



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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November 24, 2015

Mr. Mark Chandler
TOC Holdings Co.
2737 West Commodore Way
Seattle, WA 98199

Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:

- **Name:** Time Oil Co ASKO Property
- **Address:** 2805 W. Commodore Way, Seattle, WA 98199
- **Facility/Site No.:** 78837111
- **VCP No.:** NW2950
- **Cleanup Site ID No.:** 12548

Dear Mr. Chandler:

Thank you for submitting documents regarding your proposed remedial action for the **Time Oil Co ASKO Property** 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 releases at the Site:

- Total petroleum hydrocarbons in the gasoline, diesel and oil ranges (TPH-G, TPH-D and TPH-O), benzene, toluene, ethylbenzene, xylenes (BTEX), tetrachloroethene (PCE) trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride (VC), metals (arsenic, barium, cadmium, chromium, lead, mercury and selenium), and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the Soil;
- TPH-G, TPH-D, TPH-O, benzene, 1,2-dichloroethane (EDC), PCE TCE, cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), VC, and arsenic into the Ground Water.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).



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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 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

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

1. SoundEarth Strategies, Inc., 2014. *Feasibility Study, ASKO Hydraulic Property, 2805 West Commodore Way, Seattle, Washington.* June 9.
2. SoundEarth Strategies, Inc., 2014. *Remedial Investigation Report, ASKO Hydraulic Property, 2805 West Commodore Way, Seattle, Washington.* May 23.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an email to: nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following releases:

- TPH-G, TPH-D and TPH-O, BTEX, PCE, TCE, cis-1,2-DCE, VC, metals (arsenic, barium, cadmium, chromium, lead, mercury and selenium), and cPAHs into the Soil;
- TPH-G, TPH-D, TPH-O, benzene, 1,2-dichloroethane (EDC), PCE TCE, cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), VC, and arsenic into the Ground Water.

The Property is part of the Seattle Terminal Properties (STP) site. The STP includes: 1) Bulk Terminal Properties; 2) East Waterfront Property; 3) ASKO Hydraulic Property; 4) West Waterfront Property and 5) the Washington State Department of Natural Resources (DNR) Aquatic Lease Land Property.

The Site is more particularly described in **Enclosure A** to this letter. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the releases at the Site, Ecology has determined:**

- It appears that the Site characterization is sufficient to establish cleanup standards and select a cleanup action.
- Soil samples from borings advanced during the RI indicated that soil on the Site is contaminated with TPH-G, TPH-D, TPH-O, BTEX and TCE at concentrations exceeding Method A cleanup levels.
- TPH-G, TPH-D, TPH-O, BTEX and TCE concentrations in ground water on the Site exceed Method A cleanup levels but have been delineated and do not appear to extend off the Property.
- Arsenic occurring in ground water on the Site at concentrations exceeding the Method A cleanup level was not addressed in the FS.
- The graphical representation of the disproportionate cost analysis presented in Chart 2 of the FS needs to be prepared and evaluated in accordance with WAC 173-340-360(3)(e).

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.

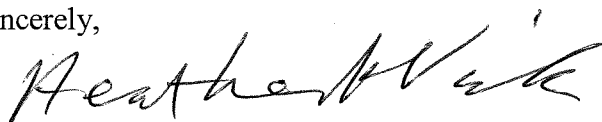
The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

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If you have any questions regarding this opinion, please contact me at (425) 649-7064 or hvic461@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink that reads "Heather Vick". The signature is written in a cursive style with a large initial 'H' and 'V'.

Heather Vick
NWRO Toxics Cleanup Program

hv:tn

Enclosure: (1) A Site Description

cc: Timothy S. Brown, SoundEarth Strategies, Inc.
Sonia Fernandez, VCP Coordinator, Ecology

Enclosure A

Description of the Site

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined as total petroleum hydrocarbons in the gasoline, diesel and oil ranges (TPH-G, TPH-D and TPH-O), benzene, toluene, ethylbenzene, xylenes (BTEX), tetrachloroethene (PCE) trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride (VC), metals (arsenic, barium, cadmium, chromium, lead, mercury and selenium), and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the soil. The Site is also defined as TPH-G, TPH-D, TPH-O, benzene, 1,2-dichloroethane (EDC), PCE, TCE, cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), VC, and arsenic into the ground water.

