



THE STATE  
of **ALASKA**  
GOVERNOR BILL WALKER

Department of Environmental  
Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites Program

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File No: 2268.38.002

August 27, 2015

Via Electronic and Regular Mail

Bernie Willis  
6800 East 99th Avenue  
Anchorage, AK 99516

Re: Decision Document: Deshka River Lodge  
Cleanup Complete Determination

Dear Mr. Willis:

The Alaska Department of Environmental Conservation (ADEC) has reviewed the environmental records for the referenced site. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management. No further remedial action is required.

**Site Name and Location:**

Deshka River Lodge  
Lot 1, USS 3943 and ASLS 72-78  
Section 26, T19N, R6W, S.M.  
Talkeetna Recording District,  
Willow, Alaska

**Name and Mailing Address of Contact Party:**

Bernie Willis  
6800 East 99th Avenue  
Anchorage, AK 99516

**ADEC Site Identifiers:**

File No: 2268.38.002  
Hazard ID: 3328

**Regulatory Authority for Determination:**

18 AAC 75

**Site Description and Background**

The site is located on the east bank of the Deshka River about one mile upstream from the confluence of the Susitna River (Figure 1). The site is accessible by plane, snow-machine, or boat only; no road access exists. The closest community to the Deshka River Lodge is Willow, about ten air miles to the northeast.

The Deshka River Lodge has a long history dating back to 1946 when it was owned by the Farmer family. In 1987, Mr. Robert Farmer inherited it and at some point the property went into foreclosure and was owned by the Small Business Association. In April 2001, Andy Willis purchased the lodge from the Small Business Association in a foreclosure auction. The site was added to the ADEC Contaminated Sites database on September 28<sup>th</sup> 2000 following the receipt of the Phase I and Phase II environmental assessments. Mr. Andy Willis had applied for and been accepted into the ADEC's Voluntary Cleanup Program in June of 2001.

### Contaminants of Concern

The following petroleum 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.

- Gasoline Range Organics (GRO)
- Benzene, toluene, ethylbenzene, and xylene (BTEX)

### Cleanup Levels

The default soil cleanup levels that apply to the site are those established under Method Two, 18 AAC 75.340 and specifically listed at 18 AAC 75.341(d) Tables B1 and B2. These are listed below.

Contaminant	Soil (mg/kg)	Pathway
GRO	300	Migration to Groundwater
Benzene	0.025	Migration to Groundwater
Ethylbenzene	6.9	Migration to Groundwater
Toluene	6.5	Migration to Groundwater
Xylene	63	Migration to Groundwater

Table 1 – Approved Soil Cleanup Levels

### Characterization and Cleanup Activities

According to ADEC records, two environmental assessments were completed in 1991 and these in addition to a third assessment conducted in 1999 were documented in a report titled "Phase 1 Environmental Site Assessment" completed by Gilfilian Engineering & Environmental Testing (GE<sup>2</sup>T) and submitted to Mr. Bill Wheat at the Small Business Administration. The environmental site assessment (ESA) was done according to ASTM Practice E 1527. The 1999 ESA did not include sample collection, however samples taken in 1991 were documented in the report. The ESA identified the following environmental concerns present on the property listed below and recommended a Phase II Release Investigation. Figure 2 is a site map indicating the locations of various structures on the property.

1. Tackle shop: The gasoline aboveground storage tank (AST) behind the tackle shop had soils contaminated with volatile petroleum hydrocarbons (VPH) at 9,350 ppm, benzene at 441 ppm, and total benzene, toluene, ethylbenzene, and xylene (BTEX) at 5061 ppm.
2. Main lodge buildings: The storage area below the guest rooms had ten 5-gallon buckets containing waste oil. There was evidence of leakage and staining on the wood board overlying the dirt floor.
3. Main lodge buildings: The soil in the area near the 500-gallon underground storage tank (UST) for heating oil had 132 ppm extractable petroleum hydrocarbons (EPH) which exceeded ADEC cleanup levels.
4. Dump site: The dump site nearest the pond contained 55-gallon drums of gasoline.
5. Pond burial site (potential buried materials identified during interview): Fuel drums and tanks were burned in a fire in 1991. There may be fuel and DDT contamination at the pond burial site.
6. Tank farm: Diesel fuel contamination was identified within the containment berm.
7. Heavy equipment: There was olfactory and visual evidence of the presence of hydraulic fluid and fuel near the CASE 450 bulldozer.

