DRAFT - Supplemental Site Characterization

Gibraltar Senior Living
10816 18th Avenue East
Tacoma, Pierce County, Washington

August 29, 2016
Terracon Project No. B2157004

Prepared for:
155 Tremont Ave, LLC
Bellingham, Washington

Prepared by:
Terracon Consultants, Inc.
Mountlake Terrace, Washington

August 29, 2016

155 Tremont Ave, LLC
4200 Guide Meridian, Ste. 101A
Bellingham, Washington 98226

Attn: Mr. Vinson Latimore

Re: DRAFT Supplemental Site Characterization
Gibraltar Senior Living
10816 18th Avenue East
Tacoma, Pierce County, Washington 98445
Terracon Project No. B2157004

Dear Mr. Latimore:

Terracon Consultants, Inc. (Terracon) is pleased to submit our report of Supplemental Site Characterization activities completed at the site referenced above. The report presents data from recent field activities that included the completion of soil borings and the collection of crawlspace air samples and soil samples for chemical analysis. The activities were completed to address the request for additional characterization work indicated in a Department of Ecology (Ecology) letter dated January 27, 2016. The work completed was in effort to complete the characterization activities required by the Model Toxics Control Act (MTCA) with the ultimate goal of obtaining a No Further Action (NFA) letter from Ecology. Terracon conducted the Supplemental Site Characterization in general accordance with our proposal (PB2167035) dated May 31, 2016, and Supplement to Agreement for Services, dated June 14, 2016.

Terracon appreciates this opportunity to provide environmental engineering services to 155 Tremont Ave, LLC. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Elizabeth Rachman, L.G., L.Hg.
Project Manager

Matt Wheaton, E.I.T, L.G.
Department Manager

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GIBRALTAR SENIOR LIVING
10816 18TH Avenue East, Tacoma,
Tacoma, Pierce County, Washington

Terracon Project No. B2157004
August 29, 2016

1.0 SITE DESCRIPTION & PROJECT BACKGROUND

The site is located at 10816 18th Avenue East in Tacoma, Pierce County, Washington, and is comprised of one parcel encompassing approximately 1.42 acres of developed land. The site is occupied by a three-story, 7,529-square-foot nursing home built in 1920, a one-story, 2,169-square-foot nursing home built in 1920, and a single-story, 2,170-square-foot nursing home built in 1960. The site is currently occupied by a mental health facility, known as Gibraltar Senior Living. A Topographic Map showing the site location is included as Exhibit 1 and a Site Diagram is included as Exhibit 2 in Appendix A. Detailed Site Diagrams are included in Appendix A for UST #1 (Exhibit 3), UST #2 (Exhibit 4) and UST 3 (Exhibit 5).

A Limited Site Investigation (LSI) and Supplemental LSI were performed by Terracon (Project # B2157004), dated July 7, 2015, and November 6, 2016, respectively, to characterize the impacts to soil identified during the removal of three heating oil underground storage tanks (USTs) and remedial efforts performed by Seattle Tank Services (a.k.a. Filco Company Inc.) in October 2011. Terracon submitted the reports to Ecology and requested an opinion on the work performed to date. Ecology provided the following comments (among others) in a letter dated January 27, 2016, in which further characterization of the site was requested:

- During its November 2016 investigation, Terracon collected three sub-slab vapor samples (SSV-1 through SSV-3, see Figure 2). The analytical results form SSV-1, collected in the vicinity of former UST #2, indicated a naphthalene detection that exceeded the MTCA indoor air screening level. Ecology requested further vapor assessment and sampling of air within the on-Site crawl spaces associated with the two smaller, single-story structures. Ecology requested that air samples be analyzed using EPA Method TO-15, and to collect duplicates to demonstrate quality assurance and quality control. In addition, Ecology recommended that a work plan be submitted for review prior to implementation.
- Ecology recalculated the site-specific MTCA Method B cleanup level (CUL) using some missing data, yielding a CUL at that time of 3,330 mg/kg, and indicated that it may be necessary to conduct further soil and groundwater characterization to compensate for the more stringent CUL. In the event further sampling is conducted, Ecology requested that EPA Method 8270 be used to accurately quantify naphthalenes in future soil and groundwater samples collected. If

naphthalenes are detected, Ecology requested that the result be inputted into the MTCA TPH11.1 spreadsheet, which may result in further adjustment of the CUL, contingent on the analytical results.

Terracon prepared a technical memorandum dated April 12, 2016, addressing the recommendations above and proposing a scope of work to address the data gaps (provided under separate cover). In the memorandum, Terracon proposed to collect a background (ambient) air sample and two additional air samples (including a duplicate) from within the crawl space beneath the building adjoining former UST #2 (where elevated naphthalene had been previously detected in the sub-slab vapor samples). The air samples would be analyzed for naphthalene by EPA Method TO-15. Terracon also proposed six additional test probes to further characterize the residual impacts and verify the extent of any soils remaining above 3,330 mg/kg. Soil samples were to be collected from the test probes at select depths and analyzed for diesel-range TPH by Method NWTPH-Dx and naphthalene by EPA Method 8270. Any naphthalene detections in soil would be used to recalculate the site-specific Model Toxics Control Act (MTCA) Method B soil CUL for diesel-range total petroleum hydrocarbons (TPH), and complete site characterization would need to be verified if the site-specific CUL were to decrease. Furthermore, if groundwater was encountered, it would be collected and analyzed for diesel-range TPH and naphthalene to verify the absence of impacts to the groundwater from the release. Based on its review of the technical memorandum, Ecology approved the proposed scope via electronic mail on April 25, 2016.

Three of the soil borings advanced during this investigation were placed in the vicinity of former boring EB-14, including EB-15 (6/28/2016), EB-16 (6/28/2016) and EB-17A. During the preparation of this report, a comprehensive evaluation of the data collected from the Site to-date was performed to verify that site characterization activities had been successfully completed. During this evaluation it was discovered that diesel-range TPH detected at 4,300 milligrams per kilogram (mg/kg) were erroneously depicted in a soil sampled collected at a depth of 7 feet below ground surface (bgs) in boring EB-14 in our previous report. However, it was determined that no soil samples had been submitted for analysis from EB-14 as the boring had been advanced to evaluate only groundwater concentrations in the vicinity of UST #2. Given that nearby soil samples relative to EB-14 and the groundwater sample collected from EB-14 did not contain detectable concentrations of diesel-range TPH, it was concluded that soil from the vicinity of EB-14 was not adversely affected from a release from UST #2. Therefore, since no MTCA Method B soil cleanup level exceedances are actually present at EB-14, site characterization activities were not necessary in this location. The analytical results received during this investigation (discussed further in Section 3.2) confirm that impacts are not present in this area.

At the client's request, Terracon performed the additional site characterization tasks recommended and approved by Ecology, as described in the following sections.

2.0 SCOPE OF SERVICES

Terracon's scope of work was conducted in general accordance with our proposal (PB2167035) dated May 31, 2016, and our Supplement for Agreement of Services dated June 14, 2016. Our scope of services included completion of the following tasks:

- Pre-Field Work Activities including a site-specific Health and Safety Plan (HASP), coordination of subcontractors and public and private utility location services.
- Advancement of six direct push borings and one hand auger boring to a maximum depth of 15 feet below ground surface (bgs) and collection of soil samples from each boring. Although only six borings were proposed in the Ecology-approved work plan, one of the borings encountered refusal before the desired depth was reached. Therefore, an additional soil boring was drilled in order to obtain a sample from the target depth interval.
- Installation of a temporary groundwater monitoring well to observe for sufficient recharge for sample collection purposes (if groundwater is encountered).
- Collection of ambient and crawlspace air samples. Terracon had proposed to collect the ambient air sample at the heating, ventilating and air conditioning (HVAC) air handler. However, after discussion with the property owner it was understood that the on-site buildings are not currently serviced by an HVAC system, and no air intakes were associated with the on-site heating system. Therefore, the ambient air sample was collected in an upwind location relative to the crawlspace sample locations.
- Completion of laboratory analyses of soil and air samples.
- Preparation of this Supplemental Site Characterization summary report.

This Supplemental Site Characterization was conducted to further characterize the adverse impacts reported during the previous heating oil UST removal activities, as recommended by Ecology in effort to obtain a No Further Action (NFA) opinion for the Site. Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These Supplemental Site Characterization services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-11.

2.1 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Supplemental Site Characterization. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

2.2 Reliance

This report has been prepared for the exclusive use of 155 Tremont Ave. LLC, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of 155 Tremont Ave. LLC and Terracon. Any unauthorized distribution or reuse is at 155 Tremont Ave. LLC's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, Supplemental Site Characterization report, and Terracon's Agreement for Services. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to 155 Tremont Ave. LLC and all relying parties unless otherwise agreed in writing.

3.0 FIELD INVESTIGATION

Terracon has a commitment to the safety of all its employees. As such, and in accordance with our *Incident and Injury Free*® safety goals, Terracon conducted the fieldwork under a site specific health and safety plan developed for this project. Work was performed using the Occupational Health and Safety Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, and protective boots. In an effort to locate underground utilities in the work area, Terracon contacted the Washington State Utility Notification Center to arrange for public underground utility clearance for the proposed borings. In addition, Terracon subcontracted with a private utility location service to identify the locations and depths of the various utilities located near the boring locations in effort to avoid damage to such utilities.

3.1 Crawlspace Air Sampling

Two air samples (CS-1 and CS-2) were collected from the crawl space beneath the structure adjacent to former UST #2. Additionally, one ambient air sample (ambient) was collected from outside of the structure in a location that was upwind of the crawl space. See Exhibit 2 in Appendix A for a depiction of sample locations.

The Summa® canisters used for this assessment were pre-tested and individually-certified as free of chemicals of concern (COCs) by the analytical laboratory. All canisters were equipped with laboratory-supplied 8-hour flow controllers. The flow regulator valve was opened to start the air sample collection for approximately 8 hours. Once the "in-line" flow regulator indicated that the Summa® canister was full, the valve was closed and the sampling assembly was dismantled. In order to ensure accurate representation of ambient conditions during the entire crawlspace sample collection time, the ambient air canister was opened prior to the crawlspace canisters, and closed after the crawlspace canisters had been sealed.

Upon completion of sample collection as described above, the Summa® canisters were closed, secured, and appropriately labeled with pertinent sample information. Canister pressures were recorded upon initiating sample collection, after sample collection, and after receipt at the laboratory. All air samples were labeled accordingly and submitted to Friedman and Bruya Inc., a Washington State accredited laboratory, under standard chain-of-custody procedures for chemical analysis.

3.2 Soil Sampling

On June 28, 2016, Terracon field geologist Heather Gadwa mobilized to the site to complete the field investigation. Field activities were performed in seven locations at the site (EB-15 (6/28/2016), EB-16 (6/28/2016), EB-17 (6/28/2015), EB-17A, EB-18, EB-19 and EB-20). Six of the borings were advanced utilizing direct-push sampling technology on a truck-mounted drill rig owned and operated by Holocene Drilling, Inc., a Washington State licensed driller. The remaining soil boring was advanced using a hand auger due to loss of material in the direct-push sampling sleeves.

Boring locations are depicted relative to site features on Exhibit 2 of Appendix A. Detailed diagrams of the two former UST areas are depicted on Exhibits 3 and 4 of Appendix A. Soil boring EB-18 was completed to confirm the presence of a reported elevated concentration of diesel-range TPH (5,600 mg/kg) detected at a depth of 6 feet bgs in the east excavation sidewall sample (sample "I") reportedly left in-place at the time of the removal of UST #2. Soil boring EB-19 was completed to confirm the presence or absence of a reported concentration of diesel-range TPH (4,300 mg/kg) in an excavation sample collected from a depth of 7 feet bgs along the western side wall (sample "AH") of the UST #1 excavation, since it was unclear whether soils in this area

had been removed during over-excavation activities. Soil boring EB-20 was completed to confirm the presence of a reported concentration of diesel-range TPH (3,400 mg/kg) identified in an excavation sidewall sample collected from a depth of 7 feet bgs that was reportedly left in-place at the time of UST #1 removal (sample "AF"). Additionally, soil boring EB-20 was intended to determine the vertical extent of the identified impacted to soil.

As discussed in Section 1 above, soil borings EB-15 (6/28/2016), EB-16 (6/28/2016), EB-17 and EB-17A were advanced in the vicinity of former boring EB-14. Soil samples EB-15@7', EB-15@9', EB-16@7', and EB-17A@7' were collected from these three borings and submitted for laboratory analysis and no chemicals of concern were detected in the samples. Subsequent data evaluation revealed that these borings and samples were not necessary, and the laboratory results confirm the fact that the vicinity of EB-14 was not adversely affected by a release from UST #2.

Throughout the direct-push drilling operation, soil samples were obtained continuously (to the extent practical) from four-foot long pushes driven into the ground using a percussion hammer. The steel sampling tube was extracted from the hole and the liners were removed and split open. Drilling and non-disposable sampling equipment was cleaned using an Alconox® wash and potable water prior to the beginning of the project and before collecting each soil sample.

Drilling refusal was observed in all borings ranging from 7 to 10 feet bgs. Due to shallow refusal in soil boring EB-17 (6/28/2016) at approximately 7 feet bgs an additional boring was advanced nearby (EB-17A) to facilitate the collection of a soil sample at the target depth interval of 7 to 8 feet bgs.

Soil samples from select depths were field-screened using a photoionization detector (PID). Samples were screened by first segregating, at a minimum, one ounce of soil into a sealed plastic bag. The samples were placed into the sealed bag and set aside to allow volatilization from the sample to accumulate. Headspace analysis was performed by subsequently puncturing each plastic bag with the probe of the PID to estimate the concentration of volatile components partitioned into the atmosphere ("headspace") within the plastic bag.

The soil was also field-screened by sheen test. A small portion of the soil was placed into a shallow stainless steel bowl of water and observed to see if a sheen emitted on surface of the water from the soil.

Soil samples were extracted by hand using disposable gloves and placed directly into laboratory supplied glassware. Since field screening readings did not indicate evidence of impacts in soils outside of the planned sampling depths discussed above, soil samples were collected from the depths at which the previous samples in question had been collected during UST removal activities. Each sample container was labeled with the project number, date, time, boring number and sample number. Sample containers were placed in a chilled cooler immediately after

sampling, and subsequently transported to the analytical laboratory under strict chain-of-custody procedures. A total of seven soil samples were initially submitted for laboratory analysis at Friedman and Bruya, Inc. (FBI), a Washington-accredited laboratory. Additional soil samples collected were placed on hold pending initial analytical results.

A field log of each boring was maintained, including the thickness and depth of each soil unit encountered and the depth to the uppermost water table if encountered. Soil samples were observed to document soil lithology, color, and moisture content. Soils were logged in general accordance with American Society for Testing and Materials (ASTM) Practice Designation D-2488, *Standard Practice for Description of Soils (Visual-Manual Procedure)*. Boring logs are attached in Appendix C.

3.3 Temporary Groundwater Monitoring Wells and Groundwater Sampling

Based on the presence of wet soils at a depth of approximately 6 feet bgs and Ecology's specific request to collect a groundwater sample wherever it is encountered, soil boring EB-18 was converted to a temporary groundwater monitoring well in an effort to sample provided that sufficient recharge was observed. The temporary groundwater monitoring well was constructed with the following materials:

- A 5-foot, 2-inch diameter, 0.010-inch machine slotted polyvinyl chloride (PVC) well screen with a threaded bottom cap
- A 2-inch diameter, threaded, flush-joint PVC riser pipe to surface
- Pre-sieved 10/20 grade silica sand for annular sand pack around the well screen from the bottom of the boring to approximately two feet above the top of the well screen interval

After the temporary well was installed and allowed to equilibrate for more than two hours, groundwater was not observed in the well. Furthermore, saturated conditions were not identified in remaining soil borings advanced during this investigation; therefore, groundwater sampling was not conducted.

At the completion of field activities, Terracon removed the temporary well casing and abandoned the boring with commercial bentonite chips.

4.0 RESULTS OF THE FIELD INVESTIGATION

4.1 Geology/Hydrogeology

In general, soil lithologies encountered during this evaluation were similar to previous investigations. As with previous sampling activities, Terracon encountered predominantly silty sand deposits with occasional interbedded silt, sand, gravel, and silty clay layers. Groundwater

was only encountered in boring EB-18, at a depth of approximately 6 feet bgs. Based on the absence of recharge observed in the temporary well, the groundwater observed in the soil core was likely a small isolated zone of perched water that did not recharge. The boring logs in Appendix C detail the observed soil stratigraphy during this investigation.

4.2 Field Screening

The field screening results are summarized on the boring logs in Appendix C. In general PID readings for the soil samples we observed at <2 parts per million (ppm) in borings EB-15 (6/28/2016), EB-16 (6/28/2016), EB-17 (6/28/2016), EB-17A, and EB-19, <1 ppm to 20 ppm in boring EB-18, and 1.5 to 69.2 ppm in boring EB-20. Petroleum odors were observed in soil from borings EB-18, EB-19, and EB-20. Sheens were not observed in any of the soil samples collected from the soil borings.

5.0 ANALYTICAL RESULTS

Soil samples were analyzed for diesel- and oil-range total petroleum hydrocarbons (TPH) by Northwest Method NWTPH-DX and naphthalene by method EPA 8270. The air samples were analyzed for naphthalene by EPA Method TO-15. The laboratory analytical reports and chain-of-custody records are attached in Appendix D. The following sections describe the results of the testing.

5.1 Soil Analytical Results

Diesel-range TPH was identified in soil samples collected from both borings EB-18 and EB-20. The soil sample collected from EB-18 at approximately 6.5 feet bgs had a concentration of diesel-range TPH at 250 mg/kg. Soil samples collected from boring EB-20 at approximately 6.5 and 8 feet bgs had concentrations of 1,000 mg/kg and 1,200 mg/kg, respectively. Diesel-range TPH was not identified in the remaining soil samples collected for analysis above laboratory Method Reporting Limits (MRLs).