The Site is located at 2805 West Commodore Way in Seattle, Washington (Property). The Property is part of the Seattle Terminal Properties (STP). The STP include: 1) the Bulk Terminal Properties; 2) East Waterfront Property; 3) ASKO Hydraulic Property; 4) West Waterfront Property; and 5) the Washington State Department of Natural Resources (DNR) Aquatic Lease Land Property. The King County tax parcel numbers and addresses corresponding to the STP are shown in the two tables (the Property is in bold) below:

<i>VCP Site Name</i>	<i>VCP No.</i>	<i>STP Property Name</i>	<i>Address</i>
TOC Seattle Terminal	NW2948	Bulk Terminal Property	2737 W. Commodore Way
TOC 2754 Commodore Way	NW2949	East Waterfront Property	2754 W. Commodore Way
TOC ASKO Property	NW2950	ASKO Hydraulic Property	2805 W. Commodore Way
		West Waterfront Property	2800 W. Commodore Way
		WA DNR Aquatic Lease Land	DNR Moorage Lease

IG1 U = Industrial General 1 Unlimited
 IG2 U = Industrial General 2 Unlimited

<i>Property Name</i>	<i>King County Parcel Number</i>	<i>Size</i>
Bulk Terminal Property	1125039050	4.10 acres
East Waterfront Property	1125039120	3.17 acres
ASKO Hydraulic Property	4237900405	1.57 acres
West Waterfront Property	1125039081	1.58 acres
WA DNR Aquatic Lease Land	1125039113	0.56 acres

The Property also includes the West Commodore Way right-of-way (ROW) to the north and parcel number 4237900240 occupied by the Burlington Northern Sante Fe Railway Company (BNSF parcel) to the south.

Area and Property Description: The Property is located south of the south shore of Salmon Bay on the Lake Washington Ship Canal. Salmon Bay was originally a saltwater bay but was inundated with fresh water in 1914 when the Hiram M. Chittenden Locks (Locks) were constructed west of Salmon Bay. The Property is bordered to the north by the West Waterfront Property and the East Waterfront Property. The Property is bordered to the south by Gilman Avenue. To the east is the Bulk Terminal Property. Buildings on the Property are listed in the table in the Property History section below.

The Property is located within the Ballard Interbay Northend Manufacturing and Industrial Center and is zoned as industrial. The elevation of the Property ranges from approximately 45 to 59 feet above mean sea level; the Property slopes to the north towards Salmon Bay.

Property History and Current Use: The Property was first developed in the early 1900s with two small structures and agricultural land use. By 1908, the Property consisted of smaller parcels that were later combined. The Property was used as a residence with a stable from 1908 to 1930. A 1936 aerial photograph shows the Property as undeveloped. Time Oil Company (TOC) purchased the Property between 1946 and 1950 and operated a bulk petroleum storage facility at the Bulk Terminal Property between 1941 and 2001. The bulk storage facility used structures on other STP parcels including the Property.

Four rail spurs entered the south portion of the Property from the BNSF parcel. Three 14,000-gallon aboveground storage tanks (ASTs) which reportedly stored lube oil and/or used motor oil, were located on the eastern portion of the Property. The ASTs were connected via piping to a blending shed located on the Bulk Terminal Property. The east and west barrel inclines had been removed by 1953. The ASTs were installed by 1953 and removed before 1978.

The Property was used as a truck storage area and parking lot for the bulk storage facility from approximately 1960 to 1974. A 6,964-square foot warehouse building on the northwest portion of the Property used to service TOC vehicles had a 550-gallon fuel oil underground storage tank (UST).

