THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 1516.38.046

June 10, 2019

Sent via electronic mail only
Justin Winter
City of Ketchikan Public Works Department
2930 Tongass Ave.
Ketchikan, AK 99901

Re: Decision Document: Former Ketchikan Hospital
Cleanup Complete Determination

Dear Mr. Winter:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Former Ketchikan Hospital located at 347 Bawden Street, Ketchikan. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Former Ketchikan Hospital, which is located in the ADEC office in Juneau, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:
Former Ketchikan Hospital
347 Bawden Street
Ketchikan, AK 99901

Name and Mailing Address of Contact Party:
City of Ketchikan
2930 Tongass Ave.
Ketchikan, AK 99901

DEC Site Identifiers:
File No.: 1516.38.046
Hazard ID.: 25353

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

The former Ketchikan Hospital is located at 347 Bawden Street in the central business district of Ketchikan. It used to be the Ketchikan General Hospital building before being converted to the Bawden Street Apartments which was the primary housing for the Ward Cove Pulp Mill workforce until the mill closed in March 1997. The building was used to house summer tour guides seasonally, but was vacant for several years. Sometime in 2012 or 2013, the building was declared a public hazard by the City of Ketchikan and was subsequently demolished. Post-demolition, gravel was added to some of the site for grading and to limit runoff. The lot is approximately 0.455-acres and is approximately 50 feet (ft.) above sea level. The site slopes moderately to the southwest and bedrock is shallow and visible on the surface in some areas. Nearly all surface water on site flows into a pipe inlet at the southeast corner of the property which leads to the sanitary sewer and City of Ketchikan Wastewater Treatment Plant. A limited amount of water flows along the eastern boundary of the site, into the street storm drainage system, and into the Tongass Narrows. Ketchikan Creek is located 165 east and downgradient of the site. The current owner of the building is the City of Ketchikan through foreclosure.

The site was added to the ADEC Contaminated Sites database in unconfirmed status in February 2009 as part of a Brownfield assessment. PBS Engineering + Environmental performed limited soil sampling and analysis at the site in March 2014. Two soil samples were collected from two locations on site; one soil sample from one ft. belowground and another from two ft. belowground. The exact locations of the samples were not provided. The samples were analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), polychlorinated biphenyls (PCBs), and total metals. The results found DRO (up to 390 milligrams per kilogram (mg/kg)), arsenic (up to 31 mg/kg), and lead (up to 690 mg/kg). These concentrations were above default ADEC cleanup levels. The source of petroleum contamination was an underground heating oil tank (UST) and the source of the lead was presumably lead based paint. The contaminated soil was reported to the ADEC and the site status was changed from unconfirmed to active in the Contaminated Sites database in February 2009.

Contaminants of Concern

During the site characterization and cleanup activities at this site, samples were collected from soil and analyzed for GRO, DRO, RRO, PCBs, and metals. Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern in soil at this site:

- DRO
- Lead

Cleanup Levels

The default 18 AAC 75.345 Table B1 for the migration to groundwater pathway cleanup levels apply to the site.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)
DRO	230
Lead	400

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 2009. These activities are described below.

A site characterization was completed in June of 2016. This work was documented in the *Site Characterization Report Former Bawden Street Apartments 347 Bawden Street Ketchikan, AK*, prepared by PBS Engineering + Environmental on behalf of the City of Ketchikan, and dated July 26, 2016. The site was divided into 32 quadrants. Quadrants with exposed bedrock (northwest corner of property) were not sampled. The characterization effort included sampling for lead, arsenic and DRO. Twenty-four soil samples were analyzed for total lead and arsenic. Concentrations of lead ranged from 5.0 mg/kg to 2,100 mg/kg, with five samples exceeding the cleanup level of 400 mg/kg. These were located in Q-16, Q-17, Q-19, and Q-23. Sample results for arsenic ranged from 2.3 mg/kg to 29 mg/kg with 23 results above the cleanup level of 3.7 mg/kg, but all were observed to be typical of naturally occurring arsenic.

Eight samples were analyzed for DRO. Results ranged from 150 mg/kg to 19,000 mg/kg, with three samples exceeding the migration to groundwater cleanup level of 230 mg/kg. DRO contamination was documented in two areas of the site; one near a drain pipe on the northwest side of the property (Q-20), and one near a possible petroleum UST located just outside the southeast side of the property (Q7 and Q8). Based on the presence of shallow bedrock at the site, the migration to groundwater pathway was determined to be incomplete. Furthermore, due to the absence of an identified anthropogenic source of arsenic at the site, the reported concentrations are determined to be naturally occurring and therefore no further evaluation of arsenic was required.

Site remediation was completed and documented in the *Site Remediation Report Former Ketchikan Hospital 347 Bawden Ketchikan, AK*, prepared by PBS on behalf of the City of Ketchikan, and dated December 11, 2017. The objective of the work was to excavate both lead and petroleum contaminated soil from the property. Prior to the work, the UST was excavated to the south of Q8. The UST was observed to have holes in the bottom and was full of water. Lead and DRO contaminated soil was excavated to bedrock (at six ft. belowground at the deepest) and confirmation soil samples were collected from the sidewalls. An x-ray florescence detector (XRF) was used to field screen for lead contamination and a photoionization detector (PID) was used to field screen DRO impacted soil.

Twenty-nine confirmation soil samples were collected post-excavation which proceeded to bedrock in some cases. Fifteen soil samples were analyzed for DRO and 29 samples for lead. The DRO results were below cleanup levels and no further remedial action was needed for the petroleum contamination. Two confirmation samples had lead values greater than the cleanup level of 400 mg/kg. Both of these (Q20 and Q16) were located on the property lines and both had been excavated to bedrock (present at about 18 inches belowground) and/or to the extent practicable without compromising adjacent structures. Sample Q20 on the north side had a lead value of 1,800 mg/kg and Q16 on the south side had 3,300 mg/kg.

In March 2019, the City of Ketchikan submitted a work plan to sample at the bedrock interface for lead at sample location Q16. An XRF was used to field screen soil and one soil sample was collected and analyzed for lead. The resulting lead concentration at the bedrock interface was 38 mg/kg. The petroleum and lead contaminated soil has been excavated to bedrock and the extent practicable.

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 meet the human health cumulative risk criteria for residential land use.

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 or Pathway Incomplete. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present in surface soil (0 to 2 ft. below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Limited and de-minimis lead contamination remains on top of the shallow bedrock.
Inhalation – Outdoor Air	Pathway Incomplete	Petroleum contamination is not present.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Petroleum contamination is not present.
Groundwater Ingestion	Pathway Incomplete	Groundwater is not present due to shallow bedrock.
Surface Water Ingestion	Pathway Incomplete	Surface water was not affected by the contamination.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern are not expected to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination is not expected to affect ecological receptors.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely 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.

ADEC Decision
Soil contamination at the site has been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil or groundwater from a site that is subject to the site cleanup rules or for which a written determination from the department has been made under 18 AAC 75.380(d)(1) that allows contamination to remain at the site above method two soil cleanup levels or groundwater cleanup levels listed in Table C requires ADEC approval in accordance with 18 AAC 75.325(i). A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas

contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

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 contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to 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, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 20 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, P.O. Box 111800, 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) 465-5207, or email at danielle.duncan@alaska.gov.

Sincerely,

Danielle Duncan
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit