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DEPARTMENT OF ECOLOGY
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August 21, 2018

Mr. Ed Ralston
Phillips 66 Company
Remediation Management
76 Broadway
Sacramento, CA 95818

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** TOSCO 25535330857
- **Site Address:** 600 Westlake N Seattle, WA 98109
- **Facility/Site No.:** 46445373
- **VCP Project No.:** NW1714
- **Cleanup Site ID No.:** 6134

Dear Mr. Ralston:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the TOSCO 25535330857 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

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

YES. Ecology has determined that, upon completion of your proposed cleanup, further Site characterization or remedial action will likely be 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 its 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 releases:

- Gasoline-range petroleum hydrocarbons (TPHg), diesel- and heavy oil-range petroleum hydrocarbons (TPHd and TPHo), benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and lead into the Soil.

- TPHg, TPHd, TPHo, BTEX, methyl tert-butyl ether (MTBE), naphthalene, and lead into the Ground Water.

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

Please notes that the Auto Service Company facility (facility ID 24436664) and the American Linen Supply Co Dexter Ave facility (facility ID 3573) also affect parcels of real property associated with this Site. This opinion does not apply to any contamination associated with these two facilities.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**. Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO), available for review by appointment only. You can make an appointment 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 from the Site web page https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=6134.

This opinion is rendered automatically void if any of the information contained in those documents is materially false or misleading, regardless of knowledge or intent.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **further Site characterization or remedial action** will likely be 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 not sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.** Site characterization data gaps include:

- The *2017 Remedial Investigation/Feasibility Study/Cleanup Action Plan (RI/FS/CAP)* defined the Site as City Block 77 (Block 77) and surrounding City of Seattle rights-of-way (ROWs), including Westlake Avenue N, Mercer Street, Valley Street, and Terry

Avenue N. However, contaminants of concern (COCs) in soil in the ROWs are not sufficiently characterized; therefore, the horizontal and vertical extent of the Site is not fully delineated. Additional soil characterization and additional ground water monitoring wells along the ROWs are needed to fully define the horizontal extent of the Site boundary. Additional shallow and deep ground water monitoring wells at the Site are needed to fully define the vertical extent of the Site boundary.

- The deep water-bearing ground water zone has not been evaluated, with respect to ground water flow directions and concentrations of COCs.

    - Based on other data provided to Ecology, shallow ground water at the Site appears to be impacted by halogenic volatile organic compounds (HVOCs), including cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC). The HVOC concentrations in the shallow water-bearing zone may be associated with the American Linen Supply Co Dexter Ave facility (American Linen), located approximately 700 feet west of the Site. The HVOC concentrations may also be associated with the possible solvents use during the historical operation of the automobile service and detailing businesses at the Site. Additional ground water monitoring wells and ground water sampling are needed in both shallow and deep water-bearing zones to determine the horizontal and vertical extent of any HVOC contaminant plumes.

- The soil and ground water at the Site has not been analyzed for all COCs.

    - Multiple businesses historically operated at the Site, including a lumber mill, a brewery, a creamery, a railway, two retail gasoline service stations, multiple automobile service and detailing operations, and a restaurant. Multiple contamination sources associated with these businesses may have been present at the Site, including gasoline underground storage tanks (USTs), waste oil USTs, heating oil USTs, hydraulic hoists, use of solvents, and other chemical storage and use. In addition, because Block 77 is located in an urban and historically industrial area, the Site may be impacted by off-Site contamination sources that may have migrated to the Property.

    - Considering the past land uses on the Site and possible impacts from off-Site contamination sources, the COCs may include petroleum hydrocarbons, heavy metals, volatile organic compounds (VOCs) including HVOCs, and polycyclic aromatic hydrocarbons (PAHs) including cPAHs. A majority of the soil and ground water samples collected at the Site were not analyzed for all possible COCs, especially HVOCs, cPAHs, and heavy metals. Additional soil and ground water characterization is needed for all possible COCs at the Site.

- Due to the proximity of the Lake Union (approximately 200 feet north of the Site) and general northerly ground water flow direction, the ground water to surface water pathway

should be evaluated.

  - Monitoring well MW-213 located near the northwest boundary of the Site contained a benzene concentration above the MTCA Method A ground water cleanup level in December 2016 sampling event. Additional ground water sampling at monitoring well MW-213 and monitoring wells north of well MW-213 is needed to ensure that surface water is not adversely impacted by the ground water at the Site. Surface water cleanup levels may be appropriate for Site monitoring wells. Additional ground water monitoring wells near the northern Site boundary may be needed depending on the additional ground water monitoring results.

- Multiple ground water monitoring wells at the Site have been decommissioned during construction or excavation, including multiple monitoring wells located in the ROWs that were decommissioned by City of Seattle. Please provide a list of the monitoring wells that have been properly decommissioned in accordance with WAC 173-160-460, with the well decommissioning logs or reports. Please contact Noel Philip at 425-649-7044 or noel.philip@ecy.wa.gov for monitoring well decommissioning requirements.

- Multiple ground water monitoring wells at the Site have been destroyed during construction or excavation. These monitoring wells need to be identified, located, and properly decommissioned in accordance with WAC 173-160-460. For monitoring wells that cannot be located, please make a list and contact Noel Philip at 425-649-7044 or noel.philip@ecy.wa.gov for further action.

- The vapor intrusion pathway for the planned building has not been evaluated. The vapor intrusion pathway should be evaluated based on the existing and newly collected soil and ground water characterization data. The vapor intrusion pathway evaluation should be based on the following Ecology guidance documents:

  - *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, October 2009 and Revised February 2016.

  - *Petroleum Vapor Intrusion: Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, Implementation Memorandum No. 18*, January 10, 2018.

  - An Excel spreadsheet with revised groundwater, sub-slab soil gas, and deep soil gas screening levels available at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Vapor-intrusion-overview/Vapor-intrusion-2015-changes-to-the-2009-toxicit

- Additional figures should be provided that are produced in a readable manner and to scale with the following information:

- Historical Site features, including historical buildings, locations of USTs and hydraulic hoists associated with the two gasoline service stations, and locations of other potential contamination sources. Multiple figures may be used to provide Site features during different periods of time.

- Limits of the multiple soil excavations conducted on Block 77 and the surrounding ROWs during UST removals, hydraulic hoists removals, remediation system trenching, building demolition, Phase I and Phase II of the Mercer Cleanup Projects (MCP), and other excavation activities.

- Current soil conditions with post-excavation sampling locations, sample depths, and concentrations for each COC, or detection limit, if not detected. (Color coding may be helpful to indicate contaminant concentrations that are above cleanup levels.

- An additional cross-section passing the southeast portion of Block 77 and monitoring well MWR-5. New and existing cross sections should include soil and ground water sampling locations, depths, and analytical results. Vertical scale on cross sections should reference mean sea level datum.

2. Establishment of cleanup standards.

Soil

Cleanup levels. The Site does not meet the MTCA definition of an industrial property; therefore, soil cleanup levels suitable for unrestricted land use are appropriate. The MTCA Method A cleanup levels are appropriate for soil at the Site. These Method A soil cleanup levels are based on protection of ground water, per WAC 173-340-900, Table 740-1.

A terrestrial ecological evaluation (TEE) form included in the *2017 RI/FS/CAP* indicated that the Site meets the pathway analysis exclusion criteria for simplified TEE, per WAC 173-340-7492(1)(2)(b). However, a restrictive covenant is required for using the pathway analysis. If an impacted property owner does not grant a restrictive covenant as part of the remediation, the TEE form needs to be revised and the TEE completed.

Points of compliance. For soil cleanup levels based on the protection of ground water, the point of compliance is defined as Site-wide throughout the soil profile, and may extend below the water table. This is the appropriate point of compliance for the Site.

Ground Water

Cleanup levels. Cleanup levels for ground water should be based on its potential use as a drinking water source and protection of surface water, due to the proximity of the Site to

Lake Union and discharge of ground water to the Lake. For each COC, the lowest value of MTCA Method A ground water cleanup levels and applicable surface water cleanup levels should be selected as the cleanup levels for ground water at the Site. These Method A ground water cleanup levels are available in WAC 173-340-900, Table 720-1. A tabular summary of cleanup levels, based on applicable state and federal laws, should be compiled to determine Site ground water cleanup levels, per WAC 173-340-710 and 173-340-720.

Points of compliance. The standard point of compliance for ground water is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected. This is the appropriate point of compliance for the Site.

The 2017 *RI/FS/CAP* proposed the shallow water-bearing zone at the Site as the point of compliance for ground water. However, Ecology recognizes that a HVOC ground water plume associated with off-Site or on-Site sources is likely present at the shallow water-bearing zone, and may impact the deep water-bearing zone. Therefore, the ground water point of compliance at the Site includes the shallow and the deep water-bearing zones.

3. Selection of cleanup action.

The *2017 RI/FS/CAP* proposed the following cleanup actions:

- Soil: excavation and disposal of petroleum contaminated soil at the southeast portion of Block 77, and continued operation of the existing air sparge/soil vapor extraction (AS/SVE) system to address the contaminated soil in the ROWs.

- Ground water: passive bioremediation with ground water monitoring.

Ecology has determined that the incomplete Site characterization does not allow a determination whether the cleanup action you selected for the Site meets the substantive requirements of MTCA.

