



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

Department of Environmental
Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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November 6, 2014

File No: 2518.38.006

Lori Roy
Remedial Project Manager
611 CES/CEAR
10471 20th Street Ste 341
JBER, AK 99506-2201

Subject: **Decision Document: Big Mountain Radio Relay Station (RRS) SS009 and SS010
Cleanup Complete Determination**

Dear Ms. Roy,

Site SS009 consists of the location of the Former Septic Tank and Outfall Area (SS010b) and the Former Fire Pump House at Upper Camp of the Big Mountain Radio Relay Station (RRS). Site SS010 is the location of the Former Equipment and Power Building (SS010a) and the Former Auxiliary Dormitory. The Alaska Department of Environmental Conservation (ADEC) has reviewed the environmental records for the referenced sites. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management associated with the sites. No further remedial action is required at Sites SS009 and SS010. Additional information can be found in the 2011 Final Record of Decision for the Big Mountain RRS and the 2014 Final Remedial Action Report for Big Mountain RRS.

Site Name and Location:

Big Mountain Radio Relay Station, SS009, SS010
Latitude 59°21' North, Longitude 155°15' West
Iliamna Lake, Alaska

Name and Mailing Address of Contact Party:

Lori Roy
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DEC Site Identifiers:

File No: 2518.38.006
Hazard ID: 85, 79

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

The Big Mountain RRS, located on the southern shore of Iliamna Lake, was constructed by the United States Air Force (USAF) as part of the defense communication network and aircraft warning system established across Alaska during the Cold War. The facility was constructed in 1956 as part of the White Alice Communication System (WACS) which was operational as a tropospheric scatter station from September 1957 to 1979. In the 1960s, an Alaska Telephone Switching Station was added to the operational capabilities as part of an intrastate telephone network. By 1979, the installation was closed.

Most of the original equipment, structures, and facility infrastructure were left in place at that time. Subsequently, these structures and facilities have been demolished, removed from the site, and disposed in the Lower Camp Landfill.

The RRS consisted of two main camp areas referred to as the Lower Camp and the Upper Camp. The Lower Camp facility included a gravel airstrip and former operational support facilities. The Upper Camp was an antennae array and support facilities, including living quarters for site personnel who supported the installation's operational mission. Sites SS009 and SS010 are located in the Upper Camp. During installation activity, hazardous and potentially hazardous substances were used and stored there to support base activities.

SS009

A 110-gallon fuel tank was located adjacent to the Former Fire Pump House, and contained MOGAS (leaded gasoline). The tank was removed during the 2003 Clean Sweep activities, and subsequent soil sampling indicated that fuel from the tank had been released to surface and subsurface soil. However, petroleum constituents were detected in soil samples collected at the fire pump house at concentrations below the ADEC cleanup levels. Polychlorinated biphenyls (PCBs) were also detected in surface soil in the vicinity of the Fire Pump House. This PCB contamination was likely associated with the nearby Site SS010, and was removed during the remedial action at Site SS010 in 2011/2012. The Former Septic Tank had a 4-inch outfall pipe approximately 100 feet long, which was the sole discharge point and was oriented approximately north-south. The Former Septic Tank and Outfall piping were removed during Clean Sweep activities in 2003 -2004. PCB contamination was documented in surface soil at the former septic tank and outfall, and was removed during the 2011/2012 Remedial Action.

SS010

The Former Equipment and Power Building consists of a 7,200 square foot building, which was located within the antennae network. The building was used to store facility materials/equipment as well as house communication equipment and four diesel generators to power the facility. The building was connected by a covered walkway leading west to the dormitory building. All facility communication equipment was located in the east portion of the building. The communication equipment included several banks of badly damaged lead-acid batteries. The general condition of the equipment associated with the building was poor, and broken electrical and communication equipment was scattered during the initial site visits. The buildings an antennas were demolished and removed during the Clean Sweep activities in 2003 – 2004. PCB contamination was documented in surface and subsurface soil at Site SS010, and was removed during the 2011/2012 Remedial Action.

Contaminants of Concern

The following contaminants of concern, those above approved cleanup levels, were identified during the course of the site investigations summarized in the Characterization and Cleanup Activities section of this decision letter.

