STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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August 18, 2015

Mr. Eric Roehl
Chevron Environmental Management Company
145 S. State College Blvd.
Brea, CA 92821

Re: No Further Action at the following Site:

- **Site Name:** Former Unocal Bulk Plant 0855
- **Site Address:** 333 6th Street, Woodland, WA
- **Facility/Site No.:** 1111
- **Cleanup Site ID No.**: 3790
- **VCP Project No.:** SW1290

Dear Mr. Roehl:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Unocal Bulk Plant 0855 Facility (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.

Issue Presented and Opinion

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

No. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and the implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

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 release:

- Petroleum hydrocarbons and related constituents into the Soil and Groundwater.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note the parcels of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Responses to Ecology's Further Action Letter for the Former Unocal Bulk Plant 0855 dated July 11, 2013, Leidos Engineering, LLC., on behalf of Chevron Environmental Management Company, dated February 18, 2015.

2. SAIC Energy, Post Excavation Groundwater Monitoring Report, Former Union Oil Bulk Plant No. 306490. March 23, 2013.

3. SAIC Energy, Environment & Infrastructure, LLC., Site Summary Report, Former Union Oil Bulk Plant No. 306490. February 2013.

4. SAIC Energy, Environment & Infrastructure, LLC., Site Investigation Report, Former Union Oil Bulk Plant No. 306490. May 14, 2012.

5. Ecology, NFA Rescission: Further Action Determination for the following Hazardous Waste Site: Unocal 0855, February 6, 2006.

6. Ecology, Further Action determination letter, November 3, 2005.

7. ENSR International, Groundwater Remedial Action Summary Report, June 30, 2005.

8. Ecology, No Further Action letter, and Restrictive Covenant, November 21, 2002.

9. Maul Foster and Alongi, Results of Soil Excavation Activities, Bulk Terminal #0855, Woodland, Washington. January 29, 2002.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

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 **no 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.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

Former Unocal Bulk Plant 0855 (also known as Chevron site #306490) is located at 333 6th Street, Woodland, Washington (some reports or letters for this Site mistakenly noted the Site location as 333 6th Avenue, Woodland, Washington). Unocal began operating this facility as a bulk fuel and distribution facility in 1926. In 1992, the bulk plant was closed and all facilities were removed, including its warehouse, pumping house, garage, two rail road spurs, five aboveground storage tanks (ASTs), three 2-inch-diameter above ground product delivery lines, and associated dispenser pumps. The ASTs used for fuel storage ranged in size from 5,000 to 20,000 gallons.

Historical records indicated that a leak occurred in 1985 with 10–15 gallons of product released. In 1986, approximately 20 gallons of gasoline was released. However, the majority of the contamination at the Site was believed to be related to normal bulk plant operations.

A series of investigation and cleanup efforts have been conducted to characterize the soil and groundwater contamination at the Site since 1992. The latest Site investigation was performed in 2012.

- **Phase II Site investigation:** As part of a Phase II Site investigation, seven soil borings (B1 through B6, and a hand auger boring HB-1) and eight monitoring wells (MW-1 through MW-8) were installed between 1992 and 1994 (see Figure 2 of Enclosure A). One soil sample was collected from each boring, at 7.5 feet below ground surface (bgs) for B1 through B6 and at 4 feet bgs for the hand auger

boring HB-1. One soil sample was also collected from MW-3 through MW-6, and MW-8, at depths of 5 to 8 feet bgs. Two soil samples were collected from MW-7 at depths of 2.5 and 7.5 feet bgs, respectively. Among these soil samples, the ones from both depths of MW-7, and the soil sample from B2 detected various contaminants exceeding the MTCA Method A cleanup levels. These contaminants included gasoline-range total petroleum hydrocarbons (TPH-Gx), at concentrations of 126 to 17,000 milligram per kilogram (mg/kg); diesel-range total petroleum hydrocarbons (TPH-Dx) at concentrations of 16,000 to 24,000 mg/kg; and benzene (53.6 mg/kg), toluene (240 mg/kg), ethylbenzene (78.7 mg/kg), and total xylenes (42.2 – 459 mg/kg).