Currently, the horizontal and vertical extent of contamination has not been fully delineated for multiple COCs. An appropriate cleanup action can be selected only after the Site is fully characterized and cleanup levels have been developed. The cleanup action selected must meet the minimum requirements in WAC 173-340-360(2). Ecology did not concur with the current feasibility study due to the incomplete Site characterization. In addition, a disproportionate cost analysis must be provided. Due to the presence of multiple on-Site and off-Site contamination sources and possible co-mingled plumes, Ecology does not believe that this Site is suitable for the Voluntary Cleanup Program (VCP). Ecology will likely terminate the Site from the VCP and expects any further oversight will be done under an Order or Decree. Ecology recommends further discussion about the expectations for the cleanup and long-term monitoring under formal oversight.

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 proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. 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).

Contact Information

Thank you for choosing to clean up your Property under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may resubmit your proposal for our review. Please do not hesitate to request additional services as your cleanup progresses. 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 at 425-649-7109 or jing.song@ecy.wa.gov.

Sincerely,

Jing Song
Site Manager
NWRO Toxics Cleanup Program

Enclosures (2): A – Description of the Site
B – Basis for the Opinion: List of Documents

cc: City Investors XI LLC (Property Owner)
Elisabeth Silver, ATC Group Services LLC
Louise Bardy, VCP Unit Supervisor, Ecology NWRO
Sonia Fernandez, VCP Coordinator, Ecology NWRO (via email)

Enclosure A

Description and Diagram 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 TOSCO 25535330857 Site is defined by the following releases:

- TPHg, TPHd, TPHo, BTEX, naphthalene, cPAHs, and lead in Soil;
- TPHg, TPHd, TPHo, BTEX, MTBE, naphthalene, and lead in Ground Water.

The Site is located at Seattle City Block 77 with street address of 600 to 630 Westlake Avenue N in Seattle (**Figure 1**). Block 77 is comprised of six King County Parcel numbers (4088803235, 4088803240, 4088803345, 4088803236, 4088803355, and 1987200015) and is 1.59 acres in size. All six parcels with the parcel numbers are depicted on **Figure 2**.

City Investors XI, LLC (City Investors) is the current owner of the entire Block 77. The two southern parcels (4088803355 and 1987200015) on the southern half of Block 77 were formerly owned by ConocoPhillips (COP). These two southern parcels are referred to as the Property in this opinion letter and Site description.

According to the 2017 *RI/FS/CAP*, a historical understanding between COP and the City of Seattle (City) stated that the Site encompasses soil beneath the Property (southern half of Block 77), from depths at or below 7.5 feet below ground surface (bgs) beneath the adjacent City ROWs, and from depths at or below 5.5 feet bgs beneath the northern half of Block 77 and adjacent City ROWs. Therefore, this definition of the Site includes the entire Block 77 and adjacent ROWs. The Site boundary defined in the 2017 *RI/FS/CAP* is depicted on **Figure 3**. However, Ecology was not involved in the agreement and does not recognize the defined Site boundary and depths at this point. Currently, the Site boundary is not fully delineated.

A second cleanup site is located at Block 77. The cleanup site is Auto Service Company, with a facility ID 24436664 and cleanup site ID 5749. The Auto Service Company Site is defined as three parcels (4088803235, 4088803240, and 4088803345) on the northern half of Block 77. This cleanup site is encompassed within the apparent TOSCO 25535330857 Site boundary. However, the opinion in this letter does not apply to the Auto Service Company Site. In the future, Ecology may determine whether to combine the cleanup of the TOSCO 25535330857 Site and the Auto Service Company Site.

Area and Property Description: The Site is located in a mixed-use district that includes various businesses (both retail and commercial land uses), open space (Public Park), public use property (museum), and transportation corridors. Most surrounding properties are zoned either "Seattle Mixed" (SM) or "Commercial 2" (C2).

The surrounding properties of Block 77 include:

- North – bordered by Valley Street, with South Lake Union Park across Valley Street.
- South – bordered by Mercer Street, with office buildings across Mercer Street.

- East – bordered by Terry Avenue N, with a construction Site across Terry Avenue N.
- West – bordered by Westlake Avenue N, with the Allen Institute for Brain Science across Westlake Avenue N.

Underground City sanitary sewer and storm sewer lines are located beneath Westlake Avenue N and Terry Avenue N. Electrical conduits run beneath Westlake Avenue N, Valley Street and Mercer Street. Communication and natural gas lines run beneath Valley Street and Mercer Street. Utility layouts are depicted on **Figure 4**.

Site History and Current Use: The land use history of Block 77 is summarized below:

- Block 77 was a wetland area connected to Lake Union in the early 1800s. In the late 1800s, the land was reclaimed using undocumented fill material including dirt, concrete, bricks, wood, and sand.

- Block 77 was initially developed as a lumber mill (Brace Lumber Mill). Historical maps indicate that the lumber mill occupied the entire Block 77 from at least 1893 through the early 1900s.

- The land use history of the Property (two southern parcels of Block 77 – 4088803355 and 1987200015) after the lumber mill is summarized below:

    - The southwest portion of Block 77 was redeveloped into a creamery (Horluck Creameries Inc.) between 1917 and 1935.

    - A retail gasoline service station was constructed by Union Oil Company of California (Unocal) on the southwest portion in 1965, which is referenced as the Westlake 76 station in this opinion letter and Site description. The Westlake 76 station had two generations of USTs:

        - The first generation USTs included one 8,000-gallon gasoline UST, two 10,000-gallon gasoline USTs, one 550-gallon heating oil UST, and one 550-gallon waste oil UST (**Figure 5**). The first generation USTs were replaced by the second generation USTs in 1980.

        - The second generation USTs included four 10,000-gallon gasoline USTs, one 550-gallon waste oil UST, and two 550-gallon heating oil USTs (**Figure 6**).

        - Other facilities included two dispenser islands with product dispensers, and a station building with four service bays and four hydraulic hoists.

    - The service station facilities were removed from the Property between 1994 and 2009. One 550-gallon heating oil UST, located near the northeast corner of the station building, was removed in April 1994. Two adjacent 550-gallon heating oil

and waste oil USTs, located near the southeast corner of the station building, were removed in May 2001. Four 10,000-gallon gasoline USTs were removed in September 2008. The hydraulic hoists were removed in 2003. The above ground structures were demolished in 2009.

- The southeast portion of Block 77 was redeveloped into a brewery (Century Brewing Company) between 1917 and 1935.

- A Denny's restaurant was built and operated on the southeast portion of Block 77 between 1950 and 1969. The Denny's restaurant was demolished in 2000.

- Unocal has owned both parcels of the Property since 1967. Tosco Corporation (Tosco) purchased the Property from Unocal in April 1997. Tosco subsequently was acquired by Phillips Petroleum in 2001, which ultimately merged with Conoco to form COP in 2002. Phillips 66 was spun off from COP in 2012. City Investors purchased the Property from COP in 2014.

- The land use history of the northern half of Block 77 (parcel numbers 4088803235, 4088803240, 4088803345, and 4088803236) after the lumber mill is summarized below:

  - The northeast corner of Block 77 (parcel number 4088803236) appeared to be occupied by a railroad and owned by Burlington Northern & Santa Fe Railway Company (BNSF) and predecessor railroad companies between at least 1917 to 2000. City Investors purchased this parcel from BNSF in 2000. Historical aerial photos indicate the railroad infrastructure occupied this parcel until 2005.

  - The northeast portion of Block 77 (except the railroad on the northeast corner) continued to operate as the lumber mill until at least 1969. The lumber mill building then appeared to be vacant since cease of operation.

  - The northwest portion of Block 77 was redeveloped into a retail gasoline and automobile service station as early as 1930, which is referenced as the Union 76 service station in this opinion letter and Site description. The Union 76 service station operated from about 1930 to at least 1964, and possibly to 1972. At some time around 1950, the station was called McKale's, and was also a used car sales, service, and detailing business. The USTs associated with the Union 76 service station, except for a 500-gallon waste oil UST, were reportedly abandoned and not in use since at least 1972.

  - The City of Seattle acquired the three northern parcels of Block 77 (parcel numbers 4088803235, 4088803240, 4088803345) in 1972. Automobile service and detailing operations occupied the former Union 76 service station buildings intermittently between 1972 and 2001.

  - The USTs associated with the former Union 76 service station were removed in 1990.

The USTs included four 10,000-gallon gasoline USTs and one 500-gallon waste oil UST. Before the USTs were removed, the 500-gallon waste oil UST was actively used by the tenants.

- City Investors purchased the three northern parcels of Block 77 (parcel numbers 4088803235, 4088803240, 4088803345) from the City in 2001. Buildings on these parcels were demolished in 2005, including the former service station structures, and the vacant former lumber mill building. The entire northern half was then paved.

- Currently, City Investors owns the entire Block 77. The northern half is paved and used as a parking lot. The approximate western two-thirds of the southern half is occupied by construction equipment and several above-ground storage/treatment tanks utilized as part of a construction dewatering system, associated with the development of the city blocks to the east across Terry Avenue N. The southeast corner of Block 77 is occupied by the above-ground equipment compound of the AS/SVE remediation system at the Site. A 70-foot-wide strip of land located along on the north side of Mercer Street, between Terry Avenue N and Westlake Avenue N, was acquired by City of Seattle.

- City Investors plans to redevelop the entire Block 77 in late 2018 to 2019. The redevelopments includes construction of a multi-story office building with underground parking for Google LLC.

