Adak Island UPDATE

Naval Facilities Engineering Command Northwest

October 2018

Introduction

The U.S. Department of the Navy (Navy) has prepared an Explanation of Significant Difference (ESD) to provide the rationale for reevaluating the cleanup levels for surface water and fish/shellfish at the former Adak Naval Complex. Changes to the Alaska regulations governing these cleanup levels (18 AAC 70) occurred in 2008 and again in February 2017. These changes impacted some of the cleanup levels in effect at the time of the 1999 Operable Unit (OU) A Record of Decision (ROD) signing (U.S. Navy, 1999). The Clean Water Act (CWA) Ambient Water Quality Criteria (AWQC) and Alaska Solid Waste cleanup levels (18 AAC 60.810) also apply to the landfill sites on Adak. Finally, the common default parameters used by the U. S. Environmental Protection Agency (EPA) for exposure duration (ED) and body weight (BW) were revised in 2014 and are reported in EPA Office of Solid Waste Emergency Response (OWSER) Directive 9200.1-120. This revision resulted in new fish/shellfish risk-based action levels (RBALs).

The Operable Unite (OU) A sites that are affected by this ESD include three Solid Waste Management Units (SWMUs) including SWMU 11, 18/19, and 25, and two waterbodies including Kuluk Bay and Sweeper Cove. All three SWMU sites are closed landfills. The remedies established in the 1999 OU A ROD remain the same and continue to be protective of human health and the environment as is stated in the fourth five-year review (U.S. Navy, 2016).

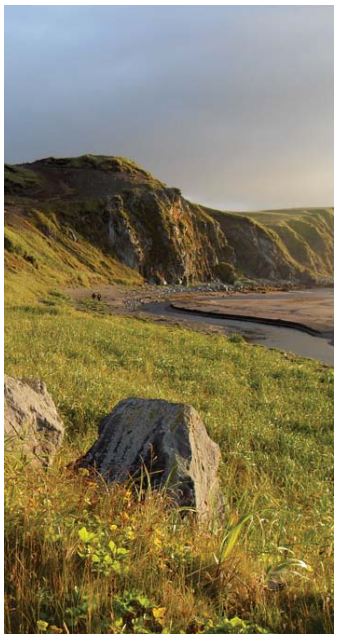
Summary of Site History

Adak Island is located approximately 1,200 miles southwest of Anchorage, Alaska along the Aleutian Chain. The former Adak Naval Complex comprises 61,935 acres on the northern half of Adak. The Navy presence at Adak was officially recognized by Public Land Order 1949, dated August 19, 1959, which withdrew the northern portion of Adak Island for use by the Navy for military purposes. The Navy used the Base to conduct a variety of Cold War-era military activities. Naval Air Facility (NAF) Adak was on the list of Department of Defense installations recommended for closure in 1995. The active Navy mission ceased, and the base operationally closed on March 31, 1997.

EPA issued a Federal Facilities Compliance Agreement (FFCA) in November 1990. Adak was proposed for the National Priorities List (NPL) in October 1992 (57 Federal Register 47204) and formally listed in May 1994 (59 Federal Register 27989). In 1993, the Navy, EPA, and ADEC signed the Adak Federal Facility Agreement (FFA), which incorporates the EPA's cleanup process under CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA). The CERCLA exclusion of petroleum as a hazardous substance required that cleanup of petroleum-related chemicals would follow State of Alaska regulations. Therefore, the FFA stated that petroleum-contaminated sites, such as those containing underground storage tanks (UST) and leaking underground fuel lines, would be evaluated under a separate two-party agreement between the Navy and the State of Alaska. This agreement, State-Adak Environmental Restoration Agreement (SAERA), was signed in April 1994 and amended in August 1996.

When is an Explanation of Significant Difference required?

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the National Contingency Plan requires that an Explanation of Significant Difference is prepared when the differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the Record of Decision with respect to scope, performance, or cost.



Reason for Issuing an ESD

An ESD is prepared when the differences in the remedial action significantly change (in this instance the monitoring levels for some contaminants has changed) but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance or cost. In 2016, the fourth five-year review was conducted for all OU A sites on Adak with the status of: 1) Active; or 2) Cleanup Complete with institutional controls (IC). Two recommendations in the fourth five-year review resulted in the need for an ESD to modify criteria set in the OU A ROD. These two issues as described in the fourth five-year review are:

- Changes to surface water cleanup levels
- Changes to fish/shellfish RBALs

The OU A ROD referred to applicable or relevant and appropriate requirements (ARAR) 18 AAC 70 or 40 CFR § 131.36 to establish surface water cleanup levels for SWMUs 11, 18/19 and 25. Changes occurred in 2008 and 2017 to 18 AAC 70 that impacted some of the cleanup levels implemented at the time of the OU A ROD signing. In addition, other regulations (i.e., CWA and Solid Waste Regulations) were identified by EPA and ADEC to be applicable to the landfill sites. Table 1 identifies which values have changed (i.e., shaded values) and the new values to be applied (i.e., bolded values) based on updated regulations.

