



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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February 28, 2019

Doug Ciserella
Cantera Development Group, LLC
2753 West 31st Street
Chicago, IL 60608

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

- **Name:** Time Oil Bulk Terminal PPA
- **Address:** 2737, 2750, 2800, 2805 W. Commodore Way, Seattle, WA 98199
- **Facility/Site No.:** 7417688, 36574721, 55872689, 78837111, 75486194
- **VCP No.:** NW3201
- **Cleanup Site ID No.:** 14604

Dear Doug Ciserella:

Thank you for submitting documents regarding your proposed remedial action for the **Time Oil Bulk Terminal PPA** 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. The submitted documents outline a proposed sediment sampling effort.

The Site does or may include all or part of six privately-owned or leased properties (the Property) named as follows: 1) Bulk Terminal Property, 2) ASKO Hydraulic Property, 3) East Waterfront Property, 4) West Waterfront Property, 5) Aquatic Lease Land Property, and 6) BNSF Property. The Aquatic Lease Land Property is state-owned aquatic land managed by the Washington State Department of Natural Resources (DNR). The Site also potentially includes aquatic lands within Salmon Bay.

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 potential contaminant releases to sediment.

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 submitted documents regarding your proposed remedial action:

1. Floyd Snider, July 2018. *Former Time Oil Company Seattle Terminal, Surface Sediment Quality Evaluation Sampling and Analysis Plan/Quality Assurance Project Plan.*
2. Floyd Snider, February 6, 2019. *Addendum to the Surface Sediment Quality Evaluation Sampling and Analysis Plan/Quality Assurance Project Plan, Project No: Cantera-TOC, Time Oil Bulk Terminal PPA.*

These documents outline a proposed sediment sampling program. The samples are to be collected within the East Waterfront Property and Salmon Bay.

Ecology's Toxics Cleanup Program has also referred to the following VCP opinion letters that provide a background on Site conditions:

1. Ecology, November 24, 2015. *Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site: Time Oil Co ASKO Property, VCP NW2950.*
2. Ecology, October 8, 2015. *Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site: Time Oil 2754 Commodore, VCP NW2949.*
3. Ecology, November 25, 2015. *Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site: Time Oil Co Seattle Terminal, VCP NW2948.*

The submitted documents and letters 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 completing a Request for Public Record form (<https://www.ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>) and emailing it to PublicRecordsOfficer@ecy.wa.gov, or contacting the Public Records Officer at 360-407-6040. A number of these documents are accessible in electronic form using the

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Ecology Cleanup Site Search (<https://fortress.wa.gov/ecy/gsp/SiteSearchPage.aspx>) and the Facility Site Numbers listed above in this letter.

The upland extent of the Site has not been determined, but is characterized by the following releases in soil and/or groundwater:

- Total petroleum hydrocarbons in the gasoline, diesel and oil ranges (TPH-G, TPH-D and TPH-O), benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, 1-methyl-naphthalene, 2-methyl-naphthalene, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), pentachlorophenol (PCP), dioxins/furans, lead, arsenic, 1,2-dibromomethane (EDB), 1,2-dichloroethane (EDC), trichloroethene (TCE), 1,2-dichloroethene (DCE), and vinyl chloride (VC).

Whether the Site extends into aquatic areas has not been determined, but the following releases have been detected in sediment within the Property:

- Arsenic, nickel, chromium, copper, tributyltin (TBT), cPAHs, various phthalates, carbazole, dibenzofuran, polychlorinated biphenyls (PCBs), and dioxins/furans.

Other contaminants that contribute to the delineation of Site boundaries may be identified during the proposed sediment sampling effort.

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:**

- Ecology concurs with the proposed sediment sampling plan and addendum as an initial effort to evaluate whether contaminants released at the Site (from both upland and in-water sources) have impacted sediment within the Property and/or out in Salmon Bay.

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.**

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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.

If you have any questions regarding this opinion, please contact me at (425) 649-7107 or mada461@ecy.wa.gov.