Sources of Contamination: Based on previous environmental investigations and remedial activities, contamination at the Site appears to be a result of multiple sources including:

- In May 1980, a release of supreme leaded gasoline was confirmed at the Westlake 76 station at the southwest portion of Block 77. The release was confirmed by Unocal after discrepancies were discovered during inventory reconciliation. Approximately 80,000 gallons of leaded gasoline was estimated to have leaked over a 4-month period. The release occurred from a product line just south of the western dispenser island.

- In May 2001, a gasoline product line was broken during the removal of two adjacent waste oil and heating oil USTs at the Westlake 76 station. An estimated 600 gallons of unleaded gasoline was released. Approximately 500 gallons of free product were immediately recovered from the excavation utilizing a vacuum truck.

- The former hydraulic hoists located inside the service bays of the Westlake 76 station appeared to be one of the sources for heavier petroleum hydrocarbons. TPHo concentrations above the MTCA Method A soil cleanup levels were confirmed in the area of northern hoists during the hydraulic hoists removal activities.

- The Union 76 service station operated on the northwest portion of Block 77 appeared to be one of the sources of petroleum hydrocarbon contamination. During the removal of five USTs from the northwest portion of Block 77 in 1990, petroleum contaminated soil was detected, with total petroleum hydrocarbons (TPH) concentrations up to 13,000 milligrams

per kilogram (mg/kg) and benzene concentrations up to 47 mg/kg.

- Automobile service and detailing businesses, which intermittently operated on the northwest portion of Block 77 from 1972 to 2001, appear to be other sources of petroleum hydrocarbon contamination. Multiple complaints were received by Ecology in 1996 and 1997, suggesting that oil may have been discharged or leaked to the soil underneath the building via an oil changing pit located inside the service building. These leaks were associated with the Auto Service Company Site.

- A former service station operated between about 1942 and 1963 at the former Rosen property (960 Republican Street), located immediately south of the Site across Mercer Street, may have contributed to the petroleum hydrocarbon contamination at the Site, based on the proximity and the upgradient location with respect to shallow ground water flow. The former Rosen property has been redeveloped into a multi-story office building for Amazon. Ecology issued a Property No Further Action determination for the Rosen property (FSID 2500) in 2009.

- Other sources or potential sources may have contributed to the petroleum hydrocarbon contamination in soil and ground water at the Site, including the railway formerly located on the northeast corner of Block 77, the lumber mill formerly located on the northeast portion of Block 77, the Denny's restaurant formerly located on the southeast portion of Block 77, and the Seattle Auto Center cleanup site (601 Westlake Avenue N, facility ID 32368748) located immediately west and upgradient of the Site across Westlake Avenue N.

- Based on other data provided to Ecology, ground water at the Site appears to be impacted by HVOCs, including cis-1,2-DCE and VC. This HVOC plume may be associated with a massive HVOC release at a former dry cleaning facility (American Linen facility) located 700 feet west of the Site. The historical operation of the automobile detailing services on the northwest portion of Block 77 may also have contributed to the HVOC contamination.

- Overall, multiple on-Site and off-Site sources have or have potentially contributed to the contamination at the Site. Based on the different contamination sources, the COCs at the Site may include petroleum hydrocarbons, heavy metals, VOCs (including HVOCs), and PAHs (including cPAHs).

Physiographic Setting: The Site is situated at an elevation of approximately 20 feet above mean sea level. The area topography in the vicinity of the Site slopes gently to the north-northwest toward Lake Union.

Surface/Storm Water System: The nearest surface water body is Lake Union, approximately 200 feet north of the Site. Storm water from Block 77 discharges to City of Seattle sewer lines located along Westlake Avenue N to the west and Terry Avenue N to the east (**Figure 4**).

Ecological Setting: Land surface at Block 77 is mostly paved with small gravel- covered areas. The land surface in the surrounding area is mostly covered with buildings, asphalt, and concrete

pavement. The adjacent properties to the east are active construction sites. The adjacent property to the north is a public park (South Lake Union Park), which has approximately 2 acres of landscaped area.

Geology: The Property is located in south Lake Union neighborhood of Seattle. The historical shoreline of Lake Union extended south of the Site and south of Mercer Street. In the late 1800s, lumber mills and related businesses and industries occupied the south end of Lake Union. The lumber mills were typically constructed over the water on pilings. Sawdust and wood waste generated by the mills were discarded into the lake for years, which left thick layers of wood debris. As the wood debris accumulated, the southern shoreline of the lake gradually filled in, and the mills shifted their locations northward to remain over the water. As a result, the area around the southern arm of Lake Union includes localized areas of mixed fill material to 40 feet bgs or deeper, and native soil beneath the mixed fill.

Soil encountered at the Site consists of mixed fill materials that include silt, silty sand, sand, gravel, and organic debris in the form of wood debris and peat. The wood debris layer ranges in thickness from 0.5 feet to 10 feet, and was encountered at depths ranging from approximately 9 feet to 20 feet bgs. In the areas that have been excavated, backfill material is present to 15 to 25 feet bgs. Below the fill materials, native sands, silty sands, silts, and clay have been encountered to the maximum explored depth of 70 feet bgs.

Ground Water: Ground water was encountered at the Site at depths ranging from approximately 5 to 13.5 feet bgs. Ground water generally flows to the north toward Lake Union. However, significant variations in shallow ground water flow directions and gradients have been observed, which are likely due to dewatering during excavation of nearby deep building foundations. Ground water gradients were historically relatively flat, but recently ranged up to approximately 0.04 feet/foot, during construction dewatering on nearby properties. The most recent groundwater contour map with a Rose Diagram is depicted on **Figure 7**.

Numerous monitoring wells have been installed and decommissioned or destroyed at the Site. Currently, a total of 14 monitoring wells are present at the Site, including MWR-1 through MWR-6, MW-41, MW-45, MW-50, MW-54, MW-209 through MW-211, and SMW-3. All other monitoring wells have either been destroyed or decommissioned due to construction activities.

Water Supply: The Property's drinking water is supplied by City of Seattle, which is sourced primarily from two watersheds: the Cedar River watershed, located approximately 35 miles southeast of Seattle, and the Tolt River watershed, located approximately 30 miles east of Seattle. According to Ecology's *Well Log* data base, no water supply wells are located within a 1-mile radius of the Site.

Release, Extent, and Remediation of Soil and Ground Water Contamination: A number of contamination sources or potential contamination sources were present at or around the Site, and multiple environmental investigations and interim remedial actions have been completed at the Site. The bullets below summarize the major investigations and interim remedial activities known to Ecology that have taken place at the Site.

- In May 1980, after Unocal discovered the 80,000-gallon-gasoline release at the Westlake 76 Station on the southwest portion of Block 77, the first generation USTs were immediately replaced with the second generation USTs. The product lines were also replaced. Two recovery trenches and numerous recovery wells were installed, which removed a total of approximately 41,900 gallons of liquid phase hydrocarbons (LPH) between June 1980 and October 1992.

- In 1988, an initial SVE system was installed at the Westlake 76 Station utilizing the then-existing recovery wells and trenches. Approximately 4,262 pounds (770 gallons) of gasoline was recovered by the SVE system between June 1998 and August 1990, when the system was shut down due to decreasing extracted vapor concentrations. The SVE system restarted in 1991 and continued to operate through May 1995.

- In February 1990, during the removal of five USTs from the former Union 76 service station on the northwest portion of Block 77, approximately 800 cubic yards of petroleum contaminated soil was excavated. Petroleum contaminated soil was reportedly left in place beneath buildings at that time.

- Between January 1991 and July 1993, approximately 465 gallons of LPH was recovered during periodic manual/passive LPH removal efforts at the Westlake 76 Station.

- In April 1994, one 550-gallon heating oil UST was removed from the Westlake 76 Station.

- In May 2001, two 550-gallon USTs (one waste oil and one heating oil) were removed from the Westlake 76 Station. A gasoline product line was broken during the UST removal, and an estimated 600 gallons of unleaded gasoline was released. Approximately 500 gallons of product was immediately removed from the excavation utilizing a vacuum truck. Throughout the year, vacuum trucks and hand bailing were used for fluid recovery from adjacent monitoring wells. Approximately 4 gallons of LPH was manually recovered. Approximately 12,100 gallons of impacted ground water was removed by vacuum trucks.

- In 2003, a new AS/SVE system was installed at the Westlake 76 Station that included an AS/SVE trench, SVE wells, and several deep AS wells. The system became operational in August 2003. Approximately 1,410 tons of petroleum contaminated soil was removed and transported for treatment during the installation of the remediation system trenches and wells.

- In 2003, four hydraulic hoists were removed from the Westlake 76 Station. Confirmation soil sampling indicated that TPHo-contaminated soils were present in the northern hoist area.

- In 2004 and 2005, further investigations indicated petroleum contamination remained in soil and ground water in various areas of Block 77 and the surrounding ROWs.

- Between July 2006 and April 2007, pursuant to an April 2007 Settlement Agreement between COP and City of Seattle, COP implemented the first phase of the Mercer Cleanup

Project (Phase I of MCP). The area included in the Phase I remedial excavations is depicted on **Figure 2**. A total of approximately 16,172 tons of soil was excavated from the Westlake Avenue N and Terry Avenue N. The Phase I remedial activities included:

- Installation of sheet pile wall along Westlake Avenue N (**Figure 4**).
- Excavation and off-Site disposal of petroleum contaminated soil from the eastern lanes of Westlake Avenue N, installation of AS/SVE wells and associated conveyance piping, and connection of the remediation wells to the then-existing above-ground AS/SVE system equipment.
- Installation of SVE and enhanced fluid recovery (EFR) wells in Terry Avenue N, installation of associated conveyance piping, and connection of the remediation wells to the then-existing above-ground AS/SVE system equipment. .
- Soil and ground water sampling and analysis.
- Backfill and surface restoration activities.

