STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

May 24, 2018

Kirsi Longley
Aspect Consulting
401 2nd Ave S., Ste 201
Seattle, WA 98104

Re: Request for Opinion for the following site:

- **Site Name:** Kens Texaco Inc
- **Site Address:** 101 E University Way, Ellensburg, WA
- **Cleanup Site ID:** 7112
- **Facility/Site ID:** 66863128
- **VCP Project ID:** CE0436

Dear Ms. Longley:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup (Remedial Investigation) of the Kens Texaco Inc site (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issues Presented and Opinions

1. Is further remedial action necessary to clean up contamination at the Site?

   YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site. Ecology's opinion on the sufficiency of the Remedial Investigation is presented below.

Summary of Opinion

"Ken's Texaco Remedial Investigation Report," prepared by Aspect Consulting and dated May 18, 2018 was submitted for review by the Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). The submittal included a request for an opinion from Ecology as to whether or not the Remedial Investigation (RI) phase of the project can be considered complete. The RI Report included information from previous studies and remedial actions, and further soil

and groundwater contamination data. The RI Report indicated that the next step would be the preparation of a Focused Feasibility Study "to evaluate a limited set of remedial action alternatives and propose a cleanup action that meets the requirements of MTCA."

Ecology would first like to express our appreciation of the cleanup efforts and investigation activities that have conducted at the Site to date. **Notwithstanding several comments on the RI report presented below, Ecology concurs that sufficient investigation has taken place in order for the project to move on from a focus of investigation to a focused feasibility study, followed by selection and implementation of the preferred remedial alternative.**

Please note that the Independent Cleanup process under MTCA allows for fully independent cleanup where a report documenting final cleanup is submitted to Ecology for review only after cleanup is complete; or alternatively, cleanup actions where Ecology provides feedback at any stages during the feasibility study or cleanup process. Ecology is pleased to review work done at the Site at any stage desired by the VCP participant.

The following are Ecology's comments on the RI report:

1. Extent of Groundwater Contamination. The RI Report concludes that groundwater contamination at MW-20 is likely from the downgradient property, and not from Ken's Texaco. This conclusion is drawn from the much lower contamination concentrations found at MW-7 than at MW-20. MW-7 is located northwest of MW-2 and groundwater flows to the southwest, based on potentiometric surface mapping. **Ecology disagrees with the conclusions regarding the source of contamination at MW-20 for the following reasons:**

    a. MW-8 is located east-northeast and is hydraulically upgradient of MW-20. Preferential flow paths could easily explain contamination migration from MW-8 to MW-20. Note that the boring log for MW-8 has silt lithologies near the water table, whereas MW-8 and MW-20 have sand and gravel near the water table. The concentrations at observed MW-8 in 2016 and 2017 are consistent with those found at MW-20 in 2016.

	MW-8	MW-20
TPH-g (µg/L)	7800	4100
TPH-d (µg/L)	1400	570
Benzene (µg/L)	490	41

b. The contamination found at MW-8 is all in the vicinity of the water table (smear zone). Based on PID data, the smear zone ranges from approximately 13 feet to 19 feet below ground surface (ft bgs). No indications of contamination were found above 13 ft bgs. These data indicate that the release impacting MW-20 is at a distance upgradient, not nearby to the monitoring well.

c. The former University Auto Dealership Site, located at 100 East University Way, was awarded a no further action determination (NFA) in 2009. Both underground storage tanks and dispenser locations were excavated, and no soil contamination was found in numerous pit floor, sidewall, and stockpiles soil excavations. The USTs were located hydraulically downgradient of MW-20 and the dispensers were located nearby to MW-20. Ecology considers it highly unlikely that a release from the dispenser area would have resulted in contamination at MW-20 but was not seen in the many soil samples collected at that location.