Naphthalene was also identified in soil samples collected from EB-20 at 0.62 mg/kg and 0.82 mg/kg. Both concentrations are below the standard MTCA Method B cleanup level of 1,600 mg/kg. The highest naphthalene detection was added into the MTCATPH spreadsheet to re-calculate the site-specific MTCA Method B soil cleanup level for the direct contact pathway. The updated Method B soil cleanup level was 3,329 mg/kg. The calculations spreadsheet has been included as Appendix E. Naphthalene was not identified in the remaining soil samples collected for analysis above laboratory MRLs.

The analytical soil sampling results are summarized in Table 1 of Appendix B. Reported soil concentrations were compared to the newly-calculated site-specific Washington State Model Toxics Control Act (MTCA) Method B cleanup level of 3,329 mg/kg.

5.2 Crawlspace Air Analytical Results

Three air samples (CS-1, CS-2, and Ambient) were submitted for analysis. Naphthalene was identified in each of the samples at concentrations of 0.50 micrograms per cubic meter (µg/m^3), 0.47 µg/m^3, and 0.38 µg/m^3, respectively. Each of the detected concentrations are above the applicable MTCA Method B Indoor Air Cleanup Level of 0.0735 µg/m^3.

The analytical air sampling results are summarized in Table 2 of Appendix B. Reported air concentrations were compared to Ecology's August 2015 updated Method B Indoor Air Cleanup Level.

5.3 Quality Assurance/Quality Control Results

The analytical results for the current investigation were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering hold times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate (MS/MSD) recovery, and detection limits. QA/QC review was completed using guidance described in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (Draft Final, USEPA, 2005). Our evaluation assumes that the QA/QC is correct as reported by the laboratory, and merely provides an interpretation of the QA/QC results.

Hold Times. All analyses were completed within specified hold times.

Surrogate Recoveries. All surrogate recoveries were within laboratory limits.

Method Blanks. Analytes were not detected in any of the laboratory method blanks.

MS/MSD Results. MS and MSD recoveries were all within laboratory limits, and Relative Percent Differences (RPDs) between MS and MSD recoveries were all within laboratory limits.

Laboratory Reporting Limits. Reporting limits were below relevant MTCA cleanup levels.

Based upon our interpretation of quality control information provided by the laboratories, it is our opinion that the overall dataset is useable as qualified for the purposes of this Supplemental LSI.

6.0 INVESTIGATION DERIVED WASTE (IDW)

Drill cuttings, purged groundwater and decontamination water was containerized into two IDW drums that were already present on the site. Given the previous and current analytical results, soils will require proper off-site disposal. Terracon can provide costs for the removal and disposal of IDW upon request.

7.0 CONCLUSIONS

Based on the results of this investigation, the extents of impacts at the site have been characterized. Terracon performed subsurface investigations in the vicinity of the elevated diesel-range TPH soils reportedly left in place by Seattle Tank Services (STS) during previous UST removal activities in an attempt to assess for the presence of these soils (it was not clear in the STS report whether these soils were in place or had been removed) and to complete the characterization of the site. Our investigations did not encounter soils exhibiting diesel-range TPH concentrations above the site-specific MTCA Method B CUL of 3,329 mg/kg (adjusted from 3,330).

Since Terracon was not able to replicate the elevated concentrations reported at the site by STS during this or any previous Terracon investigations, it is not likely that these concentrations remain on the site. For example, STS reported a diesel-range TPH concentration in sample “Q” (north sidewall of UST #3 excavation) of 17,000 mg/kg at a depth of 6 feet bgs. Based on a review of the UST Site Assessment report, it was not clear whether this soil remained on the site. Terracon placed boring EB-11 adjacent to sample “Q” during a previous investigation. Field screening of soils in EB-11 revealed no evidence of impacts at 6 feet bgs (see boring log in Appendix C). The highest PID reading in the boring was 28.7 ppm at 7.5 to 8 feet bgs, where diesel-range TPH was detected at a concentration of 1,300 mg/kg. The soil sample collected at a depth of 9.5 to 10 feet bgs from the same boring did not detect diesel-range TPH. Therefore, it does not appear that the soils from which STS sample “Q” was collected remain on the site.

In another location along this north sidewall, STS reported a diesel-range TPH concentration of 7,800 mg/kg in sample “X,” which was collected from a depth of 7 feet bgs. Again, it was not clear whether this soil had been removed from the site. Terracon placed soil boring EB-6 in this location during a previous investigation. Elevated field screening readings were observed at 7 and 8.5 feet bgs (141 and 132 ppm, respectively); however, the soil sample from a depth of 9.5 to 10 feet bgs, which was selected for laboratory analysis, had a higher field screening reading of 212 ppm (see boring log in Appendix C). Diesel-range TPH was detected at 3,000 mg/kg in this deeper sample, which suggests that soils above it, from 7 to 8.5 feet, likely contain diesel-range TPH concentrations below the site-specific MTCA Method B CUL of 3,329 mg/kg.

This calls into question whether the elevated diesel-range TPH concentrations reported in STS sample "V" (13,000 mg/kg), collected from the southern sidewall of UST #3 at a depth of 6 feet bgs, actually remain on the site. Terracon drilled boring EB-7 in the vicinity of sample "V" in an attempt to verify its presence. Elevated PID readings were not observed at 6 feet bgs in boring EB-7 (see boring log in Appendix C). The highest PID reading was observed at a depth of 8.5 to 9 feet bgs. A sample was submitted from that depth interval which yielded a diesel-range TPH result of 2,200 mg/kg. The data collected from EB-7 suggest that the soils from which STS sample V were collected are likely no longer present on the site.

Although it appears unlikely that soils adversely affected by diesel TPH at concentrations higher than the MTCA Method B CUL remain in or around the excavation for UST #3, it should be noted that they are bound by clean soils to the north (EB-17), east (STS Sample "P"), south (EB-16), and west (STS Sample "W").

Soils exhibiting diesel-range TPH at concentrations in excess of the updated site-specific MTCA Method B cleanup level (3,329 mg/kg) may remain in a small area along the exterior wall of the building adjacent to UST #1. STS collected sample "AF" along the eastern sidewall of the UST #1 excavation and reported a diesel-range TPH concentration of 3,400 mg/kg, which is only slightly above the site-specific MTCA Method B soil CUL of 3,329 mg/kg. Terracon advanced soil boring EB-20 in an attempt to replicate the results of STS sample "AF" and define its extents, similar to the locations discussed above. However, boring EB-20 could not be located closer than approximately 5 feet west-northwest of STS sample "AF" due to the presence of underground utilities, a fence, an electrical conduit and a building in its immediate proximity. No hand auger attempt was made in this location since it was not likely that the desired depths would be reached, based on previous hand auger attempts elsewhere at the site that encountered refusal at depths shallower than the target sample depth for EB-20.

Since it was not possible to get closer than 5 feet to STS sample "AF," it is not known whether adversely-affected soils remain in this location. Soil samples collected from EB-20 at 6.5 and 8 feet bgs exhibited diesel-range TPH concentrations of 1,000 and 1,200 mg/kg, respectively, suggesting that even if the adversely-affected soils do remain in this location, their extent is likely minimal due to the presence of soils in compliance with MTCA approximately 5 lateral feet from, and within 2 vertical feet of, sample "AF," as well as the presence of a basement associated with the adjacent building. This suggests that the volume of the residual diesel-affected soils is likely less than one cubic yard of impacted soil. Based on the minimal amount of impacted soils likely remaining, if at all, the condition should be considered de minimis.

Residual soil impacts do not appear to be present elsewhere across the site. Furthermore, previous investigations have confirmed that groundwater has not been impacted above applicable MTCA Method A groundwater cleanup levels at the site.

The results of the previous soil vapor and recent crawlspace air sampling suggest the possibility that naphthalene could be present in the air within the living space of the building adjacent to former UST #2 at concentrations above the Method B Indoor Air cleanup level. Further assessment would be required to determine the source of the naphthalene in soil vapor and crawlspace air at this location. However, it is understood that the client would prefer to mitigate the vapor/air issue at this time, rather than proceed with further assessment of the indoor air. Therefore, an environmental covenant will be needed to address the mitigation measures.

8.0 RECOMMENDATIONS

Terracon recommends that a mitigation plan be prepared to address the elevated naphthalene concentrations identified in the crawlspace adjacent to former UST #2. In addition, Terracon recommends that the mitigation plan be submitted to Ecology along with this report for consideration of a Site-Specific No Further Action (NFA), or NFA Likely determination. All laboratory analytical results should be uploaded to Ecology's Environmental Information Management System (EIM), which is required by Ecology prior to issuance of an NFA or NFA Likely letter.

The results of our investigation show that some of the soils that remain on the site fall within soil reuse categories 2, 3, or 4, which are outlined in Table 12.1 of Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology, 2011). Although the soils that remain on site are in compliance with MTCA Method B CULs, soils within these categories require special handling if excavated. Therefore, if any further earthwork is performed, it may be necessary to dispose of the soils off-site, rather than reusing them on the site.

APPENDIX A – EXHIBITS

Exhibit 1 – Topographic Map

Exhibit 2 – Site Diagram

Exhibit 3 – Site Diagram UST#1

Exhibit 4 – Site Diagram UST#2

Exhibit 5 – Site Diagram UST#3

N

Former 675-gallon heating oil UST (UST #2)

Slab-on-grade mechanical closet

SSV-1

CS-2

Building with crawl space

EB-3 EB-4 EB-2 EB-18 EB-10 EB-15 EB-14 CS-1 Ambient

Asphalt Parking

Driveway

Former 1,000-gallon heating oil UST (UST#1)

Fence

SSV-3 EB-20 EB-9 EB-12 EB-13 EB-19

Stairs

Approximate basement extent

Building with basement

Grass

EB-17

18th Avenue E

Walkway

HA-1

Slab-on-grade mechanical closet

Building with crawl space

EB-8 SSV-2 EB-6 EB-11 EB-5 EB-7

Former 675-gallon heating oil UST (UST #3)

Franklin Pierce High School

EB-16

LEGEND:

- APPROXIMATE SITE BOUNDARY
- **EB-1** SOIL BORING APPROXIMATE LOCATION
- **HA-1** HAND AUGER BORING APPROXIMATE LOCATION
- **SSV-1** SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
- **CS-1** CRAWL SPACE/AMBIENT AIR SAMPLE LOCATION
- UST APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK (UST)

30 0 10 20 30

APPROXIMATE SCALE IN FEET

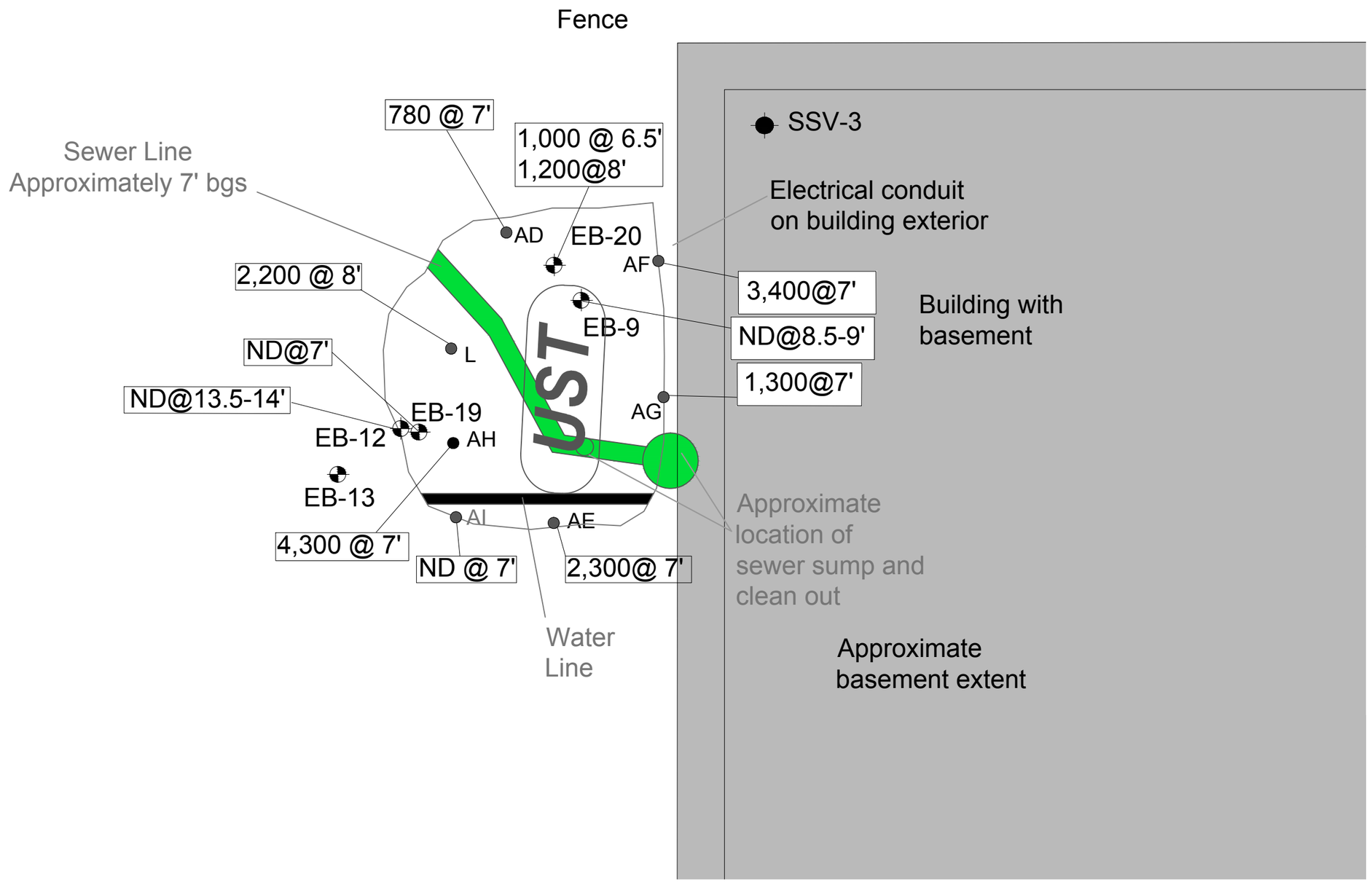
Project Mngr:	MYW
Drawn By:	AMP
Checked By:	LAR
Approved By:	LAR
Project No.	B2157004
Scale:	Not to Scale
File No.	Exhibit 2
Date:	July 2016

Terracon
Consulting Engineers and Scientists
21905 64th Avenue W, Ste 100 Mountlake Terrace, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

SITE DIAGRAM

Gibraltar Senior Living
10816 18th Avenue East
Tacoma, Pierce County, Washington

EXHIBIT 2



LEGEND

- APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
- UST — APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
- SSV-1 — TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
- 780 • 7' / AH — APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCENTRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
- 780 • 7' / EB-1 — APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)

ND=Non-detect
Black concentration=below MTCA, site specific cleanup level

N

4 0 2 4
SCALE IN FEET

REFERENCE ADAPTED FROM EXHIBIT 3 OF TERRACON SUPPLEMENTAL SITE CHARACTERIZATION REPORT, DATED AUGUST 29, 2016.

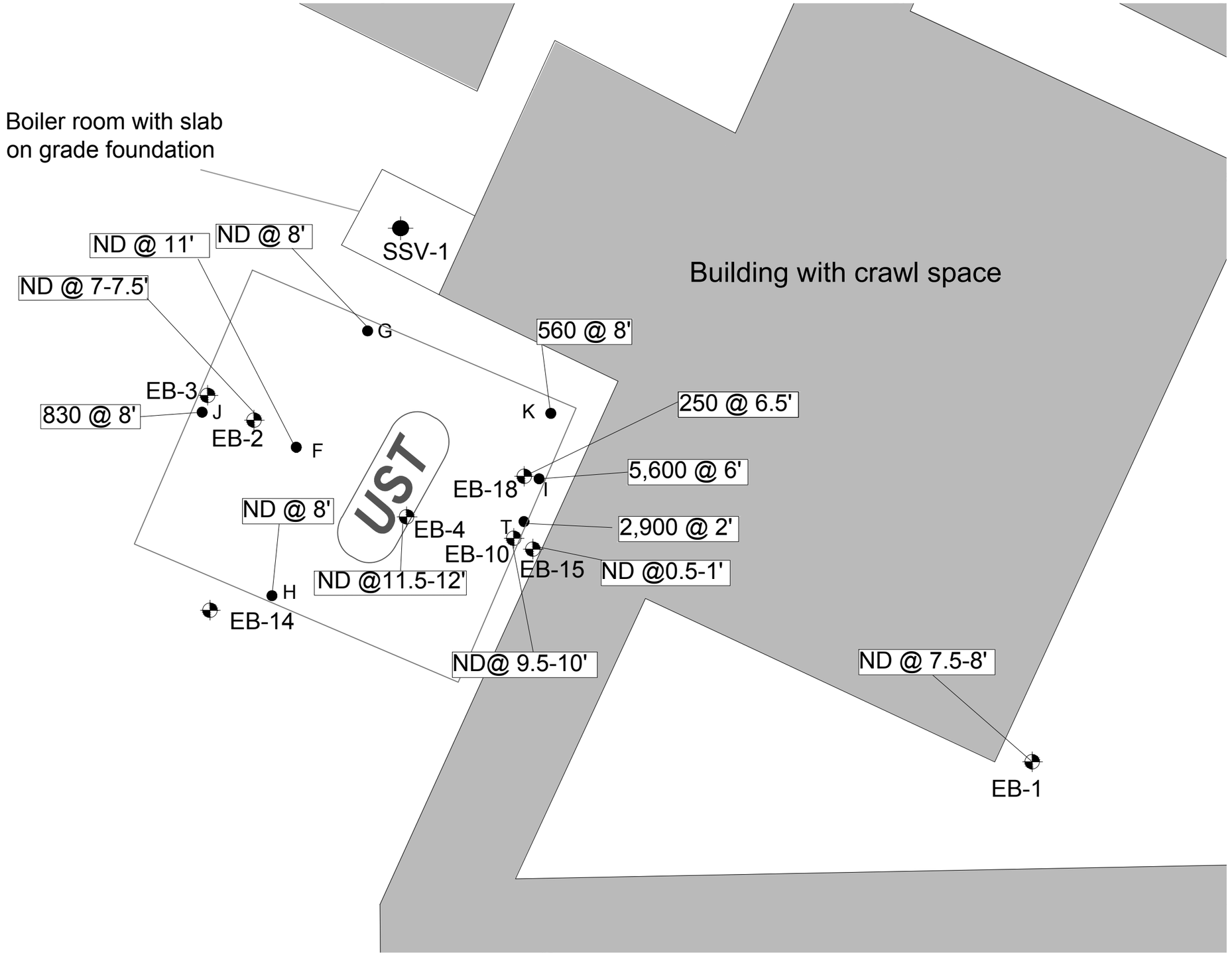
GIBRALTAR SENIOR LIVING
10816 18th Avenue East
Tacoma, Pierce County, Washington

SITE DIAGRAM UST #1 - 1,000 GALLON TANK

DATE: JANUARY 2017 Job No. 1757.24

Zipper Geo Associates, LLC
19023 36th Ave. W.,Suite D
Lynnwood, WA

EXHIBIT 3
SHT.1 of 1



LEGEND

- APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
- UST — APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
- SSV-1 — TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
- 780 • 7' / AH — APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCENTRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
- 780 • 7' / EB-1 — APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)

ND=Non-detect
Black concentration=below MTCA, site specific cleanup level

N

4 0 2 4
SCALE IN FEET

REFERENCE ADAPTED FROM EXHIBIT 4 OF TERRACON SUPPLEMENTAL SITE CHARACTERI ATION REPORT, DATED AUGUST 29, 2016.

