FIVE-YEAR REVIEW FINDINGS ENVIRONMENTAL RESTORATION PROGRAM JOINT BASE ELMENDORF-RICHARDSON, ALASKA

June 2014

FIVE-YEAR REVIEW

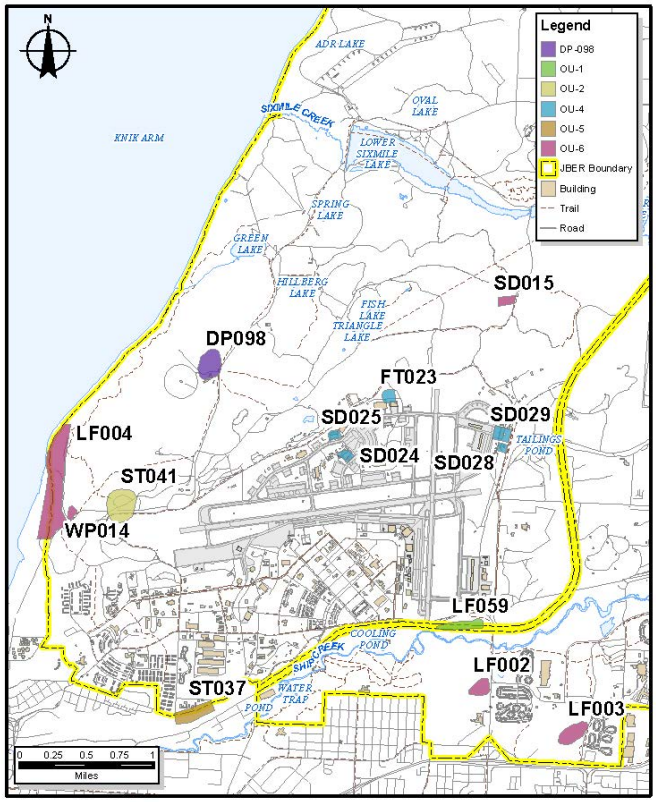
The U.S. Air Force has completed the Five-Year Review of contaminated sites under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) at JBER. The Five-Year Review is a detailed evaluation of environmental cleanup work. The U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation participated in and agreed with the conclusions of this Review:

- Remedies implemented at Operable Units (OU) 1, 2, and 6 on JBER- Elmendorf (JBER-E) are protective of human health and the environment, while protectiveness determinations for OUs 4 and 5, and DP098 were deferred pending additional evaluation.
- Remedies implemented at OUs B and C on JBER – Richardson (JBER-R) are protective of human health and the environment, while a protectiveness determination for OUE was deferred pending additional evaluation.

JBER-E FINDINGS

The Five-Year Review addressed cleanup activities at JBER-E OUs 1, 2, 4, 5, and 6 and site DP098. This Review concluded:

- All remedies continue to be in compliance with requirements of the records of decision (ROD) or as revised in an explanation of significant difference and/or memorandums to the site file. The remedies are operating and functioning as designed; however, natural attenuation is expected to take longer to achieve cleanup goals than was predicted in the RODs.
- At OU1, trichloroethylene (TCE) and 1,1,2,2-tetrachloroethane, likely originating from LF007 (closed), have been identified in groundwater at LF059. The remedy at OU1 is currently protective of human health and the environment; however, in order for the remedy to be protective in the long term, the upgradient source of groundwater contamination will need to be fully delineated.
- At OU2 (ST041) and OU6 (LF004, WP014, and SD015), remedies are currently protective of human health and the environment; however, in order for these remedies to be protective in the long term, the selected remedies need to be optimized to meet cleanup goals stated in the RODs.
- At OUs 4 and 5 and DP098, the protectiveness determinations are deferred until the vapor intrusion pathway is evaluated and associated potential impacts are identified. The vapor intrusion studies are expected to be performed in 2015.



JBER-E Operable Units

JBER-E OPERABLE UNIT SUMMARIES

Operable Unit 1

Site: LF059

The remedy includes groundwater monitoring and land use controls (LUC). Concentrations of TCE and 1,1,2,2-tetrachloroethane in groundwater at LF059 appear to be originating from an upgradient source. For this reason, LF059 will be issued a determination of "Response Complete" and the associated groundwater plume will be managed under another site under the CERCLA program.