- **Semi-annual groundwater monitoring 1994–1999**: Semi-annual groundwater monitoring was conducted at wells MW-1 through MW-8. The monitoring revealed persistent exceedances of BTEX (benzene, toluene, ethylbenzene, and total xylenes), TPH-Gx, and TPH-Dx above the MTCA Method A cleanup levels in MW-1, MW-5, and MW-7. Occasional exceedances were also found in MW-2, MW-3, and MW-6. The monitoring results indicated that the groundwater contamination was limited beneath the former ASTs and transfer line area. MW-7 showed the highest groundwater concentrations of TPH-Gx at 280,000 microgram per liter (ug/L), TPH-Dx at 63,000 ug/L, benzene at 19,000 ug/L, toluene at 47,000 ug/L, ethyl-benzene at 3,400 ug/L, and total xylenes at 21,800 ug/L.
- **Quarterly groundwater monitoring in 2002-2005**: In September 2001, monitoring wells MW-2 and MW-7 were decommissioned during an interim cleanup action (see Section 4 of this letter for details). After the soil excavation, quarterly groundwater monitoring began in 2002 and continued until 2005 in wells MW-1, MW-3 through MW-6, and MW-8. A new well MW-9, which was installed at the furthest down gradient point of the property, was also included in the monitoring network. Monitoring data during this period indicated that the September 2001 interim action appeared to result in a general improvement of contamination levels in MW-5. MW-5 only detected one TPH-Gx exceedance at the concentration of 2,500 ug/L in 2004. MW-1, on the other hand, continued to detect TPH-Gx at concentrations of 926 to 6,860 ug/L, TPH-Dx at concentrations of 505 to 895 ug/L, and benzene at 5.05 to 16.1 ug/L.
- **Site Investigation in 2005**: Between September and November 2005, Site assessment activities were performed to further characterize soil and groundwater in the vicinity of former monitoring well MW-1. Seventeen push probe borings (GP-1 through GP5, and GP8 through GP-19) were advanced to 15 feet bgs. One or two soil samples from the depths of 7 to 13.5 feet bgs and one groundwater sample were collected from each boring. Among the borings, only GP-11 detected soil contamination of benzene and TPH-Gx at 13 feet bgs whereas seven

groundwater samples (GP1, GP3, GP8, GP9, GP11, GP17, and GP19) demonstrated that TPH-Gx exceeded the MTCA Method A cleanup level. Even though turbidity associated with the direct push groundwater samples made these samples less representative of the actual groundwater quality, the exceedances somewhat reflected the groundwater contamination qualitatively because all these exceedances were located around former well MW-1, while all borings away from MW-1 detected no exceedances in groundwater (see Figure 2 in Enclosure A).

- **Additional Site investigation 2012**: In February 2012, an additional Site investigation was completed to evaluate the current Site conditions. Seventeen soil borings (SB1 through SB-17) were installed using hand auger and direct push methods (see Fig 2 in Enclosure A). Three or four soil samples were collected from 4–19 feet bgs in each boring with 3–6 foot sampling intervals. The soil samples were analyzed for TPH-Gx, TPH-Dx, and BTEX. Selected samples were also analyzed for ethylene dibromide (EDB), ethylene dichloride (EDC), n-hexane, carcinogenic polynuclear aromatic hydrocarbons (cPAHs), volatile petroleum hydrocarbons (VPH), and extractable petroleum hydrocarbons (EPH). Among the 17 soil borings, only the sample from SB-9 at 13 feet bgs detected TPH-Gx, ethylbenzene, and total xylenes above the MTCA Method A cleanup levels. Boring logs indicated that the groundwater table was at 9–10 feet bgs in the area surrounding former monitoring well MW-1. Therefore, the SB-9 soil sample was from below the groundwater table suggesting groundwater at this location may be impacted.
- **Installation and monitoring of well MW-1A**: MW-1A was installed in August 2012, approximately 5 feet east of the decommissioned MW-1. MW-1A was screened from 5 to 15 feet bgs. Two quarters of groundwater monitoring was conducted for this well in August 2012 and February 2013, before and after the 2012 soil excavation in this area (see Section 4 of this letter for details) and groundwater was non-detect for contaminants in both seasons.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