- Between November 2007 and August 2008, biweekly EFR was performed utilizing the recovery wells in Terry Avenue N. A total of 28,142 gallons of impacted ground water was removed from the wells during this time. Cumulative petroleum hydrocarbon removal from September 2003 through March 2008 was approximately 1,940 pounds. Total LPH recovered from June 1980 through the end of the third quarter 2008 was approximately 43,632 gallons.

- In September 2008, the Westlake 76 Station on the southwest portion of Block 77 was demolished. Four 10,000-gallon gasoline USTs were removed, all above-ground structures were removed, and all of the existing conveyance piping for the remediation wells were cut and capped to facilitate the second phase of the MCP excavation activities (Phase II of MCP).

- Between November 2008 and June 2009, Phase II of MCP was implemented. The area included in the Phase II remedial excavations is depicted on **Figure 2**. A total of approximately 54,450 tons of soil was excavated from the Site during the Phase II excavation activities and transported off-Site for disposal. The Phase II remedial activities included :
  - Installation of a soil/cement/bentonite (SCB) gravity wall along the south, east, and north boundaries of Block 77 (**Figure 4**). The SCB gravity wall, in conjunction with the sheet pile wall installed along the west boundary during Phase I, provided shoring for Phase II excavation activities and continues to serve as a hydraulic barrier.
  - Excavation and off-Site disposal of petroleum contaminated soil from the entire Block 77, with the exception of the southeast corner. Soil excavation was completed to depths up to 25 feet bgs.

- Confirmation soil sampling activities. A total of 244 samples were collected from the 65 sampling cells of the excavation. Cells in the southeast corner of the excavation extended to 15 feet bgs, and the remaining excavation continued downward until residual concentrations were below the MTCA Method A soil cleanup levels.

- Backfill and surface restoration activities.

- As part of the MCP (Phase I and Phase II), soil excavation and remediation well installation activities were conducted in the ROWs. The following bullets summarize the major remedial activities conducted in the ROWs:

  - Westlake Avenue N:

    - In June 2006, the City completed oversight of the decommissioning of multiple ground water monitoring wells in Westlake Avenue N.

    - The majority of the soil excavation in Westlake Avenue N occurred between July 2006 and April 2007 during Phase I activities. However, some subsurface utilities were installed and/or upgraded between January 2011 and May 2012. Approximately 1,183 tons of soil was excavated from Westlake Avenue N.

    - Between July 2006 and April 2007 (Phase I), a total of 21 AS wells and nine SVE wells were installed in Westlake Avenue N.

  - Mercer Street:

    - Between December 2010 and January 2011, the City completed oversight of the decommissioning of multiple ground water monitoring wells in Mercer Street.

    - In January 2011, a vault box was installed on the north side of Mercer Street to route the future AS/SVE conveyance piping. Between 2011 and 2012, conveyance piping trenches were excavated in Mercer Street for installation of conveyance piping from the remediation wells to the vault box.

    - Between May and June 2011, the City completed oversight of the installation of eight AS wells to approximately 20 feet bgs and eight SVE wells to approximately 8 feet bgs in Mercer Street. In March and April 2012, the City completed oversight of the installation of 19 AS wells to approximately 20 feet bgs and 11 SVE wells to approximately 8 feet bgs in Mercer Street. Approximately 916 tons of soil was removed during the well and conveyance pipe installation activities in Mercer Street.

  - Valley Street:

- In June 2006, the City decommissioned ground water monitoring well MW-204 in Valley Street. Between December 2010 and January 2011, the City completed oversight of the decommissioning of additional ground water monitoring wells in Valley Street.

- Between January and November 2013, subsurface utilities were installed or upgraded in Valley Street. Approximately 3,746 tons of soil was documented as removed and disposed off-Site.

- In July 2013, the City completed oversight of the installation of 14 AS wells to approximately 20 feet bgs and eight SVE wells to approximately 8 feet bgs in the Valley Street. Trenches were also excavated toward the southwest corner of the intersection of Valley Street and Terry Avenue N for installation of conveyance piping from the wells.

o Terry Avenue N:

- In June 2006, the City decommissioned multiple ground water monitoring wells in Terry Avenue N. Between December 2010 and January 2011, the City completed oversight of the abandonment of additional ground water monitoring wells in Terry Avenue N.

- Between July 2006 and April 2007 (Phase I), a total of 15 SVE wells were installed in Terry Avenue N.

- In September 2013, trenches were excavated in the northwest corner of Terry Avenue N for installation of conveyance piping connected to the AS/SVE wells in Valley Street. A total of 182.36 tons of soil was excavated and disposed off-Site.

- Between August and November 2013, all of the remediation wells/conveyance piping located in the ROWs were connected to a new above-ground AS/SVE treatment system equipment compound currently located on the southeast corner of Block 77. The layout of the current AS/SVE system is depicted on **Figure 4**. The system consists of a total of 36 vertical wells (19 in Mercer Street and 17 in Terry Avenue N), 16 horizontal wells (7 in Valley Street and 9 in Westlake Avenue N), and two blowers. Through December 2017, approximately 3,039 pounds of TPH has been recovered by the system.

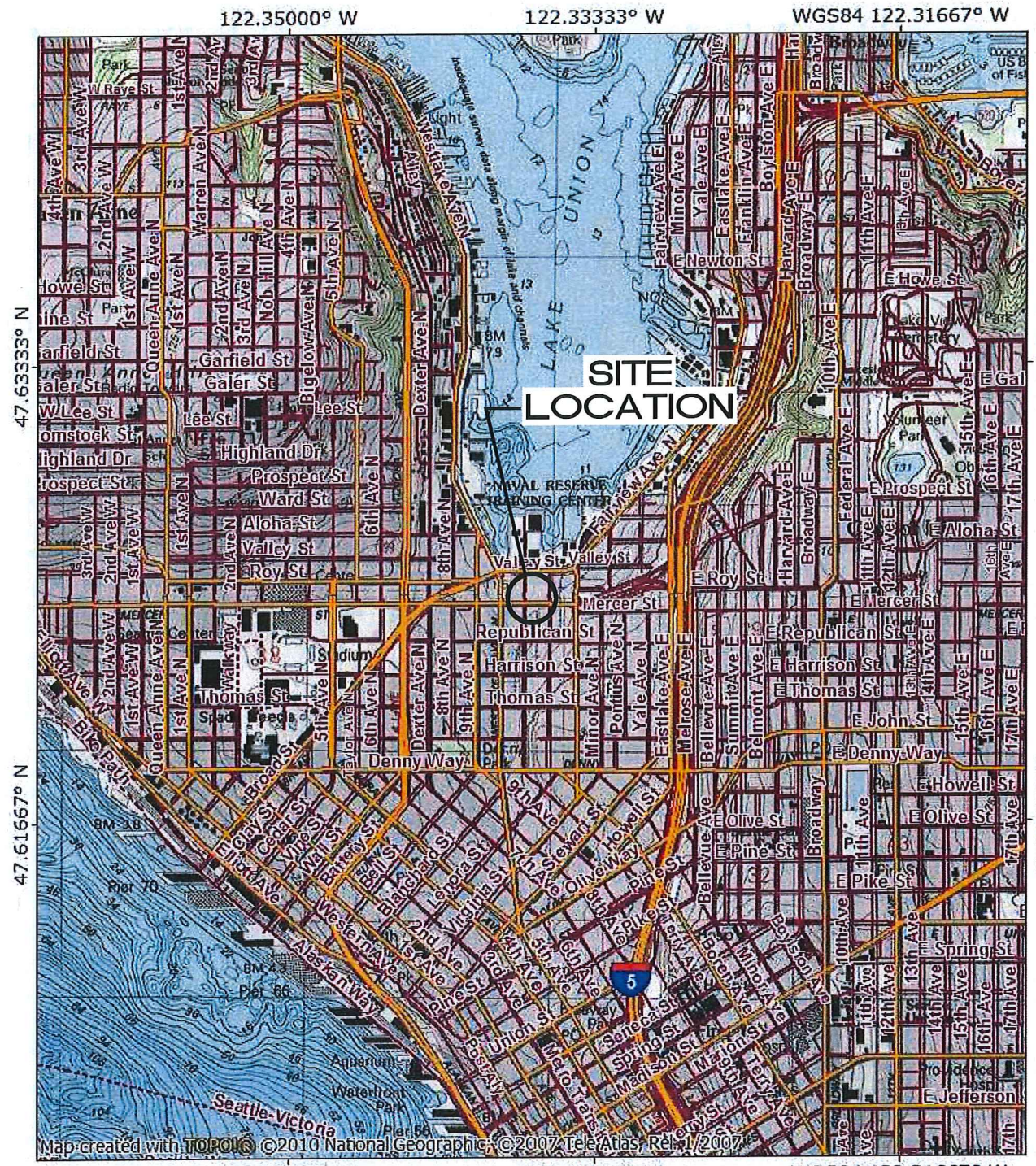
- Ground water monitoring has been conducted at the Site since 1988. Currently, 14 monitoring wells are still active and are sampled semi-annually. During the last year (2017), because most of the monitoring wells were dry during the June 2017 sampling event (due to nearby construction and dewatering operations), most of the monitoring wells were only sampled once in December 2017.

