to Table 6.1. LUCs/ICs are integral to the protectiveness of the remedy. Change the follow-up actions to read “Update the site-wide SOP to include all LUCs/ICs required throughout FWA.” **Response:** Any changes to Table 6-1 will be in accordance with the response to General Comment #17.
41.		Table 6.2	Add to Table 6-2: OU1 801 Drum Burial: Increase sampling frequency at AP-10042 to get data for next 5 year review to help determine groundwater attainment of cleanup levels.

			OU2 Bldg 1168: Develop an iRACR to document remedial action complete under CERCLA. Transfer management of the Bldg 1168 GW monitoring to the 2 party program. If the site retains IC restrictions, then the 5YR must be conducted to evaluate that component of the remedy. OU3 Area 1B: Re-evaluate GW monitoring after 'petroleum and other contaminant removal' from AST tank removal under the 2-party agreement. OU4 Coal Storage Yard: Develop an iRACR to document remedial action complete under CERCLA. If the site retains IC restrictions, then the 5YR must be conducted to evaluate that component of the remedy. Remove from Table 6-2: OU5 Area 1A: Recommendation is to remove ‘lead contaminated soils under the 2 party agreement’. This is not a 3 party CERCLA removal so remove this issue from the Table ? **Response:** OU1 801 Drum Burial Site: The groundwater monitoring frequency is every five years and the next episode is scheduled for 2020. The RPMs also agreed to collect biennial samples from monitoring wells AP-10042 and AP-7163 in 2017 and 2019. This data will enable determination of cleanup goal attainment in the next five-year review report (2021). OU-2 Bldg. 1168 Leach Well: Table 6.2 and Section 5.2.8 (Recommendations for Follow-up Actions) will include a recommendation to prepare an interim remedial action completion report. The recommendation will indicate that petroleum contamination is present at the site and the process for evaluating/remediating petroleum contamination is provided in the 2-Party Agreement. OU-3 Remedial Area 1B (BHTF): The requested recommendation will be added to Table 6-2 and Section 5.4.8 (Recommendations for Follow-up Actions) OU-4 Coal Storage Yard: Table 6.2 and Section 5.8.8 (Recommendations for Follow-up Actions) will include a recommendation to prepare an interim remedial action completion report. OU-5 Remedial Area 1A (BHTF ASTs): The recommendation will be removed from Table 6-2 and Section 5.11.8.
42.		6.2	Protectiveness statement suggestions provided in general comment #17 **Response:** Any changes to the protectiveness statements in Section 6.2 will be in accordance with the response to General Comment #17.

43.		FIGURES	All figures are missing the extent of historic and current plume boundaries. Figure 2-1 missing is OU6 **Response:** OU-6 will be added to Figure 2-1. All figures except Fig 5-13 are missing IC boundaries. **Response:** IC boundaries will be added to the figures. Figure 5-9 Coal Storage Yard has a remedial area boundary – is this the IC boundary? **Response:** The IC boundary for OU-4 Coal Storage Yard will be identified on the figure. Add a figure for OU5 OBOD. Define IC boundaries. **Response:** Available figures for the OU-5 OB/OD site will be reviewed and included as appropriate in the five-year review. The Army acknowledges additional mapping of the site may be required upon RCRA closure.
44.	-	Attachment 1 Figure 5-3	Figure 5-3 only shows five of the six subareas at the OU-2 DRMO Yard. Please revise Figure 5-3 to depict all six subareas associated with the OU-2 DRMO Yard. **Response:** There are six subareas at the OU-2 DRMO Yard. However, DRMO-6 was an area where surface water and sediment samples were collected from the "V" channel and drainage ditches around the compound. It was issued a "no further action" declaration and dismissed very early in the program. Therefore, it not shown on Figure 5-3.
45.	-	Attachment 1 Figure 5-4	The discussions in the text regarding OU-3 Remedial Area 1B wells distinguish between wells screened in bedrock and in alluvium, but Figure 5-4 does not differentiate between bedrock and alluvium wells (e.g., different symbols, different colored well labels, etc.). Please revise Figure 5-4 to differentiate between bedrock and alluvium wells. **Response:** Figure 5-4 will be revised to differentiate between bedrock and alluvium wells.
46.		Attachment 2	The Documents Reviewed section contains duplicate references (e.g., Marsh Creek 2015, Marsh Creek 2015b draft and final respectively, OU6 RDRA US Army & OU6 RDRA USACE), draft reports which have been finalized (e.g., most of the 2014 OU reports and IC report, OU1, OU2 and OU5 for 2015). Please update the documents reviewed for the most current reference. If a final version was available but not used, that should be noted.

			Response: Marsh Creek 2015a and USACE 2015 will be deleted. The five-year review report will be updated to reflect more current monitoring reports. Add the OU6 ROD **Response:** The OU-6 ROD reference will be added. Add the 1997 Military Munitions Rule **Response:** The 1997 Military Munitions Rule will be added. Add the 2013 RCRA Permit **Response:** The RCRA Permit will be added. What is this document if not the OU4 ROD? How does it not have a date? *U.S. Army No date. Decision Document for Fire Training Pits, Operable Unit 4.* **Response:** The Decision Document for Fire Training Pits is a separate document that was included in the OU-4 ROD as Appendix A. It is not dated.
47.		Attachment 3	The document summaries are well done and useful. The following clarifications or corrections should be made: • OU1 MCLs for dieldrin and aldrin – there are no new federal MCLs, clarify if these are state MCLs • OU3 Area 1B – shouldn't receptors be residential (including off –base in addition to Army with the church wells downgradient). • OU5 Area 1A lists groundwater as the media of concern. Isn't this a soil contaminant? There are RAOs associated with GW and Chena River. Add a summary for OU5 OBOD **Response:** • OU-1 - The MCLs for aldrin and dieldrin are State of Alaska (18AAC Table C). This information will be added to the summary table • OU-3 Remedial Area 1B – the ROD (Section 6.1.4, page 77) indicates that potential receptors at the Tank Farm Source Area [that exceeded the ICRL and/or HI] include

			downgradient users (the two churches) and [users of the] Class A municipal drinking water wells. The summary table will be corrected to include this information. • OU-5 Remedial Area 1A – correct, the medium of concern is groundwater. The summary table will be corrected to include this information. • OU-5 OB/OD Area – Summary tables will be added
48.		Attachment 4	Numerous inconsistencies or errors in these forms. Section II, 3. of the form: No response isn't appropriate for the site inspection. Regulators were not given adequate notice for the date of the inspection. Not present is more accurate. **Response:** Requested change will be made ADEC representative may have been Guy Warren, not Guy Warner. Deb Calliouet retired in July 2015. **Response:** The ADEC representative was Dennis Shepard. The five-year review report will be revised to reflect this. Section III, On-site Documentation. Many remedies had AS/SVE or product recovery systems. Where is the O&M documentation and product disposal records. NA does not seem appropriate. **Response:** The systems were not operated during the 4^{th} five-review period (i.e. September 2011 to present) and reference to these records is unnecessary. Section X, Other Remedies. Are new injection wells documented in the inspection due to treatability studies at OU2, OU3, OU5. **Response:** The new injection wells haven't been documented on the inspection forms. OU3, Section 6, D.3. Wasn't a new gate installed on Lazalle Road for the Arctic Games? **Response:** Yes, this information will be added to the Site Inspection Form. OU4 Landfill. Isn't there maintenance on the Landfill Cap? Maintenance is marked NA. No permits are selected. This should be permitted by ADEC as a Solid waste site. **Response:** The inspection checklist will be revised to include this information.