From 1974 to 1976, the warehouse building was leased to Precision Engineering Specialists, a marine and engine repair facility. In 1976, Select Industries leased the warehouse building and operated as a warehouse and machine shop. In 1989, Select Industries became ASKO Hydraulic Repair, a hydraulic repair shop. ASKO Hydraulic Repair changed its name to ASKO Industrial Repair at a later time and operated until 2013. Buildings on the Property are listed in the table below:

Date Built	Building Type	Historical Uses	Size	Current Use
1964	Garage	Service garage	7,198 SF	Asko Industrial Repair
1952	Shed	Unknown	1,660 SF	Unknown
1947	Warehouse	Warehouse	7,200 SF	Marine Service and Supply
Unknown	Office	Office	234 SF	Unknown

SF = square feet

The remainder of the Property contains the entrance to the Shipping Terminal and the northern end

of the Barrel Incline, which extended to one of two former barreling sheds (Barreling Shed #2) located on the Bulk Terminal Property.

The Property was used in conjunction with the Bulk Terminal Property and the ASKO Hydraulic Property for fueling transport ships using the Pipeline Utilidor. Drums were filled with petroleum products in former barreling sheds #1 through #3 and conveyed along the East and West Barrel Inclines through the Property to the Shipping Terminal Dock. ASKO Selective Plating is listed as having occupied a portion of the Property in 2005. As many as three small docks have been located on the Property waterfront and were later removed on unknown dates. The current use of the Property is for Asko Industrial Repair, a hydraulic repair and machine shop and for Marine Service and Supply, a fishing tackle and equipment retailer.

Sources of Contamination: There are two distinct areas of contamination on the Site associated with separate releases on the Property and the adjoining BNSF parcel. These areas were identified in the RI as Site 1 and Site 2. Site 1 encompasses the north, central and south portions of the Property and the north part of the BNSF parcel (former rail spurs #2, #3 and #4. Site 2 encompasses the northwest portion of the Property adjacent to the service garage building and the southwest portion of the north-adjointing West Commodore Way ROW. The locations of Site 1 and Site 2 are shown in the Site Diagrams.

Suspected sources in Site 1 include: 1) former Railroad Spurs #1 through #5; 2) former underground distribution pipelines; 3) former Barreling Sheds #2 and #3; 4) former West and East Barrel inclines and 5) three former ASTs. Contaminants of concern in Site 1 include TCE and TPH in soil and ground water.

Suspected sources in Site 2 include: 1) former vehicle maintenance facility; 2) ASKO Industrial Repair machine shop; 3) steam cleaning area; 4) general waste storage including oils and solvents and 5) former heating oil and/or waste oil UST(s). Contaminants of concern in Site 2 include TCE and TPH in soil and ground water.

Physiographic Setting: The Site is located within the Puget Sound Lowland Physiographic Province. This north-south trending structural and topographic depression is bordered on its west side by the Olympic Mountains, and to the east by the Cascade Mountain foothills. The Puget Lowland is underlain by Tertiary volcanic and sedimentary bedrock, and has been filled to the present day land surface with Pleistocene glacial and nonglacial sediments. The Site is located at the northern end of the Magnolia drift upland physiographic subprovince of metropolitan Seattle.

Surface/Storm Water System: Salmon Bay, the closest surface water body to the Site, is located approximately 110 feet north of the Property. Salmon Bay is partially saline due to operation of the Hiram M. Chittendon Locks which allows mixing of fresh water and salt water due to tides in Puget Sound.

Ecological Setting: The Property is covered by buildings, concrete, asphalt, gravel, or low-growing vegetation areas that are unlikely to attract wildlife. The Property is surrounded by a chain link fence.

Geology: Two distinct layers of fill materials occur on the Property. The upper fill consists of silty sand, sand and gravel; the lower fill consists of fine grained sand, silt and clay with scattered organics. The upper part of the Property is underlain by fill materials ranging in thickness from 5 to 20 feet. Underlying the fill are coarse and fine pre-Fraser age glacial deposits, the uppermost consisting of dense to hard, interbedded sand, gravel and silt.