In August of 1999, GE<sup>2</sup>T conducted a Phase II ESA at the site and investigated the pond area and the AST behind the tackle shop. They also sampled the drinking water well on site to evaluate potential groundwater contamination. Based on their investigation, the following conclusions were made:

1. Laboratory results indicated that petroleum hydrocarbons, metals, volatile organic compounds (VOCs), PCB, or pesticide contamination was not present in the pond area.
2. The drinking water well on site was contaminated with arsenic and lead at concentrations exceeding drinking water standards. The lead value (1.14 mg/L) was over ten times greater than the groundwater cleanup level and drinking water quality standards. The source of the contamination was unknown and further investigation was recommended.
3. The soil near the AST at the tackle shop is contaminated with gasoline range organics (GRO) (11,320 mg/kg) and BTEX (benzene at 117 mg/kg) exceeding ADEC cleanup levels. It was recommended that this soil be removed and the groundwater be tested for petroleum constituents due to the high potential of contamination.

On July 18, 2001, Restoration Science and Engineering (RSE) performed a Phase II ESA of the property after the owner was accepted into the ADEC's Voluntary Cleanup Program. The purpose of the assessment was to excavate petroleum impacted soil near the 500-gallon AST located behind the tackle shop identified during the Phase II ESA conducted by GE<sup>2</sup>T in August of 1999. The AST was removed prior to soil excavation activities. Boat transportation and a front loader were provided by the property owner. RSE used a photoionization detector (PID) to guide their excavation from 0 to 9 feet below ground surface. An on-site soil treatment cell was constructed adjacent to the airstrip to remediate the contaminated soil. Approximately 105 cubic yards of contaminated soil was transported to the on-site soil treatment cell that was lined with a 20-mil HDPE liner. The stockpiled soil was covered with a 6-mil

polyethylene liner for the winter. Ten confirmation samples, taken from the excavation were laboratory tested for GRO and BTEX. Of these, one, taken from MW-1A, slightly exceeded the ADEC table two migration to groundwater cleanup level for benzene (0.025 mg/kg) having a benzene concentration of 0.028 mg/kg.

As part of the work completed in 2001, RSE installed six shallow groundwater monitoring wells on site. Groundwater samples were collected and laboratory tested for GRO and BTEX. Monitoring wells 2-6 had results below ADEC table two groundwater cleanup levels, but MW-1 exceeded the cleanup levels for GRO at 24,000 µg/L and BTEX constituents at concentrations between 62-6,600 µg/L. RSE also studied the groundwater flow at the property and found that due to the proximity of the property to the Deshka River, flow directions likely fluctuate due to changes in surface water recharge and river level.

At the direction of RSE, an air sparging system was installed at the AST excavation near the tackle shop to sparge groundwater and aerate soil in the contamination zone. RSE also recommend tilling and fertilizing of the soil treatment cell during the warm months to speed remediation. Once sampling indicated that the soil had remediated, RSE suggested that the treated soil be placed to fill in an upland area and be seeded with grass seed to remove any recalcitrant petroleum compounds. RSE also proposed a monitoring plan to include sampling the groundwater monitoring wells and field screening the soil treatment cell in the summer. According to RSE, the soil treatment cell should have been ready for closure by 2002 if it was actively managed.

In August 2001, a new Class "B" public water system/drinking water well was approved by the ADEC Division of Environmental Health Drinking Water/Wastewater Program. This new well was located about 200 feet from the Deshka River and was a 43 foot deep, open-end, steel cased 4-inch diameter water well in an unconfined aquifer. Initial testing indicated that the well was contaminated with coliform bacteria and was suspected to be under the direct influence of surface water and may require disinfection. Drinking water samples collected from the well on August 23<sup>rd</sup> 2001, indicated that total coliform, arsenic, lead, and nitrate were not detected.

A closure request was submitted to the ADEC by RSE on April 27<sup>th</sup> 2004 citing that the GRO contaminated soil treatment cell had bioremediated to a satisfactory level. In addition, after two flood events which inundated the treatment cell, the volume was reduced by nearly fifty per cent. In October 2003, RSE collected 11 laboratory soil samples from the treatment cell using a PID to select the samples with the highest readings for laboratory analysis. These samples were tested for GRO and BTEX and all of them fell below ADEC cleanup levels for migration to groundwater.

