September 16, 2019

City of Knoxville Office of Redevelopment
400 Main Street, Suite 655
Knoxville, Tennessee 37902

Attention: Ms. Anne Wallace

Reference: Final Report of Brownfield Cleanup Grant Implementation
Former McClung Warehouses Property
Knoxville, Tennessee
EPA Brownfields Cooperative Agreement No. BF-00D47816-0
S&ME Project No. 4143-17-017

Dear Anne:

S&ME, Inc. (S&ME) has completed the implementation of the US Environmental Protection Agency (EPA) Brownfield Cleanup Grant, with matching City funding, for the Former McClung Warehouses Property located in Knoxville, Tennessee. The brownfield cleanup services were performed to further assess the nature and extent of surface and subsurface contamination associated with the past use of the subject site, provide an updated Analysis of Brownfield Cleanup Alternatives, perform limited site cleanup activities, and prepare a draft Brownfield Voluntary Agreement for the property. This report summarizes the activities performed during the grant implementation and provides considerations for the future redevelopment of the site.

S&ME appreciates this opportunity to be of service to you. Please call if you have questions concerning this report or our services.

Sincerely,

S&ME, Inc.

Elizabeth Porter, PG, PMP
Project Manager

James R. Bruce, PG, CHMM
Quality Assurance Officer

CC: Olga Perry, USEPA
Lee Barron, TDEC Knoxville
Paula Middlebrooks, TDEC
Table of Contents

Executive Summary .................................................................................................................. 1

1.0 Site Background Information .............................................................................................. 3
  1.1 Site Characteristics ................................................................................................................. 3
  1.2 Property History ...................................................................................................................... 3
  1.3 Surrounding Area Description .................................................................................................. 3
  1.4 Project Purpose ....................................................................................................................... 4
  1.5 Previous Assessment Findings ................................................................................................ 4

2.0 Supplemental Assessment Using Cleanup Grant Funds .......................................................... 5
  2.1 Supplemental Assessment Activities ...................................................................................... 5
    2.1.1 Ground Penetration Radar ................................................................................................ 5
    2.1.2 Soil Sampling .................................................................................................................... 6
    2.1.3 Soil Gas Assessment .......................................................................................................... 6
    2.1.4 Vapor Intrusion .................................................................................................................. 7
    2.1.5 ACM and LBP ..................................................................................................................... 7
  2.2 Analysis of Brownfield Cleanup Alternatives ......................................................................... 7
    2.2.1 Surface and Subsurface Soil .............................................................................................. 8
    2.2.2 Asbestos-containing Materials ......................................................................................... 9
    2.2.3 Vapor Intrusion .................................................................................................................. 9

3.0 Environmental Cleanup Activities .......................................................................................... 10
  3.1 ACM and LBP Impacted Demolition Debris .......................................................................... 10
  3.2 Petroleum Hydrocarbon-Impacted Soil .................................................................................. 11

4.0 Conclusions .......................................................................................................................... 11
  4.1 Surface and Subsurface Soil ................................................................................................. 12
  4.2 Asbestos-containing Materials ............................................................................................ 12
  4.3 Vapor Intrusion ..................................................................................................................... 12

5.0 References ............................................................................................................................ 13
Appendices
Appendix I – Figures
Appendix II – Draft Brownfield Voluntary Agreement
Appendix III – ACM Disposal Documentation
Appendix IV – Impacted Soil Disposal Documentation
Executive Summary

S&ME Inc. (S&ME) has completed implementation of the Environmental Protection Agency (EPA) Brownfield Cleanup Grant for the Former McClung Warehouses Property located in Knoxville, Tennessee. Services for the project were performed under the 2016 Brownfields Cleanup Grant provided by the Region 4 EPA, under EPA Brownfields Cooperative Agreement No. BF-00D47816-0 and matching City funding. This report summarizes the activities included in the implementation of the Cleanup Grant.

Site History

The former McClung Warehouses property consists of nine former parcels containing approximately five acres, owned by the City of Knoxville (City), and formerly addressed at 401, 420, 501, 505, 512, 517, 519, 523 and 525 W. Jackson Avenue in Knoxville, Tennessee. In addition, the property includes a 30-foot-wide public alley right-of-way (ROW) located behind the former parcels at 501, 505, 517, 519, and 523 W. Jackson (Figure 1, Appendix I). The City envisions the property will be revitalized with mixed-use commercial and residential redevelopment.

Businesses that formerly operated at the McClung Warehouses site included an automobile garage, woodworking shop, freight shipping businesses, and railroad freight storage, shipment, and administrative operations. In 2007, a fire destroyed the warehouses located at 501, 505, 509 W. Jackson Avenue. In 2014, a second fire destroyed the warehouses located at 517, 519, 523, and 525 W. Jackson Avenue.

Prior Phase I Environmental Site Assessments (ESA) and Phase II ESAs performed by S&ME and Tetra-Tech in 2009 and 2015, respectively, identified recognized environmental conditions (RECs) related to previous industrial use of the site and identified impacted environmental media through sampling and laboratory analyses. The results of the previous soil sampling identified arsenic, lead, cobalt, manganese, and thallium at concentrations that exceeded the corresponding EPA Regional Screening Levels (RSLs). Passive soil vapor samples identified petroleum-related compounds such as total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene, undecane, tridecane, and pentadecane, and naphthalene and 2-methylnaphthalene. Benzene concentrations exceeded the calculated Vapor Intrusion Screening Level (VISL) for carcinogenic risk under a residential scenario. Groundwater samples contained metals, but none of the concentrations exceeded EPA Maximum Contaminant Levels (MCLs). In addition, asbestos-containing material (ACM) was identified in the building remnants remaining onsite after the fire.

Additional Assessment

Using the 2016 Brownfields Cleanup Grant, S&ME performed additional assessment to supplement data from the previous site assessment activities, addressing data gaps and evaluating the need for vapor intrusion mitigation during site redevelopment. The assessment findings were used to update the Analysis of Brownfield Cleanup Alternatives (ABCA). Additional assessment included a subcontracted ground-penetrating radar (GPR) survey, followed by the collection and laboratory analysis of passive and active soil gas samples, soil samples, groundwater samples, as well as asbestos and lead-based paint (LBP) samples from the site. The following analytes were identified at one or more sample location.

- Soil gas samples detected total petroleum hydrocarbons (TPH), benzene, toluene, and polynuclear aromatic hydrocarbons (PAHs). Some of the analytes were detected in concentrations above their...
corresponding EPA May 2018 Industrial and/or Residential Regional Screening Levels (RSL_{ind} and RSL_{res}, respectively).

- Soil samples reported arsenic, aluminum, cobalt, iron, manganese, vanadium, the pesticide dieldrin, extractable petroleum hydrocarbons (EPH), volatile organic compounds (VOCs) and PAHs, specifically benzo(a)pyrene. Some concentrations exceeded the EPA May 2018 RSL_{ind} and RSL_{res}. Soil samples on the eastern portion of the site reported EPH concentrations which exceeded the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste Management (DSWM) threshold for disposal as a special waste (100 milligrams/kilogram (mg/kg)).

The EPA VISL calculator was used to evaluate vapor intrusion (VI) carcinogenic risk using the Target Carcinogenic Risk (TCR) of $1 \times 10^{-6}$. The results of VISL screening under a residential scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine, benzyl chloride, carbon tetrachloride, chloroform, 1,2 dichloroethane and naphthalene. A VI hazard was identified in excess of the Target Hazard Quotient (THQ) of 0.1 for 1,3-butadine, benzyl chloride and naphthalene. The results of VISL screening under a commercial scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine and naphthalene. A VI Hazard was not identified in the commercial scenario.

Both ACM and LBP were detected in the demolition debris, which was sampled to further characterize this material for future disposal purposes.

**ABCA and Draft BVA**

Based upon the findings compiled from both the S&ME and Tetra Tech assessment activities, an updated ABCA was prepared for review by the City, TDEC and EPA. The updated ABCA recommended cleanup alternatives for addressing surface and subsurface soil, asbestos-containing materials (ACM), and vapor intrusion concerns at the site, as well as a Brownfield Voluntary Agreement (BVA) for the property to address environmental concerns during future redevelopment.

A copy of the draft BVA is included in Appendix II. The draft BVA addresses considerations for construction worker contact with impacted media during redevelopment, steps to limit site occupant contact with impacted soil after redevelopment, and it also addresses the vapor intrusion potential, with a recommendation for design and installation of a vapor mitigation system, if warranted based on redevelopment plans.

**Site Cleanup**

A total of 131 tons of petroleum hydrocarbon-impacted soil was excavated from the eastern portion of the site and transported to Domermuth Environmental Services for disposal. The excavation was then backfilled with rock, and the area was repaved by the City.

In addition, under this Brownfield Cleanup Grant, 258 cubic yards of ACM and LBP impacted demolition debris was transported to Chestnut Ridge Landfill for disposal. Approximately 500 cubic yards of demolition debris containing ACM and LBP remain on the site with an additional 200 cubic yards ramped along Jackson Avenue. Removal of the material ramped along Jackson Avenue is not recommended until site redevelopment is planned.
1.0 Site Background Information

1.1 Site Characteristics

The former McClung Warehouses property consists of nine parcels containing approximately five acres, owned by the City of Knoxville (City), and formerly located at 401, 420, 501, 505, 512, 517, 519, 523 and 525 W. Jackson Avenue in Knoxville, Tennessee (Figure 1, Appendix I). In addition, the property includes a 30-foot-wide public alley right-of-way (ROW) located behind the former parcels at 501, 505, 517, 519, and 523 W. Jackson. The property center is approximately located at 35.9677° N latitude and -83.9229° W longitude. The properties are identified on the Knox County Tax Assessor's Tax Map as Tax Map 94E, Group J, Parcels 1, 1.01, 2, 4, 5.02, 5.03 and 11.01, as well as the public alley ROW.

1.2 Property History

Businesses that formerly operated at the McClung Warehouses site included an automobile garage, woodworking shop, freight shipping businesses, and railroad freight storage, shipment, and administrative operations. Based on the results of a review of historical documents, the portion of the site located at 401 W. Jackson Avenue was previously occupied by railroad freight sheds and an administrative office building from approximately 1884 to 1997. In 1903, the C.M. McClung and Company operated on this portion of the site but vacated the property by 1917. A blacksmith shed also operated on this portion of the site for approximately 70 years. Freight businesses, including Universal Southern Cartage Company and Cargo Manufactured Products, Inc., also operated on this portion of the site from the 1970s through the 1980s. By 2006, the property was a paved, self-service pay-to-park parking lot. The portion of the site located at 501 and 505 W. Jackson Avenue was previously occupied by drug and oil warehouses from approximately 1884 to 1890. By 1903, this portion of the site was vacant. In 1893, the McClung Warehouses were constructed on the portion of the site located at 505 and 509 W. Jackson Avenue, which sold items such as lanterns, glassware, clocks, automobiles tires, lawn mowers, and bicycles. By 1917, the McClung Warehouses had expanded to the portion of the site located at 501, 517, and 523 W. Jackson Avenue. By 1950, the portion of the site located at 525 W. Jackson Avenue was occupied by Crane Co. In addition, an automobile garage occupied the portion of the site located at 512 W. Jackson Avenue. By 1973, the 512 W. Jackson Avenue property was a paved, free parking lot.

Businesses operated in the McClung Warehouses until 2007 (including a woodworking shop located at 509 W. Jackson Avenue). In 2007, a fire destroyed the warehouses located at 501, 505, and 509 W. Jackson Avenue. In 2014, a second fire destroyed the warehouses located at 517, 519, 523, and 525 W. Jackson Avenue.

1.3 Surrounding Area Description

Descriptions of adjoining and surrounding properties are provided below:

- **North** – Norfolk Southern Railroad, beyond which are commercial properties.
- **South** – Jackson Avenue, beyond which are restaurants and commercial properties.
- **West** – Apartment building and Broadway Avenue.
- **East** – North Gay Street and commercial properties.
1.4 Project Purpose

The City envisions the redevelopment of the site into a mixed-use complex consisting of commercial and residential properties. Prior Phase I Environmental Site Assessments (ESA) and Phase II ESAs performed by S&ME Inc. (S&ME) and Tetra-Tech in 2009 and 2015, respectively, identified recognized environmental conditions (RECs) related to previous use of the site and identified impacted environmental media through sampling and laboratory analyses.

The Brownfield Cleanup Grant implementation performed by S&ME included a range of services intended to address data gaps from the previous site assessment activities, plan and implement the selected site cleanup activities as discussed in the Analysis of Brownfield Cleanup Alternatives (ABCA) and prepare a draft Brownfield Voluntary Agreement (BVA) to address site environmental concerns during and after redevelopment.

1.5 Previous Assessment Findings

In 2009, S&ME conducted a Phase I ESA and identified several potential RECs. Based on these findings, S&ME conducted soil sampling and a passive soil vapor survey in 2009 on the portion of the site located at 401 W. Jackson Avenue. Arsenic (31 milligrams per kilogram (mg/kg)) and lead (880 mg/kg) were detected in the soil at concentrations that exceeded the corresponding 2008 Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) of 1.6 mg/kg and 800 mg/kg for industrial soil, respectively. Six of the seven passive soil vapor samples contained detectable concentrations of petroleum-related compounds such as total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene and xylene (BTEX); undecane, tridecane, and pentadecane (diesel-range hydrocarbons); and naphthalene and 2-methylnaphthalene. However, the passive soil vapor survey did not quantify the volume of contaminated media or identify the source of the contamination. Based on the results of the samples collected (soil and soil gas), S&ME recommended confirmation sampling and analysis before construction.

In 2015, Tetra Tech, on behalf of the EPA, conducted a Targeted Brownfield Assessment (TBA) at the property, consisting of Phase I and II ESAs. In January 2015, Tetra Tech personnel conducted an initial site visit at the property and identified RECs, visually inspected the remnants of on-site structures for possible asbestos-containing materials (ACMs), and identified other environmental hazards on the property. The Phase I Environmental Site Assessment Report: McClung Warehouses, prepared for EPA by Tetra Tech in August 2015, identified the following RECs:

- The portion of the site located at 401 W. Jackson Avenue was used by the railroad from approximately 1884 to 1997. Additionally, a blacksmith shed operated on this portion of the site for approximately 70 years.
- The McClung Warehouses, Crane Co., and oil and drug warehouses operated on the portion of the site located at 401, 501, 505, 509, 517, 519, 523, and 525 W. Jackson Avenue.
- An automobile garage operated on the portion of the site located at 512 W. Jackson Avenue for approximately 19 years.
- Suspected ACM was observed in the remnants of the warehouses at the site.

Based on the results of the initial site visit, EPA concluded that a Phase II ESA was appropriate to assess the RECs identified during the Phase I ESA and to identify the presence and nature of contamination, if any, on the site. During the week of March 23, 2015, Tetra Tech conducted a Phase II ESA which included soil, groundwater, soil
gas, and suspected ACM sampling. Tetra Tech collected 18 surface and subsurface soil samples, three composite soil samples (including one duplicate), six soil gas samples (including one split), three groundwater samples (including one duplicate), and 53 suspected ACM samples. The analytical results for these samples are summarized below. For full details of the sampling event, see the Final Phase II Environmental Site Assessment Report: McClung Warehouses, prepared for EPA by Tetra Tech in August 2015, and currently available on the City’s website: [http://www.knoxvilletn.gov/government/city_departments_offices/redevelopment/epa_cleanup_grant_applications/](http://www.knoxvilletn.gov/government/city_departments_offices/redevelopment/epa_cleanup_grant_applications/).

All Tetra Tech surface and subsurface soil samples contained one or more target analyte list (TAL) metals, such as arsenic, cobalt, manganese, and thallium at levels that exceed EPA RSLs for residential or industrial soil.

- No volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) were detected in the surface and subsurface soil samples above EPA RSLs for residential or industrial soils.
- Two soil gas samples contained benzene at concentrations that exceeded the calculated Vapor Intrusion Screening Level (VISL) for carcinogenic risk under a residential scenario.
- Groundwater samples collected by Tetra Tech contained metals, but none of the concentrations exceeded EPA Maximum Contaminant Levels (MCLs).
- Six suspected ACM samples contained asbestos at greater than 1 percent.

### 2.0 Supplemental Assessment Using Cleanup Grant Funds

To evaluate the need for vapor intrusion mitigation during site redevelopment, additional information was needed, and thus the assessment activities documented below were implemented. In 2018, S&ME updated the soil gas evaluation to provide current supplemental data for design purposes. S&ME also addressed data gaps identified in planning for the site cleanup, including the potential for impacts associated with the garage operated at 512 W. Jackson Avenue. These 2018 S&ME supplemental Phase II ESA activities, conducted on behalf of the City, were performed using a portion of the Brownfield Cleanup Grant funds.

The S&ME Phase II ESA consisted of a ground-penetrating radar (GPR) survey, followed by the collection and laboratory analysis of passive and active soil gas samples, soil samples, groundwater samples, as well as asbestos and lead-based paint (LBP) samples from the site.

### 2.1 Supplemental Assessment Activities

#### 2.1.1 Ground Penetrating Radar

Initially, S&ME used a subcontractor specializing in GPR to survey the parcels located at 420 and 512 W. Jackson Avenue to further evaluate the property for potential buried structures and areas of previous subsurface disturbance based on the past use as an automotive garage. Evidence of underground storage tanks was not observed during the GPR survey. Passive soil vapor sampling was then performed using Amplified Geochemical Imaging, LLC (AGI) modules manufactured and analyzed by AGI (Figure 2, Appendix I). Four of the seven collected passive soil gas samples detected low levels of TPH, and two of the samples detected very low levels of petroleum hydrocarbon constituents such as benzene and toluene. One of the samples also detected very low levels of polynuclear aromatic hydrocarbons (PAHs). Based on the findings of the GPR survey and the passive soil gas survey, soil borings were installed and active soil gas samples were collected to fill in data gaps from the previous site assessment activities.
2.1.2 Soil Sampling

Eight soil samples (Figure 3, Appendix I) were analyzed for target analyte list (TAL) metals, TPH-gasoline-range organics (TPH-GRO), PAHs, extractable petroleum hydrocarbons (EPH), and VOCs. Each of these samples reported arsenic concentrations which exceeded the EPA May 2018 Industrial and Residential RSL ($RSL_{ind}$ and $RSL_{res}$, respectively), which is not uncommon as a naturally-occurring metal in East Tennessee, and the detected concentrations may generally fall within the statistical range of background concentrations. The highest arsenic concentrations occurred at depths of four feet or more below ground surface (bgs), which has been considered during the evaluation of the analytical results and remedial alternatives.

The reported concentrations for aluminum, cobalt, and iron exceeded the corresponding $RSL_{res}$ at all eight sample locations. Manganese exceeded the $RSL_{res}$ at seven locations and vanadium exceeded the $RSL_{res}$ in four locations. The $RSL_{ind}$ was exceeded in two locations by cobalt and in one location by manganese, at depths of 2.5 feet or greater bgs. Multiple VOCs and PAHs were detected in at least one submitted soil sample, but the concentrations were below the $RSL_{res}$ and $RSL_{ind}$ for each analyte, except for benzo(a)pyrene, which exceeds the $RSL_{res}$ in one sample.

Four of the initial soil samples submitted for EPH analysis reported concentrations above laboratory detection levels. Only one location (SB-7) reported an EPH concentration which exceeded the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste Management (DSWM) threshold for disposal as a special waste (100 milligrams/kilogram (mg/kg)). The EPH concentration in sample SB-7 was 855 mg/kg. To further delineate the extent of petroleum hydrocarbon impacts in the vicinity of soil sample SB-7, a second round of soil assessment was performed in immediately-adjacent areas surrounding this location, with five additional samples submitted for EPH analysis. The area of petroleum hydrocarbon impacts was further defined and addressed as part of the cleanup activities, as discussed in Section 3. The maximum EPH concentration detected in the second round of sampling was 334 mg/kg (GP-1).

As a follow-up to previous assessment activities performed by others, five surficial soil samples were submitted for laboratory analysis for pesticides (Figure 3, Appendix I). Dieldrin was observed in sample HA-4 at a concentration of 2.06 mg/kg, which exceeds both the corresponding $RSL_{res}$ (0.034) and the $RSL_{ind}$ (0.14). There were no reported detections of pesticides above the $RSL_{res}$ or $RSL_{ind}$ for any of the other submitted samples.

2.1.3 Soil Gas Assessment

Two supplemental rounds of active soil gas sampling were performed (Figure 4, Appendix I) to further characterize the spatial distribution of constituents of concern initially identified during the Targeted Brownfield Assessment by Tetra Tech in 2015. Based on the benzene concentrations in ten original active soil gas samples collected by S&ME at a depth of three feet on May 3, 2018, S&ME recommended additional soil gas and groundwater sampling to gain a better understanding of the current source and risk associated with the detected benzene concentrations in soil gas. In the second round of sampling, conducted on July 13, 2018, three locations were selected for vertical profiling of the benzene concentrations, and soil gas samples at these three additional locations were collected at depths of 1.5 feet, three feet and five feet bgs. In addition, temporary groundwater monitoring wells were installed at three locations near the areas where elevated benzene was detected in the soil gas, to determine if benzene in groundwater was a possible source. The findings of the additional assessment activities did not detect benzene in groundwater (nor were any other VOCs detected in groundwater), but elevated benzene in soil gas was confirmed in the second round of soil gas sampling performed by S&ME.
Each of the soil gas samples (including the initial round SG-1 through SG-10, and the vertical profiles SG-1 ABC, SG-3 ABC, and SG-5 ABC) was analyzed for VOCs by Method TO-15. Multiple compounds analyzed under EPA Method TO-15 were detected above the corresponding laboratory detection limit. Several of the detected compounds exceed the RSL_{res}, and 14 compounds exceed both the RSL_{res} and RSL_{ind} in at least one of the samples. Benzene exceeded the RSL_{ind} (1.6 micrograms per cubic meter (µg/m^3)) in each of the ten initial samples, with a maximum concentration of 64.6 µg/m^3. This prompted the second round of active air sampling, consisting of vertical profiles, where benzene concentrations exceeded the RSL_{ind} in each of the nine additional samples, with a maximum concentration of 41.7 µg/m^3. The highest benzene concentrations were detected in the shallowest samples (i.e., 1.5 feet below ground surface) collected from each of the three borings. Naphthalene exceeded the RSL_{ind} in four samples in the first round, and six samples in the second round. The highest naphthalene concentrations were detected in the shallowest samples (i.e., 1.5 feet below ground surface) collected from two of the three borings.

### 2.1.4 Vapor Intrusion

The EPA VISL calculator was used to evaluate vapor intrusion (VI) carcinogenic risk using the Target Carcinogenic Risk (TCR) of 1 x 10^{-6}. The results of VISL screening under a residential scenario using the highest detected concentration of each analyte identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine, benzyl chloride, carbon tetrachloride, chloroform, 1,2 dichloroethane and naphthalene. A VI hazard was identified in excess of the Target Hazard Quotient (THQ) of 0.1 for 1,3-butadine, benzyl chloride and naphthalene. The results of VISL screening under a commercial scenario using the highest detected concentration for each analyte identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine and naphthalene. A VI Hazard was not identified in the commercial scenario.

Of the contaminants with a VI carcinogenic risk, benzene was detected at elevated concentrations most frequently (all 19 locations exceeded the benzene RSL_{ind}), followed by naphthalene (10 locations exceeded the naphthalene RSL_{ind}). To further evaluate the benzene risk, S&ME used the VISL calculator to evaluate benzene results with concentrations below the maximum detected (64.6 µg/m^3 in SG-5). The VISL calculator identified a VI carcinogenic risk in the residential scenario when benzene concentrations exceeded 12 µg/m^3. The VISL calculator under a residential use scenario identified a VI issue in multiple locations across the site, from the northeast corner to the southwest corner, and on the City parcels both north and south of Jackson Avenue. The VISL VI carcinogenic risk levels range from no risk to 1.1E-05 for the residential scenario, and from no risk to 2.5E-06 for the commercial scenario. Within this range, current TDEC protocol indicates that mitigation is recommended for new construction sites.

### 2.1.5 ACM and LBP

S&ME also collected two samples of suspect ACM and two paint chips for LBP analysis from the surficial layer of the demolition debris to assist in characterizing this material for future disposal purposes. Both ACM and LBP were detected in the demolition debris (Figure 5, Appendix I).

### 2.2 Analysis of Brownfield Cleanup Alternatives

To support the City’s redevelopment efforts and desired goal that site redevelopment is performed in accordance with applicable regulations, a Brownfield Voluntary Agreement (BVA) was recommended in the ABCA. Using the EPA Cleanup Grant funds, a draft BVA has been prepared (Appendix II). The BVA addresses considerations for
construction worker contact with impacted soils during redevelopment, steps to limit site occupant contact with impacted soil after redevelopment, and vapor intrusion potential, with a recommendation for design and installation of a vapor mitigation system, if warranted based on redevelopment plans. The goal of a vapor mitigation system would be to break the exposure pathway for vapor migration, if such a pathway is confirmed for the proposed use.

In addition to the recommended BVA, the September 14, 2018 ABCA prepared by S&ME presented additional recommendations for addressing environmental concerns identified at the site, as summarized below. A full copy of the ABCA is currently available on the City's website:


### 2.2.1 Surface and Subsurface Soil

**Option 1: No Action:** No action is a zero-cost option; however, it does not prevent residents or commercial workers from coming into contact with contamination at the site.

**Option 2: Source Removal:** Surface and subsurface soil contained TAL metals such as arsenic, aluminum, iron, cobalt, lead, manganese, vanadium, and thallium at concentrations above their respective EPA RSL_{res} and RSL_{ind}. Dieldrin was observed in sample HA-4 at a concentration of 2.06 mg/kg, which exceeds both the corresponding RSL_{res} and the RSL_{ind}. In addition, an area of petroleum hydrocarbon impacts was documented in the vicinity of soil boring SB-7, to a depth of approximately five feet.

Tetra Tech previously identified that chemical constituents in surface and subsurface soils were below their respective EPA Removal Management Levels (RMLs) for residential and industrial soils, except for arsenic and lead in two samples, including MC-SB05-09, collected at nine feet bgs at 501 W. Jackson Avenue, and MC-COM-01-DUP collected at four inches bgs in the unpaved area of the Option Tract behind the former warehouses at 501, 505, and 509 W. Jackson Avenue. Arsenic was detected at 150 mg/kg in subsurface soil sample MC-SB05-09, which exceeds the EPA May 2018 RML of 68 mg/kg for residential soil. Lead was detected at 420 mg/kg in surface soil sample MC-COM-01-DUP, and exceeds the EPA 2018 RML of 400 mg/kg for residential soil. In the 2018 S&ME sampling event, the only additional metal or pesticide that exceeded the 2018 RML was arsenic in sample SB-2, detected at a concentration of 118 mg/kg at a depth of nine to 10.5 feet.

RMLs are used by EPA to support a decision by On Scene Coordinators to help identify areas, contaminants, and conditions where a removal action may be appropriate at superfund sites. Sites where contaminant concentrations fall below RMLs are not health protective for chronic exposure. In some cases, further action or study may be warranted to address remaining long term, site-specific health threat determined. Also, sites with contaminant concentrations above the RMLs may not necessarily warrant a removal action; factors including location and depths of construction, the use of site-specific exposure scenarios or other program considerations may need to be evaluated.

Based on the findings, a limited, localized soil removal was recommended. Specifically, the area with petroleum hydrocarbon impacts in the vicinity of SB-7 was proposed for excavation, with the impacted material transported to Domermuth Environmental Services for treatment and disposal. Removal of the petroleum hydrocarbon-impacted material helps reduce the potential for future VI risk associated with these contaminants. Although
some areas of elevated metals were also detected in the soil, they appeared to be generally isolated and ranged from surficial soils to deeper (greater than eight feet bgs) soil horizons. The future use and layout of the site has not yet been determined but would likely include a large building/parking area footprint. This type of redevelopment would limit residential exposure to subsurface soils. Rather than spending cleanup funds to remove metals that may not pose a risk to human health or environment in the final redevelopment scenario, S&ME recommended addressing this issue through applicable land-use restrictions and the BVA. The BVA includes a provision for placement of buildings, parking areas, at least two feet of clean soil, or another type of TDEC-approved contact barrier over the existing ground surface as warranted to limit exposure to metals, if the redevelopment includes residential use.

2.2.2 Asbestos-containing Materials

Option 1: No Action: No action is a zero-cost option; however, it is not a viable option because the remnants of the former buildings are in disrepair and the buildings have been partially demolished. Therefore, the remaining asbestos identified in the buildings needs to be removed prior to future demolition of these structure. LBP has also been identified in the demolition debris and will require appropriate management before redevelopment can be performed.

Option 2: Landfill Disposal: As documented previously in the Tetra Tech ABCA, the black wall adhesive and roof flashing identified as ACM in the remaining structures are non-friable and therefore, are not regulated asbestos-containing material (RACM) provided they are not subjected to grinding, cutting, sanding, or abrading. These homogenous areas may be disposed of within a landfill permitted to receive the waste along with the demolition debris as long as they remain in good condition. Tetra Tech stated that doing so can greatly increase disposal costs, and further stated that often the most economical means of addressing waste classified as non-friable RACM is to remove and dispose of it separately, prior to demolition, thus preventing all demolition debris from being contaminated. Tetra Tech proposed that removal and disposal of RACM typically costs around $1.50 to $2.00 per square foot, translating to about $4,500 to $6,000 to dispose of the RACM they identified in the remnant structures on site.

The previous ABCA did not address the piles of demolition debris on the property, resulting from the demolition of the structures after the fires. Due to the nature of the building demolition following the fires, asbestos abatement of the warehouses was not feasible at that time. Consequently, ACM was confirmed in the debris piles during the S&ME 2018 assessment activities. Some of the debris is currently ramped along Jackson Avenue (approximately 200 cubic yards) presumably for structural support of the road, and removal of this material is not recommended until site redevelopment is planned. Three debris piles are located beyond the Jackson Avenue area, and they collectively contain approximately 750 cubic yards of debris (Figure 6, Appendix I). Because the ACM cannot feasibly be segregated from these piles, they would be considered asbestos waste, and should be handled accordingly. S&ME obtained quotes from two area contractors for proper transport and disposal at Chestnut Ridge Class I Landfill, and the estimates for these services ranged from $120,000 and $145,000, excluding oversight, air monitoring and final clearance. A portion of the cleanup funds were used to fund partial removal of the ACM, as discussed in Section 3.

2.2.3 Vapor Intrusion

Option 1: No Action: No action is a zero-cost option; however, it is not effective in controlling or preventing residents from potential exposure to due to vapor intrusion at the site.
Option 2: Vapor Mitigation: As documented in the S&ME Phase II ESA and summarized above, the VISL screening under a residential scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine, benzyl chloride, carbon tetrachloride, chloroform, 1,2 dichloroethane and naphthalene. A VI hazard was identified in excess of the THQ of 0.1 for 1,3-butadine, benzyl chloride and naphthalene. The results of VISL screening under a commercial scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine and naphthalene. A VI Hazard was not identified in the commercial scenario.