			OU4 Landfill and Coal Storage, Section XI,D. Statement to optimize by discontinuing FYR at Coal Storage. You don't to discontinue 5YR if ICs are still a component of the remedy unless you can prove UU/UE. **Response:** All cleanup goals and RAOs identified in the OU-4 ROD have been attained. This site has limitations solely due to its use a coal storage yard. It meets the unlimited use and unrestricted exposure criteria identified in the ROD. LUC/ICs pursuant to the ROD and five-year reviews should be discontinued. OU5 III,4. Add the RCRA permit. **Response:** Requested change will be made OU5 V.A.1. *Access is controlled to all sites by installation fencing*. This is an incorrect statement as the southern boundary of Fort Wainwright along the Tanana River is not fenced. **Response:** This statement will be removed. OU5 V.C. EPA disagrees in general with the ICs as effective for OU5 due to the Tanana River trespass event within 1000 ft of OU5 OBOD. **Response:** Comment noted. The discovery of a new source area is not an IC failure; the Army asserts the Tanana River site has no direct bearing on the OU-5 OB/OD site. Also see the OU-5 portion of the Army response to General Comment #17 and to General Comment #12. OU5 VI.A – significant change to the road at OU5 OBOD since the last FYR should be noted. **Response:** Requested change will be made OU6 V.D.2. Land use has changed at the site. Residential occupation began at the OU6 in July 2015. **Response:** Requested change will be made
49.	A4-4, A4-10, A4-16, A4-22, A4-30, and A4-36	Attachment 4	The Inspection Checklists provided in Attachment 4 do not clearly indicate whether there have been violations of ICs. Section V, Part C, Item 1 of the Inspection Checklists states "Violations have been reported" and checks "Yes," but it is unclear whether this indicates that yes, reporting is occurring as required or yes, violations have occurred. Please revise the FYR to clarify whether there have been violations of ICs. If so, please revise the FYR to summarize the violations and to make recommendations regarding how violations will be prevented.

			Response: The inspection checklists will be updated, if necessary, to discuss any IC violations noted in the IC inspection reports and five-year review inspection.
50.	A4-9	Attachment 4	"Gates secured" is marked under Section V, Part A, Item 1, but the remarks indicate that "Access in controlled by installation fencing." Please revise the FYR to clarify whether there is a gate present. If not, please ensure that "N/A" is marked on future Inspection Checklists. **Response:** The inspection checklist will be reviewed and corrected for any discrepancies or omitted information.
51.	A4-11	Attachment 4	Section IX, Part E, Item 1 notes that "Monitoring wells in the vicinity of the DRMO yard observed damaged due to frost heaving," but does not identify which wells are damaged. Please revise the FYR to clarify which wells at the DRMO Yard have been damaged and indicate which wells will be repaired and/or replaced. **Response:** The inspection checklist will be reviewed and corrected for any discrepancies or omitted information.
52.		Attachment 5	No photographs from the inspection at OU5 OBOD. **Response:** See response to General Comment 11. No overview for where the OU6 photos were taken. **Response:** An overview figure will be provided that shows the locations and orientation of OU-6 photographs.
53.		Attachment 6	EPA interview form submitted July 27, 2016. **Response:** Acknowledged, it will be added to the final report.
54.	A7-2 (Table) A7-12 A7-15	Attachment 7	There is no discussion of the OB/OD Area, which is a RCRA-regulated unit and has a RCRA permit. In accordance with the permit, submittal of an updated closure plan was requested by EPA on December 18, 2014. A discussion of the OB/OD Area must be included in this section of the ARAR evaluation. **Response:** Pursuant to the OU-5 ROD, the five-year review report will evaluate the status of RCRA rules and regulations for military munitions ranges and unexploded ordnance to determine whether additional RCRA requirements must be met. This will be included in Attachment 7 and results of the evaluation will be discussed in the main section of the report.

55.		Attachment 7	Table A-7.1. This table proposes a current remediation goal that is One Order of Magnitude higher than cleanup goals in the ROD. The state may have promulgated a groundwater cleanup level, but the cleanup goal has not changed unless documented in a ROD Amendment or Explanation of Significant Difference. **Response:** Table A-7.1 will be checked against the ROD cleanup goals. Any discrepancies will be corrected.
56.	A8-10ff	Attachment 8	Revise the OU5 Risk Assessment and Toxicology Evaluation for OU5 after completing a more accurate characterization of hazards at the OU5 OBOD site. **Response:** The OU-5 ROD did not select a remedy for the OB/OD site and determined that no action was required to address the OB/OD site. Therefore, there are no exposure assumptions, toxicity data, or cleanup levels to evaluate in Attachment 8.
57.		Attachment 8	Placeholder for risk assessor comments. **Response:** None
58.		Attachment 10	The annual groundwater monitoring reports have done a comprehensive job at evaluating groundwater trends. In future FYR, please utilize as many approved and finalized annual reports for the groundwater analysis. It is noted in this FYR, OU2, OU3, and OU5 used data and analysis from groundwater reports. The OU1 annual report was finalized in concert with production of this draft FYR. Please ensure the OU1 trend analysis conclusions in the FYR match those approved in the OU1 2015 Groundwater Monitoring Report. **Response:** Acknowledged OU4 annual reports from 2014 and 2015 did not include trend reports. **Response:** Correct, the discussion indicates that trend analysis was performed to augment and verify assessments provided in the annual reports. It does not indicate that trend analysis was performed in the reports.
59.	-	Attachment 10 Figure 3-2	Figure 3-2 indicates that there are no monitoring wells located north of wells AP-6331 and AP-10042MW or west of well AP-10042MW to define the extent of the northern dieldrin plume. There are also no monitoring wells located west of well AP-6631 to define the extent of the southern dieldrin plume. In addition, concentrations of dieldrin in well AP-6631 were above cleanup levels in 2005, but the well has not been sampled since then. Lastly, the figure does not denote the direction of groundwater flow. Please revise the FYR to acknowledge the data gaps at

