



**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**

Central Region Office

1250 West Alder St., Union Gap, WA 98903-0009 • 509-575-2490

October 11, 2022

East Mountain Investments, Inc.
DTG Enterprises, Inc.
c/o David Black
22745 29th Dr. SE, Suite 200
Bothell, WA 98021

Re: Technical Memo for the following site:

- **Site Name:** Anderson Landfill
- **Site Address:** 41 Rocky Top Road, Yakima, Yakima County
- **FSID No.:** 79747294
- **CSID No.:** 11537
- **Parcel No.:** 171310-23003

Dear David Black:

The Washington State Department of Ecology (Ecology) staff have prepared the enclosed Technical Memo for you, as you move forward at the Anderson Landfill (aka DTG Landfill) site and hope you find it helpful.

If you have any questions regarding this letter and Technical Memo, please contact me at (509) 901-7107 or Valerie.Bound@ecy.wa.gov.

Sincerely,

Valerie Bound
Section Manager
Toxics Cleanup Program, Central Region Office

By Certified Mail: 70074 2560 0001 9534 2544

Enclosure: Technical Memo

e-CC: John Martin, DTG Enterprises, Inc.
Tom Vaughn, DTG Enterprises, Inc.
Shawn Magee, Yakima Health District
Jonathan Thompson, Attorney General's Office – Ecology Division

TECHNICAL MEMORANDUM

TO: DTG Enterprises, Inc. dba DTG Recycling

FROM: Luke LeMond, LHG, Solid Waste Management Program
John Mefford, LHG, Toxics Cleanup Program
Central Region Office

SUBJECT: Current data summary and data gaps

SITE: Anderson Landfill (aka DTG Landfill)

DATE: October 11, 2022

The Department of Ecology (Ecology) has reviewed the currently available information from the Anderson Landfill in Yakima County. Our summary includes identified data gaps. Filling these data gaps will help in determining the best path forward.

SYNOPSIS

- Data from two gas sampling events demonstrate cross-media impact from waste to air.
 - The gas data shows that concentrations of various volatile organic compounds (VOCs) may pose a risk to human health. The risk to human health may be additive based on the VOCs that are emitted.
- Cross-media impact from waste to groundwater remains a possibility. It is unclear if local drinking water wells are impacted.
- Multiple lines of evidence suggest that a subsurface landfill fire exists. Further investigation is warranted.

BACKGROUND

The Anderson Landfill is a permitted limited purpose landfill under Washington Administrative Code (WAC) 173-350. It was originally opened in the 1980's by Ron Anderson and sold to DTG Enterprises in 2019. Odor complaints against the facility have been relatively common, although somewhat intermittent, dating at least to 1989. In the fall and early winter of 2021, numerous odor complaints combined with visible vapor venting from the landfill resulted in subsurface gas sampling.

2021 and 2022 SAMPLING

In December 2021, samples collected from just below the landfill's surface indicated elevated concentrations of volatile organic compounds (VOCs) including benzene, ethylbenzene, and 1,4-dioxane as well as elevated temperature. The elevated temperatures documented during the December 2021 sampling event suggested the possibility of a subsurface fire. Multiple lines of evidence such as visible gas emissions, surface cracking, and differential settlement support the possibility of a subsurface fire.

Sampling in January 2022 from ambient (outdoor) air, in the same vicinity as the December 2021 activities, identified ambient air concentrations of benzene above the MTCA Method B and Method C cancer and non-cancer potential cleanup levels (PCULs) at sampling locations, S-1, S-2 and S-3.