2. Recommendations for continued monitoring. Continued quarterly groundwater monitoring is warranted. Ecology recommends that monitoring take place at the following monitoring wells: MW-1, MW-7, MW-8, MW-10, MW-11, MW-12, MW-16, and MW-20. Samples should be analyzed for NWTPH-Gx, NWTPH-Dx, and BTEX. Note that Ecology will likely require additional offsite downgradient monitoring well(s) in the future. Quarterly monitoring results should be presented in quarterly monitoring reports, which should also include potentiometric surface maps utilizing as many of the existing monitoring wells as practicable.

3. Diesel results with X qualifier. Several groundwater results for diesel have been "X" qualified, meaning "The sample chromatographic pattern does not resemble the fuel standard used for quantitation". Such qualified results were not counted in the RI report. This qualifier does not exclude results from comparison with cleanup levels. At many gas stations, degradation of gasoline can result in diesel range organics that are not from diesel fuel in excess of cleanup levels. These cleanup level exceedances still must be addressed, regardless of the source signature.

4. Conclusions regarding MW-11. The RI Report concluded that "It is suspected that MW-11 was advanced through a wedge of impacted material unintentionally left in place during the 2012 removal action." The boring log for MW-11 suggests that the soil is likely fill from near surface to about 20 ft bgs and the remaining contamination appears to all be in the vicinity of the water table (smear zone). Therefore, rather than a wedge of missed contamination, Ecology considers it more likely that this represents re-contamination of soils in the saturated zone or associated with contaminated water within the excavation. This recontamination may have been from the south-southwest (i.e. the vicinity of the fuel dispensers near MW-8).

5. Soil contamination maps. Ecology appreciates the inclusion of maps depicting the inferred lateral extent of gasoline in benzene above and below 15 feet. These maps would have additional value if the depth of soil samples are also reported on the maps. Many of the "above 15 feet" samples were collected at a depth of 15 ft bgs, likely below the water table. It would be useful to have maps showing where all remaining vadose zone soil contamination exceeding cleanup levels is in excess of cleanup levels. Based on review of Table 3, it appears that only benzene at G-SW-N17-8 (8 ft bgs) was the only shallow vadose zone cleanup level exceedance that was not within the smear zone.
6. Soil gas adjacent to residence. Ecology concurs that the soil vapor to indoor air pathway is a potential concern for the residence basement to the north. However, Ecology does not concur that the basement would need to be emptied in order for this pathway to be characterized. Although sub-slab sampling is ideal to characterize this pathway, soil gas sampling could be conducted on the property of the former gas station at several depths to assess the potential for this pathway to be complete. Ecology recommends conducting soil gas sampling at several locations and depths for TPH-g, TPH-d, and BTEX in the vicinity of the southern edge of the residence.
7. MW-17 Data Gap. Ecology does not consider the lack of a monitoring well in the vicinity of the residence to represent a significant data gap. The groundwater flow direction to the southwest is sufficiently well established at the Site such that no further upgradient characterization of groundwater will be needed.
8. Discussion of Potential Receptors and Groundwater Assessment. Note that Ecology does not consider the lack of existing potable water supply wells in the vicinity of a site to make a groundwater pathway to be incomplete, since MTCA requires that potable groundwater be protected for potential future potable supply purposes. Both soil to groundwater and groundwater (drinking water) cleanup levels apply at the Site.
9. Terrestrial Ecological Evaluation (TEE). Ecology considers the TEE exclusion to apply to the Site due to a lack of undeveloped land at the Site and adjacent properties (see WAC 173-34-900, Table 749-1). Ecology does not consider the gravel surface onsite to constitute undeveloped land that would require a TEE.
10. Cleanup Levels. Ecology concurs with the use of Method A cleanup levels for TPH-g, TPH-d, and BTEX in soil and groundwater. The soil gas to indoor air pathway should examine soil gas concentrations consistent with Ecology's Implementation Memo 18. Once soil gas data have been collected, Ecology can assist in the review of such data.
11. Areas Requiring Remediation. Ecology concurs that remaining contamination largely consists of the floor of the excavation and the sidewalls that included contamination to the south, southwest, and northwest. The excavation reportedly proceeded to the feasible limits both with respect to excavation depth and safe sidewall limits. Ecology does not dispute that statement. It does appear that the focused feasibility study could focus on