			the OU-1 801 Drum Burial Site and to discuss how these data gaps impact the evaluation of plume stability. Please also recommend that well AP-6631 be sampled in future monitoring events. Lastly, please ensure the figures in the FYR that display groundwater data also depict the direction of groundwater flow. **Response:** The 2015 OU-1 Groundwater Monitoring Report includes a recommendation to sample wells AP-6630 and AP-6631 for pesticides during future monitoring events. Spatial moment analysis, conducted in the OU-1 2010 and 2015 monitoring reports, indicates that the dissolved dieldrin mass has been stable and no trend has been identified for location of the center of mass. Piezometric surface maps indicate that a groundwater divide, trending north-south, is present at the site. Groundwater in the eastern portion of the site discharges to the Chena River, while groundwater in the western portion of the site flows west/northwest. The location of the divide varies with river stage. The five-year review report will be updated to include this information. Potentiometric surface maps, from the monitoring reports, will be added to Attachment 10.
60.	-	Attachment 10 Figure 2-2 and Table 5-5	Table 5-5 indicates that well AP-5751 is upgradient, well AP-10037MW is within the source area, and well AP-6809 is downgradient, but Figure 2-2 shows that all three wells are located downgradient of the source at the OU-2 Building 1168 Leach Well Site (i.e., the former leach well). In addition, given the limited monitoring well network, it is unclear whether concentrations have fallen below cleanup levels or whether ISCO injections have pushed the plume downgradient of the monitoring wells. Please revise the FYR to resolve the discrepancies regarding the well designations for the OU-2 Building 1168 Leach Well Site (e.g., upgradient, source area, etc.). Please also revise the FYR to discuss whether concentrations have fallen below cleanup levels or whether it is possible that ISCO injections have pushed the plume downgradient of the monitoring wells. **Response:** Table 5-5, Figure 2-2, and Figure 5-1 were taken from a contractor's report (pdf) and cannot be edited. The ISCO treatability study was conducted in 2010 and included in the last five-year review. The previous review does not contain any additional information that would allow for an evaluation of dispersion during the injection. Groundwater monitoring data was reviewed and no plume migration was observed in the two nearby monitoring wells. All available information will be added to the five-year review.
61.	-	Attachment 10 Figure 2-4	Figure 2-4 indicates that several wells at the OU-3 Remedial Area 1B have not been sampled recently. For example, concentrations of 1,2-DCA, 1,2-EDB, and benzene at well AP-7813

			exceeded the cleanup levels in 2013, but no sample data is presented for 2014 or 2015. Another example is well AP-7528. Concentrations of 1,2-EDB and benzene exceeded the cleanup levels in 2010, but the well has not been sampled since then due to poor recharge. Well AP-7528 should be recommended for replacement. Please revise the FYR to recommend sampling of all wells where concentrations have been above cleanup levels but that have not been sampled recently, or provide an explanation in the FYR for why sampling of these wells is not required. **Response:** The 2014 OU-3 monitoring report recommended sampling bedrock well AP-8424 as a replacement for AP-7813. The 2012 OU-3 monitoring report (Figure 2-10) indicates that AP-7528 was eliminated from the sampling program. Well AP-7813 is located within 10 feet of AP-7528 and has been used in lieu of AP-7528.
62.	-	Attachment 10 Figure 3-1	Benzene exceeds the cleanup level at wells VPA-MP1, VPA-MP2, VPA-MP5, AP-6064, and AP-6065, but no benzene plume(s) is depicted at the OU-3 Remedial Area 2 (Valve Pits A, B, and C). Please revise the FYR to depict the extent of the benzene plume(s) at the OU-3 Remedial Area 2. **Response:** Figure 3-1 was taken from a contractor's report (pdf) and cannot be edited.
63.	-	Attachment 10	For OU-3 Remedial Area 3, a figure showing the latest data up to 2015 has not been provided. Only Figure 4-1 from the 2010 OU3 Monitoring Report has been provided which does not present the latest monitoring data from 2015. Please provide an updated figure that also presents the latest monitoring data. **Response:** Attachment 10 will be updated with figures/tables from the most recent monitoring reports.
64.	-	Attachment 10	Table 5-19 does not present any notes explaining notations and highlights. Please update Table 5-19 with notes explaining highlights, notations, and acronyms. **Response:** Table 5-19 was taken from a contractor's report (pdf) and cannot be edited. The OU-3 monitoring documents will be checked for a better version of this table. It will be replaced, if one is available.
MINOR COMMENTS			
1.	xvii	OU3 Remedial Area 1B	Inconsistent use of acronyms. 1,2 DCA should be spelled out the first time and then acronymed later. Later on page xviii it's spelled out. **Response:** Requested change will be made

2.	20	Section 5.1.2.2 and Attachment 1 Figure 5-1	According to Section 5.1.2.2, "Currently, eight of the 16 monitoring wells are monitored" at the OU-1 801 Drum Burial Site, but Figure 5-1 only depicts 11 well locations. Please revise Figure 5-1 to show all 16 monitoring wells at the OU-1 801 Drum Burial Site. **Response:** Figure 5-1 will be cross-checked against Section 5.1.2.2. Any discrepancies will be corrected.
3.	37	Section 5.3.3	The second to last bullet point on page 37 states that "beginning in 2014, the sampling data was analyzed using a Groundwater Statistics Tool developed by the USEPA" and concludes, "As a result of this evaluation, a second ISCR [in-situ chemical reduction] injection was completed in 2011 in the DRMO-4 subarea;" however, it is unclear how an analysis conducted in 2014 impacted an injection completed in 2011. Please resolve this discrepancy. **Response:** The second bullet will be revised as follows, *"Following each annual monitoring event, groundwater data were presented in annual monitoring reports and used to perform LTMO analysis, which included evaluation of contaminant trends, plume stability, monitoring well redundancy, and sampling frequency. As a result of this evaluation, a second ISCR injection was completed in 2011 in the DRMO-4 subarea as part of a treatability study initiated in 2009. Beginning in 2004, the sampling data was analyzed using a Groundwater Statistics Tool developed by the USEPA.*
4.	116	Section 5.12.1.3	The text in the second paragraph refers to "detonation (impact) craters." These two types of craters are not the same and they result from different activities and they do not have the same general characteristics. The detonation crater results from the intentional (and usually repetitive) detonation of explosive charges, while the impact crater results from the impact detonation of fired ordnance. Please correct this statement. **Response:** The statement will be corrected.
5.		Attachment 3	Typo in OU6 COC summary for 1,2,3-TCP. **Response:** The typo will be corrected.