- PCBs
- Lead

Cleanup Levels

The direct contact cleanup levels apply to this site. Lead and PCBs were detected in soil at the site above the direct contact cleanup level established in 18 AAC 75.341 (d), Table B2. Migration to groundwater soil cleanup levels are not applicable in this circumstance because groundwater was not encountered at

the Upper Camp, indicating that contaminant migration through soil and into groundwater has not occurred.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)
PCBs	1
Lead	400

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

A number of environmental characterization and cleanup activities have been conducted at this since 1998. These activities are described below.

Initial Remedial Investigation / Feasibility Study – 1998

In 1998 the USAF conducted an Initial RI/FS at this site. Concentrations of arsenic (up to 4.7 mg/kg), chromium (up to 40 mg/kg), diesel (up to 730 mg/kg), and total aroclors (up to 13 mg/kg) were detected in soil samples collected at the septic tank; and diesel concentrations (up to 7000 mg/kg) were detected at the fire pump house. It was recommended that the septic tank be removed and properly disposed of with confirmation sampling around the tank. Concentrations of antimony (up to 190 mg/kg), arsenic (up to 10 mg/kg), barium (up to 6000 mg/kg), cadmium (up to 110 mg/kg), chromium (up to 180 mg/kg), copper (up to 510,000 mg/kg), diesel (up to 400 mg/kg), iron (up to 16,000 mg/kg), lead (up to 22,000 mg/kg), mercury (up to 9 mg/kg), silver (up to 140 mg/kg), total aroclors (up to 100 mg/kg), trichloroethene (up to 0.041 mg/kg), and zinc (up to 21,000 mg/kg) were detected in soil samples at SS010. Only the concentrations of lead and PCBs detected were above the applicable ADEC cleanup levels and/or background concentrations.

Remedial Investigation / Feasibility Study – 2003

The scope of the 2003 RI/FS was to characterize the extent of contamination at the septic tank and outfall area (SS010b) previously identified during the 1998 RI/FS. The purpose of the investigation was to fill data gaps, characterize soil conditions, estimate volume of impacted soil, and identify remediation strategies. PCB concentrations were detected above the cleanup level in field screening soil samples collected at the Former Fire Pump House, and the volume of PCB impacted soil was estimated to be approximately 20 cubic yards (cy). Concentration of Diesel Range Organics (DRO) (up 7,000 mg/kg) was also detected in soil samples collected at the Former Fire Pump House. Concentrations of arsenic (up to 8.02 mg/kg), chromium (up to 40 mg/kg), lead (up to 1,970 mg/kg), diesel (up to 730 mg/kg), and total aroclors (up to 23.9 mg/kg) were detected in soil samples collected at the Former Septic Tank and Outfall Area. The arsenic and chromium concentrations were determined to be attributable to background concentrations. DRO concentrations were below the direct contact cleanup level. Based on this RI/FS, PCBs and lead were the primary COCs at the Former Septic Tank and Outfall Area with total contaminated soil of 245 cy. Concentrations of DRO (up to 5,070 mg/kg) were detected in soil samples collected at the Former Auxiliary Dormitory below the direct contact cleanup level. Concentrations of PCBs were detected above the cleanup level in field screening samples collected around the Former Equipment and Power Building (SS010a). The estimated volume of PCB impacted soil around Site SS010a was approximately 230 cy.

Phase I Clean Sweep – 2003

During the Phase I Clean Sweep demolition activities, approximately 1,500 gallons of water and 1,500 gallons of sludge were sampled and removed from the septic tank at SS010b and disposed of following applicable regulations. The septic tank was not removed during these activities because it was found to be coated with lead-based paint. The water storage tank and building associated with the Fire Pump House were removed.

Phase I Clean Sweep – 2004

Phase II Clean Sweep demolition activities occurred in 2004. The septic tank was removed and the piping was cut into 10-foot sections, cleaned, and disposed at the landfill onsite. The MOGAS tank adjacent to the Fire Pump House was removed. At SS010a, the Power and Equipment Building and antennas were demolished. Additionally, the concrete foundations were completely removed, and the area was backfilled with pit run material.

Technical Memorandum Removal Action at SS009 (SS010b) and SS010 (SS010a) - 2005

The scope of work was to remove previously delineated PCB-contaminated soil at both SS010b. PCB-contaminated soil was removed, packaged, and transported to an offsite disposal facility. After confirmation sampling, it was determined that additional investigation was necessary to delineate the extent of PCB contamination. Confirmation samples indicated that the lead contamination had been removed.