The MTCA Method A cleanup levels for unrestricted land uses for soil and groundwater were used to characterize and determine compliance for the Site.

Standard points of compliance were being used for the Site. The point of compliance for protection of groundwater was established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways

where contact with the soil is required to complete the pathway, the point of compliance was established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for the groundwater was established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site.

3. Selection of cleanup action.

Ecology has determined the cleanup actions you selected for the Site have met the substantive requirements of MTCA.

Cleanup actions conducted to date included source removal (removal of the ASTs and product transporting lines, and pump house); contaminated soil excavation and groundwater pump and treat on Site (see Section 4 of this letter for details).

4. Cleanup.

Ecology has determined the cleanup you performed has met the cleanup standards at the Site. The cleanup activities conducted so far at the Site included:

Soil Excavations:

- **Excavation #1**: In September 2001, the impacted soil at the former dispenser pumps/truck unloader area was excavated (see Figure 2 of Enclosure A). The total excavated area was approximately 2,900 square feet and down to 13 feet bgs, which was approximately 1 foot below groundwater table. After completion of the excavation, four soil samples were collected from the sidewalls of the excavation pit at a depth of approximately 7 feet bgs. Results showed that the petroleum hydrocarbons in the soil samples were below method reporting limits (MRLs). During the soil excavation, approximately 8,250 gallons of impacted groundwater was pumped from the excavation pit and transported to Emerald Petroleum Services facility in Seattle for treatment and disposal.

- **Excavation #2**: In September 2001, the impacted soil at former MW-2 area was excavated. The final excavation had an area of approximately 500 square feet, and the maximum depth was 10.5 feet bgs. One sidewall confirmation soil sample was collected from 7 feet bgs, and one bottom confirmation soil sample was collected from 10 feet bgs. Both soil samples were below MRLs for petroleum hydrocarbon contaminants. No groundwater was encountered during the excavation.

- **Excavation #3**: In September 2001, the impacted soil at the former garage area was excavated down to 9 feet bgs within a 400-square foot area. Groundwater was not encountered during the excavation. A composite soil sample from the four sidewalls and a bottom confirmation soil sample were collected and both were below MRLs for petroleum hydrocarbon contaminants.

  A total of 1,990 cubic yards of soil was excavated from all three excavation pits (Excavation #1, #2, and #3). After soil testing, 1,030 cubic yards of soil was transported to Regional Disposal Company landfill in Roosevelt, WA for disposal. The remaining 960 cubic yards of "clean" soil was used to backfill the excavation pit.

- **2012 Excavation**: In September 2012, an approximate 15 by 20 foot area adjacent and east of MW-1A was excavated to 17 feet bgs. About 30 cubic yards of petroleum-impacted soil from below 11 feet bgs was transported to the Waste Management Hillsboro Landfill for disposal. Two sidewall and one bottom confirmation soil samples were collected from the excavation pit. All the soil samples were non-detect for contaminants.