- Monitoring well MWR-5, located on the southeast portion of Block 77, contained

concentrations of TPHg, benzene, ethylbenzene, and xylenes above the MTCA Method A ground water cleanup levels in the last sampling event in December 2016. Monitoring well MW-213, located along the northwest boundary of Block 77, contained a benzene concentration above the MTCA Method A cleanup level in the December 2016 sampling event. In addition, the presence of HVOCs in shallow and deep ground water at the Site has not been adequately evaluated.

Site Diagrams

Enclosure A: Figure 1



NATIONAL GEOGRAPHIC

SITE VICINITY MAP

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE N
SEATTLE, WA

PROJECT NUMBER: Z076000073		DATE: 5/3/17	FIGURE 1
APPROVED BY: KS		DRAWN BY: BK	

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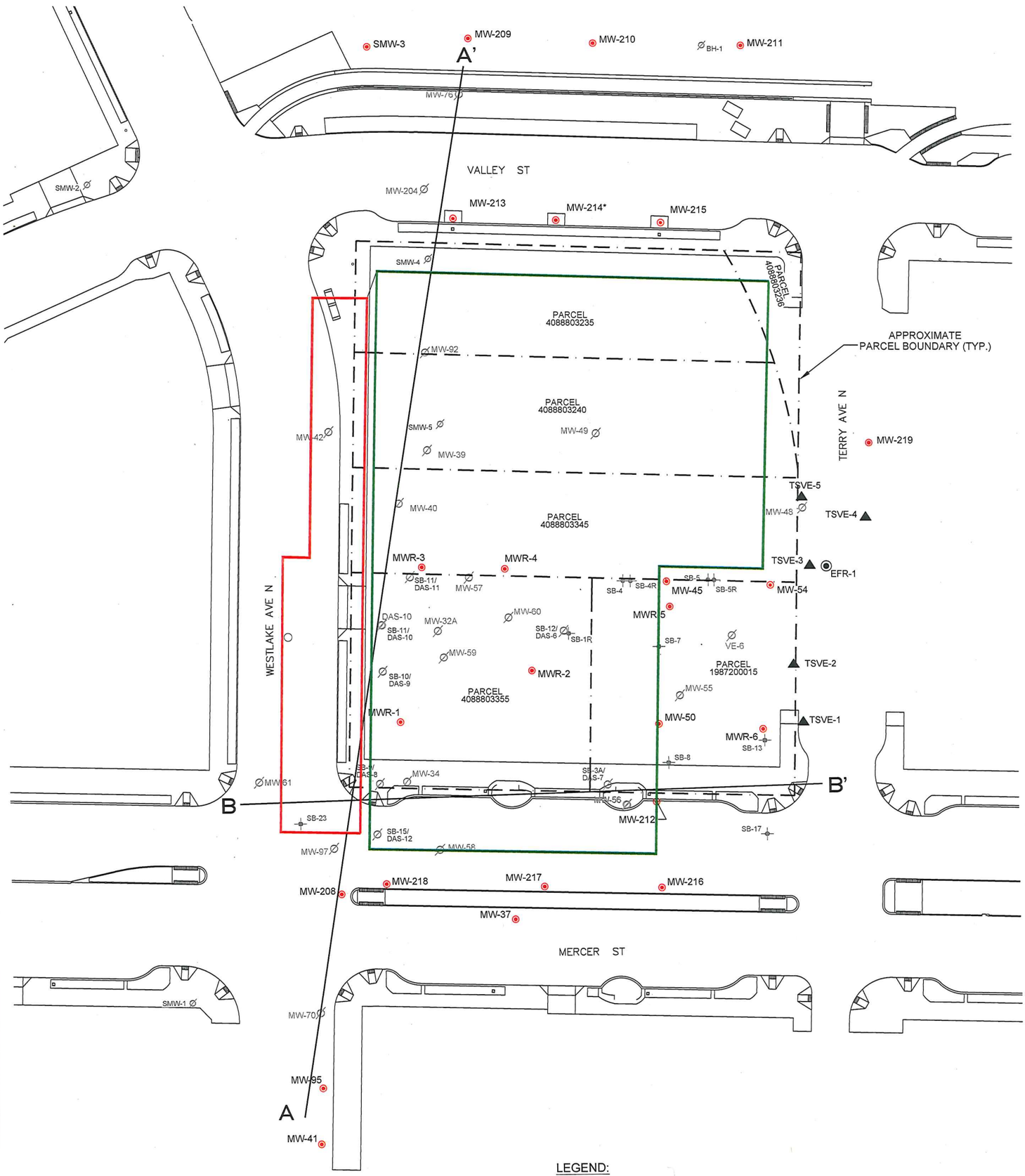
Enclosure A: Figure 2



LEGEND:

- GROUNDWATER MONITORING WELL
- SOIL BORING - DELTA 2005
- SVE WELL ON TERRY AVENUE - 2007
- SB-1/DAS-6 AS WELL - DELTA 2005 (DESTROYED)
- SB-6/VE-6 SVE WELL - DELTA 2005 (DESTROYED)
- MW-48 MONITOR WELL - 1991 OR 1992 (DESTROYED)
- EFR-1 ENHANCED FLUID RECOVERY WELL - 2007
- SMW-2 MONITOR WELL - SCS 1991 (DESTROYED)
- A—A' CROSS SECTION TRANSECT
- IMPACTED AREAS OF PHASE I REMEDIAL EXCAVATION
- IMPACTED AREAS OF PHASE II REMEDIAL EXCAVATION

0 60 120

SCALE, FT

NOTE: 1. ALL LOCATIONS ARE APPROXIMATE

CROSS SECTION TRANSECT LOCATIONS

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE N
SEATTLE, WA

PROJECT NUMBER: Z076000073		DATE: 2/15/18	FIGURE 3
APPROVED BY: ES		DRAWN BY: BK	

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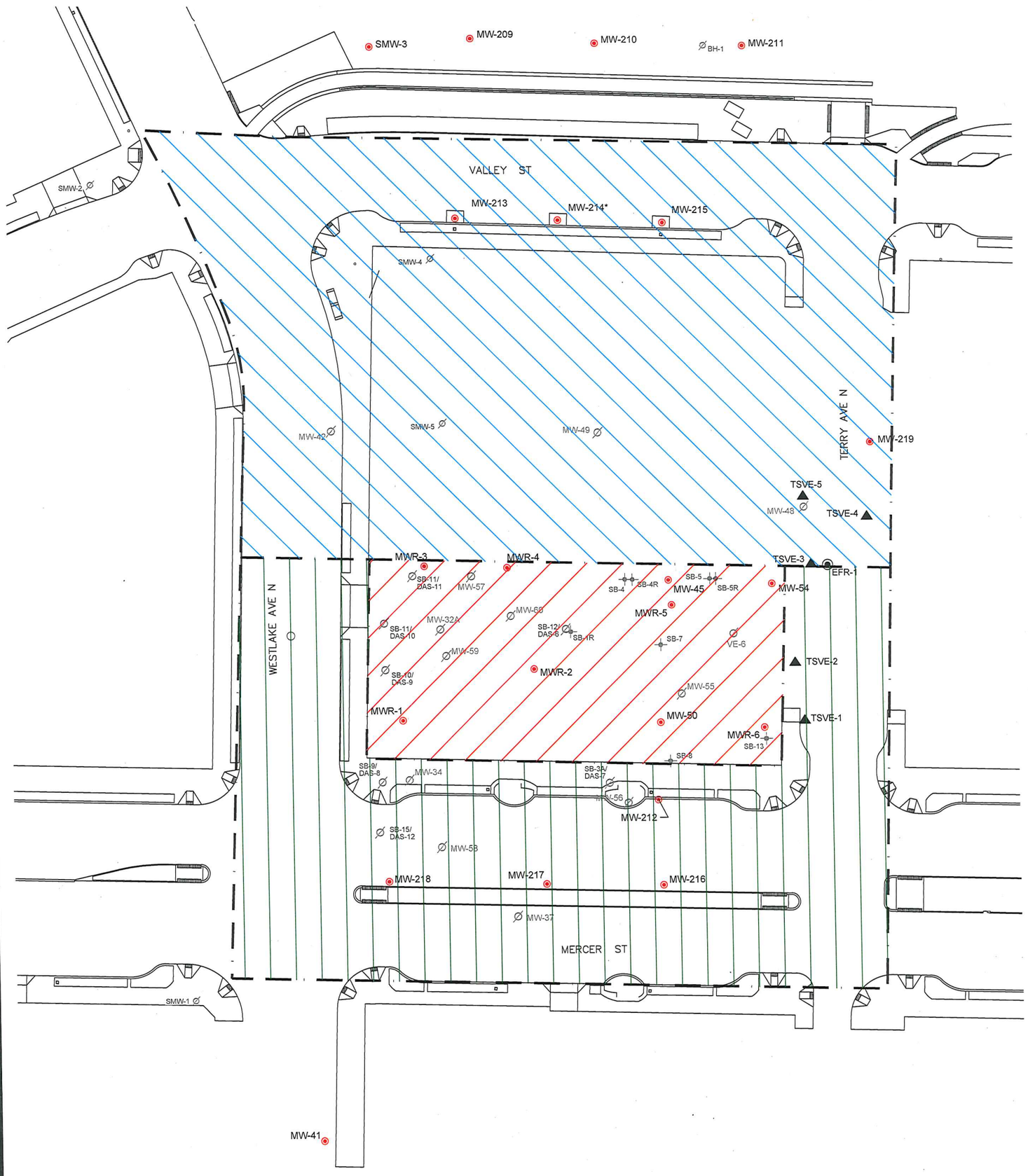
Enclosure A: Figure 3