Remedial Investigation at SS009 (SS010b) and SS010 (SS010a) – 2005 to 2006

The purpose of this investigation was to fill data gaps created from earlier sampling efforts to further delineate the lateral and subsurface extent of PCB-contamination at SS010b. It was determined that additional excavation was required from the septic tank outfall area, the area on the hill, along the pipeline, and around the former equipment building.

Risk Assessment at SS009 (SS010b) and SS010 (SS010a) – 2008

The Risk Assessment (RA) was developed to calculate risk based cleanup levels and to identify potential risk to human health and ecological receptors as a result of exposure to PCBs present in surface and subsurface soil. The overall conclusion of the RA was that the ADEC regulatory cleanup level of 1 mg/kg is protective of limited ecological and human receptors for the Upper Camp area.

Supplemental Field Investigation, SS010a and SS010b – 2010

In 2010 a supplemental field investigation was conducted to further define the extent and nature of surface and subsurface soil PCB contamination at SS010a and SS010b. Over 300 soil samples were collected and analyzed for PCBs from these areas. It was estimated that a total volume of approximately 419 cy of PCB-contaminated soil was present above the cleanup level at SS010b. An estimated 2,133 cy of PCB-impacted soil was determined to remain at SS010a.

Final Feasibility Study - 2011

The report included the results of the Feasibility Study (FS) that was conducted at the Big Mountain Radio RRS to identify potential remedial alternatives for contaminated media present at Sites SS010a and SS010b. The FS was conducted in accordance with the three stages typical of an FS for a contaminated

site facility, which broadly involve the identification and screening of technologies, the development and screening of alternatives, and the detailed analysis of the alternatives per contaminated media per site.

Final Record of Decision - 2011

The USAF and the State of Alaska signed the Record of Decision approving the selected remedy for the Former Equipment and Power Building (SS1010a and SS010) and the Former Septic Tank and Outfall (SS010b and SS009). The response action selected for both sites under CERCLA and Alaska state law was excavation and offsite disposal of PCB impacted soil with concentrations greater than 10 mg/kg, and excavation and onsite disposal of PCB impacted soil with concentrations between 1 and 10 mg/kg within an industrial solid waste landfill.

Final Remedial Action Report – 2014

The report summarizes the excavation and disposal activities for PCB-impacted soil at SS010a and SS010b. Approximately 326 cy of soils exceeding 10.0 mg/Kg were shipped for disposal off-site from site SS010b. Approximately 1,305 cy of soil from SS010a was shipped for disposal offsite. Approximately 3,848 cy of soils with concentrations between 1.0 mg/Kg and 10.0 mg/Kg were placed in the on-site repository identified as LF010, located at the former site SS014 the Former Dual AST System. Institutional controls and monitoring of the onsite repository is managed through Site SS014 (LF010), ADEC File Number 2518.38.005. Soil confirmation samples indicate that PCB concentrations in the soil remaining at Sites SS010 and SS09 are less than the ADEC cleanup level of 1 mg/kg.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative noncarcinogenic risk standard at a hazard index of one across all exposure pathways.

Based on a review of the environmental record, ADEC has determined that residual contaminant concentrations do not pose a cumulative human health risk.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De-Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation For Sites SS09 and SS010

Pathway	Result	Explanation
Surface Soil Contact	De Minimus	Contamination remains in the surface soil, but is below ingestion cleanup levels.
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion cleanup levels.
Inhalation – Outdoor Air	Pathway Incomplete	Contaminants are not volatile; therefore the inhalation pathway is incomplete.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contaminants are not volatile; therefore the inhalation pathway is incomplete.

Groundwater Ingestion	Pathway Incomplete	Groundwater contamination is not present.
Surface Water Ingestion	Pathway Incomplete	Surface water contamination is not present.
Wild and Farmed Foods Ingestion	De-Minimis Exposure	Contaminants of concern do have the potential to bioaccumulate in plants or animals, but the concentrations remaining onsite are below the risk-based cleanup levels.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminant concentrations remaining onsite are below the risk-based cleanup levels.

Notes to Table 2: “De-Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in ADEC’s judgment contamination has no potential to contact receptors. “Exposure Controlled” means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

ADEC Decision

Remaining contamination in soil is below approved cleanup levels. This site will receive a “Closed” designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, within 15 days after receiving the department’s decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please feel free to contact me at (907) 269-3077.

Sincerely,

Jessica Morris
Project Manager