Groundwater Cleanup Actions:

- During May 2 to June 16, 2005, a pump and treat operation was conducted at the Site. Approximately 224,000 gallons of groundwater was extracted from monitoring well MW-1 and treated on Site. A series of two skids, with two-bag filters mounted on each skid, were placed in-line with the discharge port of the holding tank and a carbon cell containing 1,000 pounds of activated carbon. During the treatment operation, groundwater was pumped from MW-1 into the holding tank, and then pumped from the tank through a diaphragm pump into the two bag filters, then flow through the carbon cell. The groundwater was allowed to rest a minimum of 24 hours in the carbon cell before being released into the drain field by gravity feed. Two treated groundwater samples were collected the same day on May 18, 2005 during the treatment operation from the discharge point of the carbon filter prior to discharge. The samples were analyzed for TPH-Gx, TPH-Dx, heavy oil range TPH, and BTEX. Results indicated that the contaminants were below their respective MRLs, which were set below the MTCA Method A cleanup levels.

- Groundwater monitoring was conducted semi-annually at the Site during 1994–1999, and quarterly during 2002 to 2005. Between October 2013 and December 2014 groundwater monitoring wells MW-1A, MW-3, MW-4, MW-5, MW-6, MW-8, and MW-9 were sampled quarterly.

Groundwater monitoring conducted to date has demonstrated that the groundwater has achieved compliance with MTCA for at least four consecutive quarters.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

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).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#SW1290).

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 or the termination of the Agreement, please contact me by phone at (360) 407-6347 or by e-mail at john.rapp@ecy.wa.gov.

Sincerely,

John Rapp, LHG
Site Manager
SWRO Toxics Cleanup Program

JFR: knf

Enclosure: A – Description and Diagrams of the Site

By certified mail: 91710821333939704263 56

cc: Ms. Julie Wartes, SAIC
Mr. Don Wyll, SAIC
Ms. Richelle Perez, Ecology
Ms. Dolores Mitchell, Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

The Unocal Bulk Plant 0855 facility Site, also known as Chevron site # 306490, is located at 333 6th Street, Woodland, Cowlitz County, Washington. In some of the previous documents, the Site was mistakenly noted as located at 333 6th Avenue, Woodland, Cowlitz County. The property is currently vacant and owned by Chevron, Inc. Nearby land uses include commercial, agricultural, and rural residential. The property is surrounded by the former Fleetwood Homes site to the north, south, and east, and by the Burlington Northern Santa Fe (BNSF) rail line to the west. Large tracts of land beyond the rail line to the west appear to be agricultural land.

The Site was formerly operated as a bulk fuel plant from approximately 1926 to 1992. Former structures included a warehouse, pump house, garage, two railroad spurs, five above-ground storage tanks (ASTs) ranging in size from 5,000 to 20,000 gallons, three 2-inch-diameter above-ground product delivery lines, and associated dispenser pumps (Figure 2). In 1992, the bulk plant closed and all facilities were removed.

The Columbia River is located approximately 2.3 miles to the west and the Lewis River and Horseshoe Lake are located approximately 0.8 and 0.2 miles to the east of the Site. The Site is relatively flat. The groundwater table is encountered at depths ranging from 7 to 12.5 feet below ground surface (bgs). The groundwater flow direction is to the southwest but the gradient is small, approximately 0.0006 – 0.0009 based on an October 2001 contour map.

The Site is underlain by unconsolidated alluvium, including silt, sandy silt, and sands. These soil represent floodplain deposits of the Columbia River Alluvium. Soil from borings primarily consists of medium density, poorly graded sands and gravelly sand that extend to 20 feet bgs. Frequent lenses of very fine sand and clay were also observed between 3 to 8 feet bgs, at various locations across the Site.