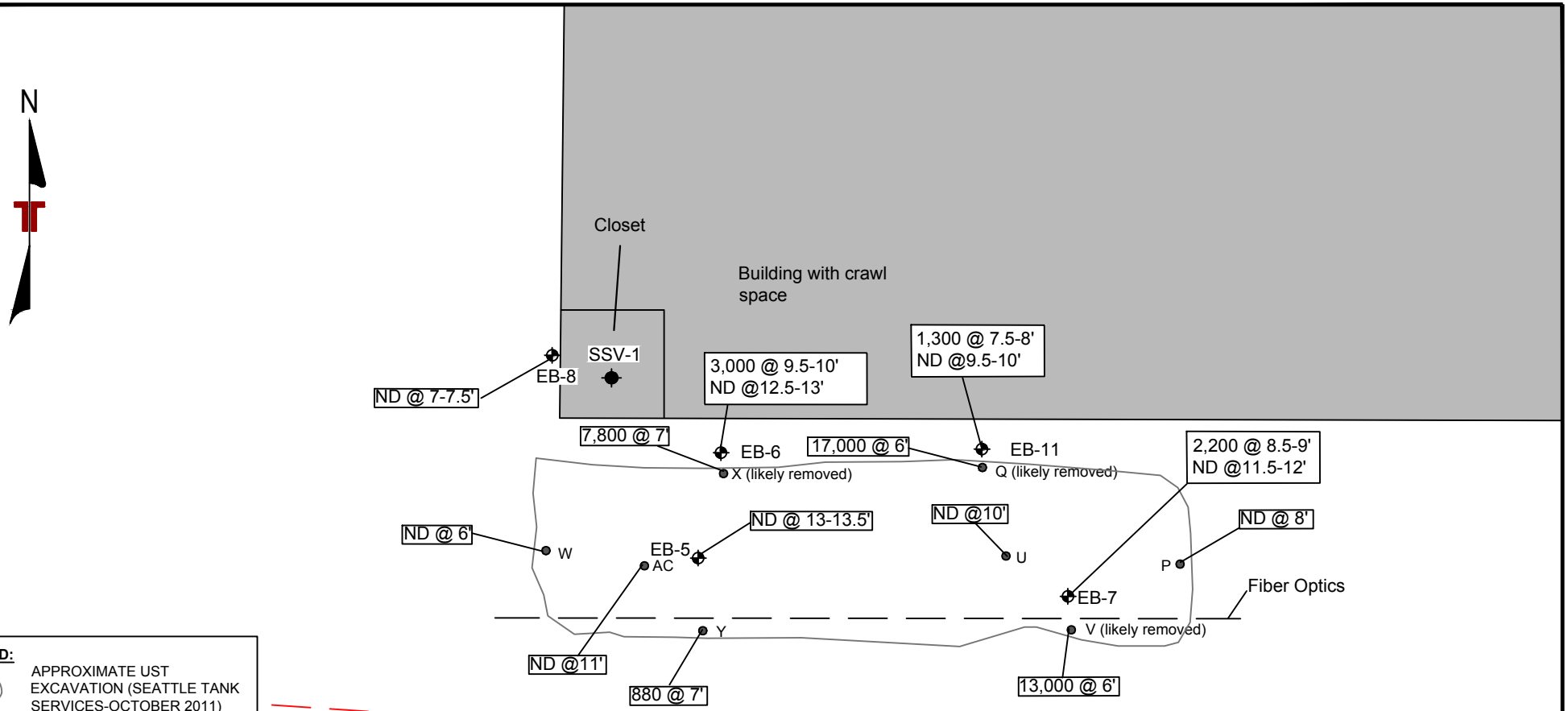
GIBRALTAR SENIOR LIVING
10816 18th Avenue East
Tacoma, Pierce County, Washington

SITE DIAGRAM UST #2 - 675 GALLON TANK

DATE: JANUARY 2017 Job No. 1757.24

Zipper Geo Associates, LLC
19023 36th Ave. W.,Suite D
Lynnwood, WA

EXHIBIT 4
SHT.1 of 1



LEGEND:

- APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
- UST — APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
- SSV-1 — TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
- 780 @ 7' / AH — APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCEN -TRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
- 780 @ 7' / EB-1 — APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)

ND=Non-detect
Black concentration=below MTCA, site specific cleanup level

Basemap PDF file provided by Client and modified by Terracon, locations are approximate.

Project Mngr: LAR	Project No. B2157004	Terracon Consulting Engineers and Scientists	**SITE DIAGRAM UST#3**
Drawn By: AMP	Scale: AS SHOWN	21905 64th Avenue W., Ste 100 Mountlake Terrace, WA 98043	Gibraltar Senior Living
Checked By: LAR	File No. Exhibit 5	PH. (425) 771-3304 FAX. (425) 771-3549	10816 18th avenue East
Approved By: HRG	Date: July 2016		Tacoma, Pierce County, Washington

EXHIBIT 5

APPENDIX B – TABLES

Table 1 – Cumulative Summary of Soil Analytical Results

Table 2 – Summary of Air Analytical Results

TABLE 1

CUMULATIVE SUMMARY OF SOIL ANALYTICAL RESULTS
Gibraltar Senior Living
10816 18th Avenue E
Tacoma, Pierce County, Washington

[all concentrations are in milligrams per kilogram (mg/kg)]

Boring ID / Excavation Sample	Sample ID[2]	Sample Depth (ft)	Associated Confirmation Sample	Sample Date	Removed or In-Place	TPH[1]		VOCs[2]
						Diesel-Range	Oil-Range	Naphthalene
UST #1								
Excavation Sample	C	12" below UST (approximatly 5-6')	NA	7/1/2011	**Removed**	**13,000**		NT
Excavation Sample	L	8'	NA	9/13/2011	In-Place	**2,200**		NT
Excavation Sample	AD	7'	NA	9/19/2011	In-Place	**780**		NT
Excavation Sample	AE	7'	NA	9/19/2011	In-Place	**2,300**		NT
Excavation Sample	AF	7'	NA	9/19/2011	In-Place	**3,400**		NT
Excavation Sample	AG	7'	NA	9/19/2011	In-Place	**1,300**		NT
Excavation Sample	AH	7'	NA	9/19/2011	**Removed**	**4,300**		NT
Excavation Sample	AI	Under water pipe	NA	9/20/2011	In-Place	ND (<50)		NT
EB-9	EB-9	8.5-9'	**C**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-12	EB-12	13.5-14'	**AH**	5/20/2015	In-Place	ND (<50)	ND (<250)	NT
EB-19	EB-19 @ 7'	7-7.5'	**AH**	6/28/2016	In- Place	ND (<50)	ND (<250)	ND (<0.01)
EB-20	EB-20 @ 6.5'	6.5-8'	**AF**	6/28/2016	In- Place	**1,000**	ND (<250)	**0.62**
	EB-20 @ 8'	8-9'	**AF**	6/28/2016	In- Place	**1,200**	ND (<250)	**0.82**
UST #2								
Excavation Sample	B	12" below UST (approximatly 5-6')	NA	7/1/2011	**Removed**	**1,600**		NT
Excavation Sample	D	12" below UST (approximatly 5-6')	NA	7/1/2011	**Removed**	**3,900**		NT
Excavation Sample	E	12" below UST (approximatly 5-6')	NA	7/1/2011	**Removed**	**1,500**		NT
Excavation Sample	F	11'	NA	9/13/2011	In-Place	ND (<50)		NT
Excavation Sample	G	8'	NA	9/13/2011	In-Place	ND (<50)		NT
Excavation Sample	H	8'	NA	9/13/2011	In-Place	ND (<50)		NT
Excavation Sample	I	6'	NA	9/13/2011	**Removed**	**5,600**		NT
Excavation Sample	J	8'	NA	9/13/2011	In-Place	**830**		NT
Excavation Sample	K	8'	NA	9/13/2011	In-Place	**560**		NT
Excavation Sample	S	1'	NA	9/15/2011	**Removed**	**12,000**		NT
Excavation Sample	T	2'	**S**	9/15/2011	In-Place	**2,900**		NT
EB-1	EB-1 7.5-8'	7.5-8'	**S, T**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-2	EB-2 7-7.5'	7-7.5'	**F**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-4	EB-4 11.5-12'	11.5-12'	**D, E**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-10	EB-10	9.5-10'	**S, T**	5/20/2015	In-Place	ND (<50)	ND (<250)	NT
EB-15	EB-15, S-1, 0.5-1'	0.5-1'	**S**	10/08/2015	In-Place	ND (<25)	ND (<50)	NT
EB-18	EB-18 @ 6.5'	6.5-7.5'	**I**	6/28/2016	In-Place	**250**	ND (<50)	ND (<0.01)
UST #3								
Excavation Sample	A	12" below UST (approximatly 5-6')	NA	7/1/2011	**Removed**	**43,000**		NT
Excavation Sample	P	8'	NA	9/14/2011	In-Place	ND (<50)		NT
Excavation Sample	Q	6'	NA	9/14/2011	**Removed**	**17,000**		NT
Excavation Sample	R	9'	NA	9/14/2011	**Removed**	**5,400**		NT
Excavation Sample	U	10'	NA	9/16/2011	In-Place	ND (<50)		NT
Excavation Sample	V	6'	NA	9/16/2011	**Removed**	**13,000**		NT
Excavation Sample	W	6'	NA	9/16/2011	In-Place	ND (<50)		NT
Excavation Sample	X	7'	NA	9/16/2011	**Removed**	**7,800**		NT
Excavation Sample	Y	7'	NA	9/16/2011	In-Place	**880**		NT
Excavation Sample	AC	11'	NA	9/16/2011	In-Place	ND (<50)		NT
EB-5	EB-5 13-13.5'	13-13.5'	**R**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-6	EB-6 9.5-10'	9.5-10'	**X**	5/14/2015	In-Place	**3,000**	ND (<250)	NT
	EB-6 12.5-13'	12.5-13'	**X**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-7	EB-7 8.5-9'	8.5-9'	**V**	5/14/2015	In-Place	**2,200**	ND (<250)	NT
	EB-7 11.5-12'	11.5-12'	**V**	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-8	EB-8 7.75'	7-7.5'	NA	5/14/2015	In-Place	ND (<50)	ND (<250)	NT
EB-11	EB-11	7.5-8'	Q	5/20/2015	In-Place	**1,300**	ND (<250)	NT
		9.5-10'	Q	5/20/2015	In-Place	ND (<50)	ND (<250)	NT
EB-16	EB-16, S-1, 7.5-8'	7.5-8'	NA	10/08/2015	In-Place	ND (<25)	ND (<50)	NT
	EB-16, S-2, 9.5-10'	9.5-10'	NA	10/08/2015	In-Place	ND (<25)	ND (<50)	NT
EB-17	EB-17, S-1, 7.5'	7-7.5'	NA	10/08/2015	In-Place	ND (<25)	ND (<50)	NT
Site Specific MTCA Method B Cleanup Level						**3,329**	**3,329**	**1,600***

Note: Concentrations detected above laboratory method reporting limits (MRLs) are in bold type.
Concentrations detected above the site specific cleanup level are in bold type and shaded.

TPH - Total Petroleum Hydrocarbons
MTCA - Model Toxics Control Act
NA - Not applicable
ND - Not detected above laboratory MRLs.
NT - Not tested.
TPH - Total Petroleum Hydrocarbons
VOCs - Volatile organic compounds
1 - The TPH results from 2011 were not seperated into diesel- and oil-range concentrations; therefore, the total diesel extended concentration was reported.
2 - The sample depths for the samples completed by others are an approxiamte and based on the information provided in the UST report.
* - MTCA Method B Cleanup Level, not site specific.

TABLE 2

SUMMARY OF AIR SAMPLING RESULTS
Gibraltar Senior Living
10816 18th Avenue E
Tacoma, Pierce County, Washington

[all concentrations are in micrograms per cubic meter ($\mu g/m^3$)]

Sample ID	Sample Date	Naphthalene
CS-1	6/23/2016	**0.50**
CS-2	6/23/2016	**0.47**
Ambient	6/23/2016	**0.38**
MTCA Method B Cleanup Level		0.0735

Note: Concentrations detected above the cleanup level are in bold type and shaded.

APPENDIX C – SOIL BORING LOGS

General Notes

Unified Soil Classification System

Boring Logs for EB-6, EB-7, EB-11 and EB-18 through EB-20

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING


Auger


Split Spoon


Shelby Tube


Macro Core


Ring Sampler


Rock Core


Grab Sample


No Recovery

WATER LEVEL


Water Initially Encountered


Water Level After a Specified Period of Time


Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, tsf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

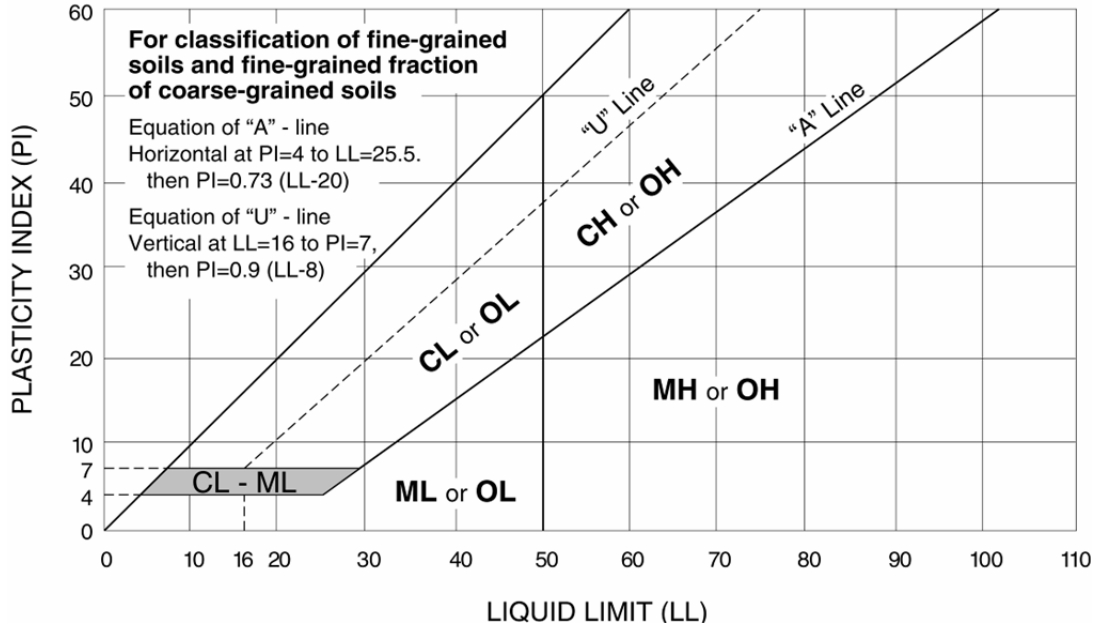
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Terracon

Exhibit C-2

BORING LOG NO. EB-6

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Figure 2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	SAMPLE NUMBER
	SILTY SAND (SM), brown, moist				0.1	
					0.1	
4.0	grades to brown with orange mottling				0.1	
	SILT (ML), gray with orange mottling, moist				0.4	
5.0		5				
	SANDY SILT (ML), gray, moist, petroleum odor & petroleum sheen				79	EB-6 5.5-6'
7.0					141	
	SILTY SAND (SM), with gravel, gray, moist, petroleum odor & petroleum sheen				132	
		10			212	EB-6 9.5-10'
	grades to petroleum odor, no petroleum sheen				4.7	
	grades to brown				5.9	
					2.7	
					2.7	EB-6 12.5-13'
	Boring Terminated at 13 Feet					
15.0						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Direct Push

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave. W, Suite 100
Mountlake Terrace, Washington

Boring Started: 5/14/2015 | Boring Completed: 5/14/2015

Drill Rig: GeoProbe | Driller: ESN

Project No.: B2157004 | Exhibit: EB-6

BORING LOG NO. EB-7

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Figure 2

Surface Elev.: 100 (Ft.)