Sincerely,



Mark Adams
NWRO Toxics Cleanup Program

Enclosures(1): A - Site Description and Diagram of the Site

ecc: Lynn Grochala, Allison Geiselbrecht, Floyd Snider
Sonia Fernandez, VCP Coordinator, Ecology
Allyson Bazan, Washington State AAG

Enclosure A

Site Description and Diagram of the Site

Site and Property Description

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

Site: The extent of the Site has not been defined, but is characterized by the release of the following hazardous substances into soil and/or groundwater on the properties described below (see Property below): Total petroleum hydrocarbons in the gasoline, diesel and oil ranges (TPH-G, TPH-D and TPH-O), benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, 1-methyl-naphthalene, 2-methyl-naphthalene, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), pentachlorophenol (PCP), dioxins/furans, lead, arsenic 1,2-dibromomethane (EDB) 1,2-dichloroethane (EDC), trichloroethene (TCE), 1,2-dichloroethene (DCE), and vinyl chloride (VC).

Although some hazardous substances have been detected in Salmon Bay sediment adjoining the upland portion of the Site, it has not yet been determined whether these are associated with Site activities. The contaminants detected include: arsenic, nickel, chromium, copper, tributyltin (TBT), cPAHs, various phthalates, carbazole, dibenzofuran, polychlorinated biphenyls (PCBs), and dioxins/furans.

The Site (Cleanup Site ID number 14604) includes the following Facility Site ID numbers: 36574721, 55872689, 7417688, 75486194, and 78837111.

Property: The properties currently known to comprise the Site or are potentially part of the Site (the Property) are described below and shown on **Figure 1.2, Site Vicinity Map**. Additional investigations planned at the Site may identify other impacted properties.

Uplands: The upland portion of the Site currently includes all or part of four privately-owned parcels and a City-owned street right-of-way. The four private parcels and the one publically owned parcel known to be part of the Site are identified as follows:

- Bulk Terminal Property
- ASKO Hydraulic Property
- West Waterfront Property
- BNSF Property
- West Commodore Way ROW

An additional privately-owned upland parcel has previously been considered part of the Site, but is currently excluded given a lack of existing data for this parcel and no obvious sources of historical contamination. This parcel is identified as:

- East Waterfront Property

Aquatic Lands: The following aquatic lands of Salmon Bay within the Property may be included in the Site (see **Figure 1.2**):

- Adjacent to East Waterfront Property
- Adjacent to West Waterfront Property
- Department of Natural Resources (DNR) Aquatic Lease Land Property

A broader area of Salmon Bay not in the Property is also potentially part of the Site.

Addresses, Parcel Numbers, and Zoning: King County tax parcel numbers and addresses for the Property are shown in the table below:

<i>Property Name</i>	<i>King County Parcel Number</i>	<i>Address</i>
Bulk Terminal Property	1125039050	2737 W. Commodore Way
ASKO Hydraulic Property	4237900405	2805 W. Commodore Way
East Waterfront Property	1125039120	2754 W. Commodore Way
West Waterfront Property	1125039081	2800 W. Commodore Way
WA DNR Aquatic Lease Land	1125039113	none
BNSF Property	4237900240	none
West Commodore Way ROW	N/A	N/A

The Property is within the Ballard Interbay North Manufacturing Industrial Center, and is zoned as General Industrial 1 per the City of Seattle zoning code.

Area and Property Description: The Property is located on the south shore of Salmon Bay on the Lake Washington Ship Canal (see **Figure 1.2**). The eastern portion of the Property is bordered by 27th Avenue West and the Port of Seattle’s Maritime Industrial Center. The western part of the Property is bordered by industrial commercial businesses and multifamily housing/houseboats.

The southern half of the Property (south of West Commodore Way) is occupied by an abandoned office building, a warehouse complex, various storage trailers, an abandoned machine shop (Asko Hydraulic) and large areas of bare or paved ground. Remnants of an injection/recirculation system to treat PCE in groundwater are also present.

The northern half of the Property (north of West Commodore Way) includes a derelict pier and several abandoned buildings/sheds with the remaining areas mostly bare ground. A number of privately owned (?) piers with moored houseboats extend from the West Waterfront Property shoreline.

The upland elevation of the Property ranges from approximately 20 to 60 feet above mean sea level, sloping down from south to north.

Property History and Current Use: The Property was originally occupied by residential structures as early as 1905, and West Commodore Way was constructed in 1912.