In an email conversation dated December 30, 2008, RSE submitted to the ADEC the results of groundwater sampling completed in July of 2002. RSE sampled groundwater monitoring wells 2, 3, 4, and 6. Monitoring well 1 did not have sufficient water in it to be sampled. The samples were analyzed for GRO and BTEX. All of the wells were non-detect for GRO but some BTEX compounds were detected. Ethylbenzene was detected below cleanup levels in monitoring wells 4 and 6. Monitoring well 2 had toluene at a concentration that was below the ADEC cleanup level but benzene was present at 0.0058 mg/L which is in slight exceedance of the groundwater cleanup level for benzene of 0.005 mg/L. In the email, RSE stated attempts were made in 2002 and 2004 to sample monitoring well 1, but that there was not enough water in it on both occasions. RSE estimated in 2008 that the concentrations of GRO and BTEX likely had attenuated to below 0.025 mg/L due to elimination of the source soil, a high rate of natural attenuation due to permeable sediments, and high groundwater flux.

In July of 2013, the ADEC requested that the groundwater monitoring wells be decommissioned and in September of 2014, documentation of proper decommissioning was received. In May of 2015, I requested that the drinking water well on site be sampled by an environmental professional and that the sample be analyzed for BTEX, GRO, DRO, polycyclic aromatic hydrocarbons (PAHs), and metals using Alaska and EPA methods. The results were non-detect for all analytes except for barium which was present at a concentration of 0.0927 mg/L well below the cleanup level of 2 mg/L.

During the course of the site cleanup history from 1991-2015, there have reportedly been at least three major flooding events that may have altered site conditions.

The following contamination source areas were documented and remediated as follows:

1. GRO contaminated soil near the AST at the tackle shop was excavated and placed in a treatment cell in 2001, and the treatment cell had been successfully remediated in 2004 according to RSE.
2. Reportedly, there had been 5-gallon buckets of waste oil in the main lodge storage area below the guest rooms. These have presumably been properly disposed of.
3. The pond dump site was found by GE<sup>2</sup>T to be free of petroleum hydrocarbons, metals, VOCs, PCB, or pesticide contamination in 1999.

The following source areas may require an environmental investigation in the future due to incomplete or lack of documentation:

1. The heating oil UST at the main lodge is no longer in use per our phone conversation on August 18, 2015. Furthermore, per our conversation, it is unknown whether or not the tank is still in place. The last analytical data from the initial report in 1991 indicated that the soil in the area of the tank had extractable petroleum hydrocarbons at 132 ppm. You indicated to me that the lodge is currently using an AST for heating.
2. The former diesel fuel tank farm composed of 3-2,000 ASTs had been damaged during a flood event and has been removed from the property per our August 18, 2015 phone conversation. In 1999, GE<sup>2</sup>T had indicated that there was diesel fuel contamination within the containment berm. The CASE 450 bulldozer documented in the same report has also been removed from the property.

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

Pathway	Result	Explanation
Surface Soil Contact	De-Minimis	GRO contamination may be present in surface soil (0 to 2 feet below ground surface) in the footprint of former ASTs and UST.
Sub-Surface Soil Contact	De-Minimis	GRO contamination may be present in the sub-surface soil in the footprint of former ASTs and UST.
Inhalation – Outdoor Air	Pathway Incomplete	GRO contamination (if present) in soil is unlikely to present an outdoor air health hazard.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis	GRO contamination (if present) is unlikely to present an indoor air health hazard.
Groundwater Ingestion	De-Minimis	The groundwater drinking well was recently tested (August 2015) and results were non-detect for BTEX, GRO, DRO, PAHs, and metals.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in the vicinity of the site and no complete pathways to surface water exist.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination is not likely to reach ecological receptors.

Table 2 – Exposure Pathway Evaluation

**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**

Although there may be some remaining GRO contamination in the footprints of the former ASTs and UST, due to the lengthy amount of time that has passed since the initial investigation in 1991 and the multiple flooding events, any remaining contamination has likely naturally attenuated. This site will receive a “Closed” designation on the Contaminated Sites Database, subject to the following standard conditions.

