PHASE II
LIMITED & TARGETED
SUBSURFACE INVESTIGATION
(NORTHERN OIL AOC)
REPORT

Performed at:
Former Modutech Marine
2218 Marine Drive
Tacoma, Washington 98422

AEROTECH
Environmental Consulting Inc.

February 21, 2025

Anchorage Seattle Portland

Cost-effective environmental solutions
for the western United States and Alaska

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17837 1st Avenue South #556
Normandy Park, Washington 98148
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Client:	**PEARSON METAL SALVAGE** **Michael Pearson** 10403 Portland Avenue East Tacoma, Washington 98445
Point of Contact:	**Mike Kennedy** Site Manager 253 255 8090 mkennedy@net-venture.com
Property Owner:	**Swindahl Properties LLC** 6201 Bock Avenue Sumner, Washington 98390
County Parcel:	Pierce County, Washington Parcel Number: 0321264056
Commercial Activity:	Metal Salvage
Facility/Site ID:	1631646
WDOE Cleanup Site ID:	14602
Principal Env. Scientist:	Nick Gerkin
Report Date:	February 21, 2025

EXECUTIVE SUMMARY

The subject Property is located at 2218 Marine View Drive, Tacoma Washington and was first developed sometime prior to 1940 with the construction of a residence and a garage or shed. Between 1960 and 1965, the residence was vacant. By 1969, the former structures were demolished, and the present-day warehouse was constructed to occupy the ship building plant, Tide Bay Inc. By 1975, the Property occupied Martinolich Ship Builders. In 1980, a two-story office building and a dock marina were constructed. By then, the boat manufacturer, Marine Technical Services, occupied the Property. In 1985, a material storage shed was constructed. In 2013, an additional two-story office building was constructed onto the existing structure. The subject Property has been occupied by the steel and fiberglass marine boat manufacturer, *Modutech Marine Inc*, since 1986 until leasing the Property to *Pearson Metal Salvage* in 2024.

Currently, *Pearson Metal Salvage* receives decommissioned submarines in large sections via barge which docks to the west of the Property, between the docks and the shoreline. They are unloaded via crane onto the Property, where they are deconstructed further and the metals separated. The separated metals are then shipped to a metal recycling facility at the Port of Tacoma.

Environmental:

During a Site Inspection conducted by the *Washington Department of Ecology* ("*Ecology*") on June 17, 1992, inspectors confirmed the presence of sandblast grit spread along the roads and surfaces in certain areas of the Site. Following a request by *Ecology* to prevent contaminants from spent sandblast grit from reaching the Hylebos Waterway, Modutech Inc removed the waste sandblast grit from the subject Property. The Riley Group conducted a Phase 2 Subsurface Investigation in 2009, however, *Ecology* determined it to be insufficient to characterize the Site.

In 2018, *Aerotech* was contracted to conduct a Phase 1 ESA, which then lead to a Phase 2, Site Characterization and Groundwater Monitoring Well Installation. During the investigations, the presence of arsenic and lead in the subsurface has been confirmed above the MTCA A Industrial Cleanup Levels. Vertical and horizontal definition of the extent of metals above cleanup standard has been achieved to the extent practicable. Quarterly groundwater monitoring, which was completed in 2019, demonstrated that arsenic and lead were not present above laboratory minimum detection limits in any of the shoreline wells. Regarding Total Petroleum Hydrocarbons as Oil ("TPHo"), several samples were collected from the northern portion of the Site in soil and groundwater and analyzed for TPHo, however no exceedances were observed at that time.

By 2021, when *Aerotech* submitted a Cleanup Action Plan, Chris Maurer, the *Ecology* Voluntary Cleanup Program ("VCP") Project Manager, agreed that lead and arsenic had been laterally and vertically defined. At the time, Chris Maurer, indicated that an Environmental Covenant would be an adequate solution that would allow the Site to achieve a No Further Action status. (*Pearson* plans on paving all areas of concern with concrete as a part of site redevelopment activities, post-remediation. The concrete surface will serve as an adequate impervious surface, as required by *Ecology*).

In 2024, the client, *Mike Pearson* and the site owner, *Swindahl Properties, LLC*, Inc began discussions about the sale of the Property. The financial institution requested a *Phase 1 Environmental Site Assessment* be conducted, of which *Atlas GeoSciences NW* ("*Atlas*") completed and delivered on November 27, 2024. *Atlas* identified three Recognized Environmental Conditions: 1) Sandblast Grit (addressed above), 2) General Historical Manufacturing and 3) City of Tacoma Sewer Pump Station, adjacent to the north of the Property, which had a historical oil ("TPHo") exceedance in groundwater.

Established by *Aerotech* and *Ecology* in 2019 (and verified with *Ecology* VCP Manager, Joe Hunt in May 2025), MTCA Method A Industrial Cleanup Values can be used in soil (**Table 1**). Groundwater has also been demonstrated to be non-potable on-Site, due to the salt content (**Table 3**), .The stipulation is that shoreline groundwater must be protective of Marine Water (Chronic) Levels. These values can also be found in **Tables 2 and 3**.

Pearson engaged *Aerotech* in December 2025 to aide in the development of total costs to achieve a *No Further Action* status from *Ecology*. *Aerotech* promptly made an appointment with Tim Mullin, the Southwest Region VCP Program Manager at *Ecology*, for a Technical Assistance Meeting. In it, *Aerotech* verified the aforementioned details about applicable cleanup levels, confirmed the status of arsenic & lead in soil.

Aerotech then conducted a Phase 2 Subsurface Investigation to focus on the historical oil detections and observations by *Aerotech* including the possibility that the petroleum exceedance from the *City of Tacoma Sewer Pump Station* to the north is related to onsite detections. After *Pearson* moved a large boat mold from the northern Property Line, *Aerotech* advanced four soil borings (SB34-38) from the shoreline to the asphalt parking area to the northeast, two

soil borings (SB39-40) northeast of previously known locations where oil was suspected in 2018 and one soil boring (SB41) south of groundwater monitoring well MW4.

Phase II Conclusions & Recommendations:

Based on the data obtained from this *Phase II Limited and Targeted Subsurface Investigation (Northern Oil AOC)*, detections of TPHo were observed in the soil borings along the northern Property Boundary (SB34-SB37), however it is unknown whether this is from historical oil on the *City of Tacoma Sewer Pump Station* or interference with organic material. This will be addressed in future assessment activities.

Aerotech identified a potential hydraulic oil source area on-Property, in the vicinity of Soil Boring SB38. Both the soil and groundwater samples exhibited TPHo exceedances. The remaining locations in the northwestern portion of the Site will serve as conservative remedial excavation limits (B39 to the northwest B24, B30, B40 to the northeast, SB17 to the south and the rocky shoreline to the west and southwest) (**Figure 5**).

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INTRODUCTION

The subject Property was first developed sometime prior to 1940 with the construction of a residence and a garage or shed. Between 1960 and 1965, the residence was vacant. By 1969, the former structures were demolished, and the present-day warehouse was constructed to occupy the ship building plant, Tide Bay Inc. By 1975, the Property occupied *Martinolich Ship Builders*. In 1980, *Marine Technical Services*, occupied the Property. The subject Property has been occupied by the steel and fiberglass marine boat manufacturer, *Modutech Marine Inc*, since 1986 until leasing the Property to *Pearson Metal Salvage* in 2024. Site activities include salvaging metal from decommissioned military submarines.

In 2024, the client, *Mike Pearson* and the site owner, *Swindahl Properties, LLC*, Inc began discussions about the sale of the Property. The financial institution requested a *Phase 1 Environmental Site Assessment* be conducted, of which *Atlas GeoSciences NW* ("*Atlas*") completed and delivered on November 27, 2024. *Atlas* identified three Recognized Environmental Conditions: 1) Sandblast Grit (which they acknowledged had been addressed), 2) General Historical Manufacturing and 3) City of Tacoma Sewer Pump Station, adjacent to the north of the Property, which had a historical oil ("TPHo") exceedance in groundwater.

Aerotech Environmental Consulting, Inc., was retained by Mr. Michael Pearson, the Client, to conduct environmental work at the subject Site, 2218 Marine View Drive, Tacoma, Washington. In pursuit of completing TPHd/TPHo characterization activities, *Aerotech* mobilized to the Site to advance eight (8) soil borings to a maximum depth of 15 feet below ground surface ("bgs"). All locations were advanced in the northern portion of the Site in the vicinity of Soil Boring SB25, groundwater monitoring well MW4 and The City of Tacoma Wastewater Pumping Station 4103 adjacent to the north, which is also known to have historical TPHo exceedances (FSID 1806706). The purpose of this Phase 2 was to obtain additional data to develop a *Cost-to-Closure Estimate* document for the client.

SECTION I.

SITE DESCRIPTION

Property Exterior Description:

The subject Property (2218 Marine View Drive; Parcel #0321264056) is comprised of one rectangular-shaped 5.98-acre parcel of industrial land, located on the southwest side of Marine View Drive in Tacoma, Washington formerly occupied by Modutech Marine Inc. (**Figures 1 & 2**). The subject Property is located on the Hylebos Waterway in Tacoma, Washington. Significant bodies of water include Commencement Bay at the mouth of the Hylebos Waterway, approximately 1.5 miles northwest. An unnamed creek, which is generally piped through developments and open as it runs down Julia's Gulch, originates 0.75-miles to the northeast, runs along the northern Property Boundary to the outfall into Hylebos Waterway in the vicinity of the northwest corner of the Property.

The subject Property is configured with four buildings and a small boatyard that comprised the facility for the fiberglass and steel boat manufacturer, Modutech Marine, Inc. Two adjoining office buildings are situated in the center of the Parcel facing northeast toward Marine View Drive. Asphalt paved parking spaces are provided northeast and northwest of the buildings. Adjacent to the east is the manufacturing and production warehouse. A former fabrication and spray building is situated along the east Property border. South of the building are material storage sheds. Currently, the northern portion of the Site was utilized as an equipment storage yard, which was cleared prior to conducting the *Phase 2.*

Property Interior Description:

The contiguous office buildings comprise approximately 6,560 square feet and are configured with offices, a reception area, restrooms, and a conference room. The warehouse comprises approximately 19,136 square feet and houses the marine manufacturing, repair, and production operations. Additionally, the warehouse contains an electrical room, an employee break area, a welding shop, and an approximately 1,530 square foot mezzanine used for storage. The building along the southeast Property boundary comprises approximately 4,440 square feet and is divided into two sections; one side was used for spray applications and the other side was used for fabrication.

Recognized Environmental Conditions

Atlas GeoSciences NW ("*Atlas*") completed and delivered a Phase 1 Environmental Site Assessment, dated November 27, 2024. *Atlas* identified three Recognized Environmental Conditions: 1) Sandblast Grit (addressed), 2) General Historical Manufacturing and 3) City of Tacoma Sewer Pump Station, adjacent to the north of the Property, which had a historical oil ("TPHo") exceedance in groundwater.

Previously Identified Contaminants of Concern:

Although the Site contains arsenic and lead above the MTCA Industrial Method A Cleanup Levels, that will be addressed at a later date and is not the focus of this project. TPHo had been detected and observed by Aerotech in 2018 and 2019, however soil and groundwater did not contain concentrations above the applicable cleanup levels in the samples analyzed.

SECTION II.

FIELD WORK

Notifications – "Public Utilities":

A public utilities locate notification was performed prior to the start of work. Aerotech Environmental Consulting, Inc. Performed the "public" utilities notification on January 15, 2025, and was issued Ticket Number 25018805 by the Utilities Underground Location Center.

According to the Utilities Underground Location Center the utilities necessary for notification

District	Company	Marking Concerns	Customer Service	Repair
MCI01	MCI	(800)289-3427	(800)289-3427	(800)289-3427
PUGG07	PUGET SOUND ENERGY GAS	(888)728-9343	(888)225-5773	(888)225-5773
QLNWA16	CTLQL-CENTURYLINK	(800)778-9140	(800)283-4237	(800)573-1311
RCON01	RAINIER CONNECT NORTH	(253)262-3211	(360)832-6161	(253)262-3211
TACDPW01	TS/SL TACOMA SIGNAL AND LIGHTS	(253)255-2443	(253)593-7742	(253)593-7742
TACH2O01	TACOMA WATER DEPARTMENT	(253)502-8398	(253)502-8384	(253)502-8384
TACPWR01	TACOMA PWR & CLICK NETWORK	(253)502-8263	(253)502-8600	(253)502-8263
TACSEW01	TACOMA ENVIRON. SERVICES DEPT.	(253)591-5585	(253)591-5585	(253)591-5585

Private Utilities Location:

Additionally, Aerotech engaged personnel of Mountain View Locating Services of Bonney Lake, Washington to locate Site Utilities on January 20, 2025, prior to the start of the on Site drilling activities. No unanticipated or unexpected situations were discovered or encountered during the private locating activities.

Based in part upon pavement markings made by utility location technicians; the location of utility fixtures such as water, electrical, or manholes, and the presence of anomalies detected by induction or ground radar methodologies, monitoring well locations were chosen.

Ground Penetrating Radar Survey:

A Ground Penetrating Radar ("GPR") Survey conducted by Mountain View Locating Services staff on January 20, 2025 in order to augment the induced current methodology, and to verify the presence of utility trenches such as sewer and water main trenches. Mountain View Locating Services, LLC employed Radar equipment utilizing Dual Frequency Antennae (300 MHz/800 MHz) manufactured by Geophysical Survey Systems. The locations of the water, electrical and product lines were confirmed by means of GPR activities.

Site Activities:

Eight soil borings were advanced on January 23, 2025, under contract with Aerotech Environmental Consulting, Inc. All the work was performed during normal business hours. No unusual or unforeseen circumstances occurred during the Site activities.

Drilling Activities:

Drilling operations for Soil Borings SB34 through SB41 occurred on January 23 via direct-push drilling technology to advance soil borings for the collection of soil and grab groundwater samples for laboratory analysis. The soil borings were advanced by equipment owned and operated by a Licensed Driller from B&W Standard Probe of Spanaway, Washington.

All subsurface work was overseen by an Environmental Professional. The laboratory analytical services were performed by a State of Washington accredited laboratory, *Alliance Technical Group* (Former Fremont Analytical) located in Seattle, Washington.

All recovered soil and purged groundwater were stored in a 55-gallon drum. The drum will be properly disposed of during future remedial excavation activities. The disposal site has not been determined at this time.

Soil Borings:

Soil borings were advanced at eight (8) locations on-Site along the perimeter of the observed UST Basin on the west side of the building.

- Soil Boring SB34 was advanced at the northwestern corner of the Property, south of the City of Tacoma Pump Station. The purpose of soil borings SB34 through SB37 were to determine if potential oil contamination from the Tacoma Pump Station was migrating onto the subject Property.
- Soil Boring SB35 was advanced approximately 15-feet northeast of SB34, along the Property Line.
- Soil Boring SB36 was advanced approximately 15-feet northeast of SB35, along the Property Line.
- Soil Boring SB37 was advanced approximately 15-feet northeast of SB36, along the Property Line.
- Soil Boring SB38 was advanced approximately 40-feet southeast of the midpoint of the boat mold. The purpose of this soil boring was to determine the extent of oil that was observed in SB19, SB25 and SB31. SB38 was determined to be the highest concentration of oil in soil and groundwater (laboratory identified as hydraulic oil).
- Soil Boring B39 was advanced south of the east end of the boat mold. The purpose of this soil boring was to determine the extent of oil that was observed in SB19, SB25, SB31 and SB38. Oil was not detected in soil and trace detections were present in groundwater collected from Soil Boring SB39, it will serve as an excavation perimeter location.
- Soil Boring B40 was advanced approximately 35-feet southeast of soil boring B38 and 20-feet north-northeast of groundwater monitoring well MW4. The purpose of this soil boring was to determine the extent of oil that was observed in SB19, SB25, SB31 and SB38. Oil was not detected in soil collected from Soil Boring SB40, it will serve as an excavation perimeter location.

- Soil Boring SB41 was advanced approximately 15-feet south of groundwater monitoring well MW4 in an attempt to determine the southern extent of oil. Oil was not detected in soil, however groundwater contained Oil above the applicable cleanup levels. (Please note that grab groundwater samples collected from temporary wells typically generally have biased-high concentrations due to the presence of suspended soil in the sample.

Soil Sample Collection:

A total of eight (8) discrete soil samples were collected and submitted for analyses from eight (8) soil boring locations.

Soils from each location were visually inspected for color quality and evidence of discoloration and physically observed for the purpose of recording composition and noting color, where distinctive. All soil was logged according to USCS standards. Each sample was handled with a fresh pair of clean nitrile gloves. Samples were then placed into sterile four-ounce glass jars and/or 40cc glass vials preserved with 5 ml of methanol in accordance with procedures specified for United States Environmental Protection Agency ("USEPA") Method 5035A. Sample containers were labeled with site name, well identification, and date of collection information.

Each sample is documented on a *Chain of Custody* ("COC") form and immediately placed in an iced cooler (maintained at 4 degrees Celsius or less). Samples were handled under EPA Method 5035 protocol and held in the custody of *Aerotech* until delivery to *Alliance Technical Group* (Former Fremont Analytical) of Seattle, Washington. Additional information can be found in the Soil Sampling SOP, located in the **Appendix**.

Groundwater Sample Collection:

A total of eight (8) groundwater samples were collected and submitted for analysis from seven (7) soil boring locations and one (1) groundwater monitoring well (MW4). Soil boring SB40 contained insufficient water for sample collection.

Prior to groundwater sample collection, A dedicated length of high-density polyethylene tubing is lowered into each well to a level near the middle of the screened interval. A dedicated length of clean silicone tubing is utilized within the pump mechanism. The wells are purged by means of low flow techniques, the pump rate was kept minimal to reduce groundwater drawdown.

Groundwater samples are collected in 500mL amber glass specified by the laboratory for the analyses established at the Site, and in accordance with State of Washington regulations or guidelines. Sample containers are labeled with site name, well identification, and date of collection information. Each sample is documented on a *Chain of Custody* ("COC") form and immediately placed in an iced cooler (maintained at 4 degrees Celsius or less) for transport to a certified laboratory for analysis. Samples were handled under EPA Method 5035 protocol and held in the custody of Aerotech until delivery to Alliance Technical Group (Former Fremont Analytical) of Seattle, Washington. Additional information can be found in the Low-Flow Groundwater Sampling SOP, located in the **Appendix**.

Equipment Decontamination:

All sample acquisition equipment was decontaminated before and after the completion of each borehole and groundwater monitoring well to eliminate the potential for cross-contamination between borings, as required. All reusable sampling equipment for soil sampling, drive rods, and probes were decontaminated after each sampling point by washing with an Alconox-distilled water solution and rinsing with distilled water.

Site Restoration:

Each borehole was backfilled with bentonite and either covered in gravel or patched with asphalt to match with the surrounding grade.

SECTION III.

GEOLOGY AND HYDROGEOLOGY

Physical Setting Source:

In order to ascertain the physical setting of the subject Property, a review was conducted of the appropriate current United States Geological Survey ("USGS") 7.5 Minute Topographic Quadrangle (quad) Map. The USGS 7.5 minute quad map has an approximate scale of 1" to 2,000 feet, shows physical features such as wetlands, water bodies, roadways, mines, and buildings. These physical and natural features shown should be the areas of visual emphasis, when conducting the on-site inspection of the subject Property. The USGS 7.5 quad map is considered to be the only Standard Physical Setting Source, and is sufficient as a single reference. The applicable USGS 7.5 minute topo map is the Quadrangle 6005511 - Tacoma North, WA., photo revised in 2014 (**Figure 3**).

Surface Characteristics:

The precise Property location is N 47º 16' 25.71" / W 122º 22' 44.61" as determined by DeLorme mapping data. The Site is located within Universal Tranverse Mercator Zone No.10. The Site elevation is approximately 13 feet above mean sea level. As observed during the Site visit and confirmed on the USGS topographic map, the subject Property exhibits a surficial drainage towards the southwest, based upon overall Site topography. Additionally, the assumed general groundwater flow is to the southwest.

Geology - Regional:

The Geologic map of the Tacoma North 7.5-Minute Quadrangle mapped the Site as artificial fill (af). As discussed above, depth to shallow groundwater ranges from 4 to 9 feet below ground surface (bgs). However, the groundwater table is subject to tidal fluctuations. Groundwater flow direction has been historically calculated to be to the west to southwest, towards the Hylebos Waterway. These are based on only four groundwater events at various tide levels, so the flow direction may vary outside of those confines with further measurements.

Geology - On-Site Conditions:

The predominant subsurface across the Site is artificial fill consisting of fine to medium grained sand and gravelly sand with occasional pieces of debris and organic material intermixed. Lenses of silty sand were observed throughout all eight observed soil profiles. Along the eastern portion of the Site along the shoreline, the fill material extended to from the grade surface to approximately 10 to 12 feet below grade surface. The fill decreases in thickness from the grade surface to approximately 4 feet below grade surface toward MW1 and the western portion of the Site. Beneath the fill, a well sorted silty Sand with alternating layers of fine sand and silt indicated the historical tide flat deposits.

Subsurface Hydrogeological Characteristics – Groundwater Occurrence:

Groundwater was observed in soil borings at approximately 4 to 9 feet below ground surface. Groundwater monitoring wells have previously been installed at locations MW1 through MW4 to monitor groundwater conditions at the Site. Historical groundwater levels observed along the shoreline historically ranged from 1 to 7 feet below ground surface (MW2 through MW4).

SECTION IV.

ANALYTICAL RESULTS

SUMMARY OF SAMPLE ACQUISITION

A total of eight (8) soil borings were advanced, eight (8) soil samples and seven (7) groundwater samples were collected from these soil borings in the northern portion of the Site in the northern portion of the Site for the purposes of delineating the presence of Oil ("TPHo"). One (1) groundwater sample was collected from Groundwater Monitoring Well MW4.

Soil - Total Petroleum Hydrocarbons – Diesel Fuel & Oil

Diesel-range petroleum hydrocarbons ("TPHd") were not detected in any of the eight (8) soil samples. Oil-range petroleum hydrocarbons ("TPHo") were detected below the MTCA Method A Cleanup Level (2,000 mg/kg) in sample SB34(10) at 328 mg/kg and above the MTCA Method A Cleanup Level in sample B38(10) at 18,300 mg/kg. The laboratory specifically identified the oil from B38 as Hydraulic Oil. Note that all soil samples underwent Silica Gel Cleanup prior to analysis due to presence of natural organics. Cleanup generally can remove those interferences, thus resulting in more accurate results.

Per *Washington Department of Ecology* guidance, Silica Gel Cleanup is not to be applied to groundwater samples without specific permission, so it was not utilized in this case. *Alliance Technical Group* Program Manager, Matt Langston, interpreted the chromatograms of each sample (Appendix), indicating whether the detections were petroleum or potential organic material.

Soil and groundwater analytical results are summarized in **Table 1** and **Figures 4 & 5**.

Groundwater - Total Petroleum Hydrocarbons – Diesel Fuel & Oil

Groundwater samples collected from Soil Borings SB34 through SB36 each had detections of TPHd and TPHo, but the laboratory inserted the footnote: "Chromatographic pattern indicates a continuous distribution of material in the diesel and oil ranges. Material is not identified as a specific petroleum product and is divided into diesel and oil by carbon range." The TPHd and TPHo concentrations in the sample collected from SB35 were technically above the applicable cleanup level (Washington Surface Water – Aquatic Life (Marine Chronic) – 2,100 µg/L), however at least a part of the concentration includes naturally occurring organic matter.

The groundwater samples collected from Soil Borings SB37, SB39 and Groundwater Monitoring Well MW4 contained detections in the diesel-range. Each of the concentrations were below the applicable cleanup levels, however the lab noted that "Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material." This indicates that the detections may or may not be due to petroleum.

Groundwater samples collected from SB38 and SB41 each contained petroleum concentrations above the applicable cleanup level.

Groundwater analytical results are summarized in **Tables 2 & 3** and **Figures 4 & 5**.

APPLICABLE ANALYTICAL METHODOLOGIES AND PARAMETERS

The analytical parameters were chosen based upon the results of previous investigations to provide a comprehensive characterization of the subsurface soils and groundwater present at the Site Areas of Concern and to comply with State of Washington recommendations.

Analytical Methodology:

Soil:	**Diesel Range Organics (TPHd) & Oil Range Organics (TPHo)** State of Washington NWTPH-Dx extended with Silica Gel Cleanup
Groundwater:	**Diesel Range Organics (TPHd) & Oil Range Organics (TPHo)** State of Washington NWTPH-Dx extended

Laboratory analysis was provided by:

Alliance Technical Group
3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206.352.3790
Fax: 206.352.7178

www.AllianceTG.com/services/environmental

STATEMENT OF THE UST SITE ASSESSOR/ENVIRONMENTAL PROFESSIONAL

I have performed this *Phase II Limited and Targeted Subsurface Investigation (Western UST Basin)* with the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals practicing in this area.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of this part. I have the specific qualifications based upon education, training, and experience necessary to conduct Remedial Investigations.