In the 1920s and 1930s, the Property was the location of Salmon Bay Manufacturing Company and Rattan Furniture Manufacturing Company. The Property was owned by Jobbers Petroleum between 1939 and 1941. Time Oil Co. (TOC) acquired the Property in 1941.

The TOC bulk fuel storage facility operated from 1941 to 2006. Operations included the storage and distribution of retail petroleum products, including gasoline, diesel, kerosene and mineral spirits between transport ships, railroad tank cars and trucks. Petroleum products were delivered to the Property via BNSF rail cars, barges and tankers to be stored in 14 fuel aboveground storage tanks (ASTs). The Lower Tank Yard consisted of smaller ASTs #1 through #6; the Upper Tank Yard consisted of larger ASTs #7 through #14.

The petroleum products were transported using drums and distribution pipelines. The piping ran from the fuel ASTs to several barreling sheds, where 5-gallon containers and 55-gallon drums were filled with petroleum products and then transported beneath the West Commodore Way ROW to the East Waterfront Property docks, using inclined gravity conveyors (Former West and East Barrel Inclines).

In 1967, wood preservative was made for a period of 4 months in the PCP mixing AST (#15) to fulfill a military contract. AST #15 was located near the west wall of the Lower Tank Yard. PCP crystals were mixed into heated diesel fuel and then transferred through underground pipelines to the New Barrel Shed on the ASKO Hydraulic Property. The mixture was then put into 5-gallon containers and 55-gallon drums and loaded onto railcars for shipment overseas, including Vietnam.

Sources of Contamination: Sources of contamination on the Site include leaks and spills associated with the petroleum bulk fuel facility, pentachlorophenol handling, ship loading operations, solvent storage and transport, and other various industrial operations from the 1920s to 2006.

Physiographic Setting: The Site is located within the Puget Sound Lowland Physiographic Province. This north-south trending structural and topographic depression is bordered on the 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 sediment. The Site is located at the northern end of the Magnolia Drift Upland subprovince of metropolitan Seattle.

Surface/Storm Water System: Salmon Bay adjoins the Property. Salmon Bay was originally a saltwater bay but was inundated with fresh water in 1914 when the Hiram M. Chittenden Locks (Locks) were constructed to the west. Salmon Bay is now partially saline due to operation of the Locks, which allows limited mixing of fresh water and salt water due to tides in Puget Sound. Storm water runoff on and in the vicinity of the Property disperses via sheet flow to catch basins connected to the City of Seattle storm water system.

Ecological Setting: The upland surface of the Property is covered with a mixture of buildings, pavement, and gravel/soil. The upland is therefore unlikely to attract wildlife, nor are bordering areas of commercial and industrial development to the east and west. However, aquatic and terrestrial habitat exists to the north and south, respectively. To the South, there is an extensive

forested hillside beyond the BNSF tracks.

Geology: The Property is underlain by fill materials ranging in thickness from 5 to 20 feet. Underlying the fill are coarse and fine Vashon ice-contact deposits and advance outwash deposits underlain by pre-Fraser age glacial deposits, with the uppermost layer consisting of dense to hard, interbedded sand, gravel and silt. Both the fill and native deposits generally consist of fine-grained silts and clays with interbedded sandy zones.

Ground Water: Ground water on the Site occurs in perched, shallow, intermediate and deep water-bearing zones. A seasonal shallow perched water bearing zone occurs in fill materials at approximately 5 to 8 feet below the ground surface (bgs). A shallow water bearing zone occurs from approximately 8 to 23 feet bgs and flows to the north-northwest. Underlying the shallow water-bearing zone are two semi-confined to confined water-bearing zones. The intermediate water-bearing zone occurs at depths of 26 to 40 feet bgs. A deep water-bearing zone was identified on the ASKO Hydraulic Property at depths of approximately 52 to 62 feet bgs. Based on aquifer testing conducted at the Site, the hydraulic conductivity of the shallow water bearing zone ranges from 0.12 to 0.43 feet per day.

Water Supply: Water is supplied to the Property by Seattle Public Utilities from two surface water sources (Cedar and Tolt River watersheds). Department of Ecology records indicate three water supply wells located within a mile of the Property, two north of Salmon Bay and a third 0.85 mile to the southeast of the Site. The wells were used for industrial or commercial uses and may have been abandoned.

