

The CERCLIS list is also compiled by the EPA and includes sites the EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the NPL. According to the CERCLIS list, viewed on the EPA website January 19, 2004, three CERCLIS sites are located in the Anchorage area. These three sites are Elmendorf Air Force Base, Standard Steel and Metal Salvage Yard, and Fort Richardson. Although Fort Richardson is within 0.25 mile of the Property, areas of concern listed under CERCLIS (Buildings 700/718, 704, 35-752, and 45-590) are located more than 0.25 mile from the Property.

Wetlands Status

According to the Anchorage Wetlands Management Plan dated April 1996, a wetland is located on the Property. The wetland is designated Class "A" wetland, Muldoon Foothills Subdivision near Turf Court, and is located in the southeast portion of the Property. The "A" designation indicates that the wetlands are most valuable in an undisturbed state. According to the 1996 Anchorage Wetlands Management Plan, the area is currently permitted for a storm drain detention system. It provides flood retention, water quality, and habitat. According to the plan, unfilled areas shall be retained.

3.5 Personal Interviews

Mr. Doug Leiser, owner and operator of Alaska Greenhouse, was interviewed in person on February 2, 2004. According to Mr. Leiser, Alaska Greenhouse has occupied Tract B and B1A since construction of the greenhouse in 1968. A residence was constructed in 1971 to the east of the greenhouse. According to Mr. Leiser, the greenhouse and residence have been connected to natural gas since construction. A septic tank and a leach field are located to the north of the central part of the greenhouse and serves both the greenhouse and residence. A private water well and well house is located near the southeast corner of the greenhouse and supplies the greenhouse and residence.

Mr. Leiser added that Alaska Greenhouse also has a permit to use Chester Creek as a non-potable water source for irrigation purposes, but does not use it. According to Mr. Leiser, the design of the irrigation system allows fertilizer to be added to the water prior to distribution to the plants. He pointed out that the well was protected by a backflow prevention system. Mr. Leiser stated that the only chemicals used, stored, or sold at the greenhouse were household strength. He explained that pesticides are not used in the winter, and are used once every two weeks in the summer.

Mr. Leiser explained that his father had cleared the central portion of the Property east of Chester Creek. The area was filled with peat and trees were planted. The trees were later abandoned due to the high maintenance cost. He noted that there are several abandoned

vehicles east of Chester Creek. He stated that he had tried to have them removed but since many were missing wheels the cost was too high.

A follow up interview with Mr. Leiser was conducted on February 12, 2004. Mr. Leiser stated that the 1,000-1,500-gallon storage tank located on the eastern portion of the Property (see Section 4.1.2) was never used, and was purchased with the intention of using it for irrigation in the eastern portions of the Property.

Mr. Leiser also confirmed the removal of a UST from the Property in about 1989 or 1990. He was unsure of the details but gave permission for reuse of an interview conducted for a 1998 Phase I ESA conducted by Shannon & Wilson for Alaska Greenhouses. In the 1998 report, Mr. Casler of Alaska Greenhouses, was interviewed regarding the UST. Mr. Casler stated the tank was used to fuel company vehicles. The removal occurred prior to the requirement that ADEC be notified of changes in use of USTs. The tank was not registered. According to Mr. Casler, no evidence of a release from the tank was noted during the removal. Mr. Casler stated that no other fuel storage tanks have been located on the Property.

4.0 SITE RECONNAISSANCE

The Property grounds and surrounding area were visited on February 2, 2004, to observe site conditions and document potential sources or impacts of petroleum hydrocarbons and/or hazardous substances. At the time of the site visit the Property was occupied by a greenhouse, one shed, a residence with garage, and a barn. Alaska Greenhouse owner, Mr. Doug Leiser, accompanied Shannon & Wilson representatives and provided access to the buildings on the Property.

4.1 Property Evaluation

Currently there is a greenhouse, one espresso stand, a residence, and barn located on the Property. The following sections describe aspects of the Property noted during the site visit.