Signature of Washington Certified UST Site Assessor:

Signature – Nicholas Gerkin (Certificate No. 8452487)

APPENDIX

- Tables & Figures
- Photographs
- Laboratory Analytical Report
- Standard Operating Procedures

- Tables & Figures

TABLE 1
SOIL ANALYTICAL RESULTS
Modutech Marine
2218 Marine View Drive
Tacoma, Washington

The Riley Group, Inc. - Focused Phase II Subsurface Investigation - November 10, 2009

Sample ID	Soil Boring/Point Well ID	Sampling Date	Sample Depth	TPHg	TPHd	TPHo	BTEX/PCE Breakdown	cPAHs	PCBs	Arsenic	Lead	Chromium	Cadmium	Mercury
			Feet BGS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP1-1	SP1	10/21/09	1	ND	--	--	--	ND	--	--	--	--	--	--
SP1-3.5	SP1	10/21/09	3.5	--	--	--	--	--	--	--	--	--	--	--
SP2-0.5	SP2	10/21/09	0.5	--	--	--	--	--	--	<5.0	<0.5	6	<1.0	<0.5
SP2-4	SP2	10/21/09	4	--	--	--	--	--	--	--	--	--	--	--
SP3-1	SP3	10/21/09	1	--	--	--	--	--	--	--	--	--	--	--
SP3-3	SP3	10/21/09	3	--	--	--	--	--	--	<5.0	<0.5	14	<1.0	<0.5
SP4-1	SP4	10/21/09	1	--	--	--	--	--	--	--	--	--	--	--
SP4-3	SP4	10/21/09	3	--	--	--	--	--	ND	<1.0	6.2	2.0	<1.0	<0.5
MTCA Method A Industrial Cleanup Levels				100	2,000*		Varies	2^	10	20	1,000	2,000/19#	2	2

Aerotech Environmental Consulting, Inc. - Site Characterization Report - April 19, 2018 & July 20, 2018

Sample ID	Soil Boring/Point Well ID	Sampling Date	Sample Depth	TPHg	TPHd	TPHo	BTEX/PCE Breakdown	cPAHs	PCBs	Arsenic	Lead	Chromium	Cadmium	Mercury
			Feet BGS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB01@3'	SB01	03/08/18	3	--	--	--	--	--	--	2.2	5.4	2.0	<1.0	<0.5
SB02@4'	SB02	03/08/18	4	--	--	--	--	--	--	2.9	5.0	2.0	<1.0	<0.5
SB02A(4)	SB02	06/29/18	4	--	<20	<50	--	--	--	--	--	--	--	--
SB02A(8)	SB02	06/29/18	8	--	<20	<50	--	--	--	2.2	2.9	--	--	--
SB02A(12)	SB02	06/29/18	12	--	<20	<50	--	--	--	--	--	--	--	--
SB03@4'	SB03	03/08/18	4	--	--	--	--	--	--	7.0	**1,100**	18	<1.0	<0.5
SB03A(8)	SB03	03/28/18	8	--	--	--	--	--	--	<1.0	50	--	--	--
SB04@3'	SB04	03/08/18	3	--	--	--	--	--	--	<1.0	6.2	2.0	<1.0	<0.5
SB04A(8)	SB04	04/02/18	8	--	--	--	--	--	--	1.5	27	--	--	--
SB05@4'	SB05	03/08/18	4	--	--	--	--	--	--	19	210	4.0	1.6	<0.5
SB06@4'	SB06	03/08/18	4	--	--	--	--	--	--	1.7	67	2.1	<1.0	<0.5
SB07@4'	SB07	03/08/18	4	--	--	--	--	--	--	**45**	16	3.1	<1.0	<0.5
SB07A(8)	SB07	03/28/18	8	--	--	--	--	--	--	**38**	25	--	--	--
SB07B(12)	SB07	04/02/18	12	--	--	--	--	--	--	1.3	1.4	--	--	--
SB08@4'	SB08	03/08/18	4	--	--	--	ND	--	--	**31**	20	3.2	<1.0	<0.5
SB08A(8)	SB08	03/28/18	8	--	--	--	--	--	--	**32**	30	--	--	--
SB08B(12)	SB08	04/02/18	12	--	--	--	--	--	--	17	30	--	--	--
SB09@4'	SB09	03/08/18	4	--	--	--	--	--	--	9.1	160	12	<1.0	<0.5
SB10@4'	SB10	03/08/18	4	--	--	--	--	--	--	4.7	25	4.6	<1.0	<0.5
SB11@4'	SB11	03/08/18	4	--	--	--	--	--	--	**39**	97	5.9	<1.0	<0.5
SB11A(8)	SB11	03/28/18	8	--	--	--	--	--	--	1.2	7.7	--	--	--
SB12@4'	SB12	03/08/18	4	--	--	--	--	--	--	17	490	9.2	<1.0	<0.5
SB12A(8)	SB12	03/28/18	8	--	--	--	--	--	--	9	290	--	--	--
SB12B(12)	SB12	03/08/18	12	--	--	--	--	--	--	10	15	--	--	--
SB13@4'	SB13	03/08/18	4	--	--	--	--	--	--	11	220	5.9	<1.0	<0.5
SB14@4'	SB14	03/08/18	4	--	--	--	--	--	--	6.1	4.8	1.3	<1.0	<0.5
SB15@4'	SB15	03/08/18	4	--	--	--	--	--	--	3.4	23	4.5	<1.0	<0.5
SB16@4'	SB16	03/08/18	4	--	--	--	--	--	--	14	40	6.2	<1.0	<0.5
SB17(4)	SB17	03/28/18	4	--	--	--	--	--	--	1.4	290	--	--	--
MTCA Method A Industrial Cleanup Levels				100	2,000*		Varies	2^	10	20	1,000	2,000/19#	2	2

TABLE 1
SOIL ANALYTICAL RESULTS
Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Aerotech Environmental Consulting, Inc. - Site Charaterization Report - April 19, 2018 & July 20, 2018 (continued)

Sample ID	Soil Boring/Point Well ID	Sampling Date	Sample Depth	TPHg	TPHd	TPHo	BTEX/PCE Breakdown	cPAHs	PCBs	Arsenic	Lead	Chromium	Cadmium	Mercury
			Feet BGS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB17(8)	SB17	03/28/18	8	--	--	--	--	--	--	<1.0	33	--	--	--
SB18(4)	SB18	03/28/18	4	--	--	--	--	--	--	<1.0	3.2	--	--	--
SB18(8)	SB18	03/28/18	8	--	--	--	--	--	--	<1.0	6.7	--	--	--
SB19(4)	SB19	03/28/18	4	--	--	--	--	--	--	17	850	--	--	--
SB19(8)	SB19	03/28/18	8	--	--	--	--	--	--	1.6	33	--	--	--
SB19A(8)	SB19	06/29/18	8	--	<20	<50	--		--	<1.0	34	--	--	--
SB19A(12)	SB19	06/29/18	12	--	<20	<50	--	0.0525 (ND)	--	<1.0	4.1	--	--	--
SB20(4)	SB20	03/28/18	4	--	--	--	--	--	--	**22**	13	--	--	--
SB20(8)	SB20	03/28/18	8	--	--	--	--	--	--	1.9	18	--	--	--
SB21(4)	SB21	03/28/18	4	--	--	--	--	--	--	14	11	--	--	--
SB21(8)	SB21	03/28/18	8	--	--	--	--	--	--	3.8	24	--	--	--
SB22(4)	SB22	03/28/18	4	--	--	--	--	--	--	5.9	38	--	--	--
SB22(8)	SB22	03/28/18	8	--	--	--	--	--	--	4.7	9.2	--	--	--
SB23(4)	SB23	03/28/18	4	--	--	--	--	--	--	2.4	91	--	--	--
SB23(8)	SB23	03/28/18	8	--	--	--	--	--	--	1.3	7.6	--	--	--
SB24(4)	SB24	04/02/18	4	--	--	--	--	--	--	<1.0	2.7	--	--	--
SB24(8)	SB24	04/02/18	8	--	--	--	--	--	--	11	12	--	--	--
SB24A(12)	SB24	06/29/18	12	--	<20	<50	--	--	--	1.3	1.6	--	--	--
SB24A(16)	SB24	06/29/18	16	--	--	--	--	--	--	--	--	--	--	--
SB25(4)	SB25	04/02/18	4	--	--	--	--	--	--	2.0	4.3	--	--	--
SB25(8)	SB25	04/02/18	8	--	--	--	--	--	--	**27**	260	--	--	--
SB25A(8)	SB25	06/29/18	8	--	<20	1,600	--	--	--	--	--	--	--	--
SB25A(12)	SB25	06/29/18	12	--	<20	1,600	--	0.924	--	**21**	**3,300**	--	--	--
SB25A(16)	SB25	06/29/18	16	--	--	--	--	0.0525 (ND)	--	3.8	32	--	--	--
SB26(4)	SB26	04/02/18	4	--	--	--	--	--	--	4.3	470	--	--	--
SB26(8)	SB26	04/02/18	8	--	--	--	--	--	--	1.6	26	--	--	--
SB27(4)	SB27	04/02/18	4	--	--	--	--	--	--	**31**	170	--	--	--
SB27(8)	SB27	04/02/18	8	--	--	--	--	--	--	2.0	19	--	--	--
SB28(4)	SB28	04/02/18	4	--	--	--	--	--	--	<1.0	3.8	--	--	--
SB29(4)	SB29	06/29/18	4	--	--	--	--	--	--	<1.0	10	--	--	--
SB29(8)	SB29	06/29/18	8	--	--	--	--	--	--	2.8	2.2	--	--	--
SB29(12)	SB29	06/29/18	12	--	--	--	--	--	--	--	--	--	--	--
SB30(4)	SB30	06/29/18	4	--	--	--	--	--	--	2.1	30	--	--	--
SB30(8)	SB30	06/29/18	8	--	<20	<50	--	--	--	3.5	8.4	--	--	--
SB30(12)	SB30	06/29/18	12	--	<20	<50	--	0.0525 (ND)	--	<1.0	2.4	--	--	--
SB30(16)	SB30	06/29/18	16	--	--	--	--	--	--	--	--	--	--	--
SB31(4)	SB31	06/29/18	4	--	<20	<50	--	--	--	**90**	19	--	--	--
SB31(8)	SB31	06/29/18	8	--	<20	<50	--	0.0525 (ND)	--	**21**	21	--	--	--
SB31(12)	SB31	06/29/18	12	--	44	<50	--	0.0525 (ND)	--	1.6	20	--	--	--
SB31(16)	SB31	06/29/18	16	--	<20	<50	--	--	--	--	--	--	--	--
SB32(4)	SB32	06/29/18	4	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Industrial Cleanup Levels				100	2,000*		Varies	2^	10	20	1,000	2,000/19#	2	2

TABLE 1
SOIL ANALYTICAL RESULTS
Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Aerotech Environmental Consulting, Inc. - Site Charaterization Report - April 19, 2018 & July 20, 2018 (continued)

Sample ID	Soil Boring/Point Well ID	Sampling Date	Sample Depth	TPHg	TPHd	TPHo	BTEX/PCE Breakdown	cPAHs	PCBs	Arsenic	Lead	Chromium	Cadmium	Mercury
			Feet BGS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB32(8)	SB32	06/29/18	8	--	--	--	--	--	--	--	--	--	--	--
SB32(12)	SB32	06/29/18	12	--	--	--	--	--	--	--	--	--	--	--
SB33(4)	SB33	06/29/18	4	--	--	--	--	--	--	--	--	--	--	--
SB33(8)	SB33	06/29/18	8	--	--	--	--	--	--	--	--	--	--	--
SB33(12)	SB33	06/29/18	12	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Industrial Cleanup Levels				100	2,000*		Varies	2^	10	20	1,000	2,000/19#	2	2

Aerotech Environmental Consulting, Inc. - Phase II Northern Oil Delineation - February 13, 2025

Sample ID	Soil Boring/Point Well ID	Sampling Date	Sample Depth	TPHg	TPHd	TPHo	BTEX/PCE Breakdown	cPAHs	PCBs	Arsenic	Lead	Chromium	Cadmium	Mercury
			Feet BGS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB34(10)	SB34	01/23/25	10	--	<63.1	328	--	--	--	--	--	--	--	--
SB35(9)	SB35	01/23/25	9	--	<57.8	<116	--	--	--	--	--	--	--	--
SB36(7.5)	SB36	01/23/25	7.5	--	<57.6	<115	--	--	--	--	--	--	--	--
SB37(9)	SB37	01/23/25	9	--	<54.3	<109	--	--	--	--	--	--	--	--
SB38(10)	SB38	01/23/25	10	--	**<667**	**18,300**	--	--	--	--	--	--	--	--
SB39(9)	SB39	01/23/25	9	--	<60.3	<121	--	--	--	--	--	--	--	--
SB40(8)	SB40	01/23/25	8	--	<65.1	<130	--	--	--	--	--	--	--	--
SB41(11)	SB41	01/23/25	11	--	<59.4	<119	--	--	--	--	--	--	--	--
MTCA Method A Industrial Cleanup Levels				100	2,000*		Varies	2^	10	20	1,000	2,000/19#	2	2

MTCA = Model Toxic Control Act Cleanup Level (WAC173-340-900)

BGS = Below Ground Surface mg/kg = milligram of analyte per kilogram of soil

< = not detected at indicated Laboratory Detection Limits -- = not analyzed

Arsenic, Cadmium, Chromium and Lead by EPA Method 7010

Mercury by EPA Method 7471

cPAHs = Carcenogenic Polycyclic Aromatic Hydrocarbons by 8270C or 8270 SIM

PCBs by EPA Method 8082

VOCs by EPA Method 8260B

ND = Not Detected (minimum detection limit unknown)

Bolded numbers and red-shaded cells denote concentrations above the MTCA Method A Cleanup Levels for soil

* = Washington State Department of Ecologyl requires adding the laboratory concentrations of TPHd and TPHo for each sample. The resulting sum is then compared to this Cleanup Level

= Total Chromium is the sum of Chromium(III) & Chromium(VI). Cleanup Levels are 2,000 and 19 mg/kg, respectively

^ = cPAHs results were calculated using the toxic equivalent concentration factors from Table 708-1. Since PAHs have been observed, 0.5x MDL of each constituent PAH was used for the calculation

For samples where no cPAHs were detected, 1/2 of the reporting limit was used to calculate the result value

TABLE 2
GRAB GROUNDWATER ANALYTICAL RESULTS
Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Aerotech Environmental Consulting, Inc. - Petroleum *Site Characterization,* February 14, 2025

Sample ID	Soil Boring/Well Samp Point ID	Soil Boring/ Well Depth	Sampling Date	TPHg	TPHd	TPHo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	cPAHs	Dissolved Arsenic	Dissolved Lead
		Feet BGS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SB34(W)	SB34	15	01/23/25	--	123[1]	1740[1]	--	--	--	--	--	--	--
SB35(W)	SB35	15	01/23/25	--	**217[1]**	**1,970[1]**	--	--	--	--	--	--	--
SB36(W)	SB36	15	01/23/25	--	96.1[1]	637[1]	--	--	--	--	--	--	--
SB37(W)	SB37	15	01/23/25	--	153[2]	<141	--	--	--	--	--	--	--
SB38(W)	SB38	15	01/23/25	--	**<939**	**94,400**	--	--	--	--	--	--	--
SB39(W)	SB39	15	01/23/25	--	397[2]	<141	--	--	--	--	--	--	--
SB41(W)	SB41	15	01/23/25	--	**362**	**5,640**	--	--	--	--	--	--	--
MW4(W)	MW4	19	01/23/25	--	2,050[2]	<142	--	--	--	--	--	--	--
Washington Surface Water - Aquatic Life (Marine Chronic)				**1,700**	**2,100***		**23**	**102**	**21**	**106**	**0.1^**	**36**	**8.1**

EXPLANATION

MTCA = Model Toxic Control Act Cleanup Level (WAC173-340-900)
BGS = Below Ground Surface TOC = Top of Casing mg/kg = milligram of analyte per kilogram of soil
< = not detected at indicated Laboratory Detection Limits -- = not analyzed
TPHd - Total Petroleum Hydrocarbons - Diesel by NWTPH-Dx
TPHo - Total Petroleum Hydrocarbons - Motor Oil by NWTPH-Dx extended
* = Diesel range organics includes the sum of diesel fuels and heavy oils measured using the NWTPH-Dx method.
Benzene , Toluene, Ethylbenzene, Xylenes by EPA Method 8021B or 8260
Lead & Arsenic by EPA Method 6010/6020

^ = Effective concentration using Toxic Equivalency Factor per WAC 173-340-708{e}: SUM(Benzo(a)pyrene (x1), Benzo(a)anthracine (x0.1), Benzo(b)fluoranthene (x0.1), Benzo(k)fluoranthene (x0.1), Chrysene (x0.01), Dibenz(a,h)anthracene (x0.1), Indeno(1,2,3-cd)pyrene (x0.1)

1 = Chromatographic pattern indicates a continuous distribution of material in the diesel and oil ranges. Material is not identified as a specific petroleum product and is divided into diesel and oil by carbon range
2 = Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material
3 = Detection is biased high due to non-petroleum compounds
Tan-shaded cells indicate interference. The sample may or may not be an exceedance.
Bolded numbers and red-shaded cells denote concentrations above the Applicable State Cleanup Levels

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Marine Modutech
2218 Marine View Drive
Tacoma, Washington 98422

MW1 Upgradient Well

Well Depth	Sampling Date	Ground Water Level	Elevation (TOC north)*	Water Level Elevation	TPHd	TPHo	Benzene	Toluene	Ethyl-benzene	Xylenes	cPAHs	Dissolved Arsenic	Total Arsenic	Dissolved Lead	Total Lead	Total Dissolved Solids
Feet		Feet Below TOC	Feet Above MSL	Feet Above MSL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
18.5	4/11/2018	2.41	11.75	9.34	--	--	--	--	--	--	--	<2.0	3.0	<2.0	<2.0	--
	7/13/2018	5.01	11.75	6.74	--	--	--	--	--	--	--	<2.0	3.0	<2.0	<2.0	--
	10/9/2018	4.81	11.75	6.94	--	--	--	--	--	--	<0.1	<2.0	**8.0**	<2.0	<2.0	--
	1/10/2019	2.42	11.75	9.33	--	--	--	--	--	--	--	<2.0	2.0	<2.0	<2.0	220
	MTCA Method A Cleanup Levels				500*		5	1,000	700	1,000	0.1^	5	5	15	15	--

MW2 Shoreline Well

Well Depth	Sampling Date	Ground Water Level	Elevation (TOC north)*	Water Level Elevation	TPHd	TPHo	Benzene	Toluene	Ethylbenzene	Xylenes	cPAHs	Dissolved Arsenic	Total Arsenic	Dissolved Lead	Total Lead	Total Dissolved Solids
Feet		Feet Below TOC	Feet Above MSL	Feet Above MSL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
18.9	4/11/2018	8.70	10.27	1.57	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	7/13/2018	9.35	10.27	0.92	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	10/9/2018	5.20	10.27	5.07	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	1/10/2019	3.29	10.27	6.98	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	20,000
	Washington Surface Water - Aquatic Life (Marine Chronic)				2,100*		23	102	21	106	0.1^	36	36	8.1	8.1	--

MW3 Shoreline Well

Well Depth	Sampling Date	Ground Water Level	Elevation (TOC north)*	Water Level Elevation	TPHd	TPHo	Benzene	Toluene	Ethylbenzene	Xylenes	cPAHs	Dissolved Arsenic	Total Arsenic	Dissolved Lead	Total Lead	Total Dissolved Solids
Feet		Feet Below TOC	Feet Above MSL	Feet Above MSL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
19.3	4/11/2018	9.00	10.72	1.72	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	7/13/2018	8.95	10.72	1.77	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	10/9/2018	5.57	10.72	5.15	--	--	--	--	--	--	<0.1	<2.0	<2.0	<2.0	<2.0	--
	1/10/2019	3.98	10.72	6.74	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	20,000
	Washington Surface Water - Aquatic Life (Marine Chronic)				2,100*		23	102	21	106	0.1^	36	36	8.1	8.1	--

MW4 Shoreline Well

Well Depth	Sampling Date	Ground Water Level	Elevation (TOC north)*	Water Level Elevation	TPHd	TPHo	Benzene	Toluene	Ethylbenzene	Xylenes	cPAHs	Dissolved Arsenic	Total Arsenic	Dissolved Lead	Total Lead	Total Dissolved Solids
Feet		Feet Below TOC	Feet Above MSL	Feet Above MSL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
19.6	4/11/2018	6.90	11.02	4.12	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	--
	7/13/2018	7.10	11.02	3.92	<200	<500	<1.0	<1.0	<1.0	<1.0	<0.1	<2.0	<2.0	<2.0	<2.0	--
	10/9/2018	7.79	11.02	3.23	<200	<500	--	--	--	--	<0.1	<2.0	<2.0	<2.0	<2.0	--
	1/10/2019	5.30	11.02	5.72	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	11,000
	Washington Surface Water - Aquatic Life (Marine Chronic)				2,100*		23	102	21	106	0.1^	36	36	8.1	8.1	--

EXPLANATION

MTCA = Model Toxic Control Act Cleanup Level (WAC173-340-900)

TOC = Top of Casing MSL = Mean Sea Level

< = not detected at indicated Laboratory Detection Limits -- not analyzed NM = Not Measured

TPHd - Total Petroleum Hydrocarbons as Diesel and TPHo - Total Petroleum Hydrocarbons as Oil by NWTPH-Dx extended

* = Diesel range organics includes the sum of diesel fuels and heavy oils measured using the NWTPH-Dx method.

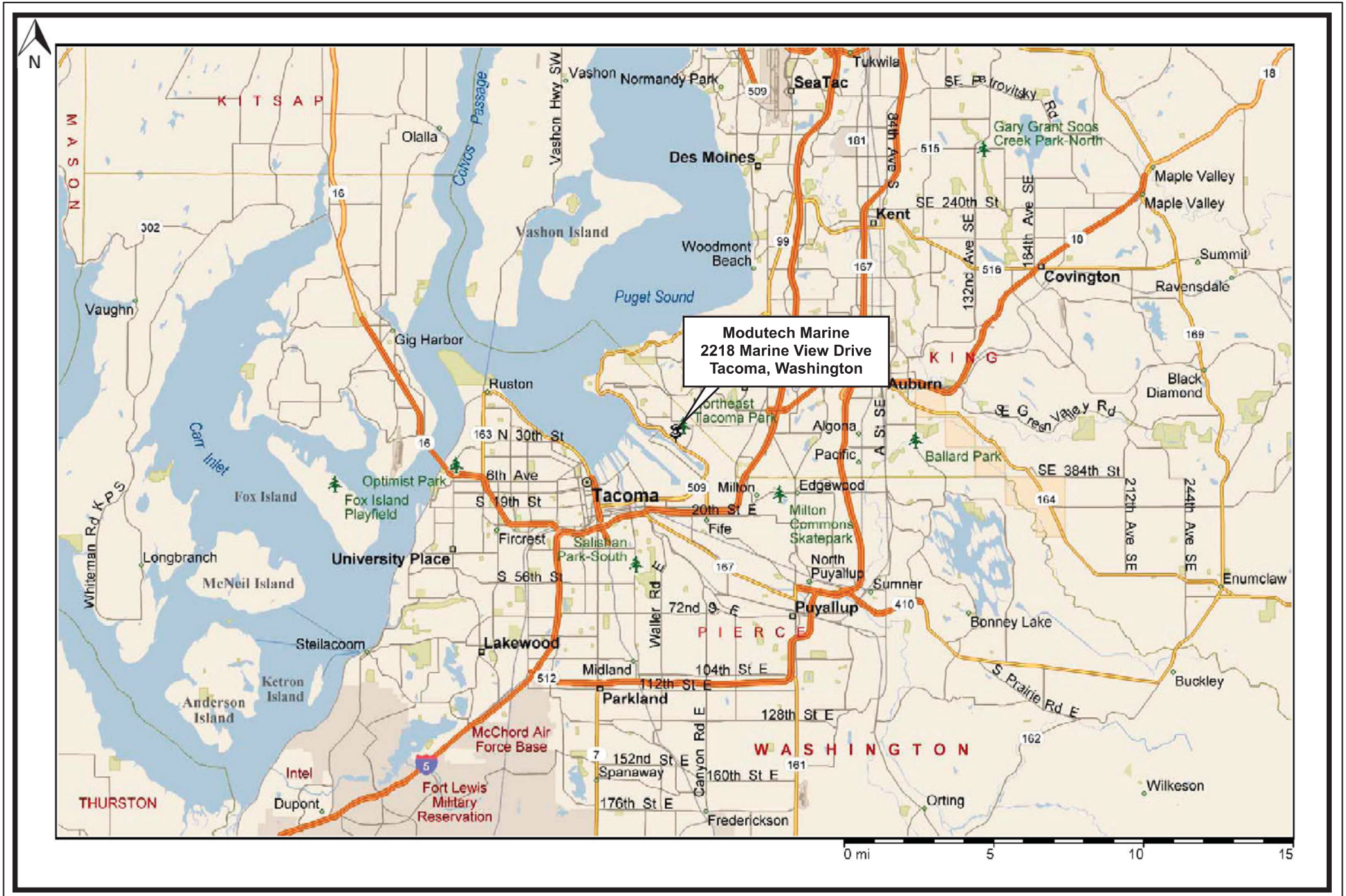
Benzene, Toluene, Ethylbenzene and Xylenes by EPA Method 8021B

^ = Effective concentration using Toxic Equivalency Factor per WAC 173-340-708{e}: SUM(Benzo(a)pyrene (x1), Benzo(a)anthracine (x0.1), Benzo(b)fluoranthene (x0.1), Benzo(k)fluoranthene (x0.1), Chrysene (x0.01), Dibenz(a,h)anthracene (x0.1), Indeno(1,2,3-cd)pyrene (x0.1)

cPAHs by EPA Method 8270 SIM Arsenic and Lead by EPA Method 7010

Bolded numbers and red-shaded cells denote concentrations above the MTCA Method A Cleanup Levels for groundwater

Bolded numbers and tan-shaded cells denote total concentrations above the MTCA Method A Cleanup Levels for groundwater, but dissolved concentrations below the MTCA Method A Cleanup Levels

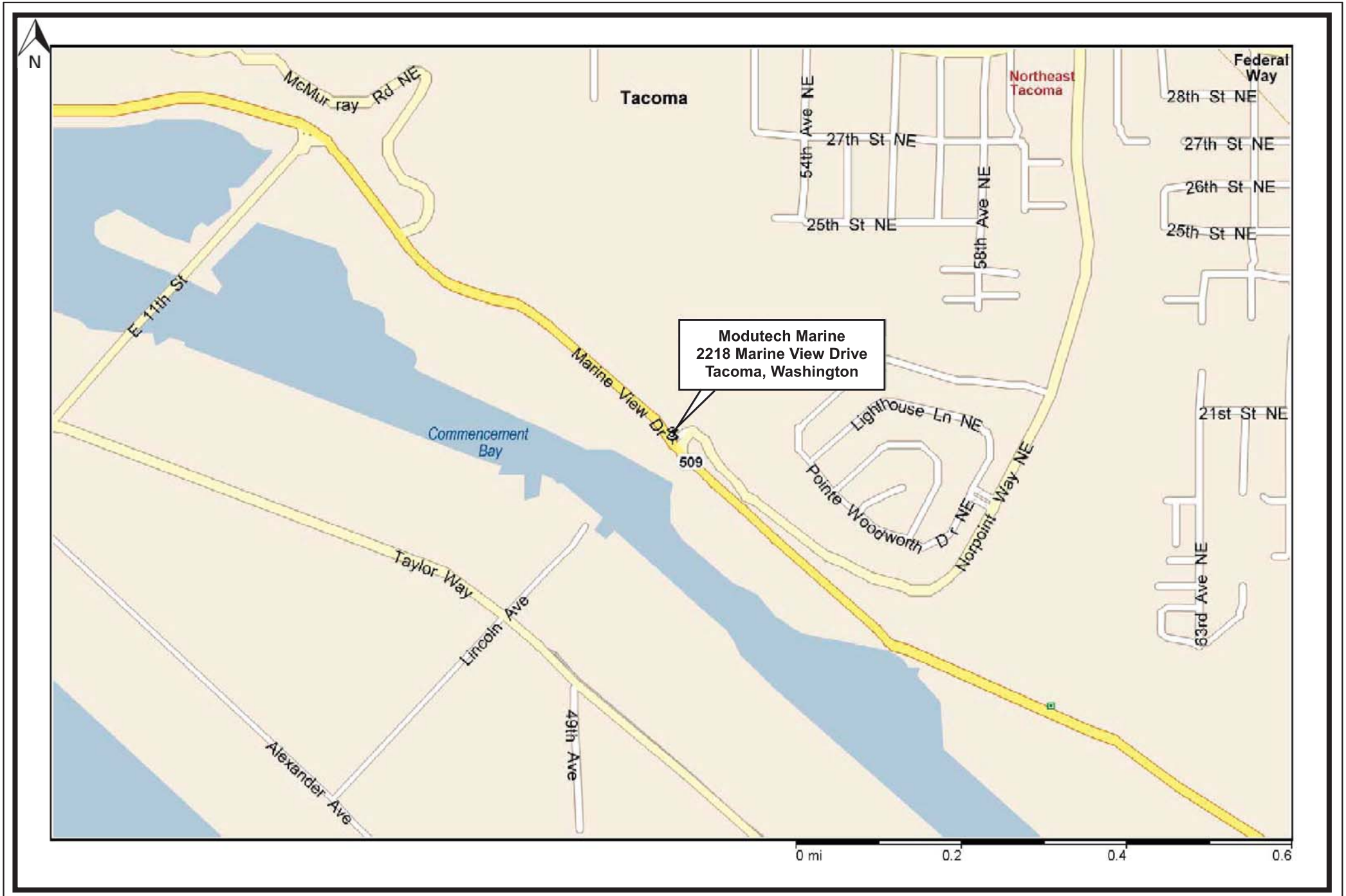


AEROTECH
ENVIRONMENTAL CONSULTING

REGIONAL MAP

Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Date: 02/13/25
By: Nick Gerkin
Figure: 1