Of the contaminants with a VI carcinogenic risk, benzene was detected at elevated concentrations most frequently, followed by naphthalene. To further evaluate the benzene risk, S&ME used the VISL calculator to evaluate benzene results with concentrations below the maximum detected. The VISL calculator identified a VI carcinogenic risk in the residential scenario when benzene concentrations exceeded 12 µg/m$^3$. The VISL calculator, under a residential use scenario, identified a VI issue in multiple locations across the site, from the northeast corner to the southwest corner, and on the City parcels both north and south of Jackson Avenue.

The VISL VI carcinogenic risk levels range from no risk to 1.1E-05 for the residential scenario, and from no risk to 2.5E-06 for the commercial scenario. Within this range, current TDEC protocol indicates that mitigation is recommended for new construction sites. If residential structures are planned, vapor intrusion mitigation may be warranted. However, in the absence of a site development plan, or information on building vs. parking areas, it is not feasible to address the vapor mitigation at this time, beyond some general recommendations for the type of mitigation that may be appropriate.

Depending on the extent, design and location of residential development on the site, a mitigation vapor barrier may be considered. TDEC would require a minimum 20-mil VOC-resistant vapor barrier, installed and sealed per manufacturer’s specifications. As an alternative, an unvented VOC-resistant asphaltic-based vapor barrier with certified design and installation could be considered. Passive or active sub-slab venting may also be considered. It is not possible to provide a cost for this cleanup alternative in the absence of site-specific design considerations.

3.0 Environmental Cleanup Activities

3.1 ACM and LBP Impacted Demolition Debris

Under this Brownfield Cleanup Grant, 258 cubic yards of ACM and LBP-impacted demolition debris was transported to Chestnut Ridge Landfill for disposal. As mentioned previously, approximately 200 cubic yards of the debris is currently ramped along Jackson Avenue. Following the cleanup activity, approximately 500 cubic yards of demolition debris containing ACM and LBP remain in the debris piles located beyond the material ramped along Jackson Avenue.

An asbestos demolition/renovation ten-day notice form was prepared for the Knox County Department of Air Quality Management on May 31, 2019. On June 17, 2019 Neo Corporation removed the 307 tons or 258 cubic yards of demolition debris from the subject property, with support from Brady Excavating. First Place Finish transported the demolition debris under non-hazardous waste manifest to the Chestnut Ridge Landfill for disposal. NEO Corporation lined each truck with plastic prior to being loaded and wrapped each load prior to being hauled. One supervisor and two workers were present for NEO Corporation. Photographs, a field report and Non-Hazardous Waste manifest documentation are included in Appendix III.
Ms. Emmy Buckingham of S&ME, an EPA-accredited and TDEC Toxic Substances Program-licensed Asbestos Project Monitor conducted area air monitoring services during the ACM removal. Four air samples were collected during the removal. One sample was collected at the entrance gate, one in the parking lot, and two on Jackson Avenue, one east and one west of the asbestos-containing rubble pile being removed. The air samples were collected on 25 mm Mixed Cellulose Ester membrane filters and analyzed by Phase Contrast Microscopy in accordance with the NIOSH 7400 Method, Revision 3 by Ms. Buckingham, an American Industrial Hygiene Association Asbestos Analysts Registry analyst. Same day analysis was performed on samples collected. The air samples collected were compared to and passed the EPA Clearance Criterion of 0.01 fibers per cubic centimeter.

3.2 Petroleum Hydrocarbon-Impacted Soil

In preparation for soil cleanup activities, S&ME prepared a TDEC-DPWM special waste application on January 16, 2019 for transportation and disposal of the soil at the Chestnut Ridge Landfill in Heiskell, Tennessee. TDEC DSWM provided a letter of Disposal of Special Waste Approval on January 28, 2019 (Appendix IV). However, on the day the excavation was initiated, Mr. Rick Gatlin, the excavation contractor, had concerns about the transportation turnaround time and the impact on the project schedule due to his limited number of trucks available to transport the soil. Mr. Gatlin elected to use his longstanding contract with Domermuth Environmental Services for the soil disposal.

A total of 131 tons of petroleum hydrocarbon-impacted soil on the eastern portion of the site was excavated and transported to Domermuth Environmental Services for interim bioremediation prior to disposing in a Class I Subtitle D landfill. Photographs documenting the removal of the impacted soil are included in Appendix IV.

On February 18, 2019, safety barriers were installed around the area of proposed excavation in the Jackson Avenue parking lot. Gatlin Excavating removed asphalt from an area measuring approximately 23 feet by 28 feet. The excavated material was loaded directly onto a dump truck. A total of 130.95 tons of contaminated soil and 9.19 tons of asphalt were excavated. Walker’s Truck Contractors transported the material under non-hazardous waste manifest from the excavation in the Jackson Avenue parking lot to Domermuth Environmental Services for interim bioremediation prior to disposing in a Class I Subtitle D landfill. Claiborne Hauling, LLC transported 144.68 tons of clean crushed stone to the site for backfill on February 19, 2019. Backfilling was performed by Gatlin Excavating with crusher-run fill and compacted in 12-inch lifts. The final grade was four to six inches below the parking lot level to allow for placement of asphalt paving. The City of Knoxville subsequently repaved the parking lot and the safety barriers were removed from the site. Non-hazardous waste manifest documentation is included in Appendix IV.

S&ME collected four confirmation soil samples from the terminus of the excavation at depths ranging from 5.0 to 8.0 feet bgs following removal of the impacted soils. The samples were analyzed for EPH at Pace Analytical Laboratory in Mt. Juliet, Tennessee. Laboratory analytical results confirmed that EPH concentrations were below detection limits at each sampled location. The laboratory report is included in Appendix IV.

4.0 Conclusions

S&ME understands the City envisions mixed-used redevelopment of the subject property. The information documented herein and summarized below should be provided to developers interested in the site.
4.1 Surface and Subsurface Soil

A total of 131 tons of petroleum hydrocarbon-impacted soil on the eastern portion of the site was excavated and transported to Domermuth Environmental Services for interim bioremediation prior to disposing in a Class I Subtitle D landfill. The remaining surface and subsurface soil contain limited detections of dieldrin and metals such as arsenic, aluminum, iron, cobalt, lead, manganese, vanadium, and thallium at concentrations above their respective EPA RSL_{reb} and RSL_{ind}. A draft BVA has been prepared to address these issues through applicable land-use restrictions and to provide liability protection for the future site owners.

As discussed previously, although some areas of elevated metals were also detected in the soil, they appeared to be generally isolated and ranged from surficial soils to deeper (greater than eight feet bgs) soil horizons. The future use and layout of the site has not yet been determined but would likely have a large building/parking area footprint. This type of redevelopment would limit residential exposure to subsurface soils simply based on the limited landscaped areas envisioned in this urban setting. Rather than spending cleanup funds to remove metals that may not pose a risk to human health or environment in the final redevelopment scenario, S&ME recommended addressing this issue through applicable land-use restrictions and the BVA. The BVA addresses considerations for construction worker contact with impacted soils during redevelopment, and steps to limit site occupant contact with impacted soil after redevelopment. The BVA also includes a provision for placement of buildings, parking areas, at least two feet of clean soil, or another type of TDEC-approved contact barrier over the existing ground surface as warranted to limit exposure to metals, if the redevelopment includes residential use.

4.2 Asbestos-containing Materials

Under this Brownfield Cleanup Grant 258 cubic yards of ACM and LBP-impacted demolition debris was transported to Chestnut Ridge Landfill for disposal. Approximately 500 cubic yards of demolition debris remain in piles on the subject property, with an additional 200 cubic yards ramped along Jackson Avenue presumably for structural support of the road. The debris is from the demolition of the former warehouse structures after fires in 2007 and 2014. Since the ACM cannot feasibly be segregated from these debris piles, they would be considered asbestos waste, and should be handled accordingly. Removal of the debris currently ramped along Jackson Avenue is not recommended until site redevelopment is planned.

4.3 Vapor Intrusion

As documented herein and in the S&ME Phase II ESA, the VISL screening under a residential scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine, benzyl chloride, carbon tetrachloride, chloroform, 1,2 dichloroethane and naphthalene. A VI hazard was identified in excess of the THQ of 0.1 for 1,3-butadine, benzyl chloride and naphthalene. The results of VISL screening under a commercial scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine and naphthalene. A VI Hazard was not identified in the commercial scenario.

As site redevelopment plans are considered, vapor intrusion mitigation may be warranted. There is insufficient information regarding future use to design and install a vapor mitigation system at this time, nor is it possible to provide a cost for vapor intrusion mitigation in the absence of site-specific design considerations.

The draft BVA addresses the vapor intrusion potential, with a recommendation for design and installation of a vapor mitigation system, if warranted based on redevelopment plans.
5.0 References

14. USEPA, Regional Screening Level (RSL) Summary Table (TR=1.0E-06, HQ=0.1), May 2018.
Appendices
Appendix I – Figures

Figure 1: USGS Topographic Site Vicinity Map
Figure 2: Passive Soil Vapor Collector Location Map
Figure 3: Soil Boring Location Map
Figure 4: Soil Gas Benzene Results and Groundwater Sample Location Map
Figure 5: Debris Volume Calculations
REFERENCE: GIS BASE LAYERS WERE OBTAINED FROM BING. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.
SOIL BORING LOCATION MAP

FORMER MCCLUNG WAREHOUSES
KNOXVILLE, TENNESSEE

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM BING. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

SOIL BORINGS (3/19/18)
GEOPROBE LOCATIONS (4/17/18)
HAND AUGER BORINGS (PESTICIDE)
ASSESSMENT AREA

NUMBERS IN PARENTHESES INDICATE EPH VALUE

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM BING. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.
SOIL GAS BENZENE RESULTS AND GROUNDWATER SAMPLE LOCATION MAP

FORMER MCCLUNG WAREHOUSES SITE
KNOXVILLE, TENNESSEE

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM BING. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

NOTE:
CONCENTRATIONS ABOVE 12.0 ug/m³ (UNDERLINED) INDICATE VISL RISK RESIDENTIAL.

PIEZOMETER LOCATION (PZ)
SOIL GAS SAMPLE LOCATIONS (SG) - COLLECTED AT 3 FEET VERTICAL PROFILE SOIL GAS SAMPLE LOCATIONS (A,B,C)
ASSESSMENT AREA
BENZENE CONCENTRATIONS (ug/m³)

0.00 - 10.00
10.01 - 20.00
20.01 - 30.00
30.01 - 40.00
40.01 - 50.00
50.01 - 60.00
60.001 - 65.00

SCALE:
1" = 150'

DATE:
8-21-18
PROJECT NUMBER:
4143-17-017
Debris Pile Designations

Debris Volume Calculations
MCCLUNG WAREHOUSES DEBRIS PILES
JACKSON AVENUE
KNOXVILLE, TENNESSEE

REFERENCE:
ALL DEBRIS VOLUMES GIVEN IN CUBIC YARDS.
GIS BASE LAYERS WERE OBTAINED FROM GOOGLE. THIS MAP IS FOR
INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS
DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY
INFORMATION, UNLESS STATED OTHERWISE.
Appendix II – Draft Brownfield Voluntary Agreement
STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF REMEDIATION
BROWNFIELD VOLUNTARY AGREEMENT

This Brownfield Voluntary Agreement addresses the Site located at 401, 420, 501, 505, 512, 517, 519, 523 and 525 W. Jackson Avenue, Knoxville, Tennessee. The Site has been assigned site number __________ and is known as the Former McClung Warehouses Site.

I. INTRODUCTION

This Brownfield Voluntary Agreement (hereinafter referred to as the “Agreement”) is made and entered into as of the last date of execution shown herein below by and between [among] the Tennessee Department of Environment and Conservation (hereinafter referred to as “TDEC” or the "Department") and ______________, a ______________________ [e.g., organized under and existing pursuant to the laws of the State of Tennessee] (hereinafter [collectively] “Voluntary Party”( for the purpose of addressing an approximately five acre site referenced above (hereinafter “Site”), which has the real or perceived threat of the presence on the Site of hazardous substances, solid waste, or any other pollutant. The administrative record for the Site addressed in this Agreement is maintained by the Department’s Division of Remediation. The Site has been assigned site number __________ and is known as the Former McClung Warehouses Site.

David W. Salyers, P.E., is the duly appointed Commissioner of the Department. Chris Thompson, Director of the Department’s Division of Remediation, has been delegated the authority to enter into this Agreement.

Pursuant to Tennessee Code Annotated § 68-212-224, the Commissioner is authorized to enter into an Agreement with a party who is willing and able to conduct an investigation and/or
remediation of a hazardous substance site or Brownfield Project and who did not generate, transport or release the contamination that is to be addressed at the Site.

The Department and the Voluntary Party agree to undertake all actions required by this Agreement. The purpose of this Agreement is to set forth a scope and schedule of activities at the above-referenced Site and respond to the actual, threatened, or perceived release of hazardous substances at the Site. In addition, this Agreement is intended to settle and resolve the potential liability of the Voluntary Party for the real or perceived threat of the presence of hazardous substances, solid waste, or any other pollutant at the Site which might otherwise result if and when Voluntary Party becomes the owner and/or operator of the Property.

II. REQUIREMENTS

A. SITE LOCATION

The Site is located on nine parcels containing approximately five acres, and formerly located at 401, 420, 501, 505, 512, 517, 519, 523 and 525 W. Jackson Avenue in Knoxville, Tennessee. In addition, the property includes a 30-foot-wide public alley right-of-way (ROW) located behind the former parcels at 501, 505, 517, 519, and 523 W. Jackson Avenue. The property center is approximately located at 35.9677° N latitude and -83.9229° W longitude. The properties are identified on the Knox County Tax Assessor's Tax Map as Tax Map 94E, Group J, Parcels 1, 1.01, 2, 4, 5.02, 5.03 and 11.01, as well as the public alley ROW. A legal description of the Site and a survey map showing the Site is attached as Exhibit A, which is incorporated herein by reference.

B. ELIGIBILITY

As required by Tennessee Code Annotated § 68-212-224(a)(4), as of the effective date of this Agreement, the Department has determined that the Site is not listed or been proposed for listing on the federal National Priorities List by the United States Environmental Protection Agency (“EPA”).
The Voluntary Party was accepted into the Brownfield Projects Voluntary Cleanup Oversight and Assistance Program on ____________. By entering into this Agreement, the Voluntary Party certifies to the best of the Voluntary Party’s knowledge that pursuant to Tennessee Code Annotated § 68-212-224(a)(1) the Voluntary Party did not generate, transport, or release the contamination that is to be addressed at the Site. As required by Tennessee Code Annotated § 68-212-224(a)(2), a summary description of all known existing environmental investigations, studies, reports, or documents concerning the Site’s environmental condition has been submitted to the Department by the Voluntary Party. A copy of the Summary is attached hereto as Exhibit B.

C. FINANCIAL REQUIREMENTS

Tennessee Code Annotated § 68-212-224 requires consideration of a fee to enroll in the Voluntary Cleanup Oversight and Assistance Program. The Commissioner has set the following schedule of fees that may apply to all sites working in cooperation with the Department to recover the expense of oversight. These fees are in place of hourly time charges and normal travel costs during the first 150 hours of oversight for the project.

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Entry</td>
<td>$750</td>
</tr>
<tr>
<td>Site Characterization</td>
<td>$2,000</td>
</tr>
<tr>
<td>Remediation</td>
<td>$2,500</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>$2,000</td>
</tr>
<tr>
<td>Vapor Intrusion Evaluation</td>
<td>$2,000</td>
</tr>
<tr>
<td>Voluntary Agreement/Consent Order</td>
<td>$3,000</td>
</tr>
<tr>
<td>Land Use Restrictions</td>
<td>$500</td>
</tr>
<tr>
<td>Annual O&amp;M Review</td>
<td>$500</td>
</tr>
</tbody>
</table>

In addition to the fees identified previously, an annual longevity fee of $3,000 will be charged to the Voluntary Party on the anniversary of the date the site was accepted into the Voluntary Program until a letter requiring no further action has been issued or this Agreement has been terminated.

Upon reaching 150 hours of oversight, the Site will be charged the current hourly rate (e.g. seventy-five dollars ($75.00) per hour for FY 2018-2019) per hour of oversight in addition to the fee
schedule listed above. This amount includes the current hourly rate and pro rata portion benefits for the Department’s employees actively employed in oversight of work under this Agreement, including preparation for and attendance at meetings, mileage, any costs billed by State contractor(s) who are actively performing oversight, and the current State overhead rate. Additionally, any out-of-pocket expense, mileage, lab expense or other unusual costs to the Department shall be billed to and paid by the Voluntary Party. The applicable Voluntary Party shall pay each bill referenced in this Section C within sixty (60) days of receipt by such Voluntary Party.

Applicable fees and financial requirements must be timely paid by the applicable Voluntary Party to remain in the Voluntary Cleanup Oversight and Assistance Program and to receive a letter of no further action under Section G of this Agreement. For the purpose of this Agreement, timely payment means the Department receiving payment from the Voluntary Party within 60 days of the first billing of a financial requirement or according to a payment plan agreed in writing between Voluntary Party and the Department.

Notwithstanding the foregoing, any and all cost recovery assessments arising from actions to comply with a recorded Notice of Land Use Restrictions imposed pursuant to and recorded on the Site under the terms of this Agreement, shall be due from and payable only from the particular Voluntary Party or Successor Party submitting the report to be reviewed and/or requesting the related oversight action by TDEC that gives rise to the associated fees.

D. IDENTIFICATION AND DOCUMENTATION OF MATTERS ADDRESSED

Real or perceived hazardous substances, solid wastes or other pollutants are determined to be present on this Site to an extent that may or may not have yet been fully characterized. Pursuant to Tennessee Code Annotated § 68-212-224(a)(2) the Voluntary Party has submitted to the Commissioner a summary description of all known existing environmental investigations, studies, reports or documents concerning the site's environmental condition. Based on the information submitted to the Department by or on behalf of the Voluntary Party, and the Department’s own review of this information, the Parties hereto agree that the environmental conditions identified in the reports referred to below and any reports generated pursuant to this Agreement, or in the
Summary, including the environmental conditions described below are to be addressed under this Agreement (collectively referred to as the "Matters Addressed in this Agreement"):

SEE EXHIBIT B

The Voluntary Party is proposing to redevelop this Site as a mixed-use complex consisting of commercial and residential properties. Pursuant to this Agreement, Voluntary Party is not being required to fully remediate the pre-existing environmental conditions noted above, but each is required to take certain actions specified in this Agreement to ensure that the identified environmental impacts and conditions do not pose a threat to human health or the environment during and after completion of the redevelopment.

The Voluntary Party agrees that criteria required in Tennessee Code Annotated § 68-212-206(d) shall be used in determining containment and cleanup actions, including monitoring and maintenance options to be followed under this Agreement.

E. AGREED LIABILITY RELIEF

As the current owner or operator, or upon becoming an owner or operator of the Site, the Voluntary Party may occupy the status of a “liable party” pursuant to the definition of that term contained in Tennessee Code Annotated § 68-212-202(4). The Commissioner is authorized by Tennessee Code Annotated § 68-212-224 to determine an apportionment of pursuant to factors in Tennessee Code Annotated § 68-212-207 as well as other equitable factors in an Agreement. Further, Tennessee Code Annotated § 68-212-224(a)(5) provides that the Commissioner is authorized to limit the liability of a participant in a voluntary agreement or consent order entered into pursuant to Tennessee Code Annotated § 68-212-224. Such voluntary agreement or consent order may limit the liability of such participant to the obligations set forth therein and exempt the participant from any further liability under any statute administered by the Department for investigation, remediation, monitoring, and/or maintenance of contamination identified and addressed in the voluntary agreement or consent order. The Commissioner may extend this liability protection to successors in interest or in title to the participant, contractors conducting response actions at the Site, developers, future owners, tenants, and lenders, fiduciaries, or insurers (collectively
"Successor Parties"). The Commissioner agrees that the Voluntary Party’s implementation of the actions agreed upon in Section G will constitute satisfaction of the apportioned liability of the Voluntary Party under all environmental statutes administered by the Department for the "Matters Addressed in this Agreement".

The Voluntary Party and any of the Successor Parties, however, remain potentially responsible for any release of hazardous substances or other pollutants that occurs at the Site after the effective date of this Agreement while it owns or operates the Site or for environmental conditions other than Matters Addressed in this Agreement. [Prospective Buyer/Voluntary Party has no current interest in the Site. However, it is anticipated that it may acquire title to the Site pursuant to an agreement or option to purchase the Site. While Prospective Buyer/Voluntary Party is a party to this Agreement, any obligation, responsibility, duty or benefit accruing to Prospective Buyer/Voluntary Party as a party to this Agreement is contingent upon its acquisition of title to all or any part of the Site or its status as a Successor Party.]

In accordance with the above referenced authority, the Department agrees that other than with respect to the obligations set forth in this Agreement, including without limitation the implementation of the actions agreed upon in Section G and H to the extent applicable to each Voluntary Party and Successor Parties shall bear no liability to the State of Tennessee under any statute administered by the Department for investigation, remediation, monitoring, treatment, and/or maintenance of environmental conditions identified in and addressed in Section D of this Agreement; provided, however, that to the extent that the Voluntary Party or Successor Parties has or maintains an interest in the Site, or possesses and/or controls all or a portion of the Site, its liability protections herein are contingent upon its continued adherence and enforcement of any land use restrictions imposed pursuant to or as a result of this Agreement. Nothing in this Agreement shall be construed as limiting the liability or potential liability of the Voluntary Party for environmental conditions occurring after the effective date of this Agreement or for environmental conditions not identified and addressed in this Agreement. This liability protection and all other benefits conferred by this Agreement are extended to all future “Successor Parties” conditioned upon performance of the obligations contained in this Agreement and compliance with the Land Use Restrictions (hereinafter defined); provided, that such liability protection to other persons does not apply to the extent that such liability arose prior to the effective date of this
Agreement. For the avoidance of doubt, a breach of this Agreement by a successor-in-interest or a successor-in-title will not alter the liability protection provided to a predecessor-in-interest or in-title.

F. ADMINISTRATIVE SETTLEMENT; THIRD PARTY LIABILITY

Tennessee Code Annotated § 68-212-224(a)(6), subject to the notice requirements provided therein, provides that this Agreement also constitutes an administrative settlement for purposes of Section 113(f) of CERCLA, 42 U.S.C. § 9613(f), for inactive hazardous substance sites. Voluntary Party and Successor Parties (as hereinafter defined) have, as of the effective date of this Agreement, resolved their liability to the State of Tennessee for Matters Addressed in this Agreement.

The Voluntary Party shall not be liable to third parties for contribution regarding Matters Addressed in this Agreement; provided that, the Voluntary Party gave the third party actual or constructive notice of this Agreement, and the third party was given an actual or constructive opportunity to comment upon this Agreement. The Voluntary Party has demonstrated to the Department that constructive notice was accomplished by publishing a summary of this Agreement in the Knoxville News Sentinel at least thirty (30) days prior to the Effective Date of this Agreement.

Nothing in this Agreement shall impair the rights of third parties with respect to tort liability claims for damage to person or property arising from the contamination addressed by this Agreement.

G. AGREED ACTIONS TO BE TAKEN

The Voluntary Party agrees to conduct the following activities in order to address remedial actions recommended, including any monitoring and/or maintenance, pursuant to this Agreement. The Voluntary Party shall conduct all activities required by this Agreement in accordance with all applicable work plans, as approved by TDEC, all applicable laws and regulations, and any appropriate guidance documents. The Department has determined that the actions in this Agreement constitute “reasonable steps” with respect to Matters Addressed in This Agreement.
The Voluntary Party agrees as specified below to conduct the following activities:

1. Voluntary Party shall record a Notice of Land Use Restrictions ("NLUR") (attached hereto as Exhibit C [NOTE: TO BE PREPARED WHEN PLANNED USE OF THE SITE IS DETERMINED] within thirty (30) days of taking title to the Site, or the effective date of this Agreement, whichever occurs later. Upon recording, a copy of the NLUR shall be mailed to all local governments having jurisdiction over any part of the subject property. Additionally, a copy of the recorded NLUR shall be provided to the Department. Any party receiving liability protection under this Agreement that seeks approval for restricted uses or seeks to cancel or make a restriction less stringent shall be responsible for any costs incurred by the Department in the review and oversight of work associated with the restriction modification.

2. Voluntary Party agrees to send notification of this Agreement by certified mail to all local governments having jurisdiction over any part of the subject property and to all owners of adjoining properties. Voluntary Party shall provide adequate documentation to the Department to demonstrate that public notice has been accomplished.

3. Voluntary Party agrees to develop and implement a Department-approved Site Management Plan (SMP) for impacted media to be used during redevelopment activities and whenever onsite lead-based paint or asbestos abatement activities or subsurface activities are proposed. The SMP shall include, but not be limited to, construction worker safety when handling potentially impacted materials, characterization of excavated materials, handling procedures to ensure that any off-site disposal of impacted media meets State and Federal requirements, and if needed, installation of a barrier, cover system or engineered cap to limit site occupant contact with impacted soil after redevelopment. Areas with elevated metals concentrations as detected during assessment activities can be addressed through placement of buildings, parking areas, at least two feet of clean soil, or another type of TDEC-approved contact
barrier over the existing ground surface as warranted to limit exposure to metals, if the 
redevelopment includes residential use.

4. New structures proposed on the site will be evaluated using existing data (or updated 
data, if warranted) to determine if an engineered vapor mitigation system is warranted 
to prevent subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels. If a vapor mitigation system is warranted, the plans will be developed by a TDEC-approved remediation contractor and the plans will be provided to the Department for review prior to construction. After installation, the TDEC-approved contractor shall submit a written report to the Department documenting how the system was installed and documenting any deviations from the Department-approved plans, as built drawings, and an Operation and Maintenance Plan identifying continued care and operation and maintenance activities to be conducted to ensure the venting system is effective in preventing subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels.

5. Voluntary Party agrees to implement recommendations set forth in the SMP, and the Voluntary Party shall submit a written report documenting implementation to the Department within 90 days of completion of such work. The report shall include, but not be limited to as-built drawings, details of any capping, and waste manifests for offsite disposal. The report shall also identify any areas where soil remains at the site that must be managed in the future to protect human health, safety, or the environment and requirements for future soil or vapor management, and maintenance of any covers or caps.

6. Voluntary Party shall be responsible for continued care, operation, and maintenance of the remedy. Voluntary Party shall notify TDEC Division of Remediation in writing if the integrity of the remedy is compromised and take any steps necessary to eliminate the threat or potential threat to public health, safety, or the environment posed by the hazardous substance(s).
Upon completion of all tasks set forth in this Agreement [by each Voluntary Party that is responsible for such tasks], the Department shall issue to [each such] Voluntary Party a letter stating the requirements of this Agreement have been fulfilled and no further action is required of the Voluntary Party concerning contamination identified and addressed in this Agreement. Upon the request of a Voluntary Party from time to time, the Department shall issue an interim status letter identifying what specific obligations remain to achieve completion of the work under this Agreement. Issuance of a no further action letter shall not relieve the Voluntary Party receiving such letter of any responsibilities for operation and maintenance activities or continued adherence to and enforcement of land use restrictions, if any, pursuant to Tennessee Code Annotated § 68-212-225. The Department reserves the right to require a Voluntary Party to take additional action for contamination caused by such Voluntary Party occurring after the date of this Agreement or for environmental conditions other than Matters Addressed in this Agreement.

H. ADDITIONAL REQUIREMENTS

1. The Voluntary Party may request a time extension for any deadline included in this Agreement prior to the deadline. The time extension may be granted through mutual consent for good cause shown.

2. The Voluntary Party and Successor Parties agree not to disturb, move, or remove any areas of hazardous substances, solid waste, or other pollutant(s) that are subject to liability protection under this Agreement without written approval by the Department unless the activities are being conducted under the terms and conditions of this Agreement or necessitated by the normal day-to-day activities of any on-going business.

7. Pursuant to Tennessee Code Annotated § 68-212-222, whether or not permits are required for onsite cleanup activities related to Matters Addressed in this Agreement, such activities shall meet the standards that would apply if such permits were required.

8. The Department acknowledges that the Voluntary Party itself may conduct redevelopment activities at the Site in addition to preparing the Site for potential
development for Successor Parties, and the Voluntary Party enters into this Agreement in order to facilitate Voluntary Party’s potential development of the Site or Successor Parties’ potential development of the Site as herein agreed by Voluntary Party. The Department further acknowledges that Voluntary Party and more than one Successor Party may develop different portions of the Site. Accordingly, Voluntary Party and one or more Successor Parties may assume the obligations and liability protections provided under this Agreement upon such Successor Parties’ acquisition of property interests in the Site. The Voluntary Party or any Successor Party that transfers its interest at the Site shall be relieved of any further obligations under this Agreement.

I. SITE ACCESS

During the effective period of this Agreement, and until the Department’s issuance of a No Further Action Letter upon the Voluntary Party’s completion of all activities under this Agreement, the Voluntary Party, and any Successor Party shall, to the extent it is in control of the Site, provide the Department and its representatives or designees access during normal business hours to the Site to the extent that the Voluntary Party has the power and authority to grant such access. Nothing herein shall limit or otherwise affect the Department’s right of entry, pursuant to any applicable statute, regulation, or permit. The Department and its representative shall comply with all reasonable health and safety plans published by the Voluntary Party, Successor Party or their contractors and used by Site personnel for the purpose of protecting life and property.

J. SUBMISSION OF INFORMATION, REPORTS, OR STUDIES

The Department may deny submission or approval of any reports or studies performed by or on behalf of the Voluntary Party and submitted under the terms of this Agreement that do not contain the following statement:

“I certify under penalty of law, including but not limited to penalties for perjury, that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information contained in this document and on any attachment is true, accurate and complete to the best of my knowledge, information, and belief. I am aware that there are significant penalties for submitting false information, including the
possibility of fine and imprisonment for intentional violation. As specified in Tennessee Code Annotated § 39-16-702(a)(4), this declaration is made under penalty of perjury.”

K. RESERVATION OF RIGHTS

1. This Agreement shall not be construed as waiving any right or authority available to the Commissioner to assess responsible parties other than the Voluntary Party or Successor Parties for liability for civil penalties or damages incurred by the State, including any natural resource damage claims which the Department or the State of Tennessee may have under Section 107 of the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”) or any other statute, rule, regulation, or common law.

2. Nothing in this Agreement shall be construed as limiting or waiving any right or authority available to the Commissioner to require a liable party to address contamination occurring after the effective date of this Agreement or for environmental conditions other than Matters Addressed in this Agreement.