4.1.1 Interior Evaluation

The greenhouse is a single story structure with bare soil floors as shown in Appendix C, Photo 1. The roof and walls of the buildings are constructed of steel supports with corrugated fiberglass. The greenhouse consists primarily of plant storage areas, one office, and two bathrooms. The office is located in the central portion of the greenhouse and is carpeted and has fluorescent lighting. A counter and sink area is located adjacent to the office area. Two bathrooms with sinks are located to the side of the office and have linoleum flooring and plastic paneling on the walls.

The greenhouse contains plants stored on display tables and watered through an irrigation system. In the southeastern portion of the greenhouse a cabinet containing various pesticides, insecticides, and fertilizers was observed, as shown in Photo 2.

A storage/maintenance area located in the southeastern portion of the greenhouse was also observed. Stored in the area were two boats, two Bobcat loaders, and a second cabinet of pesticides. In the central portion of the building, there were several surface stains. The largest surface stain, shown in Photo 3, was approximately three feet wide by four feet long. To the east of the surface stain, a second surface stain was observed beneath a Bobcat, as shown in Photo 4. Both stains had a strong hydrocarbon odor. Mr. Leiser stated that there had been a recent diesel spill when refueling one of the Bobcats. A compressor and four batteries on a pallet with surface staining were observed as shown in Photo 5. Unmarked jars containing various liquids; various cans of varnish, enamel, stains, rubber cement, cove base adhesives as shown in Photo 6; and unmarked storage containers with surface staining as shown in Photo 7 were also observed in the building.

A small shed to the north of the greenhouse was also entered. It was constructed with wood walls and flooring. Five fuel cans were observed on the floor of the shed as shown in Photo 8. The wood floor was stained with fuel beneath and around the cans. In the southwest corner of the shed, there were also two 55-gallon drums and assorted fuel cans as shown in Photo 9. According to Mr. Leiser the drums and fuel cans contained diesel fuel for the bobcats.

The barn and garage of the residence, to the east of the greenhouse, were also entered. The barn contained primarily household items. The garage of the residence contained two vehicles, one snow machine, and one motorcycle. There was a surface stain under one of the parked vehicles as shown in Photo 10. The remaining areas contained personal items. No floor drains were observed in this building. There were no other potential petroleum hydrocarbon or hazardous substance sources observed in the garage. The residence was not entered.

Based on the age of the on-site buildings, it is possible that there are asbestos containing materials (ACMs) within the buildings. Potential ACMs consist of, but are not limited to, floor tile, roofing, and the mastic used to adhere the flooring, cove base, and paneling to the walls of the office and bathroom spaces. Lead based paint may also be present on the painted surfaces in the buildings.

4.1.2 Exterior Evaluation

The Property was accessed by a driveway off Muldoon Road. The surface of the Property was not observed due to snow cover. An espresso stand was observed in the southern portion of parking lot on the Property. To the north of the greenhouses is a cleared area where an additional greenhouse was formerly located. Remnants of both electrical and water systems were observed in the clearing. Approximately a dozen abandoned vehicles were observed to the

east of Chester Creek as shown in Photo 11. Just east of the vehicles is an approximately 500-gallon abandoned storage tank labeled Chevron Gas. The remainder of the Property was lined with trees on both sides and cleared in the central portions. Approximately 200 feet from the east Property boundary a second storage tank was observed. This storage tank was larger than the first with a capacity of approximately 1,000 gallons, as shown in Photo 12. Tract B1A was also observed and appeared to be vegetated. No other potential petroleum hydrocarbons or hazardous substance sources were observed, though the Property was covered with two to three feet of snow east of Chester Creek.

4.2 Adjacent Properties

The Property is located in a mixed residential-commercial area. Single-family residences and apartments are adjacent to the north and south of the eastern portion of the Property. Fort Richardson Military Reservation is located to the east of the Property. Windsong park is located to the south of the Property. Businesses in the area include Muldoon Mall and three fast food restaurants to the north of the Property, several small businesses to the south of the Property, and Fred Meyer and gas station to the northwest of the Property. The Property is bordered in the west by Muldoon Road, and to the south by East 16th Avenue.