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	OVA/PID (ppm)	SAMPLE ID
	SAND (SP), gray, moist		0	
2.5		97.5	0	
	SANDY SILT (ML), gray with orange mottling, moist		0	
			0	
			0	
6.0		94		
	SILTY SAND (SM), grayish-brown, moist		0	EB-7 6-6.5'
7.0		93		
	SILTY SAND (SM), with gravel, grayish-brown, moist, petroleum odor & petroleum sheen		5.9	
			155	EB-7 8.5-9'
			44	
			62	
			0.2	EB-7 11.5-12'
12.5		87.5	0.3	
13.0	**SILTY SAND (SM)**, grayish-brown, moist, petroleum odor & petroleum sheen	87	72.8	EB-7 12.5-13'
	SANDY SILT (ML), grayish-brown, moist		5.1	
15.0		85	1.1	EB-7 14.5-15'
	Boring Terminated at 15 Feet			

DEPTH (ft): 5, 10, 15

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Direct Push

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W Ste 100
Mountlake Terrace, WA

Boring Started: 5/14/2015 | Boring Completed: 5/14/2015

Drill Rig: GeoProbe | Driller: ESN

Project No.: B2157004 | Exhibit: EB-7

BORING LOG NO. EB-11

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Figure 2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	SAMPLE NUMBER
	SANDY SILT (ML), dark brown, moist				0.1	
	trace burnt woody debris				0.1	
3.0	**SILTY CLAY (CL)**, gray with orange mottling, moist				0.1	
5.0		5			0.1	
	SANDY SILT (ML), with gravel, gray, moist				0.1	
	petroleum odor & petroleum sheen				11	
				■	28.7	EB-11 7.5-8'
	grades to brown, slight petroleum odor, no sheen				1.2	
10.0		10		■	0.6	EB-11 9.5-10'
	SANDY SILT (ML), with gravel, brown, moist				0.3	
					0.3	
					0.3	
	grades to gray				0.3	
	grades to brown			■	0.2	EB-11 14.5-15'
15.0	***Boring Refusal at 15 Feet***	15				

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Direct Push

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave. W, Suite 100
Mountlake Terrace, Washington

Boring Started: 5/20/2015 | Boring Completed: 5/20/2015

Drill Rig: GeoProbe | Driller: ESN

Project No.: B2157004 | Exhibit: EB-11

WELL LOG NO. EB-18

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Exhibit 2

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	INSTALLATION DETAILS (Well Completion)	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	SAMPLE ID
0.5	**SILTY SAND WITH GRAVEL**, tan, moist, no odor/no sheen		Solid 3/4" PVC riser				0.5	
							0.3	
							0.6	
			Slotted 3/4" PVC pipe				0.3	
				5				
					▽		0.6	EB-18 @ 5.5'
	grades to gray, petroleum odor						1.6	EB-18 @ 6.5'
	faint petroleum odor						20	EB-18 @ 7.'
8.0	***Boring Refusal at 8 Feet***				▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Hand auger

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

▽ *While Drilling*

▽ *In temporary groundwater well*

Terracon
21905 64th Ave W Ste 100
Mountlake Terrace, WA

Well Started: 6/28/2016 | Well Completed: 6/28/2016

Drill Rig: | Driller: Holocene

Project No.: B2157004 | Exhibit: EB-4

BORING LOG NO. EB-19

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Exhibit 2

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	SAMPLE ID
0.2	**2" Asphalt**						
	SILTY SAND TRACE GRAVEL (SM), orange-brown, moist, no odor/no sheen					1.5	
						0.6	
5.0			5			1.3	
	SILTY SAND WITH GRAVEL (SM), brown, moist, no odor/no sheen					1.1	
						1.4	EB-19 @ 7'
	faint petroleum odor					1.4	
10.0	***Boring Refusal at 10 Feet***		10				

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Direct Push

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W Ste 100
Mountlake Terrace, WA

Boring Started: 6/28/2016 | Boring Completed: 6/28/2016

Drill Rig: Power Probe 9500 | Driller: Holocene

Project No.: B2157004 | Exhibit: EB-5

BORING LOG NO. EB-20

PROJECT: Gibraltar Senior Living

CLIENT: 155 Tremont Ave. LLC
Bellingham, Washington

SITE: 10816 18th Avenue East
Tacoma, Washington

LOCATION See Exhibit 2

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	SAMPLE ID
0.3	**FILL - GRAVEL**, gray						
	SILTY SAND WITH GRAVEL, tan, moist, no odor/sheen					1.5	
	faint petroleum odor					3.0	
4.0						3.0	
	SILTY SAND WITH GRAVEL, tan-gray, petrolem odor		5				
	strong petroleum odor					68.7	
						11.9	EB-20 @ 6.5'
						69.2	
9.0						5.0	EB-20 @ 8'
						19.0	
	Boring Refusal at 9 Feet						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Advancement Method:
Direct Push

Abandonment Method:
Borings backfilled with bentonite chips upon completion

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W Ste 100
Mountlake Terrace, WA

Boring Started: 6/28/2016 | Boring Completed: 6/28/2016

Drill Rig: Power Probe 9500 | Driller: Holocene

Project No.: B2157004 | Exhibit: EB-6

APPENDIX D – ANALYTICAL REPORT AND CHAIN OF CUSTODY

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 8, 2016

Liz Rachman, Project Manager
Terracon
3006 S 96th St
Lakewood, WA 98499

Dear Ms Rachman:

Included are the results from the testing of material submitted on June 24, 2016 from the B2157004, F&BI 606448 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRT0708R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 24, 2016 by Friedman & Bruya, Inc. from the Terracon B2157004, F&BI 606448 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terracon
606448 -01	Ambient
606448 -02	CS-1
606448 -03	CS-2

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 SIM

Client Sample ID:	Ambient	Client:	Terracon
Date Received:	06/24/16	Project:	B2157004, F&BI 606448
Date Collected:	06/30/16	Lab ID:	606448-01
Date Analyzed:	07/02/16	Data File:	063057.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	ppbv
Naphthalene	0.38	0.072

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 SIM

Client Sample ID:	CS-1	Client:	Terracon
Date Received:	06/24/16	Project:	B2157004, F&BI 606448
Date Collected:	06/30/16	Lab ID:	606448-02
Date Analyzed:	07/02/16	Data File:	063058.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv
Naphthalene	0.50	0.096

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 SIM

Client Sample ID:	CS-2	Client:	Terracon
Date Received:	06/24/16	Project:	B2157004, F&BI 606448
Date Collected:	06/30/16	Lab ID:	606448-03
Date Analyzed:	07/02/16	Data File:	063059.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	ppbv
Naphthalene	0.47	0.090

Analysis For Volatile Compounds By Method TO-15 SIM

Client Sample ID:	Method Blank	Client:	Terracon
Date Received:	Not Applicable	Project:	B2157004, F&BI 606448
Date Collected:	06/30/16	Lab ID:	06-1305 mb
Date Analyzed:	07/02/16	Data File:	063054.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	ppbv
Naphthalene	<0.26	<0.05

Date of Report: 07/08/16
Date Received: 06/24/16
Project: B2157004, F&BI 606448

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15 SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	ppbv	1	92	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

606448

SAMPLE CHAIN OF CUSTODY

ME 06/24/16

Report To Elizabeth Rachman
Company Terracon
Address 3006 S. 96th St
City, State, ZIP Lakewood, WA 98499
Phone 253.382.3820 Email liz.rachman@terracon.com

SAMPLERS (signature)
PROJECT NAME: B2157004
PO #:
REMARKS:
INVOICE TO:

Page # _____ of _____

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	TO-15 naphthalene only	Notes
Ambient	01	18563	07847	6/23	30	9:45	8	523				X	
CS-1	02	20552	07848	↓	30	9:49	8	522				X	
CS-2	03	20546	07845	↓	30	9:55	8	518				X	
													Samples received at 22 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Elizabeth Rachman	Terracon	6/24	11:40
Received by:	LUCAS SMART	" "	6/24	1140
Relinquished by:	LUCAS SMART	TERRACON	6/24	1325
Received by:	Nhan Pham	FedEx	6/24/16	V

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 8, 2016

Liz Rachman, Project Manager
Terracon
3006 S 96th St
Lakewood, WA 98499

Dear Ms Rachman:

Included are the results from the testing of material submitted on June 28, 2016 from the B2157004, F&BI 606517 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRT0708R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 28, 2016 by Friedman & Bruya, Inc. from the Terracon B2157004, F&BI 606517 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terracon
606517 -01	EB-15@7'
606517 -02	EB-15@9'
606517 -03	EB-16@7'
606517 -04	EB-17@6'
606517 -05	EB-17A@7'
606517 -06	EB-18@5.5'
606517 -07	EB-18@6.5'
606517 -08	EB-18@7.5'
606517 -09	EB-19@7'
606517 -10	EB-20@6.5'
606517 -11	EB-20@8'

All quality control requirements were acceptable.

Date of Report: 07/08/16
Date Received: 06/28/16
Project: B2157004, F&BI 606517
Date Extracted: 06/29/16
Date Analyzed: 06/29/16

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
EB-15@9' 606517-02	<50	<250	81
EB-16@7' 606517-03	<50	<250	80
EB-17A@7' 606517-05	<50	<250	87
EB-18@6.5' 606517-07	120	<250	88
EB-19@7' 606517-09	<50	<250	81
EB-20@6.5' 606517-10	1,000	<250	86
EB-20@8' 606517-11	1,200	<250	84
Method Blank 06-1319 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-15@9'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-02 1/5
Date Analyzed:	06/30/16	Data File:	063013.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	163
Benzo(a)anthracene-d12	98	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-16@7'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-03 1/5
Date Analyzed:	06/30/16	Data File:	063014.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	163
Benzo(a)anthracene-d12	101	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-17A@7'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-05 1/5
Date Analyzed:	06/30/16	Data File:	063015.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	163
Benzo(a)anthracene-d12	101	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-18@6.5'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-07 1/5
Date Analyzed:	06/30/16	Data File:	063016.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	31	163
Benzo(a)anthracene-d12	103	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-19@7'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-09 1/5
Date Analyzed:	06/30/16	Data File:	063017.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	102	31	163
Benzo(a)anthracene-d12	105	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-20@6.5'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-10 1/50
Date Analyzed:	07/05/16	Data File:	070506.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	112 d	31	163
Benzo(a)anthracene-d12	123 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.62

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-20@8'	Client:	Terracon
Date Received:	06/28/16	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	606517-11 1/5
Date Analyzed:	07/01/16	Data File:	070105.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	31	163
Benzo(a)anthracene-d12	103	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.82

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terracon
Date Received:	Not Applicable	Project:	B2157004, F&BI 606517
Date Extracted:	06/30/16	Lab ID:	06-1321 mb 1/5
Date Analyzed:	06/30/16	Data File:	063005.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	163
Benzo(a)anthracene-d12	97	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01

Date of Report: 07/08/16
Date Received: 06/28/16
Project: B2157004, F&BI 606517

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 606517-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	107	114	73-135	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	109	74-139

Date of Report: 07/08/16
Date Received: 06/28/16
Project: B2157004, F&BI 606517

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 606468-01 1/25 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.05	91	44-129

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	87	88	58-121	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

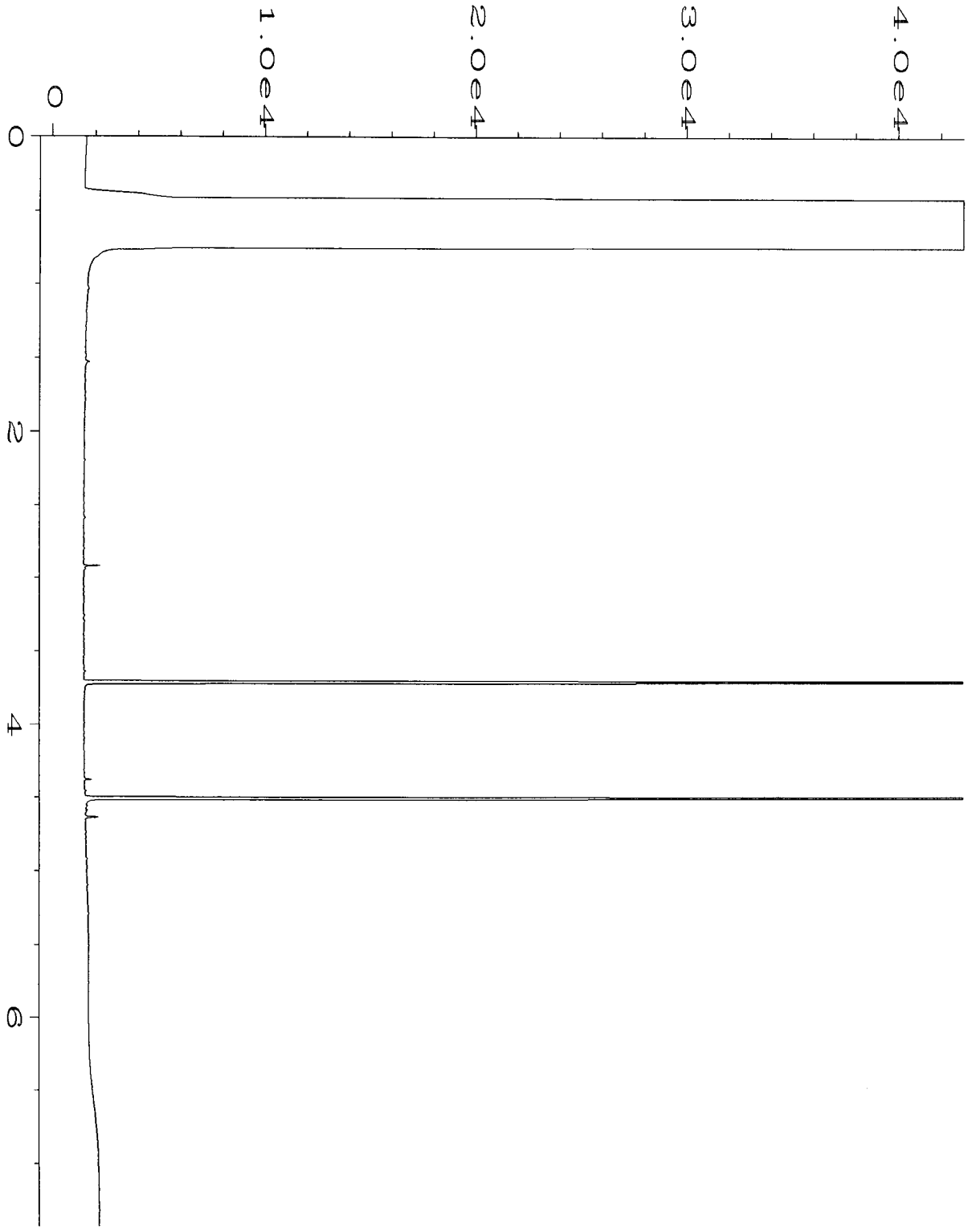
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

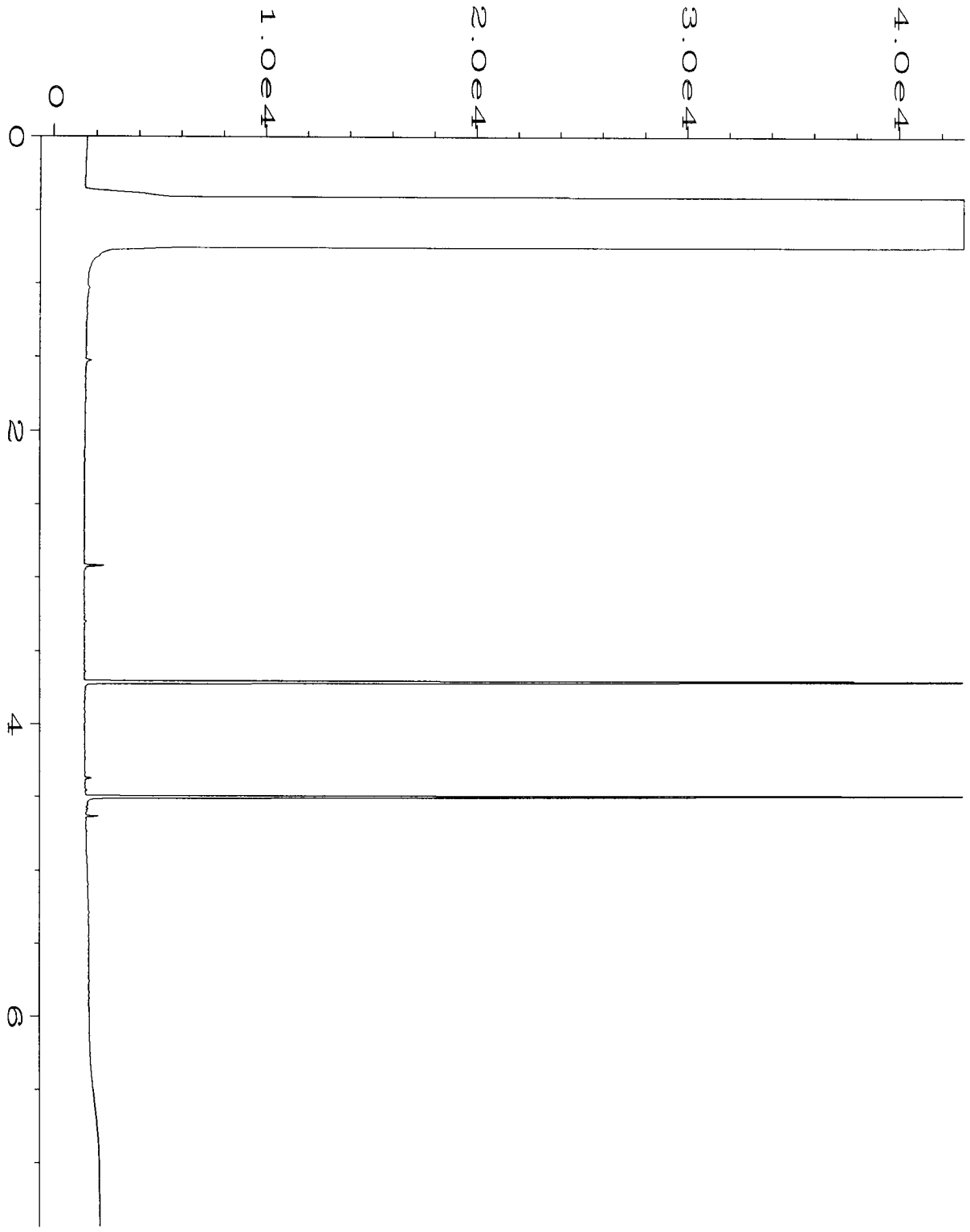
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