3. Nothing in this Agreement shall be interpreted as limiting the Voluntary Party’s right to preserve the confidentiality of attorney work product or client-attorney communication. Tennessee Code Annotated § 68-212-202 et seq. contains no provisions for confidentiality or proprietary information. Therefore, records, reports, test results, or other information submitted to the Department under this Agreement shall be subject to public review. Any and all records, reports, test results or other information relating to a hazardous substance site or the possible hazardous substance at the Site submitted under this Agreement may be used by the Department for all purposes set forth in Tennessee Code Annotated § 68-212-201 et seq.

4. Any Voluntary Party or any of their Successor Parties may terminate this Agreement as it pertains to such terminating party at any time upon written notice to the Department during the time period that such party owns the Site and/or conducts operations at the Site. Upon such termination, the terminating party shall have no further obligations hereunder other than payment of outstanding oversight costs, if any, accrued to the date of notice of termination and adherence to any notice of land use controls filed under Tennessee Code
Annotated § 68-212-225; provided, that all parties to this Agreement shall have and retain all authority, rights, and defenses as if this Agreement had never existed.

5. The Department may terminate this Agreement by written notice to the Voluntary Party in the event that the Department receives timely comments from third-party contribution claim holders pursuant to the notice sent under Section F of this Agreement, if any, and such comments disclose facts or considerations that indicate that the allocation of liability of the Voluntary Party under this Agreement is inappropriate, improper, or inadequate; provided, however, absent fraud or intentional misconduct, that in such event the Voluntary Party may elect to waive the protections set forth in Section F hereunder and in such event this Agreement shall not be terminated, but rather the remainder of the terms and conditions of this Agreement shall continue to be in full force and effect and without termination. The Department’s notice of termination must be made within thirty (30) days of the end of the 30-day notice period required by Section F. The Voluntary Party’s waiver notice must be made within fifteen (15) days after receipt of the Department’s termination notice.

6. In the event a Voluntary Party or Successor Party does not fulfill all the requirements established in this Agreement, the Commissioner may seek to enforce the Agreement through any legal remedy.

7. If any provision of this Agreement is held to be invalid or unenforceable by a court of competent jurisdiction, then the remaining provisions of this Agreement will remain in full force and effect.

8. Nothing in this Agreement shall be interpreted as limiting the liability for the improper management and/or disposal of contaminated material removed from the Site.

The individuals signing below on behalf of each Voluntary Party represents that they are duly authorized agents, capable of entering into a binding Agreement on behalf of the Voluntary Party. By entering into this Agreement, [these individuals certify][this individual certifies] that the Voluntary Party did not generate or did not cause to generate, transport, or release contamination that is to be addressed at this Site.
The Effective Date of this Agreement is the last date of execution shown below.

VOLUNTARY PARTY

By: ______________________________
   (Authorized Signatory)

________________________________
   (Print Signatory’s Name & Title)

Date: ____________________________

________________________________
   (Address)

________________________________
   (City, State, Zip Code)


STATE OF TENNESSEE
DEPARTMENT OF
ENVIRONMENT AND CONSERVATION

By: ______________________________
   Chris Thompson
   Director, Division of Remediation

________________________________
   (Print Director’s Name)

Date: ____________________________

________________________________
   (Print Director’s Name)


Approved as to form and legality:
TDEC Office of General Counsel Attorney

________________________________
   (Print Attorney’s Name)
EXHIBIT A

TO BROWNFIELD AGREEMENT

SITE DESCRIPTION
EXHIBIT B

TO BROWNFIELD AGREEMENT

SUMMARY OF TECHNICAL REPORTS FOR THE SITE

The following summary is a listing of technical reports for environmental investigations and assessments for the Site that are in the possession of the Voluntary Party. This summary is intended to fulfill the statutory disclosure requirements associated with the Brownfield agreement application process. All reports listed below are on file at TDEC.


Report of Phase II Environmental Site Assessment, Former McClung Warehouses Property, Knoxville, Tennessee, S&ME Project No. 4143-17-017, EPA Brownfields Cooperative Agreement No. BF-00D47816-0 dated September 14, 2018.

Analysis of Brownfield Cleanup Alternatives, Former McClung Warehouses Property, Knoxville, Tennessee, S&ME Project No. 4143-17-017, EPA Brownfields Cooperative Agreement No. BF-00D47816-0 dated September 14, 2018.

Information contained in these reports is included by reference in this BVA. For convenience, the reports are summarized as follows:

The former McClung Warehouses property consists of nine former parcels containing approximately five acres, owned by the City of Knoxville (City), and formerly addressed at 401, 420, 501, 505, 512, 517, 519, 523 and 525 W. Jackson Avenue in Knoxville, Tennessee. In addition, the property includes a 30-foot-wide public alley right-of-way (ROW) located behind the former parcels at 501, 505, 517, 519, and 523 W. Jackson. The City envisions the property will be revitalized with mixed-use commercial and residential redevelopment.

Businesses that formerly operated at the McClung Warehouses site included an automobile garage, woodworking shop, freight shipping businesses, and railroad freight storage, shipment, and administrative operations. In 2007, a fire destroyed the warehouses located at 501, 505, and 509 W. Jackson Avenue. In 2014, a second fire destroyed the warehouses located at 517, 519, 523, and 525 W. Jackson Avenue.

Phase I Environmental Site Assessments (ESA) and Phase II ESAs performed by S&ME and Tetra-Tech in 2009 and 2015, respectively, identified recognized environmental conditions (RECs) related to previous industrial use of the site and identified impacted environmental media through sampling and laboratory analysis. The results of the previous soil sampling identified arsenic, lead, cobalt, manganese, and thallium at concentrations that exceeded the corresponding Environmental Protection Agency (EPA) Regional Screening Levels (RSLs). Passive soil vapor samples identified petroleum-related compounds such as total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene, undecane, tridecane, and pentadecane, and naphthalene and 2-methylnaphthalene. Benzene concentrations exceeded the calculated Vapor Intrusion Screening Level (VISL) for carcinogenic risk under a residential scenario. Groundwater samples contained metals, but none of the concentrations exceeded EPA Maximum Contaminant Levels (MCLs). In addition, asbestos-containing material (ACM) was identified in the building remnants remaining onsite after the fire.

Using the 2016 Brownfields Cleanup Grant, S&ME performed additional assessment to supplement data from the previous site assessment activities, addressing data gaps and evaluating the need for vapor intrusion mitigation during site redevelopment. The assessment findings were used to update the Analysis of Brownfield Cleanup Alternatives (ABCA). Additional assessment included a subcontracted a ground-penetrating radar (GPR) survey, followed by the collection and laboratory analysis of passive and active soil gas samples, soil samples, groundwater samples, as well as asbestos and lead-based paint (LBP) samples from the site. The following analytes were identified at one or more sample location.

1.) Soil gas samples detected TPH, benzene, toluene, and polynuclear aromatic hydrocarbons (PAHs). Some of the analytes were detected in concentrations above their corresponding EPA May 2018 Industrial and/or Residential Regional Screening Levels (RSL_{ind} and RSL_{res}, respectively).
2.) Soil samples reported arsenic, aluminum, cobalt, iron, manganese, vanadium, the pesticide dieldrin, extractable petroleum hydrocarbons (EPH), volatile organic compounds (VOCs) and PAHs, specifically benzo(a)pyrene. Some concentrations exceeded the EPA May 2018 RSLind and RSLres. Soil samples on the eastern portion of the site reported EPH concentrations which exceeded the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste Management (DSWM) threshold for disposal as a special waste (100 milligrams/kilogram (mg/kg).

The EPA Vapor Intrusion Screening Level (VISL) calculator was used to evaluate vapor intrusion (VI) carcinogenic risk using the Target Carcinogenic Risk (TCR) of $1 \times 10^{-6}$. The results of VISL screening under a residential scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine, benzyl chloride, carbon tetrachloride, chloroform, 1,2-dichloroethane and naphthalene. A VI hazard was identified in excess of the Target Hazard Quotient (THQ) of 0.1 for 1,3-butadine, benzyl chloride and naphthalene. The results of VISL screening under a commercial scenario identified a VI carcinogenic risk in excess of the TCR for benzene, 1,3-butadine and naphthalene. A VI Hazard was not identified in the commercial scenario. At the time this document was prepared, there is insufficient information regarding future use to design and install a vapor mitigation system in the absence of site-specific design considerations. As site redevelopment plans are considered, vapor intrusion mitigation may be warranted and should be evaluated.

Based upon the findings compiled from both the S&ME and Tetra Tech assessment activities an updated ABCA was prepared for review by the City, TDEC and EPA. The updated ABCA recommended cleanup alternatives for addressing surface and subsurface soil, asbestos-containing materials, and vapor intrusion concerns at the site, as well as preparing this Brownfield Voluntary Agreement (BVA) for the property to address environmental concerns during future redevelopment.

A total of 131 tons of petroleum hydrocarbon-impacted soil was excavated from the eastern portion of the site and transported to Domermuth Environmental Services for disposal. The excavation was then backfilled with rock, and the area was repaved by the City.

Demolition debris from the former warehouse structures is located on the site, resulting from the fires in 2007 and 2014. Both ACM and LBP were detected in the demolition debris, which was sampled to further characterize this material for future disposal purposes. Under the Brownfield Cleanup Grant 258 cubic yards of ACM and LBP impacted demolition debris was transported to Chestnut Ridge Landfill for disposal. Approximately 500 cubic yards of demolition debris containing ACM and LBP remain on the site, with an additional 200 cubic yards ramped along Jackson Avenue. Removal of the material ramped along Jackson Avenue is not recommended until site redevelopment is planned. Since the ACM cannot feasibly be segregated from these debris piles, they would be considered asbestos waste, and should be handled accordingly.

Although some areas of elevated metals were also detected in the soil, they were generally isolated and ranged from surficial to deeper (greater than eight feet bgs) occurrences. The future use and layout of the site is unknown but would likely have a large building/parking area footprint. This type of redevelopment would limit residential exposure to subsurface soils simply based on the limited landscaped areas envisioned in this urban setting. The remnant metals concentrations should be part of the site redevelopment considerations.
EXHIBIT C

TO BROWNFIELD AGREEMENT

NOTICE OF LAND USE RESTRICTIONS
Appendix III – ACM Disposal Documentation
This form is to be completed and filed with the Knox County Department of Air Quality Management a minimum of ten (10) days before the start of the asbestos abatement contract. Approval by this Department must be received before the work begins.

NOTE: INCOMPLETE NOTICES WILL NOT BE PROCESSED AND WILL BE REPORTED TO EPA AS DEFICIENT. PERMITTING FEE OF $100 MUST BE INCLUDED WITH NOTICE.

DATE RECEIVED

DATE POSTMARKED

CHECK NUMBER

I. TYPE OF NOTIFICATION (O=Original R=Revised C=Canceled): O

II. FACILITY INFORMATION (Identify owner, removal contractor, and other operator)

OWNER NAME: City of Knoxville
Address: 400 Main Street
City: Knoxville State: TN Zip: 37902
Contact: Liz Porter Telephone: 865-970-0003 E-mail: 

REMOVAL CONTRACTOR: NEO Corporation
Address: 289 Silkwood Drive
City: Canton State: NC Zip: 28716
Contact: Steve Steele Telephone: E-mail: 

OTHER OPERATOR:
Address: 
City: State: Zip: 
Contact: Telephone: E-mail: 

III. TYPE OF OPERATION (D=Demo O=Ordered Demo R=Renovation E=Emer. Renovation): R

IV. IS ASBESTOS PRESENT? (Yes/No) Yes

V. FACILITY DESCRIPTION (Include building name, number and floor or room number)

Building Name: Former McClung Warehouse
Address: 505 Jackson Avenue
City: Knoxville State: TN County: Knox
Site Location: Rubble Pile
Building Size: Removed # of Floors: Age in Years: 
Present Use: Rubble Pile Prior Use: 

VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL: PLEASE INCLUDE ANALYTICAL REPORT.

S&ME detected positive ACM mastic left on remaining rubble.

VII. APPROXIMATE AMOUNT OF RACM TO BE REMOVED AND NONFRIABLE ASBESTOS MATERIAL THAT WILL NOT BE REMOVED. SPECIFY AMOUNT BELOW.

<table>
<thead>
<tr>
<th>RACM To Be Removed</th>
<th>Nonfriable Material To Be Removed CATEGORY I</th>
<th>Nonfriable Material To Be Removed CATEGORY II</th>
<th>Nonfriable Material Not To Be Removed CATEGORY I</th>
<th>Nonfriable Material Not To Be Removed CATEGORY II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipes-Linear Feet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipes-Linear Meters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Area-Square Feet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Area-Square Meters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of Facility Component-Cu. Ft.</td>
<td>216 cubic yards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of Facility Component-Cu. M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VIII. SCHEDULED DATES ASBESTOS REMOVAL (mm/dd/yy)  Start: 06/17/19  Complete: 06/21/19
IX. SCHEDULED DATES DEMO/RENOVATION (mm/dd/yy)  Start:  Complete:
X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:
   NEO Corporation will remove the rubble in a non-friable manner.

XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS
   OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:  
   NEO will utilize wet methods during all removal periods.

XII. WASTE TRANSPORTER
   Name: First Place Finish
   Address: 276 Midway Lane
   City: Oak Ridge  State: TN  Zip: 37830
   Contact: Laurel Patrick  Telephone: 865-705-1300

   WASTE DISPOSAL SITE
   Name: Chestnut Ridge Landfill
   Location: 140 Fleenor Mill Road
   City: Heiskell  State: TN  Zip: 37754
   Contact:  Telephone: 866-909-4458

XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW:

XV. FOR EMERGENCY RENOVATIONS
   Date and Hour of Emergency (mm/dd/yy):
   Description of the Sudden, Unexpected Event:
   Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:

XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS
   IF FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIALS BECOMES CRUMPLED, PULVERIZED, OR REDUCED TO POWDER
   NEO will stop work and immediately notify Knox Co. Air Quality.

XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61,
   SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required November 20, 1991)

   [Signature of Owner/Operator]  05/31/19  Date

XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

   [Signature of Owner/Operator]  05/31/19  Date

Revised 09/15
NON-HAZARDOUS MANIFEST

3. Generator's Mailing Address:
   CITY OF KNOXVILLE
   400 MAIN STREET
   KNOXVILLE, TN 37902

4. Generator's Phone
   865.705.1300

5. Transporter 1 Company Name and Address
   NEO Corp - First Place Finish
   Rock Island Rd
   Rock River TN 37841

6. US EPA ID # (if applicable)

7. Transporter 2 Company Name and Address
   Chestnut Ridge Landfill
   140 Fleenor Mill Road
   Hesel, TN 37754

9. Designated Disposal Facility Name and Site Address
   Chestnut Ridge Landfill
   140 Fleenor Mill Road
   Hesel, TN 37754

11. Description of Waste Materials
    a. RQ, NA2212, Asbestos,9, PG III ERG 171
       WM Profile # 106533TN

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATE:
    I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, and have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Printed Name: Steve Steele
Signature: [Signature]

Printed Name: [Signature]

Printed Name: [Signature]

Printed Name: [Signature]
Chestnut Ridge Landfill
140 FLEENOR MILL ROAD
HEISKELL, TN, 37754

Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket #: 
Hauling Ticket #: 
Route: 
State Waste Code: 
Manifest #: 1
Destination: NEO DEMO KNOXVILLE JACKSON AVE
PO: 106533 TN (ASBESTOS-NON-FRIABLE)
Profile: 181-CITYOFKNOXVILLE@MAINST CITY OF KNOXVILLE- 400 MAIN STREET

Time Scale Operator Inbound Gross Weight
In 06/17/2019 10:40:51 Inbound TERESA Tons
Out 06/17/2019 10:58:42 Outbound TERESA Tons

Comments:

<table>
<thead>
<tr>
<th>Product Description</th>
<th>LD%</th>
<th>Qty</th>
<th>UOM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asb Non Fri-Cubic</td>
<td>100</td>
<td>21.00 Yards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Tax:
Total Ticket:

Keith Brady
## Non-Hazardous Manifest

### 3. Generator's Mailing Address:
CITY OF KNOXVILLE
400 MAIN STREET
KNOXVILLE, TN 37902
4. Generator's Phone
865.705.1300
5. Transporter 1 Company Name and Address
NE 155 Cape First Ave Finish
Rockbridge Rd Oak Ridge TN 37831
6. US EPA ID # (if applicable)
7. Transporter 2 Company Name and Address
9. Designated Disposal Facility Name and Site Address
Chestnut Ridge Landfill
140 Fleenor Mill Road
Huntsville, TN 37754
10. US EPA ID # (if applicable)

### 11. Description of Waste Materials

<table>
<thead>
<tr>
<th>a.</th>
<th>RQ, NA2212, Asbestos, 9, PG III ERG 171</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM Profile #</td>
<td>106533TN</td>
</tr>
</tbody>
</table>

### 15. Special Handling Instructions and Additional Information

**N36 04 51 W84 02 12 E1 1254**

### 16. Generator's Certificate:
I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified, and packaged and are in a proper condition for transportation according to applicable regulations.

**Printed Name:** Steve Steele  
**Signature:** "On behalf of"  
**Date:** 6/17/19

### 17. Transporter 1 Acknowledgement of Receipt of Materials
**Printed Name:** Scott Treharn  
**Signature:**  
**Date:** 6/17/19

### 18. Transporter 2 Acknowledgement of Receipt of Materials
**Printed Name:** Teresa Stevenson  
**Signature:**  
**Date:** 6/17/19
Chestnut Ridge Landfill
140 FLEENOR MILL ROAD
HEISKELL, TN, 37754

Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket:
Hauling Ticket:
Route:
State Waste Code:
Manifest: 2
Destination:
PO: NEO DEMO KNOXVILLE JACKSON AVE
Profile: 106533TN (ASBESTOS-NON-FRIABLE)
Generator: 181-CITYOFKNOXVILLE400MAINST CITY OF KNOXVILLE- 400 MAIN STREET

Time Scale Operator Inbound Gross
In: 06/17/2019 10:46:55 Inbound TERESA 87600 lb
Out: 06/17/2019 11:05:35 Outbound TERESA

Comments

<table>
<thead>
<tr>
<th>Product</th>
<th>LD</th>
<th>Qty</th>
<th>UOM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asb Non Fri-Cubic</td>
<td>100</td>
<td>23.00</td>
<td>Yards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Tax
Total Ticket

Driver's Signature

06/17/2019

Ticket# 1647035
### NON-HAZARDOUS MANIFEST

**1. Generator's EPA ID No.**

Applicable: N/A

**2. Page 1 of**

PPF Trucks 1/4 7034

**3. Generator's Mailing Address:**

CITY OF KNOXVILLE
400 MAIN STREET
KNOXVILLE, TN 37902

**4. Generator's Phone**

865.705.1300

**5. Transporter 1 Company Name and Address**

NEO Corp., First Row Finish, P.O. Box 3153191, Oak Ridge, TN 37831

**6. Generator's Site Address (if different than mailing):**

CITY OF KNOXVILLE
SSJ Jackson Ave.
Knox, TN 37902

**7. Transporter 2 Company Name and Address**

7. Transporter 2 Company Name and Address

**8. US EPA ID # (if applicable)**

C and E Only Applicable If Required by State

**9. Designated Disposal Facility Name and Site Address**

Chestnut Ridge Landfill
140 Fleener Mill Road
Heiskel, TN 37754

**10. US EPA ID # (if applicable)**

G. Disposal Facility ID

**11. Description of Waste Materials**

<table>
<thead>
<tr>
<th>Container No.</th>
<th>Type</th>
<th>Quantity</th>
<th>Unit Wt/Vol.</th>
<th>Misc. Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. RQ, NA2212, Asbestos, 9, PG III ERG 171</td>
<td>WM Profile # 106533TN</td>
<td>yds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12. WM Profile #**

<table>
<thead>
<tr>
<th>WM Profile #</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
</tbody>
</table>

**13. Additional Descriptions for Materials Listed Above**

Friable (Regulated)/Nonfrangible (Regulated)/Nonfrangible (Nonregulated)

**Non-Frangible Asbestos**

**14. K. Disposal Location**

Cell | Level | Grid
|-----|------|-----|

**15. Special Handling Instructions and Additional Information**

N 36 06 52 W 04 02 12 ELV 1284

**16. GENERATOR'S CERTIFICATE**

I hereby certify that the above described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Printed Name: Steve Steele

Signature: [Signature]

Date: 6/17/19

**17. Transporter 1 Acknowledgement of Receipt of Material**

Printed Name: Scott Trenchard

Signature: [Signature]

Date: 6/17/19

**18. Transporter 2 Acknowledgement of Receipt of Material**

Printed Name: [Signature]

Date: 6/17/19

**19. Certificate of Final Treatment/Disposal**

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

Printed Name: Teresa Stevenson

Signature: [Signature]

Date: 6/17/19
Chestnut Ridge Landfill
140 FLENGR MILL ROAD
HEISKELL, TN, 37754
Ph:

Customer Name FIRSTPLACEFINISH FIRST PLACE
Ticket Date 06/17/2019
Payment Type Credit Account
Manual Ticket# 
Hauling Ticket# 
Route 
State Waste Code 
Manifest 3
Destination P0
Profile NEO DEMO KNOXVILLE JACKSON AVE 106533TN (ASBESTOS-NON-FRIABLE)
Generator 181-CITYOFKNOXVILLE40@MAINST CITY OF KNOXVILLE- 400 MAIN STREET
Carrier BRADY BLACK DUMP TRUCK
Vehicle# BE 4
Container 
Driver 
Check# 
Billing # 0005537
Gen EPA ID N/A
Grid N 656 W 223 EL 1273

Time Scale Operator Inbound Gross
In 06/17/2019 10:43:48 Inbound TERESA 86260 lb
Out 06/17/2019 11:02:08 Outbound TERESA

Comments

Product LD% Qty UOM Rate Tax Amount Origin
1 Asb Non Fri-Cubic 100 21.00 Yards

Total Tax
Total Ticket

40WM
Drivers Signature
## NON-HAZARDOUS MANIFEST

### 3. Generator's Mailing Address:
- CITY OF KNOXVILLE
- 400 MAIN STREET
- KNOXVILLE, TN 37902
- Generator's Phone: 865.705.1300

### 4. Generator's Site Address:
- KNOXVILLE
- 505 Jackson Ave
- KNOX 7N 3/902

### 5. Transporter 1 Company Name and Address:
- NEP Corp.
- 1st Floor Finish
- Paperbridge Ed. Pebble Ridge TN 37961

### 6. US EPA ID # (if applicable)

### 7. Transporter 2 Company Name and Address:
- Chestnut Ridge Landfill
- 140 Fleener Mill Road
- Heiskel, TN 37754

### 8. US EPA ID # (if applicable)

### 9. Designated Disposal Facility Name and Site Address:
- Non-Friable Asbestos
- Cell: Level

### 11. Description of Waste Materials
- a. RQ, NA2212, Asbestos,9, PG III ERG 171
  - WM Profile #: 106533TN

### 15. Special Handling Instructions and Additional Information
- N 34 06 51 W 84 02 12 EL 1284

### 16. GENERATOR'S CERTIFICATE:
I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified, and packaged and are in proper condition for transportation according to applicable regulations.

### 17. Transporter 1 Acknowledgement of Receipt of Materials
- Printed Name: SCOTT JENKIN
  - Signature: [Signature]

### 18. Transporter 2 Acknowledgement of Receipt of Materials
- Printed Name: TERESA STEVENSON
  - Signature: [Signature]
Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket#: 
Hauling Ticket#: 
State Waste Code: 
Manifest: 4
Destination: 
PO: NEO DEMO KNOXVILLE JACKSON AVE 106533TN (ASBESTOS-NON-FRIABLE)
Generator: 181-CITYOFKNOXVILLE@MAINST CITY OF KNOXVILLE- 400 MAIN STREET

<table>
<thead>
<tr>
<th>Time</th>
<th>Scale</th>
<th>Operator</th>
<th>Inbound</th>
<th>Gross</th>
<th>Qty</th>
<th>UCM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 06/17/2019 10:48:29</td>
<td>Inbound</td>
<td>TERESA</td>
<td></td>
<td>79000</td>
<td>100</td>
<td>21.00 Yards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out 06/17/2019 11:15:33</td>
<td>Outbound</td>
<td>TERESA</td>
<td></td>
<td>53900</td>
<td>1</td>
<td>25,95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product: Asb Non Fri-Cubic
Driver's Signature: [Signature]

Total Tax
Total Ticket
**NON-HAZARDOUS MANIFEST**

| 1. Generator's US EPA ID No. (If applicable): N/A |
| 2. Page 1 of 1047107 |
| 3. Generator's Mailing Address: CITY OF KNOXVILLE 400 MAIN STREET KNOXVILLE, TN 37902 |
| 4. Generator's Phone 865.705.1300 |
| 5. transporter 1 Company Name and Address | 6. US EPA ID # (if applicable) |
| NEO Corp. - First Place Finish | 7. US EPA ID # (if applicable) |
| P.O. Box 37604 | 8. US EPA ID # (if applicable) |
| 1047107 | 9. Designated Disposal Facility Name and Site Address Chestnut Ridge Landfill 140 Fleenor Mill Road Heiskel, TN 37754 |
| 11. Description of Waste Materials |
| a. RQ, NA2212, Asbestos, PG III ERG 171 |
| WM Profile # 106533TN |
| b. |
| WM Profile # |
| c. |
| WM Profile # |
| d. |
| WM Profile # |
| E. State Transporter's ID |
| F. Transporter's Phone |
| G. Disposal Facility ID |
| H. Disposal Facility Phone 865.487.7810 |
| 11. Containers |
| No. | Type | Quantity | Unit Wt./Vol. |
| 12. Misc. Comments |
| K. Disposal Location |
| Cell | Level | Grid |

**15. Special Handling Instructions and Additional Information**

**16. GENERATOR'S CERTIFICATE:**

I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

**Printed Name**

**Signature**

**17. Transporter 1 Acknowledgement of Receipt of Materials**

**Printed Name**

**Signature**

**18. Transporter 2 Acknowledgement of Receipt of Materials**

**Printed Name**

**Signature**

**19. Certificate of Final Treatment/Disposal**

I certify, on behalf of the above-listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

**20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.**

**Printed Name**

**Signature**
Customer Name: FIRSTPLACE FINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket:
Hauling Ticket:
State Waste Code:
Manifest: 5
Destination:
PO: NEO DEMO KNOXVILLE JACKSON AVE
Profile: 106533TN (ASBESTOS-NON-FRIABLE)
Generator: 181-CITYOFKNOXVILLE@MAINT CITY OF KNOXVILLE- 400 MAIN STREET

Time
In: 06/17/2019 13:02:42
Out: 06/17/2019 13:02:42

Scale
Inbound

Operator
TERESA
TERESA

Gross
80360 lb
Tare
20920 lb
Net
51440 lb
Tons
25.72

Product
LDX
Asb Non Fri-Cubic

Qty
100

UCM
21.00

Rate

Tax

Amount

Origin
KNO

Total Tax
Total Ticket

403WM

Company Logo
**NON-HAZARDOUS MANIFEST**

1. Generator's US EPA ID No. (If Applicable): N/A

2. Page 1 of

   **PPF Trucks**

   1647098

3. Generator's Mailing Address:
   
   CITY OF KNOXVILLE
   400 MAIN STREET
   KNOXVILLE, TN 37902

4. Generator's Phone
   
   865.705.1300

5. Transporter 1 Company Name and Address:
   
   NEO Corp - First Ave
   Knox TN 37904

6. US EPA ID # (If applicable)

7. Transporter 2 Company Name and Address
   
   Chestnut Ridge Landfill
   140 Fleener Mill Road
   Heiskel, TN 37754

8. US EPA ID # (If applicable)

9. Designated Disposal Facility Name and Site Address:
   
   WM Profile # 1065333TN

10. US EPA ID # (If applicable)

**Description of Waste Materials**

- **a.** RC, NA2212, Asbestos, 9, PG III ERG 171
  
  WM Profile # 1065333TN

- **b.**

- **c.**

- **d.**

**Non-Friable Asbestos**

J. Additional Descriptions for Materials Listed Above

| Friable (Regulated)/Nonfriable (Regulated)/Nonfriable (Nonregulated) |
|---|---|---|
| Cell | Level | Grid |

**Special Handling Instructions and Additional Information**

- **Purchase Order #:**
  
  N 360051 W 8402 12 ELV 1284

- **EMERGENCY CONTACT / PHONE NO.:**
  
  Laurel Patrick / 865.705.1300

**GENERATOR'S CERTIFICATE:**

I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

**Printed Name:**

**Signature: "On behalf of:"

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

**Transporter 1 Acknowledgement of Receipt of Materials**

**Printed Name:**

**Signature:**

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

**Transporter 2 Acknowledgement of Receipt of Materials**

**Printed Name:**

**Signature:**

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

**Certificate of Final Treatment/Disposal**

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

**Printed Name:**

**Signature:**

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>
Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket#:
Hauling Ticket#:
Route:
State Waste Code:
Manifest:
Destination:
FO:
Profile: 106533TN (ASBESTOS-NON-FRIABLE)
Generator: 181-CITYOFKNOXVILLE@MAINST CITY OF KNOXVILLE- 400 MAIN STREET

Time In: 06/17/2019 12:45:10
Time Out: 06/17/2019 12:45:10
Scale: Inbound
Operator: TERESA
Inbound: TERESA

Comments

Product |
--- |
LDx |
Qty |
UCM |
Rate |
Tax |
Amount |
Origin |
--- |
--- |
--- |
--- |
--- |
--- |
--- |
--- |
- 1 Asb Non Fri-Cubic |
100 |
21.00 Yards |

403WM
Driver's Signature

Total Tax
Total Ticket
**NON-HAZARDOUS MANIFEST**

**NON-HAZARDOUS ASBESTOS MANIFEST**

1. Generator's US EPA ID No. (If Applicable): N/A

2. Page 1 of FPF Trucks 11/4/709 9

3. Generator's Mailing Address:
   CITY OF KNOXVILLE
   400 MAIN STREET
   KNOXVILLE, TN 37902

4. Generator's Phone: 865.705.1300

5. Generator's Site Address (if different than mailing):
   C.F. Knoxvillle
   505 Jackson Ave
   Knox TN 37902

6. Transporter 1 Company Name and Address
   NEO Corp. First Place Finish
   403 E 4th Ave Boonesboro TN 37641

7. Transporter 2 Company Name and Address
   NEON Corp. 1065333TN

8. US EPA ID # (If applicable)

9. Designated Disposal Facility Name and Site Address
   Chestnut Ridge Landfill
   140 Pleenor Mill Road
   Heiskel, TN 37754

10. US EPA ID # (If applicable)

11. Description of Waste Materials
   a. RQ, NA2212, Asbestos, 9, PG III ERG 171
      WM Profile # 1065333TN

12. Total Containers
   No

13. Total Quantity
   Yds

14. Unit Wt./Vol.

15. Special Handling Instructions and Additional Information
   N 36 06 51 W 84 02 12 ELY 1284

16. GENERATOR'S CERTIFICATE:
   I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified, and packaged and are in proper condition for transportation according to applicable regulations.

