

Applied Geotechnology Inc.



August 27, 1990

15,518.001

Mr. Roger Jensen
Wilkins Distributing Company
Post Office Box 147
Port Orchard, Washington 98366

Dear Mr. Jensen:

**Preliminary Contamination Assessment
Underground Storage Tank Removal
2021 Sixth Street
Bremerton, Washington**

INTRODUCTION

At the request of Pacific Environmental Services, your prime contractor, Applied Geotechnology Inc. (AGI) observed conditions at the above-referenced site during removal of Underground Storage Tanks (USTs). An AGI representative was present on site August 7, 8, 9, and 13, 1990 to observe site conditions and collect soil samples for laboratory analysis.

Six USTs were removed: one 6,000-gallon and four 4,000-gallon tanks were in one cavity, and one 550-gallon waste oil tank was in a separate cavity. Locations of tanks and the area of excavation are indicated on the enclosed Site Plan, Figure 1.

SITE CONDITIONS AND CONTAMINATION DISTRIBUTION

Soil encountered on-site included tank backfill from surface to about 10 feet below ground surface (bgs), sand from 10 to 12 feet bgs, and silty sand from 12 feet to approximately 14 feet bgs, the greatest depth of penetration. Based on local topography, contaminant migration within the sand layer at 10 feet would probably be to the south. Groundwater was not encountered during excavation. Regional groundwater is expected at greater depth and also probably flows to the south.

Hydrocarbon concentrations below the proposed Washington Department of Ecology (Ecology) guideline of 100 parts per million (ppm) for gasoline were found in three locations beneath the floor of the tank cavity, at depths of 13.5 to 14.0 feet in the silty sand. Contamination above the Ecology guideline was encountered within the main tank nest in backfill material and in the sand layer at 10 to 12 feet bgs.

RECEIVED

AUG 08 2000

DEPT. OF ECOLOGY

Lateral extent of contamination within the main cavity can be defined as follows. The east side of the cavity east of the 4,000-gallon tanks (Figure 1) contained less than 10 ppm Total Petroleum Hydrocarbons (TPH). A composite sample of the north (upgradient) wall of the cavity contained 346 ppm TPH in the gasoline range, but contamination would not be expected to extend far this direction. Two composited samples from the west wall of the cavity contained 245 and 1,550 ppm, identified as aged gasoline, with a possible diesel or mineral spirits component. No gasoline components were detected in the waste oil cavity, so contamination from the west wall of the main cavity has not migrated southward within the sand layer to the location of the waste oil tank. A composite of the south side of the cavity contained 4,875 ppm of gasoline, and a sample collected east of the 6,000-gallon fuel tank (Figure 1) contained 10,230 ppm of gasoline. This is the highest contamination level observed, and lateral extent remains to be defined in this area. Contamination appears to be concentrated within the sand layer, while levels within the underlying silty sand are below the Ecology guideline.

Contamination was also encountered in soil around the waste oil tank located southwest of the main tank cavity. When removed, the tank had several holes in it. Following excavation of contaminated soil, a composite sample of the four walls was collected, along with a sample from the bottom of the hole, at 10 feet. Less than 10 ppm hydrocarbons were present at the excavation base, and 40 ppm, below the Ecology guideline of 200 ppm for diesel and heavier oils, in the composite of the cavity walls. The composite was also analyzed for chlorinated solvents, heavy metals, PCBs and pesticides. No solvents or PCBs were detected. Heavy metals and several pesticides were present at concentrations below Ecology action guidelines or the tolerance levels established for food. Two of the pesticides might have been applied at the site for termite control in the past. The other possible source of these compounds might be disposal of small amounts into the waste oil tank, after which they leaked into the surrounding soil.

Low levels of the following pesticides were detected: DDT and breakdown products DDD and DDE, Aldrin, Lindane, and Endosulfan I. DDT and Aldrin are present at levels consistent with a legal application for termite control. Lindane is below the Ecology action guideline of 1 ppm, and Endosulfan I, which has no defined guideline, is below the EPA tolerance level of 2 ppm for presence on many raw agricultural products.

The following heavy metals were detected in the composite waste oil sample: chromium at 16.3 ppm, copper at 25.1 ppm, and lead at 69.8 ppm. These are below the proposed Ecology cleanup levels of 100 ppm for chromium, 500 ppm for copper, and 250 ppm for lead.

CONCLUSIONS

Remaining contamination in the main tank cavity appears to be concentrated in the sand layer located approximately 10 to 12 feet below ground surface. The lateral extent of contamination to the south within the sand layer remains to be established. Laboratory samples indicate contamination present in the silty sand deeper than 12 feet bgs is below proposed Ecology cleanup

Mr. Roger Jensen
Wilkins Distributing Company
August 27, 1990
Page 3

Applied Geotechnology Inc.

Contaminated soil surrounding the waste oil tank was excavated down to the sand layer. Samples at 7 to 10 feet found TPH and heavy metals to be below proposed Ecology cleanup guidelines. No PCBs or chlorinated solvents were encountered. Several pesticides were detected in the soil around the waste oil tank. These pesticides are present in amounts which appear to be below Ecology action guidelines where established or other pertinent concentration guidelines. In our opinion, these pesticides do not constitute a significant risk to human health or the environment.

RECOMMENDATIONS

Prior to backfill of the tank cavity, a series of vapor extraction pipes were installed adjacent to the sand layer at 10 to 12 feet. The pipes were bedded in pea gravel to provide a flow path for vapors to be extracted from the adjacent sand. AGI recommends installation of a vacuum blower to withdraw volatile hydrocarbons remaining in the subsurface. A work plan for installation of the above ground portion of the vapor extraction system is being prepared for Wilkins Distributing Company.

