DEPARTMENT OF ECOLOGY
State of Washington

MEMORANDUM

TO: Site files

FROM: John Mefford, LHG; Cleanup Project Manager, Department of Ecology, Central Region Office

SUBJECT: Comments on the three historical areas of concern (AOCs) at the facility

SITE: WA DOT Union Gap District Site, FSID 541, CSID 4942 and CSID 16641

DATE: June 28, 2022

FINDINGS

WA DOT Union Gap District Site consists of three different releases, as described below. Two of the releases occurred from UST systems and one release resulted from a surface spill.

1. **FORMER SERVICE STATION UST DECOMMISSIONING**: Three (3) USTs were removed in 1989. These tanks which contained gasoline and diesel were associated with the former service station at the facility. A fourth tank which held waste oil is also mentioned in association with this decommissioning. However, this tank was not decommissioned at this time. The waste oil tank was an AST at the south side of the former service station.

   The analytical results obtained during the excavation are reported as Total Petroleum Hydrocarbons (TPH) and not as TPH-Gx or TPH-Dx. Only one soil sample is above the generic TPH value of 1,500 mg/kg. The analytical result in 1989 was 3,499 mg/kg, which is about 2 times the generic TPH value. Volatile organic compounds (VOCs) were also analyzed and the resultant values are all within their respective MTCA Method A soil CULs.

   Use of the generic TPH value is contingent upon an empirical demonstration that shows that there is no groundwater contaminant impact above the MTCA Method A groundwater CULs.

   a. Removal of petroleum-contaminated soil (PCS) extended to greater than 9 feet. Analysis of a bottom sample (#5) showed a concentration within compliance limits.

b. The nearest monitoring wells are MW-3, MW-4 and MW-5. However, MW-3 was not located during an inspection of the facility in January 2015 and that well is believed to have been paved over.
c. MW-3, MW-4 and MW-5 were sampled on 11/8/1994, 2/16/1995, 5/3/1995, and 8/21/1995. The TPH-Gx and TPH-Dx results were non-detect for all of the sampling events (4 events). The VOCs were also below their respective compliance levels for all of the sampling events.
d. The hydraulic gradient was calculated using the EPA's 3PE program and water level data from MW-5, MW-6 and MW-7. The calculated hydraulic gradient is south-southeast.

2. **AST/UST DECOMMISSIONING**: Two (2) petroleum storage tanks were removed in 1992. A 250-gallon stove oil AST was removed from the southeast corner of the boiler building. A 2,000-gallon heating oil UST was closed in place at the east side of the administration building.
    a. Soil samples #1-3 were collected at the stove oil AST and samples #4-6 were collected at the heating oil UST.
        i. The samples were analyzed using NWTPH-HCID which is a qualitative and semi-quantitative method. Samples with detections were further quantified using the appropriate analytical method (e.g. WTPH-D).
        ii. None of the samples showed detections above the reporting limits (20 mg/kg GRO, 50 mg/kg DRO and 100 mg/kg HRO), except one. That sample was analyzed and showed 310 mg/kg DRO which is within the Method A soil CULs for diesel.
    b. The nearest monitoring wells are MW-3, MW-5 and MW-6. There were no reported exceedances of the Method A groundwater CULs for petroleum hydrocarbons or associated VOCs.
    c. Note that a facility diagram shows a waste oil AST was presumably located near the maintenance shop at the northeast portion of that building along with an inactive UST. However, these two tanks are most likely the same one decommissioned in 1992 and the location of these two tanks are incorrectly shown in the referenced diagram.

3. **FORMER SIGN SHOP REMEDIATION**: A xylene release in the former sign shop building was remediated in 2003 and 2004. There was no indication of an UST and the release mechanism appears to be from the surface down.
    a. Soil sample #2 showed a concentration of 496 mg/kg total xylenes compared to the MTCA Method A soil CUL of 9 mg/kg.
    b. Gasoline was also detected in sample #2 at a concentration of 1,180 mg/kg. VOCs were present including ethylbenzene (60 mg/kg), toluene (24.7 mg/kg), and total xylenes (496 mg/kg). The gasoline exceeded the soil CUL by 1 OoM, the ethylbenzene CUL by 1 OoM, the toluene CUL by 1 OoM, and the total xylenes CUL by 2 OoM.
        i. The gasoline concentration is below the generic TPH direct contact CUL of 1,500 mg/kg. However, use of this value requires an empirical demonstration for groundwater and evaluation of the vapor intrusion pathway.
    c. It is unknown whether soil samples were collected using EPA Method 5035.
    d. The maximum depth of excavation was five (5) feet below grade. The lateral and vertical extent of excavation were based on field screening including use of a PID. Confirmational samples were collected and analyzed.