REVIEW COMMENTS **PROJECT: Fort Wainwright**
DOCUMENT: DRAFT Fourth Five-Year Review Report for Fort Wainwright

USACE 25Aug16 meeting notes & proposed changes

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: July 7, 2016 REVIEWER: Dennis Shepard PHONE: 907-451-2180	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A – accepted D – disagree P - pending W - withdrawn	ARMY RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	ARMY RESPONSE
1	Xxi, Table 5-3 & Table 5-4	Text states: "All RAOs have been attained at the Building 1168 Leach Well site." RAOs for OU-2 include 'Restore groundwater to drinking water quality." Based on the recommendations in the 2015 monitoring report for the former Building 1168, DRO is still being evaluated. The site has been recommended for moving the site from the 3 party program to the Two party program. Based on these recommendations the RAOs have been met for contaminants other than DRO. Please describe the remaining concentrations, trends and plans to move the site to the Two Party for further monitoring.	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	COCs and remediation goals for groundwater identified in the OU-2 ROD for the Building 1168 Leach Well site include: • Benzene (5.0 µg/L) • Trichloroethene (5.0 µg/L) • Tetrachloroethene (5.0 µg/L) • Vinyl chloride (2.0 µg/L) • 1,1-dichloroethene (7.0 µg/L) • 1,2-dichloroethane (70 µg/L) (ref: OU-2 ROD Section 7.2.3, page 101 and Table 7-3, page 105) DRO is not a CERCLA groundwater COC subject to the five-year review. However, the five-year review report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
2	Page 2	OU-5, Third bullet, Text states: "Remedial Area 1B Birch Hill Tank Farm Aboveground Storage Tanks (ASTs)" The protectiveness statement specifies: "OU-5 Remedial Area 1A (BHTF ASTs)". Please clarify. Revise where necessary.	A	Page 2, 3rd bullet under OU-5 will be changed to *"Remedial Area 1A"*.		
3	Page 14, Sec. 4.2	Text states: "a public notice will be placed in the Fairbanks Daily News Miner and the Alaska Post to announce the availability of the final five-year review" How long will the notices run in these papers?	A	A public notice was published on April 8, 2016. It ran for one day.		

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4	Page 23, Sec. 5.1.5	Text states: "the data demonstrate that migration of contaminated groundwater to the Chena River and downgradient drinking water wells is being met." Consider revising sentence to specify RAO is being met.	A	Requested change will be made.		
5	Page 23, sec. 5.1.6.1	Thirds bullet, Text states: "Groundwater analytical data indicate that groundwater contamination is attenuating, albeit at a slow rate, and the plumes are stable." For Dieldrin no trend was identified. Consider revising to list COCs that show attenuation.	A	The statement will be revised as follows: *"Analytical data indicates that groundwater contamination due to benzene and cis 1,2-DCE is attenuating, albeit at a slow rate, and the plumes are stable. Aldrin, 1,1-DCE, and vinyl chloride are below their groundwater cleanup goals."*		
6	Page 26, Table 5-3	Table 7-3 of the ROD for OU- 2 identified DRO as a contaminant of concern for B. 1168. Please add DRO to Table 5-3.	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	OU-2 ROD Table 7-3 identifies DRO, GRO, and BTEX as COCs for subsurface soil. It does not identify DRO as a groundwater COC. Five-year review (FYR) Table 5-3 will be revised to identify these subsurface soil COCs. FYR Table 5-4 will be revised to include the soil cleanup goals and the basis for these goals. The five-year report will also be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
7	Page 28, Sec 5.2.2.2	Text states: "When the groundwater cleanup goals were attained in 1998." DRO met cleanup goals in site wells during 2014 and 2015 groundwater monitoring. However, the groundwater DRO concentrations are still being evaluated to demonstrate	A	As noted in the response to comment 6, DRO is not a groundwater COC in the OU-2 ROD. It is not subject to the FYR. The sentence will be revised as follows, *"When groundwater cleanup*		

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		compliance with cleanup goals and the groundwater RAO. Please revise sentence. Specify which contaminants met cleanup goals.		*goals identified in the ROD were attained in 1998, …"*		
8	Page 28, Sec. 5.2.3	Text states: "The Third Five-Year Review Report (U.S. Army 1997a) provided the following protectiveness statement for the OU-2 Building 1168 Leach Well Site:" Check reference. Third Five-Year Review was dated September 2011.	A	The reference will be changed to *"(U.S. Army 2011)"*		
9	Page 30, Sec. 5.2.5	This section discusses the contaminants that are below the cleanup goals but makes no mention of the contamination above cleanup goals. Please discuss remaining contamination above the cleanup goal/cleanup level which is rationale for transfer to the 2 party program.	A	Remaining contaminants in site groundwater are not ROD COCs and not subject to the FYR. For clarity, Section 5.2.5, 1st paragraph, 2nd sentence, will be revised as follows: *"The 2015 Monitoring Report for OU-2 presents 2015 and historical groundwater analytical results and demonstrates through statistical evaluation that groundwater cleanup goals have been achieved for ROD COCs, although petroleum contamination (as DRO) persists (FES 2015m)."*		
10	Page 31, Sec. 5.2.8 & 5.2.9	Text states: "All RAOs identified in the OU-2 ROD have been attained, although petroleum contamination persists at the site." RAOs for OU-2 include 'Restore groundwater to drinking water quality" All RAOs have not been achieved if petroleum contamination is still a concern. Please revise.	A (with language added to the FYR report that acknowledges the presence of any 2-PTY Agreement contaminants in	The sentence and bullet will be revised as follows, *"All cleanup goals identified in the OU-2 ROD have been attained, although petroleum contamination persists at the site."* The five-year report will also be revised to acknowledge the presence of any 2-PTY Agreement contaminants in groundwater, as		

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			the groundwater)	indicated in the most recent monitoring report.		
11	Page 34, Sec.5.3.2 & Table 5-6	Table 7-1 of the ROD for OU- 2 identified DRO as a contaminant of concern for DRMO yard. Please add DRO to Table 5-6.	A	OU-2 ROD Table 7-1 identifies DRO as a soil COC for the DRMO Yard. It will be added to FYR Table 5-5. The soil remediation goal and basis will be added to Table 5-6.		
12	Page 34, Sec.5.3.2	Since DRO is identified as a COC in the ROD for this site, some discussion of the DRO concentrations and remediation activities should be included.	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	As noted in the response to comment 11, DRO was identified as a soil COC in the OU-2 ROD. FYR Section 5.3.2.2 indicates that a SVE system was installed at DRMO-1 and operated to address this contaminated medium. The RPMs decided to shut down the system in 2005 due to declining PCE removal rates and concerns that it may be inhibiting anaerobic biodegradation of chlorinated compounds. Confirmation soil samples were not taken and are not available for discussion in the FYR report. The five-year report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
13	Page 39, Sec. 5.3.5	@ DRMO-1, Text States: "PCE - Increasing trend in well AP-10017 (up gradient) The Final 2015 Monitoring Report for OU-2 made clarification to the increasing trend. Please revise to be consistent with the approved final version of the 2015 Monitoring Report for OU-2.	A	The 2015 Monitoring Report asserts that PCE concentrations in groundwater have been sensitive to changes in groundwater levels since the second injection of an ISCR substrate. PCE increases generally correspond to groundwater level increases, which was interpreted to		