   Printed Name: Steve Steele
   Signature: [Signature]
   Month: 6 17 19

17. Transporter 1 Acknowledgement of Receipt of Materials
   Printed Name: Scott Trentin
   Signature: [Signature]
   Month: 6 17 19

18. Transporter 2 Acknowledgement of Receipt of Materials
   Printed Name: [Signature]
   Month: [Month] 17 19

19. Certificate of Final Treatment/Disposal
   I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

   Printed Name: [Signature]
   Month: 6 17 19

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest
   Printed Name: [Signature]
   Month: 6 17 19
Customer Name: FIRST PLACE FINISH FIRST PLACE  
Carrier: BRADY BLACK DUMP TRUCK  
Ticket Date: 06/17/2019  
Payment Type: Credit Account  
Manual Ticket#:  
Hauling Ticket#:  
Vehicle#: BE7  
Route:  
Container:  
Driver:  
Check#:  
Billing #: 0005537  
Gen EPA ID: N/A  
Destination: Grid N 656 W 223 EL 1273 N 36° 06' 51.1" W 84° 02' 12.1" ELV 1284  
PU: NEO DENO KNOXVILLE JACKSON AVE  
Profile: 106533TN (ASBESTOS-NON-FRIABLE)  
Generator: 181-CITYOFKNOXVILLE#MAINT CITY OF KNOXVILLE- 400 MAIN STREET  
Time:  
In: 06/17/2019 12:48:33  
Out: 06/17/2019 12:48:33  
Scale: Inbound  
Operator: TERESA  
Inbound:  
Operator: TERESA  
Gross: 81380 lb  
Tare: 28440 lb  
Net: 52940 lb  
Tons: 26.47  
Coments:  

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Unit</th>
<th>Qty</th>
<th>UOM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asb Non Fri-Cubic</td>
<td>100</td>
<td>23.00</td>
<td>Yards</td>
<td></td>
<td></td>
<td></td>
<td>KNO</td>
</tr>
</tbody>
</table>

Total Tax
Total Ticket
NON-HAZARDOUS MANIFEST

1. Generator's US EPA ID No. (If Applicable): N/A

2. Page 1 of

3. Generator's Mailing Address:
   CITY OF KNOXVILLE
   400 MAIN STREET
   KNOXVILLE, TN 37902

4. Generator's Phone
   865.705.1300

5. Transporter 1 Company Name and Address:
   N&O Corp.
   First Floor
   Finley Bldg.
   140 Fleenor Mill Rd
   Kaney Trl
   37902

6. US EPA ID # (If applicable):

7. Transporter 2 Company Name and Address:

8. US EPA ID # (If applicable):

9. Designated Disposal Facility Name and Site Address
   Chestnut Ridge Landfill
   140 Fleenor Mill Road
   Heiskel, TN 37754

10. US EPA ID # (If applicable):

11. Description of Waste Materials
    a. RQ, NA2212, Asbestos, 9, PG III, ERG 171
       WM Profile # 106533TN

    b.

    c.

    d.

    e.

    f.

    g.

    h.

    i.

    j. Additional Descriptions for Materials Listed Above
       Non-Friable Asbestos
       K. Disposal Location
       Cell
       Level
       Grid

12. Containers
    No
    Type
    Total Quantity
    Unit
    Weight

13. Misc. Comments

14. Special Handling Instructions and Additional Information

   N 3606 51 W 8402 12 EL 1284

15. Purchase Order #: EMERGENCY CONTACT / PHONE NO.: Laurel Patrick / 865.705.1300

16. GENERATOR'S CERTIFICATE:
   I hereby certify that the above described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

   Printed Name: Steve Steele
   Signature: "On behalf of"
   Month: 6
   Day: 17
   Year: 19

17. Transporter 1 Acknowledgement of Receipt of Materials
   Printed Name: Scott Trienthom
   Signature: "S"
   Month: 6
   Day: 17
   Year: 19

18. Transporter 2 Acknowledgement of Receipt of Materials
   Printed Name: Signature: Monthly:
   Month: 6
   Day: 17
   Year: 19

19. Certificate of Final Treatment/Disposal
   I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

   Printed Name: Teresa Stevenson
   Signature: "S"
   Month: 6
   Day: 17
   Year: 19
Customer Name: FIRSTPLACEFINISH FIRST PLACE  
Ticket Date: 06/17/2019  
Payment Type:  
Manual Ticket#:  
Hauling Ticket#:  
Route:  
State Waste Code:  
Manifest #:  
Destination:  
PO: NEO DEMO KNOXVILLE JACKSON AVE  
Profile: 106533TN (ASBESTOS-NON-FRIABLE)  
Generator: 181-CITYOFKNOXVILLE400MAIN ST CITY OF KNOXVILLE- 400 MAIN STREET  

Time:  
In: 06/17/2019 12:59:31  
Scale: Inbound  
Operator: TERESA  
Out: 06/17/2019 12:59:31  

Comments:  

<table>
<thead>
<tr>
<th>Product</th>
<th>LDx</th>
<th>Qty</th>
<th>UCM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Asb Non Fri-Cubic</td>
<td>100</td>
<td>21.00</td>
<td>Yards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## NON-HAZARDOUS MANIFEST

**NON-HAZARDOUS ASBESTOS MANIFEST**

<table>
<thead>
<tr>
<th>1. Generator's US EPA ID No. (If Applicable): N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Generator's Mailing Address:</td>
</tr>
<tr>
<td>CITY OF KNOXVILLE</td>
</tr>
<tr>
<td>400 MAIN STREET</td>
</tr>
<tr>
<td>KNOXVILLE, TN 37902</td>
</tr>
<tr>
<td>4. Generator's Phone</td>
</tr>
<tr>
<td>666.705.1300</td>
</tr>
<tr>
<td>5. Transporter 1 Company Name and Address</td>
</tr>
<tr>
<td>NBO Corp.</td>
</tr>
<tr>
<td>First Floor</td>
</tr>
<tr>
<td>Finish Polk Blvd.</td>
</tr>
<tr>
<td>KNOXVILLE, TN 37924</td>
</tr>
<tr>
<td>6. US EPA ID # (If applicable)</td>
</tr>
<tr>
<td>7. Transporter 2 Company Name and Address</td>
</tr>
<tr>
<td>Chestnut Ridge Landfill</td>
</tr>
<tr>
<td>140 Fleenor Mill Road</td>
</tr>
<tr>
<td>Heikesville, TN 37754</td>
</tr>
<tr>
<td>8. US EPA ID # (If applicable)</td>
</tr>
<tr>
<td>9. Designated Disposal Facility Name and Site Address</td>
</tr>
<tr>
<td>Chestnut Ridge Landfill</td>
</tr>
<tr>
<td>140 Fleenor Mill Road</td>
</tr>
<tr>
<td>Heikesville, TN 37754</td>
</tr>
<tr>
<td>10. US EPA ID # (If applicable)</td>
</tr>
<tr>
<td>11. Description of Waste Materials</td>
</tr>
<tr>
<td>a. RQ, NA2212, Asbestos, 9, PG III ERG 171</td>
</tr>
<tr>
<td>WM Profile # 106533TN</td>
</tr>
<tr>
<td>b. WM Profile #</td>
</tr>
<tr>
<td>c. WM Profile #</td>
</tr>
<tr>
<td>d. WM Profile #</td>
</tr>
<tr>
<td>1. Additional Descriptions for Materials Listed Above</td>
</tr>
<tr>
<td>Non-Friable Asbestos</td>
</tr>
<tr>
<td>K. Disposal Location</td>
</tr>
<tr>
<td>Cell Level Grid</td>
</tr>
<tr>
<td>12. Centrifiers</td>
</tr>
<tr>
<td>13. Total Quantity</td>
</tr>
<tr>
<td>14. Unit wt./vol.</td>
</tr>
<tr>
<td>15. Special Handling Instructions and Additional Information</td>
</tr>
<tr>
<td>16. GENERATOR'S CERTIFICATE:</td>
</tr>
<tr>
<td>I hereby certify that the above described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.</td>
</tr>
<tr>
<td>Printed Name:  Steve Steele</td>
</tr>
<tr>
<td>Signature: &quot;On behalf of&quot;:</td>
</tr>
<tr>
<td>17. Transporter 1 Acknowledgement of Receipt of Materials</td>
</tr>
<tr>
<td>Printed Name: Scott Tremhan</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
<tr>
<td>18. Transporter 2 Acknowledgement of Receipt of Materials</td>
</tr>
<tr>
<td>Printed Name:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
<tr>
<td>19. Certificate of Final Treatment/Disposal</td>
</tr>
<tr>
<td>I certify on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.</td>
</tr>
<tr>
<td>Printed Name:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
<tr>
<td>20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest</td>
</tr>
<tr>
<td>Printed Name:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
</tbody>
</table>

---

**EMERGENCY CONTACT / PHONE NO.:** Laurel Patrick / 666.705.1300

**PPF Trucks 164790 Load #8Q**
Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket#: 
Hauling Ticket#: 
Route: 
State Waste Code: 
Manifest: 9
Destination: NEO DEMO KNOXVILLE JACKSON AVE
PO: 106533TN (ASBESTOS-NON-FRIABLE)
Profile: 181-CITYOFKNOXVILLE400MAINST CITY OF KNOXVILLE- 400 MAIN STREET
Generator: 

Time
In: 06/17/2019 15:10:42
Out: 06/17/2019 15:10:42

Scale
Inbound: awilli40
Outbound: awilli40

Operator: 
Operator #

Inbound Gross: 76180 lb
Tare: 27920 lb
Net: 48260 lb
Tons: 24.13

Product | Lb% | Gty | UOM | Rate | Tax | Amount | Origin |
--------|-----|-----|-----|------|-----|--------|--------|
1       | Asb Non Fri-Cubic | 100 | 21.00 | Yards |      |        | KNO     |

Total Tax
Total Ticket
**NON-HAZARDOUS MANIFEST**

### 3. Generator's Mailing Address:
- **CITY OF KNOXVILLE**
- 400 MAIN STREET
- KNOXVILLE, TN 37902

### 4. Generator's Phone
- 865.705.1300

### 5. Transporter 1 Company Name and Address:
- **NEC Corp.** - Finish Packhulle EA 240 Ridge TN 37951

### 6. US EPA ID # (if applicable)
- **#**

### 7. Transporter 2 Company Name and Address:
- Chestnut Ridge Landfill
- 140 Fleenor Mill Road
- Heiskel, TN 37754

### 8. US EPA ID # (if applicable)
- **#**

### 9. Designated Disposal Facility Name and Site Address:
- Chestnut Ridge Landfill
- 140 Fleenor Mill Road
- Heiskel, TN 37754

### 10. US EPA ID # (if applicable)
- **#**

### 11. Description of Waste Materials
- **a** RQ, NA2212, Asbestos, 9, PG III, ERG 171
  - WM Profile #: 106533TN

### 12. Containers

<table>
<thead>
<tr>
<th>No</th>
<th>Type</th>
<th>Unit</th>
<th>Misc. Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 13. Additional Descriptions for Materials Listed Above
- Friable (Regulated)/Nonfriable (Nonregulated)
- Non-Friable Asbestos

### 14. Special Handling Instructions and Additional Information
- **N 36 06 51 W 84 02 212 EL 1284**

### 16. GENERATOR'S CERTIFICATE:
- I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

<table>
<thead>
<tr>
<th>Printed Name</th>
<th>Signature</th>
<th>On Behalf of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steve Steele</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17. Transporter 1 Acknowledgement of Receipt of Materials
- **Scott Jetham**
- Signature

### 18. Transporter 2 Acknowledgement of Receipt of Materials
- Signature

### 19. Certificate of Final Treatment/Disposal
- I certify, on behalf of the above-listed transporter facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

### 20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest
- **ANN E WILLIAMS**
- Signature

<table>
<thead>
<tr>
<th>Printed Name</th>
<th>Signature</th>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>17</td>
<td>19</td>
</tr>
</tbody>
</table>
Chestnut Ridge Landfill
140 FLEENOR MILL ROAD
HEISKELL, TN, 37754
Ph: Original Ticket# 1647155

Customer Name: FIRSTPLACEFINISH FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket #: 
Hauling Ticket #: 
Route: 
State Waste Code: 
Manifest #: 010
Destination: N 656 W 223 EL 1273
PO: NE0 DEMO KNOXVILLE JACKSON AVE
Profile: 106533TN (ASBESTOS-Non-FRIABLE)
Generator: 161-CITYOFKNOXVILLE400MAINST CITY OF KNOXVILLE- 400 MAIN STREET

Time Scale Operator Inbound Gross Net Tons
In 06/17/2019 15:20:34 Inbound awilli40 awilli40 69320 lb 28440 lb 41480 lb 26.74
Out 06/17/2019 15:20:34

Comments

<table>
<thead>
<tr>
<th>Product</th>
<th>LD%</th>
<th>Qty</th>
<th>UOM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asb Non Fri-Cubic</td>
<td>100</td>
<td>23.00</td>
<td>Yards</td>
<td></td>
<td></td>
<td></td>
<td>KNO</td>
</tr>
</tbody>
</table>

Total Tax
Total Ticket

Driver's Signature: 

403WM

Recycle
NON-HAZARDOUS MANIFEST

1. Generator's US EPA ID No. (if applicable): N/A

2. Page 1 of

3. Generator's Mailing Address:
   CITY OF KNOXVILLE
   400 MAIN STREET
   KNOXVILLE, TN 37902

4. Generator's Phone
   865.705.1300

5. Generator's Site Address (if different than mailing):
   City of Knoxville
   505 Jackson Ave
   Knox TN 37902

6. Transporter 1 Company Name and Address
   NE0 Corp - First Ave Fin. Inc.
   Oak Ridge Rd, Box 358
   Oak Ridge, TN 37830

7. Transporter 2 Company Name and Address
   Chestnut Ridge Landfill
   140 Fleener Mill Road
   Helskel, TN 37754

8. US EPA ID # (if applicable)

9. Designated Disposal Facility Name and Site Address
   Chestnut Ridge Landfill
   140 Fleener Mill Road
   Helskel, TN 37754

10. US EPA ID # (if applicable)

11. Description of Waste Materials

   a. RM, NA2212, Asbestos,9, PG III ERG 171
      WM Profile # 106533TN

   b. WM Profile #

   c. WM Profile #

   d. WM Profile #

12. Additional Descriptions for Materials Listed Above
    Non-Friable Asbestos

   13. Containers
       No. Type
       13. Total
       Quantity
       14. Unit
       Yds
       15. Misc. Comments

   K, Disposal Location
   Cell Level
   Grid

14. Special Handling Instructions and Additional Information

   N 36 06 51 W 84 02 212 EL 1284

   EMERGENCY CONTACT / PHONE NO. : Laurel Patrick / 865.705.1300

   Purchase Order #: 360651 W 84 02 212 EL 1284

15. GENERATOR'S CERTIFICATE:

   I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 of any applicable state law, have been fully and accurately described, classified, and packaged and are in proper condition for transportation according to applicable regulations.

   Printed Name: Steve Steele
   Signature: “On behalf of”
   07/17/19

16. TRANSPORTER 1 ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS

   Printed Name: Scott Thompson
   Signature: 
   07/17/19

17. TRANSPORTER 2 ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS

   Printed Name: Anne Williams
   Signature: 
   07/17/19

18. Certificate of Final Treatment/Disposal

   I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

19. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.

   Printed Name: Anne Williams
   Signature: 
   07/17/19
Chestnut Ridge Landfill
140 FLEENOR MILL ROAD
HEISKELL, TN, 37754

Customer Name FIRSTPLACEFINISH FIRST PLACE
Ticket Date 06/17/2019
Payment Type Credit Account
Manual Ticket# 
Hauling Ticket# 
Route 
State Waste Code 
Manifest
Destination 
PO NED DEMO KNOXVILLE JACKSON AVE 106533TN (ASBESTOS-NON-FRIABLE)
Profile 181-CITYOFKNOXVILLE400MAINST CITY OF KNOXVILLE- 400 MAIN STREET
Generator

Time In 06/17/2019 15:24:53
Out 06/17/2019 15:24:53
Scale Inbound Operator awill140 awill140

Inbound Gross 80420 lb
Tare 28920 lb
Net 51500 lb
Tons 25.75

Comments

<table>
<thead>
<tr>
<th>Product</th>
<th>LDX</th>
<th>Qty</th>
<th>UGM</th>
<th>Rate</th>
<th>Tax</th>
<th>Amount</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Asb Non Fri-Cubic</td>
<td>100</td>
<td>21.00</td>
<td>Yards</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Tax
Total Ticket

Driver's Signature
# NON-HAZARDOUS MANIFEST

## Generator's Mailing Address:
City of Knoxville
400 Main Street
Knoxville, TN 37902

## 1. Generator's US EPA ID No. (if Applicable): N/A

## 2. Page 1 of 2

### Page 1:

#### A. Manifest Number:
164 799

#### B. State Generator's ID (if applicable):

#### C. US EPA ID # (if applicable):

#### D. Transporter's Phone:

#### E. State Transporter's ID:

#### F. Transporter's Phone:

#### G. Disposal Facility ID:

#### H. Disposal Facility Phone:

#### I. Disposal Facility Name and Site Address:
Chestnut Ridge Landfill
140 Fleenor Mill Road
Heiskel, TN 37754

#### J. Additional Descriptions for Materials Listed Above:
Non-Friable Asbestos

#### K. Disposal Location:
Cell
Level
Grid

#### L. Misc. Comments:

### 11. Description of Waste Materials:

#### a. RQ, NA2212, Asbestos, 9, PG III ERG 171

**WM Profile #: 106533TN**

### 15. Special Handling Instructions and Additional Information:

**Purchase Order #: N 36 06 51 WBA 02 212 EL 1284**

**EMERGENCY CONTACT / PHONE #: Laurel Patrick / 865.705.1300**

### 16. GENERATOR'S CERTIFICATE:

I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

**Printed Name:**

**Signature: **Steve Steele**

**On behalf of:**

**Date:** 6/17/19

### 17. Transporter 1 Acknowledgement of Receipt of Materials

**Printed Name:**

**Signature:**

**Date:** 6/17/19

### 18. Transporter 2 Acknowledgement of Receipt of Materials

**Printed Name:**

**Signature:**

**Date:** 6/17/19

### 19. Certificate of Final Treatment/Disposal

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

**Printed Name:**

**Signature:**

**Date:** 6/17/19

### 20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.

**Printed Name:**

**Signature:**

**Date:** 6/17/19
Chestnut Ridge Landfill
140 FLENNOR MILL ROAD
HEISKELL, TN, 37754
Ph:

Customer Name: FIRST PLACE
Ticket Date: 06/17/2019
Payment Type: Credit Account
Manual Ticket#: 
Hauling Ticket#
Route:
State Waste Code: 012
Manifest: 012
Destination: DEMO KNOXVILLE JACKSON AVE
Profile: 106533TN (ASBESTOS-NON-FRIABLE)
Generator: 181-CITYOFKNOXVILLE400MAIN CITY OF KNOXVILLE- 400 MAIN STREET

Time | Scale | Operator | Inbound | Gross | Tare | Net | Tons
--- | --- | --- | --- | --- | --- | --- | ---
In 06/17/2019 15:30:06 | Inbound | awilli40 | 62740 | 25100 | 37640 | 18.82
Out 06/17/2019 15:30:06 | Inbound | awilli40 | 21.00 Yards

Product | LDs | Qty | UOM | Rate | Tax | Amount | Origin
--- | --- | --- | --- | --- | --- | --- | ---
1 | Asb Non Fri-Cubic | 100 | | 21.00 Yards

Total Tax
Total Ticket

Driver's Signature

403WM
ENVIRONMENTAL - Asbestos Containing Rubble Removal  
06-17-2019 - E. Buckingham

Task 1 – Area Air Monitoring Services

Ms. Emmy Buckingham of S&ME, an Environmental Protection Agency (EPA) accredited and Tennessee Department of Environment and Conservation Toxic Substances Program licensed Asbestos Project Monitor arrived onsite to conduct area air monitoring services during the removal of non-friable asbestos containing rubble materials. Four air samples were collected during the removal. One sample was collected at the entrance gate, one in the parking lot, and two on Jackson Avenue, one east and one west of the asbestos containing rubble pile being removed.

The air samples were collected on 25 mm Mixed Cellulose Ester membrane filters and analyzed by Phase Contrast Microscopy in accordance with the NIOSH 7400 Method, Revision 3 by Ms. Buckingham, an American Industrial Hygiene Association Asbestos Analysts Registry analyst. Same day analysis was performed on samples collected. The air samples collected were compared to and passed the EPA Clearance Criterion of 0.01 fibers per cubic centimeter.

Task 2 – Site Observation and Visual Clearance

The rubble was hauled offsite to Chestnut Ridge Landfill under waste manifest using four dump trucks by Brady Excavating with First Place Finish. NEO Corporation was onsite to line each truck prior to being loaded and wrap each load prior to being hauled. One supervisor and two workers were present for NEO Corporation. A total of 12 dump truck loads (appx. 307 tons or 258 cubic yards) were hauled off site. Waste manifests were provided to NEO Corporation following the removal. The remaining pile of rubble was smoothed and banked towards the treeline to tie in with other material providing support to Jackson Avenue.

S&ME, Brady Excavating, and NEO Corporation walked the area of removal to conduct a visual confirmation that the asbestos containing rubble had been removed as specified from the area following abatement.

Field Personnel:  Emily M. Buckingham _______ SIGNED _______
## ASBESTOS AIR SAMPLING FORM

**PROJECT NAME:** McClung Redevelopment  
**PROJECT SITE:** Jackson Avenue Rubble Pile  
**CONTRACTOR:** NEO Corporation  
**DATE:** 6/17/2019  

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>SAMPLE Type</th>
<th>LOCATION</th>
<th>FLOW RATE (LPM) AVERAGE</th>
<th>START TIME</th>
<th>STOP TIME</th>
<th>TOTAL MINUTES</th>
<th>TOTAL VOLUME</th>
<th>FIBERS</th>
<th>FIELDS</th>
<th>Fiber Density f/mm²</th>
<th>Fiber Concentration f/cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>06172019-01</td>
<td>OW</td>
<td>At entrance gate</td>
<td>2.5</td>
<td>09 10</td>
<td>16 35</td>
<td>445</td>
<td>1113</td>
<td>&lt; 7</td>
<td>100</td>
<td>8.917</td>
<td>0.003</td>
</tr>
<tr>
<td>06172019-02</td>
<td>OW</td>
<td>In public parking lot</td>
<td>2.5</td>
<td>09 15</td>
<td>16 38</td>
<td>443</td>
<td>1108</td>
<td>&lt; 7</td>
<td>100</td>
<td>8.917</td>
<td>0.003</td>
</tr>
<tr>
<td>06172019-03</td>
<td>OW</td>
<td>Jackson Avenue east of debris pile</td>
<td>2.0</td>
<td>09 21</td>
<td>16 45</td>
<td>444</td>
<td>888</td>
<td>&lt; 7</td>
<td>100</td>
<td>8.917</td>
<td>0.004</td>
</tr>
<tr>
<td>06172019-04</td>
<td>OW</td>
<td>Jackson Avenue west of debris pile</td>
<td>2.4</td>
<td>09 23</td>
<td>16 46</td>
<td>443</td>
<td>1063</td>
<td>&lt; 7</td>
<td>100</td>
<td>8.917</td>
<td>0.003</td>
</tr>
</tbody>
</table>

### COMMENTS:

Loading of asbestos containing rubble into poly-lined dump trucks  
12 total loads of material taken off site to Chestnut Ridge Landfill  
Rain the previous day, debris pile observed wet

**ANALYTICAL METHOD:** NIOSH 7400, REVISION 3

**COLLECTED BY:** E. Buckingham  
**ANALYZED BY:** E. Buckingham  
**REVIEWED BY:** Eric Solt
<table>
<thead>
<tr>
<th></th>
<th>Location / Orientation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Western portion of site</td>
<td>Removal of demolition debris</td>
</tr>
<tr>
<td>2</td>
<td>Western portion of site</td>
<td>Loading debris into plastic-lined trucks</td>
</tr>
<tr>
<td></td>
<td>Location / Orientation</td>
<td>Remarks</td>
</tr>
<tr>
<td>---</td>
<td>------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>Western portion of site</td>
<td>Wrapping loads with plastic before transporting offsite</td>
</tr>
<tr>
<td>4</td>
<td>Western portion of site</td>
<td>Truck ready for transport to Chestnut Ridge</td>
</tr>
</tbody>
</table>
Appendix IV – Impacted Soil Disposal Documentation
KGIS makes no representation or warranty as to the accuracy of his map and its information nor to its fitness for use. Any user of this map product accepts the same AS IS, WITH ALL FAULTS, and assumes all responsibility for the use thereof, and further covenants and agrees to hold KGIS harmless from any and all damage, loss, or liability arising from any use of this map product.

Knoxville - Knox County - KUB Geographic Information System
### Location / Orientation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area of excavation facing southwest.</td>
</tr>
<tr>
<td></td>
<td>View of area prior to excavation.</td>
</tr>
</tbody>
</table>

### Remarks

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Excavation area facing Southwest.</td>
</tr>
<tr>
<td></td>
<td>Crushed stone fill beneath asphalt surface.</td>
</tr>
</tbody>
</table>
### Location / Orientation

<table>
<thead>
<tr>
<th>Location / Orientation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast side of excavation facing Southwest.</td>
<td>Impacted soil and debris on east end of excavation.</td>
</tr>
</tbody>
</table>

### Location / Orientation

<table>
<thead>
<tr>
<th>Location / Orientation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast side of excavation facing South.</td>
<td>View of impacted soil and debris on East end of excavation.</td>
</tr>
<tr>
<td>Location / Orientation</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Southeast end of excavation facing Northwest</td>
<td>View of residual clay beneath debris in excavation.</td>
</tr>
<tr>
<td>Northwest end of excavation facing Southeast.</td>
<td>View of excavation with impacted soil and debris removed.</td>
</tr>
<tr>
<td>Page</td>
<td>Location / Orientation</td>
</tr>
<tr>
<td>------</td>
<td>------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Northeast side of excavation facing Southwest.</td>
</tr>
<tr>
<td>8</td>
<td>Northwest side of excavation facing Southeast</td>
</tr>
</tbody>
</table>
### Location / Orientation
- **9**: Northwest side of excavation facing Southeast.
- **10**: Northeast side of excavation facing southwest.

### Remarks
- **9**: View of excavation backfilled with compacted material.
- **10**: View of excavation area repaved for use as parking lot.
SHIPPING DOCUMENT
FOR NONHAZARDOUS MATERIAL

• TO BE COMPLETED BY GENERATOR •

Generator Name: City of Knoxville  Date: 2/18/19
Address: Jackson Ave Parking Lot  Phone # (865) 215-2121

DESCRIPTION OF WASTE / MUST CHECK ONE

UST/Gasoline X  UST/Diesel Fuel X  UST/Gasoline, Diesel and Waste Oil Mix _____
UST/Waste Oil _____  Spill/Gasoline _____  Spill/Diesel Fuel _____  Spill Waste Oil _____
Water/Gas _____  Water/FuelOil _____

Other/Define ____________________________________________

This shipment needs to be sampled at Domermuth's Facility _____ Yes  _____ No
Quantity (# of tons, drums or gallons) ______  Containers [Dump Trucks, Drums or Vac Truck] _____

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or any applicable law, has been properly described, classified & packaged, and is in proper condition for transportation according to applicable regulations.

Generator's Signature ____________________________ Date 2/18/19  Time ________
(or authorized agent)

• TO BE COMPLETED BY TRANSPORTER •

Transporter Name: Nicely  Vehicle Lic. # 410 2958
Address New Market  Truck # 161

I hereby certify the above named material was picked up at the generator site listed above. I hereby certify the above named material was delivered without incident to destination listed below.

Driver's Name (Please Print) Craig Curlton  Date 2/18/19
Signature ____________________________ Time 3:37

• TO BE COMPLETED BY FACILITY •

☐ Domermuth Environmental Svcs.
7826 Old Rutledge Pike
Knoxville, TN 37924
Phone # (865) 689-1332

☐ Domermuth Environmental Svcs.
3041 S. Hwy. #1651
Steams, Kentucky 42647
Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Signature ____________________________ Date 2/18/19  Time 4:10 pm

White & Yellow Copy - TSD Facility  Pink Copy - Generator  Gold Copy - Transporter
SHIPPING DOCUMENT
FOR NONHAZARDOUS MATERIAL

• TO BE COMPLETED BY GENERATOR •

Generator Name: City of Knoxville  Date: 2/18/19
Address: Jacksonville Parking Lot  Phone # (865) 215 - 2121

DESCRIPTION OF WASTE / MUST CHECK ONE

UST/Gasoline  UST/Diesel Fuel  UST/Gasoline, Diesel and Waste Oil Mix
UST/Waste Oil  Spill/Gasoline  Spill/Diesel Fuel  Spill Waste Oil
Water/Gas  Water/Fuel Oil

Other/Define __________________________

This shipment needs to be sampled at Domermuth's Facility  Yes  No
Quantity (# of tons, drums or gallons) Containers (Dump Trucks, Drums or Vac Truck) ________

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or any applicable law, has been properly described, classified & packaged, and is in proper condition for transportation according to applicable regulations.

Generator's Signature __________________________ Date 2/18/19 Time ____________
(or authorized agent)

• TO BE COMPLETED BY TRANSPORTER •

Transporter Name: Walker  Vehicle Lic. #  # 08 89%
Address: New Market  Truck #  # 722

State of Registration  TN

I hereby certify the above named material was picked up at the generator site listed above. I hereby certify the above named material was delivered without incident to destination listed below.

Driver's Name (Please Print) __________________________ Date 2/18/19

Signature __________________________ Time _______

• TO BE COMPLETED BY FACILITY •

Domermuth Environmental Svcs.
7826 Old Rutledge Pike
Knoxville, TN 37924
Phone # (865) 689-1332

Domermuth Environmental Svcs.
3041 S. Hwy. #1651
Steamers, Kentucky 42647
Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Signature __________________________ Date 2/18/19 Time 3:45

White & Yellow Copy - TSD Facility  Pink Copy - Generator  Gold Copy - Transporter
SHIPPING DOCUMENT
FOR NONHAZARDOUS MATERIAL

• TO BE COMPLETED BY GENERATOR •

Generator Name: City of Knoxville
Address: Jackson Ave Parking Lot
Date: 2/8/19
Phone # (865) 215-2101

DESCRIPTION OF WASTE / MUST CHECK ONE

UST/Gasoline [x] UST/Diesel Fuel [x] UST/Gasoline, Diesel and Waste Oil Mix
UST/Waste Oil [ ] Spill/Gasoline [ ] Spill/Diesel Fuel [ ] Spill Waste Oil
Water/Gas [ ] Water/Fuel Oil [ ]

Other/Define [ ]

This shipment needs to be sampled at Domermuth's Facility [ ] Yes [x] No
Quantity (# of tons, drums or gallons) [ ]
Containers (Dump Trucks, Drums or Vac Truck) [ ]

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or any applicable law, has been properly described, classified & packaged, and is in proper condition for transportation according to applicable regulations.