LEGEND

- GROUNDWATER MONITORING WELL
- SOIL BORING - DELTA 2005
- SVE WELL ON TERRY AVENUE - 2007
- SB-1/DAS-6 AS WELL - DELTA 2005 (DESTROYED)
- SB-6/VE-6 SVE WELL - DELTA 2005 (DESTROYED)
- MW-48 MONITOR WELL - 1991 OR 1992 (DESTROYED)
- EFR-1 ENHANCED FLUID RECOVERY WELL - 2007
- SMW-2 MONITOR WELL - SCS 1991 (DESTROYED)

- SITE DEEPER THAN GROUND SURFACE
- SITE DEEPER THAN 5.5' BGS
- SITE DEEPER THAN 7.5' BGS

0 60 120
SCALE, FT

NOTE: 1. ALL LOCATIONS ARE APPROXIMATE

SITE LAYOUT

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE N
SEATTLE, WA

PROJECT NUMBER: Z076000073		DATE: 2/16/18	FIGURE 2
APPROVED BY: ES		DRAWN BY: BK	

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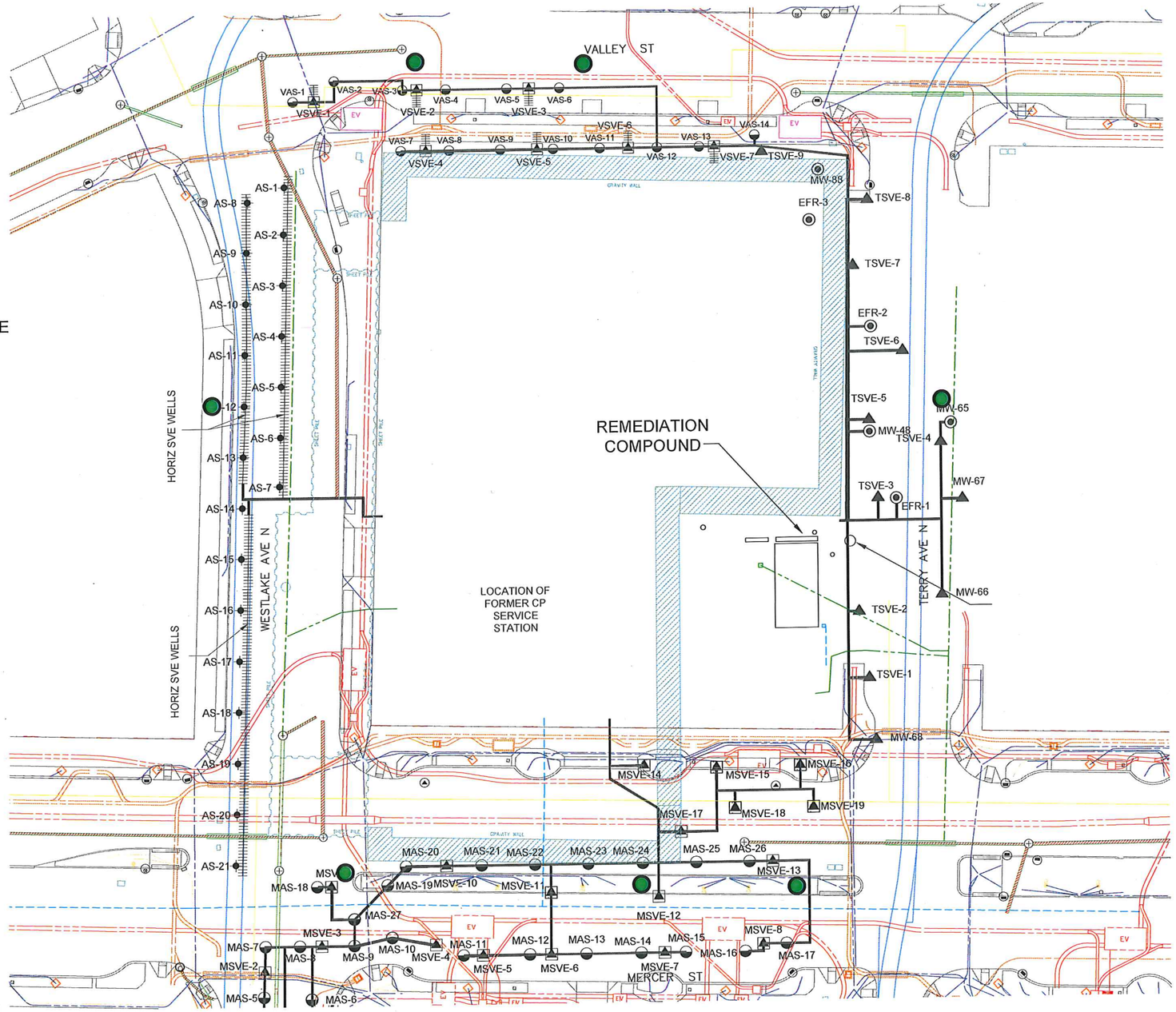
Enclosure A: Figure 4

LEGEND:

- LAMP POST LOCATION
- WATER LINE LOCATION
- PROPERTY LINES
- TRENCH ROUTES
- AS-1 — AIR SPARGE WELL ON WESTLAKE AVENUE
- HORIZONTAL SVE WELL
- TSVE-1 — SVE WELLS ON TERRY AVENUE
- MW-67 — MONITORING WELL
- EFR-1 — ENHANCED FLUID RECOVERY WELL
- MAS-1 — AS WELL ON MERCER
- MSVE-7 — SVE WELLS ON MERCER
- VAS-13 — VALLEY STREET AS WELL
- VSVE-7 — VALLEY STREET HORIZONTAL SVE WELL
- ELECTRICAL LINE LOCATION FOR STREET LIGHTS
- SANITARY/ STORM SEWER LOCATION
- STORM SEWER MANHOLE/CATCH BASIN LOCATION
- ELECTRICAL LINE LOCATION (SCL)
- COMMUNICATION LINE LOCATION
- GAS LINE LOCATION
- STREET CAR LINE LOCATION
- SHEET PILE LOCATION
- GRAVITY WALL LOCATION
- PROPOSED MONITORING WELL



N

APPROXIMATE SCALE

0 60 120 Feet

NOTES:

1. LOCATIONS OF SITE FEATURES CONSTRUCTED FOR THE P-66 REMEDIATION SYSTEM (REMEDIATION COMPOUND, ON-SITE TRENCHES, TERRY AVE. TRENCH EXTENSION) HAVE NOT BEEN SURVEYED AND ARE APPROXIMATE.

2. LOCATIONS OF ALL OTHER SITE AND AREA FEATURES ARE BASED ON PLANS SUPPLIED BY SDOT, AND HAVE NOT BEEN VERIFIED BY THE PROJECT ENGINEER.

UTILITY INFRASTRUCTURE

PHILLIPS 66 FACILITY NO. 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WA

PROJECT NUMBER: Z076000073	DATE: 5/3/17	FIGURE 4
APPROVED BY: KS	DRAWN BY: BK	

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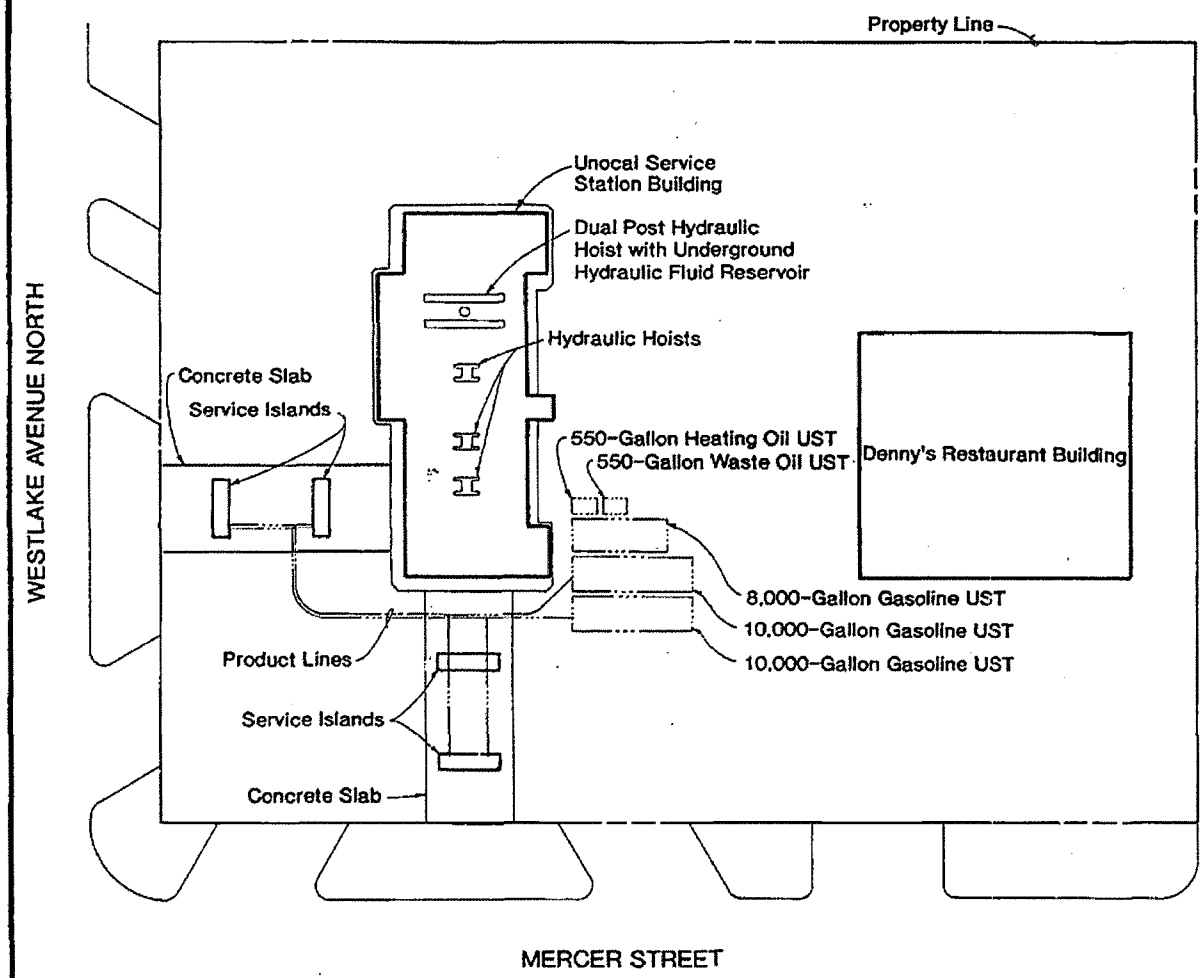
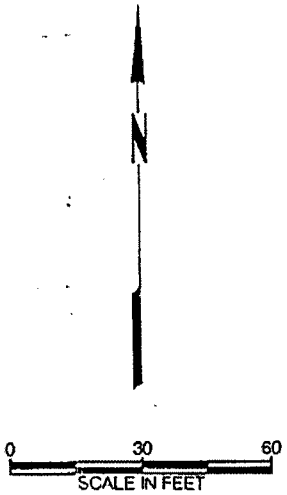
Enclosure A: Figure 5





