STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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January 21, 2016

Ms. Carrie Pederson
PLIA
300 Desmond Drive
Lacey, WA 98504

Re: Opinion Pursuant to WAC 173-340-515(5) on the Final Cleanup Action Plan Report for the Following Hazardous Waste Site:

- **Name:** Acme Fuel Bulk Plant 305
- **Property Address**: 305 Thurston Ave NE Olympia WA 98501
- **Facility/Site No.**: 37135969
- **VCP Project N**o.: SW1382
- **Cleanup Site ID No**.: 11769

Dear Ms. Pederson:

Thank you for submitting documents regarding your proposed remedial action for the Acme Fuel Bulk Plant 305 facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site:

- Total diesel-range petroleum hydrocarbons (TPH-D and TPH-G, Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and volatile organic compounds (BTEX) into the soil/ground water/air.

Ecology is providing this advisory opinion under the specific authority of RCW

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70.1050.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.1050.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxic Cleanup Program has reviewed the following information regarding your proposed remedial action(s):

1. Final Cleanup Action Plan, ACME Bulk Fuel Plant, 303 Thurston Ave NE Olympia WA. 98501 AEG Project No. 12-114a of 1/12/16.

The report listed above will be kept in the Central Files of the Headquarters office of Ecology (HQ) for review by appointment only. Appointments can be made by calling the HQ resource contact at (360) 407-7170.

The Site is defined by the extent of contamination caused by the following release(s):

- Total diesel-range petroleum hydrocarbons (TPH-D and TPH-G), Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and volatile organic compounds (BTEX) into the soil/ground water/air.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.1050 RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases(s) at the Site, Ecology has determined: We are unable to approve this** Final CAP at this time for the following reasons;

Issue 1, page 13:
Proposed Cleanup Action Plan:

"*At this phase, AEG is recommending a Heat-Enhanced In-Situ Bioremediation process as the proposed remedial alternative; however, a review of available and practical remediation technologies <u>will be completed in final Cleanup Action Plan (CAP) for the Site</u>."*

Ecology Comment:

1. The title of this report is "Final Cleanup Action Plan," do you plan on submitting another Final Cleanup Action Plan as noted in the above?

2. It is Ecology's expectation that a comprehensive technology search and selection that will meet the Remedial Action Objective for this site be conducted during this phase of the

"Final Cleanup Action Plan" with the understanding that minor modifications or adjustments maybe necessary as additional information become available during the cleanup process.

3. Is this report an "Interim Cleanup Action Plan" that is subject to a Final Cleanup Action Plan at a later date? Please clarify.

Issue 2, pages 2 & 13:
MTCA defines a Site/Facility as, page 2:

"For this Site, based on the data collected to date, the "Site" includes the Acme property along with areas under the right-of-way (ROW) for Thurston Avenue NE to the north. The extent of contamination beneath the ROW has been fully defined."

PROPOSED CLEANUP ACTION PLAN, page 13**;**

Phase #2 – Select excavation of PCS, Figure 8

Ecology Comment:

1. The author of this Final CAP correctly defined the "SITE" to include the Acme Property and the Thurston Ave NE ROW where source contamination from the Acme Property has come to be located. However, *Phase #2 – Select excavation of PCS, Figure 8* excluded the Thurston Ave NE ROW from the excavation consideration without providing justification per WAC 173-340-360 (3) (c); DCA. Please provide justification through DCA why you are excluding the ROW from source control activities in this Final CAP.

2. The proposed remedial action for the Thurston Ave NE ROW in this Final CAP is not clear to Ecology: please clarify

Issue 3, page 14:
Phase #1 & Phase #2 SOW
AEG SOW for the UST Decommissioning and Soil Removal

"*Provide oversight to excavate PCS to the maximum extent practicable. PCS removal is being limited to a depth of 5.5 feet bgs or when groundwater is encountered."*

"If needed, dewater the excavation pit during excavation activities and prior to backfilling to remove accumulated groundwater from the excavation using pumps or other means "

Ecology Comment:

1. Your stated rational of arbitrary stopping excavation at 5.5 feet bgs or when groundwater is encountered is not an effective source control, this is especially true when you could have access to elevated PCS at greater depths through dewatering of the excavation pit as anticipated in your SOW

2. It is Ecology' s expectation that you define areas of "PCS hot spots" within the saturated zone and take advantage of the dewatering process to remove the accessible "hot spots" while the open pit is still accessible. This will readily enhance your restoration time frame for the site to meet RAO in a timely manner; cut the associated bioremediation costs and improve its chances of being successful to mitigate the residuals left behind. Please see Figure 11, cross section, at depths of approximately 8ft. bgs, TPH-D was detected at 14,000 mg/kg. It is cost effective to remove this "hot spot" and other similar situations while the open pit is still accessible during excavation. Backfilling and subjecting similar hot spot conditions to *Heat-Enhanced In-Situ Bioremediation* rather than removing them from the subsurface is perplexing.

Issue 4, page 14:
Phase #1 & Phase #2 SOW
AEG SOW for the UST Decommissioning and Soil Removal

"Collect sidewall confirmation soil samples to ensure that, to the extent possible, there are no detectable concentrations or the concentrations of the COCs are <u>below</u> MTCA Method A soil cleanup levels."