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				indicate that residual PCE may be trapped in soils. The PCE concentrations in well AP-10017 have been below the cleanup goal. The FYR report will be revised to include this information.		
14	Page 39, Sec. 5.3.5	Petroleum cleanup was part of the remedy in the ROD and needs to be included in the discussion and data review. Currently there are three monitoring wells that have DRO concentrations above the RAG. Discuss trends in the MWs.	A (with language added to the FYR report that acknowledges the presence of any 2-PTY Agreement contaminants in the groundwater)	As noted in previous responses, DRO was not identified as a groundwater COC in the OU-2 ROD. The five-year report will be revised to acknowledge the presence of any 2-PTY Agreement contaminants in groundwater, as indicated in the most recent monitoring report.		
15	Page 44, Table 5-7 & 5-8	DRO and GRO should be in the list of COCs since preventing contaminant migration from soil to groundwater is a RAO and 18 AAC 78 is an ARAR.	A	Groundwater COCs and cleanup goals identified in OU-3 ROD (Section 7.3.1, page 86) do not include DRO and GRO. The ROD does not identify COCs for soil. Rather, the remedial action goal (Section 7.3.2, page 87) is as follows: *"The remedial action goal for in situ soils contaminated with volatile organic and petroleum compounds is protection of groundwater. Because the soils are acting as a continuing source of contamination to the groundwater, active remediation of the soils will continue until Safe Drinking Water Act levels are consistently met."*		

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16	Page 48, Sec. 5.4.5	DRO needs to be discussed in this section. Since preventing contaminant migration from soil to groundwater is a RAO and 18 AAC 78 is an ARAR. DRO in the alluvial aquifer was detected above DEC cleanup level for several wells at the base of Birch Hill in 2015. Please add a discussion of DRO trends.	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	As noted in the response to comment 15, DRO and GRO were not identified as COCs in the OU-3 ROD. The five-year report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
17	Page 49, Sec. 5.4.5	3rd bullet, Text states: "A measureable product (fuel) layer about 0.24-ft thick was evident in one bedrock well (AP-7848) near the base of Birch Hill" Section 1.11 of the OU-3 2015 monitoring report indicated that BHTF wells AP-7816 and AP-7848 contained 0.07 and 0.42 foot of measureable product, respectively. Should the product recovery system be reevaluated for potential restart due to rebound in the wells?	A	The 3rd bullet will be revised to reflect this new information. Product measurements at AP-7848 and other BHTF wells will be reviewed and any opportunities for optimization of the remedy will be evaluated.		
18	Page 50, 1,2 DCA	Given the increasing trends of the DCA plume in the bedrock aquifer, is MNA likely to accomplish the RAO in a reasonable amount of time? Is the current dataset sufficient to determine a timeframe for achieving the RAG? If so, please provide an estimated timeframe.	A (as amended)	The estimated timeframe to reach the cleanup goals is no more than 30 years (OU-3 ROD, Section 10.0, page 114) or by 2026. The following language will be added to the five-year review report, *"The AS/SVE remedy at Remedial Area 1B (BHTF) was implemented in 1996 and terminated in 2005. A dual-phase product recovery system was installed in 1998. Groundwater monitoring has been performed since the ROD was signed in 1996.*		

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				All ROD COCs have attenuated to below the site cleanup goals in the alluvial aquifer. COCs are still present in the bedrock aquifer above the site cleanup goals."		
19	Page 53, Sec. 5.5.1.2	Text States: "The Golden Heart Utilities and College Utilities wells are located approximately 3 and 5½ miles from the source area, respectively." Please indicate if the wells are considered down gradient of the plume.	A	The Golden Heart Utilities wells are located on the south side of the Chena River, approximately 3 miles west (down river) of OU-3 Remedial Area 2. The river separates the sites (Valve Pits and Rail Off-Loading Facility) from the Golden Heart Utilities Wells. The College Utilities wells have not been used since 2002. Reference to these wells will be removed from Section 5.5.1.2 of the five-year review report.		
20	Page 54, Table 5-9	See comment 15.	A	See response to comment 15.		
21	Page 54, Sec. 5.5.2	Please add a discussion of DRO	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	See responses to comments 15 and 16. The five-year report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
22	Page 59, Sec. 5.5.5	Please add a discussion of DRO and GRO concentrations and trends. These contaminants are being addressed as part of the remedy and should be included in the 5 year review.	A (with language added to the FYR report that acknowledges	See responses to comments 15 and 16. The five-year report will be revised to acknowledge the presence of DRO		

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			the presence of DRO and GRO in groundwater)	and GRO in groundwater, as indicated in the most recent monitoring report.		
23	Page 59, Sec. 5.5.5	Text States: “Two of three Valve Pit B wells were sampled in October 2014; the third program well was severely damaged and scheduled for replacement in 2015.” The well was replaced in 2015. Please update.	A	The following statement will be added, *“The damaged well (VPB-MP1) was replaced by well AP-1029MW in 2015.”*		
24	Page 60, Sec.5.5.5	Text States: “COCs that have attenuated to meet the cleanup goals throughout OU-3 Remedial Area 2 include toluene, 1,2-EDB, 1,2-DCA, 1,2,4-TMB, and 1,3,5-TMB. Has DRO attenuated? Please add DRO to the discussion	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	See previous responses related to this issue. The five-year report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
25	Page 60, Sec.5.5.5	Increases of DRO were also seen in the results from the high water sampling events. Please add DRO to the discussion.	A (with language added to the FYR report that acknowledges the presence of DRO in groundwater)	See previous responses related to this issue. The five-year report will be revised to acknowledge the presence of DRO in groundwater, as indicated in the most recent monitoring report.		
26	Page 64, Sec.5.6.1.2	Text States: “The Birch Hill Ski area is 1 mile to the east and has a drinking-water well completed in bedrock.” Has this well been sampled and found to be unimpacted by VOCs and petroleum related compounds?	A	The Birch Hill Ski area well is completed in the Birch Creek schist aquifer. It is not hydraulically connected to the alluvial aquifer beneath the FEP Mileposts 2.7 and 3.0 sites.		

