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PRC

May 13, 1992

Mr. Mark Ader
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, Mail Stop HW-113
Seattle, Washington 98101

Subject: File Review and HRS PREscore
USN - White Alice Site, Northeast Cape, St. Lawrence Island, Alaska
Contract No. 068-W9-0009
Work Assignment No. C1003233

Dear Mr. Ader:

PRC Environmental Management, Inc. has completed a preliminary file review and hazard ranking system (HRS) PREscore evaluation for the White Alice site on the Northeast Cape of St. Lawrence Island, Alaska. The site, a former component of the White Alice Communications System, has documented polychlorinated biphenyl (PCB), organic constituent, and metals contamination.

This review was conducted on site files provided by the U.S. Environmental Protection Agency on April 10, 1992. The HRS PREscore for the White Alice site has been calculated at 25.02, based on information provided in *Site Inspection, White Alice Site, Northeast Cape* prepared by Shannon and Wilson, Inc.; *Removal Action, White Alice Site, Northeast Cape* prepared by URS Consultants, Inc. for Engineering Field Activity, Northwest, Western Division, Naval Facilities Engineering Command in May 1991; and the response to a letter requesting additional information, provided by the Department of the Navy on March 18, 1992. Assumptions based on professional judgement are made in the absence of sufficient data.

Background

The White Alice site is located on a 26-acre parcel of land on the Northeast Cape of St. Lawrence Island. St. Lawrence Island, located in the Bering Sea, is approximately 100 miles long and 20 miles wide. The site is 118 miles northeast of Seward Peninsula at the coordinates 62° 52' north latitude and 168° 30' west longitude. Former operations facilities and equipment include electrical transformers, transmitter antennas, a tramway, and a drum storage area at the upper camp; and a lower tramway terminal and the White Alice transmitter facilities. Upper camp facilities are located at the summit of Kangukhsam Mountain and are accessible only by tramway; all other facilities lie on the coastal plain north of the mountain. A component facility of the White Alice Communications System was constructed at the site in 1952 by the U.S. Air Force. The site was abandoned in 1975 and the 26-acre parcel of land was relinquished by the Air Force to the U.S. Navy in 1982. Identified on a map, but not included within the 26-acre site are the former base runway, Transformer Bank 4, a "disposal area," a 4-inch pipeline, and a cargo

beaching area. No information has been provided for these facilities, which are located on property currently owned by a local native corporation and are not incorporated into the HRS PREscore.

A removal action occurred at the site during July and August 1990. More than 1,000 empty and rusted drums were removed from locations throughout the site, along with 190 full or partially filled drums and 32 large electrical components including electrical transformers and switch boxes. Partially filled drums contained wastes such as fuel oils, leaded gasoline, PCB-containing dielectric fluids, aviation fuels, ethylene glycol, and creosote.

The site has been divided into three main areas: the tramway slope and lower tramway terminal, the White Alice transmitter facilities, and the upper camp facilities and drum field. Drums formerly located beneath the tramway were removed in 1990 for proper disposal. Contaminated soil beneath the tramway as a result of past drum disposal has been estimated at 250 square feet. Contaminants reported for soil samples collected from beneath the tramway, as well as those associated with the list of drummed wastes reportedly removed, have been incorporated into the source evaluation. Additionally, 160 square feet of contaminated soil have been documented for the area surrounding Transformer Bank 2 near the lower tramway terminal. Mean sample results reporting chloroform (0.066 parts per million [ppm]), DDT (0.014 ppm), PCBs (1.0 ppm), and endrin aldehyde (0.012 ppm) for the surface soils surrounding Transformer Bank 2 were incorporated into the lower tramway terminal source evaluation.

The White Alice transmitter facilities are comprised of Building 1001, Antennas 1 through 4, and Transformer Bank 1. Results for surface soil samples collected from the area surrounding Transformer Bank 1 indicate mean concentrations of aldrin (0.1 ppm), heptachlor (0.1 ppm), methylene chloride (0.9 ppm), and PCBs (10 ppm); mean sample results have been incorporated into the source evaluation. Results for analysis of asbestos fibers in building material samples reveal asbestos as a pipe and structure insulator in Building 1001 and all four antenna buildings. Asbestos fibers in building materials have been estimated at 15 percent from sample results. An estimated 10 cubic yards of asbestos-contaminated building materials have been incorporated into the source evaluation as a hazardous waste stream.

Facilities at the upper camp consist of the upper camp drumfield, the upper tramway terminal, the Raddome Building, Building 124, and Transformer Bank 3. Walkways connect all buildings at the upper camp. A 150,000-gallon aboveground heating fuel storage tank at the upper camp has been eliminated as a potential source of contamination. Sample results indicate that 190 square feet of surface soil are contaminated surrounding Transformer Bank 3. Contaminants reported in soil samples collected around Transformer Bank 3 reveal mean concentrations of PCBs (0.1 ppm), dioxins (0.008 ppm), furans (0.0009 ppm), and DDT (1.0 ppm). Contaminated soil associated with the upper camp drum field has been estimated at 81,000 square feet. Contaminants associated with the upper camp drum field and incorporated into the source evaluation have been identified based on sample results. Results for analysis of asbestos fibers in building materials reveal its use as a pipe and building insulator in all buildings and walkways at the upper camp. Asbestos fibers in building materials have been estimated at 15 percent from sample results. An estimated 5 cubic yards has been incorporated into the source evaluation as a hazardous waste stream.

The hazardous waste quantity factor value at the site is calculated to be 100 for all migration pathways. On-site sources most significant to the HRS PREscore are the hazardous waste streams associated with asbestos fibers in building materials. Elimination of asbestos as a hazardous waste stream will reduce the overall PREscore to 13.50.