Former Upland Investigations: A 1999 subsurface investigation consisted of:

- Nine hollow stem auger (HSA) borings (01SB01 through 01SB09) advanced to a maximum depth of 25 feet bgs. The borings were sited in the vicinity of former USTs #1 through #3, in the southern end of the Pipeline Utilidor. Soil and ground water samples were analyzed.
- Five borings completed as monitoring wells 01MW01 through 01MW05.

A 2000 Phase I Environmental Site Assessment report describes the Property as having been used as a petroleum storage facility since the late 1930s. The report stated that petroleum-contaminated ground water was present beneath the Property. The report recommended soil borings near the rail spur in the Upper Tank Yard, the rail spur on the south side of the Warehouse building, the former ASTs north of the warehouse building, Former Barreling Sheds #2 and #3, the Lower Tank Yard and the former USTs near the northeast corner of the Headquarters Office Building. The report recommended that soil samples collected from the borings be analyzed for petroleum hydrocarbons, PCP and lead.

A 2000 subsurface investigation combined with the ASKO Hydraulic Property was performed to assess conditions in the vicinity of the Former PCP Mixing AST, Former Barreling Sheds #2 and #3 and the Former Railroad Spurs. The investigation consisted of advancing five hand auger borings

and six hollow stem auger borings, one of which was converted to monitoring well 01MW06. A soil removal action was also performed which is discussed below under the heading of 'Interim Actions'.

A 2001 subsurface investigation included the advancement of eight soil borings, three of which were converted to monitoring wells 01MW14, 01MW16 and 01MW17.

In 2003, ground-penetrating radar (GPR) and electromagnetic surveys were performed to locate subsurface anomalies, such as unknown USTs or piping, which may have been sources of light non-aqueous phase liquid (LNAPL) as TPH measured in monitoring well 01MW05. The geophysical surveys identified an anomalous area measuring approximately 60 feet by 40 feet near 01MW05. The GPR survey also identified a suspected buried pipe about 6 feet south of 01MW05. The depth of the pipe was estimated to be about 2 feet bgs; it was oriented east-west and extended approximately 66 feet west of 01MW05, until it ran to the southwest toward Former Barreling Shed #3. However, the presence and location of the pipe were not confirmed by excavation.

A Remedial Investigation (RI) was conducted between 2006 and 2013 at the Property, and multiple rounds of groundwater monitoring have been conducted over the past 15 years.

Sediment Investigations: The most recent sediment sampling was conducted in 2018 by Floyd Snider. It included the collection of 6 surface sediment samples, mostly within the East Waterfront Property. In 1995 and 1997, Ecology collected samples from a wide area in Salmon Bay, including 3 within the Property. A variety of typical urban contaminants were detected in the sediment samples, including metals, PCBs, TBT, and PAHs. The sediment sampling locations presented in the February 26, 2019 "*Addendum to the Surface Sediment Quality Evaluation, Sampling and Analysis Plan/Quality Assurance Project Plan*" are shown on **Figure 1, Proposed Sediment Sample Locations**.

Remedial Actions: A complex series of remedial actions were completed at the Property beginning in 1991 and extending through 2017. These resulted in the removal of most of the pentachlorophenol/dioxin-furan contamination in soil and an area of metals-contaminated surface soil, a substantial reduction in the amount of subsurface free product, the extensive removal of TPH-contaminated and TCE-contaminated soils, and reductions in groundwater contaminant levels. The 14 fuel ASTs and the PCP mixing AST were removed in 2006.