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27	Page 64, Sec.5.6.2, Tables	DRO and GRO should be in the list of COCs. Since preventing contaminant migration from soil to groundwater is a RAO and 18 AAC 78 is an ARAR.	A	~~See previous responses related to this issue.~~ Groundwater COCs and cleanup goals identified in OU-3 ROD (Section 7.3.1, page 86) do not include DRO and GRO. The ROD does not identify COCs for soil. Rather, the remedial action goal (Section 7.3.2, page 87) is as follows: *"The remedial action goal for in situ soils contaminated with volatile organic and petroleum compounds is protection of groundwater. Because the soils are acting as a continuing source of contamination to the groundwater, active remediation of the soils will continue until Safe Drinking Water Act levels are consistently met."*		
28	Page 68, Sec.5.6.5,	The 2016 data gaps analysis report identified 555 CY of contaminated soil and recommended excavation at one location near the milepost 3.0 site. The report indicates that "Contamination at MP 3.0 can be attributed to potential migration from UST-346 and associated piping as well as spills from TFS-3 and the former FEP." However, DEC considered the estimate to be low based on the fact that the proposed excavation area has not been delineated to the extent of contamination above cleanup levels. DEC has asked for additional stepout sampling to reach extents of contamination and provide a better estimate of contamination prior to the proposed removal action.	A	Comment noted. This issue will be considered in the data gap investigation that is currently under contract by the U.S. Army.		

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29	Page 72, Sec. 5.7.1.2	Text States: "The active landfill is used for disposal of construction and demolition debris" Please add: and treated soil from thermal remediation of contaminated soil is used as covering material.	A	The FWA Landfill is used primarily to receive coal ash from the Power Plant and small amounts of properly containerized friable asbestos (only) on a case-by-case basis (i.e. a pre-approved project may not estimate or generate more than 10 CY of friable asbestos for disposal at the FWA Landfill). All thermally treated soils from OIT are now deposited on the Clean Soil Stockpile across the street from the landfill.		
30	Page 73, Sec. 5.7.1.3	Please add a discussion of the pesticide containment cell, specify the quantity of pesticide contaminated soil, the levels of Dieldrin and other pesticides above applicable cleanup levels that were placed in the cell and discuss the construction of the cell and date of construction. DEC has identified this feature as needing better documentation for future Project Management. This feature (post ROD) was not addressed in the ROD for OU-4. However, the pesticide containment cell, containment cell cap and potential for migration of contaminants from the containment cell should be considered in the protectiveness statement for the site.	A	Dieldrin and other pesticides are not identified as COCs in the OU-4 ROD. The pesticide containment cell was located in the active portion of the landfill, which is not subject to the CERCLA action. Data associated with operation and closure of the cell was previously provided to ADEC.		
31	Page 79, Sec. 5.7.5	@Intermediate Zone Wells. DEC agrees with discontinuing monitoring and recommends decommissioning wells AP-6136 and AP-6138. Concentrations of all ROD listed contaminants have been below RAGs for	A	Comment noted.		

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		at least 15 consecutive sampling events over at least nine years of monitoring. Only bis (2- ethylhexyl) phthalate has been above cleanup level at these location/well. The wells indicated ND (2.2 ug/L) and ND (1.9 ug/L) respectively in the 2015 sampling event. DEC proposed CULs will revise the ADEC CUL for bis (2- ethylhexyl) phthalate to 55.6 ug/L.				
32	Page 92, Sec. 5.9.1.5	The 2002 PAH (CH2M Hill) evaluation report for WQFS in conclusions recommended NAPL seepage rate evaluations in future efforts. Given the DEC concerns for continued sheen on surface water at the Chena boom (exceedance of AWQS) and uncertainty concerning migration of contaminants from the NAPL source area, DEC recommends a seepage rate evaluation be conducted in FY 17.	D (ADEC believes, *"we don't know if there's a decrease in contaminant migration to the Chena River"*)	Sheen observations at individual stations along the boom are summarized in Table 3-6 of the 2015 Monitoring Report for OU-5. ~~A summary is provided below.~~ ~~• 2012 – 29 observations from 26 inspections~~ ~~• 2013 – 18 observations from 21 inspections~~ ~~• 2014 – 3 observations from 4 inspections~~ ~~• 2015 – 6 observations from 11 inspections~~ ~~The response to comment #48 provides further evidence that on-going sampling and analyses provides adequate lines of evidence to support determination of remedy protectiveness.~~ It provides evidence that NAPL migration to the river has decreased since start of the remedial action. This information will be discussed in the five-year review report.		

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33	Page 92, Sec. 5.9.2.1	Note 1, Text states: "The results confirmed the presence of PAHs and petroleum hydrocarbon sheens but no adverse impact to benthic communities was identified." However, review of the 2006 5YR indicated: The Aquatic Assessment Program found evidence that contamination from the Fort Wainwright source areas was potentially adversely influencing biotic health in the Chena River ecosystem but did not prove that sediment toxicities caused changes in the benthic invertebrate communities of the Chena River. Please revise statement to be consistent with the 2006 5YR. Also from the 2006 5YR: "The relatively low concentrations of PAHs in the 2002 Seep Area samples, relative to those collected in 1997 and 1998 may reflect scouring flood events prior to the sampling in 2002. Samples collected in 1997 and 1998 were obtained during low-flow conditions during two dry years (1997 and 1998). It is unlikely that the apparent decrease in sediment concentrations of PAHs since 1998 is due to remediation efforts in OU5."	A	Concur, the statements will be revised to be consistent with the 2006 5YR statements.		
34	Page 93, Sec. 5.9.2.2	WQFS2, Last bullet on page, Text states: "In 2013, the RPMs agreed to keep the system off for a rebound study and later decided to decommission the system when funding is available." For the 2015 OU-5 monitoring report, DEC recommended leaving the sparge curtain in place until an evaluation of contaminant migration is completed.	A (with amended language)	The requested text will be added to the five-year review report.		

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		The army responded that decommissioning of the Sparge Curtain treatment system will be delayed until data from a new monitoring well can be evaluated. Please update the text.				
35	Page 94, Sec. 5.9.2.2	Text states: "It is estimated that the AS/SVE systems collectively removed over 450,000 pounds of VOCs, as well as measurable free product on the water table." Is there a potential for further free product removal? DEC recommends reevaluating free product removal efforts.	A(with amended language)	System operations and product recovery data will be reviewed and any opportunities for optimization will be evaluated. The results will be discussed in the five-year review report (under "Question A").		
36	Page 94, Sec. 5.9.2.2	Please add recent monitoring results to the discussion. In the 2015 OU-5 Monitoring report figure 3-2 showed the monitoring well AP-10235MW has exceeded the cleanup level for DRO for the first time. This well is the closest downgradient well to the "Hot Spot" located at well AP-6946. AP-10220MW also indicated DRO above Cleanup level this sampling event Concentrations of DRO and benzene are increasing in the up gradient well AP-6946 at the "Hot Spot" location. Potentially increasing DRO concentrations were observed in sparge curtain MW AP-10235MW. Potentially increasing Benzene concentrations were observed for AP-10222.	A	Any new monitoring results that have been received since the June 2016 draft report was issued will be discussed in Section 5.9.5 (Data Review). Any new monitoring data will be reviewed and discussed in Section 5.9.5. This will include trend analysis results.		
37	Page 96, Sec. 5.9.3	**Recommendation:** Decommission the horizontal well and source area treatment systems.	A	The statement will be revised in accordance with information provided on page 95 and the response to comment 34.		