EXPLANATION:

UST UNDERGROUND STORAGE TANK

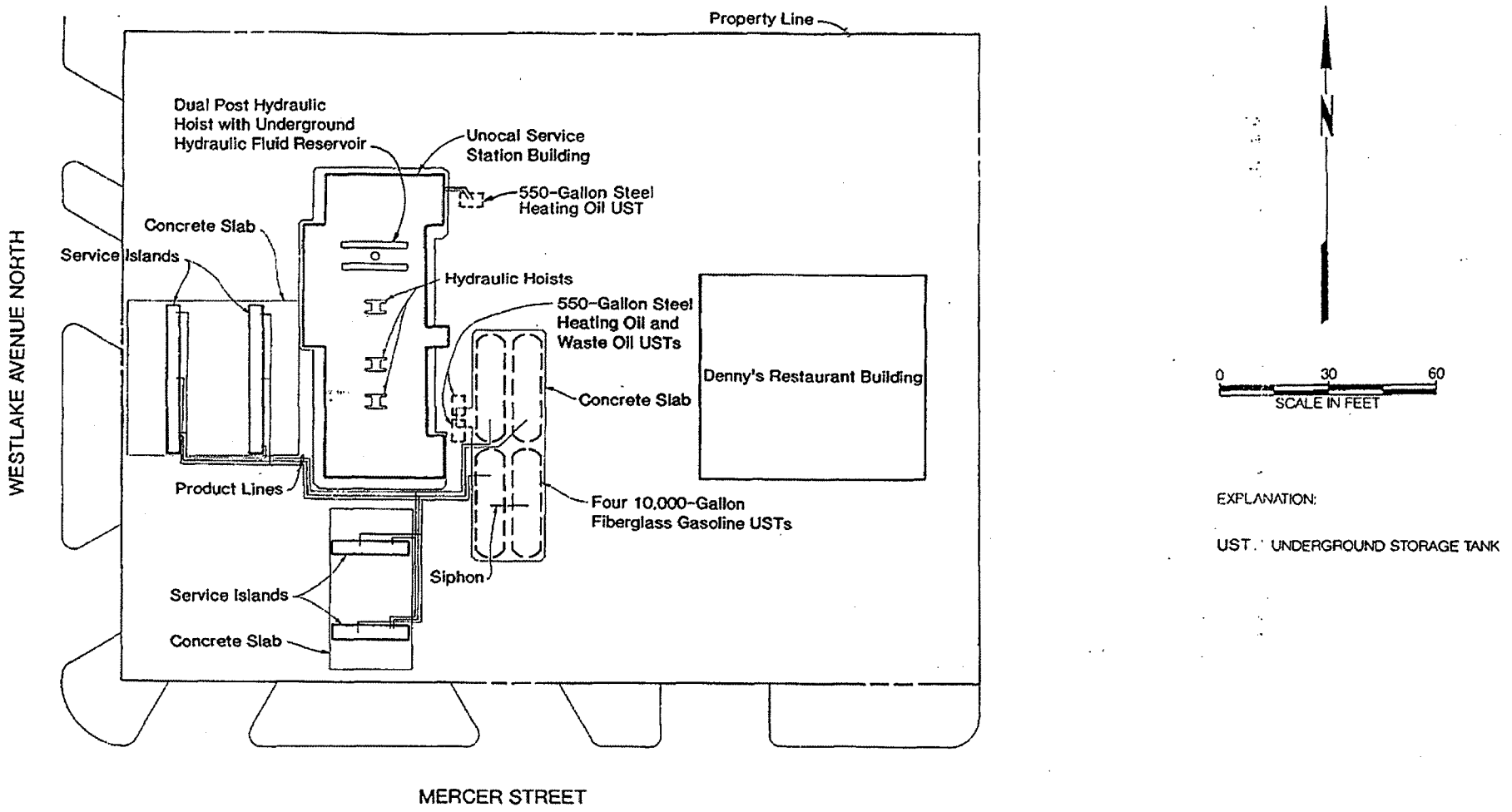
REFERENCE: DRAWING ENTITLED "GENERAL ARRANGEMENT, SERVICE STATION 5353, WESTLAKE AVE. & MERCER ST., SEATTLE, WASHINGTON," BY UNION OIL COMPANY OF CALIFORNIA, DATED 03/05/65.

GeoEngineers

SERVICE STATION FACILITIES 1980

FIGURE 3

Enclosure A: Figure 6



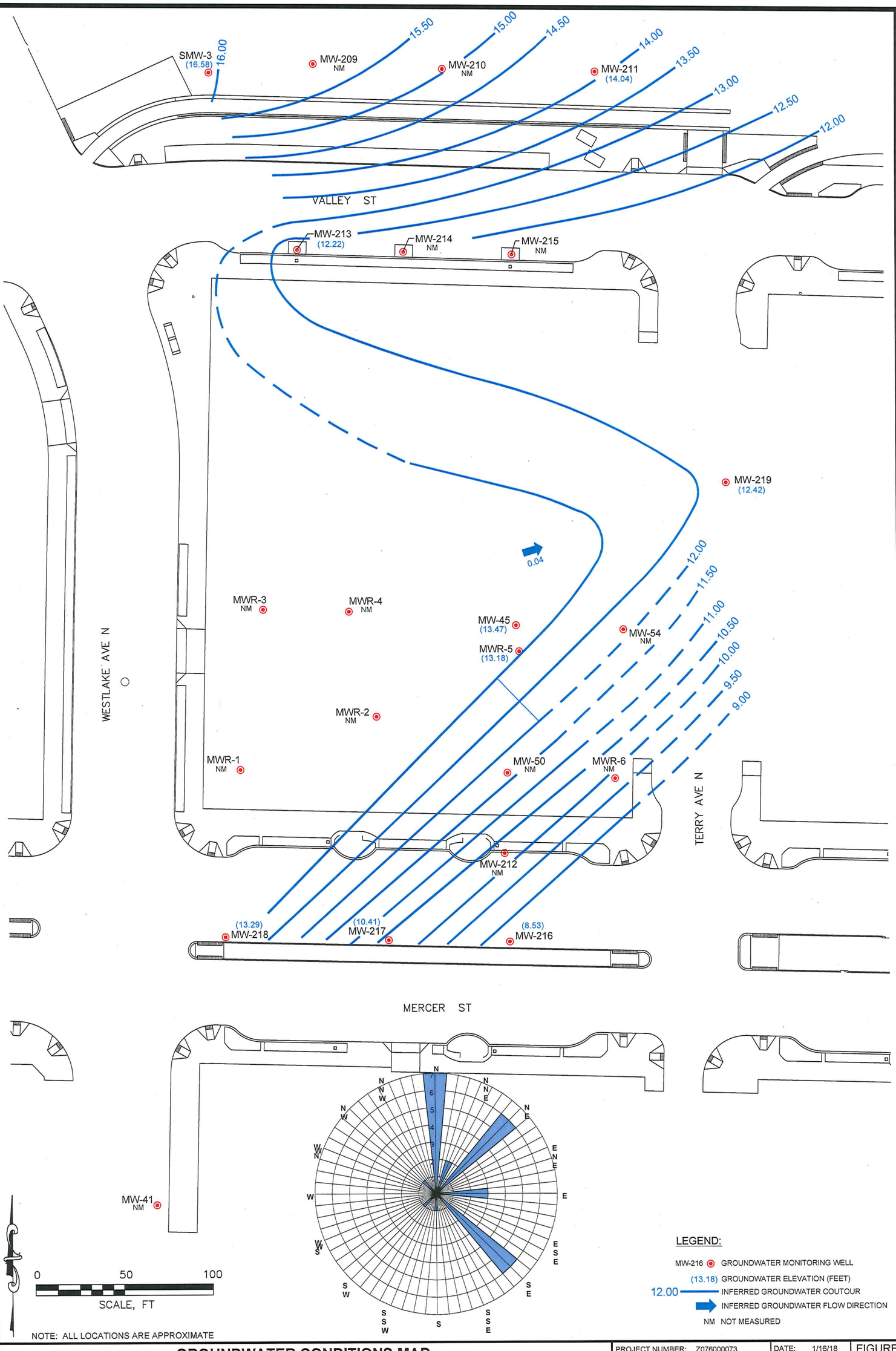
REFERENCE: DRAWINGS ENTITLED "GENERAL ARRANGEMENT, SERVICE STATION 5353, WESTLAKE AVE. & MERCER ST., SEATTLE WASHINGTON," DATED 03/05/65; AND "TANK & PIPELINE REPLACEMENT PROJECT, SERVICE STATION 5353, WESTLAKE AVE. & MERCER ST., SEATTLE, WASHINGTON," DATED 06/18/80, BOTH BY UNION OIL COMPANY OF CALIFORNIA.