Ground Water: Ground water on the Site occurs as perched ground water and three underlying water-bearing zones. Ground water in the perched water-bearing zone flows to the northeast. The shallow water-bearing zone is in fill materials where the water table occurs at depths of 20 to 30 feet bgs and flows to the northwest. The estimated hydraulic conductivity of the shallow water bearing zone is from 3.4 to 5.7 feet/day. Underlying the shallow water-bearing zone, an intermediate water bearing zone was encountered at depths of approximately 26 to 38 feet bgs. Ground water in the intermediate water-bearing zone also flows to the northwest. A deep water-bearing zone was identified Property where it occurs at depths of approximately 52 to 62 feet bgs. The ground water flow direction in the deep water bearing zone was not determined as there is only one well screened in it (01MW65). Estimates of the hydraulic conductivity of the three lower water-bearing zones range from approximately 3 to 6 feet per day, based on aquifer testing.

The general direction of flow of ground water in the shallow water-bearing zone on the Property is to the northwest towards Salmon Bay where it most likely discharges. Ground water in the intermediate water-bearing zone also flows to the northwest. A total of 32 monitoring wells are installed on the Site and listed in the following table:

Monitoring Wells	Water-Bearing Zone	Maximum Screen Depth
MW03, 01SVE01, 01MW70/01SVE02, 01MW71/01SVE03; 01MW79	Perched	20 feet bgs
MW01, MW02, MW04 through MW07; 01MW15; 01MW44 through 01MW46; 01MW55, 01MW56; 01MW58; 01MW60 through 01MW64; 01MW80 through 01MW81	Shallow	40 feet bgs
01MW54; 01MW57; 01MW76 through 01MW78	Intermediate	50 feet bgs
01MW65	Deep	62 feet bgs

Water Supply: Water to the Property is supplied by Seattle Public Utilities from surface water sources including the Cedar and Tolt River watersheds. Three water supply wells were reportedly formerly located with a mile of the Property, two north of Salmon Bay and a third 0.85 mile to the southeast. The wells were used for industrial or commercial uses and may have been abandoned.

Release and Extent of Soil and Ground Water Contamination:

A 2000 Phase I Environmental Site Assessment found that the Property was acquired by Time Oil and between 1946 and 1950 and first used as a staging area for empty 55-gallon drums. Since the late 1960s, the Property was used for light industrial activities. As many as two 550-gallon USTs were on the Property and used for waste oil and heating oil. The Phase I recommended further assessment of soil conditions in three areas including the steam cleaning area, the oil and solvent storage shed and in the vicinity of the former heating oil UST. A Phase II was performed to address the recommendations.

A Phase II 2000 subsurface investigation was then conducted to assess subsurface conditions in three areas including the steam cleaning area, the oil and solvent storage shed and the former heating oil and or waste oil USTs. The investigation consisted of advancing six hollow stem auger borings; selected soil samples were submitted for analysis of total petroleum hydrocarbons in the gasoline, diesel and heavy oil ranges, benzene, toluene, ethylbenzene and xylenes (BTEX), volatile organic compounds (VOCs) and/or total metals including arsenic, cadmium, chromium, lead, mercury, selenium and silver. The results are described below.

In 2000, two borings (SB-06 and SB-30) were completed on the Property as part of an investigation that was conducted primarily on the Bulk Terminal Property. The two borings were advanced in the vicinity Former Barreling Sheds #1 through #3 and Former Rail Spurs #1 and #2. Soil samples collected from the two borings were analyzed for TPH-G, TPH-D, TPH-O, BTEX, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), PCP and/or total lead. The results are described below.

In 2001, boring SB-58 was advanced on the Property and converted to monitoring well 01MW15. Up to ten ground water monitoring events were conducted in the Site monitoring wells on the Property between December 2000 and October 2005. The number of wells sampled per event was based on individual ground water monitoring event scopes of work. In general, each monitoring event included monitoring wells 01MW07 and 01MW15 at the Property. The ground water samples were analyzed for one or more of the following analytes: TPH-G, TPH-D, TPH-O, BTEX, pentachlorophenol (PCP) and total and/or dissolved lead. The results are described below.