Additional sampling in July 2022 indicated elevated concentrations of petroleum hydrocarbon fractions consisting of C5-C8 aliphatics and C9-C12 aliphatics, at VP-1, in addition to the VOCs detected in subsurface soil gas in December 2021. Some of these VOCs can be trace components in fuels or major components in solvents. Others, like 1,4-dioxane, are used to stabilize various solvents. Benzene was detected in every probe sample collected. CFC-11 and CFC-12 were detected in probe samples VP-3 through VP-8. PCE and TCE were also detected. Carbon monoxide was measured at 757 ppm at VP-1 in the field in July 2022, but less than the reporting limit of 0.05 percent in the confirmatory laboratory sample. The reporting limit for this sample, 0.05 percent or 500 ppm, is unacceptably high and therefore, the laboratory analytical results do not meet data quality requirements for assessing whether or not a subsurface fire may exist. Carbon monoxide concentrations over 100 ppm in landfill gas are considered cause for concern that a fire is a possibility. The July 2022 sampling results provide no reliable additional insight into the potential for a subsurface fire.

In July, the ambient air concentration of benzene at sampling location, AMB-4, exceeded the MTCA Method B PCUL and Method C PCUL for cancer risk. For naphthalene at the same sampling location, the air concentration exceeded the MTCA Method B and Method C PCULs for cancer. This ambient air sampling location was situated about 200 feet northeast of sampling location VP-1, which showed the highest subsurface soil gas concentrations of many chemicals including 1,2-dichloroethane (DCE), 1,4-dioxane, benzene, ethylbenzene, toluene, and xylenes.

CONTAMINANTS OF CONCERN

Based on a review of the site files and the data from the most recent sampling events, the Potential Contaminants of Concern (PCOCs) should include gasoline range organics, diesel range organics, heavy oil range organics, and fuel constituents such as associated VOCs (e.g., benzene, toluene, ethylbenzene, xylenes, 1,2-dichloroethane, and 1,2-dibromoethane), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and lead. It is also likely that waste oil contaminants such as chlorinated solvents, other metals and possibly polychlorinated biphenyls (PCBs) may be present.

The presence of air contaminants indicates cross-media impact from the waste to air. There is also a possibility of cross-media contamination from the waste to groundwater via leachate as well as partitioning from the vapor phase to groundwater. The existing monitoring network appears inadequate for early detection of groundwater contamination.

DATA GAPS

In the short term, the potential of a subsurface fire and impacts to drinking water are of the highest concern and need to be addressed. A robust investigation will help determine the appropriate actions to protect human health and the environment. More complete information will allow an appropriate remedy to be identified and implemented.

- Off-site well sampling is needed to address immediate concerns over safe drinking water to the north of the facility. Ecology has identified four wells to be sampled.
- Waste coring and vertical gas profiling is necessary to characterize the vertical and horizontal distribution and composition of gas within the waste in the vicinity of VP-1. Drilling locations should be selected at pre-determined intervals in the four cardinal directions from VP-1 and repeated until the edge of the waste or prior sampling locations are reached so that sampling locations form a grid over the area of concern. Ecology suggests use of roto sonic drilling methods.
 - Core samples should be logged continuously from land surface to the bottom of waste.
 - Gas samples should be screened in the field using a calibrated landfill gas meter, photo-ionization detector (PID), and thermometer on five-foot intervals starting at 5 feet below the surface to total depth. After field screening at each depth interval, gas samples must be collected and submitted for laboratory analysis of VOCs, total petroleum hydrocarbons (TPH) fractions, dioxins, furans, PCBs, cPAHs, and major gases (oxygen, carbon dioxide, hydrogen sulfide, carbon monoxide, and nitrogen).
 - Soil/waste cores should be preserved for future characterization and disposal pending gas sample analytical results.
- Additional monitoring wells are needed to characterize local groundwater flow direction and water quality. An additional well south of MW-4, an additional well along the eastern perimeter of the facility south of MW-3, and two additional wells along the facility's northern perimeter between MW-3 and MW-4 are needed. These wells should target the groundwater zone directly overlying the Vantage Interbed.
- Permanent gas probes installed along the facility's perimeter will help detect gas migrating in the subsurface outside the waste.
- Permanent gas probes and thermocouple arrays placed into the waste are also needed, but their locations and depths will be determined after gas profiling has been performed and the results reviewed. All permanent gas probes should be sampled in the same manner as the vertical gas profiling.
- A thermal imaging survey of Cell 1 should be conducted and compared to gas sampling and temperature probe results.