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		Progress: These systems were decommissioned in 2011. These statements are not consistent with WQFS2 statements above on Page 95. Please revise to be more specific as to what components were removed in 2011.				
38	Page 99, Sec. 5.9.6.3	Text states: "In 2014, levels of benzene and DRO in one of the monitoring wells along the Chena River (AP-10220MW) showed an increasing trend relative to previous years." Please include 2015 data in the discussion of exceedances and trends in the 5YR.	A(with amended language)	Any new monitoring results that have been received since the June 2016 draft report was issued will be discussed in the five-year review report.		
39	Page 100, Sec. 5.9.6.2	Text states: "There is also residual soil contamination present. Since the sparge curtain system was approved for decommissioning in 2013," Please see comment 34. Please add agreed response that sparge curtain will not be decommissioned prior to evaluation of contaminant migration to the Chena Boom area.	A	Requested change will be made.		
40	Page 100, Sec. 5.9.6.3	Question C, Text states: 'No other information has come to light that could call into question the protectiveness of the remedy." Is the Army considering the DEC concerns for continued migration to the Chena river boom area? Is the Army considering the 2015 exceedance of DRO at AP-10235MW and trends at the sparge curtain wells identified in the 2015 monitoring report in the protectiveness determination?	A (with recommendation)	Yes, see response to comment 32. The 2015 OU-5 Monitoring Report provides additional observations (weight of evidence) in Section 3.6.1 which provide evidence that the contaminant plume is not migrating to the Chena River in the Sparge Curtain treatment system area. FYR Attachment 8 concludes that the weight of evidence from the various sampling events performed in the past five years indicates that the cleanup		

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		Conference Response: Section 3.6.1 of the 2015 OU-5 Monitoring Report states that "Intermittent DRO exceedances have been observed in one well (AP-10220MW)." However, the exceedance of DRO at AP-10235MW is not mentioned or considered. It is also notable that trend analysis presented in the 2015 report shows an increasing trend for DRO at the source area well AP-6946. DRO concentrations at AP-6946 have increased by more than 2X since 2009 (from 19,000 ug/L in 2009 to 43,000 ug/L in 2015). DEC recommends pore water sampling and a seepage rate evaluation be conducted in FY 17 to provide an additional line of evidence to support the conclusion that contaminants are not migrating from the up gradient source area. Please include these recommendations in the FYR. It is noted that the Chena River Boom was not part of the remedy in the ROD.		goals and RAOs are still valid. The lines of evidence include collection of additional sediment and surface water samples from the Chena River (both discrete and passive surface water sampling), pore water samples from wells placed at the river shore, groundwater samples from monitoring wells adjacent to the river, sheen observations along the river, observations of river stage and shoreline width, and installation of a boom in the river.		
41	Page 100, Sec. 5.9.9	Text states: "The Chena River Aquatic **River** Assessment Program did not identify adverse impacts to benthic communities in the river." However, the assessment did identify adverse effects to several species within the seep area: to Chironomus (sediment test) and Ceriodaphnia (pore water test), as well as Lumbriculus. Also Please note that **River** is repeated in the sentence.	D	The CRAAP will be reevaluated to confirm/refute whether adverse impacts to benthic communities in the river were identified. Results of the reevaluation will be discussed in the five-year review report. The statement in the text will be revised to remove duplication of the word, "River", and will also be revised according to comment #33.		
42	Page 105, Sec. 5.10.2.1	Note 1, Text refers to 18 AAC Table C.	A	Requested change will be made.		

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		Please revise to: 18 AAC 75 Table C				
43	Page 105, Sec. 5.10.2.2	Text states: "The AS/SVE system began operating as a treatability study on the east side of Building 1060 in 1994. It was shut down in September 2000 when groundwater cleanup goals were achieved. The system was refurbished and moved to the west side of Building 1060 where it operated from 2000 to 2005. It was decommissioned in 2010 when groundwater cleanup goals were achieved." Have groundwater cleanup goals for DRO been achieved? This is a little confusing to state the cleanup goals were achieved in 2000 and then again in 2010. The cleanup goals were only achieved in a portion of the site in 2000. DEC recommends rewriting the paragraph to provide clarity.	A	The statement was taken from the 3rd five-year review report (Section 8.3.3), which received regulatory agency concurrences. It provides historical information on remedy implementation at the east side of Building 1060, OU-5 EQFS. DRO concentrations in groundwater at this area will be re-evaluated. The statement will be revised if the 1,500 µg/L DRO cleanup goal wasn't achieved on or immediately prior to 2000.		
44	Page 105, Sec. 5.10.2.2	The text states that "cleanup goals were achieved." 2015 data suggest that cleanup goals have not been met for DRO or Benzene.	A	We believe this comment pertains to the 3rd sentence, 1st paragraph of 5.10.2.2, which discusses operation and shut down of the AS/SVE system at the west side of Building 1060. COC concentrations in groundwater on or immediately prior to system shut down in 2005 will be re-evaluated. The statement will be revised if necessary. Note that benzene is not a COC for this site.		
45	Page 106, Sec. 5.10.3 & Figure 5-11	Recommendation: Discontinue groundwater sampling in Flowpath A, Flowpath B, Flowpath C, and the Apple Street Hot Spot wells and decommission the wells"	A	Requested change will be made.		

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		Please provide a figure that identifies the Flowpaths discussed here or revise figure 5-11.				
46	Page 107, Sec. 5.10.5	Text states:" (RRO and bis(2-chlorethyl)ether were not analyzed). When was sampling for RRO and bis(2-chlorethyl)ether discontinued? These contaminants are identified as Groundwater COCs in the ROD. However, they do not appear in the historical sampling as presented in the 2015 monitoring report for OU-5.	A	May 2015. Notes from the Winter 2015 FFA meeting document a decision to only sample the Flowpath D wells for DRO in 2015.		
47	Figure 5-8	AP-6136 is shown in red as exceeding ROD cleanup levels. However the last time this well was above RAG of 6ug/L was May 2005. It was ND (2.2 ug/L) in the last (2015) sampling event. Please revise figure.	A	The result for bis(2-Ethylhexyl) phthalate was 6.8 µg/L on October 21, 2014. The cleanup goal for this constituent is 6 µg/L.		
48	Page 108, Sec. 5.10.6.1	Text states:" Contaminant source releases to the Chena River have been reduced. Monitoring of Chena River sediments has documented that low PAH concentrations do not represent an increased ecological risk." When was the last sediment sampling event and what were the results (indicate here and in 5YR text)? Sheen was observed at the Chena River Boom in 2015. The frequency of sheen observations has been a function of water level in the Chena River at the time of monitoring and reduced sighting of sheen is not likely associated with remediation at this site.	A	~~As explained in Attachment 8, sediments along the river bank were sampled in 2012. The measured PAH levels were within the range detected during the CRAAP. The 2012 monitoring report thus concluded:~~ ~~*"The CRAAP used a comprehensive weight-of-evidence approach that included evaluating bulk sediment chemistry, bulk detritus chemistry, benthic macroinvertebrate community analysis, Chironomus tentans bioassays, and Chironomidae community analysis. The results were somewhat ambiguous with respect to contaminant impacts on the*~~		