Data File Name	: C:\HPCHEM\4\DATA\06-29-16\019F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 19
Sample Name	: 606517-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:33 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:56 AM	Analysis Method	: DX.MTH



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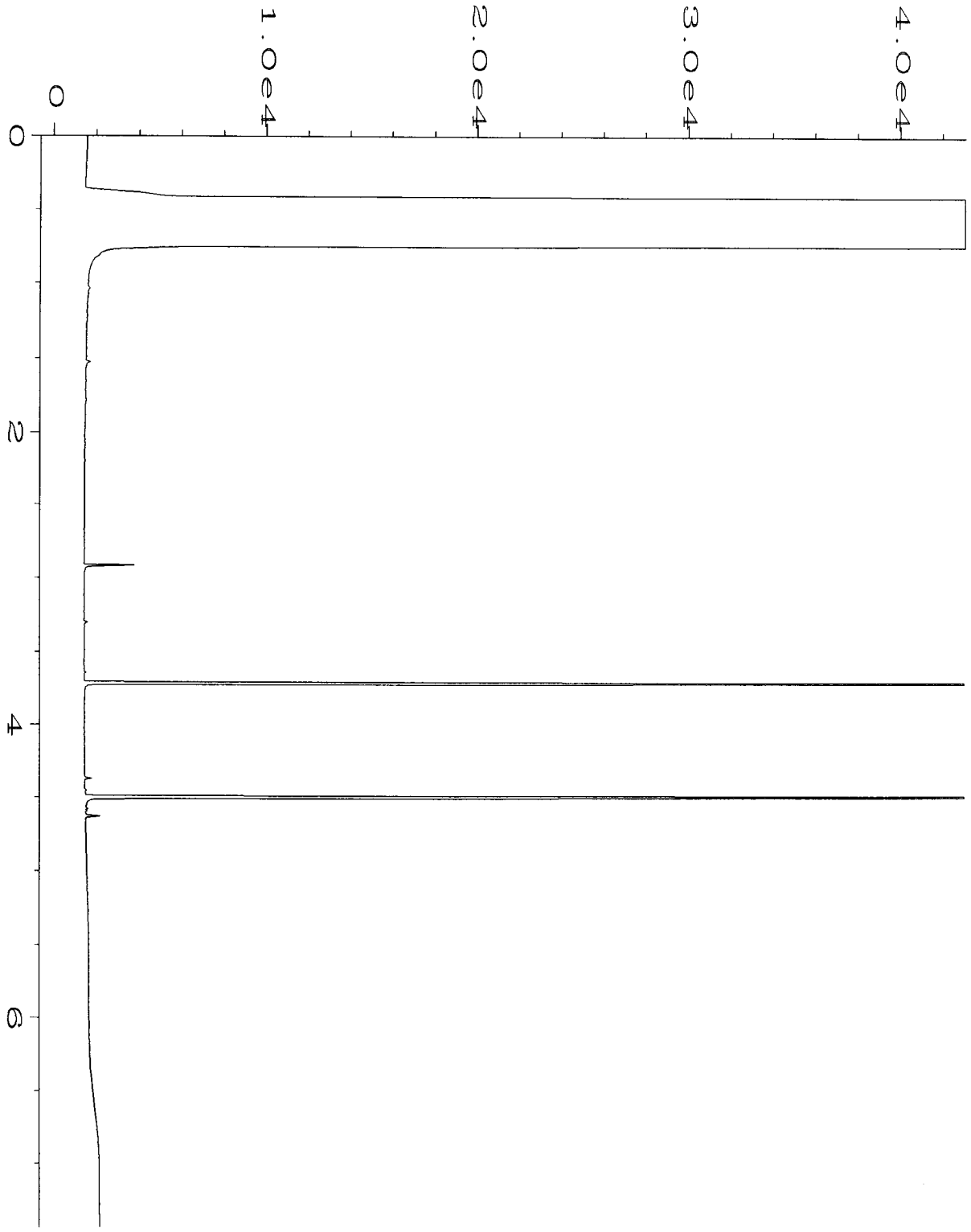
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 20
Sample Name	: 606517-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:44 PM	Instrument Method	: DX.MTH
Report Created on:	30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



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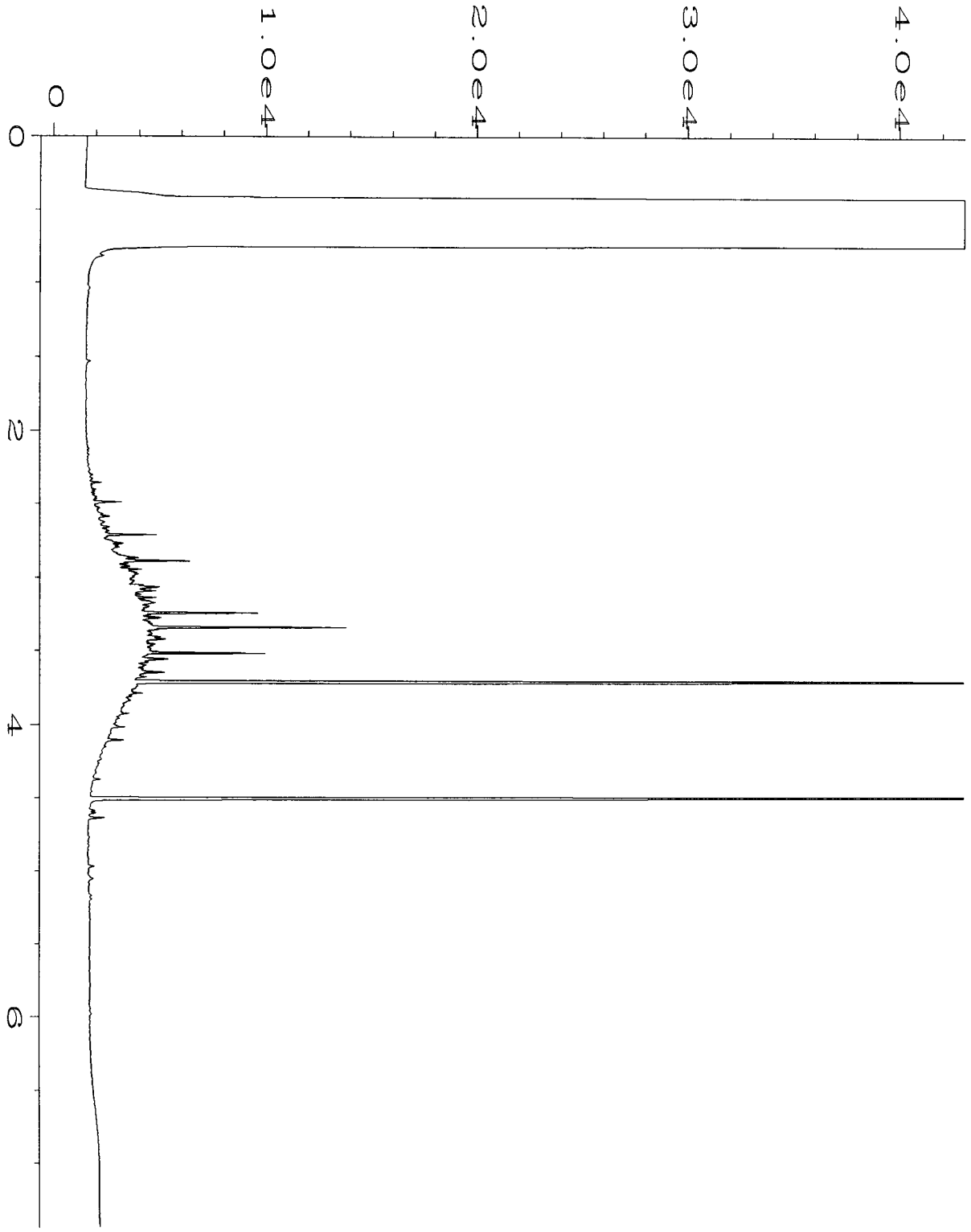
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 21
Sample Name	: 606517-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:56 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



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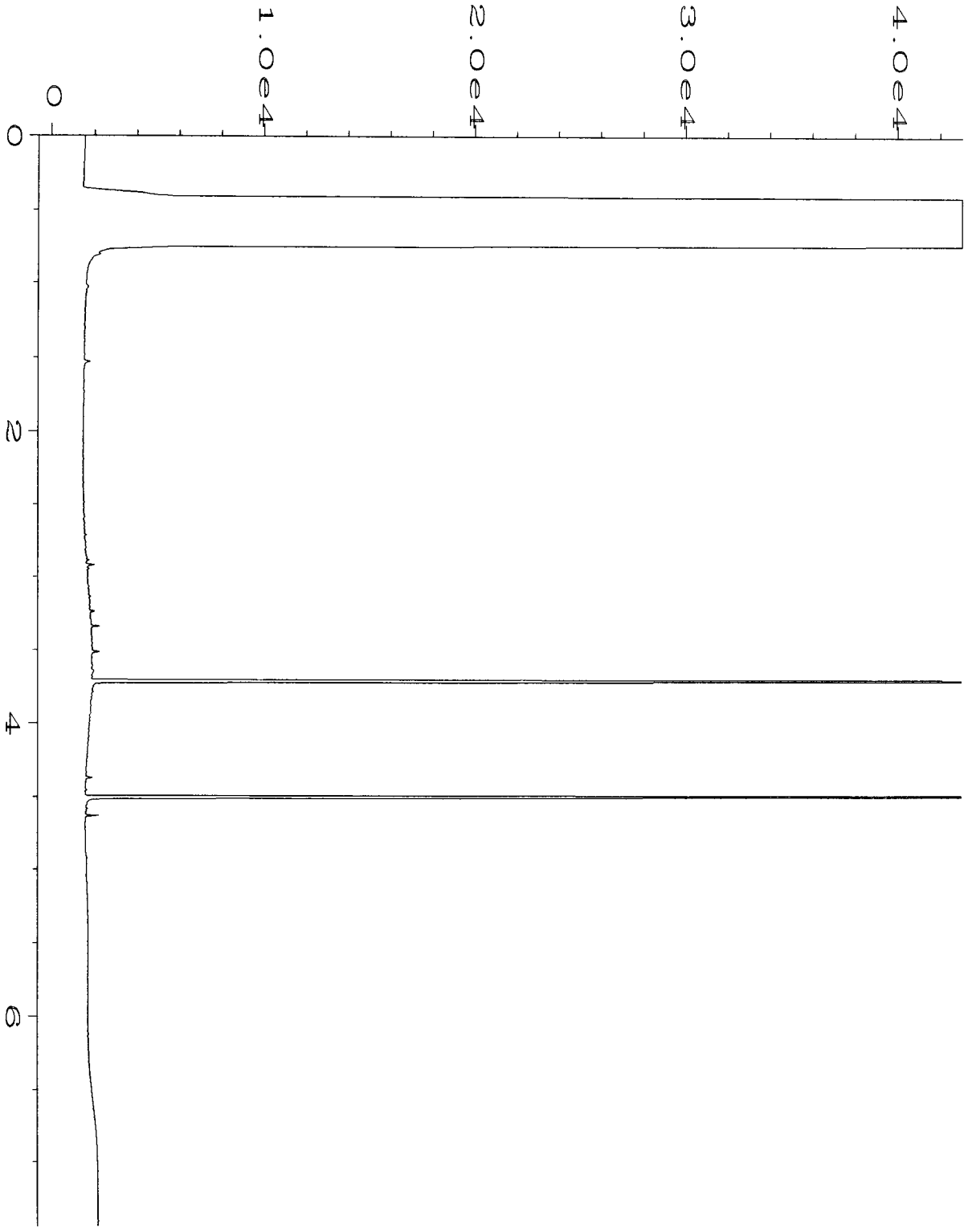
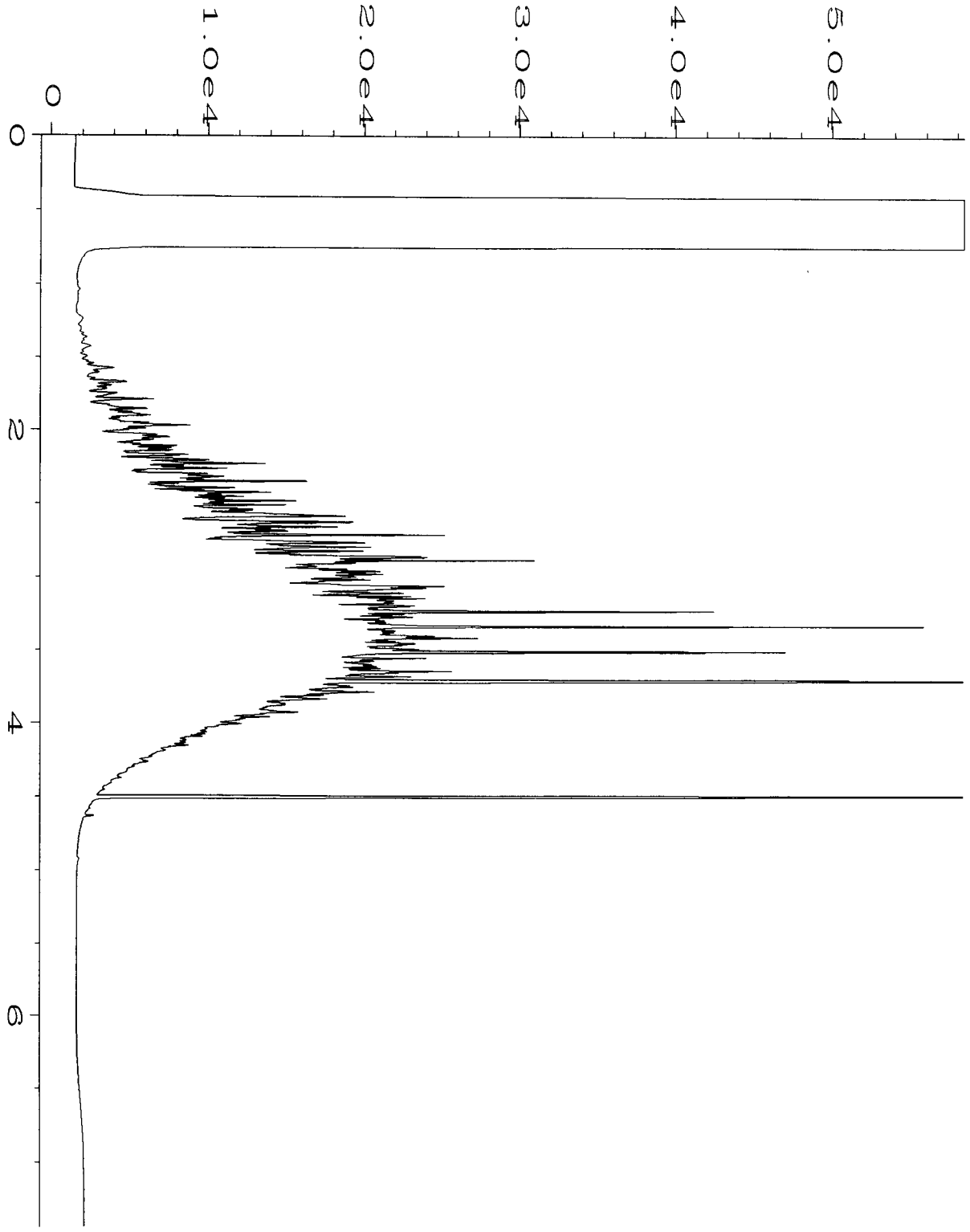
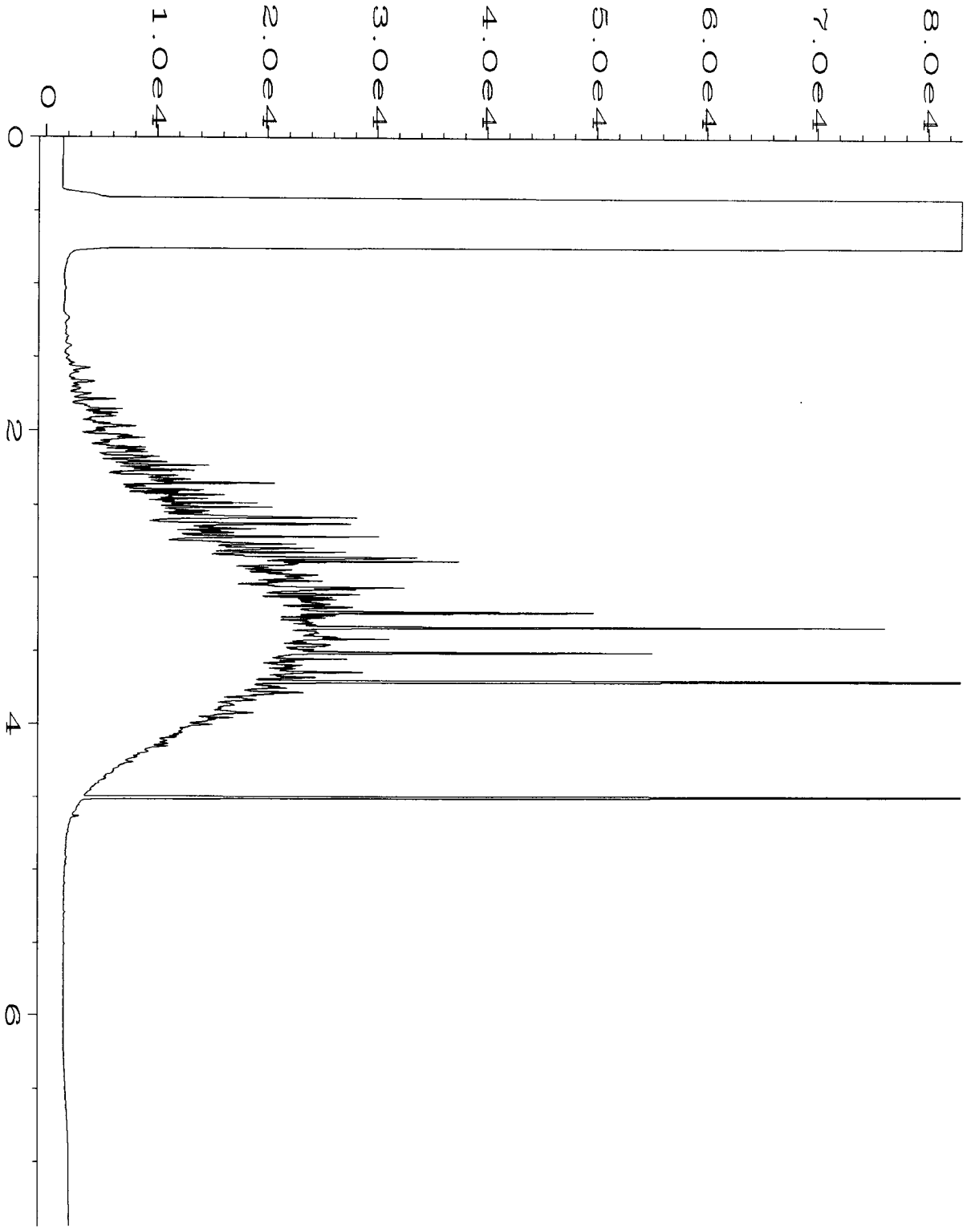
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 22
Sample Name	: 606517-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:08 PM	Instrument Method	: DX.MTH
Report Created on:	30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