Groundwater Pathway

The groundwater pathway score for the White Alice site is calculated at 0.00. Documentation reports that groundwater is encountered at depths from 61 to 65 feet below ground surface. The surrounding hills on which the upper camp is located consist primarily of quartz monzonite and other granitic type rocks. Soils in the lowlands to the northeast of the hills consist predominantly of quarternay surfacial deposits of gravel, sand, silt, and peat, which overlie wave cut bedrock. A hydraulic conductivity value of 1×10^{-4} centimeters per second has been assigned to the subsurface soil layer, which is assumed to be 65 feet thick and continuous from the ground surface to the water table. The net annual precipitation for the area, estimated from monthly rainfall data, is 10.9 inches. One former drinking water well is located at the site; seasonal fluctuations of the water table in the past limited its use to summer and early fall. The well has since been abandoned. Groundwater samples have not been collected from the well. Currently, no persons reside or use groundwater for domestic purposes within a 4-mile radius of on-site sources of contamination. No liner or leachate containment is in place at any on-site source.

Surface Water Pathway

The surface water pathway score for the White Alice site is calculated at 47.40 based on the overland/flood migration pathway component. On-site sources of potential contamination are located adjacent to or near an unnamed creek that bisects the site and empties into the Bering Sea on the northern side of the island. Sediment sample results document an observed release to surface water. Additionally, more than 11 small lakes and a lagoon are located to the north and east of on-site sources, potentially interconnected hydraulically by braided streams reported throughout the lowlands. Surface water runoff from the lower tramway terminal and the White Alice transmitter facilities drains to the unnamed creek. Drainage from the upper camp would most likely descend the mountain following the route of the tramway and enter the unnamed creek near the lower tramway terminal. The stream flow for the unnamed creek has been assumed between 10 and 100 cubic feet per second. Documentation has not provided upgradient drainage acreage for on-site sources; upgradient drainage has been estimated from a topographical map to be 550 acres. Surface soils at the site are reported as highly permeable. The 2-year, 24-hour rainfall value for the area has been assumed at 1.5 inches in the absence of data. Likewise, the site has been assumed within a 500-year floodplain of the unnamed creek. No containment for release by flood or overland migration has been established at any on-site source.

Documentation reports as many as 20 native persons residing at fishing camps during the summer, established in the area downgradient of the site. These people reportedly receive drinking water from the unnamed creek bisecting the site, approximately 3.5 miles downgradient of on-site sources. No fishing is reported in surrounding unnamed streams, but the annual fisheries harvest in the Bering Sea within a 11-mile radius extended from the mouth of the unnamed creek has been estimated at more than 100,000 pounds. Wetlands frontage has been estimated to be 7 linear miles downgradient of the site. St. Lawrence Island is part of the Arctic Maritime National Wildlife Refuge and has been assigned a sensitive environments value of 75.

Five sediment samples were collected from the upper portion of the unnamed creek near the bottom of the tramway slope as part of site inspection activities. Contaminants detected in sediment samples include: barium (0.07 parts per million [ppm] to 0.11 ppm at five locations), mercury (0.0002 ppm at five locations), PCBs (21 parts per billion [ppb]), anthracene (118 ppb and 187 ppb), phenanthrene (184 ppb, 7070 ppb, and 10900 ppb), 2-nitrophenol (438 ppb), diethyl phthalate (109 ppb to 512 ppb at four locations), bis (2-ethylhexyl) phthalate (440 ppb

and 1220 ppb), and di-n-octyl phthalate (703 ppb to 1650 ppb at four locations). Sediment sample results are incorporated into the Surface water pathway score as level II surface water contamination. If level II contamination were documented for sediments 3.5 miles downgradient, where native persons receive drinking water from the stream, the overall HRS PREscore would increase to 50.00. Additional sampling and analysis in this area would be required to document such contamination.

Soil Exposure Pathway

The soil exposure pathway score for the White Alice site is calculated at 16.00. Soil contamination has been documented with sample results at all potential sources of contamination. Surface soil contamination has been documented at the three on-site transformer banks and drumfields located beneath the tramway and at the upper camp. Mean surface soil sample results have been incorporated into the evaluation of the three on-site sources. Documentation indicates that the site is accessible to the some public and provides for some recreational use. Evidence of scavaging and vandalism has been reported. No persons currently reside or work within a 1-mile radius of contamination sources at the site. The Arctic Maritime National Wildlife Refuge surrounds the site and has been assigned a terrestrial sensitive environments value of 75. The wildlife refuge is the primary target driving the soil exposure pathway score.

Air Pathway

The air pathway score for the White Alice site is calculated at 0.07. No persons are reported to reside within 3 miles of on-site sources of contamination. The nearest community would be the fishing camps located along the islands edge, more than 3 miles to the north and east of the site. More than 300 acres of wetlands have been estimated for the lowland areas within a 4-mile radius of the site. The Arctic Maritime National Wildlife Refuge surrounds the site, and a few-flowered primula (*Primula tschuktschorum*), a federally proposed endangered species, is known to be restricted to Seward Peninsula and St. Lawrence Island. Both have been incorporated into the PREscore as sensitive environments.

Enclosed are the HRS score sheets and a diskette copy of the HRS PREscore file for the White Alice site. Please call me at 624-2692 if you have any questions.

Sincerely,

David A. Zimmermann

for Scott J. DeFalco
Site Manager

Enclosures (2)

cc: Peter Rubenstein, EPA Region 10, Seattle (w/o enclosures)
David Zimmermann, PRC, Seattle