AEROTECH ENVIRONMENTAL CONSULTING

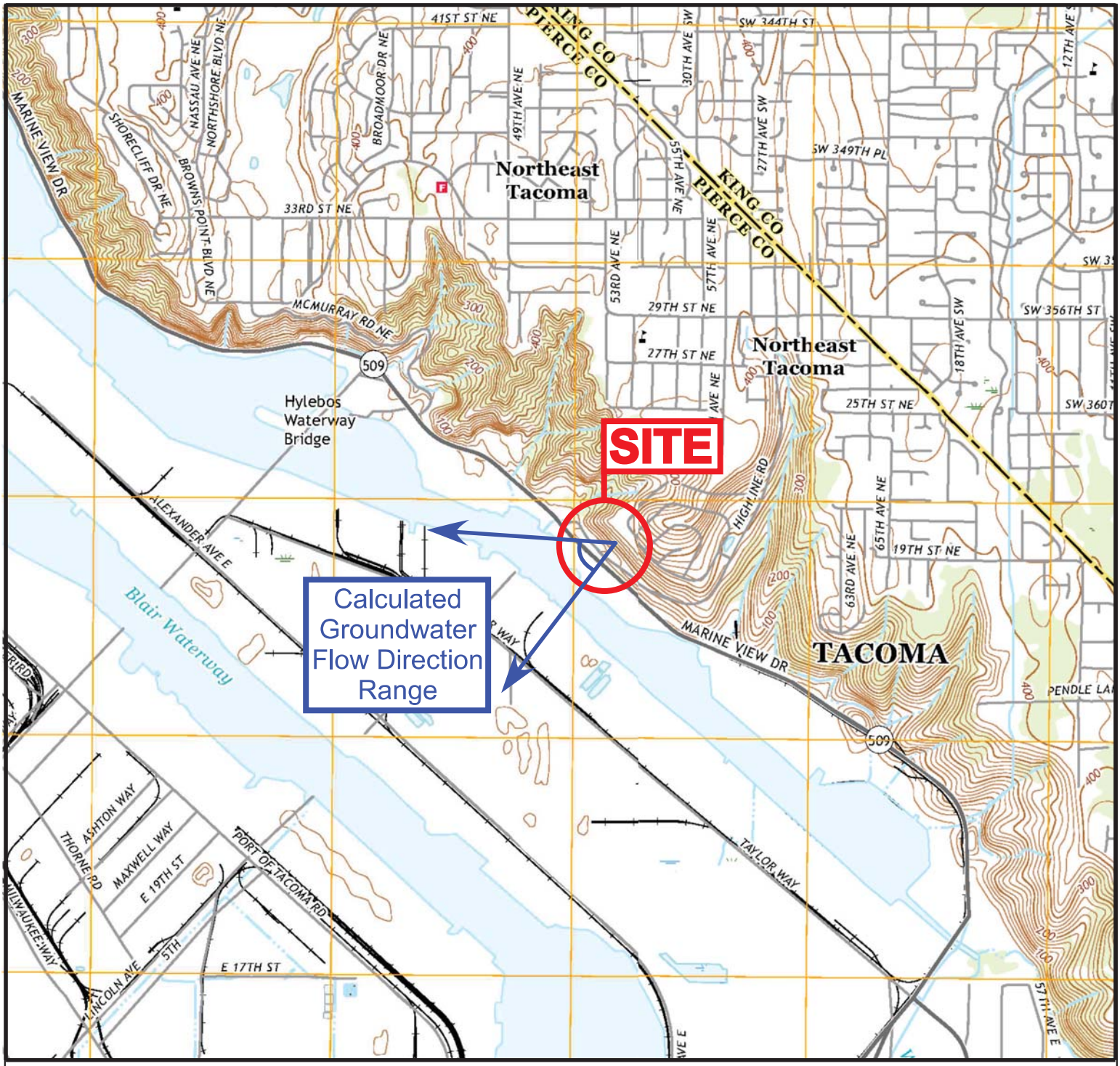
NEIGHBORHOOD MAP

Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Date: 02/12/25

By: Nick Gerkin

Figure: 2

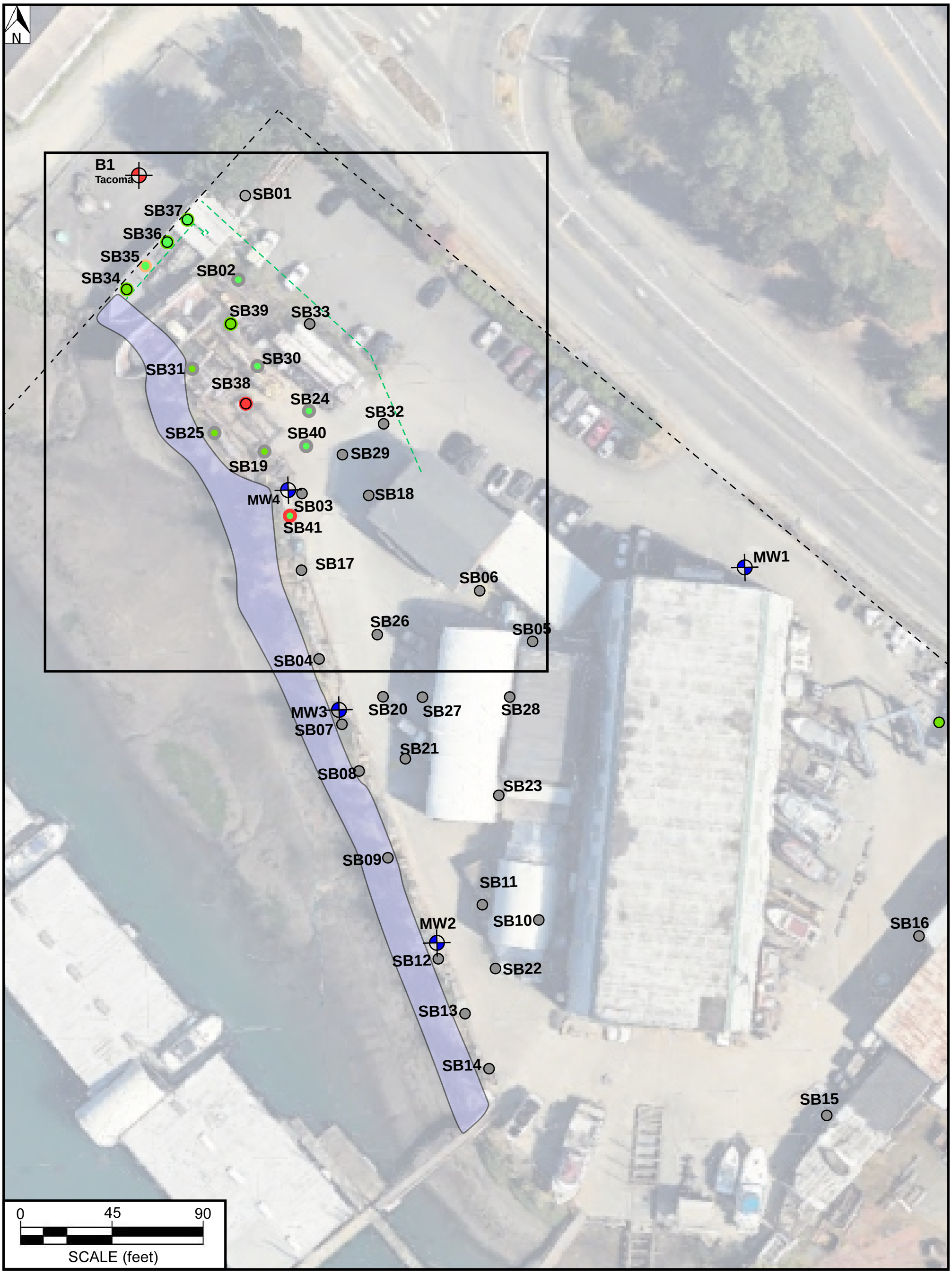


AEROTECH ENVIRONMENTAL CONSULTING

USGS TOPOGRAPHIC MAP

Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Date: 02/13/25
By: Nick Gerkin
Figure: 3



Green numbers and symbols indicate concentrations below the MTCA Method A Cleanup Levels

Red numbers and symbols indicate concentrations above the MTCA Method A Cleanup Levels

Tan numbers and symbols indicates organics interference. TPHd/TPHo concentrations may or may not be above the MTCA Method A Cleanup Levels

Gray numbers and symbols indicate no TPHd/TPHo data available for that location

Interior Coloring Indicates Soil
Border Coloring Indicates Grab Groundwater

EXPLANATION

MW4 — Groundwater Monitoring Well Location

B27 — Soil Boring Location

Extent of Figure 5

Property Boundary

Concrete Shoreline Fill

Sewer
Water
Communications
Gas
Electrical

AEROTECH ENVIRONMENTAL CONSULTING

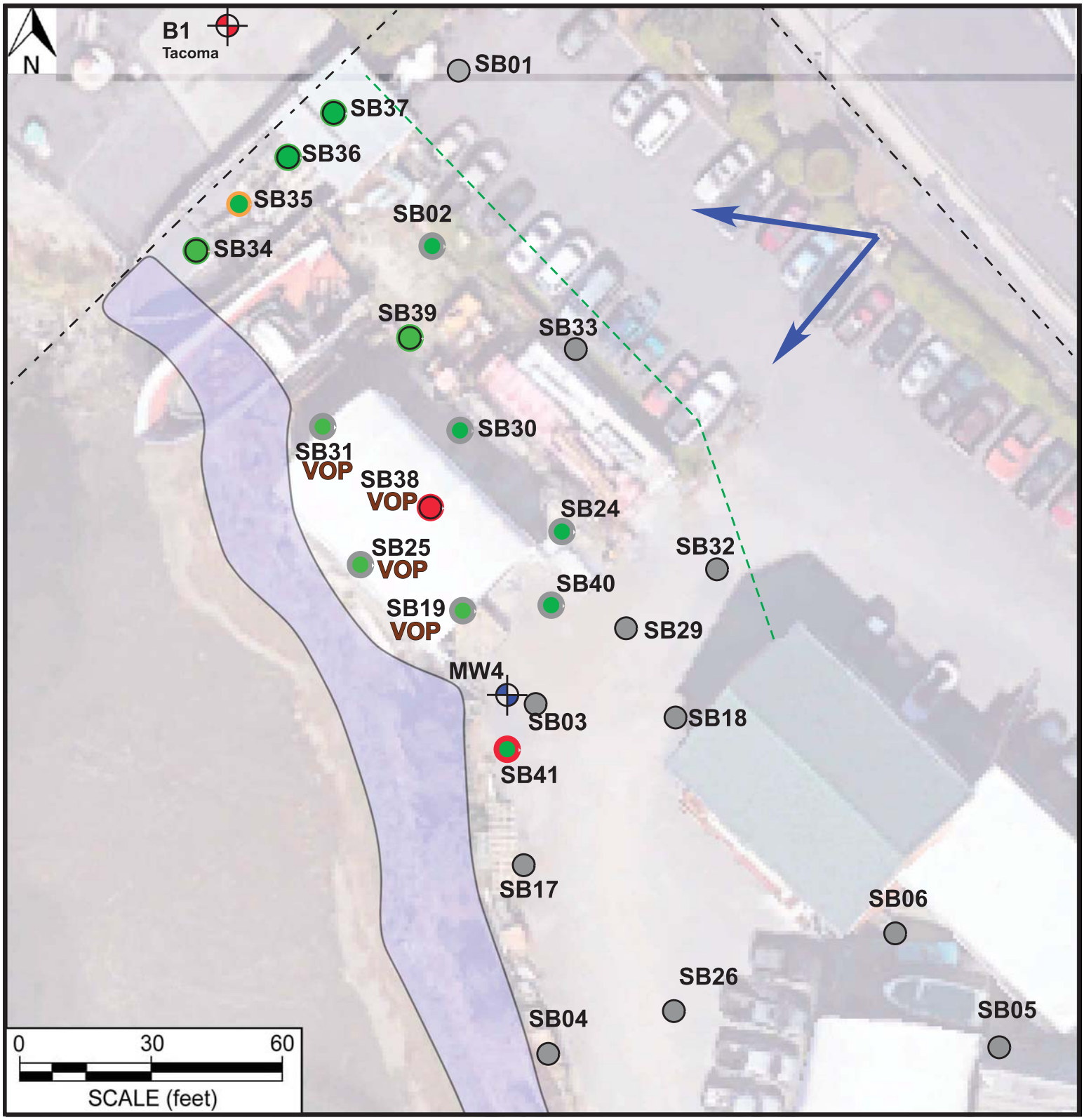
TPHd/TPHo ANALYTICAL SITE MAP

Modutech Marine
2218 Marine View Drive
Tacoma, Washington

Date: 01/22/25

By: Nick Gerkin

Figure: 4



Green numbers and symbols indicate concentrations below the MTCA Method A Cleanup Levels

Red numbers and symbols indicate concentrations above the MTCA Method A Cleanup Levels

Tan numbers and symbols indicates organics interference. TPHd/TPHo concentrations may or may not be above the MTCA Method A Cleanup Levels

Gray numbers and symbols indicate no TPHd/TPHo data available for that location

Interior Coloring Indicates Soil
Border Coloring Indicates Grab Groundwater

EXPLANATION

SB28 ● Soil Boring Location

MW4 ⊕ Groundwater Monitoring Well

Concrete Shoreline Fill

VOP Visual - Oil Present

Property Line

Sewer

Water

Communications

Gas

Electrical

AEROTECH ENVIRONMENTAL CONSULTING

NORTHERN AREA TPHd/TPHo ANALYTICAL SITE MAP

Modutech Marine
2218 Marine View Drive
Tacoma, Washington

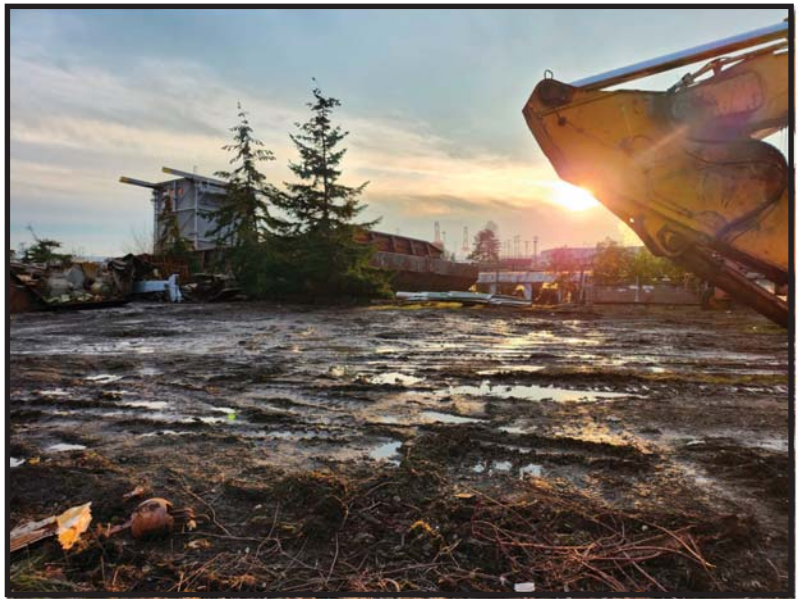
Date: 02/21/25
By: Nick Gerkin
Figure: 5

- Photographs

Profile of Soil Boring SB34
No Visual or Olfactory Evidence of Oil
on Northern Property Boundary

Profile of Soil Boring B38
Clear Presence of Oil
(Identified as Hydraulic Oil)

B&W Standard Probe Advancing the
Direct-Push Probe at Location SB39



View of the Area of Concern (Oil) from
the Northeast

- Laboratory Analytical Reports and Chains of Custody

3600 Fremont Ave N
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Aerotech
Nick Gerkin
17837 1st Ave S #556
Normandy Park, WA 98148

RE: Modutech Marine,
Work Order Number: 2501421

January 31, 2025

Attention Nick Gerkin:

Alliance Technical Group, LLC - Seattle received 16 sample(s) on 1/24/2025 for the analyses presented in the following report.

Diesel & Oil by NWTPH-Dx with Silica Gel Treatment
Diesel and Heavy Oil by NWTPH-Dx
Sample Moisture (Percent Moisture)

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Alliance Technical Group is committed to accuracy, speed, and customer service. Thank you for choosing Alliance Technical Group's Seattle laboratory team for your analytical needs. We appreciate this opportunity to serve you!

Sincerely,

Brianna Barnes
Project Manager

Date: *02/11/2025*

CLIENT: Aerotech
Project: Modutech Marine
Work Order: 2501421

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2501421-001	SB34(10)	01/23/2025 8:35 AM	01/24/2025 10:17 AM
2501421-002	SB35(9)	01/23/2025 9:20 AM	01/24/2025 10:17 AM
2501421-003	SB36(7.5)	01/23/2025 10:05 AM	01/24/2025 10:17 AM
2501421-004	SB37(9)	01/23/2025 10:45 AM	01/24/2025 10:17 AM
2501421-005	SB38(10)	01/23/2025 11:35 AM	01/24/2025 10:17 AM
2501421-006	SB39(9)	01/23/2025 1:05 PM	01/24/2025 10:17 AM
2501421-007	SB40(8)	01/23/2025 1:45 PM	01/24/2025 10:17 AM
2501421-008	SB41(11)	01/23/2025 2:25 PM	01/24/2025 10:17 AM
2501421-009	B34(W)	01/23/2025 8:45 AM	01/24/2025 10:17 AM
2501421-010	B35(W)	01/23/2025 9:30 AM	01/24/2025 10:17 AM
2501421-011	B36(W)	01/23/2025 10:15 AM	01/24/2025 10:17 AM
2501421-012	B37(W)	01/23/2025 10:55 AM	01/24/2025 10:17 AM
2501421-013	B38(W)	01/23/2025 11:45 AM	01/24/2025 10:17 AM
2501421-014	MW4(W)	01/23/2025 12:30 PM	01/24/2025 10:17 AM
2501421-015	B39(W)	01/23/2025 1:15 PM	01/24/2025 10:17 AM
2501421-016	B41(W)	01/23/2025 2:35 PM	01/24/2025 10:17 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2501421**

Date: **1/31/2025**

CLIENT: Aerotech

Project: Modutech Marine

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

2/11/2025: Rev1 includes updated soil Sample Names per client request.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-001 **Collection Date:** 1/23/2025 8:35:00 AM
Client Sample ID: **SB34(10)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	63.1		mg/Kg-dry	1	1/30/2025 8:08:35 PM
Heavy Oil	328	126		mg/Kg-dry	1	1/30/2025 8:08:35 PM
Total Petroleum Hydrocarbons	328	189		mg/Kg-dry	1	1/30/2025 8:08:35 PM
Surr: 2-Fluorobiphenyl	66.3	50 - 150		%Rec	1	1/30/2025 8:08:35 PM
Surr: o-Terphenyl	64.6	50 - 150		%Rec	1	1/30/2025 8:08:35 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	20.9	0.500		wt%	1	1/27/2025 8:49:48 AM

Lab ID: 2501421-002 **Collection Date:** 1/23/2025 9:20:00 AM
Client Sample ID: **SB35(9)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	57.8		mg/Kg-dry	1	1/30/2025 7:44:52 PM
Heavy Oil	ND	116		mg/Kg-dry	1	1/30/2025 7:44:52 PM
Total Petroleum Hydrocarbons	ND	173		mg/Kg-dry	1	1/30/2025 7:44:52 PM
Surr: 2-Fluorobiphenyl	56.7	50 - 150		%Rec	1	1/30/2025 7:44:52 PM
Surr: o-Terphenyl	55.3	50 - 150		%Rec	1	1/30/2025 7:44:52 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	14.1	0.500		wt%	1	1/27/2025 8:49:48 AM

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-003 **Collection Date:** 1/23/2025 10:05:00 AM
Client Sample ID: **SB36(7.5)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	57.6		mg/Kg-dry	1	1/31/2025 10:03:06 AM
Heavy Oil	ND	115		mg/Kg-dry	1	1/31/2025 10:03:06 AM
Total Petroleum Hydrocarbons	ND	173		mg/Kg-dry	1	1/31/2025 10:03:06 AM
Surr: 2-Fluorobiphenyl	60.8	50 - 150		%Rec	1	1/31/2025 10:03:06 AM
Surr: o-Terphenyl	77.5	50 - 150		%Rec	1	1/31/2025 10:03:06 AM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	19.6	0.500		wt%	1	1/27/2025 8:49:48 AM

Lab ID: 2501421-004 **Collection Date:** 1/23/2025 10:45:00 AM
Client Sample ID: **SB37(9)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	54.3		mg/Kg-dry	1	1/30/2025 6:34:18 PM
Heavy Oil	ND	109		mg/Kg-dry	1	1/30/2025 6:34:18 PM
Total Petroleum Hydrocarbons	ND	163		mg/Kg-dry	1	1/30/2025 6:34:18 PM
Surr: 2-Fluorobiphenyl	63.1	50 - 150		%Rec	1	1/30/2025 6:34:18 PM
Surr: o-Terphenyl	78.8	50 - 150		%Rec	1	1/30/2025 6:34:18 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	15.9	0.500		wt%	1	1/27/2025 8:49:48 AM

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-005 **Collection Date:** 1/23/2025 11:35:00 AM
Client Sample ID: **SB38(10)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	667	D	mg/Kg-dry	10	1/31/2025 10:45:33 AM
Heavy Oil	18,300	1,330	D	mg/Kg-dry	10	1/31/2025 10:45:33 AM
Total Petroleum Hydrocarbons	18,300	2,000	D	mg/Kg-dry	10	1/31/2025 10:45:33 AM
Surr: 2-Fluorobiphenyl	101	50 - 150	D	%Rec	10	1/31/2025 10:45:33 AM
Surr: o-Terphenyl	113	50 - 150	D	%Rec	10	1/31/2025 10:45:33 AM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	27.1	0.500		wt%	1	1/27/2025 8:49:48 AM

Lab ID: 2501421-006 **Collection Date:** 1/23/2025 1:05:00 PM
Client Sample ID: **SB39(9)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	60.3		mg/Kg-dry	1	1/30/2025 6:46:01 PM
Heavy Oil	ND	121		mg/Kg-dry	1	1/30/2025 6:46:01 PM
Total Petroleum Hydrocarbons	ND	181		mg/Kg-dry	1	1/30/2025 6:46:01 PM
Surr: 2-Fluorobiphenyl	84.1	50 - 150		%Rec	1	1/30/2025 6:46:01 PM
Surr: o-Terphenyl	86.9	50 - 150		%Rec	1	1/30/2025 6:46:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	17.2	0.500		wt%	1	1/27/2025 8:49:48 AM

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-007 **Collection Date:** 1/23/2025 1:45:00 PM
Client Sample ID: **SB40(8)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	65.1		mg/Kg-dry	1	1/30/2025 7:21:19 PM
Heavy Oil	ND	130		mg/Kg-dry	1	1/30/2025 7:21:19 PM
Total Petroleum Hydrocarbons	ND	195		mg/Kg-dry	1	1/30/2025 7:21:19 PM
Surr: 2-Fluorobiphenyl	133	50 - 150		%Rec	1	1/30/2025 7:21:19 PM
Surr: o-Terphenyl	120	50 - 150		%Rec	1	1/30/2025 7:21:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	24.9	0.500		wt%	1	1/27/2025 8:49:48 AM

Lab ID: 2501421-008 **Collection Date:** 1/23/2025 2:25:00 PM
Client Sample ID: **SB41(11)** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel & Oil by NWTPH-Dx with Silica Gel Treatment				Batch ID: 46581		Analyst: AP
Diesel Range Organics	ND	59.4		mg/Kg-dry	1	1/30/2025 7:33:07 PM
Heavy Oil	ND	119		mg/Kg-dry	1	1/30/2025 7:33:07 PM
Total Petroleum Hydrocarbons	ND	178		mg/Kg-dry	1	1/30/2025 7:33:07 PM
Surr: 2-Fluorobiphenyl	108	50 - 150		%Rec	1	1/30/2025 7:33:07 PM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	1/30/2025 7:33:07 PM
Sample Moisture (Percent Moisture)				Batch ID: R97189		Analyst: ZD
Percent Moisture	19.8	0.500		wt%	1	1/27/2025 8:49:48 AM

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-009 **Collection Date:** 1/23/2025 8:45:00 AM
Client Sample ID: **B34(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	123	94.9		µg/L	1	1/29/2025 7:46:46 PM
Heavy Oil	1,740	142		µg/L	1	1/29/2025 7:46:46 PM
Total Petroleum Hydrocarbons	1,860	237		µg/L	1	1/29/2025 7:46:46 PM
Surr: 2-Fluorobiphenyl	61.1	50 - 150		%Rec	1	1/29/2025 7:46:46 PM
Surr: o-Terphenyl	22.8	50 - 150	S	%Rec	1	1/29/2025 7:46:46 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern indicates a continuous distribution of material in the diesel and oil ranges. Material is not identified as a specific petroleum product and is divided into diesel and oil by carbon range