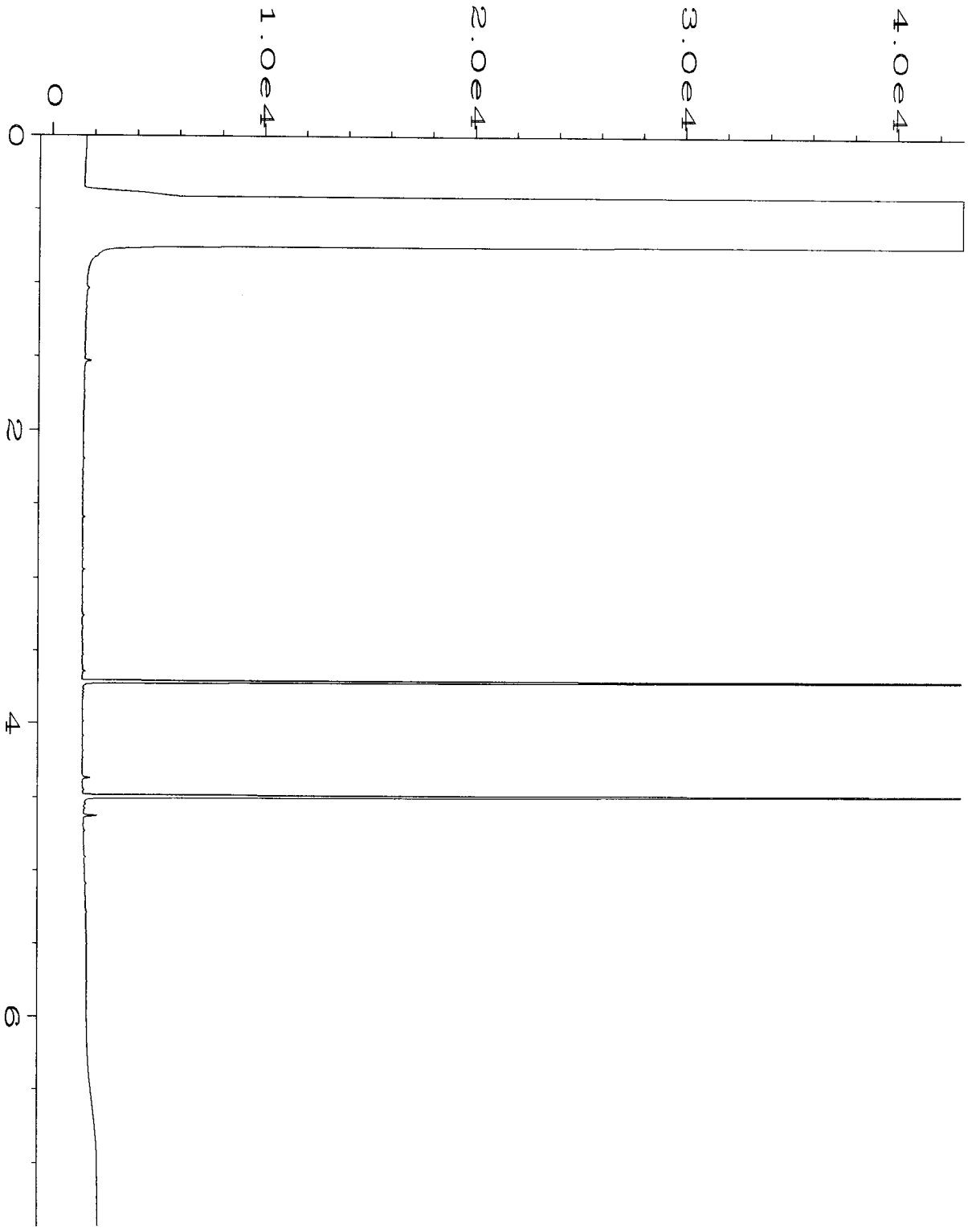
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\023F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 23
Sample Name	: 606517-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:19 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\06-29-16\024F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 24
Sample Name	: 606517-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:31 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\06-29-16\025F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 25
Sample Name	: 606517-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:42 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:58 AM	Analysis Method	: DX.MTH



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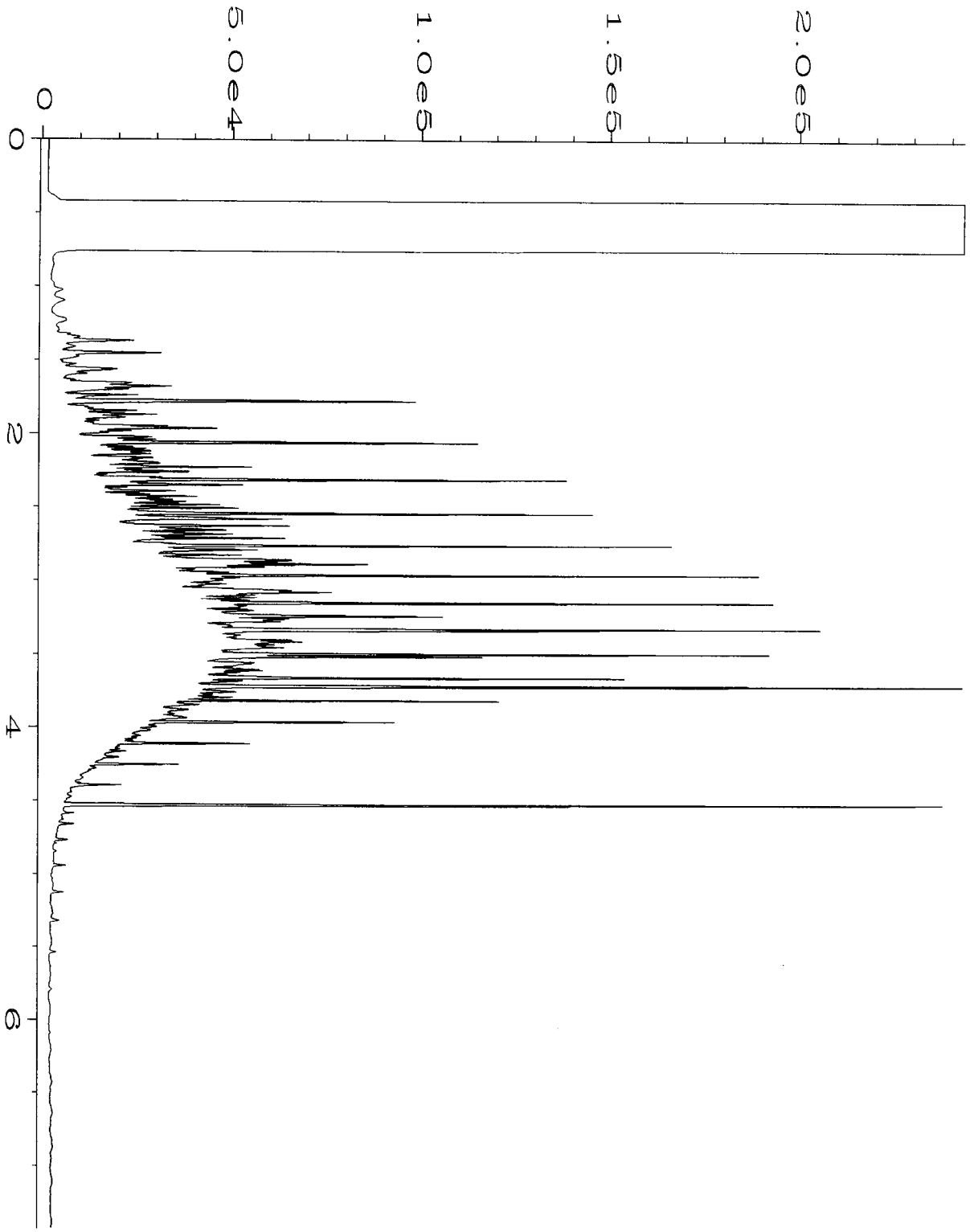
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 15
Sample Name	: 06-1319 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 4
Acquired on	: 29 Jun 16 11:35 AM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:58 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\4\DATA\06-29-16\003F0201.D
Operator : mwdl
Instrument : GC#4
Sample Name : 500 Dx 48-20B
Run Time Bar Code:
Acquired on : 29 Jun 16 06:03 AM
Report Created on: 30 Jun 16 09:58 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

SAMPLE CHAIN OF CUSTODY ME 06/28/16

803

606517

Page # 1 of 2

Report To RACHMAN

Company TERRACON (TC)

Address 21905 64th AVE W. SUITE 100

City, State, ZIP MOUNTLAKE TERRACE, WA 98043

Phone 425-771-3304 Email LARACHMAN@TERRACON.COM

SAMPLERS (signature) HRGadwa

PROJECT NAME 82157004

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	EPA 8270 ~~NAPHTHALENES~~	Naphthalene	per LR 7/8/16		Notes
EB-15 @ 7'	01 A.B	6/28/16	750	SOIL	2												HOLD
EB-15 @ 9'	02		753		2		X						X				
EB-16 @ 7'	03		831		2		X						X				
EB-17 @ 6'	04		914		2												HOLD
EB-17A @ 7'	05		950		2		X						X				
EB-18 @ 5.5	06		1055		1												HOLD
EB-18 @ 6.5	07 A.B		1045		2		X						X				
EB-18 @ 7.5	08		1058		1												HOLD
EB-19 @ 7'	09 A.B		1130		2		X						X				
EB-20 @ 6.5'	10		1255		2		X						X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	HRGadwa	Heather Gadwa	Terracon	6/28/16	1544
Received by:	[illegible]	[illegible]	F&BI	6-28-16	15:44
Relinquished by:					
Received by:					

Samples received at 3 °C

606517

SAMPLE CHAIN OF CUSTODY

ME 06/28/16

803

Page # 2 of 2

Report To TERRACON (TC)

Company SEE PAGE 1

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*) HRGadwa

PROJECT NAME B2167004

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- [X] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	8270D (SVOCs)	Naphthalene			Notes
EB-20 @ 8'	11 A.B	6/28/16	1312	Soil	2		X						X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: HRGadwa	Heather Gadwa	Terracon	6/28/16	1544
Received by:	DdVO	FedEx	6-28-16	15:44
Relinquished by:				
Received by:				

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 22, 2016

Liz Rachman, Project Manager
Terracon
3006 S 96th St
Lakewood, WA 98499

Dear Ms Rachman:

Included are the additional results from the testing of material submitted on June 28, 2016 from the B2157004, F&BI 606517 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRT0722R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 28, 2016 by Friedman & Bruya, Inc. from the Terracon B2157004, F&BI 606517 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terracon
606517 -01	EB-15@7'
606517 -02	EB-15@9'
606517 -03	EB-16@7'
606517 -04	EB-17@6'
606517 -05	EB-17A@7'
606517 -06	EB-18@5.5'
606517 -07	EB-18@6.5'
606517 -08	EB-18@7.5'
606517 -09	EB-19@7'
606517 -10	EB-20@6.5'
606517 -11	EB-20@8'

Sample EB-15@7' was requested to be analyzed outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 07/22/16
Date Received: 06/28/16
Project: B2157004, F&BI 606517
Date Extracted: 07/15/16
Date Analyzed: 07/19/16

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
EB-15@7' ht 606517-01	<50	<250	121
Method Blank 06-1416 MB2	<50	<250	105

Date of Report: 07/22/16
Date Received: 06/28/16
Project: B2157004, F&BI 606517

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 607197-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	91	84	64-133	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	58-147

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

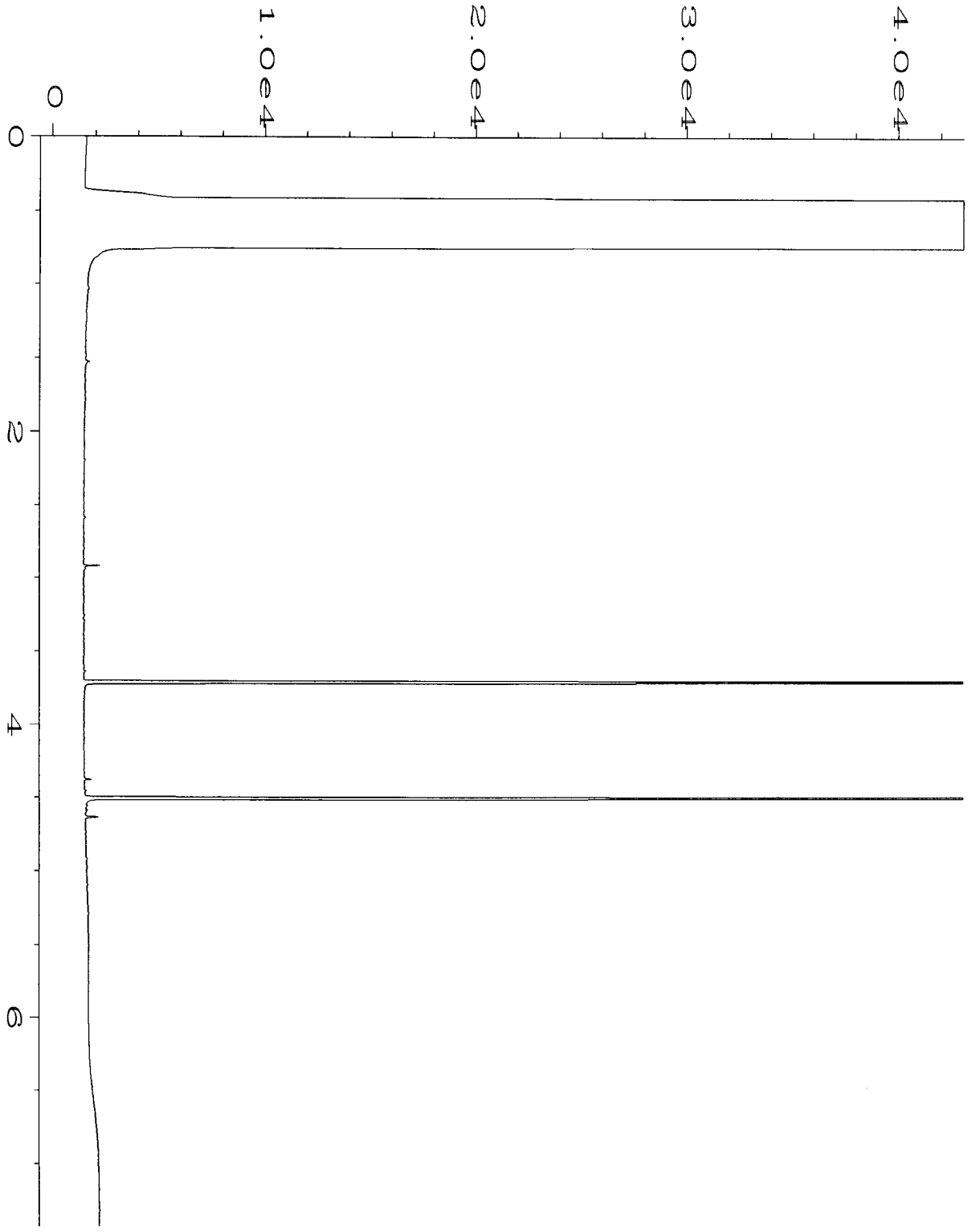
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



