No Further Action Decision Document
Oregon Air National Guard, Kingsley Field
Environmental Restoration Program Sites 6 and 9
Klamath County, Oregon
Project Manager: Cliff Walkey
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ECSI Number: 4929

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Overview

Oregon Air National Guard (ANG) historically used Environmental Restoration Program (ERP) Site 6 as a temporary staging area for wood ash generated for a short time from the base's former steam generating plant (immediately east of Site 6). ERP Site 9 is used for testing jet engines. Jet fuel and other petroleum, oil, and lubricants (POL) products are used here for this testing. This report recommends a No Further Action (NFA) finding for environmental conditions related to residual low level petroleum contamination in Site 6 and Site 9 soil and groundwater, which is considered protective based upon evaluation of all appropriate exposure scenarios. The recommended action was selected in accordance with Oregon Administrative Rules (OAR) Chapter 340, Division 122, and Sections 0070 to 0110 in accordance with Oregon Revised Statutes (ORS) 465.200 through 465.455.

The recommended action is based on information documented in the administrative record specific to Site 6 and Site 9. A Site 6/Site 9-specific administrative record index is presented at the end of this report[1]. This index lists principal documents that contain information specifically relevant to each site, although the cited documents may also contain information pursuant to other ANG site investigations located at Kingsley Field. This staff report summarizes the more detailed information contained in the administrative file for Environmental Restoration Program (ERP) Site 6 and Site 9 (ECSI 4929). Site review has been completed under a Defense-State

[1] Information used in this DEQ staff report in taken, in part or whole, from references cited in the index.

Memorandum of Agreement (DSMOA), signed on June 30, 2004, between ANG and the Oregon Department of Environmental Quality (DEQ).

Site History

Site 6

Previously prepared documents suggest that Site 6 was used as a disposal site for wood ash, but this is incorrect. Interviews with base personnel indicate that it was only used for temporary staging of wood ash prior to transfer and land disposal at Site 5 (CH2MHill, June 2007). Specifically, a 2006 interview with a base maintenance employee who has worked at Kingsley since 1978 indicated that wood pellets were only used as fuel for a short period between 1981 and 1982 after which natural gas was utilized.

During the period 1994 to 1995 several buildings were constructed in the area including and surrounding Site 6, and petroleum-impacted soils were encountered during this construction. Residual, low level, petroleum contamination in site soil and groundwater is likely attributable to accidental releases documented to have occurred at the proximate vehicle maintenance facility; former heat plant; and/or, other historic practices.

The area near Site 6 was investigated between 2000 and 2002 as part of a petroleum release investigation (Harding ESE, 2002). Groundwater samples were collected from at least 12 direct push borings, which documented groundwater impacts by petroleum constituents. One monitoring well (MW-4) was installed as a result. A subsequent phase of site assessment was conducted during 2001 and 2002, and two additional monitoring wells were installed (MW-14; MW-15). Results indicated the presence of dissolved phase petroleum hydrocarbons (diesel), but were relatively devoid of detections for aromatics (benzene, toluene, ethyl benzene, and xylenes - BTEX); ECD/EDB, or volatile organic compounds (VOCs). These site investigations are actively being pursued under a separate Voluntary Cleanup Program (VCP) agreement with DEQ (ECSI # 816).

Site 9

The engine test facility was active from 1956 to 1972; was inactive during 1981 to 1982; and, resumed activity prior to 1990. Engine testing continues at ERP Site 9.

There are currently three fuel storage tanks at ERP Site 9:

- A 2,500 gallon single walled steel above ground storage tank (AST) containing JP-8 jet fuel.
- A 220 gallon bowser (trailer mounted tank) containing JP-8+100.
- A 500 gallon single wall steel AST containing engine oil.

The current environmental manager recalled only one fuel tank overfill since 1999, which was captured within the tank's secondary containment and subsequently was recovered (Captain Lambert, personal communication 3/1/06).

Risk-Based Screening Evaluation

Human Health

Two soil samples from the eight cores collected at each site were analyzed for TPH identification and quantification by Method NWTPH-HCID; VOCs (Method 8260); polynuclear aromatic hydrocarbons (PAHs) (Method SW 8270C-SIM); and cadmium, chromium, and lead (Site 6 only) (Method 6010/7000).

Site 6

Laboratory analysis of the two soil samples collected at locations SS1 (5-7 feet) and SS2 (4-5 feet) did not detect the presence of gasoline, diesel or oil range hydrocarbons or VOCs. Low levels of cadmium (0.3 mg/Kg), chromium (15.7 and 16.9 mg/Kg) and lead (1.8 and 2.2 mg/Kg) were detected. However, the concentrations are comparable to background levels presented in Table 2-3 of the *Interim Remedial Action/Long-Term Monitoring Report* (CH2M HILL, November 2006). Background cadmium concentrations at Kingsley Field reportedly ranged from less than 0.31 to 0.61 mg/Kg, chromium from 15.9 to 38.9 mg/Kg, and lead from 1.7 to 8.2 mg/Kg. PAHs were detected infrequently in the two samples at concentrations of less than 0.01 mg/Kg with detected concentrations less than residential, risk-based concentrations (RBCs).