Lab ID: 2501421-010 **Collection Date:** 1/23/2025 9:30:00 AM
Client Sample ID: **B35(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	217	94.5		µg/L	1	1/29/2025 8:22:21 PM
Heavy Oil	1,970	142		µg/L	1	1/29/2025 8:22:21 PM
Total Petroleum Hydrocarbons	2,190	236		µg/L	1	1/29/2025 8:22:21 PM
Surr: 2-Fluorobiphenyl	29.7	50 - 150	S	%Rec	1	1/29/2025 8:22:21 PM
Surr: o-Terphenyl	13.3	50 - 150	S	%Rec	1	1/29/2025 8:22:21 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern indicates a continuous distribution of material in the diesel and oil ranges. Material is not identified as a specific petroleum product and is divided into diesel and oil by carbon range

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-011 **Collection Date:** 1/23/2025 10:15:00 AM
Client Sample ID: **B36(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	96.1	93.9		µg/L	1	1/29/2025 7:23:06 PM
Heavy Oil	637	141		µg/L	1	1/29/2025 7:23:06 PM
Total Petroleum Hydrocarbons	734	235		µg/L	1	1/29/2025 7:23:06 PM
Surr: 2-Fluorobiphenyl	44.5	50 - 150	S	%Rec	1	1/29/2025 7:23:06 PM
Surr: o-Terphenyl	11.6	50 - 150	S	%Rec	1	1/29/2025 7:23:06 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern indicates a continuous distribution of material in the diesel and oil ranges. Material is not identified as a specific petroleum product and is divided into diesel and oil by carbon range

Lab ID: 2501421-012 **Collection Date:** 1/23/2025 10:55:00 AM
Client Sample ID: **B37(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	153	94.1		µg/L	1	1/29/2025 6:00:15 PM
Heavy Oil	ND	141		µg/L	1	1/29/2025 6:00:15 PM
Total Petroleum Hydrocarbons	ND	235		µg/L	1	1/29/2025 6:00:15 PM
Surr: 2-Fluorobiphenyl	82.1	50 - 150		%Rec	1	1/29/2025 6:00:15 PM
Surr: o-Terphenyl	43.8	50 - 150	S	%Rec	1	1/29/2025 6:00:15 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-013 **Collection Date:** 1/23/2025 11:45:00 AM
Client Sample ID: **B38(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	ND	939	D	µg/L	10	1/30/2025 10:54:34 PM
Heavy Oil	94,400	1,410	D	µg/L	10	1/30/2025 10:54:34 PM
Total Petroleum Hydrocarbons	94,400	2,350	D	µg/L	10	1/30/2025 10:54:34 PM
Surr: 2-Fluorobiphenyl	30.0	50 - 150	DS	%Rec	10	1/30/2025 10:54:34 PM
Surr: o-Terphenyl	42.0	50 - 150	DS	%Rec	10	1/30/2025 10:54:34 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern is consistent with hydraulic oil

Lab ID: 2501421-014 **Collection Date:** 1/23/2025 12:30:00 PM
Client Sample ID: **MW4(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	2,050	94.9		µg/L	1	1/29/2025 6:12:02 PM
Heavy Oil	ND	142		µg/L	1	1/29/2025 6:12:02 PM
Total Petroleum Hydrocarbons	2,050	237		µg/L	1	1/29/2025 6:12:02 PM
Surr: 2-Fluorobiphenyl	84.3	50 - 150		%Rec	1	1/29/2025 6:12:02 PM
Surr: o-Terphenyl	94.2	50 - 150		%Rec	1	1/29/2025 6:12:02 PM

NOTES:
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material

CLIENT: Aerotech
Project: Modutech Marine

Lab ID: 2501421-015 **Collection Date:** 1/23/2025 1:15:00 PM
Client Sample ID: **B39(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	397	94.1		µg/L	1	1/30/2025 7:21:19 PM
Heavy Oil	ND	141		µg/L	1	1/30/2025 7:21:19 PM
Total Petroleum Hydrocarbons	397	235		µg/L	1	1/30/2025 7:21:19 PM
Surr: 2-Fluorobiphenyl	79.0	50 - 150		%Rec	1	1/30/2025 7:21:19 PM
Surr: o-Terphenyl	36.8	50 - 150	S	%Rec	1	1/30/2025 7:21:19 PM

NOTES:
S - Outlying surrogate recovery observed.
Chromatographic pattern indicates an unresolved complex mixture, which may be weathered and/or organic material
Detection is biased high due to non-petroleum compounds

Lab ID: 2501421-016 **Collection Date:** 1/23/2025 2:35:00 PM
Client Sample ID: **B41(W)** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx				Batch ID: 46585		Analyst: AP
Diesel Range Organics	362	198		µg/L	1	1/30/2025 10:19:11 PM
Heavy Oil	5,640	297		µg/L	1	1/30/2025 10:19:11 PM
Total Petroleum Hydrocarbons	6,000	494		µg/L	1	1/30/2025 10:19:11 PM
Surr: 2-Fluorobiphenyl	62.5	50 - 150		%Rec	1	1/30/2025 10:19:11 PM
Surr: o-Terphenyl	31.8	50 - 150	S	%Rec	1	1/30/2025 10:19:11 PM

NOTES:
S - Low surrogate recovery caused by emulsions during extraction procedure.
Chromatographic pattern is consistent with hydraulic oil

Work Order: 2501421
CLIENT: Aerotech
Project: Modutech Marine

QC SUMMARY REPORT

Diesel & Oil by NWTPH-Dx with Silica Gel Treatment

Sample ID: **MB-46581**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/28/2025**	RunNo: **97339**
Client ID: **MBLKS**	Batch ID: **46581**		Analysis Date: **1/30/2025**	SeqNo: **2028490**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	ND	50.0									
Heavy Oil	ND	100									
Total Petroleum Hydrocarbons	ND	150									
Surr: 2-Fluorobiphenyl	11.0		10.00		110	50	150				
Surr: o-Terphenyl	11.1		10.00		111	50	150				

Sample ID: **LCS-46581**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/28/2025**	RunNo: **97339**
Client ID: **LCSS**	Batch ID: **46581**		Analysis Date: **1/30/2025**	SeqNo: **2028491**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	556	150	500.0	0	111	69.9	125				
Surr: 2-Fluorobiphenyl	9.76		10.00		97.6	50	150				
Surr: o-Terphenyl	11.1		10.00		111	50	150				

Sample ID: **2501421-006AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/28/2025**	RunNo: **97339**
Client ID: **SB39(9)**	Batch ID: **46581**		Analysis Date: **1/30/2025**	SeqNo: **2028494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	705	179	595.5	0	118	53.3	143				
Surr: 2-Fluorobiphenyl	8.47		11.91		71.1	50	150				
Surr: o-Terphenyl	10.0		11.91		84.1	50	150				

Sample ID: **2501421-006AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **1/28/2025**	RunNo: **97339**
Client ID: **SB39(9)**	Batch ID: **46581**		Analysis Date: **1/30/2025**	SeqNo: **2028495**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	669	180	600.8	0	111	53.3	143	704.9	5.22	30	
Surr: 2-Fluorobiphenyl	7.92		12.02		65.9	50	150		0		
Surr: o-Terphenyl	9.29		12.02		77.3	50	150		0		

Work Order: 2501421
CLIENT: Aerotech
Project: Modutech Marine

QC SUMMARY REPORT

Diesel & Oil by NWTPH-Dx with Silica Gel Treatment

Sample ID: **2501421-005ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **1/28/2025**		RunNo: **97339**			
Client ID: **SB38(10)**	Batch ID: **46581**					Analysis Date: **1/31/2025**		SeqNo: **2028508**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	ND	685						0		30	D
Heavy Oil	17,600	1,370						18,260	3.92	30	D
Total Petroleum Hydrocarbons	17,600	2,050						18,260	3.92	30	D
Surr: 2-Fluorobiphenyl	12.7		13.70		93.0	50	150		0		D
Surr: o-Terphenyl	15.6		13.70		114	50	150		0		D

Work Order: 2501421
CLIENT: Aerotech
Project: Modutech Marine

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx

Sample ID: **MB-46585**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **1/28/2025**	RunNo: **97305**
Client ID: **MBLKW**	Batch ID: **46585**		Analysis Date: **1/29/2025**	SeqNo: **2027928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	ND	100									
Heavy Oil	ND	150									
Total Petroleum Hydrocarbons	ND	250									
Surr: 2-Fluorobiphenyl	19.5		25.00		77.8	50	150				
Surr: o-Terphenyl	20.6		25.00		82.2	50	150				

Sample ID: **LCS-46585**	SampType: **LCS**	Units: **µg/L**	Prep Date: **1/28/2025**	RunNo: **97305**
Client ID: **LCSW**	Batch ID: **46585**		Analysis Date: **1/29/2025**	SeqNo: **2027929**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	892	250	1,250	0	71.3	47.5	118				
Surr: 2-Fluorobiphenyl	18.8		25.00		75.2	50	150				
Surr: o-Terphenyl	23.7		25.00		94.8	50	150				

Sample ID: **LCSD-46585**	SampType: **LCSD**	Units: **µg/L**	Prep Date: **1/28/2025**	RunNo: **97305**
Client ID: **LCSW02**	Batch ID: **46585**		Analysis Date: **1/29/2025**	SeqNo: **2027930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	884	250	1,250	0	70.7	47.5	118	891.8	0.850	30	
Surr: 2-Fluorobiphenyl	19.2		25.00		76.6	50	150		0		
Surr: o-Terphenyl	22.0		25.00		87.9	50	150		0		

Sample Log-In Check List

Client Name:	AEROTE	Work Order Number:	2501421
Logged by:	Morgan Wilson	Date Received:	1/24/2025 10:17:00 AM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
4.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all hold times (except field parameters, pH e.g.) able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☑ No ☐ NA ☐

Person Notified:	Nick Gerkin	Date:	1/24/2025
By Whom:	Matt Langston	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:	Low Vol Samples. Proceed w/ Raised RLs		

17. Additional remarks:

Item Information

Item #	Temp °C
Sample	0.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
An Alliance Technical Group Company
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Date: 1/24/25 Page: 1 of: 2

Laboratory Project No (internal): 2501421

Project Name: Modutech Marine

Special Remarks:

Project No: —

Client: Aerotech

Address: 17837 1st Ave #556

Collected by: Nick Gerkin

City, State, Zip: Normandy Park, WA 98148

Location: 2218 Marine View Dr, Tacoma

Telephone: 206 482 2287

Report To (PM): Nick Gerkin

Disposal: Samples will be disposed in 30 days unless otherwise requested.
☐ Retain volume (specify above) ☐ Return to client

Email(s): nick@dirtydirt.us

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	B34(10)	1/23/25	0835	S	1				X										Silica gel clean up
2	B35(9)		0920						X										
3	B36(7.5)		1005						X										
4	B37(9)		1045						X										
5	B38(10)		1135						X										
6	B39(9)		1305						X										
7	B40(8)		1345						X										
8	B41(11)		1425	↓					X										↓
9	B34(W)		0845	GW					X										
10	B35(W)	↓	0930	↓	↓				X										

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:
☒ Standard ☐ Next Day
☐ 3 Day ☐ Same Day
☐ 2 Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Nick Gerkin	1/24/25 1015	x	Payton Clever	1/24/25 10:17 AM
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
An Alliance Technical Group Company
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Date: 1/24/25 Page: 2 of: 2

Project Name: Modutech Marine

Project No: –

Collected by: Nick Gerkin

Location: 2218 Marine View Dr, Tacoma

Report To (PM): Nick Gerkin

Laboratory Project No (internal): 2501421

Special Remarks:

Disposal: Samples will be disposed in 30 days unless otherwise requested.
☐ Retain volume (specify above) ☐ Return to client

Client: Aerotech

Address: 17837 1st Ave #556

City, State, Zip: Normandy Park, WA 98148

Telephone: 206 482 2287

Email(s): Nick@dirtydirtguys

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	B36(W)	1/23/25	1015	GW	1				X									
2	B37(W)		1055						X									
3	B38(W)		1145						X									
4	MW4(W)		1230						X									
5	B39(W)		1315						X									
6	B41(W)		1435						X									
7																		
8																		
9																		
10																		

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x			x		

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3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Date: 1/24/25 Page: 1 of: 2

Laboratory Project No (internal): 2501421

Project Name: Modutech Marine

Special Remarks:

Update soil Sample Name per NG. -KL 2/11/25

Client: Aerotech

Project No: —

Address: 17837 1st Ave #556

Collected by: Nick Gerkin

City, State, Zip: Normandy Park, WA 98148

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Telephone: 206 482 2287

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Email(s): nick@dirtydirt.us

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
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2 SB35(9)		0920						X										
3 SB36(7.5)		1005						X										
4 SB37(9)		1045						X										
5 SB38(10)		1135						X										
6 SB39(9)		1305						X										
7 SB40(8)		1345						X										
8 SB41(11)		1425	↓					X										↓
9 B34(W)		0845	GW					X										
10 B35(W)	↓	0930	↓	↓				X										

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***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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Chain of Custody Record & Laboratory Services Agreement

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Seattle, WA 98103
Tel: 206-352-3790

Date: 1/24/25 Page: 2 of: 2

Project Name: Modutech Marine

Project No: –

Collected by: Nick Gerkin

Location: 2218 Marine View Dr, Tacoma

Report To (PM): Nick Gerkin

Laboratory Project No (internal): 2501421

Special Remarks:

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Client: Aerotech

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Email(s): Nick@dirtydirtguys

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	B36(W)	1/23/25	1015	GW	1				X									
2	B37(W)		1055						X									
3	B38(W)		1145						X									
4	MW4(W)		1230						X									
5	B39(W)		1315						X									
6	B41(W)		1435						X									
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

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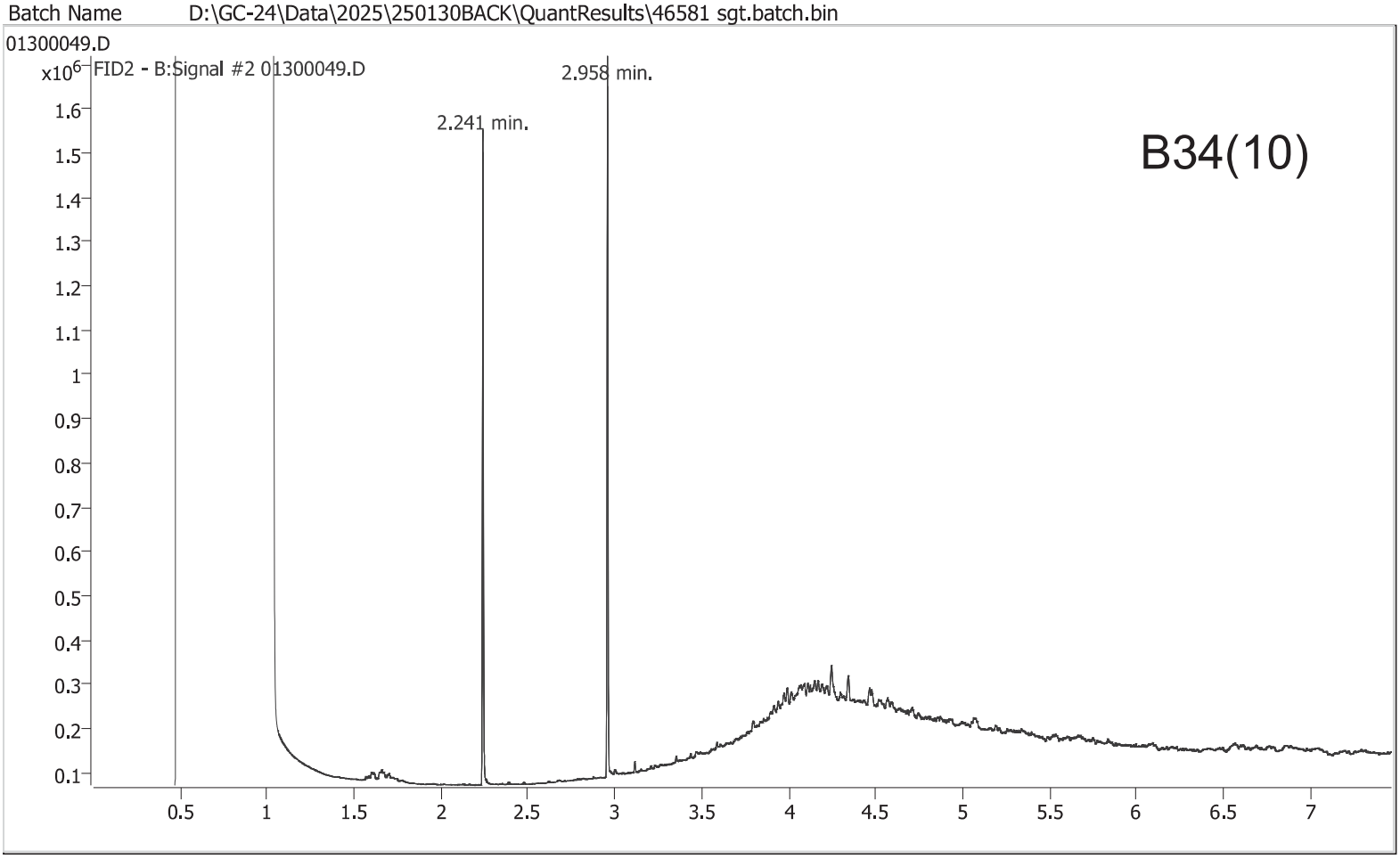
x	Nick Gerkin	1/24/25 1015	x	Payton Clever	1/24/26 10:17AM
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

Quantitation Results Report

Agilent Technologies

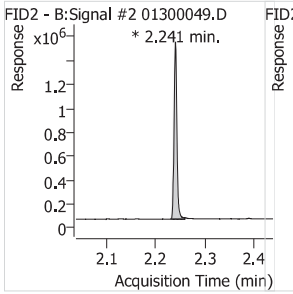
Data File	01300049.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 8:08:35 PM
Sample Name:	2501421-001A		dualfid
Vial	24	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



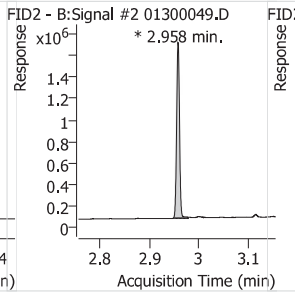
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.241	599706	6.626	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.958	643469	6.455	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.241	476483	4.943	ug/mL	m	
Heavy Oil	2.958	15653430	260.233	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

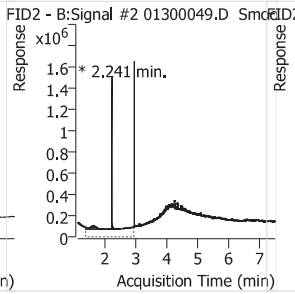
2-Fluorobiphenyl



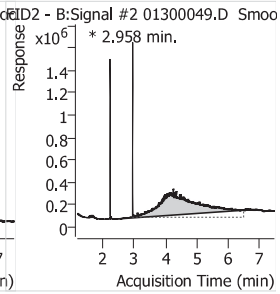
O-Terphenyl



Diesel



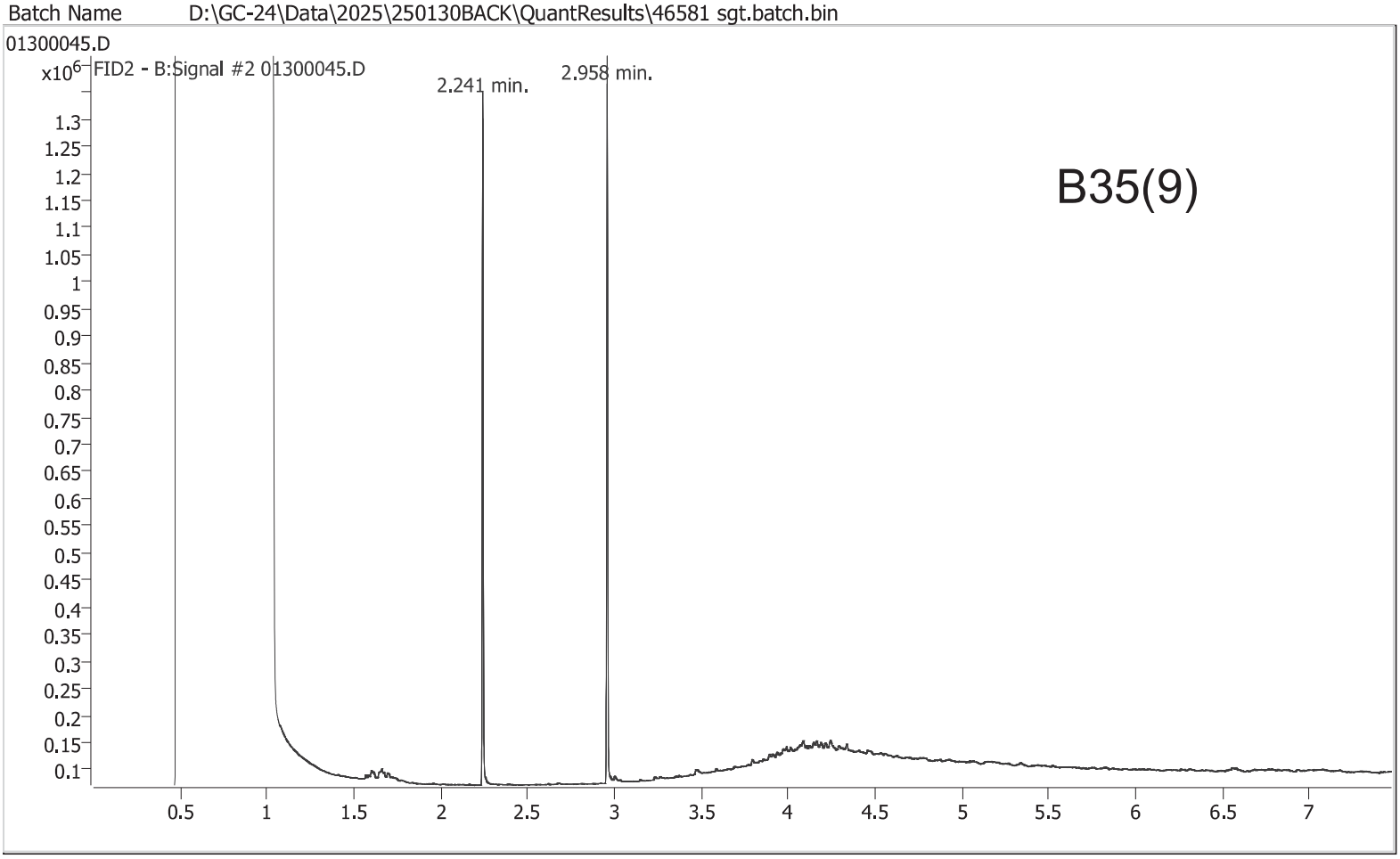
Heavy Oil



Quantitation Results Report

Agilent Technologies

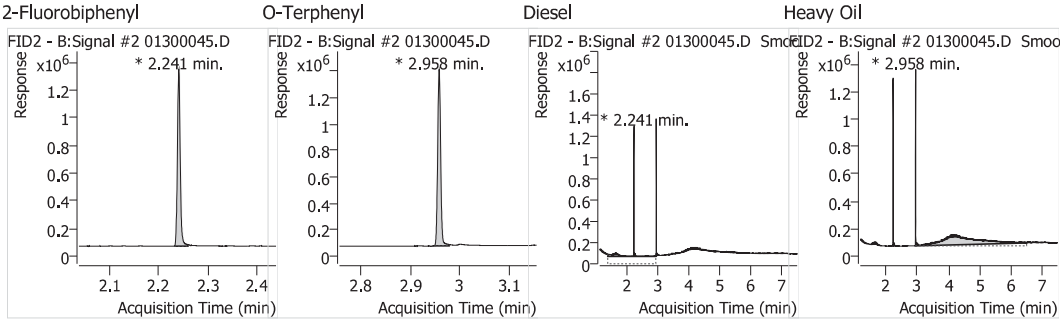
Data File	01300045.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 7:44:52 PM
Sample Name:	2501421-002A		dualfid
Vial	25	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.241	513144	5.670	ug/mL	m	0.003
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.958	551206	5.530	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.241	496699	5.153	ug/mL	m	
Heavy Oil	2.958	5133911	85.350	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

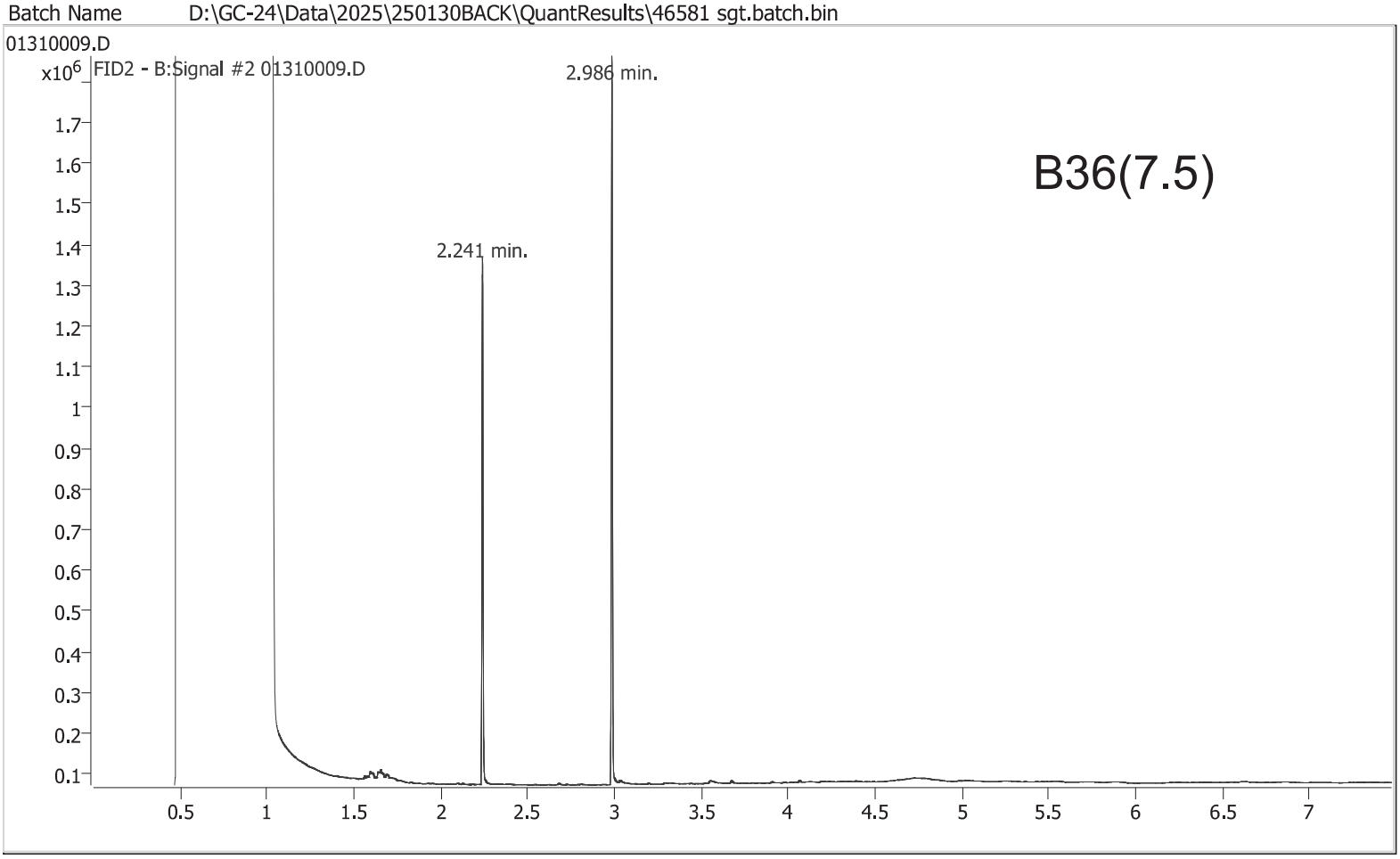
2-Fluorobiphenyl O-Terphenyl Diesel Heavy Oil