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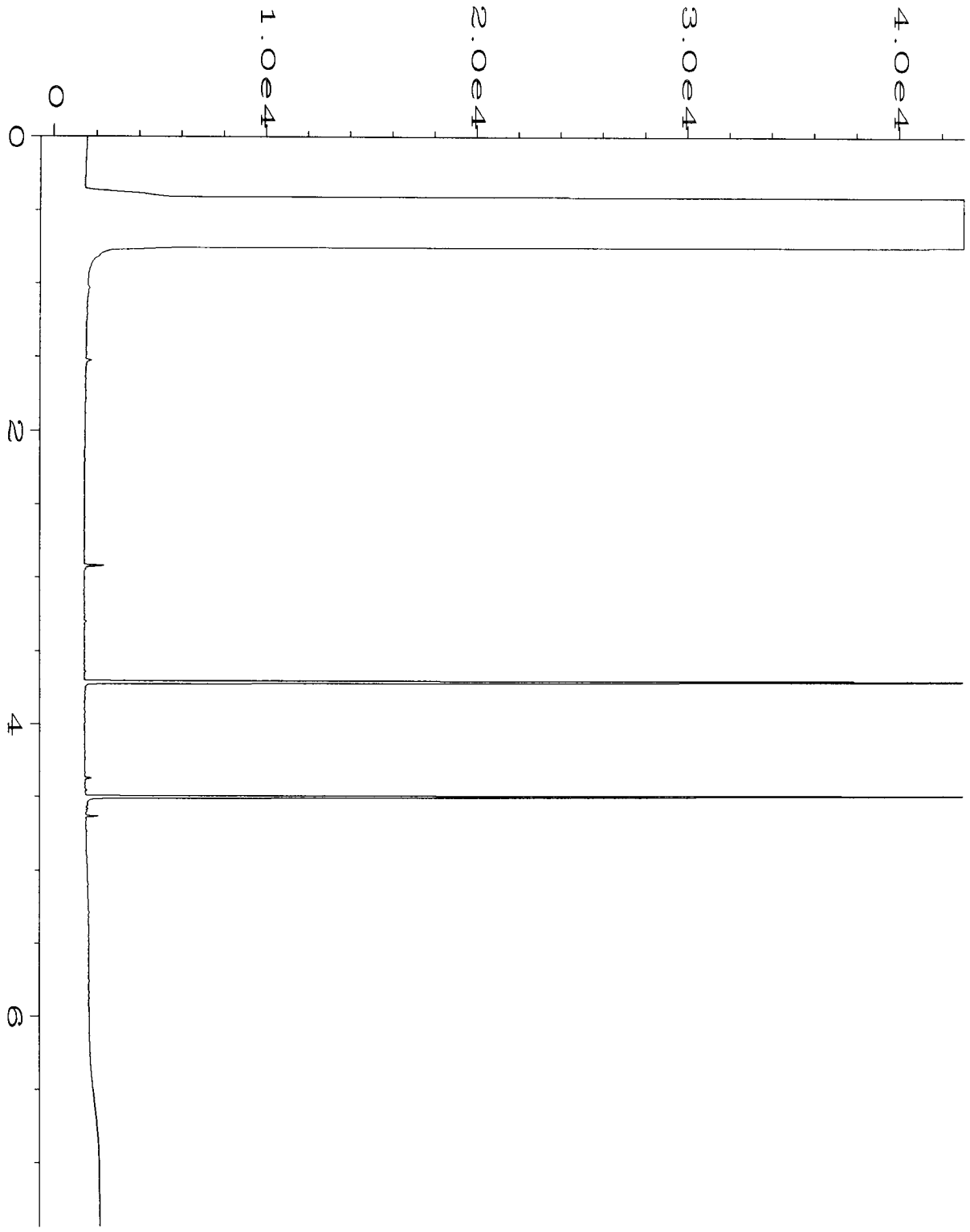
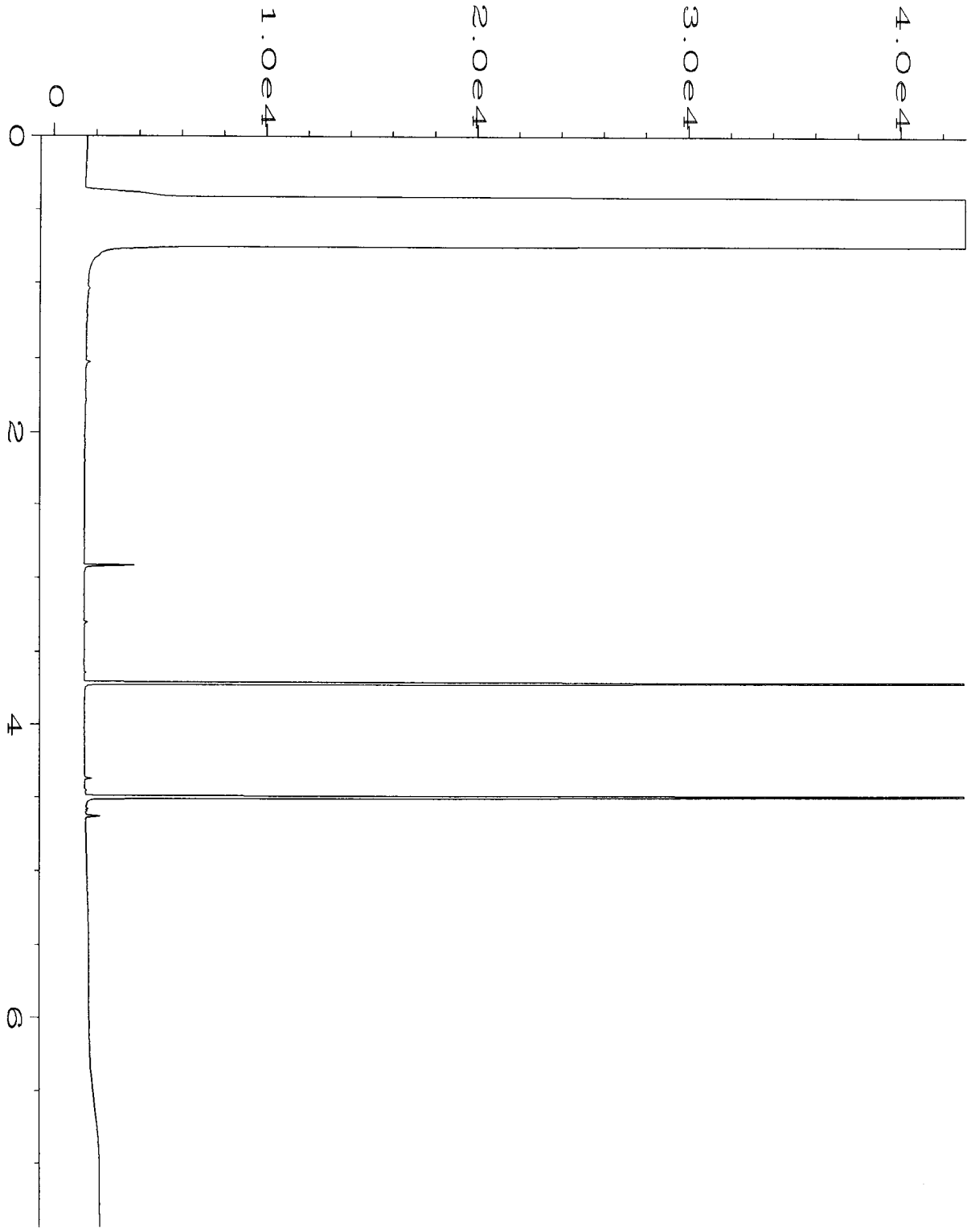
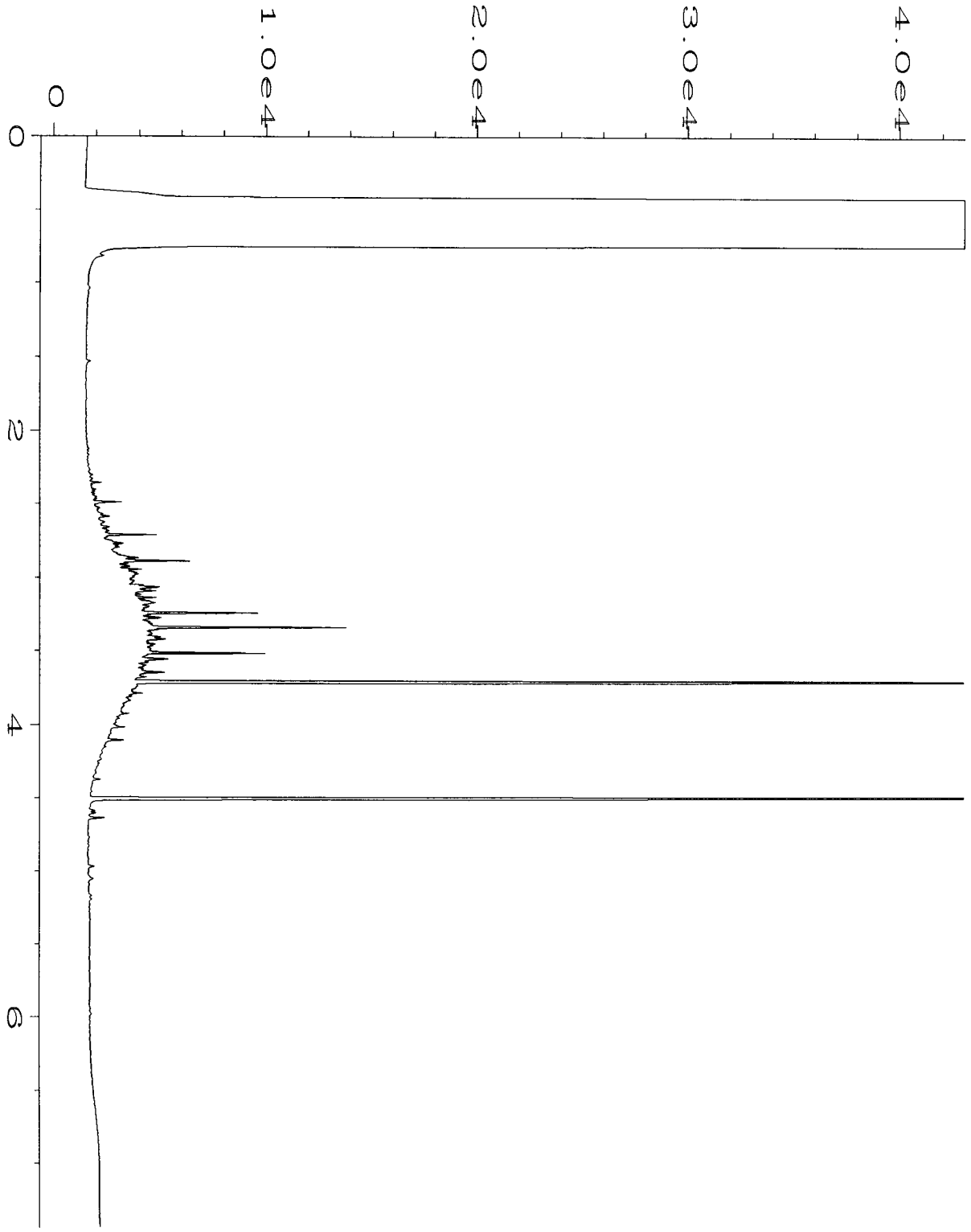
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 19
Sample Name	: 606517-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:33 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:56 AM	Analysis Method	: DX.MTH



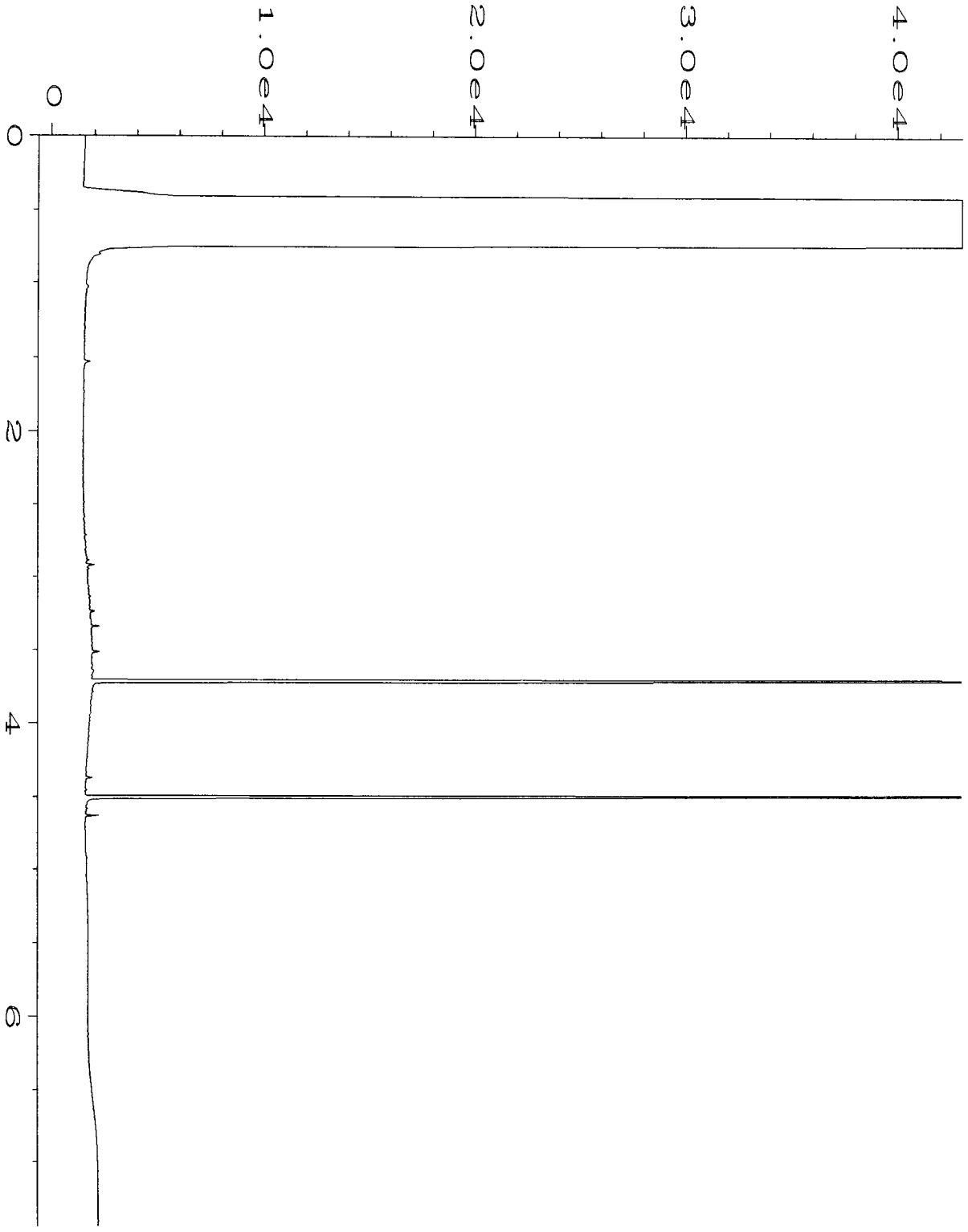
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\020F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 20
Sample Name	: 606517-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:44 PM	Instrument Method	: DX.MTH
Report Created on:	30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



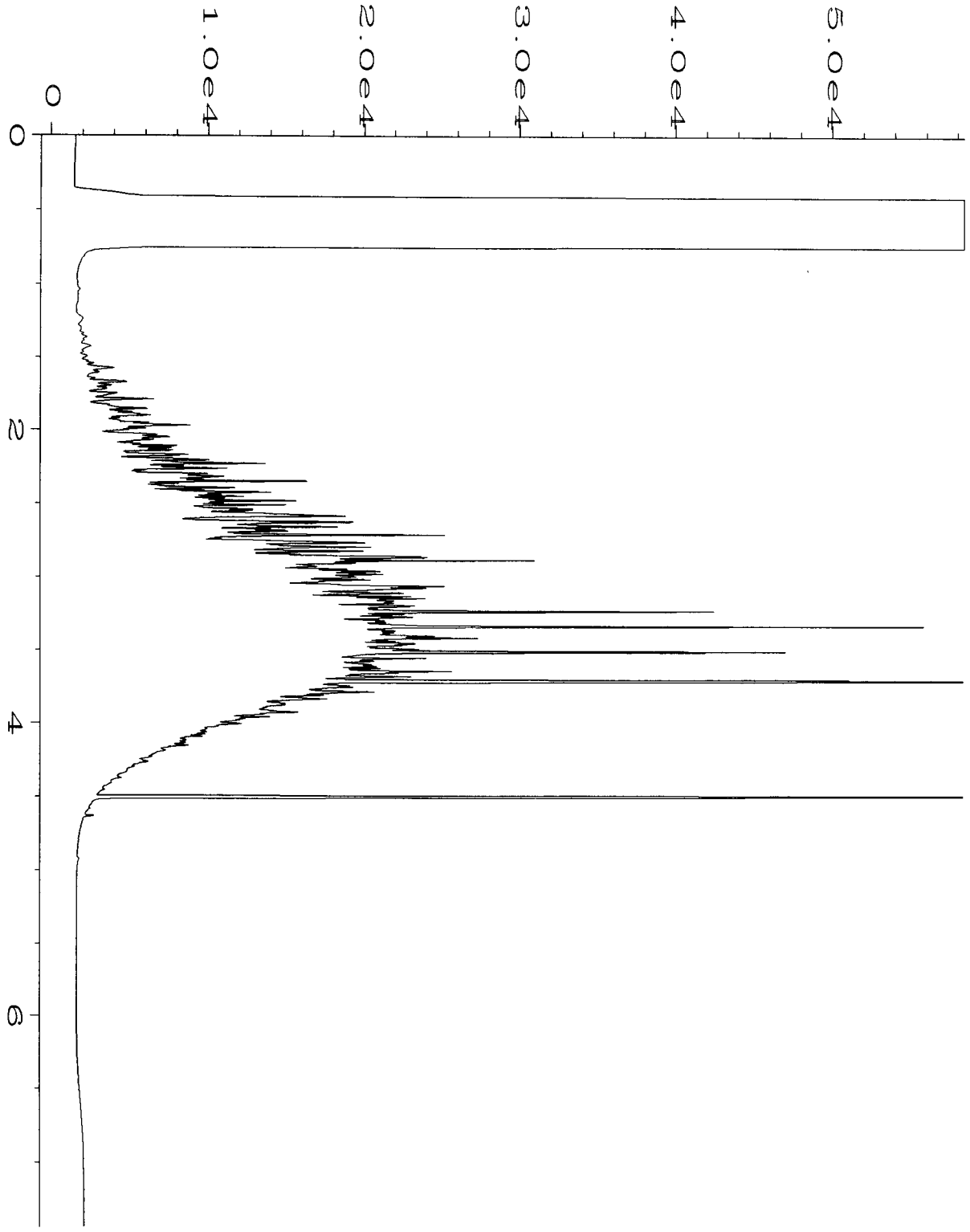
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\021F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 21
Sample Name	: 606517-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 12:56 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