**Standard Conditions**

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325. 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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

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) 465-5207.



Danielle Duncan  
Project Manager

cc: SPAR Cost Recovery Unit via email [dec.spar.cr@alaska.gov](mailto:dec.spar.cr@alaska.gov)  
Sally Schlichting, Environmental Program Manager, via email  
Regina Woods, Environmental Professional, Platt Environmental, via email  
Matt Seidler, Interested party, via email

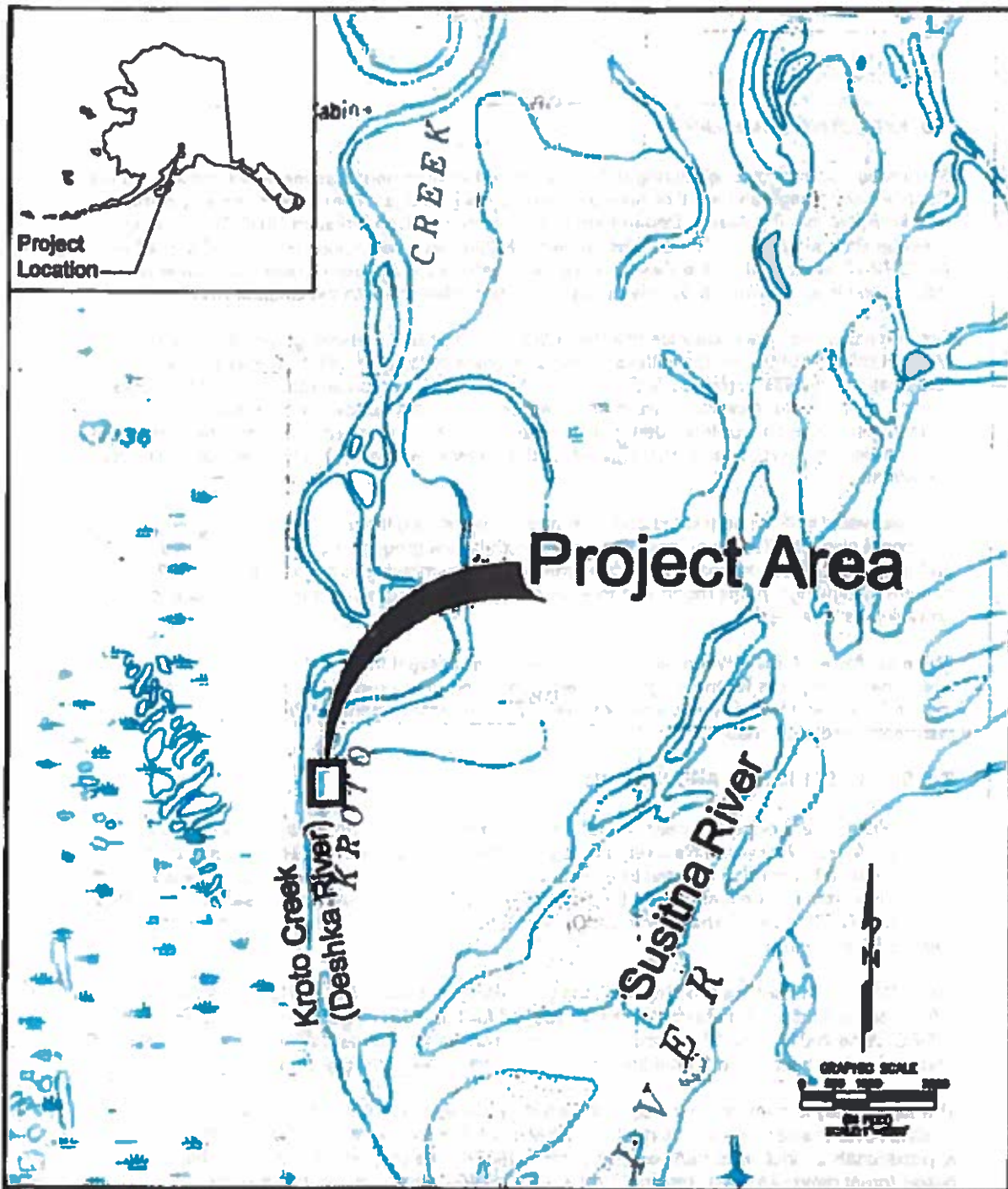


Figure 1: Location of the Deshka River Lodge. Figure copied from RSE Phase II ESA dated December, 2001.