Quantitation Results Report

Agilent Technologies

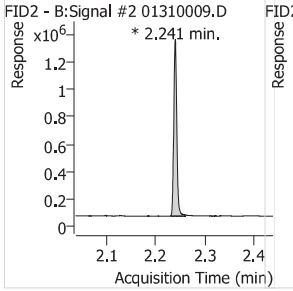
Data File	01310009.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/31/2025 10:03:06 AM
Sample Name:	2501421-003A RR		dualfid
Vial	26	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



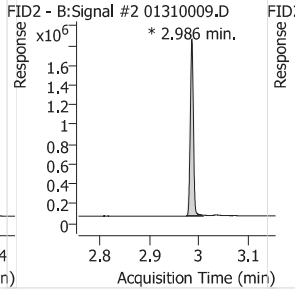
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.241	550028	6.077	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.986	772236	7.747	ug/mL	m	0.030
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.240	575124	5.966	ug/mL	m	
Heavy Oil	2.986	974559	16.202	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

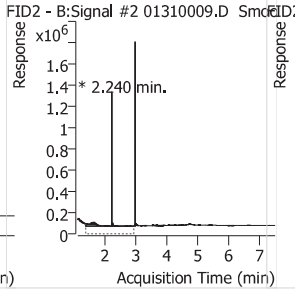
2-Fluorobiphenyl



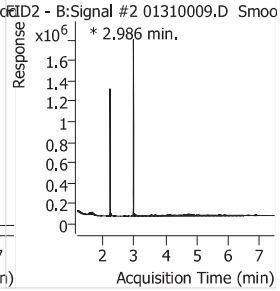
O-Terphenyl



Diesel



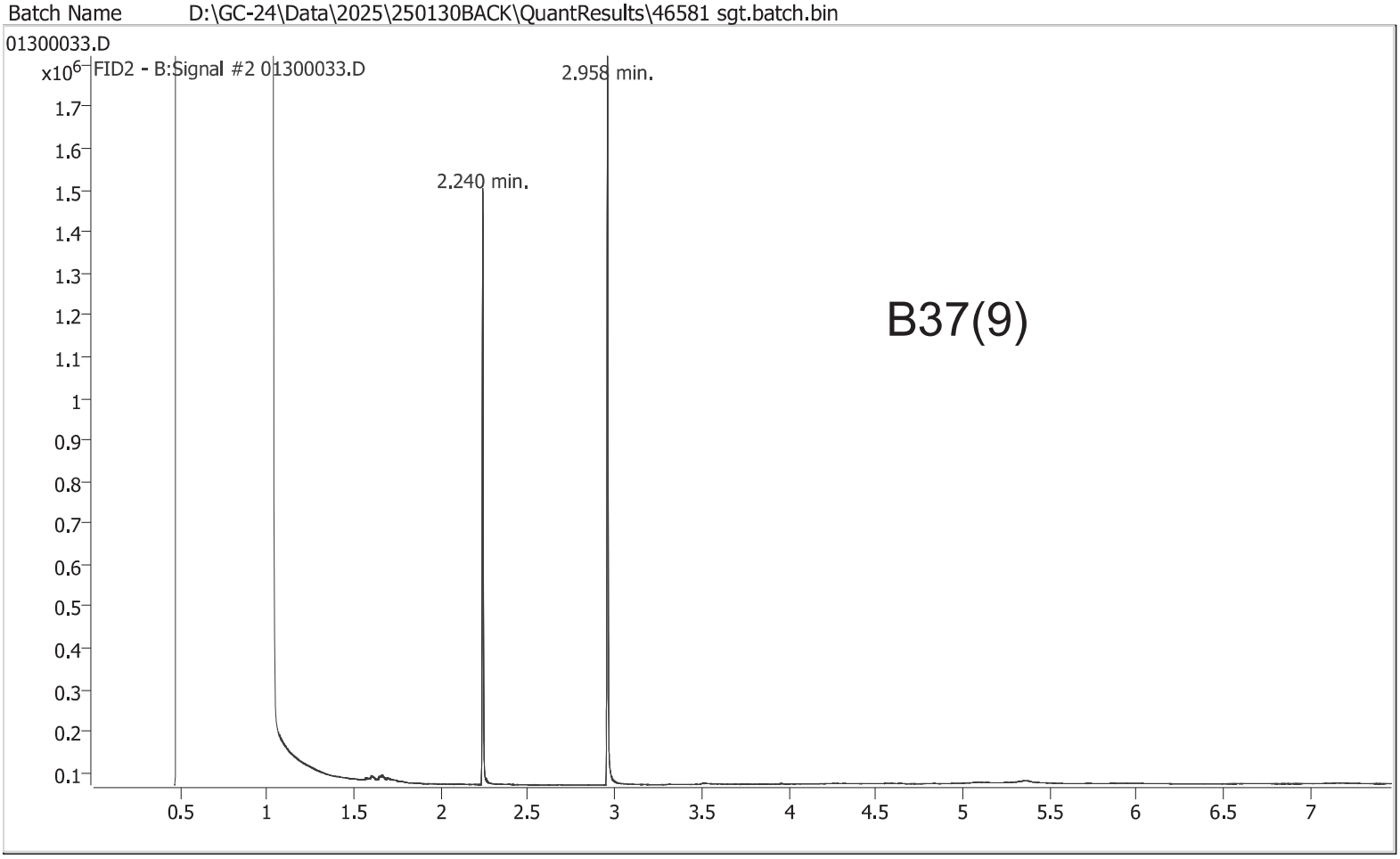
Heavy Oil



Quantitation Results Report

Agilent Technologies

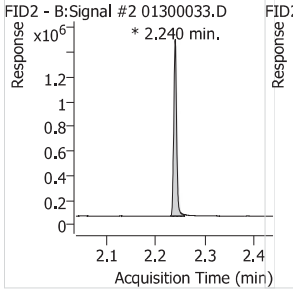
Data File	01300033.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 6:34:18 PM
Sample Name:	2501421-004A		dualfid
Vial	27	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



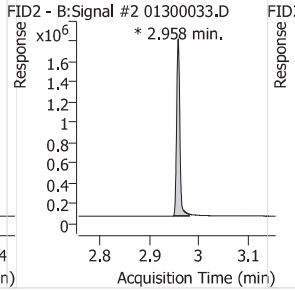
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.240	570675	6.305	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.958	785963	7.885	ug/mL	m	0.003
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.240	479737	4.977	ug/mL	m	
Heavy Oil	2.958	464451	7.721	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

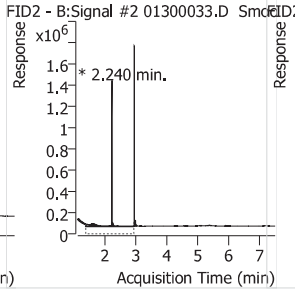
2-Fluorobiphenyl



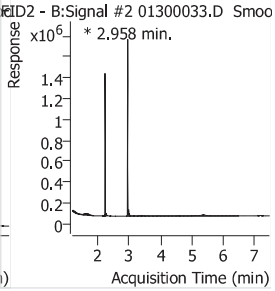
O-Terphenyl



Diesel



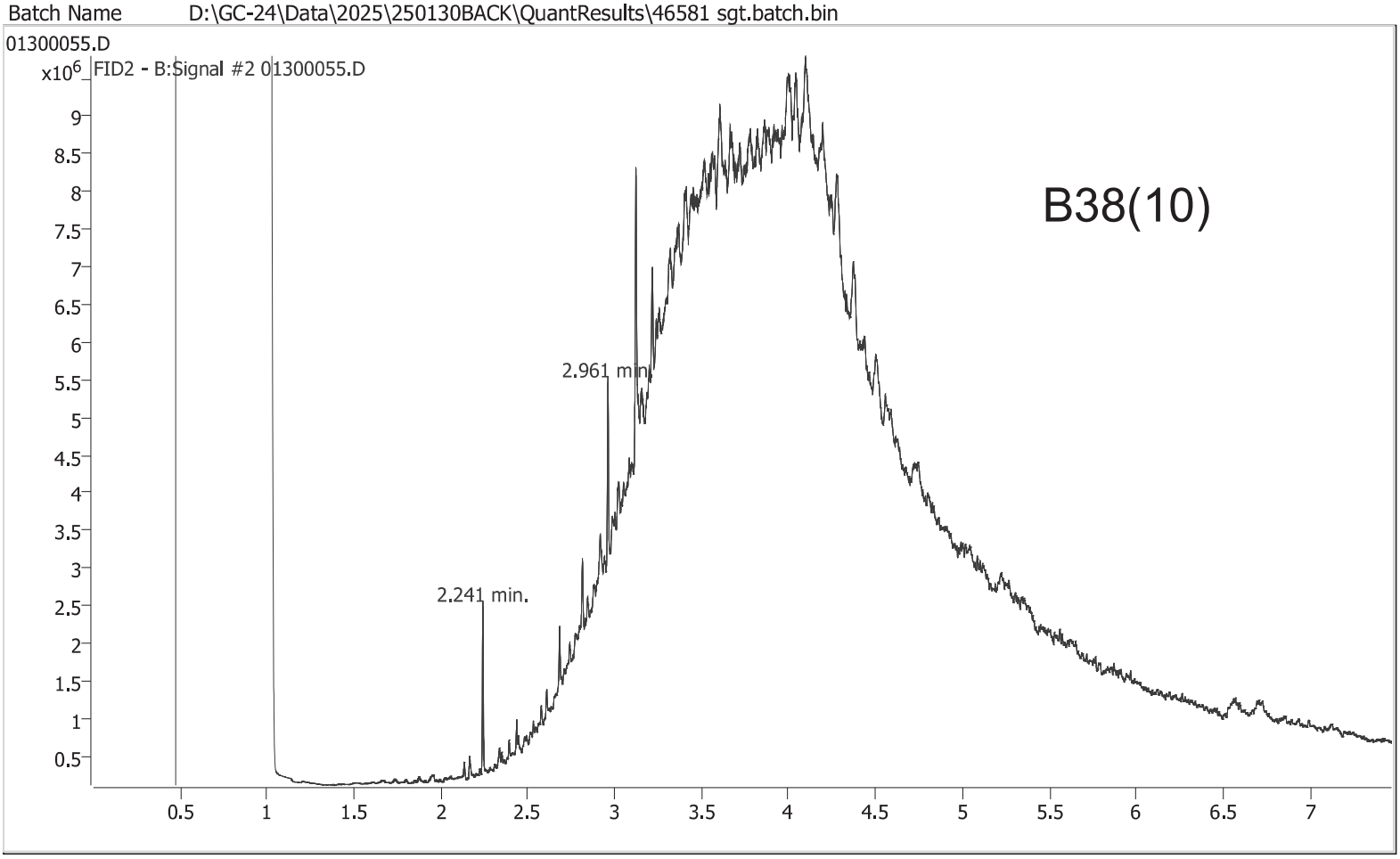
Heavy Oil



Quantitation Results Report

Agilent Technologies

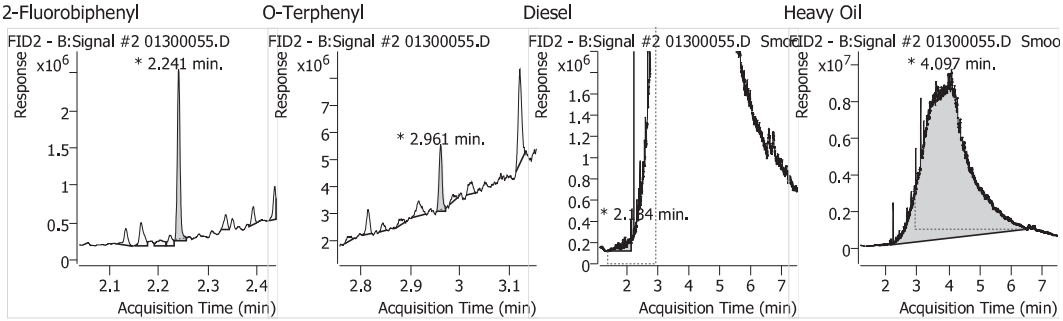
Data File	01300055.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 8:44:05 PM
Sample Name:	2501421-005A		dualfid
Vial	28	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.241	924007	10.209	ug/mL	m	0.002
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.961	1079514	10.829	ug/mL	m	0.006
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.134	2069343	21.467	ug/mL	m	
Heavy Oil	4.097	871528283	14488.865	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

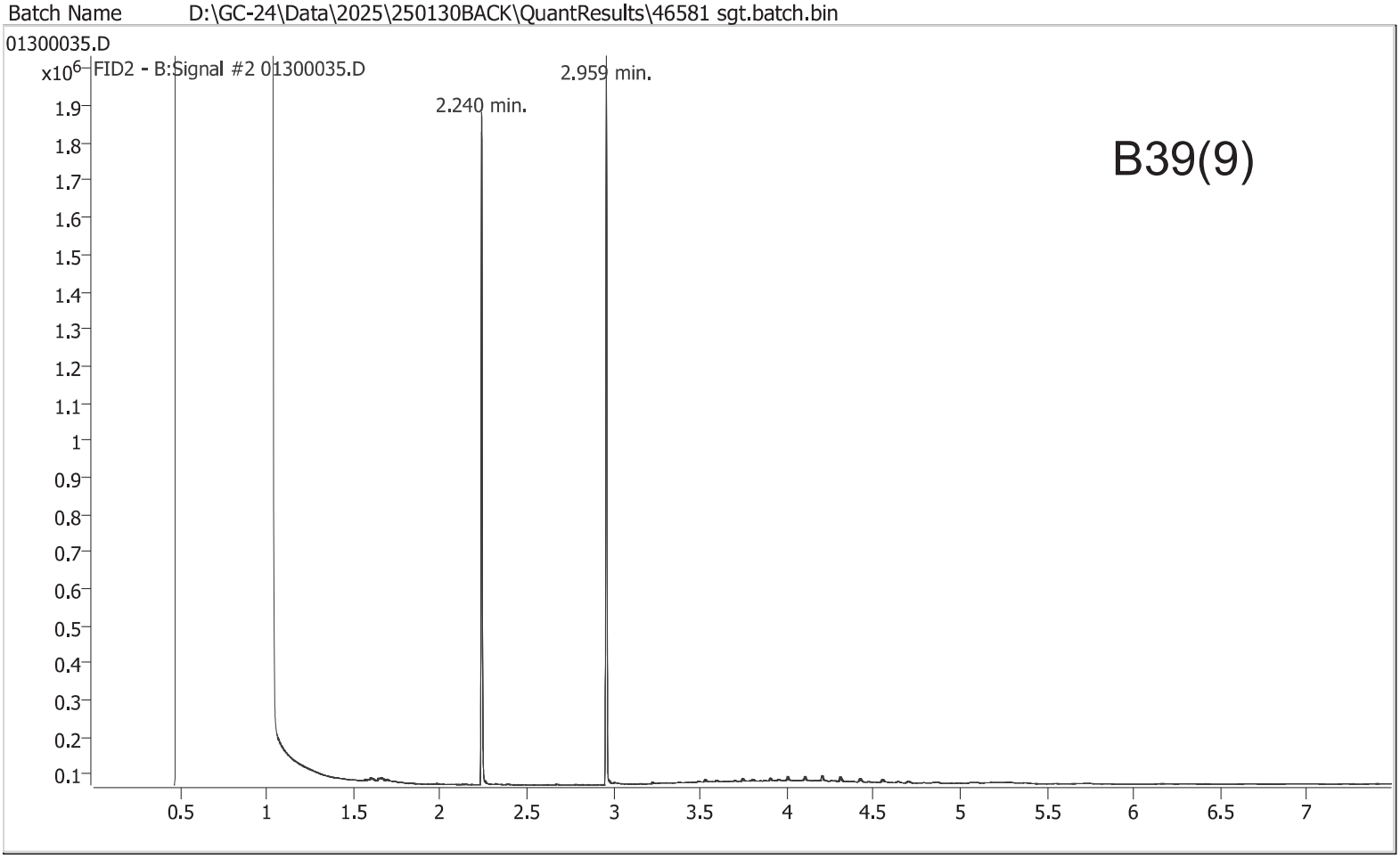
2-Fluorobiphenyl O-Terphenyl Diesel Heavy Oil



Quantitation Results Report

Agilent Technologies

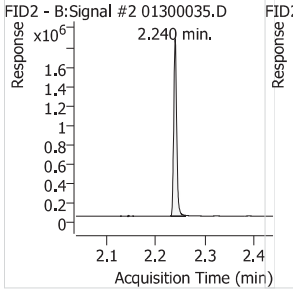
Data File	01300035.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 6:46:01 PM
Sample Name:	2501421-006A		dualfid
Vial	30	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



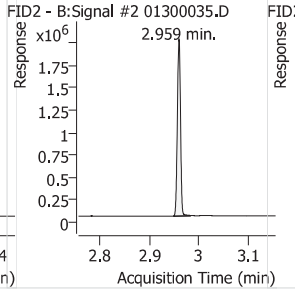
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.240	760790	8.406	ug/mL		0.001
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.959	866414	8.692	ug/mL		0.004
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.240	378463	3.926	ug/mL	m	
Heavy Oil	2.959	1106084	18.388	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

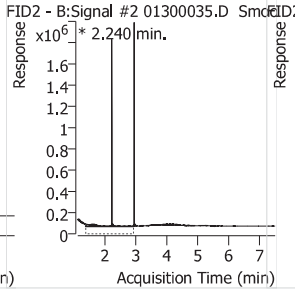
2-Fluorobiphenyl



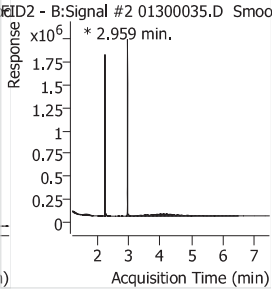
O-Terphenyl



Diesel



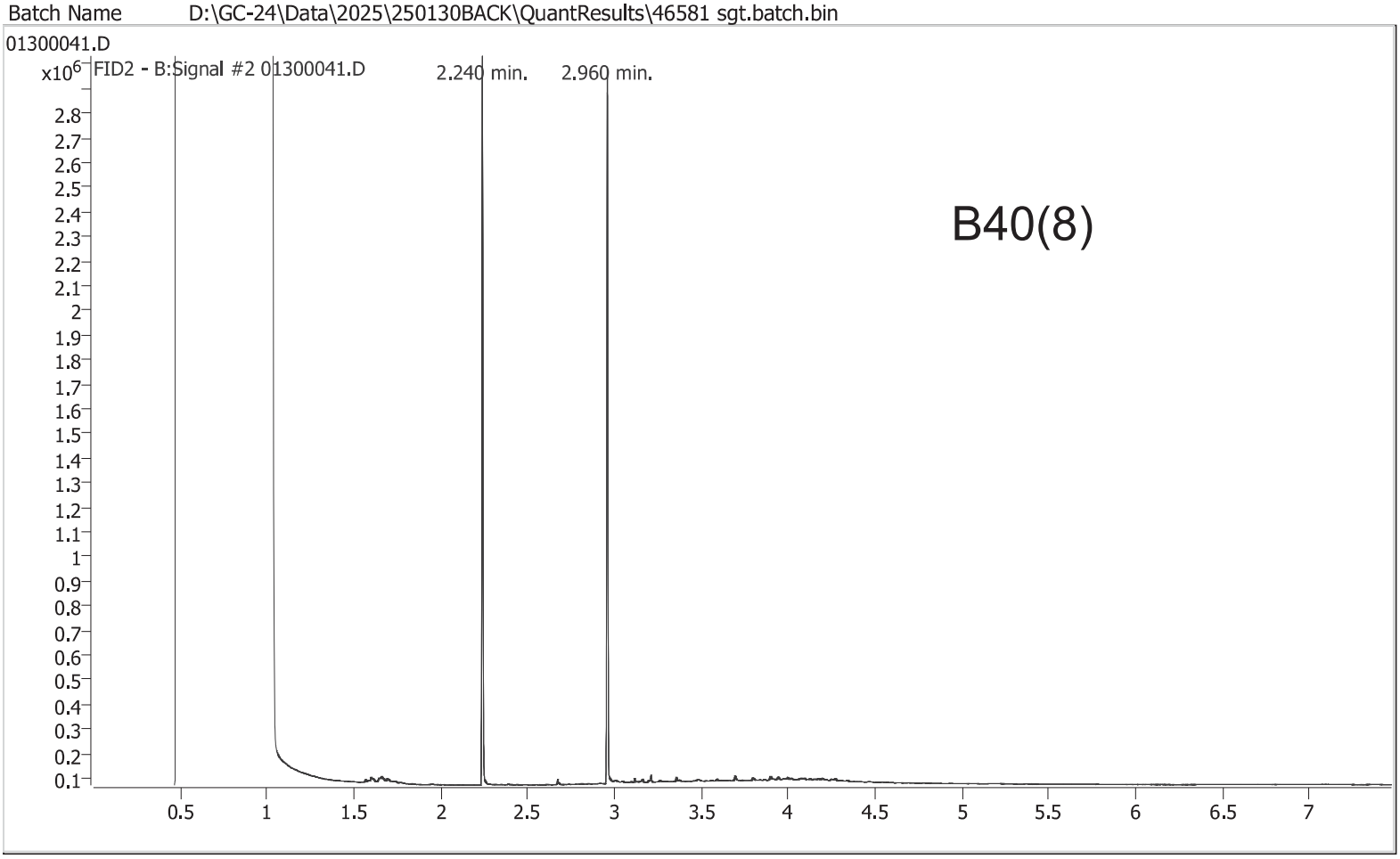
Heavy Oil



Quantitation Results Report

Agilent Technologies

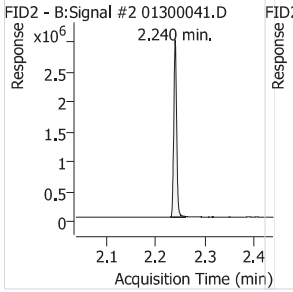
Data File	01300041.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 7:21:19 PM
Sample Name:	2501421-007A		dualfid
Vial	33	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



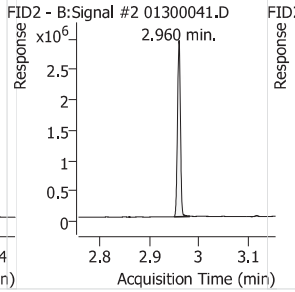
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.240	1201792	13.278	ug/mL		0.002
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.960	1191951	11.957	ug/mL		0.004
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.240	570251	5.916	ug/mL	m	
Heavy Oil	2.960	2067009	34.363	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