Table 1. Comparison of Current Surface Water Cleanup Levels to Updated ARARs Values

Analyte	Aquatic Life (Chronic) (µg/L)				Human Health (Organisms Only) (µg/L)				
	Rev 6 CMP	40 CFR 131.36	CWA AWQC	18 AAC 70	Rev 6 CMP	40 CFR 131.36	CWA AWQC	18 AAC 70	Solid Waste Program[c]
1,1-Dichloroethene	None	None	None	None	320[a]	320[a]	200,000[a]	None	**7**
cis-1,2-dichloroethene	None	None	None	None	None	None	None	None	**70**
trans-1,2-dichloroethene	None	None	None	None	None	None	4,000	140,000	**360**
Benzene	None	None	None	None	710[a]	710[a]	160-580[a]	None	**5**
Ethylbenzene	None	None	None	None	3,280[a]	290,000[a]	1,300[a]	29,000	**700**
Toluene	None	None	None	None	424,000	200,000	**520**	200,000	1,000
Trichloroethene	None	None	None	None	810[a]	810[a]	70[a]	None	**5**
Total Xylenes	None	None	None	None	None	None	None	None	**10,000**
Aluminum	87	None	**87**	**87**	None	None	None	None	None
Antimony	None	None	None	None	45,000	4,300	640	4,300	**6**
Arsenic	190	190	150	150	1.4[b]	**1.4**[b]	**1.4**[b]	None	10
Beryllium	190	None	None	None	1.4	None	None	None	**4**
Cadmium	1.1	1.03	0.72	**0.25**	None	None	None	None	5
Chromium III	210	178	**74**	**74**	None	None	None	None	None
Chromium VI	11	**10**	11	11	None	None	None	None	None
Copper	12	11.35	None	**8.96**	None	None	None	None	1,300
Lead	3.2	2.52	**2.5**	2.52	None	None	None	None	15
Mercury	0.012	**0.012**	None	0.9081	0.15	0.15	0.77	0.051	2
Nickel	160	157	**52**	**52**	100	4,600	4,600	4,600	390
Selenium	5	**5**	None	**5**	None	None	4,200	11,000	50
Silver	0.12	None	None	None	None	None	None	None	**100**
Thallium	None	None	None	None	48	6.3	**0.47**	6.3	2
Zinc	110	**104.5**	120	118	None	None	26,000	69,000	200

Shading indicates values in Revision 6 of the CMP are different than the current state and federal regulations for either aquatic life or human health.
Bold font indicates revised cleanup levels which equates to the most conservative value.

(a) Human health criteria for carcinogens come from EPA promulgation of human health criteria for carcinogens for Alaska at the 10^{-5} risk level in the National Toxics Rule (40 CFR 131.36), in accordance with on-line ADEC guidance.

(b) Human health criterion came from EPA National Recommended Water Quality Criteria and are based on a carcinogenicity of 10^{-5} risk (U.S. EPA, 2009).

(c) Solid Waste cleanup values come from Technical Memorandum 18.02 (ADEC, 2018).

A review of the fish tissue RBALs determined that the oral cancer slope factor (CSF) of 2.0 (mg/kg-day)-1 for total PCBs remains unchanged. However, EPA common default parameters for exposure duration (ED) and body weight (BW) were revised in 2014 and are reported in EPA OSWER Directive 9200.1-120 (U.S. EPA, 2014). The adult residential ED decreased from 24 years to 20 years for a revised total residential exposure of 26 years (20 years as an adult and 6 years as a child) instead of 30 years (24 years as an adult and 6 years as a child). Also, the adult BW of 70 kg (154lbs) increased to 80 kg (176lbs). The RBALs were recalculated and are shown in Table 2 (bolded text). The RBAL concentrations are higher (i.e., the action level is higher) for both fish and shellfish RBAL when the updated default exposure parameters (bolded) are used in the equation. This means that the cancer and noncancer hazard estimates are lower.

Table 2. Comparison of OU A ROD and Revised Total PCB RBALs for Fish and Shellfish Tissue in Kuluk Bay and Sweeper Cove

Fish Ingestion		ED	EF	IR	FI	CF	BW	AT	CSF	TR	RBAL
		years	days/yr	g/day	unitless	kg/g	kg	days	$(mg/kg\text{-}day)^{-1}$	unitless	µg/kg
OU A ROD	Tot PCBs	30	365	126	1	0.001	70	25550	2.00E+00	1.E-05	6.5
2014 Revision	Tot PCBs	***20***	365	126	1	0.001	***80***	25550	2.00E+00	1.E-05	***11.1***
Shellfish Ingestion		**ED**	**EF**	**IR**	**FI**	**CF**	**BW**	**AT**	**CSF**	**TR**	**RBAL**
		years	meals/yr	g/mea	unitless	kg/g	kg	days	$(mg/kg\text{-}day)^{-1}$	unitless	µg/kg
OU A ROD	Tot PCBs	30	365	26	1	0.001	70	25550	2.00E+00	1.E-05	31.4
2014 Revision	Tot PCBs	***20***	365	26	1	0.001	***80***	25550	2.00E+00	1.E-05	***53.8***

Note: exposure parameters obtained from Table 6-2 in the 2000 OU A ROD. 2014 Revision refers to the EPA OSWER 9200.1-120 which includes changes in body weight and exposure duration parameters.

ED – Exposure Duration
IR - Ingestion Rate
BW – Body Weight
CSF – Cancer Slope Factor
RBAL – Risk-Based Action Level
EF – Exposure Frequency
CF – Conversion Factor
AT – Averaging Time
TR – Target Risk

The remedy as described in the OU A ROD will not change at any of the OU A sites. The remedies in place remain protective of human health and the environment for those sites where cleanup levels are lowered because the ICs in place remain. The time required to achieve surface water cleanup levels could increase at the OU A sites where surface water contamination is present. The time required for PCB concentrations in marine tissue to decrease to acceptable (below RBAL) levels at Kuluk Bay and Sweeper Cove may decrease.

Contact

The ESD and other documents related to the Adak OU A sites are available on the BRAC PMO Website or at the Bob Reeves High School located at Mechanic Road, Adak, Adak Island, AK.

For more information about Adak activities at the OU A Sites, or to comment about the ESD, contact:

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Detailed site information, including the ESD, is available at the Website https://www.bracpmo.navy.mil/brac_bases/other_west/former_naf_adak.html and at the following information repositories:

Administrative Record
Naval Facilities Engineering
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