Generator's Signature [ ]
(or authorized agent)
Date 2/8/19
Time [ ]

• TO BE COMPLETED BY TRANSPORTER •

Transporter Name: nicely
Address: New Market, TN
Vehicle Lic. # 410 2958
Truck # 0161
State of Registration [ ]

I hereby certify the above named material was picked up at the generator site listed above. I hereby certify the above named material was delivered without incident to destination listed below.

Driver's Name (Please Print): [ ]
Date 2/8/19
Time 2:27

• TO BE COMPLETED BY FACILITY •

Please check one.

Domermuth Environmental Svcs.
7826 Old Rutledge Pike
Knoxville, TN 37924
Phone # (865) 689-1332

Domermuth Environmental Svcs.
3041 S. Hwy. #1651
Stearns, Kentucky 42647
Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Signature [ ]
Date 2/8/19
Time [ ]

White & Yellow Copy - TSD Facility
Pink Copy - Generator
Gold Copy - Transporter
**SHIPPING DOCUMENT**
FOR NONHAZARDOUS MATERIAL

**TO BE COMPLETED BY GENERATOR**

<table>
<thead>
<tr>
<th>Generator Name:</th>
<th>City of Knoxville</th>
<th>Date:</th>
<th>2-18-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Jackson Ave (Parking Lot)</td>
<td>Phone #:</td>
<td>(865) 215-2121</td>
</tr>
<tr>
<td></td>
<td>Knoxville TN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION OF WASTE / MUST CHECK ONE**

- UST/Gasoline [x]
- UST/Diesel Fuel [x]
- UST/Gasoline, Diesel and Waste Oil Mix
- UST/Waste Oil
- Spill/Gasoline
- Spill/Diesel Fuel
- Spill Waste Oil
- Water/Gas
- Water/Fuel Oil

**Other/Define**

This shipment needs to be sampled at Domermuth's Facility  [ ] Yes  [x] No

Quantity (# of tons, drums or gallons)  
Containers [ ] Dump Trucks [ ] Drums or Vac Truck

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or any applicable law, has been properly described, classified & packaged, and is in proper condition for transportation according to applicable regulations.

**Generator's Signature**

(date: 2-18-19)  (or authorized agent)

**TO BE COMPLETED BY TRANSPORTER**

<table>
<thead>
<tr>
<th>Transporter Name:</th>
<th>Walker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Newmarket</td>
</tr>
<tr>
<td>Vehicle Lic. #:</td>
<td>H 16849</td>
</tr>
<tr>
<td>Truck #:</td>
<td>722</td>
</tr>
<tr>
<td>State of Registration</td>
<td></td>
</tr>
</tbody>
</table>

I hereby certify the above named material was picked up at the generator site listed above. I hereby certify the above named material was delivered without incident to destination listed below.

**Driver's Name (Please Print)**

(date: 2-18-19)

Signature

(Time: 1400)

**TO BE COMPLETED BY FACILITY**

- [ ] Domermuth Environmental Svcs.
  7826 Old Rutledge Pike
  Knoxville, TN 37924
  Phone # (865) 689-1332

- [ ] Domermuth Environmental Svcs.
  3041 S. Hwy. #1651
  Stearns, Kentucky 42647
  Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

**Signature**

(date: 2-18-19)  (time: 2:45)

White & Yellow Copy - TSD Facility
Pink Copy - Generator
Gold Copy - Transporter
SHIPPING DOCUMENT FOR NONHAZARDOUS MATERIAL

• TO BE COMPLETED BY GENERATOR •

Generator Name: City of Knoxville  Date: 2-18-19
Address: Jackson Ave (Parking)  Phone # (865) 215-2121

DESCRIPTION OF WASTE / MUST CHECK ONE

UST/Gasoline X  UST/Diesel Fuel X  UST/Gasoline, Diesel and Waste Oil Mix
UST/Waste Oil  Spill/Gasoline  Spill/Diesel Fuel  Spill Waste Oil
Water/Gas  Water/Fuel Oil

Other/Define

This shipment needs to be sampled at Domermuth's Facility  Yes  No

Quantity (# of tons, drums or gallons) Containers (Dump Trucks, Drums or Vac Truck)

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or any applicable law, has been properly described, classified & packaged, and is in proper condition for transportation according to applicable regulations.

Generator's Signature  Date  2-18-19  Time
(or authorized agent)

• TO BE COMPLETED BY TRANSPORTER •

Transporter Name: Nickey  Vehicle Lic. # 110 2958
Address New Marke  Truck # 161

State of Registration TN

I hereby certify the above named material was picked up at the generator site listed above. I hereby certify the above named material was delivered without incident to destination listed below.

Driver's Name (Please Print) Craig Eaton  Date  2-18-19
Signature  Time  1:13 PM

• TO BE COMPLETED BY FACILITY •

Please check one.

☐ Domermuth Environmental Svcs.
7826 Old Rutledge Pike
Knoxville, TN 37924
Phone # (865) 689-1332

☐ Domermuth Environmental Svcs.
3041 S. Hwy. #1651
Steams, Kentucky 42647
Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Signature  Date  2/18/19  Time  2:00 PM
SHIPPING DOCUMENT
FOR NONHAZARDOUS MATERIAL

• TO BE COMPLETED BY GENERATOR •

Generator Name: City of Knoxville
Address: Jackson Ave Parking Lot
Phone #: (865) 215-212

Date: 2/18/2013
Knoxville, TN

DESCRIPTION OF WASTE / MUST CHECK ONE

UST/Gasoline  X  UST/Diesel Fuel  X  UST/Gasoline, Diesel and Waste Oil Mix
UST/Waste Oil  Spill/Gasoline  Spill/Diesel Fuel  Spill Waste Oil
                Water/Gas    Water/Fuel Oil

Other/Define ___________________________________________________________________________

This shipment needs to be sampled at Domermuth’s Facility Yes  No

Quantity (# of tons, drums or gallons) Containers (Dump Trucks, Drums or Vac Truck) __________

I hereby certify the above named material is a non-hazardous waste as defined by 40 CFR part 261 or
any applicable law, has been properly described, classified & packaged, and is in proper condition for
transportation according to applicable regulations.

Generator’s Signature ___________________________ Date 2/18/2013 Time ____________
(or authorized agent)

• TO BE COMPLETED BY TRANSPORTER •

Transporter Name: R. Combs
Address: New Market Tw
Vehicle Lic. # H100889
Truck # 722

State of Registration TW

I hereby certify the above named material was picked up at the generator site listed above. I hereby
certify the above named material was delivered without incident to destination listed below.

Driver’s Name (Please Print) ___________________________ Date 2/18/19
Signature _________________________________________ Time ____________

• TO BE COMPLETED BY FACILITY •

Please check one.

☑ Domermuth Environmental Svcs.
7826 Old Rutledge Pike
Knoxville, TN 37924
Phone # (865) 689-1332

☑ Domermuth Environmental Svcs.
3041 S. Hwy. #1651
Stearns, Kentucky 42647
Phone # (865) 689-1332

I hereby certify the above named material has been accepted and to the best of my knowledge the foregoing is true and accu-
rate.

Signature ___________________________ Date 2/18/19 Time ____________

White & Yellow Copy - TSD Facility  Pink Copy - Generator  Gold Copy - Transporter
Per Nate (4/9/19) - this load is just asphalt, so it does not require a corresponding Shipping Document for Nonhazardous Material for Domermuth. (It was still transported to Domermuth - just didn't require shipping document.)

<table>
<thead>
<tr>
<th>Date</th>
<th>2-18-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>410 Jackson Ave, Knox</td>
</tr>
<tr>
<td>Customer</td>
<td>Gatesw Excauning</td>
</tr>
<tr>
<td>Order</td>
<td></td>
</tr>
<tr>
<td>P.O.</td>
<td>Weigh Ticket</td>
</tr>
<tr>
<td>Product</td>
<td>Asphalt</td>
</tr>
<tr>
<td>Carrier</td>
<td>Craig</td>
</tr>
<tr>
<td>Vehicle</td>
<td>161</td>
</tr>
<tr>
<td>Tons</td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td></td>
</tr>
</tbody>
</table>

| Gross     | 42520 |
| Tare      | 24140 |
| Net       | 18380 |
| Predetermined Tare | |

Weighmaster: [Signature]

---

Per Nate (4/9/19) - this load is just asphalt, so it does not require a corresponding Shipping Document for Nonhazardous Material for Domermuth. (It was still transported to Domermuth - just didn't require shipping document.)

<table>
<thead>
<tr>
<th>Date</th>
<th>2-18-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>410 Jackson Ave, Knox</td>
</tr>
<tr>
<td>Customer</td>
<td>Rick Gatesw</td>
</tr>
<tr>
<td>Order</td>
<td></td>
</tr>
<tr>
<td>P.O.</td>
<td>Weigh Ticket</td>
</tr>
<tr>
<td>Product</td>
<td>Contaminated Diet</td>
</tr>
<tr>
<td>Carrier</td>
<td>Culls</td>
</tr>
<tr>
<td>Vehicle</td>
<td>722</td>
</tr>
<tr>
<td>Tons</td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td></td>
</tr>
</tbody>
</table>

| Gross     | 59720 |
| Tare      | 24120 |
| Net       | 35600 |
| Predetermined Tare | |

Weighmaster: [Signature]
<table>
<thead>
<tr>
<th></th>
<th>Pounds</th>
<th>Tons</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross</td>
<td>25730</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tare</td>
<td>24120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net</td>
<td>56080</td>
<td>25.84</td>
<td></td>
</tr>
<tr>
<td>Predetermined Tare</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date:** 2-18-19  
**Time:**  
**Location:** 410 Jackson Ave, Knox  
**Customer:** Rick Gatlin  
**Order:**  
**P.O.:** WEIGH TICKET  
**Product:** Contaminated Dirt  
**Carrier:** Combis  
**Vehicle:** 722

**Received:**  
**Weighmaster:**

---

<table>
<thead>
<tr>
<th></th>
<th>Pounds</th>
<th>Tons</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross</td>
<td>72900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tare</td>
<td>24120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net</td>
<td>48780</td>
<td>21.39</td>
<td></td>
</tr>
<tr>
<td>Predetermined Tare</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date:** 2-18-19  
**Time:**  
**Location:** 410 Jackson Ave, Knox  
**Customer:** Rick Gatlin  
**Order:**  
**P.O.:** WEIGH TICKET  
**Product:** Contaminated Dirt  
**Carrier:** Combis  
**Vehicle:** 722

**Received:**  
**Weighmaster:**
WALKER'S TRUCK CONTRACTORS
2002 W. Hwy. 11-E • New Market, TN 37820
Phone: 865-933-0225

Date: 2-18-19

Time: 

Location: 410 Jackson Ave KnoX

Customer: Rick Gatlin

Order: 

P.O.: Container Dirt

Product: Weigh Ticket

Carrier: Craig

Vehicle: 161

Received: 

Weighmaster

---

WALKER'S TRUCK CONTRACTORS
2002 W. Hwy. 11-E • New Market, TN 37820
Phone: 865-933-0225

Date: 2-18-19

Time: 

Location: 410 Jackson Ave KnoX

Customer: Rick Gatlin

Order: 

P.O.: Weigh Ticket

Product: Container Dirt

Carrier: Craig

Vehicle: 161

Received: 

Weighmaster
130.95 tons contaminated soil
9.19 tons of asphalt
TICKET #: 240189
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019  7:35 AM

Truck:  C-259
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product:  1000B Brown Crusher Run
Order:  WJACKSONAVE
Job:  416 W Jackson Ave

Daily Totals

Loads:  2.00  Tons: 41.67

Notes:
3-4
Rick 755-7521

TIME IN: 12:00 AM  TIME OUT: 7:35 AM

This Ticket:
Gross: 73,000 lbs
Tare: 31,980 lbs
Net: 41,020 lbs  20.51 Tn

Total Due This Ticket:

The undersigned understands Claiborne Hauling, LLC. will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.


TICKET #: 240188
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019  7:28 AM

Truck:  C-242
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product:  1000B Brown Crusher Run
Order:  WJACKSONAVE
Job:  416 W Jackson Ave

Daily Totals

Loads:  1.00  Tons: 21.16

Notes:
3-4
Rick 755-7521

TIME IN: 12:00 AM  TIME OUT: 7:28 AM

This Ticket:
Gross: 73,820 lbs
Tare: 31,500 lbs
Net: 42,320 lbs  21.16 Tn

Total Due This Ticket:

The undersigned understands Claiborne Hauling, LLC. will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.
TICKET #: 240192
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019 8:43 AM
Truck: C-242
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product: 1000B Brown Crusher Run
Order: WJACKSONAVE
Job: 416 W Jackson Ave

Daily Totals
Loads: 3.00 Tons: 62.27

Notes:
3-4 Rick 755-7521

TIME IN: 12:00 AM TIME OUT: 8:43 AM

This Ticket:
Gross: 72,980 lbs
Tare: 31,500 lbs
Net: 41,480 lbs 20.74 Tn

Total Due This Ticket:
The undersigned understands Claiborne Hauling, LLC, will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.

TICKET #: 240190
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019 7:36 AM
Truck: C-225
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product: 1000B Brown Crusher Run
Order: WJACKSONAVE
Job: 416 W Jackson Ave

Daily Totals
Loads: 3.00 Tons: 62.27

Notes:
3-4 Rick 755-7521

TIME IN: 12:00 AM TIME OUT: 7:36 AM

This Ticket:
Gross: 72,620 lbs
Tare: 31,420 lbs
Net: 41,200 lbs 20.60 Tn

Total Due This Ticket:
The undersigned understands Claiborne Hauling, LLC, will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.
TICKET #: 240196
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019 8:52 AM
Truck: C-259
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product: 100PB Brown Crusher Run
Order: WJACKSONAVE
Job: 416 W Jackson Ave

Daily Totals
Loads: 5.00 Tons: 103.35

Notes:
3-4
Rick 756-7521

TIME IN: 12:00 AM TIME OUT: 8:52 AM

This Ticket:
Gross: 73,420 lbs
Tare: 31,980 lbs
Net: 41,440 lbs 20.72 Tn

Total Due This Ticket:
The undersigned understands Claiborne Hauling, LLC, will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.

TICKET #: 240195
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(865) 540-4409

Print Date: 2/19/2019 8:51 AM
Truck: C-225
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070

Product: 100PB Brown Crusher Run
Order: WJACKSONAVE
Job: 416 W Jackson Ave

Daily Totals
Loads: 4.00 Tons: 82.63

Notes:
3-4
Rick 756-7521

TIME IN: 12:00 AM TIME OUT: 8:51 AM

This Ticket:
Gross: 72,140 lbs
Tare: 31,420 lbs
Net: 40,720 lbs 20.36 Tn

Total Due This Ticket:
The undersigned understands Claiborne Hauling, LLC, will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.
TICKET #: 240191
Claiborne Hauling, LLC
6210 Rutledge Pike
Knoxville TN, 37924
(855) 540-4409

Print Date: 2/19/2019 10:28 AM
Truck: C-259
Company: Claiborne Hauling, LLC
Customer: Gatlin Services
Address: P O Box 6070
Product: 100CB Brown Crusher Run
Order: WJACKSONAVE
Job: 416 W Jackson Ave

Daily Totals
Loads: 6.00 Tons: 123.94

Notes:
3-4
Rick 765-7621

TIME IN: 12:00 AM TIME OUT: 10:28 AM

This Ticket:
Gross: 73,160 lbs
Tare: 31,980 lbs
Net: 41,180 lbs 20.59 Tn

Total Due This Ticket:

The undersigned understands Claiborne Hauling, LLC. will not be held liable for any damage to property caused by the equipment. It is further understood that, should a wrecker become necessary, I hereby agree to pay any wrecker charges incurred, or for any equipment to assist in removal of this vehicle.

144.68 tons of rock
S&ME Inc. - Knoxville

Sample Delivery Group: L1071756
Samples Received: 02/20/2019
Project Number: 4143-17-017
Description: McClung Towers

Report To: Nate Peterson, Liz Porter
1413 Topside Rd
Louisville, TN 37777

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.
### TABLE OF CONTENTS

- **Cp: Cover Page**  
- **Tc: Table of Contents**  
- **Ss: Sample Summary**  
- **Cn: Case Narrative**  
- **Sr: Sample Results**  
  - NORTH  L1071756-01  
  - SOUTH  L1071756-02  
  - EAST  L1071756-03  
  - WEST  L1071756-04  
- **Qc: Quality Control Summary**  
  - Semi-Volatile Organic Compounds (GC) by Method EPH  
- **Gl: Glossary of Terms**  
- **Al: Accreditations & Locations**  
- **Sc: Sample Chain of Custody**
### NORTH L1071756-01 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WG1240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:23</td>
<td>KME</td>
</tr>
</tbody>
</table>

#### SOUTH L1071756-02 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WG1240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:36</td>
<td>KME</td>
</tr>
</tbody>
</table>

#### EAST L1071756-03 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WG1240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:50</td>
<td>KME</td>
</tr>
</tbody>
</table>

#### WEST L1071756-04 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WG1240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 09:04</td>
<td>KME</td>
</tr>
</tbody>
</table>
All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager
## Semi-Volatile Organic Compounds (GC) by Method EPH

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RDL</th>
<th>Dilution</th>
<th>Analysis date / time</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>ND</td>
<td></td>
<td>4.00</td>
<td>1</td>
<td>02/21/2019 08:23</td>
<td>WG1240136</td>
</tr>
<tr>
<td>(S) o-Terphenyl</td>
<td>105</td>
<td></td>
<td>18.0-148</td>
<td>02/21/2019 08:23</td>
<td>WG1240136</td>
<td></td>
</tr>
</tbody>
</table>
Semi-Volatile Organic Compounds (GC) by Method EPH

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RDL</th>
<th>Dilution</th>
<th>Analysis date / time</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>ND</td>
<td></td>
<td>4.00</td>
<td>1</td>
<td>02/21/2019 08:36</td>
<td>WG1240136</td>
</tr>
<tr>
<td>(S) o-Terphenyl</td>
<td>117</td>
<td></td>
<td>18.0-148</td>
<td></td>
<td>02/21/2019 08:36</td>
<td>WG1240136</td>
</tr>
</tbody>
</table>
### Semi-Volatile Organic Compounds (GC) by Method EPH

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RDL mg/kg</th>
<th>Dilution</th>
<th>Analysis date / time</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>ND</td>
<td></td>
<td>4.00</td>
<td>1</td>
<td>02/21/2019 08:50</td>
<td>WG1240136</td>
</tr>
<tr>
<td>(S) α-Terphenyl</td>
<td>106</td>
<td></td>
<td>18.0-148</td>
<td></td>
<td>02/21/2019 08:50</td>
<td>WG1240136</td>
</tr>
<tr>
<td>Analyte</td>
<td>Result</td>
<td>Qualifier</td>
<td>RDL</td>
<td>Dilution</td>
<td>Analysis date / time</td>
<td>Batch</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------</td>
<td>-----------</td>
<td>-----</td>
<td>----------</td>
<td>----------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>ND</td>
<td></td>
<td>4.00</td>
<td>1</td>
<td>02/21/2019 09:04</td>
<td>WG1240136</td>
</tr>
<tr>
<td>(S) o-Terphenyl</td>
<td>121</td>
<td></td>
<td>18.0-148</td>
<td>02/21/2019 09:04</td>
<td>WG1240136</td>
<td></td>
</tr>
</tbody>
</table>
**Method Blank (MB)**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>MB Result</th>
<th>MB Qualifier</th>
<th>MB MDL</th>
<th>MB RDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>U</td>
<td>1.05</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>(S) o-Terphenyl</td>
<td></td>
<td></td>
<td>18.0-148</td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Spike Amount</th>
<th>LCS Result</th>
<th>LCSD Result</th>
<th>LCS Rec.</th>
<th>LCSD Rec.</th>
<th>Rec. Limits</th>
<th>LCS Qualifier</th>
<th>LCSD Qualifier</th>
<th>RPD</th>
<th>RPD Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>50.0</td>
<td>39.5</td>
<td>39.3</td>
<td>79.0</td>
<td>78.6</td>
<td>50.0-150</td>
<td></td>
<td>0.508</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>(S) o-Terphenyl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>174</td>
<td>171</td>
<td>18.0-148</td>
</tr>
</tbody>
</table>
**Guide to Reading and Understanding Your Laboratory Report**

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

**Abbreviations and Definitions**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL</td>
<td>Method Detection Limit.</td>
</tr>
<tr>
<td>ND</td>
<td>Not detected at the Reporting Limit (or MDL where applicable).</td>
</tr>
<tr>
<td>RDL</td>
<td>Reported Detection Limit.</td>
</tr>
<tr>
<td>Rec.</td>
<td>Recovery.</td>
</tr>
<tr>
<td>RPD</td>
<td>Relative Percent Difference.</td>
</tr>
<tr>
<td>SDG</td>
<td>Sample Delivery Group.</td>
</tr>
<tr>
<td>(S)</td>
<td>Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.</td>
</tr>
<tr>
<td>U</td>
<td>Not detected at the Reporting Limit (or MDL where applicable).</td>
</tr>
</tbody>
</table>

**Analyte**
The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.

**Dilution**
If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.

**Limits**
These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.

**Qualifier**
This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.

**Result**
The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.

**Uncertainty**
Confidence level of 2 sigma.

**Case Narrative (Cn)**
A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.

**Quality Control Summary (Qc)**
This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.

**Sample Chain of Custody (Sc)**
This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.

**Sample Results (Sr)**
This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.

**Sample Summary (Ss)**
This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

**Qualifier**

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1</td>
</tr>
</tbody>
</table>
Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

### State Accreditations

<table>
<thead>
<tr>
<th>State</th>
<th>Accreditation Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>40660</td>
</tr>
<tr>
<td>Alaska</td>
<td>17-026</td>
</tr>
<tr>
<td>Arizona</td>
<td>AZ0612</td>
</tr>
<tr>
<td>Arkansas</td>
<td>B8-0469</td>
</tr>
<tr>
<td>California</td>
<td>2932</td>
</tr>
<tr>
<td>Colorado</td>
<td>TN00003</td>
</tr>
<tr>
<td>Connecticut</td>
<td>PH-0197</td>
</tr>
<tr>
<td>Florida</td>
<td>E87487</td>
</tr>
<tr>
<td>Georgia</td>
<td>NELAP</td>
</tr>
<tr>
<td>Georgia¹</td>
<td>923</td>
</tr>
<tr>
<td>Idaho</td>
<td>TN00003</td>
</tr>
<tr>
<td>Illinois</td>
<td>200008</td>
</tr>
<tr>
<td>Indiana</td>
<td>C-TN-01</td>
</tr>
<tr>
<td>Iowa</td>
<td>364</td>
</tr>
<tr>
<td>Kansas</td>
<td>E-10277</td>
</tr>
<tr>
<td>Kentucky²</td>
<td>900010</td>
</tr>
<tr>
<td>Kentucky¹</td>
<td>96</td>
</tr>
<tr>
<td>Louisiana</td>
<td>AI30792</td>
</tr>
<tr>
<td>Louisiana¹</td>
<td>LA1800010</td>
</tr>
<tr>
<td>Maine</td>
<td>TN0002</td>
</tr>
<tr>
<td>Maryland</td>
<td>324</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>M-TN003</td>
</tr>
<tr>
<td>Michigan</td>
<td>9958</td>
</tr>
<tr>
<td>Minnesota</td>
<td>047-999-395</td>
</tr>
<tr>
<td>Mississippi</td>
<td>TN00003</td>
</tr>
<tr>
<td>Missouri</td>
<td>340</td>
</tr>
<tr>
<td>Montana</td>
<td>CERT0086</td>
</tr>
<tr>
<td>Nebraska</td>
<td>NE-05-15-05</td>
</tr>
<tr>
<td>Nevada</td>
<td>TN-03-2002-34</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>2975</td>
</tr>
<tr>
<td>New Jersey-NELAP</td>
<td>TN002</td>
</tr>
<tr>
<td>New Mexico¹</td>
<td>n/a</td>
</tr>
<tr>
<td>New York</td>
<td>11742</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Env375</td>
</tr>
<tr>
<td>North Carolina²</td>
<td>DW21704</td>
</tr>
<tr>
<td>North Carolina¹</td>
<td>41</td>
</tr>
<tr>
<td>North Dakota</td>
<td>R-140</td>
</tr>
<tr>
<td>Ohio–VAP</td>
<td>CL0069</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>9915</td>
</tr>
<tr>
<td>Oregon</td>
<td>TN200002</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>68-02979</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>LA000356</td>
</tr>
<tr>
<td>South Carolina</td>
<td>84004</td>
</tr>
<tr>
<td>South Dakota</td>
<td>n/a</td>
</tr>
<tr>
<td>Tennessee¹</td>
<td>2006</td>
</tr>
<tr>
<td>Texas</td>
<td>T104704245-18-15</td>
</tr>
<tr>
<td>Texas²</td>
<td>LAB0152</td>
</tr>
<tr>
<td>Utah</td>
<td>TN00003</td>
</tr>
<tr>
<td>Vermont</td>
<td>VT2006</td>
</tr>
<tr>
<td>Virginia</td>
<td>460132</td>
</tr>
<tr>
<td>Washington</td>
<td>CB47</td>
</tr>
<tr>
<td>West Virginia</td>
<td>233</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>9980939910</td>
</tr>
<tr>
<td>Wyoming</td>
<td>AZLA</td>
</tr>
</tbody>
</table>

### Third Party Federal Accreditations

<table>
<thead>
<tr>
<th>Accreditation</th>
<th>Accreditation Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2LA – ISO 17025</td>
<td>1461.01</td>
</tr>
<tr>
<td>A2LA – ISO 17025¹</td>
<td>1461.02</td>
</tr>
<tr>
<td>Canada</td>
<td>1461.01</td>
</tr>
<tr>
<td>EPA–Crypto</td>
<td>TN00003</td>
</tr>
<tr>
<td>AIHA-LAP, LLC EMLAP</td>
<td>100789</td>
</tr>
<tr>
<td>DOD</td>
<td>1461.01</td>
</tr>
<tr>
<td>USDA</td>
<td>P330-15-00234</td>
</tr>
</tbody>
</table>

¹ Drinking Water  ² Underground Storage Tanks  ³ Aquatic Toxicity  ⁴ Chemical/Microbiological  ⁵ Mold  ⁶ Wastewater  n/a Accreditation not applicable

### Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Comp/Grab</th>
<th>Matrix</th>
<th>Depth</th>
<th>Date</th>
<th>Time</th>
<th>No. of Ctrns</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>G</td>
<td>5.0</td>
<td>2/18/19</td>
<td>15:00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>G</td>
<td>5.5</td>
<td>2/18/19</td>
<td>15:00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>East</td>
<td>G</td>
<td>8.0</td>
<td>2/18/19</td>
<td>10:00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>West</td>
<td>G</td>
<td>5.5</td>
<td>2/18/19</td>
<td>16:00</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Matrix:
- SS - Soil
- AIR - Air
- GW - Groundwater
- WW - Waste Water
- DW - Drinking Water
- OT - Other

Remarks:
- Samples returned via: UPS, FedEx, Courier
- Tracking #: 4767 5988 1669
- Relinquished by: [Signature]
  - Date: 2/19/19
  - Time: 11:02
  - Received by: [Signature]
- Relinquished by: [Signature]
  - Date: 2/19/19
  - Time: 17:04
  - Received by: [Signature]
S&ME Inc. - Knoxville

Sample Delivery Group: L1071756
Samples Received: 02/20/2019
Project Number: 4143-17-017
Description: McClung Towers

Report To: Nate Peterson, Liz Porter
1413 Topside Rd
Louisville, TN  37777

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cp: Cover Page</td>
<td>1</td>
</tr>
<tr>
<td>Tc: Table of Contents</td>
<td>2</td>
</tr>
<tr>
<td>Ss: Sample Summary</td>
<td>5</td>
</tr>
<tr>
<td>Cn: Case Narrative</td>
<td>6</td>
</tr>
<tr>
<td>Su: Summary Results</td>
<td>7</td>
</tr>
<tr>
<td>- EPH Semi-Volatile Organic Compounds (GC)</td>
<td>8</td>
</tr>
<tr>
<td>Surrogate Recovery</td>
<td>8</td>
</tr>
<tr>
<td>Solid Surrogate Summary</td>
<td>8</td>
</tr>
<tr>
<td>- Laboratory Control Sample / Duplicate</td>
<td>9</td>
</tr>
<tr>
<td>WG1240136 LCS(R3385680-2) LCSD(R3385680-3)</td>
<td>9</td>
</tr>
<tr>
<td>Method Blank</td>
<td>10</td>
</tr>
<tr>
<td>WG1240136 R3385680-1 SVGC2 02/21/19 04:19</td>
<td>10</td>
</tr>
<tr>
<td>Sample Result Summary Organic Analysis Data Sheet</td>
<td>11</td>
</tr>
<tr>
<td>L1071756-01 02/21/19 08:23 SVGC2</td>
<td>11</td>
</tr>
<tr>
<td>Raw Data - 0220_57</td>
<td>12</td>
</tr>
<tr>
<td>L1071756-02 02/21/19 08:36 SVGC2</td>
<td>14</td>
</tr>
<tr>
<td>Raw Data - 0220_58</td>
<td>15</td>
</tr>
<tr>
<td>L1071756-03 02/21/19 08:50 SVGC2</td>
<td>17</td>
</tr>
<tr>
<td>Raw Data - 0220_59</td>
<td>18</td>
</tr>
<tr>
<td>L1071756-04 02/21/19 09:04 SVGC2</td>
<td>20</td>
</tr>
<tr>
<td>Raw Data - 0220_60</td>
<td>21</td>
</tr>
<tr>
<td>Retention Time of Single Component Analytes</td>
<td>23</td>
</tr>
<tr>
<td>SVGC2 01/22/19 16:52</td>
<td>23</td>
</tr>
<tr>
<td>Calibration Factor of Single Component Analytes</td>
<td>24</td>
</tr>
<tr>
<td>SVGC2 01/22/19 16:52</td>
<td>24</td>
</tr>
<tr>
<td>Calibration Plots</td>
<td>26</td>
</tr>
<tr>
<td>C10 - C20 Hydrocarbons</td>
<td>26</td>
</tr>
<tr>
<td>C10-C20 Hydrocarbons</td>
<td>27</td>
</tr>
<tr>
<td>C10-C22 Hydrocarbons</td>
<td>28</td>
</tr>
<tr>
<td>C10-C28 Diesel Range</td>
<td>29</td>
</tr>
<tr>
<td>C12-C22 Hydrocarbons</td>
<td>30</td>
</tr>
<tr>
<td>C20-C34 Hydrocarbons</td>
<td>31</td>
</tr>
<tr>
<td>C20-C36 Hydrocarbons</td>
<td>32</td>
</tr>
<tr>
<td>C22-C32 Hydrocarbons</td>
<td>33</td>
</tr>
<tr>
<td>C28-C40 Oil Range</td>
<td>34</td>
</tr>
<tr>
<td>C32-C40 Hydrocarbons</td>
<td>35</td>
</tr>
<tr>
<td>Diesel</td>
<td>36</td>
</tr>
<tr>
<td>Diesel (C12-C24)</td>
<td>37</td>
</tr>
<tr>
<td>Diesel Range Organics</td>
<td>38</td>
</tr>
<tr>
<td>Extractable Petroleum Hydrocarbons</td>
<td>39</td>
</tr>
</tbody>
</table>
Gasoline 40
Gasoline (C7-C12) 41
MISC. TPH (C10-C40) 42
Motor Oil 43
Motor Oil (C24-C30) 44
Residual Range Organics 45
TPH C8-C34 46
Calibration Summary 47
Raw Data 48
0122_03 48
0122_04 52
0122_05 56
0122_06 60
0122_07 64
0122_08 68
0122_09 72
0122_10 76
0122_11 80
Calibration Verification Single Component Analytes 84
SVGC2 01/22/19 20:04 84
SVGC2 - 012219B 85
SVGC2 02/21/19 03:11 87
SVGC2 - 022019 88
1_O-TERPHENYL 90
2_O-TERPHENYL 91
SVGC2 02/21/19 09:36 92
SVGC2 - 022019 93
1_O-TERPHENYL 95
3_O-TERPHENYL 96
Analytical Sequence 97
SVGC2 01/22/19 16:52 97
QC Result Summary Organic Analysis Data Sheet 98
BLANK(R3385680-1) WG1240136 02/21/19 04:19 SVGC2 98
Raw Data - 0220_54 99
LCS(R3385680-2) WG1240136 02/21/19 07:55 SVGC2 101
Raw Data - 0220_55 102
1_O-TERPHENYL 104
2_O-TERPHENYL 105
LCSD(R3385680-3) WG1240136 02/21/19 08:09 SVGC2 106
Raw Data - 0220_56 107
1_O-TERPHENYL
2_O-TERPHENYL