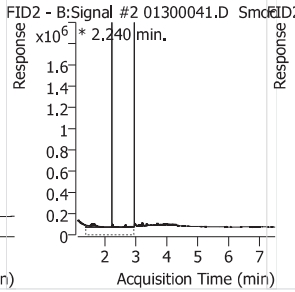
2-Fluorobiphenyl



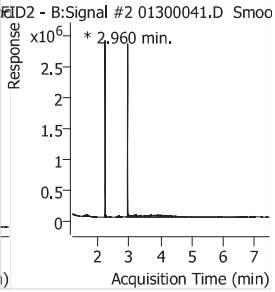
O-Terphenyl



Diesel



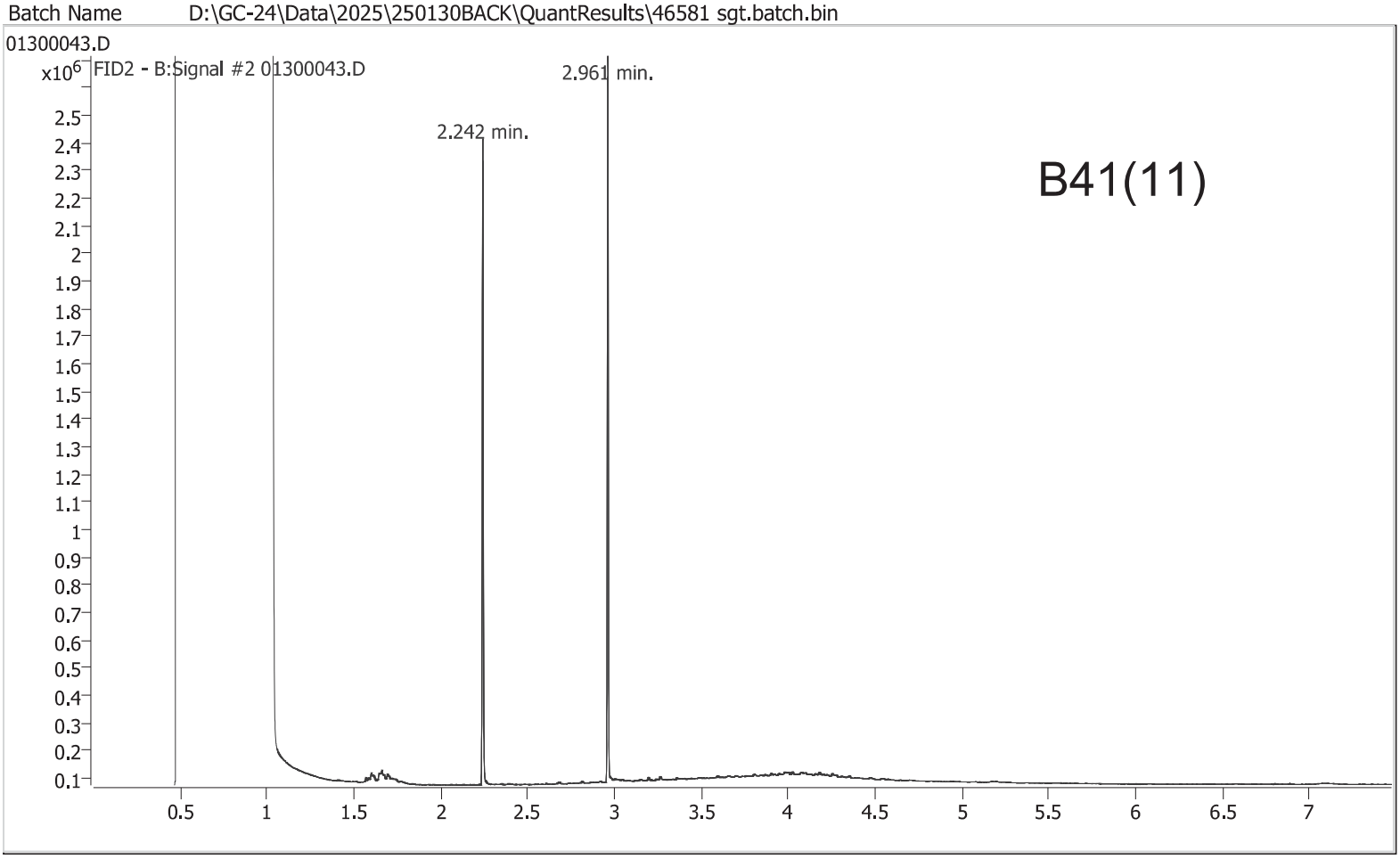
Heavy Oil



Quantitation Results Report

Agilent Technologies

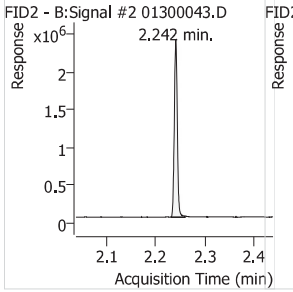
Data File	01300043.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 7:33:07 PM
Sample Name:	2501421-008A		dualfid
Vial	34	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/10/2024 4:42:49 PM
	O-DXEX-S-SGT		
Batch Name	D:\GC-24\Data\2025\250130BACK\QuantResults\46581 sgt.batch.bin		



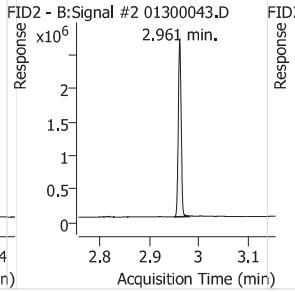
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.242	979382	10.821	ug/mL		0.003
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.961	1080843	10.843	ug/mL		0.006
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.241	655965	6.805	ug/mL	m	
Heavy Oil	2.961	2914141	48.447	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

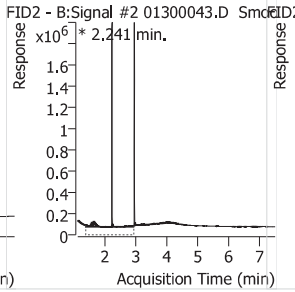
2-Fluorobiphenyl



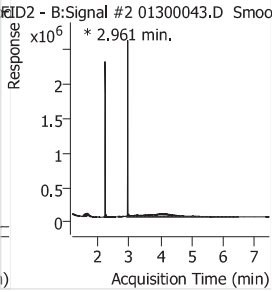
O-Terphenyl



Diesel



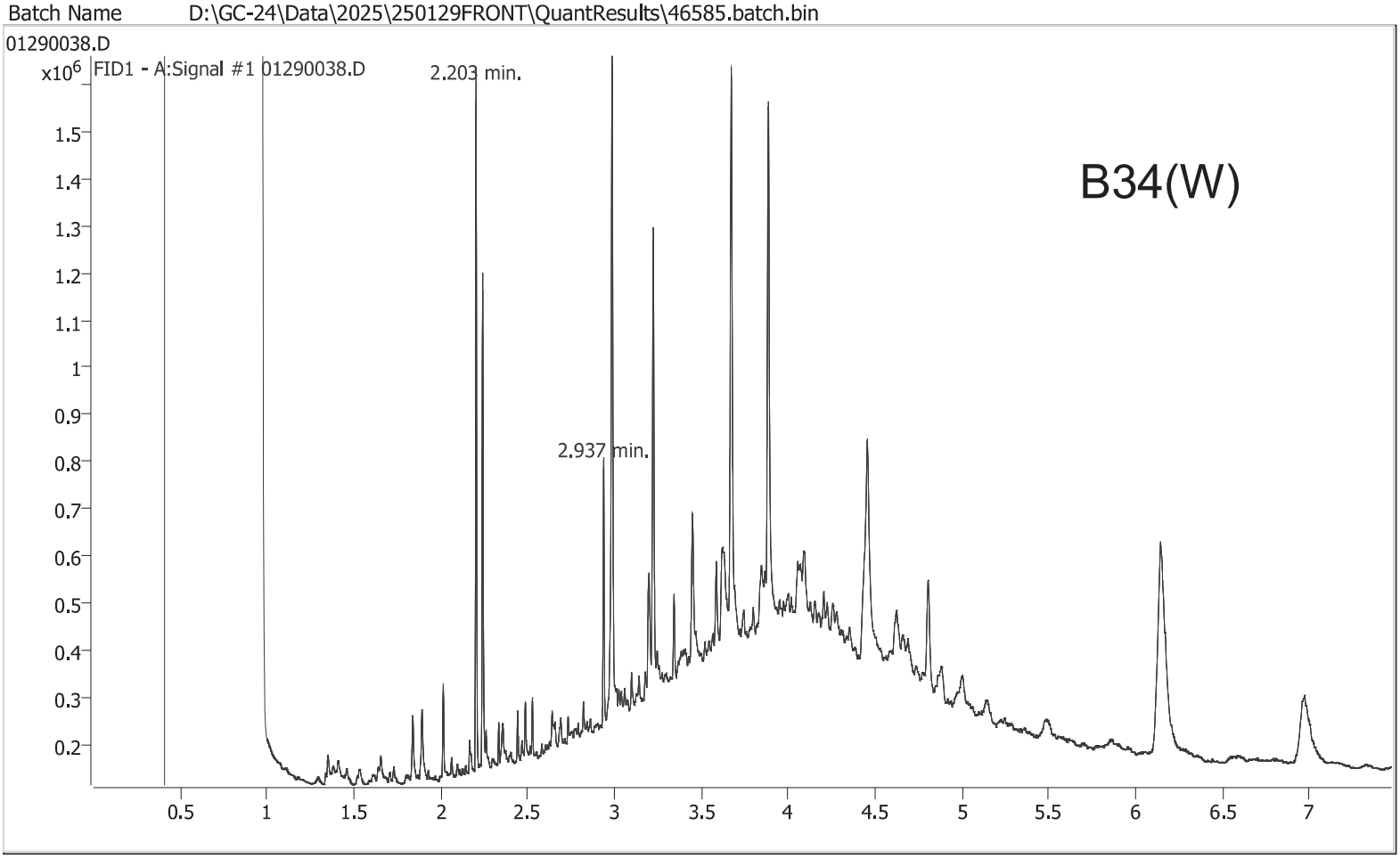
Heavy Oil



Quantitation Results Report

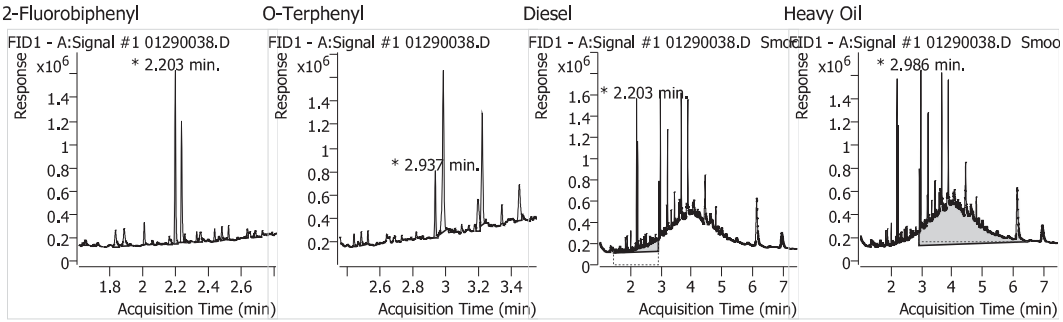
Agilent Technologies

Data File	01290038.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 7:46:46 PM
Sample Name:	2501421-009A		dualfid
Vial	56	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		

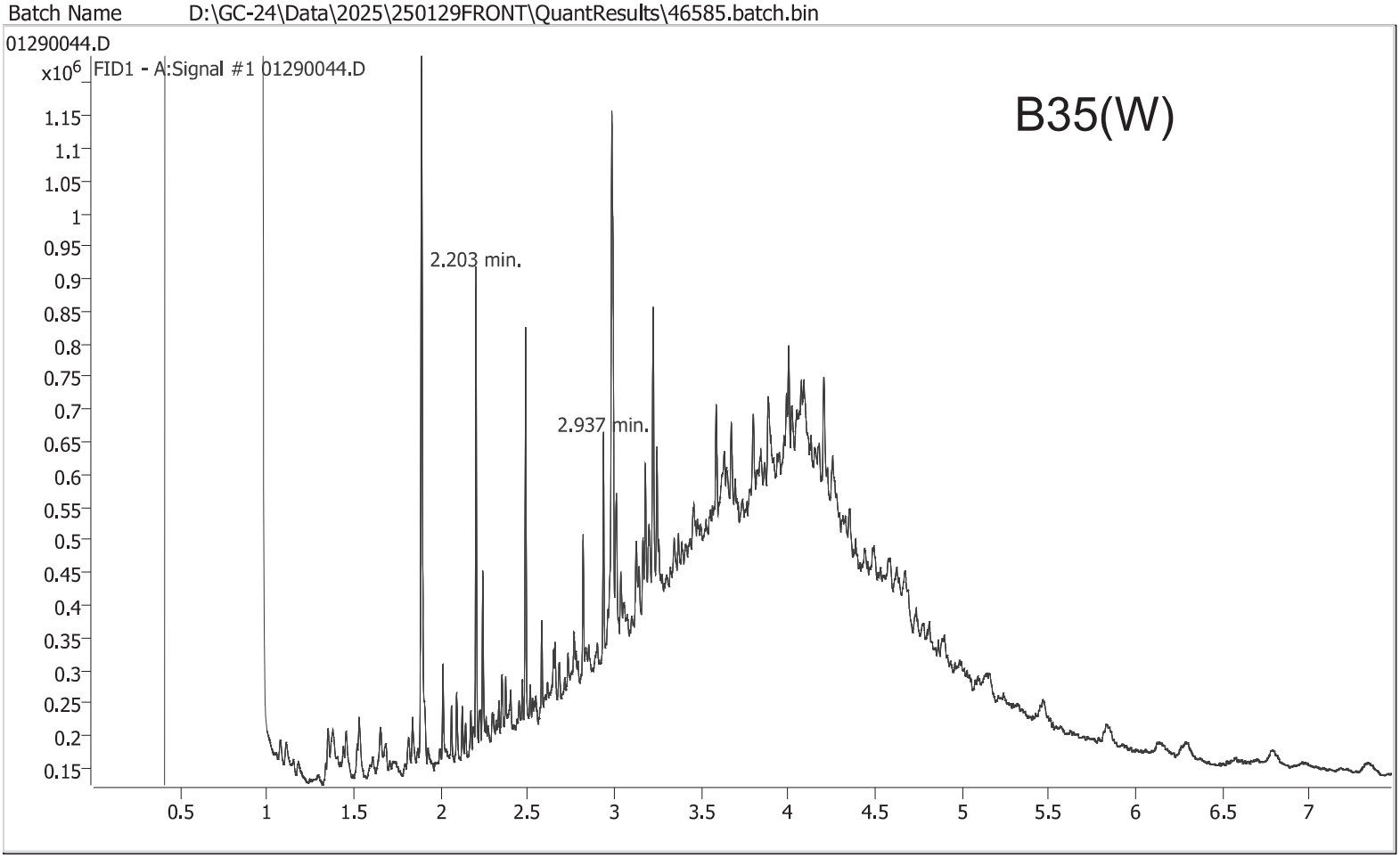


Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.203	579006	6.111	ug/mL	m	-0.013
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.937	242020	2.278	ug/mL	m	-0.016
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.203	4866680	51.956	ug/mL	m	
Heavy Oil	2.986	44760064	732.498	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak



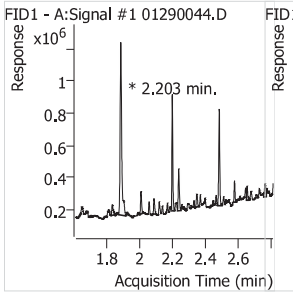
Data File	01290044.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 8:22:21 PM
Sample Name:	2501421-010A		dualfid
Vial	57	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



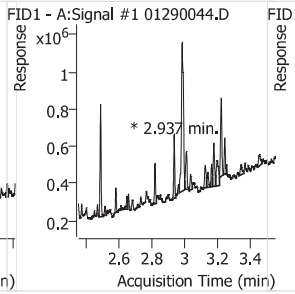
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.203	281384	2.970	ug/mL	m	-0.013
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.937	141017	1.327	ug/mL	m	-0.017
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	1.890	8617816	92.002	ug/mL	m	
Heavy Oil	2.985	50900209	832.981	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

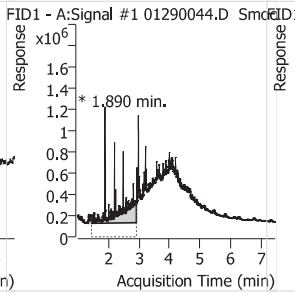
2-Fluorobiphenyl



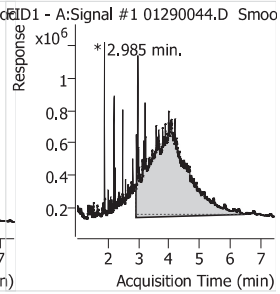
O-Terphenyl



Diesel



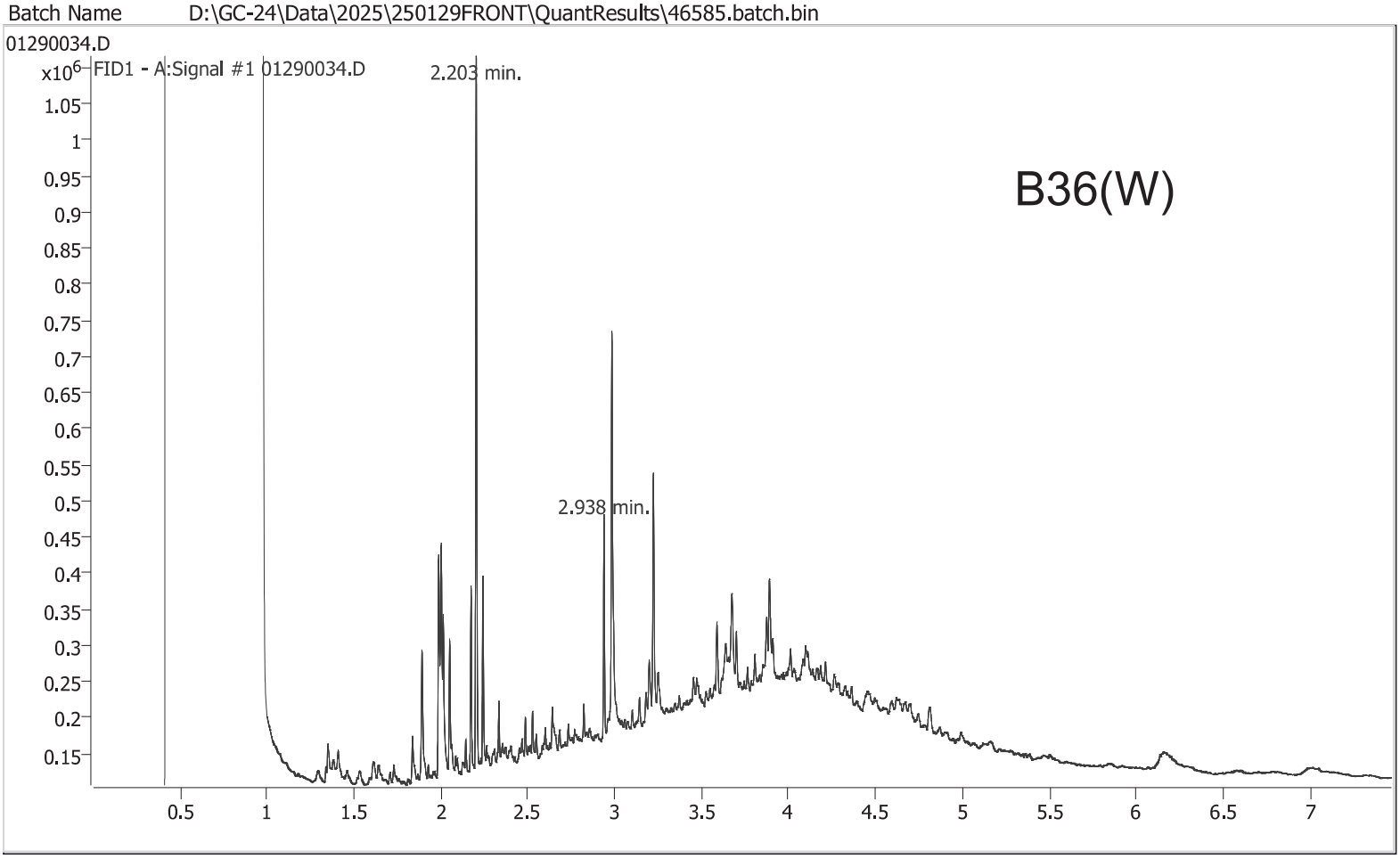
Heavy Oil



Quantitation Results Report

Agilent Technologies

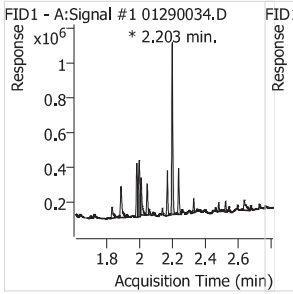
Data File	01290034.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 7:23:06 PM
Sample Name:	2501421-011A		dualfid
Vial	58	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



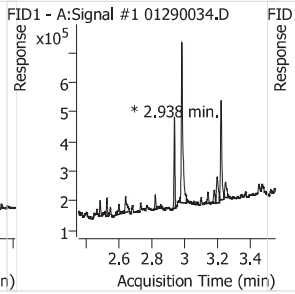
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.203	421364	4.447	ug/mL	m	-0.013
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.938	123288	1.161	ug/mL	m	-0.015
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.203	3833485	40.926	ug/mL	m	
Heavy Oil	2.984	16592148	271.530	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

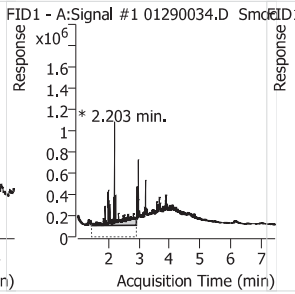
2-Fluorobiphenyl



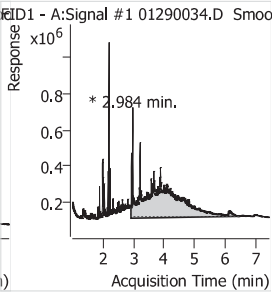
O-Terphenyl



Diesel



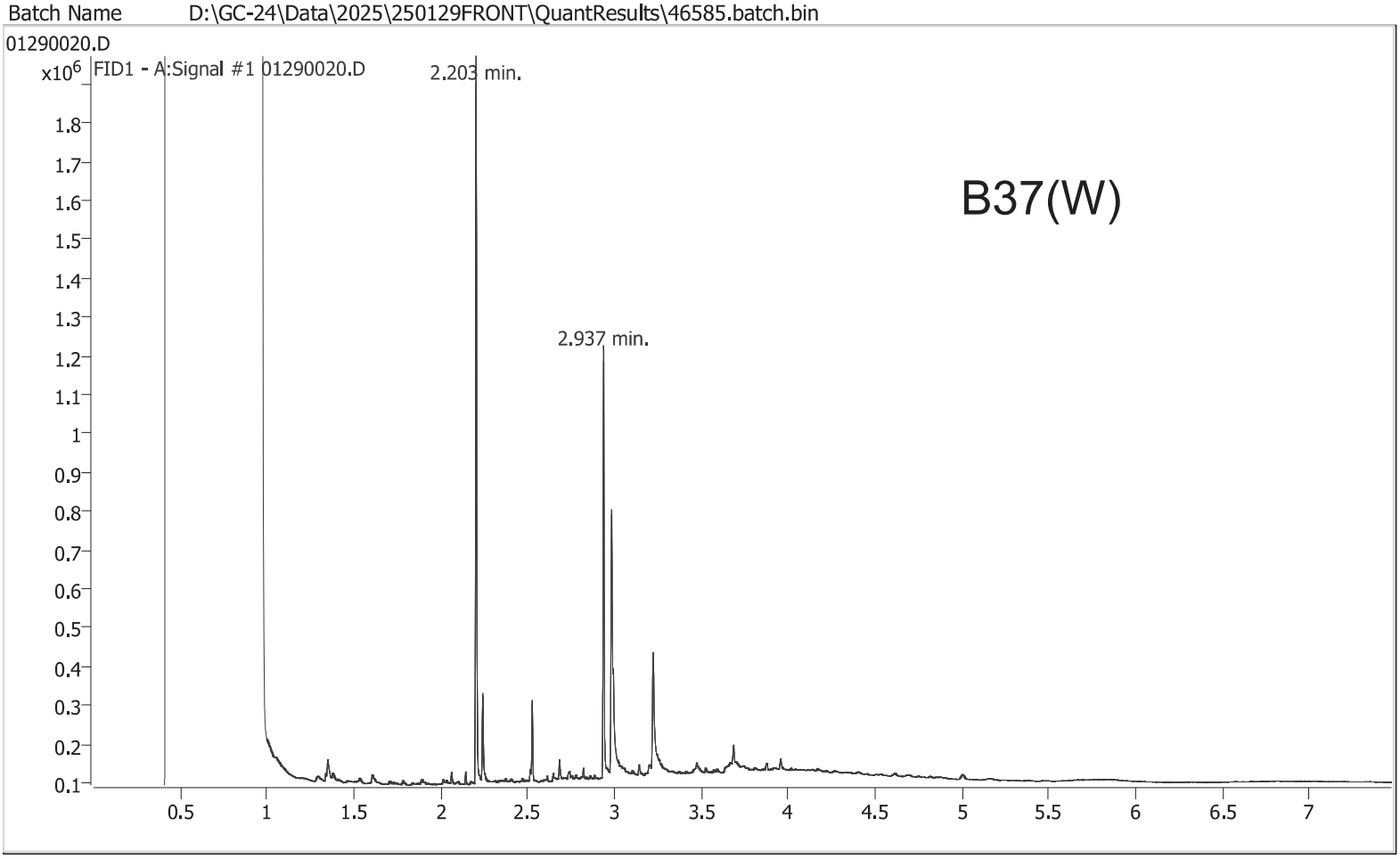
Heavy Oil



Quantitation Results Report

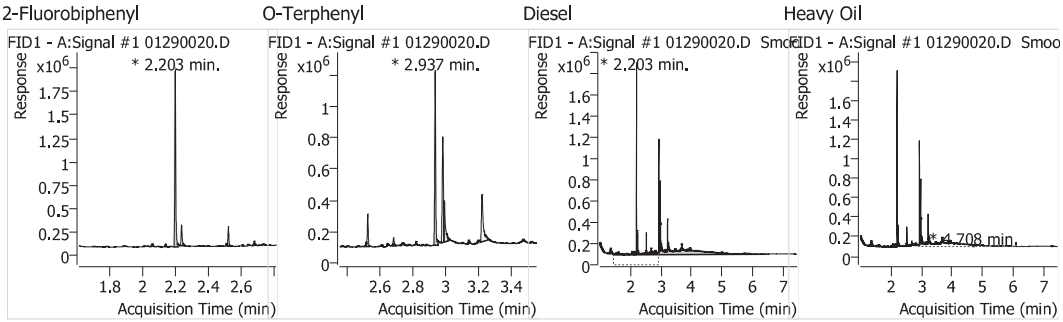
Agilent Technologies

Data File	01290020.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 6:00:15 PM
Sample Name:	2501421-012A		dualfid
Vial	59	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.203	777568	8.206	ug/mL	m	-0.013
Spiked Amount:	Range: - %			Recovery =	NA%	
O-Terphenyl	2.937	465353	4.381	ug/mL	m	-0.017
Spiked Amount:	Range: - %			Recovery =	NA%	
Target Compounds						
Diesel	2.203	6091807	65.035	ug/mL	m	
Heavy Oil	4.708	0			md	