5.0 CONCLUSIONS

The potential petroleum hydrocarbons and hazardous substances sources that were identified on the Property and surrounding parcels are addressed below.

5.1 Subject Property

Based on our physical observation and data research, it is our opinion that potential sources of petroleum hydrocarbons are present on the Property. Primary concerns are the surface stains, uncertainties regarding the former UST, potential heating oil tanks, pesticides, the septic system, on-site debris, potentially impacted fill, on-site receptors, and ACMs and lead-based paints.

Surface Stains

Surface stains were observed in the maintenance/storage area of the greenhouse and on the floor of the shed. Because the storage area's floor is protected from precipitation, infiltration of the surface stain into soil and underlying groundwater is likely limited. Surface staining was also observed in the shed to the north of the greenhouse. Due to the construction of the shed's wood floor, it is likely that the spill reached the underlying soil. Because the underlying soil may be exposed to precipitation and snowmelt through overland flow, infiltration into the soil and groundwater may have occurred. The close proximity of the spill to the creek is also a concern.

UST

A 500-gallon gasoline UST was reported to have been removed from the site around 1989. Based on information from the owner/operator, no evidence of a release was noted. It is unknown whether the surrounding soil was tested.

Heating Oil Tanks

According to AWWU the site was connected to natural gas in 1974. According to the owner, the Property was connected to natural gas at the time of construction around 1968. Based on the uncertainty regarding the connection date, potential heating oil storage tanks may have existed on the Property.

Pesticides

Pesticide treatments were used in the greenhouse. The design of the irrigation system allows plant runoff to be discharged to the ground surface. Mr. Leiser stated that all pesticides were "household strength" and were used every two weeks in the summer. Due to the application of pesticides and the presence of water on the ground surface, there is a potential for infiltration into underlying soil and groundwater.

Septic Tank

A septic tank and leach field are present on the Property. The potential discharge of chemicals to the system is of concern, particularly considered in context of separation distance from Chester Creek.

Debris

On-site debris, specifically the vehicles and used tanks located east of Chester Creek, were observed during the site visit. Mr. Leiser stated that the 1,000-1,500-gallon tank was never used and never contained petroleum products. In the absence of visual observation of the ground surface, we cannot form conclusions regarding potential discharges from the on-site debris.

Fill Quality

A review of aerial photographs shows that fill has been deposited on the Property in the past. Imported fill from unknown sources may contain hazardous substances and/or petroleum hydrocarbons that may have impacted the Property.

Asbestos Containing Materials/Lead-Based Paints

It is likely with the 1970-1974 construction dates that ACM have been used in construction of the on-site buildings. The EPA has prohibited the use of asbestos in the manufacture of certain types of building materials since the 1970s. Spray-on application of

asbestos coating for fireproofing and insulation was prohibited in 1973; installation of wet applied and pre-formed asbestos pipe insulation and asbestos-block insulation has been prohibited since 1975; and spray-applied asbestos coatings for decorative purposes have been prohibited since 1978. These prohibitions relate only to manufacture, not use. Manufacturers were allowed to sell items from their inventory and builders were allowed to use these materials after the prohibition date. The use of asbestos in the manufacture of other materials has not been prohibited, although it has been largely discontinued voluntarily. However, some non-friable materials, such as roofing materials, floor coverings (tile and mastic), and joint compound may still contain asbestos. Lead based paint may also be present on painted surfaces of the on-site buildings.

Receptors

There are several potential on-site receptors. The water well located by the southeast corner of the greenhouse is a potential receptor for on and off-site contamination and provides a direct pathway to underlying groundwater. Natural resources, including Chester Creek and associated wetland are also potential receptors. Additionally the Chester Creek Class A Wetland also presents land use and permitting issues that must be identified and evaluated prior to additional site development.