remedial approaches focused on saturated zone (both soil and groundwater) contamination. Any approach that could have a net positive effect on downgradient contamination (i.e. result in a front of oxygen-rich uncontaminated groundwater migrating downstream) should be considered. Note that an approach such as air sparging that would transfer contamination from the saturated zone to the vadose zone would likely need to be coupled with soil vapor extraction (SVE), in particular in the vicinity of the residence to ensure that such an approach did not result in enhanced soil gas to indoor air migration.

Please consider providing a written response to each of the above comments. No revision of the RI Report is required.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Gasoline-range organics and BTEX into the Soil and Groundwater.

The Site is at the northeast corner of East University Way and North B Street in Ellensburg, Washington. The Site is located on one parcel, Parcel No. 453334, owned by Kerry Ray Volland. The Site was a former gas station, and is currently vacant.

Basis for the Opinion

This opinion and analysis was based on the information contained in the following documents:

1. *Ken's Texaco Remedial Investigation Report*, prepared by Aspect Consulting, and dated May 18, 2018.
2. *UST Decommissioning and Soil Remediation Report, Former Ken's Texaco, 101 East University Way, Ellensburg, Washington*, prepared by Aspect Consulting, and dated December 6, 2012.
3. *Underground Storage Tank Investigation Report, Former University Auto Dealership, 100 East University Way, Ellensburg, Washington*, prepared by Fulcrum Environmental Consulting and dated January 31, 2008.

Those documents are kept in the Central Regional Office (CRO) of Ecology for review by appointment only. You can make an appointment by calling the CRO public records coordinator at (509) 454-7658. This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that further remedial action is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. **Characterization of the Site.**

Extent of Soil Contamination

Please see the above comments. In general, the extent of soil contamination has been defined sufficiently to identify appropriate cleanup options.

Extent of Groundwater Contamination

Please see the above comments. The extent of groundwater contamination downgradient of MW-20 will eventually need to be defined. However, groundwater appears to have been characterized sufficiently at the Site in order to identify appropriate cleanup options.

2. **Establishment of cleanup standards.**

Soil and groundwater results for GRO, DRO, BTEX, and EDC have been compared with Method A cleanup levels:

Hazardous Substance	Method A Soil Cleanup Level (mg/kg)	Method A Groundwater Cleanup Level (µg/L)
Gasoline Range Organics	30 (benzene present)	800 (benzene present)
	100 (benzene absent)	1,000 (benzene absent)
Diesel Range Organics	2,000	500
Benzene	0.03	5
Toluene	7	1,000
Ethylbenzene	6	700
Xylenes	9	1,000
EDC	--	5

No undeveloped land is present in the vicinity of the Site; therefore, no terrestrial ecological evaluation (TEE) is required.

Soil gas samples to be collected to characterize the soil gas to indoor air pathway should be assessed using Ecology's Implementation Memo #18.

3. Selection of cleanup action.

Remedial actions conducted at the Site to date included excavation and offsite disposal of contaminated soils. Ecology has determined the cleanup action conducted at the Site, soil excavation and offsite disposal, has potential to meet the substantive requirements of MTCA, though additional cleanup actions are needed to address remaining contamination.

4. Cleanup.

Ecology has determined the cleanup performed along with additional cleanup actions yet performed have potential to meet the cleanup standards established for the Site.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm.

If you have any questions about this opinion, please contact me by phone at (509) 454-7835 or e-mail at frank.winslow@ecy.wa.gov.

Sincerely,

Frank P. Winslow
Site Manager
CRO Toxics Cleanup Program

cc: Kerry Ray Volland