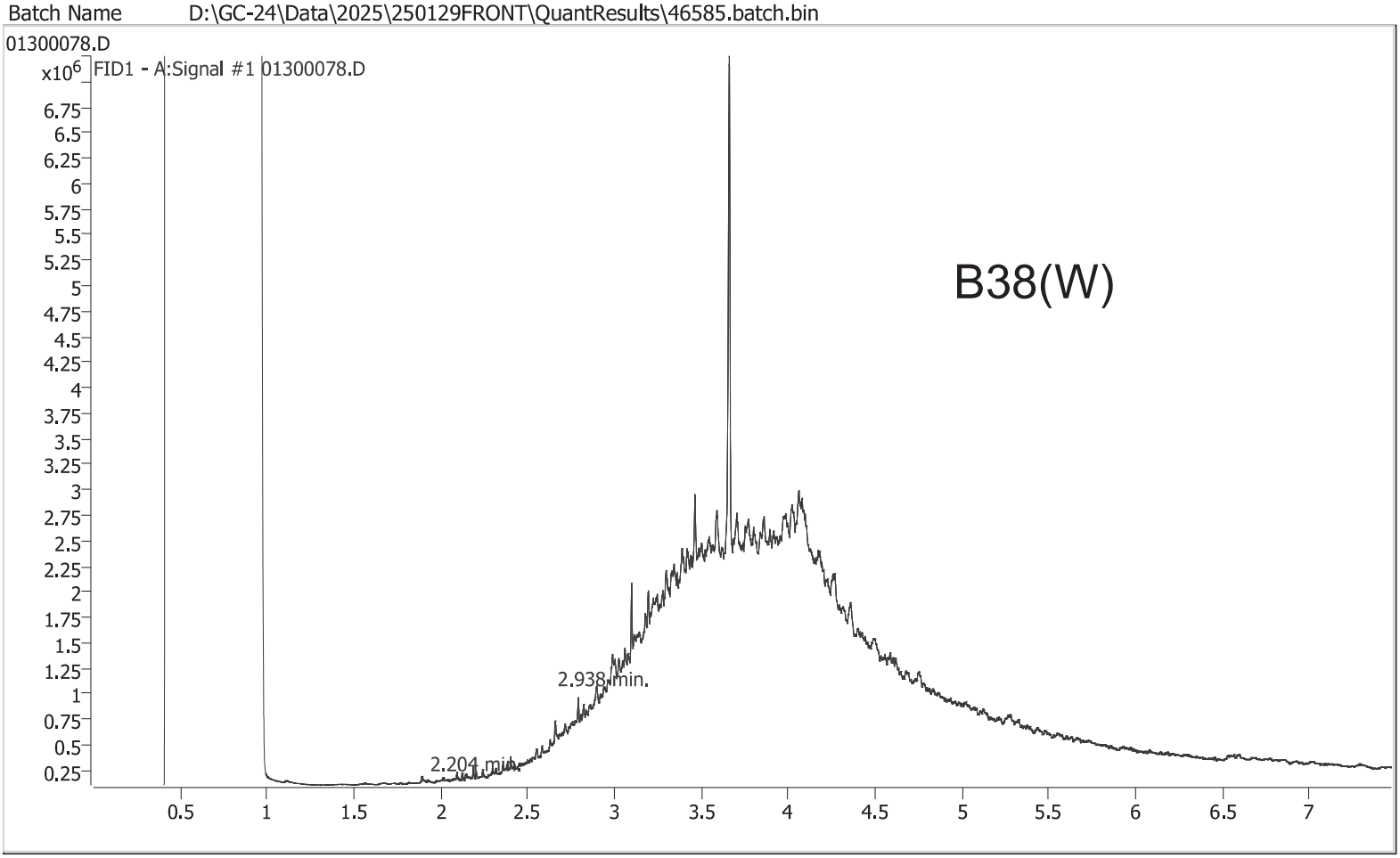
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak



Quantitation Results Report

Agilent Technologies

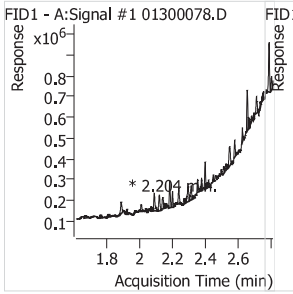
Data File	01300078.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 10:54:34 PM
Sample Name:	2501421-013A 10x		dualfid
Vial	76	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



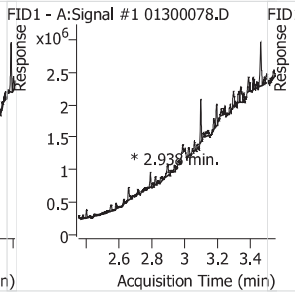
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.204	28869	0.305	ug/mL	m	-0.012
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.938	44539	0.419	ug/mL	m	-0.015
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	1.768	201876	2.155	ug/mL	m	
Heavy Oil	3.660	245502908	4017.652	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

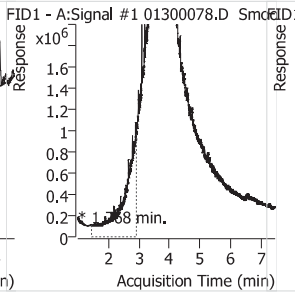
2-Fluorobiphenyl



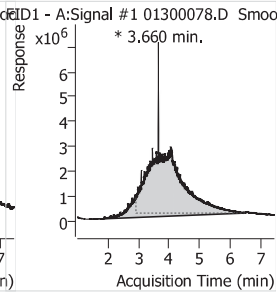
O-Terphenyl



Diesel



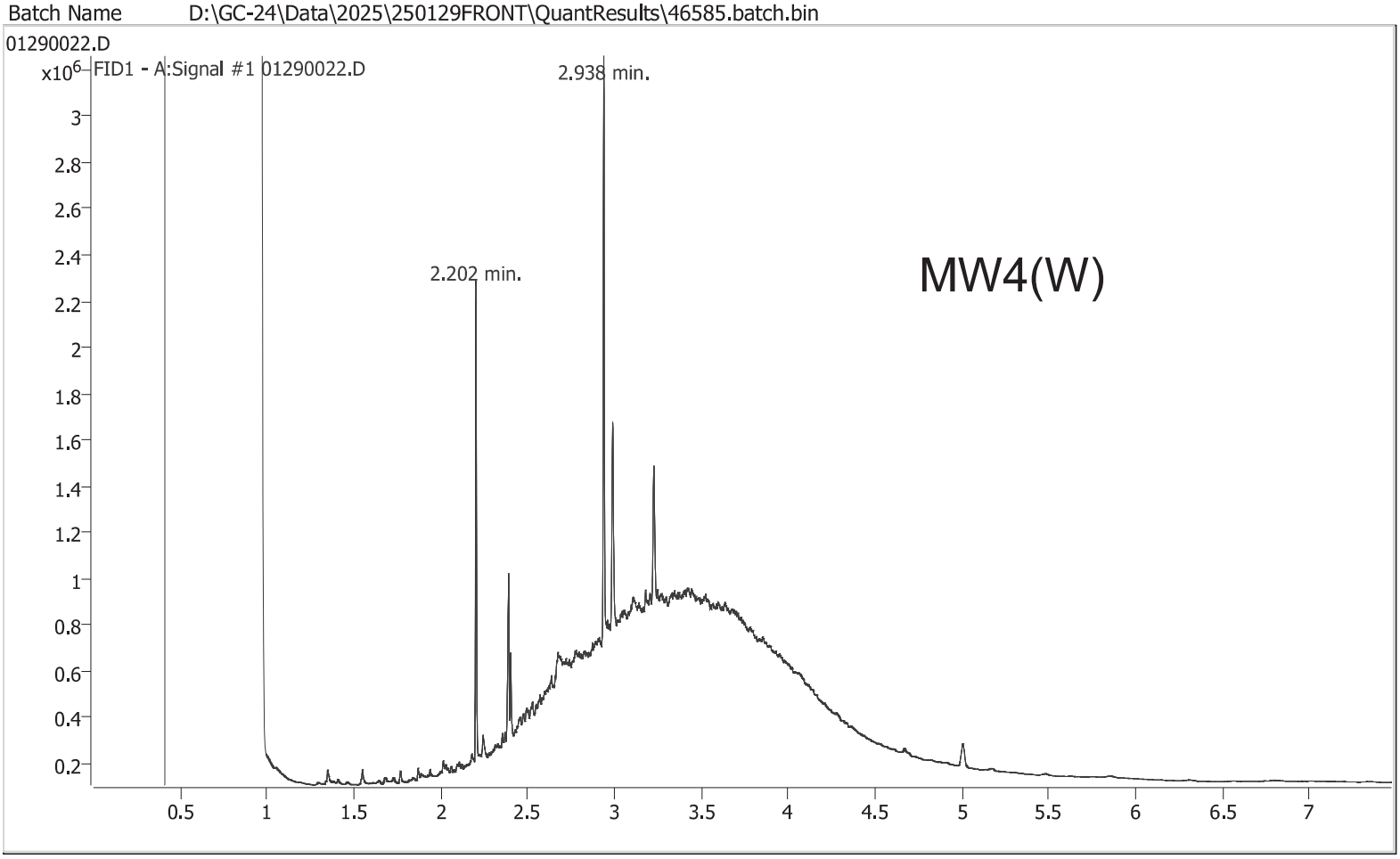
Heavy Oil



Quantitation Results Report

Agilent Technologies

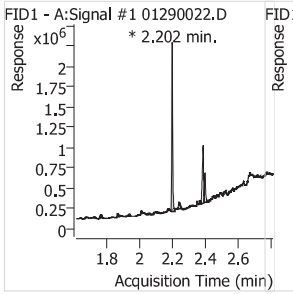
Data File	01290022.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 6:12:02 PM
Sample Name:	2501421-014A		dualfid
Vial	61	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



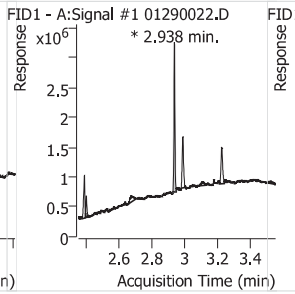
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.202	799252	8.435	ug/mL	m	-0.014
Spiked Amount:	Range: - %			Recovery =	NA%	
O-Terphenyl	2.938	1000369	9.417	ug/mL	m	-0.015
Spiked Amount:	Range: - %			Recovery =	NA%	
Target Compounds						
Diesel	2.938	80725496	861.810	ug/mL	m	
Heavy Oil	4.708	0			md	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

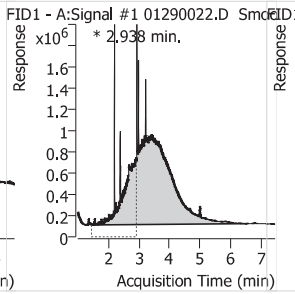
2-Fluorobiphenyl



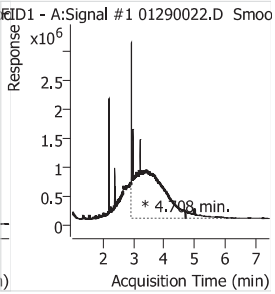
O-Terphenyl



Diesel



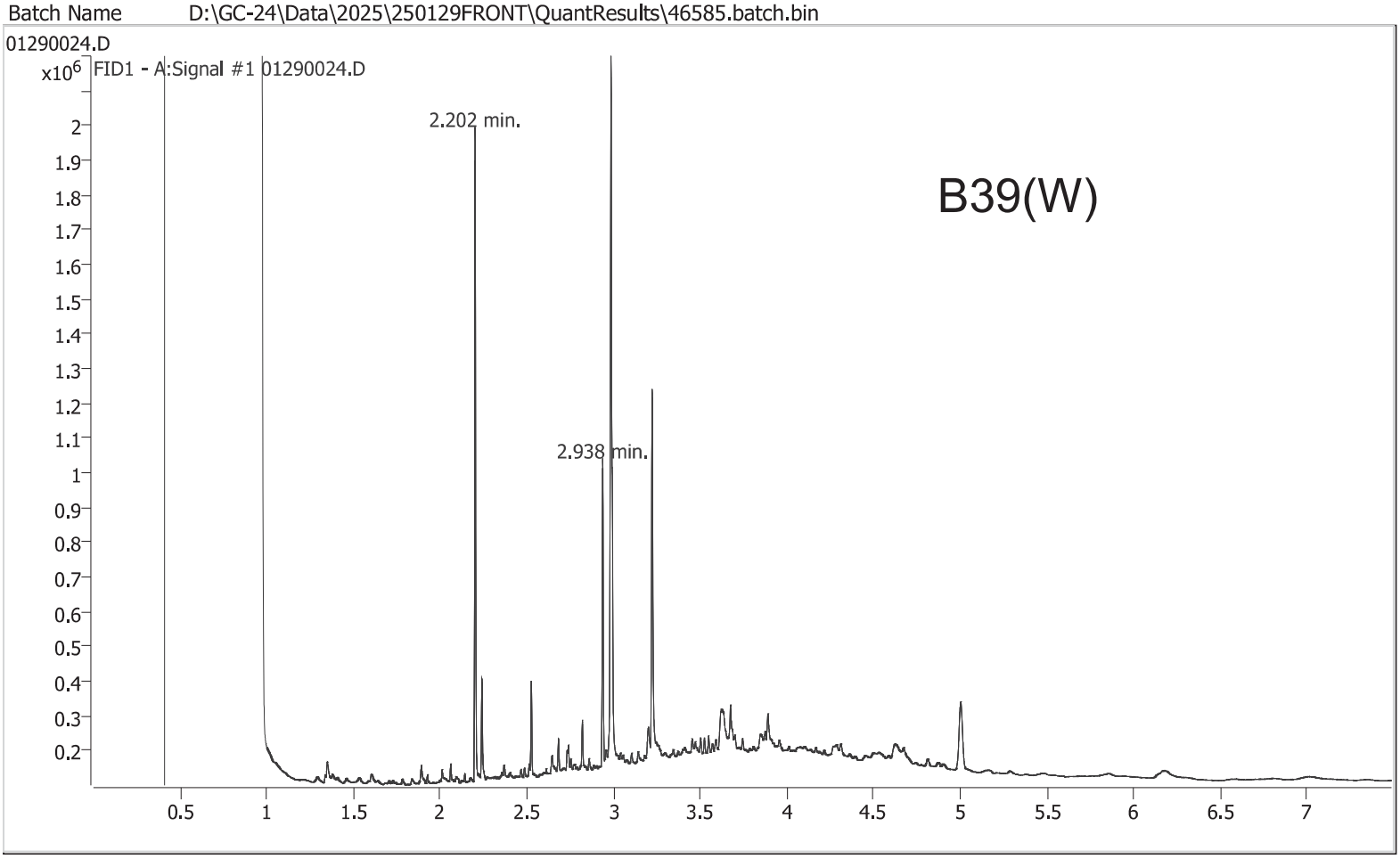
Heavy Oil



Quantitation Results Report

Agilent Technologies

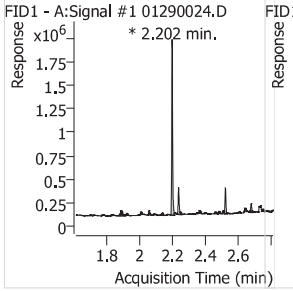
Data File	01290024.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 6:23:52 PM
Sample Name:	2501421-015A		dualfid
Vial	62	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



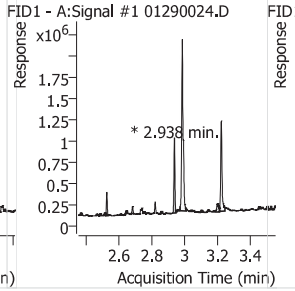
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.202	701232	7.400	ug/mL	m	-0.014
Spiked Amount:	Range: - %			Recovery =	NA%	
O-Terphenyl	2.938	361074	3.399	ug/mL	m	-0.015
Spiked Amount:	Range: - %			Recovery =	NA%	
Target Compounds						
Diesel	2.986	17026827	181.775	ug/mL	m	
Heavy Oil	4.707	0			md	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

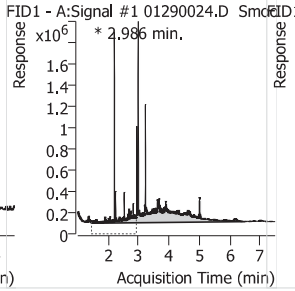
2-Fluorobiphenyl



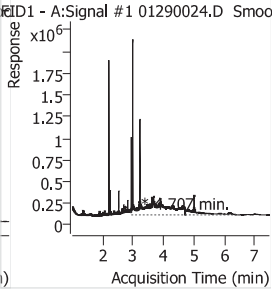
O-Terphenyl



Diesel



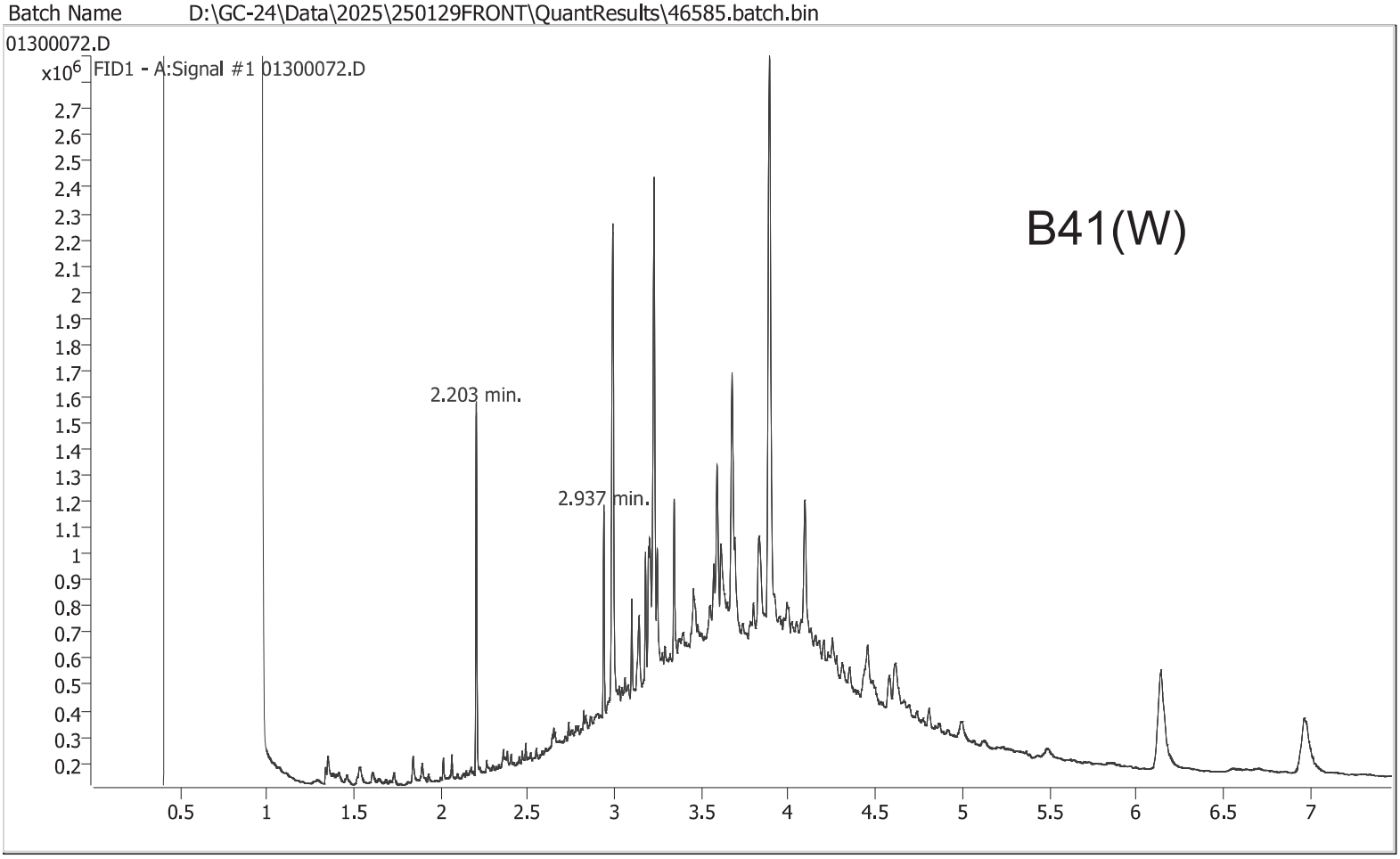
Heavy Oil



Quantitation Results Report

Agilent Technologies

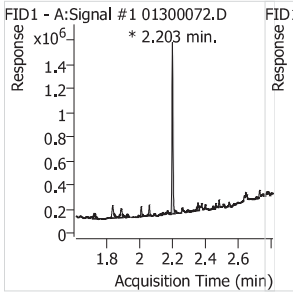
Data File	01300072.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/30/2025 10:19:11 PM
Sample Name:	2501421-016A		dualfid
Vial	63	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



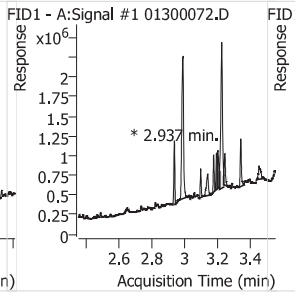
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.203	592268	6.250	ug/mL	m	-0.013
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.937	338129	3.183	ug/mL	m	-0.016
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.203	6864668	73.286	ug/mL	m	
Heavy Oil	3.890	69701461	1140.663	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

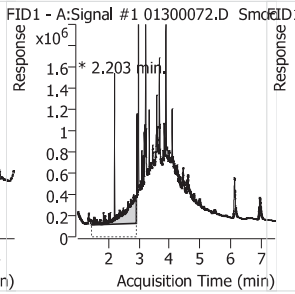
2-Fluorobiphenyl



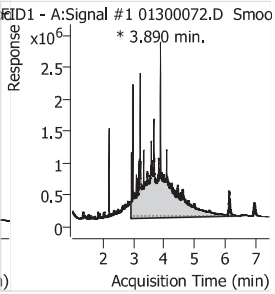
O-Terphenyl



Diesel



Heavy Oil

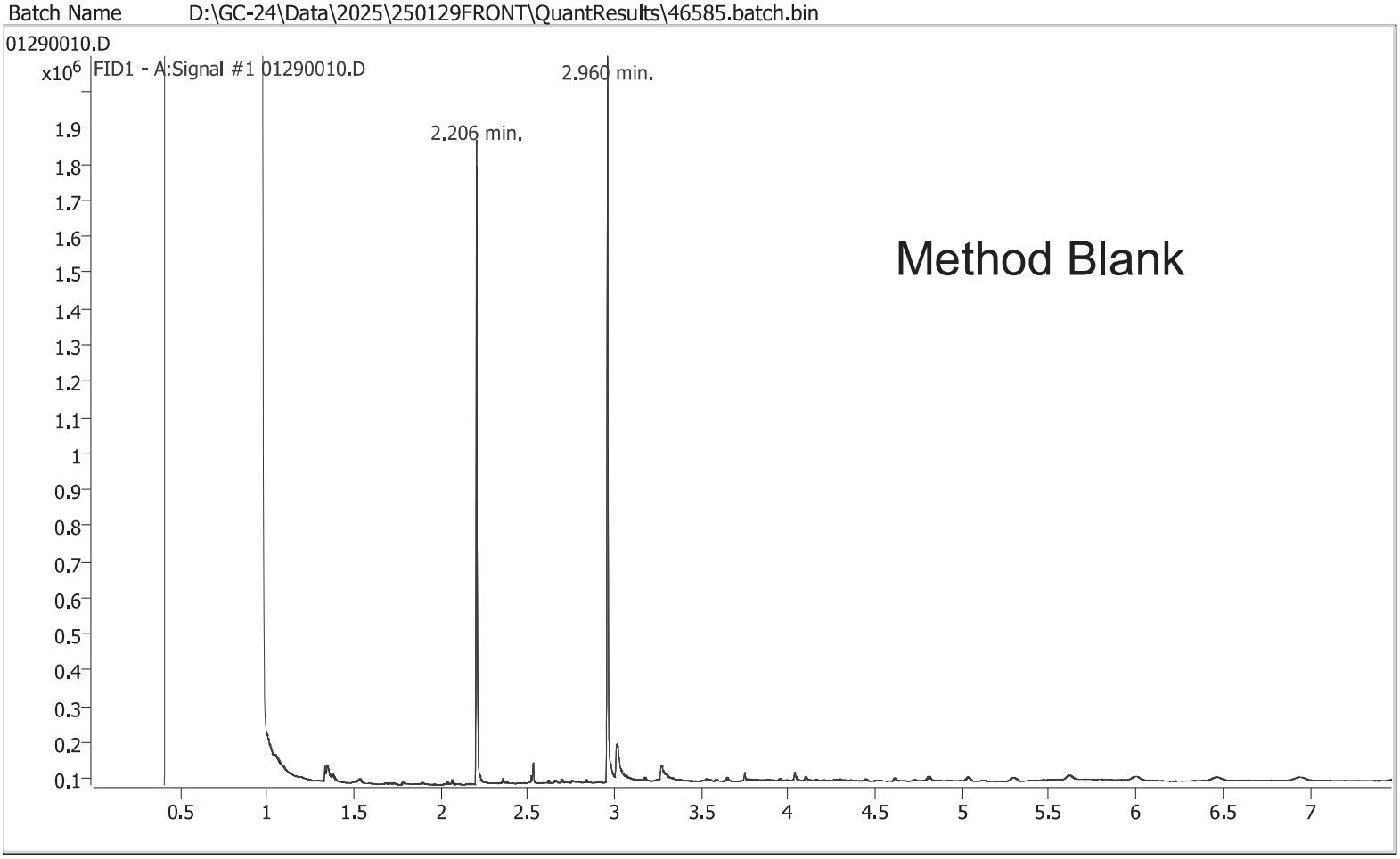


Quantitation Results Report

Agilent Technologies

Data File	01290010.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 5:01:10 PM
Sample Name:	MB-46585		dualfid
Vial	51	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		

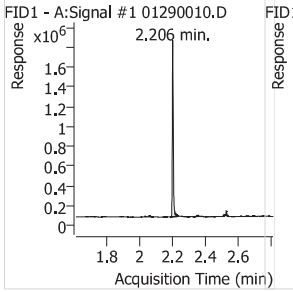
01290010.D



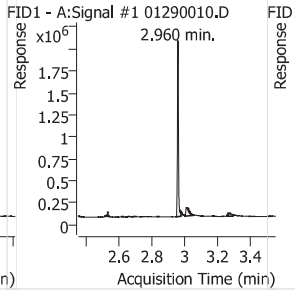
Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.206	736811	7.776	ug/mL		-0.010
Spiked Amount:	Range: - %			Recovery = NA%		
O-Terphenyl	2.960	873243	8.220	ug/mL		0.006
Spiked Amount:	Range: - %			Recovery = NA%		
Target Compounds						
Diesel	2.206	501679	5.356	ug/mL	m	
Heavy Oil	2.959	1442583	23.608	ug/mL	m	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