5.2 Surrounding Properties

There are two registered UST sites within a 0.25-mile radius of the Property. The registered USTs are greater than 300 feet from the Property, and are unlikely to have impacted the Property from this distance. However, a review of aerial photographs and ENSTAR natural gas records indicate that structures were present to the north, east, south, and west of the Property prior to the availability of natural gas to the area. These structures may have utilized wood, electricity, coal, or heating oil for heating purposes. If heating oil was used, it is possible that USTs remain on the parcels.

There is one contaminated site within a 0.25-mile radius of the Property. The Alaskan Village Mobile Home Park is located 200 feet west of the Property. Based on the location and presumed groundwater flow direction it is unlikely that the site has impacted the Property.

6.0 RECOMMENDATIONS

Based on our observations and conclusions, we recommend the following:

- The characterization of the impacted soil inside the greenhouse and beneath the shed to the north of the greenhouse.
- Implementation of proper material storage and disposal practices, including capture of synthetic chemicals used in the greenhouse (e.g. battery fluid, fuel, pesticides).

- If practical, connection to the city water system or at least regular water testing.
- Cleaning up the debris on the Property and evaluation of the underlying soil using visual and/or chemical analysis.
- We recommend that a comprehensive building materials survey be performed prior to demolition or extensive remodeling of any on-site buildings to confirm the presence of ACMs and lead-based paint. If ACMs are identified, removal and disposal of ACMs should be performed by a qualified asbestos abatement contractor using certified workers in accordance with Federal, State, and local regulations. It is also noted that the disposal of asbestos waste is regulated by the EPA, ADEC, and the disposal site operator. The disposal of lead-containing wastes is regulated by the EPA and the disposal site operator.

There is no direct evidence of impact from off-site concerns. However, soil and groundwater sampling may be conducted to provide additional information regarding potential off-site sources and to verify absence of on-site impacts associated with such sources.

7.0 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives for evaluating the site as it relates to the environmental aspects discussed herein. The conclusions and recommendations contained in this report are based on information provided from the observed site conditions and other conditions described herein. It is further assumed that the conditions observed are representative of the conditions throughout the site. The data presented in this report should be considered representative of the time of our site assessment. Changes due to natural processes or human activity can occur on the site. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations applicable to this site may need to be revised.

This report is an instrument of service prepared by Shannon & Wilson for the exclusive use of the Bond, Stephens, & Johnson (Client). To create a report on which the Client can rely, Shannon & Wilson worked closely with the Client and their representatives in development of the scope of services upon which all subsequent tasks have been based. No party other than the Client is permitted by Shannon & Wilson to rely on this instrument of Shannon & Wilson's service. With the permission of the Client, Shannon & Wilson will meet with a third party, approved in writing by the Client, to help identify the additional services required, if any, to permit such third party to rely on the information contained in this report. Such reliance would be limited to the same extent of Client's reliance, and subject to the same contractual, technological and other limitations to which the Clients have agreed.

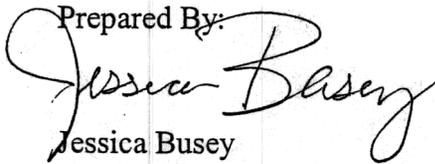
Shannon & Wilson has prepared the attachment in Appendix D, "Important Information About Your Environmental Site Assessment/Evaluation Report," to assist you and others in understanding the use and limitations of our report.

We appreciate this opportunity to be of service. Please contact Matthew Henry or the undersigned at (907) 561-2120 with questions or comments concerning the contents of this report.

Sincerely,

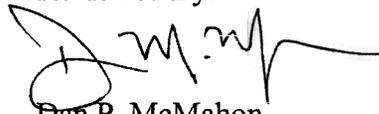
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Map Revised in 1993
 Elevation in Meters
 Contour Interval 5 Meters
 Taken from Anchorage A-8 NW & NE
 U.S. Geological Survey Quadrangles



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| 1301 Muldoon Road Anchorage, Alaska | |
| VICINITY MAP | |
| February 2004 | 32-1-16797 |
|  SHANNON & WILSON, INC. Geotechnical & Environmental Consultants | Fig. 1 |