Preparation Logs
WG1240136

Gl: Glossary of Terms
Al: Accreditations & Locations
Sc: Sample Chain of Custody

ACCOUNT: S&ME Inc. - Knoxville
PROJECT: 4143-17-017
SDG: L1071756
DATE/TIME: 02/27/19 15:17
PAGE: 4 of 115
## NORTH L1071756-01 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WGI240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:23</td>
<td>KME</td>
<td>Mt. Juliet, TN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collected by</th>
<th>Collected date/time</th>
<th>Received date/time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Peterson</td>
<td>02/18/19 15:00</td>
<td>02/20/19 09:45</td>
</tr>
</tbody>
</table>

## SOUTH L1071756-02 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WGI240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:36</td>
<td>KME</td>
<td>Mt. Juliet, TN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collected by</th>
<th>Collected date/time</th>
<th>Received date/time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Peterson</td>
<td>02/18/19 15:00</td>
<td>02/20/19 09:45</td>
</tr>
</tbody>
</table>

## EAST L1071756-03 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WGI240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 08:50</td>
<td>KME</td>
<td>Mt. Juliet, TN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collected by</th>
<th>Collected date/time</th>
<th>Received date/time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Peterson</td>
<td>02/18/19 10:00</td>
<td>02/20/19 09:45</td>
</tr>
</tbody>
</table>

## WEST L1071756-04 Solid

<table>
<thead>
<tr>
<th>Method</th>
<th>Batch</th>
<th>Dilution</th>
<th>Preparation date/time</th>
<th>Analysis date/time</th>
<th>Analyst</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Volatile Organic Compounds (GC) by Method EPH</td>
<td>WGI240136</td>
<td>1</td>
<td>02/20/19 20:24</td>
<td>02/21/19 09:04</td>
<td>KME</td>
<td>Mt. Juliet, TN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collected by</th>
<th>Collected date/time</th>
<th>Received date/time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Peterson</td>
<td>02/18/19 16:00</td>
<td>02/20/19 09:45</td>
</tr>
</tbody>
</table>
All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager
EPH Semi-Volatile Organic Compounds (GC)
## SURROGATE RECOVERY

**Analytical Method:** EPH  
**Matrix:** Solid  
**SDG:** L1071756

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Lab Sample ID</th>
<th>Instrument</th>
<th>File ID</th>
<th>DMC-1 % Rec.</th>
<th>TOT Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH</td>
<td>L1071756-01</td>
<td>SVGC2</td>
<td>0220_57</td>
<td>105</td>
<td>0</td>
</tr>
<tr>
<td>SOUTH</td>
<td>L1071756-02</td>
<td>SVGC2</td>
<td>0220_58</td>
<td>117</td>
<td>0</td>
</tr>
<tr>
<td>EAST</td>
<td>L1071756-03</td>
<td>SVGC2</td>
<td>0220_59</td>
<td>106</td>
<td>0</td>
</tr>
<tr>
<td>WEST</td>
<td>L1071756-04</td>
<td>SVGC2</td>
<td>0220_60</td>
<td>121</td>
<td>0</td>
</tr>
<tr>
<td>BLANK</td>
<td>R3385680-1</td>
<td>SVGC2</td>
<td>0220_54</td>
<td>133</td>
<td>0</td>
</tr>
<tr>
<td>LCS</td>
<td>R3385680-2</td>
<td>SVGC2</td>
<td>0220_55</td>
<td>174*</td>
<td>1</td>
</tr>
<tr>
<td>LCSD</td>
<td>R3385680-3</td>
<td>SVGC2</td>
<td>0220_56</td>
<td>171*</td>
<td>1</td>
</tr>
</tbody>
</table>

**Parm Abbreviation**  
DMC-1

**Parameter**  
o-Terphenyl

**QC LIMITS**  
18.0 - 148

*: Value outside the established quality control limits.  
D: Surrogate recovery cannot be used for control limit evaluation due to dilution.
<table>
<thead>
<tr>
<th>Analyte</th>
<th>Spike Amount mg/kg</th>
<th>LCS Result mg/kg</th>
<th>LCSD Result mg/kg</th>
<th>LCS Rec. %</th>
<th>LCSD Rec. %</th>
<th>Rec. Limits</th>
<th>RPD</th>
<th>RPD Limit %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>50.0</td>
<td>39.5</td>
<td>39.3</td>
<td>79.0</td>
<td>78.6</td>
<td>50.0 - 150</td>
<td>0.508</td>
<td>20</td>
</tr>
</tbody>
</table>

*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.
### 4A-OR

**METHOD BLANK**

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Lab Sample ID</th>
<th>Instrument</th>
<th>File ID</th>
<th>Analysis date/time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCS</td>
<td>R3385680-2</td>
<td>SVGC2</td>
<td>0220_55</td>
<td>02/21/19 07:55</td>
</tr>
<tr>
<td>LCSD</td>
<td>R3385680-3</td>
<td>SVGC2</td>
<td>0220_56</td>
<td>02/21/19 08:09</td>
</tr>
<tr>
<td>NORTH</td>
<td>L1071756-01</td>
<td>SVGC2</td>
<td>0220_57</td>
<td>02/21/19 08:23</td>
</tr>
<tr>
<td>SOUTH</td>
<td>L1071756-02</td>
<td>SVGC2</td>
<td>0220_58</td>
<td>02/21/19 08:36</td>
</tr>
<tr>
<td>EAST</td>
<td>L1071756-03</td>
<td>SVGC2</td>
<td>0220_59</td>
<td>02/21/19 08:50</td>
</tr>
<tr>
<td>WEST</td>
<td>L1071756-04</td>
<td>SVGC2</td>
<td>0220_60</td>
<td>02/21/19 09:04</td>
</tr>
</tbody>
</table>
### Sample Result Summary

**Lab Sample ID:** L1071756-01  
**SDG:** L1071756  
**Collected Date/Time:** 02/18/19 15:00  
**Received Date/Time:** 02/20/19 09:45  
**Preparation Date/Time:** 02/20/19 20:24  
**Analysis Date/Time:** 02/21/19 08:23  
**Instrument ID:** SVGC2  
**Prep Method:** 3546  
**Analytical Method:** EPH  
**Matrix:** Solid  
**Sample Vol Used:**  
**Initial Wt/Vol:** 15.61 g  
**Final Wt/Vol:** 0.5 mL  

<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result</th>
<th>Qualifier</th>
<th>MDL</th>
<th>RDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>4143-17-017</td>
<td>2.13</td>
<td>ND</td>
<td></td>
<td>1.05</td>
<td>4.00</td>
</tr>
</tbody>
</table>
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\data\022019\nData File: 0220_57.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019  8:23 am
Operator: 931
Sample: L1071756-01 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 49  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:03:11 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation  6890  Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S  2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm  d</td>
</tr>
<tr>
<td>26) S  2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm  d</td>
</tr>
<tr>
<td>27) S  1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm  h</td>
</tr>
<tr>
<td>35) S  O-TERPHENYL</td>
<td>3.54</td>
<td>188 56289</td>
<td>21.1029294 ppm</td>
</tr>
<tr>
<td><strong>Spiked Amount</strong></td>
<td>20.00</td>
<td>Range 50 - 150</td>
<td>Recovery = 105.51%</td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h   Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h   Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>2.13</td>
<td>762 78283</td>
<td>44.9083741 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>762 78283</td>
<td>44.9083741 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>28) h   Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h   Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h   #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h   Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  (m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\022019\nData File: 0220_57.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019  8:23 am
Operator: 931
Sample: L1071756-01 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 49  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:03:11 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response:

Signal: 0220_57.d\FID1A.CH
<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result</th>
<th>Qualifier</th>
<th>MDL</th>
<th>RDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>4143-17-017</td>
<td>2.13</td>
<td>ND</td>
<td></td>
<td>1.05</td>
<td>4.00</td>
</tr>
</tbody>
</table>
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\ 
Data File : 0220_58.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019  8:36 am
Operator : 931
Sample : L1071756-02  1X WG1240136
Misc : M.I.s on ranges are corrections
ALS Vial : 50  Sample Multiplier: 1

Integration File: EVENTS.E

Quant Time: Feb 21 09:03:30 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.54f</td>
<td>20939002</td>
<td>23.433789 ppm</td>
</tr>
</tbody>
</table>

Spiked Amount 20.0000  Range 50 - 150  Recovery = 117.17%

Target Compounds

1) h Gasoline 0.00 0 N.D. ppm
2) h Gasoline (C7-C12) 0.00 0 N.D. ppm
3) h,m Diesel Range Organics 0.00 0 N.D. ppm
4) h,m Residual Range Organics 0.00 0 N.D. ppm
5) h,m Diesel (C12-C24) 0.00 0 N.D. ppm
6) h,m Motor Oil (C24-C30) 0.00 0 N.D. ppm
7) h,m Diesel 0.00 0 N.D. ppm
8) h,m Motor Oil 0.00 0 N.D. ppm
9) t,h,m TPH C8-C34 0.00 0 N.D. ppm
10) h,m EPH Screen 0.00 0 N.D. ppm
11) H,M C10-C20 Hydrocarbons 0.00 0 N.D. ppm
12) H,M C20-C34 Hydrocarbons 0.00 0 N.D. ppm
13) t,m,h Extractable Petroleum... 2.13 80472229 48.7515133 ppm
14) H,M C10-C22 Hydrocarbons 0.00 0 N.D. ppm
15) H,M C12-C22 Hydrocarbons 0.00 0 N.D. ppm
16) h,m C22-C32 Hydrocarbons 0.00 0 N.D. ppm
17) h,m C32-C40 Hydrocarbons 0.00 0 N.D. ppm
18) h,m MISC. TPH (C10-C40) 0.00 0 N.D. ppm
19) h,m C10-C28 Diesel Range 0.00 0 N.D. ppm
20) h,m C28-C40 Oil Range 0.00 0 N.D. ppm
21) H,M C10 - C20 Hydrocarbons 0.00 0 N.D. ppm
22) H,m C20-C36 Hydrocarbons 0.00 0 N.D. ppm
23) h,m TEM (C9-C40) 0.00 0 N.D. ppm
24) h,m TEH (C9-C40) 0.00 0 N.D. ppm
28) h Mineral Spirits 0.00 0 N.D. ppm
29) h Kerosene 0.00 0 N.D. ppm
30) h #6 Fuel Oil 0.00 0 N.D. ppm
31) h Hydraulic Fluid 0.00 0 N.D. ppm
32) C9 0.00 0 N.D. ppm d
33) C20 0.00 0 N.D. ppm d
34) C30 0.00 0 N.D. ppm d

(f)=RT Delta > 1/2 Window  (m)=manual int.
Quantitation Report

Data Path: C:\msdchem\1\data\022019\nData File: 0220_58.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 8:36 am
Operator: 931
Sample: L1071756-02 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 50 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:03:30 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:
### Sample Result Summary

**Organic Analysis Data Sheet**

<table>
<thead>
<tr>
<th>Lab Sample ID:</th>
<th>L1071756-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Sample ID:</td>
<td>EAST</td>
</tr>
<tr>
<td>Lab File ID:</td>
<td>0220_59</td>
</tr>
<tr>
<td>Instrument ID:</td>
<td>SVGC2</td>
</tr>
<tr>
<td>Analytical Batch:</td>
<td>WG1240136</td>
</tr>
<tr>
<td>Dilution Factor:</td>
<td>1</td>
</tr>
<tr>
<td>Analytical Method:</td>
<td>EPH</td>
</tr>
<tr>
<td>Matrix:</td>
<td>Solid</td>
</tr>
<tr>
<td>Total Solids (%):</td>
<td></td>
</tr>
<tr>
<td>SDG:</td>
<td>L1071756</td>
</tr>
<tr>
<td>Collected Date/Time:</td>
<td>02/18/19 10:00</td>
</tr>
<tr>
<td>Received Date/Time:</td>
<td>02/20/19 09:45</td>
</tr>
<tr>
<td>Preparation Date/Time:</td>
<td>02/20/19 20:24</td>
</tr>
<tr>
<td>Analysis Date/Time:</td>
<td>02/21/19 08:50</td>
</tr>
<tr>
<td>Prep Method:</td>
<td>3546</td>
</tr>
<tr>
<td>Sample Vol Used:</td>
<td></td>
</tr>
<tr>
<td>Initial Wt/Vol:</td>
<td>15.20 g</td>
</tr>
<tr>
<td>Final Wt/Vol:</td>
<td>0.5 mL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result mg/kg</th>
<th>Qualifier</th>
<th>MDL mg/kg</th>
<th>RDL mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>4143-17-017</td>
<td>2.13</td>
<td>ND</td>
<td></td>
<td>1.05</td>
<td>4.00</td>
</tr>
</tbody>
</table>
### Quantitation Report

Data Path: `C:\msdchem\data\022019\`
Data File: 0220_59.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019  8:50 am
Operator: 931
Sample: L1071756-03 1X W01240136
Misc: M.I.s on ranges are corrections
ALS Vial: 51 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:03:49 2019
Quant Method: `C:\msdchem\methods\EP02B03AS.M`
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.54f</td>
<td>18970466</td>
<td>21.2307110 ppm</td>
</tr>
<tr>
<td>Spiked Amount 20.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>2.13</td>
<td>64239845</td>
<td>33.8769047 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>64239845</td>
<td>33.8769047 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\nData File : 0220_59.d
Signal(s) : FID1A.CH
Acq On    : 21 Feb 2019   8:50 am
Operator  : 931
Sample    : L1071756-03 1X WG1240136
Misc      : M.I.s on ranges are corrections
ALS Vial  : 51   Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:03:49 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title : QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

![Signal Plot: 0220_59.d/FID1A.CH](Signal: 0220_59.d/FID1A.CH)
<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result</th>
<th>Qualifier</th>
<th>MDL</th>
<th>RDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum</td>
<td></td>
<td>2.13</td>
<td>ND</td>
<td></td>
<td>1.05</td>
<td>4.00</td>
</tr>
<tr>
<td>Hydrocarbon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Result Summary**

**Sample No.:** West

**Lab Sample ID:** L1071756-04
**Client Sample ID:** WEST
**Lab File ID:** 0220_60
**Instrument ID:** SVGC2
**Analytical Batch:** WG1240136
**Dilution Factor:** 1
**Analytical Method:** EPH
**Matrix:** Solid
**Total Solids (%):**

**SDG:** L1071756
**Collected Date/Time:** 02/18/19 16:00
**Received Date/Time:** 02/20/19 09:45
**Preparation Date/Time:** 02/20/19 20:24
**Analysis Date/Time:** 02/21/19 09:04
**Prep Method:** 3546
**Sample Vol Used:**

**Initial Wt/Vol:** 15.57 g
**Final Wt/Vol:** 0.5 mL
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\ 
Data File : 0220_60.d 
Signal(s) : FID1A.CH 
Acq On : 21 Feb 2019 9:04 am 
Operator : 931 
Sample : L1071756-04 1X WG1240136 
Misc : M.I.s on ranges are corrections

ALS Vial : 52  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:29:12 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title : QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.54f</td>
<td>21604534</td>
<td>24.1786153 ppm</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 120.89%</td>
</tr>
</tbody>
</table>

Target Compounds
1) h Gasoline
2) h Gasoline (C7-C12)
3) h,m Diesel Range Organics
4) h,m Residual Range Organics
5) h,m Diesel (C12-C24)
6) h,m Motor Oil (C24-C30)
7) h,m Diesel
8) h,m Motor Oil
9) t,h,m TPH C8-C34
10) h,m EPH Screen
11) H,M C10-C20 Hydrocarbons
12) H,M C20-C34 Hydrocarbons
13) t,m,h Extractable Petroleum...
14) H,M C10-C22 Hydrocarbons
15) H,M C12-C22 Hydrocarbons
16) h,m C22-C32 Hydrocarbons
17) h,m C32-C40 Hydrocarbons
18) h,m MISC. TPH (C10-C40)
19) h,m C10-C28 Diesel Range
20) h,m C28-C40 Oil Range
21) H,M C10 - C20 Hydrocarbons
22) H,m C20-C36 Hydrocarbons
23) h,m TEM (C9-C40)
24) h,m TEH (C9-C40)
25) h Mineral Spirits
26) h Kerosene
27) h #6 Fuel Oil
28) h Hydraulic Fluid
29) C9
30) C20
31) C30

(f)=RT Delta > 1/2 Window   (m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\022019\nData File: 0220_60.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 9:04 am
Operator: 931
Sample: L1071756-04 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 52 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:29:12 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

![Graph of Response vs Time]
## Initial Calibration of Single Component Analytes

**SDG:** L1071756  
**Instrument ID:** SVGC2 - 1  
**Analytical Method:** EPH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extractable Petroleum Hydrocarbon</strong></td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
</tr>
<tr>
<td><strong>O-Terphenyl</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**File ID:** 0122_03 0122_04 0122_05 0122_06 0122_07 0122_08 0122_09 0122_10 0122_11
### CALIBRATION FACTOR
#### INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

<table>
<thead>
<tr>
<th>SDG:</th>
<th>L1071756</th>
<th>Instrument ID:</th>
<th>SVGC2 - 1</th>
<th>Analytical Method:</th>
<th>EPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration (begin) date/time:</td>
<td>01/22/19 16:52</td>
<td>Calibration (end) date/time:</td>
<td>01/22/19 19:50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTRACTABLE PETROLEUM HYDROCARBON</td>
<td>1401000</td>
<td>1261000</td>
<td>1099000</td>
<td>1101000</td>
<td>1094000</td>
<td>1175000</td>
<td>1052000</td>
<td>1055000</td>
</tr>
<tr>
<td>O-TERPHENYL</td>
<td>1184000</td>
<td>931000</td>
<td>892000</td>
<td>762000</td>
<td>819000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File ID:</td>
<td>0122_03</td>
<td>0122_04</td>
<td>0122_05</td>
<td>0122_06</td>
<td>0122_07</td>
<td>0122_08</td>
<td>0122_09</td>
<td>0122_10</td>
</tr>
</tbody>
</table>
## CALIBRATION FACTOR
### INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

<table>
<thead>
<tr>
<th>Analyte</th>
<th>RRF: 10000</th>
<th>RRF. Avg</th>
<th>%RSD</th>
<th>COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTRACTABLE PETROLEUM HYDROCARBON</td>
<td>1121000</td>
<td>1150923</td>
<td>9.88</td>
<td>0.998</td>
</tr>
<tr>
<td>O-TERPHENYL</td>
<td>773000</td>
<td>893539</td>
<td>17.56</td>
<td></td>
</tr>
</tbody>
</table>

**File ID:** 0122_11
Response = 1.16e+006 * Amt - 2.44e+006
Coef of Det (r^2) = 0.997   Curve Fit: wlr(1/a)
Response = $1.16 \times 10^6 \times \text{Amt} - 2.44 \times 10^6$

Coef of Det ($r^2$) = 0.997
Curve Fit: wlr(1/a)

Method Name: C:\msdchem\1\methods\EP02B03AS.M
Response = 1.29e+006 * Amt - 5.12e+006
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)

Method Name:  C:\msdchem\l\methods\EP02B03AS.M
Response = 1.19e+006 * Amt + 2.54e+007
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)

Method Name:  C:\msdchem\1\methods\EP02B03AS.M
Response = 1.09e+006 * Amt - 3.28e+006
Coef of Det (r^2) = 0.997  Curve Fit: wlr(1/a)
Response = 1.12e+006 * Amt + 3.78e+006
Coef of Det (r^2) = 0.999   Curve Fit: wlr(1/a)
Response = 1.18e+006 * Amt + 9.79e+006

Coef of Det (r^2) = 0.999 Curve Fit: wlr(1/a)
Response = 8.81e+005 * Amt + 3.10e+006
Coef of Det (r^2) = 0.999  Curve Fit: wlr(1/a)
Response = 1.19e+006 * Amt + 2.54e+007
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)
Response = 8.81e+005 * Amt + 3.10e+006
Coef of Det (r^2) = 0.999   Curve Fit: wlr(1/a)
Response = 1.16e+006 * Amt - 2.44e+006
Coef of Det (r^2) = 0.997   Curve Fit: wlr(1/a)
Response = 1.26e+006 * Amt - 5.46e+006
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)

Method Name:  C:\msdchem\1\methods\EP02B03AS.M
Response = 1.26e+006 * Amt - 5.46e+006
Coef of Det \( (r^2) = 0.998 \) Curve Fit: wlr(1/a)
Response = 1.09e+006 * Amt + 2.73e+007
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)

Method Name: C:\msdchem\1\methods\EP02B03AS.M
Response = 4.95e+005 * Amt + 2.50e+006
Coef of Det (r^2) = 0.999   Curve Fit: wlr(1/a)
Response = 6.61e+005 * Amt + 1.99e+006
Coef of Det (r^2) = 0.999   Curve Fit: wlr(1/a)

Method Name: C:\msdchem\1\methods\EP02B03AS.M
Response = 1.19e+006 * Amt + 2.54e+007
Coef of Det (r^2) = 0.998   Curve Fit: wlr(1/a)
Response = 1.24e+006 * Amt + 2.10e+006
Coef of Det (r^2) = 0.998 Curve Fit: Linear
Response = 5.82e+005 * Amt + 3.69e+006
Coef of Det (r^2) = 0.999  Curve Fit: wlr(1/a)
Response = 9.42e+005 * Amt + 8.02e+006
Coef of Det (r^2) = 0.998   Curve Fit: Linear
Response = 1.16e+006 * Amt + 2.09e+006
Coef of Det \( (r^2) = 0.998 \)  Curve Fit: wlr(1/a)
### Response Factor Report SVGC2

Method Path: C:\msdchem\1\methods\  
Method File: EP02B03AS.M  
Title:  
Last Update: Sun Feb 03 14:10:50 2019  
Response Via: Initial Calibration

#### Calibration Files

<table>
<thead>
<tr>
<th>Compound</th>
<th>100</th>
<th>200</th>
<th>400</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
<th>Avg</th>
<th>%RSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) h</td>
<td>1.041</td>
<td>1.184</td>
<td>1.110</td>
<td>1.176</td>
<td>1.260</td>
<td>1.148</td>
<td>1.283</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>2) h,m</td>
<td>1.104</td>
<td>1.249</td>
<td>1.173</td>
<td>1.252</td>
<td>1.265</td>
<td>1.361</td>
<td>1.232</td>
<td>1.232 E6</td>
</tr>
<tr>
<td>3) h,m</td>
<td>1.698</td>
<td>1.272</td>
<td>1.024</td>
<td>0.949</td>
<td>0.923</td>
<td>0.990</td>
<td>1.070</td>
<td>1.070 E6</td>
</tr>
<tr>
<td>4) h,m</td>
<td>1.104</td>
<td>1.249</td>
<td>1.173</td>
<td>1.252</td>
<td>1.265</td>
<td>1.361</td>
<td>1.232</td>
<td>1.232 E6</td>
</tr>
<tr>
<td>5) h,m</td>
<td>6.368</td>
<td>6.284</td>
<td>5.979</td>
<td>5.912</td>
<td>5.847</td>
<td>5.294</td>
<td>5.980</td>
<td>5.980 E5</td>
</tr>
<tr>
<td>6) h,m</td>
<td>1.041</td>
<td>1.184</td>
<td>1.110</td>
<td>1.176</td>
<td>1.260</td>
<td>1.148</td>
<td>1.283</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>7) h,m</td>
<td>1.915</td>
<td>1.523</td>
<td>1.272</td>
<td>1.224</td>
<td>1.204</td>
<td>1.297</td>
<td>1.342</td>
<td>1.342 E6</td>
</tr>
<tr>
<td>8) t,h,m</td>
<td>1.491</td>
<td>1.366</td>
<td>1.203</td>
<td>1.211</td>
<td>1.204</td>
<td>1.293</td>
<td>1.259</td>
<td>1.259 E6</td>
</tr>
<tr>
<td>9) t,h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>10) h,m</td>
<td>1.041</td>
<td>1.184</td>
<td>1.110</td>
<td>1.176</td>
<td>1.260</td>
<td>1.148</td>
<td>1.283</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>11) h,m</td>
<td>1.104</td>
<td>1.249</td>
<td>1.173</td>
<td>1.252</td>
<td>1.265</td>
<td>1.361</td>
<td>1.232</td>
<td>1.232 E6</td>
</tr>
<tr>
<td>12) h,m</td>
<td>1.698</td>
<td>1.272</td>
<td>1.024</td>
<td>0.949</td>
<td>0.923</td>
<td>0.990</td>
<td>1.070</td>
<td>1.070 E6</td>
</tr>
<tr>
<td>13) t,m,h</td>
<td>1.104</td>
<td>1.249</td>
<td>1.173</td>
<td>1.252</td>
<td>1.265</td>
<td>1.361</td>
<td>1.232</td>
<td>1.232 E6</td>
</tr>
<tr>
<td>14) h,m</td>
<td>6.368</td>
<td>6.284</td>
<td>5.979</td>
<td>5.912</td>
<td>5.847</td>
<td>5.294</td>
<td>5.980</td>
<td>5.980 E5</td>
</tr>
<tr>
<td>15) h,m</td>
<td>1.041</td>
<td>1.184</td>
<td>1.110</td>
<td>1.176</td>
<td>1.260</td>
<td>1.148</td>
<td>1.283</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>16) h,m</td>
<td>1.915</td>
<td>1.523</td>
<td>1.272</td>
<td>1.224</td>
<td>1.204</td>
<td>1.297</td>
<td>1.342</td>
<td>1.342 E6</td>
</tr>
<tr>
<td>17) h,m</td>
<td>1.491</td>
<td>1.366</td>
<td>1.203</td>
<td>1.211</td>
<td>1.204</td>
<td>1.293</td>
<td>1.259</td>
<td>1.259 E6</td>
</tr>
<tr>
<td>18) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>19) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>20) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>21) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>22) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>23) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>24) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>25) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>26) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>27) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>28) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>29) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>30) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>31) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>32) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>33) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>34) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
<tr>
<td>35) h,m</td>
<td>1.478</td>
<td>1.353</td>
<td>1.191</td>
<td>1.197</td>
<td>1.190</td>
<td>1.278</td>
<td>1.245</td>
<td>1.245 E6</td>
</tr>
</tbody>
</table>

(%) = Out of Range  ### Number of calibration levels exceeded format  ###
### Quantitation Report

**Data Path:** C:\msdchem\data\012219B\n
**Data File:** 0122_03.d

**Signal(s):** FID1A.CH

**Acq On:** 22 Jan 2019 16:52 pm

**Operator:** 473

**Sample:** STD EPH 100 PPM 18K27792

**Misc:** M.I.s on ranges are corrections

**ALS Vial:** 3  Sample Multiplier: 1

**Integration File:** EVENTS.E

**Quant Time:** Jan 22 18:54:06 2019

**Quant Method:** C:\msdchem\1\methods\EP02A22BS.M

**Quant Title:**

**QLast Update:** Tue Jan 22 18:53:03 2019

**Response via:** Initial Calibration

**Integrator:** ChemStation 6890 Scale Mode: Large solvent peaks clipped

### Spiked Amount

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 5.72%</td>
</tr>
</tbody>
</table>

### Target Compounds

1. **h** Gasoline
2. **h** Gasoline (C7-C12)
3. **h,m** Diesel Range Organics
4. **h,m** Residual Range Organics
5. **h,m** Diesel (C12-C24)
6. **h,m** Motor Oil (C24-C30)
7. **h,m** Diesel
8. **h,m** Motor Oil
9. **t,h,m** TPH C8-C34
10. **h,m** EPH Screen
11. **H,M** C10-C20 Hydrocarbons
12. **H,M** C20-C34 Hydrocarbons
13. **t,m,h** Extractable Petroleum...
14. **H,M** C10-C22 Hydrocarbons
15. **H,M** C12-C22 Hydrocarbons
16. **h,m** C22-C32 Hydrocarbons
17. **h,m** C32-C40 Hydrocarbons
18. **h,m** MISC. TPH (C10-C40)
19. **h,m** C10-C28 Diesel Range
20. **h,m** C28-C40 Oil Range
21. **H,m** C10 - C20 Hydrocarbons
22. **H,m** C20-C36 Hydrocarbons
23. **h,m** TEM (C9-C40)
24. **h,m** TEH (C9-C40)
25. **h** Mineral Spirits
26. **h** Kerosene
27. **h** #6 Fuel Oil
28. **h** Hydraulic Fluid
29. **C9**
30. **C20**
31. **C30**

(f)=RT Delta > 1/2 Window
(m)=manual int.