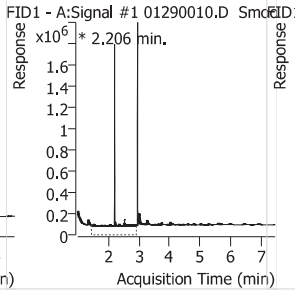
2-Fluorobiphenyl



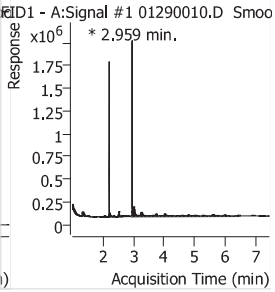
O-Terphenyl



Diesel



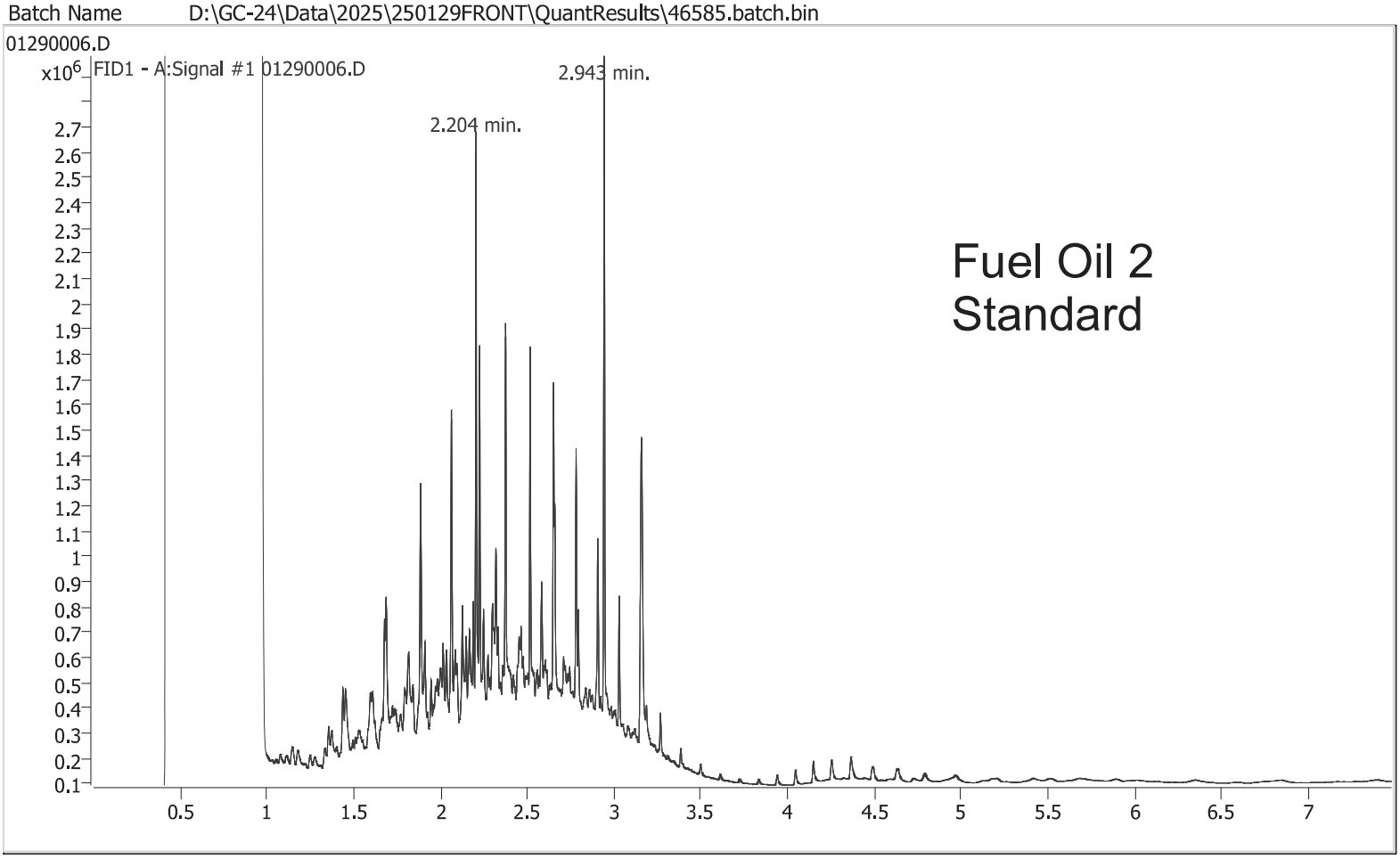
Heavy Oil



Quantitation Results Report

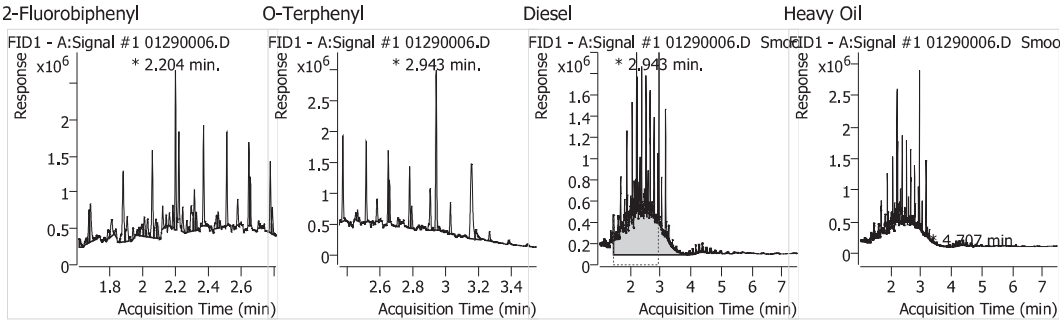
Agilent Technologies

Data File	01290006.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 9:18:36 AM
Sample Name:	DX-CCV		dualfid
Vial	1	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



Compound	RT	Resp.	Conc.	Units		Dev(Min)
Internal Standards						
System Monitoring Compounds						
2-Fluorobiphenyl	2.204	822034	8.675	ug/mL	m	-0.012
Spiked Amount:	Range: - %			Recovery =	NA%	
O-Terphenyl	2.943	1096791	10.325	ug/mL	m	-0.011
Spiked Amount:	Range: - %			Recovery =	NA%	
Target Compounds						
Diesel	2.943	44798702	478.262	ug/mL	m	
Heavy Oil	4.707	0			md	

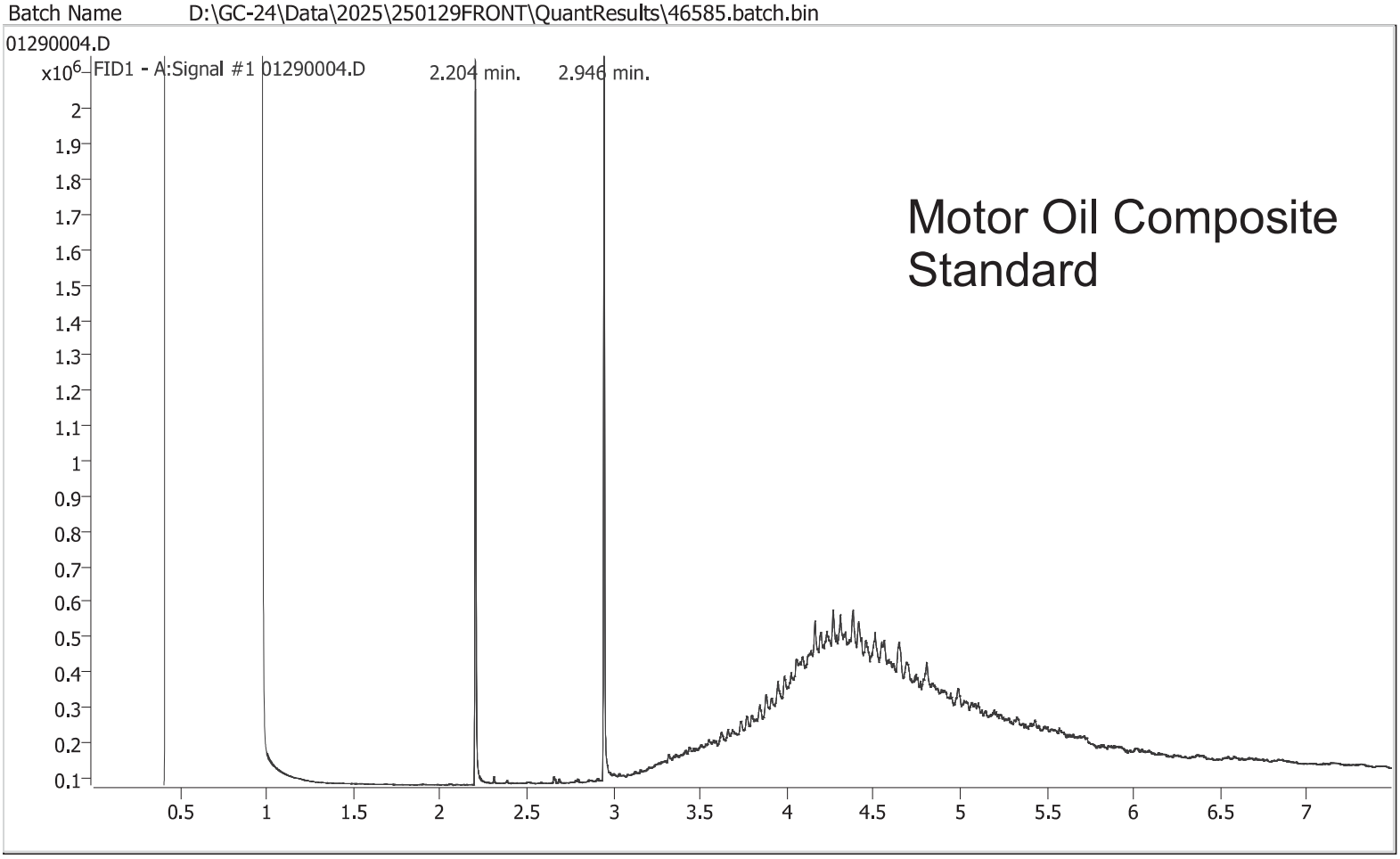
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak



Quantitation Results Report

Agilent Technologies

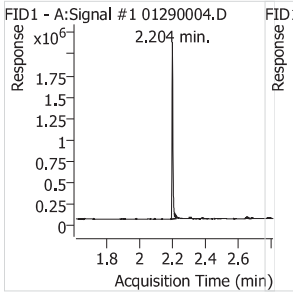
Data File	01290004.D	Operator	AP
Acq. Method	DX_220112	Acq. Date-Time	1/29/2025 9:06:51 AM
Sample Name:	OIL-CCV		dualfid
Vial	2	Multiplier	1.00
DA Method File	DX_240409.m	Last Calib Update	4/9/2024 3:34:13 PM
	O-DXEX-W		
Batch Name	D:\GC-24\Data\2025\250129FRONT\QuantResults\46585.batch.bin		



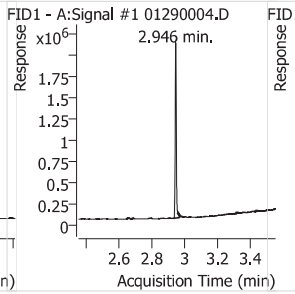
Compound	RT	Resp.	Conc.	Units	Dev(Min)
Internal Standards					
System Monitoring Compounds					
2-Fluorobiphenyl	2.204	842099	8.887	ug/mL	-0.012
Spiked Amount:	Range: - %			Recovery = NA%	
O-Terphenyl	2.946	969884	9.130	ug/mL	-0.007
Spiked Amount:	Range: - %			Recovery = NA%	
Target Compounds					
Diesel	2.188	0			md
Heavy Oil	2.946	31189624	510.418	ug/mL	m

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

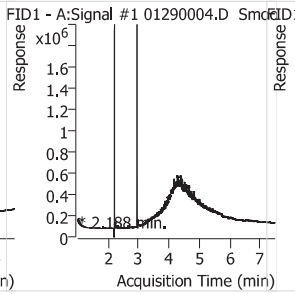
2-Fluorobiphenyl



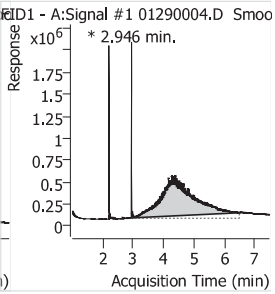
O-Terphenyl



Diesel



Heavy Oil



- Standard Operating Procedures

AEROTECH
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SOIL BORING AND WELL INSTALLATION STANDARD OPERATING PROCEDURE

EQUIPMENT *(Items in italic provided by drilling subcontractor, verify according to the site sampling plan they bring the appropriate equipment and material.)*

- Sampling and Analyses Plan (SAP)
- Site-specific sampling plan
- Sample location map
- Sample table
- Safety equipment, as specified in the Health and Safety Plan
- Permanent pens/marker (e.g. Sharpies®)
- Site logbook, boring log and/or sampling form
- Camera
- Candlestick/cones/barricade
- Caution tape
- Trash bags/plastic sheeting
- Assorted tools (e.g. shovels, wrenches, etc.)
- *Annular materials: silica sand, bentonite pellets and chips, grout*
- *Monitoring well materials: 2-inch schedule 40 PVC riser, well screen and end caps*
- *Completion materials: posts or traffic rated steel monuments, concrete mix, concrete forms*
- *Drilling rig (e.g. hollow stem auger, air/mud rotary, direct push, or sonic)*
- *Disposable acetate liners for direct push*
- *Decontamination equipment such as pressure washer to decontaminate rig and bucket with water and phosphate-free soap (e.g. Alconox®, Liquinox®) for split spoon samplers*

Preliminary Activities

Prior to the onset of field activities at the site, Aerotech obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Aerotech marks the borehole locations and contacts the local one call utility locating service at least 2 full business days prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Additionally, borehole locations may be cleared via air-knife and vacuum operations where proposed locations are in close proximity of buried utilities. Fieldwork is conducted under the advisement of a state registered professional geologist. Monitoring well construction will

comply with Monitoring Well Construction: General, 690-240-100 through Well Seals, WAC 173-160.

Drilling

Aerotech contracts a licensed driller to advance each boring and collect soil samples. The specific drilling method (e.g., hollow-stem auger, direct push method, or sonic drilling), sampling method [e.g., core barrel or California-modified split spoon sampler (CMSSS)] and sampling depths are documented on the boring log and may be specified in a work plan. Soil samples are typically collected at the capillary fringe and at 5-foot intervals to the total depth of the boring. To determine the depth of the capillary fringe prior to drilling, the static groundwater level is measured with a water level indicator in the closest monitoring well to the boring location, if available.

The borehole is advanced to just above the desired sampling depth. For CMSSSs, the sampler is placed inside the auger and driven to a depth of 18 inches past the bit of the auger. The sampler is driven into the soil with a standard 140-pound hammer repeatedly dropped from a height of 30 inches onto the sampler. The number of blows required to drive the sampler each 6-inch increment is recorded on the boring log. For core samplers (e.g., direct push), the core is driven 18 inches using the rig apparatus.

Soil Sampling

Soil is collected according to Aerotech's SOIL SAMPLING STANDARD OPERATING PROCEDURE.

Grab Groundwater Sampling from Soil Boring

In the event that undeveloped grab-groundwater samples are necessary for the scope of work, a temporary well screen is placed across the desired interval of the soil boring. The sample can be collected via disposable bailer or peristaltic pump and disposable tubing. Additionally if direct push technology has been utilized for advancing the soil boring, a groundwater sample, is collected from the boring by using HydropunchTM sampling technology. In the case of using HydropunchTM technology, after collecting the capillary fringe soil sample, the boring is advanced to the top of the soil/groundwater interface and a sampling probe is pushed to approximately 2 feet below the top of the static water level. The probe is opened by partially withdrawing it and thereby exposing the screen. New polyethylene tubing with a peristaltic pump or decontaminated bailer is used to collect a water sample from the probe. The water sample is then emptied into laboratory-supplied containers constructed of the correct material and with the correct volume and preservative to comply with the proposed laboratory test. The container is slowly filled with the retrieved water sample until no headspace remains and then promptly sealed with a Teflon-lined cap, checked for the presence of bubbles, labeled, entered onto a COC record and placed in chilled storage at 4° Celsius. Laboratory-supplied trip blanks accompany the water samples as a quality assurance/quality control procedure. Equipment blanks may be collected as required. The samples are kept in chilled storage and transported under COC protocol to a client-approved, state-certified laboratory for analysis.

Field Screening Procedures

Aerotech staff place the soil from the middle of the sampling interval into a plastic re-sealable bag. The bag is then labeled with the sample number. The tip of a photoionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The highest sustained PID measurement is recorded on the boring log. At a minimum, the PID or organic vapor monitoring device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. Aerotech trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, which is included in the final report.

Backfilling of Soil Boring

If a well is not installed, the boring is backfilled from total depth to approximately 5 feet below ground surface (bgs) with either neat cement or bentonite grout using a tremie pipe. The boring is backfilled from 5 feet bgs to approximately 1 foot bgs with hydrated bentonite chips. The borehole is completed from 1 foot bgs to surface grade with material that best matches existing surface conditions and meets local agency requirements. Site-specific backfilling details are shown on the respective boring log.

Monitoring Well Construction

A well (if constructed) is completed using materials documented on the boring log or specified in a work plan. The well is constructed with slotted casing across the desired groundwater sampling depth(s) and completed with blank casing to within 6 inches of surface grade. No further construction is conducted on temporary wells. For permanent wells, the annular space of the well is backfilled with Monterey sand from the total depth to approximately 2 feet above the top of the screened casing. A hydrated granular bentonite seal is placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to the desired depth using a tremie pipe. The well may be completed to surface grade with a 1-foot thick concrete pad. A traffic-rated well vault and locking cap for the well casing may be installed to protect against surface-water infiltration and unauthorized entry. Site-specific well construction details including type of well, well depth, casing diameter, slot size, length of screen interval and sand size are documented on the boring log or specified in the work plan.

Monitoring Well Development

Following well construction, each monitoring well is developed and surveyed according to Aerotech's MONITORING WELL DEVELOPMENT AND SURVEYING STANDARD OPERATING PROCEDURE.

Well Sampling

Following development, groundwater is collected according to Aerotech's LOW-FLOW GROUNDWATER SAMPLING STANDARD OPERATING PROCEDURE.

Decontamination Procedures

Aerotech and/or the contracted driller decontaminate soil and water sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. Deionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

Waste Treatment and Soil Disposal

Soil cuttings and decontamination fluids generated from the drilling or sampling are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. Unless otherwise specified in the contract with Aerotech, the client is responsible for disposal of investigation derived waste. Should Aerotech be contracted to complete disposal for the client, drums containing investigation derived waste are subsequently transported under manifest to a client- and regulatory-approved facility for disposal.

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SOIL SAMPLING STANDARD OPERATING PROCEDURE

EQUIPMENT

- Sampling and Analyses Plan (SAP)
- Site-specific sampling plan
- Sample location map
- Sample table
- Safety equipment, as specified in the Health and Safety Plan
- Permanent pens/marker (e.g. Sharpies®)
- Site logbook and/or sampling form
- Camera
- Screening equipment (e.g. Photoionization detector (PID))
- Survey stakes or flags
- Tape measure or measuring wheel
- Plastic sheet
- Soil collection device, heavy equipment (e.g. spoons spade shovel, hand auger, hollow stem auger – split spoon sampler, direct push rig – macro core, shelby tube, backhoe)
- Syringes for EPA Method 5035
- Syringe tool for EPA Method 5035 (e.g. En Core® sampler)
- Pre-weighed and preserved sample vials for EPA Method 5035
- Stainless steel and/or plastic bowls (only if homogenizing composite samples)
- Sample containers, precleaned (e.g., I-Chem)
- Chain-of-custody forms, custody seals, sample labels
- Ziploc® Bags
- Insulated cooler
- Ice
- Plastic bags for sample containers and ice
- Decontamination equipment including tap water and/or deionized water and phosphate-free soap (e.g. Alconox®, Liquinox®)

Soil Sampling

Soil samples are preserved in the metal or plastic sleeve used with the California-modified split spoon sampler (CMSSS) or core sampler, in glass jars or other containers according to the test method and regulatory guidelines (e.g., Environmental Protection Agency Method 5035). Sleeves are removed from the sample barrel, and the lowermost sample sleeve is labeled. Soil is collected from the split spoon sample or direct push core sample into appropriate containers based on the planned test method. Besides the use of a drilling rig, soil may also be collected via hand auger or with a scoop or spoon from the surface or a selected interval from an excavation, trench or test pit.

Soil Sample Collection

Aerotech field personnel are to review the SAP for sample locations and analysis as well as obtain photograph(s) of the material before sampling. If the soil sample is to be a discrete sample, collect soil using a clean/decontaminated stainless-steel (organic analyses) or plastic (inorganic analyses) spoon. If the soil sample is to be a composite, collect soil from all locations to be sampled into one stainless-steel (organic analyses) or plastic (inorganic analyses) bowl and homogenize the soil. If the soil sample is to be a discrete sample for volatile analyses, collect soil using a syringe and place into appropriate pre-weighed sample vial (Volatiles samples may not be composited.).

Next, use the syringe, stainless-steel or plastic spoon to transfer soil sample as appropriate into sample container as specified by the analytical test method. Label and manage sample containers. Decontaminate sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. Deionized water may be used for the final rinse. Ensure activities are well documented in the site logbook or on a designated sampling form. (i.e. collection method, presence of sheen or odor and PID measurement.

Field Screening Procedures

Aerotech field staff place soil from sampling interval into a plastic re-sealable bag. The bag is then labeled with the sample number. The tip of a photoionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The highest sustained PID measurement is recorded on the boring log. At a minimum, the PID or organic vapor monitoring device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. Aerotech trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, sampling form or logbook. Selected soil samples for analysis are then placed Samples are placed in a cooler chilled to 4º Celsius and transported to a state-certified laboratory under chain-of custody (COC) protocol.

Extractable Petroleum Hydrocarbons (EPH)/Volatile Petroleum Hydrocarbons (VPH)

To evaluate the potential utilization of site specific cleanup levels (e.g. Ecology's Method B or Method C cleanup levels), Aerotech field personnel will collect additional sample volume to complete EPH/VPH analysis. This test will be completed on samples that are containing petroleum hydrocarbons only, utilizing the previously discussed field screening procedures as well as contaminant source data from previous investigation work.

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LOW-FLOW GROUNDWATER SAMPLING STANDARD OPERATING PROCEDURE

EQUIPMENT

- Sampling and Analyses Plan (SAP)
- Site-specific sampling plan
- Sample location map
- Sample table
- Safety equipment, as specified in the Health and Safety Plan
- Permanent pens and markers (e.g. Sharpies®)
- Field notebook and/or sampling form
- Camera
- YSI water quality monitoring equipment (e.g. YSI monitor and flow through cell)
- Sample containers, precleaned (e.g., I-Chem)
- 55-Gallon Drums
- Two 5-Gallon Buckets
- 3/8" Tubing
- Power Source/cables
- Peristaltic or down-well pump
- Water Level Indicator
- Tool box with hand tools (e.g. socket set, screw drivers)
- Trash bags/plastic sheeting
- Candlestick/cones/barricade
- Caution tape
- Scissors/knife
- Paper towels
- Watch
- Decontamination equipment including tap water and/or deionized water and phosphate-free soap (e.g. Alconox®, Liquinox®)
- Chain-of-custody forms, custody seals, sample labels
- Ziploc® Bags
- Insulated cooler
- Ice
- Plastic bags for sample containers and ice

The following protocol and sampling procedures were designed to meet or exceed standards for groundwater monitoring well sampling, as specified by the State of Washington Department of Ecology *"Standard Operating Procedures for Purging and Sampling Monitoring Wells, Version 1.0,"* dated and approved on October 4, 2011. These procedures are strictly adhered to by Aerotech field staff:

Cross-Contamination Mitigation Protocol

A sampling table is set up adjacent to the well head in order to protect field equipment from contact with the ground, to prevent or minimize the possible introduction of foreign materials into the wells, and in general in order to mitigate the possibility of cross-contamination. Where previous laboratory data is available, or where visual of olfactory indicators provide initial evidence, well sampling order is arranged to proceed with the least contaminated well, often the upgradient groundwater monitoring wells, and sampling order proceeds by sampling wells associated with successively higher contamination levels. Thus, the wells exhibiting the highest contamination levels are sampled last, in order to minimize the possibility of cross contamination.

A fresh pair of disposable Nitrile gloves is worn at each well. Equipment neither disposable nor dedicated to wells, is washed in a dedicated container prepared with non-phosphate detergent and triple rinsed in a second container prepared with distilled and/or deionized water. Surfaces that cannot be readily submerged for the purpose of decontamination, are sprayed with wash water followed by rinse water, and wiped with a fresh disposable paper towel. For shallow wells that require a peristaltic pump, dedicated tubing is left in each well after sampling, however, for deeper wells that require a submersible pump, dedicated tubing is recovered from wells after each use, and deployed to a designated dedicated clean plastic bag, bearing a label indicating well identification information.

Water Level Measurement

Prior to the well purge process and the collection of groundwater samples, groundwater levels are measured at the north side of the ("TOC") with a piezometer/water level indicator, by slowly lowering the sensor into wells prior to purging, in order to minimize disturbances. The water levels are measured twice, with tape a marked in 0.01 foot increments, in order to reduce possible reading error. Where appropriate, free product thickness is measured with gas level indicator paste or an interface indicator. Upon arrival, each well is visual inspected and the condition of the well and well head are noted.

Groundwater Monitoring Well Purge and Sampling Methodologies

Prior to groundwater sample collection, A dedicated length of high density polyethylene tubing is lowered into each well to a level near the middle of the screened interval. A dedicated length of clean silicone tubing is utilized within the pump mechanism. The wells are purged by means of low flow techniques, during which time groundwater is monitored for physical parameters, including temperature, pH, specific conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP), by means of a multi-parameter device mounted upon a flow cell, until such time as values recorded have stabilized and equilibrium conditions are verified according to State guidelines. This protocol ensures that collected groundwater samples are

representative of in-situ groundwater conditions. Readings are recorded once every 2 to 5 minutes, including water level measurement. The pumping rate shall remain below 1 L/min during monitoring and sampling procedures. This is verified by periodically filling a one-Liter graduated cylinder and recording the rate, adjusting the pump as necessary. The water column within the well should remain within 5% of the static height during the purge and sample process, if this cannot be achieved, the pump rate will be reduced until the water level stabilizes. The following conditions must be met in three consecutive readings prior to sampling:

• pH	+/- 0.1 standard units
• Specific Conductivity	+/- 10.0 mS/cm for values < 1,000 mS/cm
	+/- 20.0 mS/cm for values > 1,000 mS/cm
• DO	+/- 0.05 mg/L for values < 1 mg/L
	+/- 0.2 mg/L for values > 1 mg/L
• Temperature	+/- 0.1 degrees Celcius
• ORP	+/- 10 mV

Groundwater samples are collected in containers specified by the laboratory for the analyses established at the Site, and in accordance with State of Washington regulations or guidelines. Sample containers are labeled with site name, well identification, and date of collection information. Each sample is documented on a *Chain of Custody* (“”COC”) form, and immediately placed in an iced cooler (maintained at 4 degrees Celcius or less) for transport to a certified laboratory for analysis. Please note that any purge water suspected or confirmed to contain concentrations above the MTCA Cleanup Levels is drummed and left on Site.