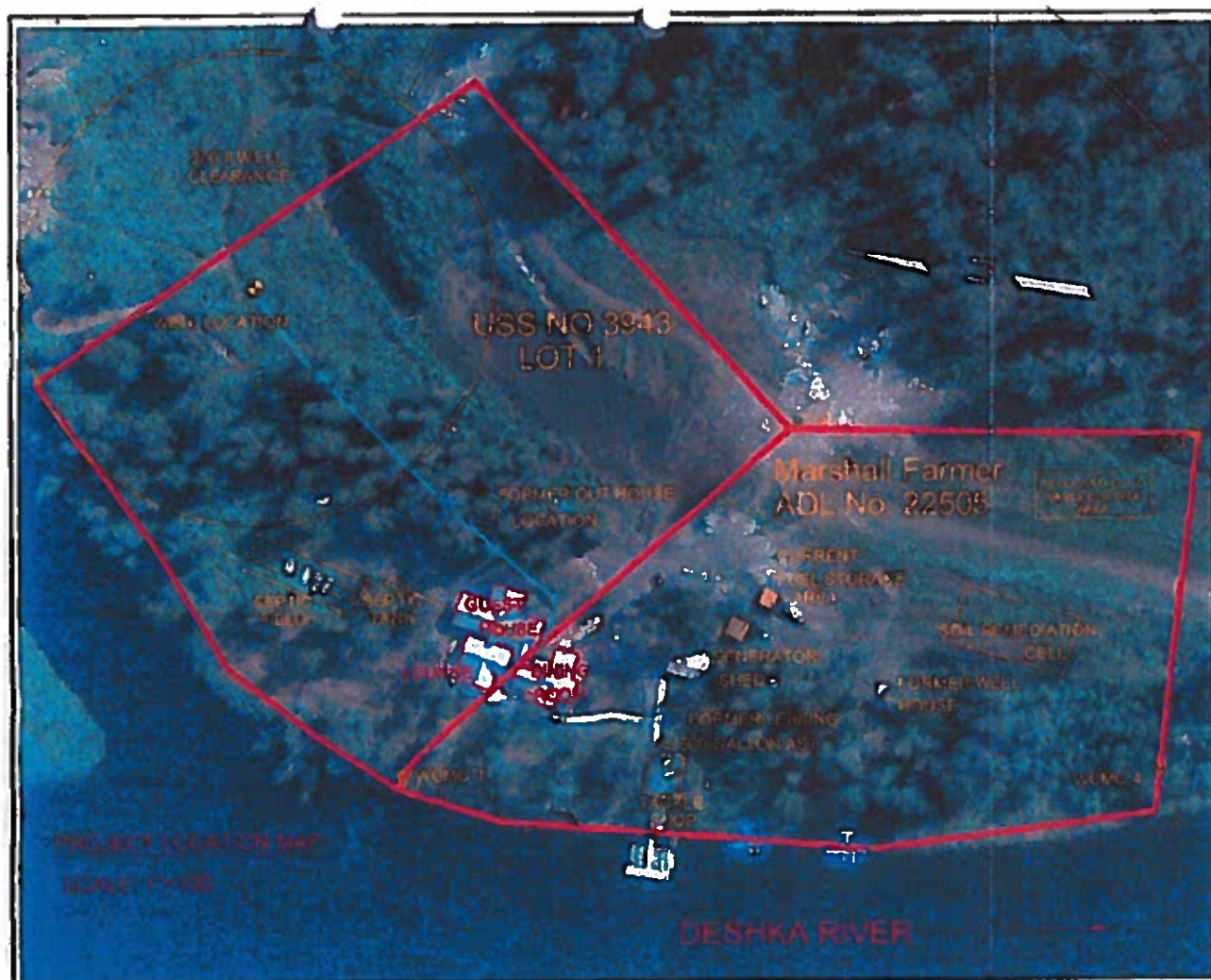


Figure 2: Site map of the Deshka River Lodge including locations of both present and historical buildings and facilities. Figure copied from DWWW Facility Summary Report, Deshka River Lodge, dated Friday, May 17, 2002.