Operable Unit 2

Site: ST041

The remedy includes source removal (completed in 1996), operation of a groundwater treatment system (completed in 1999), natural attenuation, and LUCs. Decreasing trends are seen in the contaminants at ST041; however, cleanup levels will not be met by the ROD timeframe of 2016.

Operable Unit 4

Sites: FT023, SD024, SD025, SD028, and SD029

The remedies include bioventing of deep soils at SD024, SD025 and FT023; natural attenuation and LUCs on groundwater, and both shallow and deep soils at SD029; and natural attenuation and LUCs of contaminants on groundwater and shallow soils at SD024, SD025, and FT023. Contaminant concentrations in deep and shallow soils meet cleanup levels at all OU4 sites, except at FT023. All bioventing systems were decommissioned by 2009. Concentrations of contaminants in groundwater are below cleanup levels at the FT023 North Plume, SD024, and SD028. Decreasing trends have been identified at the FT023 South Plume and SD029; however, natural attenuation processes do not appear to be occurring effectively at SD025.

Operable Unit 5

Site: ST037

The remedy includes natural attenuation and LUCs for groundwater contaminants, groundwater monitoring, and collection and treatment of contaminated seeps in both a constructed and natural wetlands. Contaminants have not been detected at the point-of-compliance (Ship Creek). In 2010, the wetland remediation system was converted from an active to a passive treatment system, when it was determined that treatment objectives could be met without operation of the pump stations. Natural attenuation results are varied at OU5; however, current trends indicate that natural attenuation processes alone are unlikely to achieve TCE cleanup levels by the ROD timeframe of 2025.

Operable Unit 6

Sites: LF002. LF003, LF004, WP014, and SD015

The remedies include natural attenuation of groundwater contaminants; high-vacuum extraction of groundwater and soil at SD015 (completed in 2007); annual removal of landfill debris at the base of the bluff below LF004 North; free product recovery at WP014 and LF004 South; and LUCs. Groundwater at OU6 is progressing towards cleanup goals. LF002 groundwater has met cleanup goals and LF004 groundwater has met cleanup goals for chlorinated solvents. General decreasing trends have been identified at OU6; however, it does not appear there will be sufficient progress by the ROD-established timeframe.

DP098

The remedy includes limited soil removal and off-site disposal of contaminated soil (completed in 2005); treatability study (completed in 2007); groundwater modeling (completed in 2008); monitored natural attenuation for groundwater; and LUCs. Trend analysis indicates there has not been an overall reduction in total contaminants at DP098; however, timeframe established in the ROD to meet cleanup levels is decades away.

Glossary

Joint Base Elmendorf-Richardson (JBER): A military installation formed in October 2010 by merging Elmendorf Air Force Base and Fort Richardson Army Post under the Joint Basing Initiative as directed by the Base Realignment and Closure Commission of 2005.

Land Use Control (LUC): An administrative or physical mechanism used to protect human health and the environment by restricting activity, use, and/or access to areas with residual contamination.

Monitored Natural Attenuation (MNA): A technique used to test for or measure the breakdown of contaminants in soil and groundwater by natural physical, chemical, and biological processes.

Operable Unit (OU): A grouping of source areas that have similar chemicals of concern or are in similar regions of the installation.

Record of Decision (ROD): A public document that explains which cleanup alternative has been selected, why it has been selected, and specifies the cleanup objectives.

JBER-R FINDINGS

The Five-Year Review addressed cleanup activities at JBER-R OUs B, C, and E. This Review concluded:

- All remedies continue to be in compliance with requirements of the RODs. The remedies are operating and functioning as designed.
- At OUB, the implemented remedy is currently protective due to LUCs, age of the contaminant plume, and lack of downgradient receptors; however, the remedy may not be protective in the future. Toxicity changes associated with the chemicals of concern indicate the cleanup levels in the ROD will not support future unrestricted site use.
- At OUC, the remedy is protective of human health and the environment. The short-term and long-term remedial action objectives have been met and exposure pathways that could result in unacceptable risks are being controlled with LUCs.
- At OUE, the protectiveness determination of the remedy is deferred until the potential impacts associated with a vapor intrusion pathway is evaluated. The vapor intrusion assessment is expected to be performed in 2015.