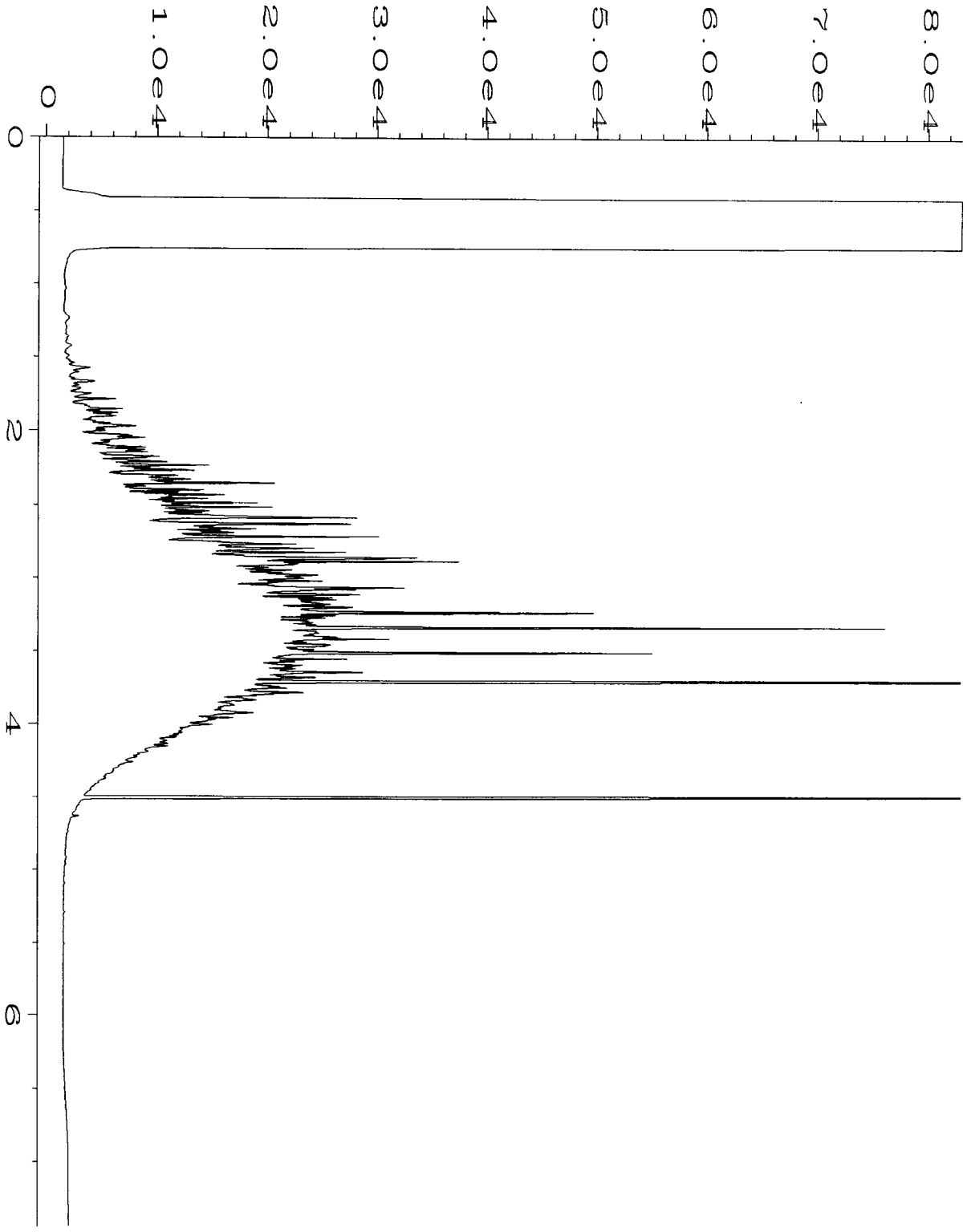
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\022F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 22
Sample Name	: 606517-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:08 PM	Instrument Method	: DX.MTH
Report Created on:	30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



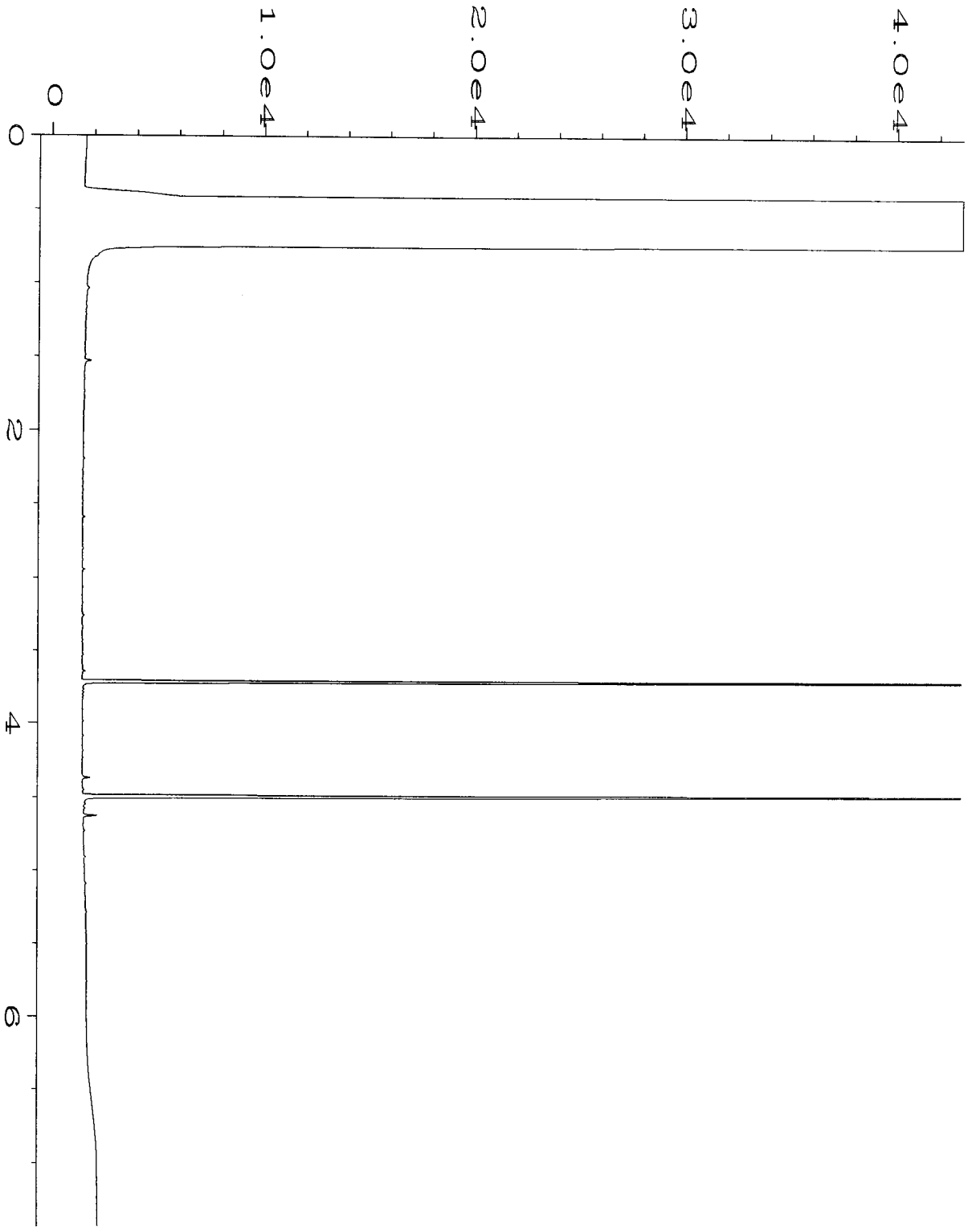
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\023F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 23
Sample Name	: 606517-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:19 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



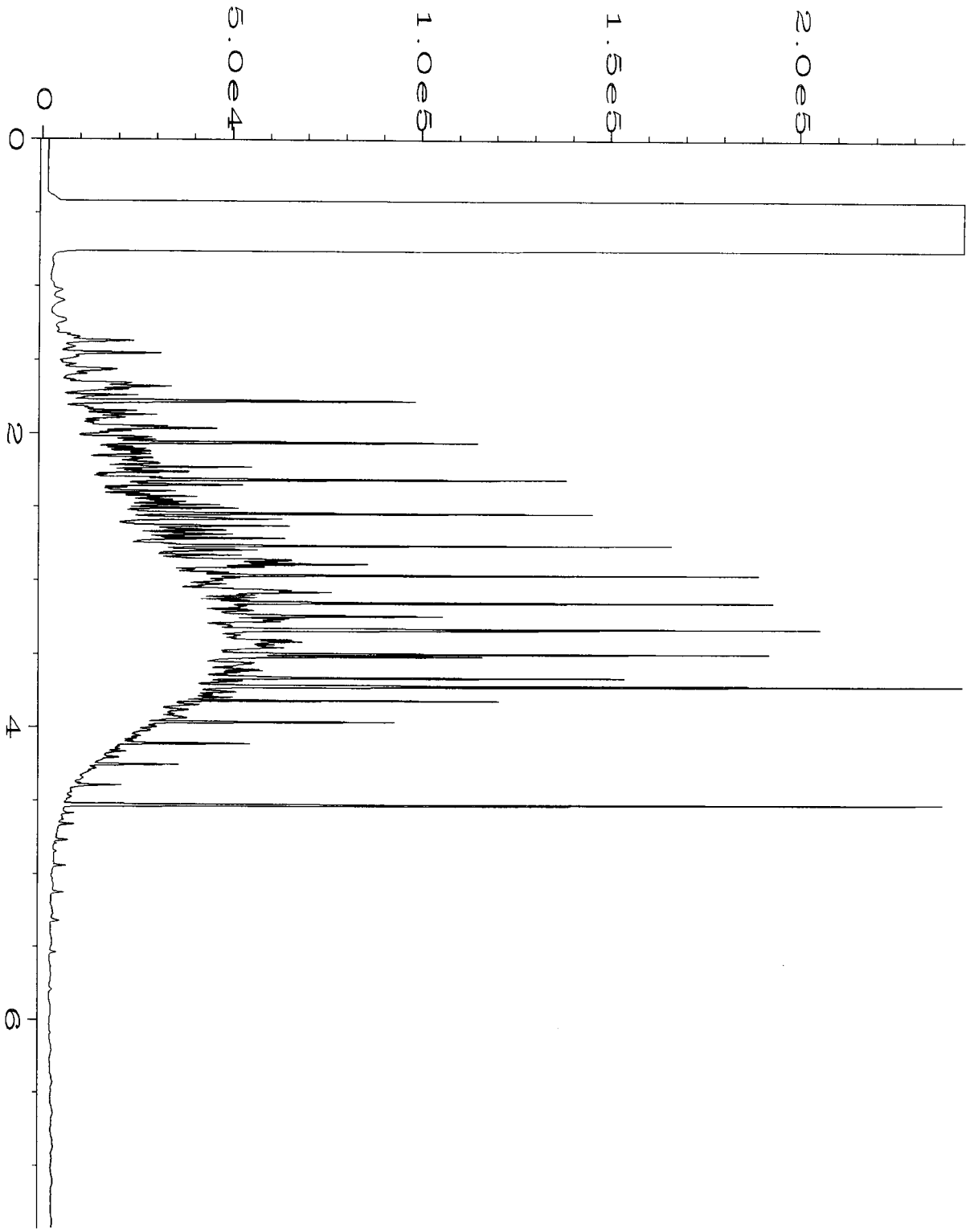
Data File Name	: C:\HPCHEM\4\DATA\06-29-16\024F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 24
Sample Name	: 606517-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:31 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:57 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\06-29-16\025F0601.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 25
Sample Name	: 606517-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 29 Jun 16 01:42 PM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:58 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\06-29-16\015F0401.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 15
Sample Name	: 06-1319 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 4
Acquired on	: 29 Jun 16 11:35 AM	Instrument Method	: DX.MTH
Report Created on	: 30 Jun 16 09:58 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\4\DATA\06-29-16\003F0201.D
Operator : mwdl
Instrument : GC#4
Sample Name : 500 Dx 48-20B
Run Time Bar Code:
Acquired on : 29 Jun 16 06:03 AM
Report Created on: 30 Jun 16 09:58 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

606517

SAMPLE CHAIN OF CUSTODY ME 06/28/16

B03

Report To [redacted] RACHMAN

Company TERRACON (FC)

Address 21905 64th AVE W. SUITE 100

City, State, ZIP MOUNTLAKE TERRACE, WA 98043

Phone 425-771-3304 Email LRachman@terracon.com

SAMPLERS (*signature*) HRogadwa

PROJECT NAME B2157004

PO # [redacted]

REMARKS

INVOICE TO

Page # 1 of 2

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by: [redacted]

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	EPA 8270 NAPHTHALENES				√ per LR Notes 07/15
EB-15 @ 7'	01 A·B	6/28/16	750	Soil	2		✓										HOLD
EB-15 @ 9'	02		753		2		X						X				
EB-16 @ 7'	03		831		2		X						X				
EB-17 @ 6'	04		914		2												HOLD
EB-17A @ 7'	05		950		2		X						X				
EB-18 @ 5.5	06		1055		1												HOLD
EB-18 @ 6.5	07 A·B		1045		2		X						X				
EB-18 @ 7.5	08		1058		1												HOLD
EB-19 @ 7'	09 A·B		1130		2		X						X				
EB-20 @ 6.5'	10		1255		2		X						X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: HRogadwa	Heather Gadwa	Terracon	6/28/16	1544
Received by: [redacted]	[redacted]	FedEx	6-28-16	15:44
Relinquished by:				
Received by:				

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

606517

SAMPLE CHAIN OF COUSTODY

ME [redacted] 06/28/16

Page # 2 of 2

Report To TERRACON (TC)

Company SEE PAGE 1

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)	HGadua
PROJECT NAME	PO #
B2157004	
REMARKS	INVOICE TO

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH
Rush charges authorized by:
SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	8270 Naphthalenes				Notes
EB-20 @ 8'	11 A-B	6/28/16	1312	SOIL	2		X						X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	HGadua	Heather Gadua	Terracon	6/28/16	1544
Received by:	[signature]	D d VO	F&BI	6-28-16	15:44
Relinquished by:					
Received by:					

Samples received at 3 °C

APPENDIX E – UPDATED MTCATPH CALCULATIONS SPREADSHEET

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 07/01/16
Site Name: Gibraltar Senior Living
Sample Name: EB-20@8'/#1 East N End 7'

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc dry basis mg/kg	Composition Ratio %
Petroleum EC Fraction		
AL_EC >5-6		0.00%
AL_EC >6-8		0.00%
AL_EC >8-10	34	1.08%
AL_EC >10-12	200	6.36%
AL_EC >12-16	1030	32.73%
AL_EC >16-21	1280	40.68%
AL_EC >21-34	227	7.21%
AR_EC >8-10	0	0.00%
AR_EC >10-12	0	0.00%
AR_EC >12-16	43.7	1.39%
AR_EC >16-21	285	9.06%
AR_EC >21-34	46.2	1.47%
Benzene		0.00%
Toluene		0.00%
Ethylbenzene		0.00%
Total Xylenes		0.00%
Naphthalene	0.82	0.03%
1-Methyl Naphthalene		0.00%
2-Methyl Naphthalene		0.00%
n-Hexane		0.00%
MTBE		0.00%
Ethylene Dibromide (EDB)		0.00%
1,2 Dichloroethane (EDC)		0.00%
Benzo(a)anthracene		0.00%
Benzo(b)fluoranthene		0.00%
Benzo(k)fluoranthene		0.00%
Benzo(a)pyrene		0.00%
Chrysene		0.00%
Dibenz(a,h)anthracene		0.00%
Indeno(1,2,3-cd)pyrene		0.00%
Sum	3146.72	100.00%

Notes for Data Entry | Set Default Hydrogeology
Clear All Soil Concentration Data Entry Cells
Restore All Soil Concentration Data cleared previously

REMARK:
Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentation (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 7/1/2016
Site Name: Gibraltar Senior Living
Sample Name: EB-20@8'/#1 East N End 7'
Measured Soil TPH Concentration, mg/kg: **3,146.720**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	3,329	0.00E+00	9.45E-01	Pass
	Method C	41,769	0.00E+00	7.53E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	0.00E+00	1.99E-02	Pass
	NA	NA	NA	NA	NA

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	**3,328.78**	**41,768.76**
Most Stringent Criterion	**HI =1**	**HI =1**

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	YES	3.33E+03	0.00E+00	1.00E+00	YES	4.18E+04	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA				
EDB	NA	NA	NA	NA		NA		
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	**NA**
Protective Ground Water Concentration, ug/L	**NA**
Protective Soil Concentration, mg/kg	**Soil-to-Ground Water is not a critical pathway!**

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.01E+01	0.00E+00	2.01E-02	100% NAPL
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 69000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
NA	NA	NA	NA	**NA**