The results of the investigations described above indicated that soil on the Site was contaminated with TPH-G, TPH-D, TPH-O and total xylenes at concentrations exceeding MTCA Method A. CPAHs were detected in soil with toxic equivalency factor concentrations up to 0.18 mg/kg. Select soil samples from borings SB-40, SB-49 and SB-50 were analyzed for VOCs. TCE was detected at

0.17 mg/kg in SB-40 at 10 feet bgs. No other VOCs were detected. Select soil samples from several borings at depths of 2 to 25 feet bgs were analyzed for PCP with none detected.

Ground water samples from the 10 monitoring events in 2000 through 2005 and described above contained TPH-D up to 1,450 micrograms per liter ($\mu\text{g/L}$). No TPH-G, TPH-O or BTEX were detected. PCP was detected in one well (01MW15) at a concentration of 1.66 $\mu\text{g/L}$ in July 2001. PCP was not detected in ground water in any subsequent monitoring events.

Remedial Investigation:

Several phases of the Remedial Investigation (RI) were conducted on the Property between 2006 and 2013 to assess data gaps identified from previous investigative activities. The Site data gaps that the RI sought to fill included:

- 1) Delineation of the lateral and vertical extents of TCE in soil and ground water at the Property, BNSF Parcel and the West Commodore Way ROW.
- 2) Delineation of the lateral and vertical extents of total petroleum hydrocarbons in soil and ground water at the Property, BNSF Parcel and the West Commodore Way ROW.

Soil samples from borings advanced during the RI indicated that soil on the Site is contaminated with TPH-G, TPH-D, TPH-O, BTEX and TCE at concentrations exceeding Method A cleanup levels. A total of 45 new monitoring wells, two injection wells and a single SVE well were installed and developed as part of the remedial investigation field program between 2006 and 2013. To address the above data gaps, seven soil borings were advanced at the Property in April 2006. Borings B01 through B06 were converted to monitoring wells MW01 through MW06. The wells were sited to investigate soil and ground water in the steam cleaning area, the oil and solvent storage shed and the former heating oil and/or waste oil USTs adjacent to ASKO Industrial Repair. Monitoring well MW03 was screened with perched water; the remainder of the wells was screened in the shallow water-bearing zone.

In September 2006, three borings (SB-65 through SB-67) were advanced in the central and east portions of the Property. The three borings were converted to monitoring wells 01MW44 through 01MW46 screened in the shallow water-bearing zone.

In December 2007, three borings (SB-73 through SB-75) were advanced in the central and east portions of the Property. The three borings were converted to monitoring wells 01MW52, 02MW13 and 01MW53 screened in the shallow water-bearing zone.

Ground water monitoring events were conducted between 2006 and 2013. Each event consisted of a specific set of monitoring wells that had been selected to further refine the extent of COCs in ground water. The results of RI ground water monitoring is described below.

Two plumes of TCE (eastern and western) at concentrations exceeding the Method A cleanup level are present in the shallow water-bearing zone at the Site. TCE concentrations as high as 9,500 µg/L have been measured. The eastern plume has been found to extend downward into the intermediate water-bearing zone where concentrations up to 22 µg/L have been measured. TPH-G occurs at concentrations exceeding Method A in the perched water-bearing zone and the shallow water-bearing zone; benzene occurs above Method A in the shallow water-bearing zone. The two occurrences in separate water-bearing zone appear to be unrelated. TPH-D and TPH-O were detected at concentrations above Method A in the perched water-bearing zone on the Asko Hydraulic portion of the Property and the BNSF parcel. TPH-D was also detected at concentrations above Method A in the shallow water-bearing zone on the Asko Hydraulic portion of the Property.

The one deep water-bearing zone monitoring well, 01MW65, contained TCE at concentrations below Method A in 2009 through 2011. In the five most recent sampling events in 2012 and 2013, 01MW65 contained non-detectable levels of TCE. No other VOCs and no TPH have been detected in ground water samples collected from 01MW65.

Interim Remedial Actions:

A waste oil or heating oil underground storage tank (UST) with an approximate 550 gallon capacity was reportedly removed from the Property before 2000. No information or analytical results are available for the removal of the UST. No additional interim remedial actions have been conducted on the Property.