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		Also see comment 32.		~~*biotic integrity of the Chena River, but did not suggest adverse impacts on ecosystem structure and function (ABR, Inc., and CH2M HILL, 1999). As a result, the PAH detections in sediment identified during the 2012 sampling event do not appear to represent increased ecological risk at the site."*~~ The last sampling event was performed in May and August 2015. They indicate that DRO was above the cleanup goal in two wells in May 2015 and in four wells in August 2015. GRO was below the cleanup goal in all wells and has not exceeded the cleanup goal since 2001. Benzene exceeded the cleanup goal in well AP-6946 and was below the cleanup goal in all other wells. Calculated TAH and TAqH concentrations were below the AWQS for all wells. The last sediment sampling event was performed in 2011. Analytical results were similar to results presented in the Chena River Aquatic Assessment. They are documented in the 2011 OU-5 Monitoring Report. Sheen observations in the Chena River are documented in the 2015 OU-5 Monitoring Report (Table 3-6).		

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49	Page 109 Sec. 5.10.6.3	See comment 40.	See Response Comment 40.	See response to comment 40.		
50	Page 109, Sec. 5.10.9	Text states: "Occurrences of sheen in the Chena River have decreased." See comment 48. CONFERENCE Response: The documented observations of sheen at the Chena River Boom demonstrate that AWQS are being exceeded. As noted in comment 48: The frequency of sheen observations has been a function of water level in the Chena River at the time of monitoring and reduced sighting of sheen is not likely associated with remediation at this site. The response to comment 48 indicates that the ecological risk at the site is a constant and that there is uncertainty with respect to contaminant impacts on the biotic integrity of the Chena River. Please include text in this section that states that while observations of sheen have decreased conditions in the sediment require additional monitoring. Also qualify the statement concerning the adverse impacts to benthic communities in the river to reflect the uncertainty indicated in the Chena River Aquatic Assessment.		See response to comment 32. As documented on comment 32 and 40, discussions will be included in the five year review.		
51	Page 111, Sec. 5.11.1.5	Text states:" Based on the results of the baseline risk assessment that assumed industrial use of soil, lead was identified as a COC for Remedial Area 1A." Site was moved to OU-5 from OU-3. The ROD for OU-3 area 1A specifies petroleum	A (with amended language)	According to the OU-5 ROD: • Section 5.1.4 (page 54), *"The specific reason for conducting remedial actions at Remedial Area 1A is that lead-*		

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Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A – accepted D – disagree P - pending W - withdrawn	ARMY RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	ARMY RESPONSE
		Hydrocarbons comingled with Lead (lead based paint) as COC in soil. Please revise.		*contaminated soils within its boundaries present a potential hazard to ecological and future human receptors if use of the land changes."* • Section 5.2.1 (page 54) [RAO for Remedial Area 1A], *"Limit human health and terrestrial receptor exposure to lead-contaminated soil (RA1A)."* • Section 7.1.7, (page 100), *"Alternative 2 [Institutional Controls] is the selected remedy under current land-use scenarios for the lead-contaminated soil in Remedial Area 1A."* The five-year review will be revised to indicate that petroleum contamination is also present in some areas.		
52	Page 112, Sec 5.11.3	Consider revising to indicate that the Lead contaminated soil removal work plan was approved and that removal actions are being implemented in 2016.	A	Requested change will be made.		
53	Page 118, Sec. 5.12.6	Additionally, the OB/OD Area was used **as for** open burn and open detonation activities and has been found to pose no unacceptable risk. Remove **as** from sentence.	A	Requested change will be made.		
54	Page 119, Sec. 5.13.1	Text states: "OU-6 previously contained or was used for barracks, company headquarters, communications and radar systems, salvage/reclamation yard activities, debris disposal, firefighter training, and.."	A	The assertion that OU-6 was previously used for firefighter training is based on a 1950's aerial photo that shows an aircraft carcass at the site. It may have been on site for salvage/reclamation and not used for		

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		DEC notes that emerging contaminants perflorinated compounds (PFCs) may be a data gap for soil and groundwater at OU-6. This could affect protectiveness of remedy.		firefighter training. The photo will be reevaluated to determine if firefighter training activities were performed at OU-6. In addition, the aircraft's location will be compared to soil excavation areas to determine if remedial actions have already been performed. Respond to comment that PFCs may be a data gap.		
55	Page 120, Sec. 5.13.1.3	Previous site activities site included Site is repeated. Please revise.	A	Requested change will be made.		
56	Figure 5-8	The figure identifies the "Phyto cell" location. The word phyto refers to plant. The use here implies a plant cell (?). This is the location of a pesticide contaminated containment cell constructed within the Landfill boundaries. Please rename the feature Pesticide containment cell.	A	The call-out on Figure 5-8 will be removed pursuant to the response to comment 30.		
57	Attachment 8, Table A8-1	Table heading shows: "ADEQ Residential VISL" Please revise to ADEC.	A	The correction to Table A.8-1 will be made.		
58	Attachment 8	It does not appear that a site specific CSM was evaluated for each operable unit. Comparison of groundwater data to VI target levels is inappropriate in certain instances where there is an unlined crawl space or significant preferential pathways. Building construction matters and if building constructed is not considered, you cannot accurately predict risk using VI target levels.	A	As part of the vapor intrusion assessment performed for this 5YR, each OU was assessed for the potential for currently occupied buildings to exist in the vicinity of groundwater plumes. Currently, the groundwater plumes have not been identified to be present in OUs 1 through 5 under actively occupied		

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		Specific factors that may result in unattenuated or enhanced transport of vapors towards a receptor, and consequently are likely to render the VISL screening target subsurface concentrations inappropriate, include: 1. Very shallow groundwater sources (for example, depths to water less than 5 ft below foundation level); 2. Shallow soil contamination vapor sources (for example, sampled at levels within a few feet of the base of the foundation) 3. Buildings with significant openings to the subsurface (for example, sumps, unlined crawlspaces, earthen floors) or significant preferential pathways, either naturally-occurring or anthropogenic (not including typical utility perforations present in most buildings). Consequently, the approach to evaluate VI risk by comparing groundwater data to vapor intrusion screening levels is inappropriate until building surveys are conducted in all the operable units to confirm the assumptions used to generate the screening levels are valid.		buildings. The screening against VISL was conducted as a conservative first step in assessing the VI pathway, as the VI pathway had not previously been assessed at these sites.		