JBER-R OPERABLE UNIT SUMMARIES

Operable Unit B

Site: Poleline Road Disposal Area

The remedy includes operation of a soil and groundwater treatment system (completed in 1998); implementation of a treatability study (completed in 1999); monitored natural attenuation (MNA) for groundwater; and LUCs. Contaminants in groundwater at OUB do not appear to be migrating and concentrations are generally decreasing.

Operable Unit C

Site: Eagle River Flats

The remedy includes treatment of white phosphorus within sediment (completed in 2012); sampling of sediment prior to and after treatment of white phosphorus contamination (completed in 2012); performance of telemetry and monitoring surveys (completed in 2012); evaluation of waterfowl mortality (completed in 2012); performance of aerial photography of the site (completed in 2010); performance of habitat mapping (completed in 2012); application of cap-and-fill material (completed in 2012); monitoring of cap-and-fill integrity; and LUCs. The short-term and long-term RAOs have been met at OUC.

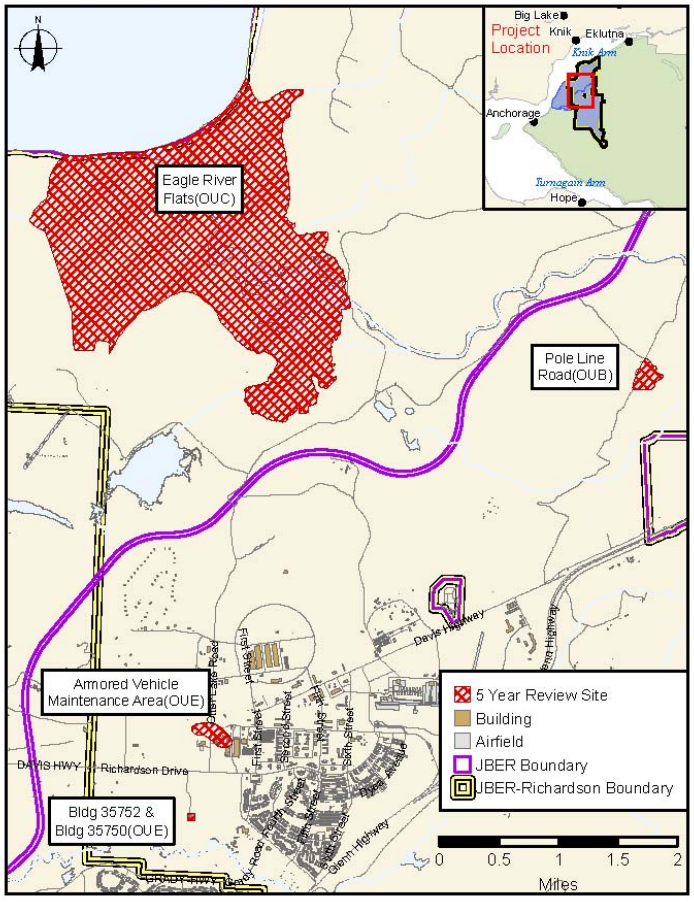
Operable Unit E

Site: Armored Vehicle Maintenance Area/Bldg 35-752

The remedy includes MNA for groundwater and LUCs. Although it is early in the remedy performance period (seven years since the OUE ROD was signed), natural attenuation at OUE has been limited, resulting in no significant decreasing trends in contaminant concentrations in the groundwater. Additionally, the vapor intrusion pathway was not taken into account during the implementation of the ROD; therefore, the protectiveness determination for OUE is deferred until the vapor intrusion assessment is performed.

FUTURE REVIEWS

Future reviews will be conducted at least once every five years or until cleanup levels are met. The next review for JBER-E will be completed by March 2019. The next review for JBER-R will be completed by February 2018.



JBER-R Operable Units

For More Information, contact:

Mr. Bob Hall
673 ABW/PA
10480 Sijan Avenue, Suite 123
JBER, Alaska 99506-2500
(907) 552-8152

Information Repository

Alaska Resources Library & Information Services
University of Alaska Anchorage Consortium Library
3211 Providence Drive
Anchorage, Alaska 99508
(907) 272-7547

JOINT BASE ELMENDORF-RICHARDSON
673 ABW/PA
10480 Sijan Avenue, Suite 123
JBER, AK 99506-2500

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