Laboratory analysis of the groundwater sample from monitoring well MW-15 detected lead at 4.1 µg/L, and several VOC and PAH parameters at concentrations less than 1 µg/L. Detected constituents were present at concentrations less than residential RBCs. The 1 µg/L reporting limits for 1,2-dibromomethane (EDB) and 1,2-dichloroethane (EDC), which were not detected in samples tested from all three wells, were higher than the 0.0057 µg/L and 0.13 µg/L residential RBCs. However, given the absence of other petroleum hydrocarbon compounds in the three groundwater samples, there appears to be little potential for EDB and EDC to occur at concentrations below the reporting limit.

Site 9

Laboratory analysis of the two soil samples collected at locations SS1 (6-7 feet) and SS2 (1-2 feet) did not detect the presence of gasoline or oil range hydrocarbons or VOCs. Diesel was detected in the SS1 (6-7 feet) sample at a concentration of 934 mg/Kg, a concentration that is less than the residential RBC of 3900 mg/Kg and leaching to groundwater RBC of 2800 mg/Kg. Several VOC and PAH constituents were also detected in the SS1 (6-7 feet) sample at concentrations of less than 0.1 mg/Kg, however, concentrations were less than residential RBCs. Gasoline, diesel and oil range hydrocarbons, VOCs and PAHs were not detected in the second sample collected at SS2 (1-2 feet).

In the groundwater sample taken at Site 9, benzene at 0.47 J µg/L, o-xylene at 0.07 µg/L, toluene at 0.13 J µg/L and naphthalene at 0.02 µg/L were detected. The benzene

concentration of 0.47 J µg/L is slightly higher than the residential RBC of 0.35 µg/L. Given the factor of exceedance (less than 1.4) and low level of other petroleum hydrocarbons observed in the sample, there appears to be insignificant excess risk at this location.

Land and Water Beneficial Use

A formal land and water beneficial use determination was not completed specifically for ERP Sites 6 and 9. However, land and water beneficial use determinations have been recently provided for Kingsley Air Field in conjunction with other site investigations. For ERP Site 6 and ERP Site 9, no change in land use is anticipated. Both sites are expected to remain inside the active 173rd Fighter Wing facility.

Water used at Kingsley Field is supplied by the City of Klamath Falls and is obtained from groundwater production wells (Conger well field). This network of water supply wells is located approximately 4 miles northwest and upgradient of Kingsley Field and produce from deep hydrostratigraphic intervals. A water well survey recently was completed for all known wells within a 0.5 mile radius of Kingsley Field by querying Oregon Water Resources Department (OWRD) databases identified a total of 43 wells, none of which are located within the ERP Site 6 or ERP Site 9 presumed Locality-of-Facility (LOF)[2].

Conclusions

ERP Site 6 and ERP Site 9 screening risk evaluations demonstrate that there are no statutory exceedances of appropriate DEQ RBCs or ecologic screening level values (SLVs) for environmental media of concern. Site data are considered sufficient for supporting remedial action decisions for each site. Given that no contaminants of interest (COIs) were retained as contaminants of concern (COCs) based upon screening level risk evaluation, there is no identified unacceptable risk to either human or ecological receptors. ERP Site 6 and ERP Site 9 are therefore eligible to receive an unqualified No Further Action determination. Because no remedial action was required or performed, there is no requirement for formal public notice and opportunity to comment on this decision.

In addition, low level petroleum COIs which were detected in ERP Site 6 site investigations are actively being investigated under a separate VCP agreement with DEQ. The scope of these investigations is more appropriately conducted under this separate agreement because of suspected origins of releases.

Recommendation

I recommend that DEQ issue No Further Action decisions for ERP Site 6 and ERP Site 9. These site closure decisions should proceed without formal public notice because each site is considered protective of human health and the environment based upon a screening level risk assessment of empirical data.

[2] LOF is defined in Oregon Administrative Rule (OAR) 340-122-115 as: "any point where a human or an ecological receptor contacts or is reasonably likely to come into contact with, facility-related hazardous substances.

Attachments[3]

Tables

Table 2 September 2007 Soil Results from Sites 6 and 9
Table 3 September 2007 Groundwater Sample Result from Sites 6 and 9

Figures

Figure 1 Facility-Scale Site Location Map
Figure 2 ERP Site 6 Location Map
Figure 3 ERP Site 9 Location Map

Administrative Record

1) Environmental Restoration Program (Draft) Long Term Monitoring Data Gap Study Work Plan, CH2M HILL, June 2007.

2) Final Technical Memorandum. Oregon ANG Kingsley Field Site 6 and Site 9 Investigation Report, CH2M HILL, December 2007.

3) Risk Based Decision Making. Oregon Department of Environmental Quality, 2007. http://www.deq.state.or.us/lq/rbdm.htm

4) Interim Remedial Action/Long-Term Monitoring Report. CH2M HILL, November 2006

5) Ecological Risk Assessment. Oregon Department of Environmental Quality, 1998. http://www.deq.state.or.us/lq/cu/ecorisks.htm

[3] Attachments are included but also may be downloaded from *DEQ Staff Report Attachments, DEQ January 4, 2008* which is available at: http://www.deq.state.or.us/Webdocs/Forms/Output/FPController.ashx?SourceIdType=11&SourceId=4929&Screen=Load