GeoEngineers

SERVICE STATION FACILITIES 1981 TO PRESENT

FIGURE 4

Enclosure A: Figure 7



GROUNDWATER CONDITIONS MAP
(12/12/17)
PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE NORTH
SEATTLE, WA

PROJECT NUMBER: Z076000073		DATE: 1/16/18	FIGURE 7
APPROVED BY: ES		DRAWN BY: BK	

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Enclosure B

Basis for the Opinion:
List of Documents

1. ATC Group Services LLC (ATC), *Groundwater Monitoring Report (2017 Annual Report), Phillips 66 Facility No. 255353, AOC #1396*, June 21, 2018.

2. ATC, *Remedial Investigation/Feasibility Study/Cleanup Action Plan, Former ConocoPhillips Facility No. 255353, AOC #1396,* February 16, 2018.

3. ATC, *Remediation System Restart Report, Phillips 66 Facility No. 255353, AOC #1396*, May 3, 2017.

4. Cardno ATC, *Remediation System Progress Report, First Quarter 2015, Phillips 66 Facility No. 255353, AOC #1396*, April 17, 2015.

5. Cardno ATC, *Remediation System Progress Report, Third Quarter 2014, Phillips 66 Facility No. 255353, AOC #1396*, January 23, 2015.

6. Cardno ATC, *Remediation System Progress Report, Second Quarter 2014, Phillips 66 Facility No. 255353, AOC #1396*, August 22, 2014.

7. Cardno ATC, *Remediation System Progress Report, First Quarter 2014, Phillips 66 Facility No. 255353, AOC #1396*, July 2, 2014.

8. Stantec Consulting Corporation (Stantec), *Well Installation Report for On-Site Replacement Monitoring Wells and Soil Vapor Extraction Wells, ConocoPhillips RM&R #1396*, January 25, 2011.

9. URS Corporation (URS), *Westlake/Mercer Cleanup Project – Phase 2 Soil Sampling Report, RM&R Site No. 255353*, December 21, 2009.

10. Stantec, *Well Installation Report, Former ConocoPhillips Facility No. 255353*, March 27, 2009.

11. Stantec, *Well Abandonment Report, Former ConocoPhillips Facility No. 255353*, March 27, 2009.

12. Stantec, *Quarterly Operation and Maintenance Report For ConocoPhillips Company, RM&R #1396*, January 14, 2009.

13. Stantec, *UST System Removal Report, Former ConocoPhillips Facility No. 255353*, December 17, 2008.

14. Stantec, *Quarterly Operation and Maintenance Report For ConocoPhillips Company, RM&R #1396*, August 11, 2008.

15. Stantec, *Response to Issues Raised in December 31, 2007 Letter, ConocoPhillips Service Station No. 253353*, July 17, 2008.

16. SECOR, *Quarterly Status Report for ConocoPhillips Company, RM&R #01396*, May 15, 2008.

17. SECOR, *ConocoPhillips Operations and Maintenance Report, ConocoPhillips Facility No. 255353*, March 5, 2008.

18. Delta Environmental Consultants, Inc. (Delta), *Westlake-Mercer Cleanup Project – Phase 1 Environmental Monitoring Report, ConocoPhillips Company Service Station 255353*, July 16, 2007.

19. Delta, *ConocoPhillips Company Remediation System Status Report, Site No. 255353*, February 3, 2006.

20. Delta, *Limited Off-Site Environmental Assessment – Horizontal and Vertical Delineation, ConocoPhillips Company Service Station 255353*, August 29, 2005.

21. Delta, *On-Site Environmental Assessment – Horizontal and Vertical Delineation, ConocoPhillips Company Service Station 255353*, August 4, 2005.

22. Delta, *ConocoPhillips Company Remediation System Status Report, Site No. 255353*, December 7, 2004.

23. Delta, *Second Quarter 2004 Remediation System Status Report, ConocoPhillips Site No. 255353*, September 7, 2004.

24. Delta, *First Quarter 2004 Remediation System Status Report, ConocoPhillips Site No. 255353*, July 12, 2004.

25. *ConocoPhillips Remediation System Operations and Maintenance Report, ConocoPhillips Site No. 5353*, February 2, 2004.

26. GeoEngineers Inc. (GeoEngineers), *Remediation System Installation and Pilot Testing, ConocoPhillips 76 Service Station 5353*, October 27, 2003.

27. Environmental Resolutions, *Waste Oil and Heating Oil Underground Storage Tank Removal, Soil Sampling, and Fluid Recovery, TOSCO Site No. 5353,* November 21, 2001.

28. GeoEngineers, *Supplemental Site Characterization, TOSCO Service Station 5353,* October 3, 2001.

29. GeoEngineers, *Results of Groundwater and VES Monitoring, January through June 1996, Unocal Service Station 5353*, October 11, 1996.

30. GeoEngineers, *Results of Ground Water Monitoring and VES Maintenance, Unocal Service Station 5353*, April 2, 1996.

31. GeoEngineers, *Progress Report No. 5, Vapor Extraction System Monitoring, Unocal Service Station 5353*, July 6, 1995.

32. GeoEngineers, *Status Report and Results of Ground water Monitoring July and October 1994, Unocal Service Station 5353*, May 17, 1995.

33. GeoEngineers, *Progress Report No. 4, Vapor Extraction System Monitoring, Unocal Service Station 5353*, June 15, 1994.

34. GeoEngineers, *Report of Geo-environmental Services Supplemental Site assessment, Rosen Site,* May 27, 1994.

35. GeoEngineers, *Progress Report No. 3, Vapor Extraction System Monitoring, Unocal Service Station 5353*, October 1, 1993.

36. GeoEngineers, *Report of hydrogeological Services Slug Testing Results, Unocal Service Station 5353*, May 27, 1993.

37. GeoEngineers, *Supplemental Report of Geo-environmental Services Subsurface Contamination Study, Unocal Service Station 5353*, July 7, 1992.

38. GeoEngineers, *Site Characterization Report for Unocal 1980 through 1988 Subsurface Fuel Related Contamination, Unocal Station 5353*, January 16, 1991.

39. GeoEngineers, *Progress Report No.2, Service Station 5353*, January 3, 1991.

40. GeoEngineers, *Progress Report No.1, Subsurface Fuel Vapor Extraction Program, Service Station 5353*, July 27, 1988.

Historical ground water monitoring reports were not listed above, except the most recent ground water monitoring report for 2017. The ground water monitoring reports currently kept in the NWRO Central Files include the following (by date and author):

Date of Submission	**Author**
June 10, 1994	GeoEngineers
September 1, 1995	GeoEngineers
October 6, 1997	TOSCO Marketing Company (TOSCO)
August 16, 1999	TOSCO
Sept 25, 2001	TOSCO
January 23, 2002	TOSCO
January 29, 2002	TOSCO
September 10, 2002	ConocoPhillips Corporation (ConocoPhillips)
November 19, 2002	ConocoPhillips
March 4, 2003	ConocoPhillips
June 25, 2003	ConocoPhillips

July 24, 2003	ConocoPhillips
October 30, 2003	ConocoPhillips
February 9, 2004	Delta
May 6, 2004	Delta
July 21, 2004	Delta
December 7, 2004	Delta
May 10, 2005	Delta
November 17, 2006	Delta
March 30, 2007	Delta
May 18, 2007	Delta
June 25, 2007	Delta
July 17, 2007	Delta
October 31, 2007	Delta
May 27, 2008	SECOR
July 16, 2008	Stantec
October 2, 2008	Stantec
January 6, 2009	Stantec
January 23, 2009	Stantec
April 22, 2009	Stantec
July 10, 2009	Stantec
October 15, 2009	Stantec
April 27, 2010	Stantec
August 16, 2010	Stantec
November 16, 2010	Stantec
January 27, 2011	Stantec
August 24, 2011	ATC Associates, Inc.
March 25, 2014	Cardno ATC
September 8, 2014	Cardno ATC
February 16, 2016	ATC
February 17, 2016	ATC
September 26, 2016	ATC
February 23, 2017	ATC