Fig 1. Location of the Unocal Bulk Plant 0855 Site, in Woodland, WA (Snapped from Google Map)

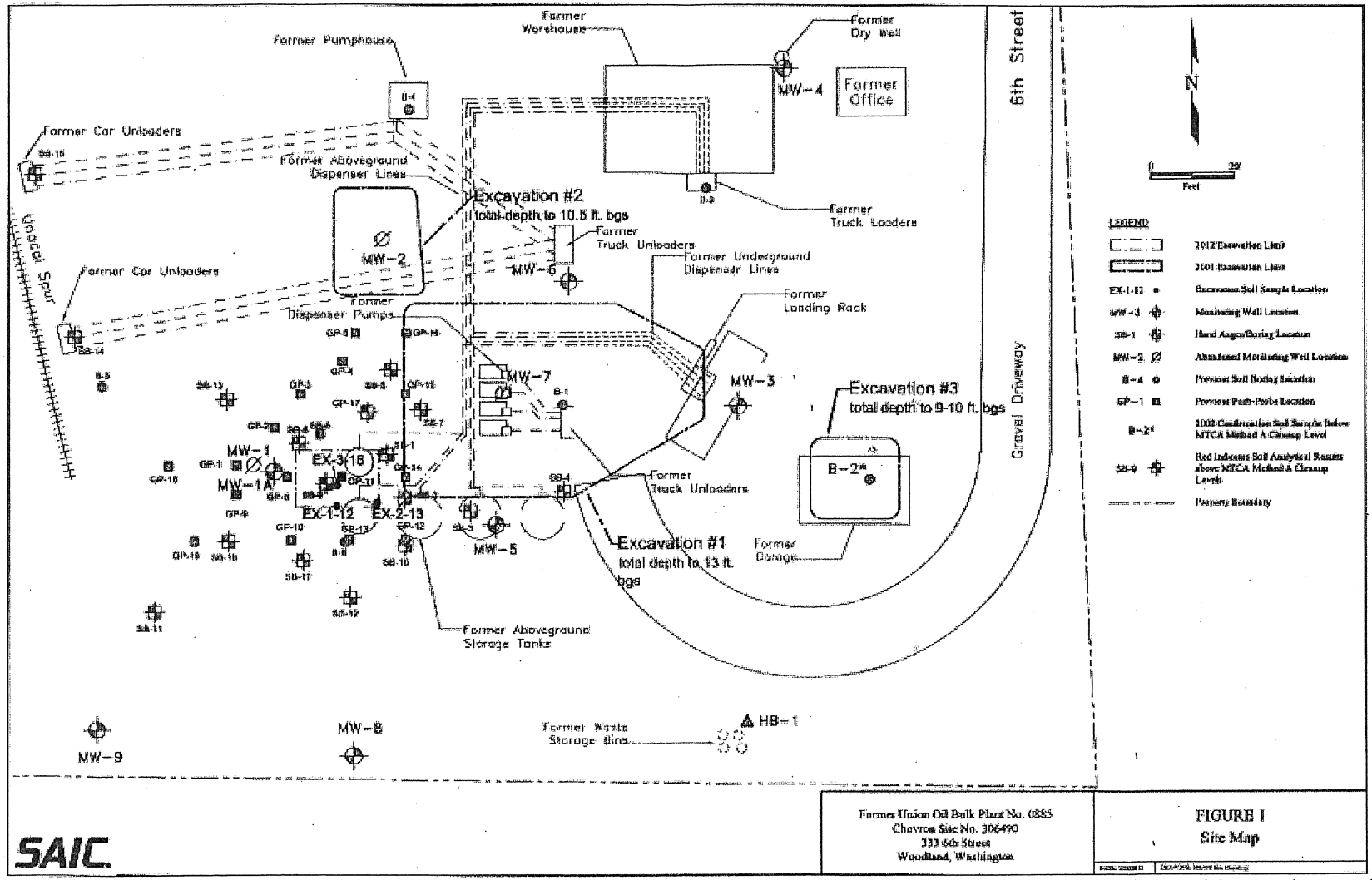

Fig.2 Site Map for Soil Unocal Bulk Plant Site in Woodland, WA, shown in the map including soil investigation borings, cleanup action (excavations) extent and confirmation soil sampling locations, the removed aboveground storage tanks (ASTs) locations, and groundwater monitoring wells locations at the (Source: SAIC, Site Summary Report, February 2013)