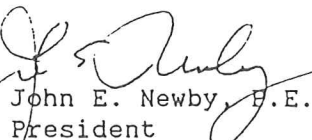
Lateral extent of contamination to the south of the main cavity remains to be defined. Test pits are scheduled to be excavated to the sand layer. The area of particular interest is south of the east end of the 6,000-gallon tank (Figure 1). This area is believed to be downgradient of the highest contamination levels observed on-site. If no additional contamination is encountered, operation of the presently installed vapor extraction piping should be sufficient to remediate remaining contamination. If additional contamination is encountered, more vapor extraction points should be installed.

Sincerely,

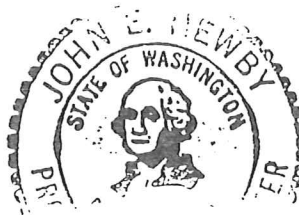
APPLIED GEOTECHNOLOGY INC.



Charles H. Soule, P.G.
Project Hydrogeologist

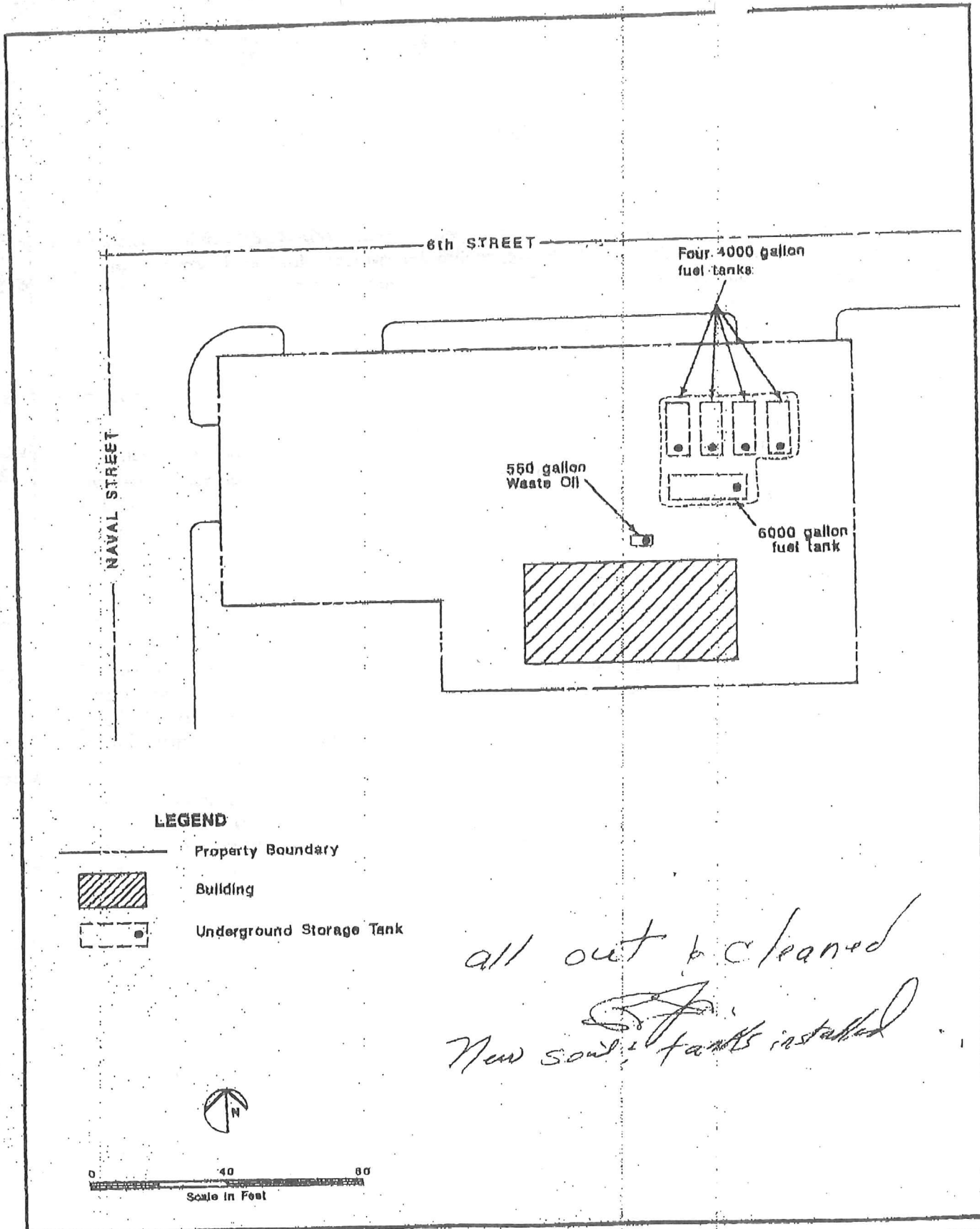


John E. Newby, P.E.
President





CHS/JEN/emw

cc: Pacific Environmental Services; Mr. David Sather
Newman Texaco; Ms. Karin Newman



LEGEND

- Property Boundary
-  Building
-  Underground Storage Tank

all out to be cleaned
RF
New soil tanks installed



0 40 80
 Scale in Feet



Applied Geotechnology Inc.
 Geotechnical Engineering
 Geology & Hydrogeology

Site Plan

Pacific Environmental Services/Newman Texaco
 Bremerton, Washington

FIGURE

1

JOB NUMBER
 15,518.001

DRAWN
 MCT

APPROVED


DATE
 10 Aug. 80

REVISED

DATE