e. The materials laboratory and trichloroethene storage was located to the west of the former sign shop. No trichloroethylene (TCE) or tetrachloroethylene (PCE) exceeded their respective Method A groundwater CULs in any of the seven (7) wells.
f. There is no explanation for why gasoline, ethylbenzene and toluene were also found in the soil. Analytical results suggest that a gasoline spill or spills occurred this area and impacted shallow soil.
g. MW-3 and MW-6 are downgradient monitoring wells but are approximately 400 feet away from the spill area.
h. If groundwater is not impacted by gasoline and VOCs, then the Method B generic TPH value of 1,500 mg/kg can be used for the gasoline.
    i. For xylene, is not found in groundwater, then the direct contact value for soil is 16,000 mg/kg. In this case, then vapor intrusion pathway has to be evaluated.
    ii. For ethylbenzene, the direct contact value is 8,000 mg/kg, and 6,400 mg/kg for toluene. Again, the vapor intrusion pathway must be evaluated.
i. For gasoline, the vapor intrusion screening levels, based on the Method B generic TPH CUL are:
    i. Sub-slab soil gas = 4,700 ug/m3
    ii. Deep soil gas = 14,000 ug/m3.
j. For xylenes, the vapor intrusion screening levels are:
    i. Sub-slab soil gas = 1,500 ug/m3
    ii. Deep soil gas = 4,600 ug/m3.
k. For ethylbenzene, the vapor intrusion levels are:
    i. Sub-slab soil gas = 15,000 ug/m3
    ii. Deep soil gas = 410 ug/m3.
l. See Implementation Memo #18, Section 5.2 for ethylbenzene and xylenes. See Section A.2 for gasoline. Per the memo, the vast majority of sites that meet the Method A soil and groundwater CULs will be protective of the PVI pathway.
    i. If groundwater is shallow, then it should be evaluated, per the groundwater PVI screening levels, at the release location. For xylene, that SL is 333 ug/L.
    ii. Samples taken from MW-6 did not show any VOCs above the reporting limits. However, that well is nearly 400 feet southeast of the release location.
    iii. In general, all of the gasoline VOCs (BTEXN) should be evaluated. However, with the exception of xylenes, if the other VOCs meet the Method A CUL then the PVI pathway is incomplete.

RECOMMENDATIONS

1. **Former Service Station**: Recommend closure using a model remedy. An empirical demonstration shows that groundwater is not impacted. Collect a new soil sample at the vicinity of soil sample #3, near the southwest corner of the maintenance building. Analyze for gasoline, diesel, and BTEX.

2. **AST/UST Decommissioning**: No release has occurred in association with the heating oil UST. Regarding the AST, one soil sample out of three samples did show 310 mg/kg diesel range organics, which is 1 OoM below the MTCA Method A soil CUL for diesel (2,000 mg/kg). For the AST, a release of a hazardous substance did occur but in the department's judgement does not pose a risk to human health or the environment. This release will not be listed as a separate cleanup site.

3. **Former Sign Shop**: Collect grab groundwater samples in vicinity of the former sign shop using pre-packed screens in temporary wells, one downgradient near the south edge of the building, another one near west end of building, and a 3rd one south-southwest within 50 feet of the building. If reduced to one sampling location then collect it near the south edge of building.

    a. Compare the analytical results to the groundwater screening levels for xylenes shown in Table 2 of IM#18. Note that the xylene screening level is 333 ug/L compared to the Method A groundwater CUL of 1,000 ug/L.
    b. Also, evaluate ethylbenzene and toluene by comparing to the Method A groundwater CULs. Check for gasoline and compare to Method A GW CULs.
    c. Collect sub-slab soil gas samples, if possible (slab on grade), using vapor pins and compare to the sub-slab soil gas screening levels in CLARC.

DATABASE ACTIONS COMPLETED

Separated into two cleanup sites that require further work:

- **WA DOT Union Gap District Site:** This release at the former service station will retain original Cleanup Site ID 4942.

- **WA DOT Union Gap Sign Shop:** This release at the former sign shop is now Cleanup Site ID 16641.