Ecology Comment:

1. Ecology is not sure how you expect COC *confirmation soil samples* will be below MTCA A soil cleanup levels while the criteria you stated to guide your vertical excavation profile is the arbitrary depths of 5.5 ft. bgs or depth to groundwater rather than the state standards of 2000 mg/kg for TPH-d, 30mg/kg for TPH-g and 0.1 mg/kg for cPAH, etc. Ecology is concerned about the SOW protocol laid out for this cleanup action implementation.

Issue 5, page 14:
Phase #1 & Phase #2 SOW
AEG SOW for the UST Decommissioning and Soil Removal

"Collect soil samples from the bottom or near bottom of the excavation pit for laboratory analysis. The moisture content (wet to saturated) in these samples will likely be reflective of the groundwater component of the dissolved phase petroleum hydrocarbons in groundwater and therefore the laboratory analytical results will not be indicative of representative base confirmation soil samples"

Ecology Comment:

1. This is speculative, Ecology disagrees.

Issue 6, page 16:
Phase #3 – In-Situ Heat-Enhanced Bioremediation

"From the existing data, the local water table fluctuates between 1 to 9 feet bgs with a mean value of 5.5 feet bgs. PCS within the saturated zone or the "smear zone" is estimated to be

from 5 to 9 feet bgs. To treat this smear zone soil and reduce future groundwater impact, an option for bioremediation is proposed for the Phase #3 of the project."

Ecology Comment:

1. It is Ecology' s expectation that the areas of the site with the highest concentrations of PCS "hot spots" be excavated and not subjected to bioremediation by design as presented in this SOW. Bioremediation is usually more effective as a "mop up" remedy, addressing residual PCS after the PCS "hot spots" have been removed. Ecology is concerned that the areas of the site designated as the "smear zone" for bioremediation contains most of the elevated PCS detected at this site, e.g., Figure 11, cross section, approximately 8ft. bgs, TPH-D at 14,000 mg/kg.

2. You have not provided sufficient information to show that the ***In-Situ Heat-Enhanced Bioremediation*** will be effective in addressing the elevated levels of PCS contamination present at the "smear zone" at this site as you proposed in this Final CAP.

3. How will this in-situ heated-enhanced bioremediation address the PCS that has come to be located in the Thurston Ave NE ROW with the associated utility network in this area without exacerbating site conditions?

Issue 7, page 19:

Additional Considerations to Implement Phase #3

"Before full-scale implementation, a pilot test is recommended and should to be conducted properly design the system. This pilot test would last approximately six months"

"It is possible that the final system may meet the cleanup levels for the Site within 6 to 12 months, and an NFA applied for after at least an additional four quarters of groundwater sampling"

Ecology Comment:

1. This is speculative: there is no scientific basis presented in this report (pilot study or treatability study) to support the projected "Restoration Time Frame" of 6 to 12 months in this Final CAP.

2. **Is this really a "Final CAP" or an "Interim Action" for PCS Excavation?**

Issue 8, page 21:

Performance Monitoring

"Performance Monitoring will occur during and after the USTs have been removed, PCS excavation is completed, and (if applicable) the In-Situ Heat-Enhanced Bioremediation system is operational. This monitoring will monitor the effectiveness of the enhanced bioremediation from the additional oxygen. The Performance Monitoring will also monitor

the natural attenuation of the residual contaminants after the treatment process is no longer active at the Site"

"The Performance Monitoring wells will be selected and/or added to the Site, if needed, after the CAP Site work is completed, and will be sampled at least on a semi-annual basis (more frequently as needed) until the In-Situ Heat-Enhanced Bioremediation system is no longer active (or effective) at the Site, and the COC concentrations are below the MTCA Method A cleanup levels. It is anticipated that sampling will occur for at least four events"

Ecology Comment:

1. Ecology is unable to identify the performance monitoring wells alluded in the above section of this Final CAP for the following objectives: *during and after the USTs have been removed, PCS excavation is completed, and (if applicable) the In-Situ Heat-Enhanced Bioremediation system is operational.*

2. **Please propose the "Performance Monitoring Wells**" for this site that will measure the effectiveness of the proposed cleanup action implementation in this "Final CAP" for our review and approval.

3. Ecology will not comment at this time on the frequency of the performance monitoring event under this section until the individual performance wells have been identified with their associated remedial action objectives with respect to:
    - During and after the USTs have been removed,
    - PCS excavation is completed, and
    - (if applicable) the In-Situ Heat-Enhanced Bioremediation system is operational.

This Opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or

employees may arise from any act or omission in providing this opinion.

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

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 360-407-7244 or e-mail at nmad461@ecy.wa.gov.

Sincerely,

Nnamdi Madakor P.HG, P.G., VCP Statewide Coordinator
HQ – VCP Policy & Technical Manager
Toxic Cleanup Program

cc: Khan Adams, Great American (email only)
Scott Rose, AEG (email only)
Lisa Sweitzer, Ecy (email only)
Sue Lavoie, Ecy (email only)
Christophe Allen, Property Owner