Legend

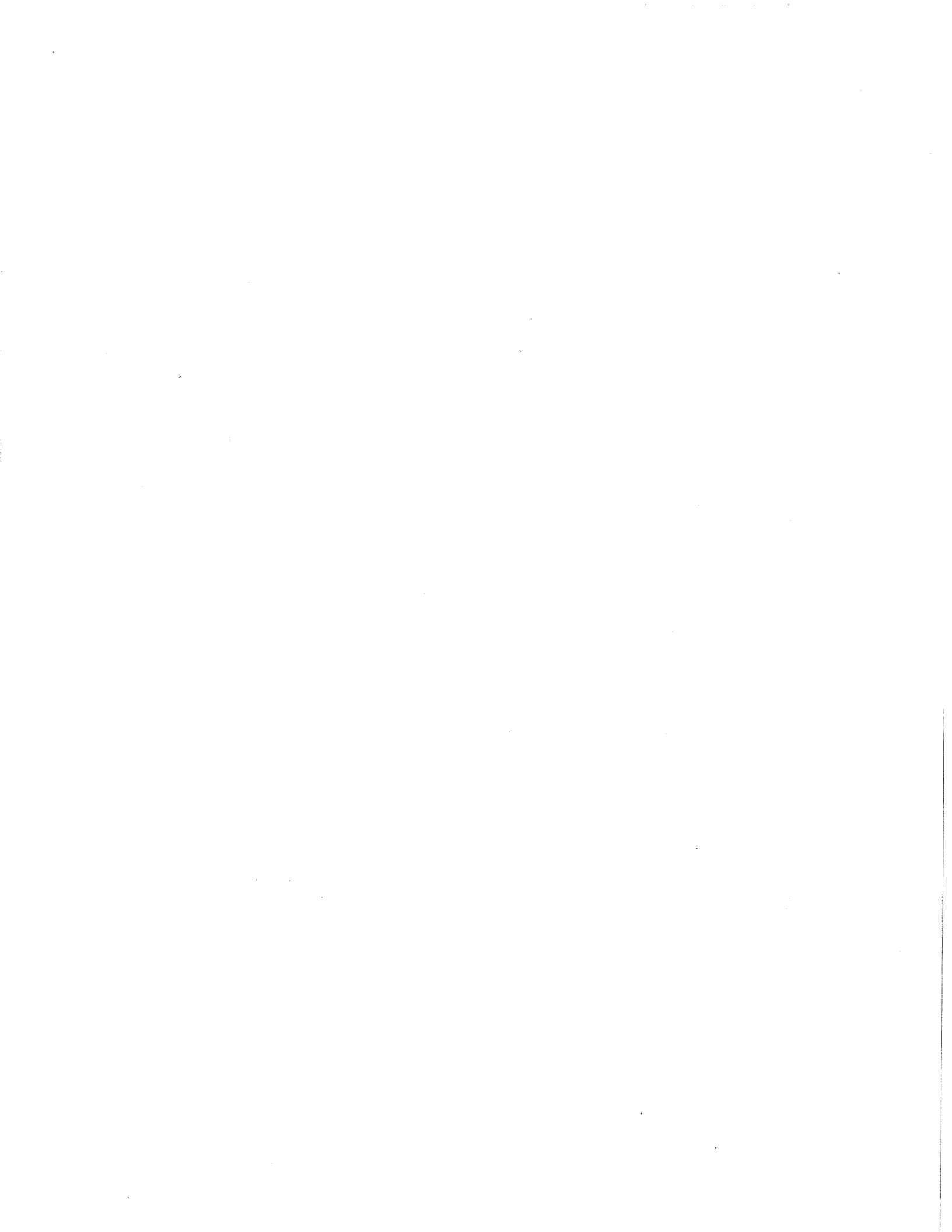
- Property Boundary for the Seattle Terminal Properties
- Adjacent Parcel Boundary

Notes:
 * Parcel boundaries obtained from King County Geographic Information Systems Center, 2011.
 * Orthorectified imagery obtained from Nearmap, 2016.
 Abbreviation:
 DNR = Washington State Department of Natural Resources

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Surface Sediment Quality Evaluation SAPI/QAPP
Former Time Oil Company Seattle Terminal
Seattle, Washington

Figure 1.2
 Site Vicinity Map





- Legend**
- ▲ August 2018 Surface Sediment Sample
 - ▲ Historical Surface Sediment Sample
 - ▲ Proposed Surface Sediment Sample
 - ▲ Proposed Sediment Core
 - ▭ Property Boundary for the Seattle Terminal Properties

Notes:
 * Parcel boundaries obtained from King County Geographic Information Systems Center, 2011.
 * Imagery obtained from Nearmap, 2017.
 Abbreviation:
 DNR = Washington State Department of Natural Resources

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Surface Sediment Quality Evaluation SAP/QAPP Addendum
 Former Time Oil Company Seattle Terminal
 Seattle, Washington

Figure 1
 Proposed Sediment Sample Locations