---

**SYSTEM MONITORING COMPOUNDS**

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
</tbody>
</table>

**EP02A22BS.M Tue Jan 22 18:54:13 2019**
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_03.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 16:52 pm
Operator: 473
Sample: STD EPH 100 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 3 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:54:06 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:50:03 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response:

Signal: 0122_03.d\FID1A.CH

Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
O-TERPHENY
Diesel (C1 Extractabl C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy MISC. TPH C10 - C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34
Diesel Ran

EP02A22BS.M Tue Jan 22 18:54:13 2019
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_03.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 16:52 pm
Operator: 473
Sample: STD EPH 100 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 3 Sample Multiplier: 1

Integration File: EVENT.S
Quant Time: Jan 22 18:53:22 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title: 
QLast Update: Tue Jan 22 18:50:03 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info: 

Response:

(35) O-TERPHENYL (S)
3.575min 1.1164268 ppm
response 1293156

(+)= Expected Retention Time
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_03.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 16:52 pm
Operator: 473
Sample: STD EPH 100 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 3 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:53:22 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:50:03 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.: 
Signal Phase: 
Signal Info: 

Response

Signal: 0122_03.d\FID1A.CH

(35) O-TERPHENYL (S)
3.574min 1.1433274 ppm m
response 1324314

(+ = Expected Retention Time)
Data Path : C:\msdchem\data\012219B\nData File : 0122_04.d
Signal(s) : FID1A.CH
Acq On : 22 Jan 2019 17:06 pm
Operator : 473
Sample : STD EPH 200 PPM 18K27792
Misc : M.I.s on ranges are corrections
ALS Vial : 4 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:54:47 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:54:22 2019
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>2811475</td>
<td>2.4485679 ppm m</td>
</tr>
</tbody>
</table>

Spiked Amount 20.0000 Range 50 - 150 Recovery = 12.24%#

Target Compounds
1) h Gasoline (C7-C12)                      | 0.00  | 0        | N.D. ppm   |
2) h Gasoline (C7-C12)                      | 0.00  | 0        | N.D. ppm   |
3) h,m Diesel Range Organics                | 2.13  | 124921937| 110.3251629 ppm |
4) h,m Residual Range Organics              | 4.44  | 127229796| 197.7970888 ppm |
5) h,m Diesel (C12-C24)                     | 2.13  | 124921937| 110.3251629 ppm |
6) h,m Motor Oil (C24-C30)                  | 4.44  | 62837831 | 121.4288620 ppm |
7) h,m Diesel                              | 1.66  | 118380253| 108.4649360 ppm |
8) h,m Motor Oil                            | 3.75  | 152295907| 187.3341414 ppm |
9) t,h,m TPH C8-C34                         | 1.12  | 240763472| 226.4342819 ppm |
10) h,m EPH Screen                          | 1.44  | 273292034| 227.4923849 ppm |
11) H,M C10-C20 Hydrocarbons                | 1.66  | 118380253| 108.4649360 ppm |
12) H,M C20-C34 Hydrocarbons                | 3.75  | 117659515| 120.5360721 ppm |
13) t,m,h Extractable Petroleum...          | 2.13  | 252159090| 229.5937001 ppm |
14) H,M C10-C22 Hydrocarbons                | 1.66  | 129231549| 108.9756589 ppm |
15) H,M C12-C22 Hydrocarbons                | 2.13  | 110710360| 108.8778634 ppm |
16) h,m C22-C32 Hydrocarbons                | 4.10  | 92667383 | 121.3195333 ppm |
17) h,m C32-C40 Hydrocarbons                | 0.00  | 0        | N.D. ppm   |
18) h,m MISIC. TPH (C10-C40)                | 1.66  | 270680279| 228.7305924 ppm |
19) h,m C10-C28 Diesel Range                | 0.00  | 0        | N.D. ppm   |
20) h,m C28-C40 Oil Range                   | 0.00  | 0        | N.D. ppm   |
21) H,M C10 - C20 Hydrocarbons              | 1.66  | 118380253| 108.4649360 ppm |
22) H,m C20-C36 Hydrocarbons                | 3.75  | 130005018| 120.5391766 ppm |
23) h,m TEM (C9-C40)                        | 1.42  | 273418034| 227.5802851 ppm |
24) h,m TEH (C9-C40)                        | 1.42  | 273418034| 227.5802851 ppm |
25) h Mineral Spirits                       | 0.00  | 0        | N.D. ppm   |
26) h Kerosene                              | 0.00  | 0        | N.D. ppm   |
27) h #6 Fuel Oil                           | 0.00  | 0        | N.D. ppm   |
28) h Hydraulic Fluid                       | 0.00  | 0        | N.D. ppm   |
29) C9                                      | 0.00  | 0        | N.D. ppm d |
30) C20                                     | 0.00  | 0        | N.D. ppm d |
31) C30                                     | 0.00  | 0        | N.D. ppm d |
32) C9                                      | 0.00  | 0        | N.D. ppm d |
(f)=RT Delta > 1/2 Window
(m)=manual int.
Quantitation Report

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_04.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:06 pm
Operator: 473
Sample: STD EPH 200 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 4 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:54:47 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:54:22 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Response_
Data Path : C:\msdchem\1\data\012219B\nData File : 0122_04.d
Signal(s) : FID1A.CH
Acq On : 22 Jan 2019  17:06 pm
Operator : 473
Sample : STD EPH 200 PPM 18K27792
Misc : M.I.s on ranges are corrections
ALS Vial : 4  Sample Multiplier: 1
Integration File: EVENTS.E
Quant Time: Jan 22 18:54:25 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:54:22 2019
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Signal: 0122_04.d\FID1A.CH
3.567

(35) O-TERPHENYL (S)
3.567min  2.4342419 ppm
response 2795026

(+) = Expected Retention Time
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_04.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:06 pm
Operator: 473
Sample: STD EPH 200 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 4 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:54:25 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:54:22 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info:

(35) O-TERPHENYL (S)
3.567 min 2.4485679 ppm m
response 2811475

(+)= Expected Retention Time
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\data\012219B\  
Data File : 0122_05.d  
Signal(s) : FID1A.CH  
Acq On : 22 Jan 2019  17:20 pm  
Operator : 473  
Sample : STD EPH 400 PPM 18K727792  
MISC : M.I.s on ranges are corrections

Integration File: EVENTS.E  
Quant Time: Jan 22 19:00:54 2019  
Quant Method : C:\msdchem\1\methods\EP02A22BS.M  
Quant Title :  
QLast Update : Tue Jan 22 18:54:56 2019  
Response via : Initial Calibration

Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :  
Signal Phase :  
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>5240536</td>
<td>4.5873211 ppm m</td>
</tr>
<tr>
<td>Spiked Amount 20.0000</td>
<td></td>
<td>Range 50 - 150</td>
<td>Recovery = 22.94%</td>
</tr>
<tr>
<td>Target Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>2.13</td>
<td>234610165</td>
<td>194.4661810 ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>4.44</td>
<td>204842071</td>
<td>275.4925359 ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>2.13</td>
<td>234610165</td>
<td>194.4661810 ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>4.44</td>
<td>119572263</td>
<td>215.3014052 ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>1.66</td>
<td>221918787</td>
<td>192.8122599 ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>3.75</td>
<td>254376135</td>
<td>267.3574571 ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>1.12</td>
<td>448514944</td>
<td>400.6566095 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>1.44</td>
<td>481358880</td>
<td>395.7486619 ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>1.66</td>
<td>221918787</td>
<td>192.8122599 ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>3.75</td>
<td>217729400</td>
<td>209.8070201 ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>439506069</td>
<td>395.0661939 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>1.66</td>
<td>243312305</td>
<td>193.1690862 ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>2.13</td>
<td>206493775</td>
<td>191.7168078 ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>4.10</td>
<td>174764323</td>
<td>213.4419216 ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>1.66</td>
<td>476324599</td>
<td>395.7316000 ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) h,M C10 - C20 Hydrocarbons</td>
<td>1.66</td>
<td>221918787</td>
<td>192.8122599 ppm</td>
</tr>
<tr>
<td>22) h,m C20-C36 Hydrocarbons</td>
<td>3.75</td>
<td>233428345</td>
<td>207.9623281 ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>1.42</td>
<td>481612842</td>
<td>395.9054911 ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>1.42</td>
<td>481612842</td>
<td>395.9054911 ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  (m)=manual int.
Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\012219B\nData File : 0122_05.d
Signal(s) : FID1A.CH
Acq On : 22 Jan 2019  17:20 pm
Operator : 473
Sample : STD EPH 400 PPM 18k727792
Misc : M.I.s on ranges are corrections
ALS Vial : 5   Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 19:00:54 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:54:56 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Signal: 0122_05.d\FID1A.CH
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\012219B\  
Data File : 0122_05.d  
Signal(s) : FID1A.CH  
Acq On : 22 Jan 2019  17:20 pm  
Operator : 473  
Sample : STD EPH 400 PPM 18K727792  
Misc : M.I.s on ranges are corrections  
ALS Vial : 5   Sample Multiplier: 1  
Integration File: EVENTS.E  
Quant Time: Jan 22 18:55:00 2019  
Quant Method : C:\msdchem\1\methods\EP02A22BS.M  
Quant Title :  
QLast Update : Tue Jan 22 18:54:56 2019  
Response via : Initial Calibration  
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped  
Volume Inj. :  
Signal Phase :  
Signal Info :

Response

Signal: 0122_05.d\FID1A.CH

3.567

(+)= Expected Retention Time

(35) O-TERPHENYL (S)

3.567min   6.2282124 ppm

response   7115083

EP02A22BS.M Tue Jan 22 18:55:22 2019
(35) O-TERPHENYL (S)

3.567 min 4.587 ppm m

response 5240536

(+)= Expected Retention Time
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\data\012219B\nData File: 0122_06.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:33 pm
Operator: 473
Sample: STD EPH 1000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 6 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:05 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:55:33 2019
Response via: Initial Calibration

Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>11839789</td>
<td>10.3027159 ppm m</td>
</tr>
</tbody>
</table>

Spiked Amount: 20.0000 Range: 50 - 150 Recovery = 51.51%

**Target Compounds**

1) h Gasoline 0.00 0 N.D. ppm
2) h Gasoline (C7-C12) 0.00 0 N.D. ppm
3) h,m Diesel Range Organics 2.13 626063121 502.0428731 ppm
4) h,m Residual Range Organics 4.44 474396266 548.3873565 ppm
5) h,m Diesel (C12-C24) 2.13 626063121 502.0428731 ppm
6) h,m Motor Oil (C24-C30) 4.44 295597443 515.9544378 ppm
7) h,m Diesel 1.66 585083314 494.3976120 ppm
8) h,m Motor Oil 3.75 611928164 551.3529851 ppm
9) t,h,m TPH C8-C34 1.12 1154304570 1006.3644138 ppm
10) h,M EPH Screen 1.44 1210843357 981.2643295 ppm
11) H,M C10-C20 Hydrocarbons 1.66 585083314 494.3976120 ppm
12) H,M C20-C34 Hydrocarbons 3.75 547740802 514.9314419 ppm
13) t,m,h Extractable Petroleum... 2.13 1100724791 995.6566536 ppm
14) H,M C10-C22 Hydrocarbons 1.66 645852258 496.3010883 ppm
15) C12-C22 Hydrocarbons 2.13 549408489 494.6471141 ppm
16) h,m C22-C32 Hydrocarbons 4.10 437457142 518.5434488 ppm
17) h,m C32-C40 Hydrocarbons 0.00 0 N.D. ppm
18) h,m MISC. TPH (C10-C40) 1.66 1197168560 996.9805803 ppm
19) h,m C10-C28 Diesel Range 0.00 0 N.D. ppm
20) h,m C28-C40 Oil Range 0.00 0 N.D. ppm
21) H,M C10 - C20 Hydrocarbons 1.66 585083314 494.3976120 ppm
22) H,M C20-C36 Hydrocarbons 3.75 579703374 511.5235571 ppm
23) h,m TEM (C9-C40) 1.42 1211550502 981.6542702 ppm
24) h,m TEH (C9-C40) 1.42 1211550502 981.6542702 ppm
25) h Mineral Spirits 0.00 0 N.D. ppm
26) h Kerosene 0.00 0 N.D. ppm
27) h #6 Fuel Oil 0.00 0 N.D. ppm
28) h Hydraulic Fluid 0.00 0 N.D. ppm
29) C9 0.00 0 N.D. ppm d
30) C20 0.00 0 N.D. ppm d
31) C30 0.00 0 N.D. ppm d

(f)=RT Delta > 1/2 Window  (m)=manual int.
Data Path: C:\msdchem\1\data\012219B\nData File: 0122_06.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:33 pm
Operator: 473
Sample: STD EPH 1000 PPM 18K27792
 Misc: M.I.s on ranges are corrections
ALS Vial: 6 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:05 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:55:33 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response via:

Signal: 0122_06.d\FID1A.CH

Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
O-TERPENY
Diesel (C1 Extractabl C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy
MISC. TPH C10 - C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34
Diesel RAN
Data Path: C:\msdchem\1\data\012219B\nData File: 0122_06.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:33 pm
Operator: 473
Sample: STD EPH 1000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 6 Sample Multiplier: 1
Integration File: EVENTS.E
Quant Time: Jan 22 18:55:37 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title: 
QLast Update: Tue Jan 22 18:55:33 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info: 

(35) O-TERPHENYL (S)
3.567min 15.0337965 ppm
response 17276705

(+) = Expected Retention Time
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\ Data File: 0122_06.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:33 pm
Operator: 473
Sample: STD EPH 1000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 6 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:55:37 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:55:33 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response:

Signal: 0122_06.d\FID1A.CH

(35) O-TERPHENYL (S)
3.567 min 10.3027159 ppm m
response 11839789

(+)=Expected Retention Time
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\012219B\  
Data File : 0122_07.d  
Signal(s) : FID1A.CH  
Acq On : 22 Jan 2019 17:47 pm  
Operator : 473  
Sample : STD EPH 2000 PPM 18K27792  
MISC : M.I.s on ranges are corrections  
ALS Vial : 7  
Sample Multiplier: 1

Integration File: EVENTS.E  
Quant Time: Jan 22 18:56:49 2019  
Quant Method : C:\msdchem\1\methods\EP02A22BS.M  
Quant Title :  
QLast Update : Tue Jan 22 18:56:16 2019  
Response via : Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :  
Signal Phase :  
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>18621838</td>
<td>16.2416880 ppm m</td>
</tr>
<tr>
<td><strong>Spiked Amount</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range 50 - 150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery</td>
<td></td>
<td></td>
<td>81.21%</td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>2.13</td>
<td>1265488856</td>
<td>1003.5987893 ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>4.44</td>
<td>922917008</td>
<td>1004.6379857 ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>2.13</td>
<td>1265488856</td>
<td>1003.5987893 ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>4.44</td>
<td>584736101</td>
<td>1010.8741743 ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>1.66</td>
<td>1176031322</td>
<td>984.0425467 ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>3.75</td>
<td>1203612069</td>
<td>1022.7134622 ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>1.12</td>
<td>2310036517</td>
<td>1997.6542355 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>1.44</td>
<td>2407286759</td>
<td>1924.5879570 ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>1.66</td>
<td>1176031322</td>
<td>984.0425467 ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>3.75</td>
<td>1092170901</td>
<td>1019.4333198 ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>2188828255</td>
<td>1985.1256361 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>1.66</td>
<td>1300819587</td>
<td>988.5235386 ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>2.13</td>
<td>1109751331</td>
<td>988.7177039 ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>4.10</td>
<td>870377885</td>
<td>1022.387018 ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>1.66</td>
<td>2379896511</td>
<td>1984.2774621 ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>1.66</td>
<td>1176031322</td>
<td>984.0425467 ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>3.75</td>
<td>1151689682</td>
<td>1014.3260048 ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>1.42</td>
<td>2408760032</td>
<td>1925.2905476 ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>1.42</td>
<td>2408760032</td>
<td>1925.2905476 ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_07.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:47 pm
Operator: 473
Sample: STD EPH 2000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 7 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:49 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title: 
QLast Update: Tue Jan 22 18:56:16 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info: 

---

Signal: 0122_07.d\FID1A.CH

---

EP02A22BS.M Tue Jan 22 18:56:53 2019
ACCOUNT: S&ME Inc. - Knoxville
PROJECT: 4143-17-017
SDG: L107756
DATE/TIME: 02/27/19 12:30
PAGE: 65 of 115
Data Path: C:\msdchem\1\data\012219B\nData File: 0122_07.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 17:47 pm
Operator: 473
Sample: STD EPH 2000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 7 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:19 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:56:16 2019
Response via: Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response:

Signal: 0122_07.d\FID1A.CH

3.566

(+) = Expected Retention Time

(35) O-TERPHENYL (S)
3.566min 49.7318558 ppm
response 57019848

EP02A22BS.M Tue Jan 22 18:56:39 2019
Signal(s) : FID1A.CH
Acq On    : 22 Jan 2019  17:47 pm
Operator   : 473
Sample     : STD EPH 2000 PPM 18K27792
Misc       : M.I.s on ranges are corrections
ALS Vial   : 7    Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:19 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title : 
QLast Update : Tue Jan 22 18:56:16 2019
Response via : Initial Calibration
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response

Signal: 0122_07.d\FID1A.CH

(35) O-TERPHENYL (S)
3.566min  16.2416880 ppm m
response  18621838

(+ ) = Expected Retention Time
Quantitation Report

Data Path : C:\msdchem\1\data\012219B\
Data File : 0122_08.d
Signal(s) : FID1A.CH
Acq On : 22 Jan 2019  18:01 pm
Operator : 473
Sample : STD EPH 4000 PPM 18K27792
Misc : M.I.s on ranges are corrections
ALS Vial : 8    Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:57:20 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:56:55 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>35684971</td>
<td>31.1342892 ppm m</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>50 - 150</td>
<td>Recovery = 155.67%</td>
</tr>
</tbody>
</table>

Target Compounds
1) h Gasoline (C7-C12) 0.00 0 N.D. ppm
2) h Gasoline (C7-C12) 0.00 0 N.D. ppm
3) h,m Diesel Range Organics 2.13 2721856619 2147.972049 ppm
4) h,m Diesel Range Organics 4.44 1979164879 2102.368181 ppm
5) h,m Diesel (C12-C24) 2.13 2721856619 2147.972049 ppm
6) h,m Motor Oil (C24-C30) 4.44 1249889726 2143.420992 ppm
7) h,m Diesel 1.66 2520039862 2101.813915 ppm
8) h,m Motor Oil 3.75 2594381774 2154.5337958 ppm
9) t,h,m TPH C8-C34 1.12 4974806748 4282.983263 ppm
10) h,m EPH Screen 1.44 5172083576 4105.8720681 ppm
11) H,M C10-C20 Hydrocarbons 1.66 2520039862 2101.813915 ppm
12) H,M C20-C34 Hydrocarbons 3.75 2368761192 2196.3487417 ppm
13) t,m,h Extractable Petroleum... 2.13 4699146455 4266.196585 ppm
14) H,M C10-C12 Hydrocarbons 1.66 2795267191 2115.3744917 ppm
15) H,M C12-C22 Hydrocarbons 2.13 2381130674 2113.2188118 ppm
16) h,m C22-C32 Hydrocarbons 4.10 1878019555 2188.4090393 ppm
17) H,M C32-C40 Hydrocarbons 0.00 0 N.D. ppm
18) H,m MISC. TPH (C10-C40) 1.66 5113282972 4265.311347 ppm
19) h,m C10-C28 Diesel Range 0.00 0 N.D. ppm
20) h,m C28-C40 Oil Range 0.00 0 N.D. ppm
21) H,M C10 - C20 Hydrocarbons 1.66 2520039862 2101.8139153 ppm
22) H,m C20-C36 Hydrocarbons 3.75 2496727424 2190.7734932 ppm
23) h,m TEM (C9-C40) 1.42 5175562473 4107.3601417 ppm
24) h,m TEH (C9-C40) 1.42 5175562473 4107.3601417 ppm
25) h Mineral Spirits 0.00 0 N.D. ppm
29) h Kerosene 0.00 0 N.D. ppm
30) h #6 Fuel Oil 0.00 0 N.D. ppm
32) C9 0.00 0 N.D. ppm
33) C20 0.00 0 N.D. ppm
34) C30 0.00 0 N.D. ppm

(f)=RT Delta > 1/2 Window (m)=manual int.
Data Path: C:\msdchem\1\data\012219B\nData File: 0122_08.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:01 pm
Operator: 473
Sample: STD EPH 4000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 8 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:57:20 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:56:55 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response:

Signal: 0122_08.d\FID1A.CH

Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
O-TERPENES
Diesel (C1 Extractabl C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy MISC. TPH C10 - C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34

EP02A22BS.M Tue Jan 22 18:57:24 2019
ACCOUNT: S&ME Inc. - Knoxville
PROJECT: 4143-17-017
SDG: L107156
DATE/TIME: 02/27/19 12:30
Page: 2
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_08.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:01 pm
Operator: 473
Sample: STD EPH 4000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 8 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:56:59 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:56:55 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

(35) O-TERPHENYL (S)
3.568min 58.4483932 ppm
response 66991387

(+) = Expected Retention Time
(35) O-TERPHENYL (S)

3.568min 31.1342892 ppm m
response 35684971

(+) = Expected Retention Time
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\012219B\  
Data File : 0122_09.d  
Signal(s) : FID1A.CH  
Acq On : 22 Jan 2019  18:15 pm  
Operator : 473  
Sample : STD EPH 5000 PPM 18K27792  
Misc : M.I.s on ranges are corrections  
ALS Vial : 9  Sample Multiplier: 1  

Integration File: EVENTS.E  
Quant Time: Jan 22 18:57:52 2019  
Quant Method : C:\msdchem\1\methods\EP02A22BS.M  
Quant Title :  
QLast Update : Tue Jan 22 18:57:27 2019  
Response via : Initial Calibration  
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :  
Signal Phase :  
Signal Info :  

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>38097935</td>
<td>33.8913790 ppm m</td>
</tr>
<tr>
<td><strong>Spiked Amount</strong> 20.0000 Range 50 - 150 Recovery = 169.46%#</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>2.13</td>
<td>3031795367</td>
<td>2396.3357290 ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>4.44</td>
<td>2226418346</td>
<td>2349.6489273 ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>2.13</td>
<td>3031795367</td>
<td>2396.3357290 ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>4.44</td>
<td>1403661648</td>
<td>2384.8581544 ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>1.66</td>
<td>2798054456</td>
<td>2347.6025213 ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>3.75</td>
<td>2928816054</td>
<td>2412.7855900 ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>1.12</td>
<td>5571641132</td>
<td>4787.0480426 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>1.44</td>
<td>5793688758</td>
<td>4593.3129386 ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>1.66</td>
<td>2798054456</td>
<td>2347.6025213 ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>3.75</td>
<td>2673915657</td>
<td>2450.3873882 ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>5258214318</td>
<td>4766.0247967 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>1.66</td>
<td>3112247868</td>
<td>2365.5897538 ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>2.13</td>
<td>2643588896</td>
<td>2358.0212690 ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>4.10</td>
<td>2115574078</td>
<td>2436.0943666 ppm</td>
</tr>
<tr>
<td>17) h,m C29-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>1.66</td>
<td>5726873290</td>
<td>4770.2962177 ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>1.66</td>
<td>2798054456</td>
<td>2347.6025213 ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>3.75</td>
<td>2818314716</td>
<td>2445.4174972 ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>1.42</td>
<td>5798075034</td>
<td>4595.0153817 ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>1.42</td>
<td>5798075034</td>
<td>4595.0153817 ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_09.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:15 pm
Operator: 473
Sample: STD EPH 5000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 9 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:57:52 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:57:27 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Response

Signal: 0122_09.d\FID1A.CH

Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
O-TERPENY
Diesel (C1 Extractabl C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy MISC. TPH C10 - C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34
Diesel Ran
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_09.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:15 pm
Operator: 473
Sample: STD EPH 5000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 9 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:57:31 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:57:27 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj:
Signal Phase:
Signal Info:

Response

Signal: 0122_09.d\FID1A.CH

(35) O-TERPHENYL (S)
3.567min 66.3088879 ppm
response 74539066

(+) = Expected Retention Time

EP02A22BS.M Tue Jan 22 18:57:46 2019
Page: 1
S&ME Inc. - Knoxville
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_09.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:15 pm
Operator: 473
Sample: STD EPH 5000 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 9 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:57:31 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:57:27 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response

Signal: 0122_09.d\FiD1A.CH
3.567

BA267

(35) O-TERPHENYL (S)
3.567 min 33.8913790 ppm m
response 38097935

(+ = Expected Retention Time

EP02A22BS.M Tue Jan 22 18:57:54 2019
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\\data\012219B\ 
Data File : 0122_10.d 
Signal(s) : FID1A.CH 
Acq On : 22 Jan 2019  18:28 pm 
Operator : 473 
Sample : STD EPH 7500 PPM 18K27792 
Misc : M.I.s on ranges are corrections 
ALS Vial : 10  Sample Multiplier: 1 

Integration File: EVENTS.E 
Quant Time: Jan 22 18:58:23 2019 
Quant Method : C:\msdchem\1\methods\EP02A22BS.M 
Quant Title : 
QLast Update : Tue Jan 22 18:57:58 2019 
Response via : Initial Calibration 
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped 

Volume Inj. : 
Signal Phase : 
Signal Info : 

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S  2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S  2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S  1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S  O-TERPHENYL</td>
<td>3.57</td>
<td>6140039</td>
<td>55.8354330 ppm m</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 279.18%#</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Target Compounds</strong></th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) h  Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h  Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>2.13</td>
<td>4456159894</td>
<td>352.6086183 ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>4.44</td>
<td>34624464721</td>
<td>3641.0272638 ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>2.13</td>
<td>4456159894</td>
<td>352.6086183 ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>4.44</td>
<td>2137864328</td>
<td>3610.9399762 ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>1.66</td>
<td>4101148747</td>
<td>364.043516 ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>3.75</td>
<td>4552828835</td>
<td>3731.143198 ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>1.12</td>
<td>8395310027</td>
<td>7208.8995481 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>1.44</td>
<td>8757441800</td>
<td>6942.9195803 ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>1.66</td>
<td>4101148747</td>
<td>3464.043516 ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>3.75</td>
<td>4137392983</td>
<td>3755.7235608 ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>7915308197</td>
<td>7180.2771002 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>1.66</td>
<td>4594471104</td>
<td>3508.9527857 ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>2.13</td>
<td>3857865619</td>
<td>3458.7523920 ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>4.10</td>
<td>3247052050</td>
<td>3705.1277804 ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>1.66</td>
<td>8651913683</td>
<td>7213.9768174 ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>1.66</td>
<td>4101148747</td>
<td>3464.043516 ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>3.75</td>
<td>4374094243</td>
<td>3763.7740149 ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>1.42</td>
<td>8765038854</td>
<td>6945.722703 ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>1.42</td>
<td>8765038854</td>
<td>6945.722703 ppm</td>
</tr>
<tr>
<td>28) h  Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h  Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h  #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h  Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  (m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:/msdchem/1/data/012219B/
Data File: 0122_10.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:28 pm
Operator: 473
Sample: STD EPH 7500 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 10 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: 18:58:23 2019
Quant Method: C:/msdchem/1/methods/EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:57:58 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.: 
Signal Phase: 
Signal Info: 

Signal: 0122_10.d/FID1A.CH

Response

Time

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0
-2000000 -1000000 0 1000000 2000000 3000000 4000000 5000000 6000000 7000000 8000000 9000000 10000000 1.1e+07 1.2e+07 1.3e+07 1.4e+07 1.5e+07 1.6e+07 1.7e+07 1.8e+07 1.9e+07
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_10.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:28 pm
Operator: 473
Sample: STD EPH 7500 PPM 18K27792
Misc: M.I.s on ranges are corrections
ALS Vial: 10  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:02 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:57:58 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info:

Response

Signal: 0122_10.d\FID1A.CH

3.570

(+) = Expected Retention Time

(35) O-TERPHENYL (S)
3.570min 176.3194855 ppm
response 193893064

Page: 1
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\012219B\nData File : 0122_10.d
Signal(s) : FID1A.CH
Acq On   : 22 Jan 2019  18:28 pm
Operator  : 473
Sample   : STD EPH 7500 PPM 18K27792
Misc     : M.I.s on ranges are corrections
ALS Vial : 10  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:02 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:57:58 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response of Signal: 0122_10.d\FID1A.CH

(35) O-TERPHENYL (S)
3.570min  55.8353430 ppm m
response  61400393

(+ ) = Expected Retention Time

EP02A22BS.M Tue Jan 22 18:58:26 2019
### Quantitation Report

Data Path: C:\msdchem\data\012219B\nData File: 0122_11.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 18:42 pm
Operator: 473
Sample: STD EPH 10000 PPM 18527792
Misc: M.I.s on ranges are corrections
ALS Vial: 11 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:56 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:58:30 2019
Response via: Initial Calibration

**Signal Phase:**
**Signal Info:**

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.57</td>
<td>7734077</td>
<td>70.9125405 ppm m</td>
</tr>
<tr>
<td><strong>Spiked Amount</strong></td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 354.56%#</td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>2.13</td>
<td>6392715174</td>
<td>5094.9712127 ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>4.44</td>
<td>4816196737</td>
<td>5064.7229475 ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>2.13</td>
<td>6392715174</td>
<td>5094.9712127 ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>4.44</td>
<td>2933863954</td>
<td>4975.745566 ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>1.66</td>
<td>5906398472</td>
<td>5059.3007531 ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>3.75</td>
<td>6279327191</td>
<td>5107.7889188 ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>1.12</td>
<td>11809275853</td>
<td>10173.2822990 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>1.44</td>
<td>12326372957</td>
<td>9787.0667191 ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>1.66</td>
<td>5906398472</td>
<td>5059.3007531 ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>3.75</td>
<td>5687029754</td>
<td>5116.668521 ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>11208149057</td>
<td>10221.7264100 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>1.66</td>
<td>6546416165</td>
<td>5064.1218967 ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>2.13</td>
<td>5587052312</td>
<td>5076.5920825 ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>4.10</td>
<td>4466050069</td>
<td>5070.553662 ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>1.66</td>
<td>12185261910</td>
<td>10202.5163575 ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,m C10 - C20 Hydrocarbons</td>
<td>1.66</td>
<td>5906398472</td>
<td>5059.3007531 ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>3.75</td>
<td>6025721513</td>
<td>5138.7271565 ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>1.42</td>
<td>12337672628</td>
<td>9790.6181972 ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>1.42</td>
<td>12337672628</td>
<td>9790.6181972 ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window        (m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_11.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019  18:42 pm
Operator: 473
Sample: STD EPH 10000 PPM 18527792
Misc: M.I.s on ranges are corrections
ALS Vial: 11 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:56 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:58:30 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response:

Signal: 0122_11.d\FID1A.CH

Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
O-TERPHENY
Diesel (C1 Extractabl C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy MISC. TPH C10 - C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34
Diesel Ran
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\012219B\nData File : 0122_11.d
Signal(s) : FID1A.CH
Acq On : 22 Jan 2019  18:42 pm
Operator : 473
Sample : STD EPH 10000 PPM 18527792
Misc : M.I.s on ranges are corrections
ALS Vial : 11  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:35 2019
Quant Method : C:\msdchem\1\methods\EP02A22BS.M
Quant Title :
QLast Update : Tue Jan 22 18:58:30 2019
Response via : Initial Calibration
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Response

Signal: 0122_11.d\FID1A.CH

(35) O-TERPHENYL (S)
3.570min  141.5983150 ppm
response  154434223

(+) = Expected Retention Time
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_11.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019  18:42 pm
Operator: 473
Sample: STD EPH 10000 PPM 18527792
Misc: M.I.s on ranges are corrections
ALS Vial: 11  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 18:58:35 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 18:58:30 2019
Response via: Initial Calibration
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Response

Signal: 0122_11.d\FID1A.CH

3.571
BA267

(35) O-TERPHENYL (S)
3.571min  70.9125405 ppm m
response  77340773

(+) = Expected Retention Time
# CONTINUING CALIBRATION VERIFICATION

## SINGLE COMPONENT ANALYTES

<table>
<thead>
<tr>
<th>Analyte</th>
<th>True Value</th>
<th>Result</th>
<th>Result % Rec.</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTRACTABLE PETROLEUM HYDROCARBON</td>
<td>1500</td>
<td>1490</td>
<td>99.30</td>
<td>80 - 120</td>
</tr>
</tbody>
</table>

**SDG:** L1071756  
**Instrument ID:** SVGC2  
**Lab File ID:** 0122_17-8  
**Analytical Method:** EPH  
**Calibration (begin) date/time:** 01/22/19 16:52  
**Calibration (end) date/time:** 01/22/19 19:50  
**Analysis date/time:** 01/22/19 20:04  
**Sample ID:** SSCV
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\data\012219B\nDATA File: 0122_17.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 20:04 pm
Operator: 473
Sample: SSCV EPH 1500 PPM 18K27822
Misc: M.I.s on ranges are corrections
ALS Vial: 17 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 20:29:50 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 20:02:20 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td><strong>Spiked Amount</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 0.00%#</td>
</tr>
</tbody>
</table>

| Target Compounds                |      |          |            |
| 1) h Gasoline                   | 0.00 | 0        | N.D. ppm   |
| 2) h Gasoline (C7-C12)          | 0.00 | 0        | N.D. ppm   |
| 3) h,m Diesel Range Organics    | 2.13 | 942433469 | 754.9943395 ppm |
| 4) h,m Residual Range Organics  | 4.44 | 710624443 | 745.7498066 ppm |
| 5) h,m Diesel (C12-C24)         | 2.13 | 942433469 | 754.9943395 ppm |
| 6) h,m Motor Oil (C24-C30)      | 4.44 | 396060572 | 674.2970634 ppm |
| 7) h,m Motor Oil                | 1.66 | 844179972 | 730.4656023 ppm |
| 8) h,m Motor Oil                | 3.75 | 960254018 | 775.5849960 ppm |
| 9) t,h,m TPH C8-C34             | 1.12 | 1745203331| 1503.8917475 ppm |
| 10) h,m EPH Screen              | 1.44 | 1837444340| 1459.9360215 ppm |
| 11) H,M C10-C20 Hydrocarbons    | 1.66 | 844179972 | 730.4656023 ppm |
| 12) H,M C20-C34 Hydrocarbons    | 3.75 | 849103220 | 756.5745435 ppm |
| 13) t,m,h Extractable Petroleum | 2.13 | 1653766396| 1490.4457363 ppm |
| 14) H,M C10-C22 Hydrocarbons    | 1.66 | 953175004 | 742.5221528 ppm |
| 15) H,M C12-C22 Hydrocarbons    | 2.13 | 802097101 | 735.9560102 ppm |
| 16) h,m C22-C32 Hydrocarbons    | 4.10 | 647622141 | 731.5862144 ppm |
| 17) h,m C32-C40 Hydrocarbons    | 0.00 | 0        | N.D. ppm   |
| 18) h,m MISC. TPH (C10-C40)     | 1.66 | 1804844299| 1496.0413252 ppm |
| 19) h,m C10-C28 Diesel Range    | 1.66 | 1367362490| 1128.2289166 ppm |
| 20) h,m C28-C40 Oil Range       | 5.05 | 436795376 | 345.8551414 ppm |
| 21) H,M C10 - C20 Hydrocarbons  | 1.66 | 844179972 | 730.4656023 ppm |
| 22) H,m C20-C36 Hydrocarbons    | 3.75 | 910465485 | 764.2752553 ppm |
| 23) h,m TEM (C9-C40)            | 1.42 | 1839422736| 1460.5530786 ppm |
| 24) h,m TEH (C9-C40)            | 1.42 | 1839422736| 1460.5530786 ppm |
| 25) h Mineral Spirits            | 0.00 | 0        | N.D. ppm   |
| 29) h Kerosene                   | 0.00 | 0        | N.D. ppm   |
| 30) h #6 Fuel Oil                | 0.00 | 0        | N.D. ppm   |
| 31) h Hydraulic Fluid            | 0.00 | 0        | N.D. ppm   |
| 32) C9                           | 0.00 | 0        | N.D. ppm d |
| 33) C20                          | 0.00 | 0        | N.D. ppm d |
| 34) C30                          | 0.00 | 0        | N.D. ppm d |

(f)=RT Delta > 1/2 Window        (m)=manual int.
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\012219B\nData File: 0122_17.d
Signal(s): FID1A.CH
Acq On: 22 Jan 2019 20:04 pm
Operator: 473
Sample: SSCV EPH 1500 PPM 18K27822
Misc: M.I.s on ranges are corrections
ALS Vial: 17 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Jan 22 20:29:50 2019
Quant Method: C:\msdchem\1\methods\EP02A22BS.M
Quant Title:
QLast Update: Tue Jan 22 20:02:20 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.: 
Signal Phase: 
Signal Info: 

Response:

Signal: 0122_17.d\FID1A.CH

C28-C40 Oi
Motor Oil Residual R
C22-C32 Hy
Motor Oil C20-C34 Hy C20-C36 Hy
Diesel (C1 Extractable
C12-C22 Hy
Diesel C10-C20 Hy C10-C22 Hy MISC TPH C10-C28 Di C10-C20
EPH Screen TEM (C9-C4 TEH (C9-C4
TPH C8-C34 Diesel Ran

EP02A22BS.M Tue Jan 22 23:42:01 2019
### CONTINUING CALIBRATION VERIFICATION
#### SINGLE COMPONENT ANALYTES

<table>
<thead>
<tr>
<th>Analyte</th>
<th>True Value</th>
<th>Result</th>
<th>% Rec.</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTRACTABLE PETROLEUM HYDROCARBON</td>
<td>4000 mg/l</td>
<td>4045 mg/l</td>
<td>101</td>
<td>75 - 125</td>
</tr>
<tr>
<td>O-TERPHENYL</td>
<td>20 mg/l</td>
<td>23.72 mg/l</td>
<td>119</td>
<td>50 - 150</td>
</tr>
</tbody>
</table>
### Quantitation Report

**Data Path:** C:\msdchem\data\022019\
**Data File:** 0220_49.d
**Signal(s):** FID1A.CH
**Acq On:** 21 Feb 2019 3:11 am
**Operator:** 931
**Sample:** CCV EPH 4000 ppm 19B14173 07/29/19
**Misc:** M.I.s on ranges are corrections
**ALS Vial:** 3 Sample Multiplier: 1

**Integration File:** EVENTS.E
**Quant Method:** C:\msdchem\1\methods\EP02B03AS.M
**Quant Title:**
**QLast Update:** Sun Feb 03 14:10:50 2019
**Response via:** Initial Calibration

**Data Path:** C:\msdchem\1\data\022019\Data File: 0220_49.d
**Signal(s):** FID1A.CH
**Acq On:** 21 Feb 2019 3:11 am
**Operator:** 931
**Sample:** CCV EPH 4000 ppm 19B14173 07/29/19
**Misc:** M.I.s on ranges are corrections
**ALS Vial:** 3 Sample Multiplier: 1

**Integration File:** EVENTS.E
**Quant Method:** C:\msdchem\1\methods\EP02B03AS.M
**Quant Title:**
**QLast Update:** Sun Feb 03 14:10:50 2019
**Response via:** Initial Calibration

#### System Monitoring Compounds

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.54f</td>
<td>21191460</td>
<td>23.7163254 ppm</td>
</tr>
</tbody>
</table>

**Spiked Amount:** 20.0000 Range 50 - 150 **Recovery** = 118.58%

#### Target Compounds

1) h Gasoline
2) h Gasoline (C7-C12)
3) h,m Diesel Range Organics
4) h,m Residual Range Organics
5) h,m Diesel (C12-C24)
6) h,m Motor Oil (C24-C30)
7) h,m Diesel
8) h,m Motor Oil
9) t,h,m TPH C8-C34
10) h,m EPH Screen
11) H,M C10-C20 Hydrocarbons
12) H,M C20-C34 Hydrocarbons
13) t,m,h Extractable Petroleum...
14) H,M C10-C22 Hydrocarbons
15) H,M C12-C22 Hydrocarbons
16) h,m C22-C32 Hydrocarbons
17) h,m C32-C40 Hydrocarbons
18) h,m MISC. TPH (C10-C40)
19) h,m C10-C28 Diesel Range
20) h,m C28-C40 Oil Range
21) H,M C10 - C20 Hydrocarbons
22) H,m C20-C36 Hydrocarbons
23) h,m TEM (C9-C40)
24) h,m TEH (C9-C40)
25) h Mineral Spirits
26) h Kerosene
27) h #6 Fuel Oil
28) h Hydraulic Fluid
29) C9
30) C20
31) C30

(f)=RT Delta > 1/2 Window  (m)=manual int.
Quantitation Report    (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\ 
Data File : 0220_49.d 
Signal(s) : FID1A.CH 
Acq On : 21 Feb 2019  3:11 am 
Operator : 931 
Sample : CCV EPH 4000 ppm 19B14173 07/29/19 
Misc : M.I.s on ranges are corrections 
ALS Vial : 3  Sample Multiplier: 1 

Integration File: EVENTS.E 
Quant Time: Feb 21 08:57:57 2019 
Quant Method : C:\msdchem\1\methods\EP02B03AS.M 
Quant Title : 
QLast Update : Sun Feb 03 14:10:50 2019 
Response via : Initial Calibration 
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped 

Volume Inj. : 
Signal Phase : 
Signal Info : 

Response_ 

Signal: 0220_49.d\FID1A.CH 

C20-C34 Hy Motor Oil
O-TERPHENY
C10-C20 Hy Diesel
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\022019\nData File: 0220_49.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 3:11 am
Operator: 931
Sample: CCV EPH 4000 ppm 19B14173 07/29/19
Misc: M.I.s on ranges are corrections
ALS Vial: 3 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 08:57:24 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj: 
Signal Phase: 
Signal Info:

Response

Signal: 0220_49.d\FID1A.CH

3.542

(35) O-TERPHENYL (S)
3.542min 52.5480359 ppm
response 46953715

(+)= Expected Retention Time

EP02B03AS.M Thu Feb 21 08:57:52 2019
ACCOUNT:
S&E Inc. - Knoxville
PROJECT:
4143-17-017
SDG:
L101756
DATE/TIME:
02/27/19 12:30
PAGE:
90 of 115
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 3:11 am
Operator: 931
Sample: CCV EPH 4000 ppm 19B14173 07/29/19
Misc: M.I.s on ranges are corrections
ALS Vial: 3 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 08:57:24 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration

Volume Inj.:
Signal Phase:
Signal Info:

Response:

(35) O-TERPHENYL (S)
3.542 min 23.7163254 ppm m
response 21191460

(+)=Expected Retention Time
# CONTINUING CALIBRATION VERIFICATION
## SINGLE COMPONENT ANALYTES

<table>
<thead>
<tr>
<th>Analyte</th>
<th>True Value (mg/l)</th>
<th>Result (mg/l)</th>
<th>Result % Rec.</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTRACTABLE PETROLEUM HYDROCARBON</td>
<td>4000</td>
<td>4229</td>
<td>106</td>
<td>75 - 125</td>
</tr>
<tr>
<td>O-TERPHENYL</td>
<td>20</td>
<td>25.46</td>
<td>127</td>
<td>50 - 150</td>
</tr>
</tbody>
</table>

**SDG:** L1071756  
**Instrument ID:** SVG2  
**Lab File ID:** 0220_62-1  
**Analytical Method:** EPH  
**Calibration (begin) date/time:** 01/22/19 16:52  
**Calibration (end) date/time:** 01/22/19 19:50  
**Analysis date/time:** 02/21/19 09:36  
**Sample ID:** CCV
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\022019\  
Data File: 0220_62.d  
Signal(s): FID1A.CH  
Acq On: 21 Feb 2019 9:36 am  
Operator: 931  
Sample: CCV EPH 4000 ppm 19B14173 07/29/19  
Misc: M.I.s on ranges are corrections  
ALS Vial: 3 Sample Multiplier: 1  

Integration File: EVENTS.E  
Quant Time: Feb 21 09:50:31 2019  
Quant Method: C:\msdchem\1\methods\EP02B03AS.M  
Quant Title:  
QLast Update: Sun Feb 03 14:10:50 2019  
Response via: Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped  

Volume Inj.:  
Signal Phase:  
Signal Info:  

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S O-TERPHENYL</td>
<td>3.54f</td>
<td>22745220</td>
<td>25.4552091 ppm m</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 127.28%</td>
</tr>
<tr>
<td>Target Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>2.13</td>
<td>4642050237</td>
<td>4228.7712450 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>4642050237</td>
<td>4228.7712450 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>28) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\nData File : 0220_62.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019 9:36 am
Operator : 931
Sample : CCV EPH 4000 ppm 19B14173 07/29/19
Misc : M.I.s on ranges are corrections
ALS Vial : 3 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:50:31 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response:

Signal: 0220_62.d\FID1A.CH
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\022019\n
Data File : 0220_62.d

Signal(s) : FID1A.CH

Acq On : 21 Feb 2019   9:36 am

Operator : 931

Sample : CCV EPH 4000 ppm 19B14173 07/29/19

Misc : M.I.s on ranges are corrections

ALS Vial : 3  Sample Multiplier: 1

Integration File: EVENTS.E

Quant Time: Feb 21 09:48:39 2019

Quant Method : C:\msdchem\1\methods\EP02B03AS.M

Quant Title :

QLast Update : Sun Feb 03 14:10:50 2019

Response via : Initial Calibration

Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :

Signal Phase :

Signal Info :

Response:

Signal: 0220_62.d\FID1A.CH

3.543

(+)= Expected Retention Time

(35) O-TERPHENYL (S)

3.544min  54.3930617 ppm

response  48602317


1500000
2000000
2500000
3000000
3500000
4000000
4500000

Time

EP02B03AS.M Thu Feb 21 09:49:02 2019

ACCOUNT: 4143-17-017

SDG: L1071756

DATE/TIME: 02/27/19 12:30

Page: 1

95 of 115
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\022019\nData File : 0220_62.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019  9:36 am
Operator : 931
Sample : CCV EPH 4000 ppm 19B14173 07/29/19
Misc : M.I.s on ranges are corrections
ALS Vial : 3   Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:49:10 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

(35) O-TERPHENYL (S)
3.543min  25.4552091 ppm m
response  22745220

(+ ) = Expected Retention Time
### Analytical Sequence Details

**SDG:** L1071756  
**Instrument ID:** SVGC2  
**Analytical Method:** EPH  
**Calibration Start Date:** 01/22/19 16:52  
**Calibration End Date:** 01/22/19 19:50

<table>
<thead>
<tr>
<th>Client Sample ID</th>
<th>Lab Sample ID</th>
<th>File ID</th>
<th>Analysis Date Time</th>
<th>Dilution</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAL 100</td>
<td></td>
<td>0122_03</td>
<td>01/22/19 16:52</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 200</td>
<td></td>
<td>0122_04</td>
<td>01/22/19 17:06</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 400</td>
<td></td>
<td>0122_05</td>
<td>01/22/19 17:20</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 1000</td>
<td></td>
<td>0122_06</td>
<td>01/22/19 17:33</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 2000</td>
<td></td>
<td>0122_07</td>
<td>01/22/19 17:47</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 4000</td>
<td></td>
<td>0122_08</td>
<td>01/22/19 18:01</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 5000</td>
<td></td>
<td>0122_09</td>
<td>01/22/19 18:15</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 7500</td>
<td></td>
<td>0122_10</td>
<td>01/22/19 18:28</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 10000</td>
<td></td>
<td>0122_11</td>
<td>01/22/19 18:42</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 100A</td>
<td></td>
<td>0122_12</td>
<td>01/22/19 18:56</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 400A</td>
<td></td>
<td>0122_13</td>
<td>01/22/19 19:09</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 1KA</td>
<td></td>
<td>0122_14</td>
<td>01/22/19 19:23</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 2500</td>
<td></td>
<td>0122_15</td>
<td>01/22/19 19:37</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CAL 5KA</td>
<td></td>
<td>0122_16</td>
<td>01/22/19 19:50</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SSCV</td>
<td>SVGC202219B0122_17-8464871</td>
<td>0122_17-8</td>
<td>01/22/19 20:04</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CCV</td>
<td>SVGC20220190220_49-4464871</td>
<td>0220_49-4</td>
<td>02/21/19 03:11</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BLANK</td>
<td>R3385680-1</td>
<td>0220_54</td>
<td>02/21/19 04:19</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>LCS</td>
<td>R3385680-2</td>
<td>0220_55</td>
<td>02/21/19 07:55</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>LCSD</td>
<td>R3385680-3</td>
<td>0220_56</td>
<td>02/21/19 08:09</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>NORTH</td>
<td>L1071756-01</td>
<td>0220_57</td>
<td>02/21/19 08:23</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>SOUTH</td>
<td>L1071756-02</td>
<td>0220_58</td>
<td>02/21/19 08:36</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>EAST</td>
<td>L1071756-03</td>
<td>0220_59</td>
<td>02/21/19 08:50</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>WEST</td>
<td>L1071756-04</td>
<td>0220_60</td>
<td>02/21/19 09:04</td>
<td>1</td>
<td>WG1240136</td>
</tr>
<tr>
<td>CCV</td>
<td>SVGC20220190220_62-1464871</td>
<td>0220_62-1</td>
<td>02/21/19 09:36</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

---
<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result</th>
<th>Qualifier</th>
<th>MDL</th>
<th>RDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>4143-17-017</td>
<td>2.13</td>
<td>U</td>
<td>1.05</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>
Data Path : C:\msdchem\data\022019\ 
Data File : 0220_54.d 
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019  4:19 am 
Operator : 931
Sample : Blank 1X WG1240136
Misc : M.I.s on ranges are corrections
ALS Vial : 46  Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:01:27 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Monitoring Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S  2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>26) S  2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>27) S  1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>35) S  O-TERPHENYL</td>
<td>3.54f</td>
<td>23867390</td>
<td>26.7110808 ppm</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 133.56%</td>
</tr>
<tr>
<td><strong>Target Compounds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h   Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h   Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>69898393</td>
<td>39.0621372 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>28) h   Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>29) h   Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h   #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>31) h   Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>32) C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>33) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\nData File : 0220_54.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019  4:19 am
Operator : 931
Sample : Blank 1X WG1240136
Misc : M.I.s on ranges are corrections
ALS Vial : 46   Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:01:27 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response:

Signal: 0220_54.d\FID1A.CH

O-TERPHENY
Extractabl

EP02B03AS.M Thu Feb 21 09:01:31 2019
Page: 2
### Analyte Result Summary

<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result (mg/kg)</th>
<th>Qualifier</th>
<th>MDL (mg/kg)</th>
<th>RDL (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>2.13</td>
<td></td>
<td>39.5</td>
<td></td>
<td>1.33</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Sample Details**

- **Lab Sample ID**: R3385680-2
- **Client Sample ID**: LCS
- **Lab File ID**: 0220_55
- **Instrument ID**: SVGC2
- **Analytical Batch**: WG1240136
- **Dilution Factor**: 1
- **Analytical Method**: EPH
- **Matrix**: Solid
- **Total Solids (%):**
- **SDG**: L1071756
- **Collected Date/Time**:
- **Received Date/Time**:
- **Preparation Date/Time**: 02/20/19 20:22
- **Analysis Date/Time**: 02/21/19 07:55
- **Prep Method**: 3546
- **Sample Vol Used**: 15 g
- **Final Wt/Vol**: 0.5 mL
Quantitation Report (QT Reviewed)

Data Path: C:\msdchem\1\data\022019\ 
Data File: 0220_55.d  
Signal(s): FID1A.CH  
Acq On: 21 Feb 2019 7:55 am  
Operator: 931  
Sample: Lcs 1X WGL240136  
Misc: M.I.s on ranges are corrections  
ALS Vial: 47  Sample Multiplier: 1

Integration File: EVENTS.E  
Quant Method: C:\msdchem\1\methods\EP02B03AS.M  
Quant Title:  
QLast Update: Sun Feb 03 14:10:50 2019  
Response via: Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:  
Signal Phase:  
Signal Info:

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S 2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S 2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>27) S 1-Chloro-octadecane</td>
<td>3.55</td>
<td>31169006</td>
<td>34.8826508 ppm m</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 174.41%#</td>
</tr>
<tr>
<td>Target Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) h Gasoline</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>2) h Gasoline (C7-C12)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>3) h,m Diesel Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>4) h,m Residual Range Organics</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>5) h,m Diesel (C12-C24)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>6) h,m Motor Oil (C24-C30)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>7) h,m Diesel</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>8) h,m Motor Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>9) t,h,m TPH C8-C34</td>
<td>2.13</td>
<td>1357079452</td>
<td>1218.5755023 ppm</td>
</tr>
<tr>
<td>10) h,m EPH Screen</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>11) H,M C10-C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>12) H,M C20-C34 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>13) t,m,h Extractable Petroleum...</td>
<td>2.13</td>
<td>1357079452</td>
<td>1218.5755023 ppm</td>
</tr>
<tr>
<td>14) H,M C10-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>15) H,M C12-C22 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>16) h,m C22-C32 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>17) h,m C32-C40 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>18) h,m MISC. TPH (C10-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>19) h,m C10-C28 Diesel Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>20) h,m C28-C40 Oil Range</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>21) H,M C10 - C20 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>22) H,m C20-C36 Hydrocarbons</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>23) h,m TEM (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>24) h,m TEH (C9-C40)</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>25) h Mineral Spirits</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>26) h Kerosene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>27) h #6 Fuel Oil</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>28) h Hydraulic Fluid</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>30) h C9</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>31) C20</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>34) C30</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
</tbody>
</table>

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\nData File : 0220_55.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019  7:55 am
Operator : 931
Sample : Lcs 1X WG1240136
Misc : M.I.s on ranges are corrections
ALS Vial : 47   Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:02:05 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title : QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Response:

O-TERPHENY

Signal: 0220_55.d\FID1A.CH

Time

EP02B03AS.M Thu Feb 21 09:02:12 2019
ACCOUNT: S&ME Inc. - Knoxville
PROJECT: 4143-17-017
SDG: L1071756
DATE/TIME: 02/27/19 12:30
Page: 2
PAGE: 103 of 115
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\022019\ 
Data File : 0220_55.d 
Signal(s) : FID1A.CH 
Acq On : 21 Feb 2019 7:55 am 
Operator : 931 
Sample : Lcs 1X WG1240136 
Misc : M.I.s on ranges are corrections 
ALS Vial : 47  Sample Multiplier: 1 

Integration File: EVENTS.E 
Quant Time: Feb 21 09:01:34 2019 
Quant Method : C:\msdchem\1\methods\EP02B03AS.M 
Quant Title : 
QLast Update : Sun Feb 03 14:10:50 2019 
Response via : Initial Calibration 
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped 

Volume Inj. : 
Signal Phase : 
Signal Info :

Response

(35) O-TERPHENYL (S) 
3.550min  59.2275438 ppm
response  52922115

(+ ) = Expected Retention Time
Quantitation Report (Qedit)

Data Path: C:\msdchem\1\data\022019\nData File: 0220_55.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 7:55 am
Operator: 931
Sample: Lcs 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 47 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:01:34 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj.:
Signal Phase:
Signal Info:

Response

Signal: 0220_55.d\FID1A.CH
3.550

GT-931

(35) O-TERPHENYL (S)
3.550min 34.8826508 ppm m
response 31169006

(+) = Expected Retention Time

EP02B03AS.M Thu Feb 21 09:02:11 2019
<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS</th>
<th>RT</th>
<th>Result (mg/kg)</th>
<th>Qualifier</th>
<th>MDL (mg/kg)</th>
<th>RDL (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable Petroleum Hydrocarbon</td>
<td>2.13</td>
<td>39.3</td>
<td></td>
<td></td>
<td>1.33</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Lab Sample ID:** R3385680-3  
**SDG:** L1071756  
**Collected Date/Time:** ____________  
**Received Date/Time:** ____________  
**Preparation Date/Time:** 02/20/19 20:22  
**Analysis Date/Time:** 02/21/19 08:09  
**Prep Method:** 3546  
**Sample Vol Used:** ____________  
**Initial Wt/Vol:** 15 g  
**Final Wt/Vol:** 0.5 mL
Quantitation Report  (QT Reviewed)

Data Path : C:\msdchem\1\data\022019\  
Data File : 0220_56.d  
Signal(s) : FID1A.CH  
Acq On : 21 Feb 2019  8:09 am  
Operator : 931  
Sample : Lcsd 1X WG1240136  
Misc : M.I.s on ranges are corrections  
ALS Vial : 48  Sample Multiplier: 1

Integration File: EVENTS.E  
Quant Time: Feb 21 09:02:44 2019  
Quant Method : C:\msdchem\1\methods\EP02B03AS.M  
Quant Title :  
QLast Update : Sun Feb 03 14:10:50 2019  
Response via : Initial Calibration  
Integrator: ChemStation  6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :  
Signal Phase :  
Signal Info :

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Monitoring Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25) S  2-Fluorobiphenyl</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm d</td>
</tr>
<tr>
<td>26) S  2-Bromonaphthalene</td>
<td>0.00</td>
<td>0</td>
<td>N.D. ppm</td>
</tr>
<tr>
<td>27) S  1-Chloro-octadecane</td>
<td>0.00</td>
<td>0</td>
<td>N.D. h d</td>
</tr>
<tr>
<td>35) S  O-TERPHENYL</td>
<td>3.54f</td>
<td>30681895</td>
<td>34.3375026 ppm m</td>
</tr>
<tr>
<td>Spiked Amount</td>
<td>20.0000</td>
<td>Range 50 - 150</td>
<td>Recovery = 171.69%#</td>
</tr>
</tbody>
</table>

Target Compounds  
1) h  Gasoline                         | 0.00 | 0        | N.D. ppm |
2) h  Gasoline (C7-C12)                | 0.00 | 0        | N.D. ppm |
3) h,m Diesel Range Organics           | 0.00 | 0        | N.D. ppm |
4) h,m Residual Range Organics         | 0.00 | 0        | N.D. ppm |
5) h,m Diesel (C12-C24)                | 0.00 | 0        | N.D. ppm |
6) h,m Motor Oil (C24-C30)             | 0.00 | 0        | N.D. ppm |
7) h,m Diesel                          | 0.00 | 0        | N.D. ppm |
8) h,m Motor Oil                       | 0.00 | 0        | N.D. ppm |
9) t,h,m TPH C8-C34                    | 0.00 | 0        | N.D. ppm |
10) h,m EPH Screen                     | 0.00 | 0        | N.D. ppm |
11) H,M C10-C20 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
12) H,M C20-C34 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
13) t,m,h Extractable Petroleum...     | 2.13 | 1349749119 | 1211.8583232 ppm |
14) H,M C10-C22 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
15) H,M C12-C22 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
16) h,m C22-C32 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
17) h,m C32-C40 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
18) h,m MISC. TPH (C10-C40)            | 0.00 | 0        | N.D. ppm |
19) h,m C10-C28 Diesel Range           | 0.00 | 0        | N.D. ppm |
20) h,m C28-C40 Oil Range              | 0.00 | 0        | N.D. ppm |
21) H,M C10 - C20 Hydrocarbons         | 0.00 | 0        | N.D. ppm |
22) h,m C20-C36 Hydrocarbons           | 0.00 | 0        | N.D. ppm |
23) h,m TEM (C9-C40)                   | 0.00 | 0        | N.D. ppm |
24) h,m TEH (C9-C40)                   | 0.00 | 0        | N.D. ppm |
28) h  Mineral Spirits                 | 0.00 | 0        | N.D. ppm |
29) h  Kerosene                        | 0.00 | 0        | N.D. ppm |
30) h  #6 Fuel Oil                     | 0.00 | 0        | N.D. ppm |
31) h  Hydraulic Fluid                 | 0.00 | 0        | N.D. ppm |
32) C9                                  | 0.00 | 0        | N.D. ppm |
33) C20                                | 0.00 | 0        | N.D. ppm |
34) C30                                | 0.00 | 0        | N.D. ppm |

(f)=RT Delta > 1/2 Window  
(m)=manual int.
Data Path: C:\msdchem\1\data\022019\nData File: 0220_56.d
Signal(s): FID1A.CH
Acq On: 21 Feb 2019 8:09 am
Operator: 931
Sample: Lcsd 1X WG1240136
Misc: M.I.s on ranges are corrections
ALS Vial: 48 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:02:44 2019
Quant Method: C:\msdchem\1\methods\EP02B03AS.M
Quant Title:
QLast Update: Sun Feb 03 14:10:50 2019
Response via: Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Response:

Signal: 0220_56.d\FID1A.CH

Signal: O-TERPENY

Extractabl
Signal: 0220_56.d\FID1A.CH

(35) O-TERPHENYL (S)
3.540 min  94.7562527 ppm
response  84668399
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\data\022019\ 
Data File : 0220_56.d
Signal(s) : FID1A.CH
Acq On : 21 Feb 2019 8:09 am
Operator : 931
Sample : Lcsd 1X WG1240136
Misc : M.I.s on ranges are corrections
ALS Vial : 48 Sample Multiplier: 1

Integration File: EVENTS.E
Quant Time: Feb 21 09:02:16 2019
Quant Method : C:\msdchem\1\methods\EP02B03AS.M
Quant Title :
QLast Update : Sun Feb 03 14:10:50 2019
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

(35) O-TERPHENYL (S)
3.540 min 34.3375026 ppm m
response 30681895

(+ ) = Expected Retention Time
**PETROLEUM SS Extractions Benchsheet**

Batch: WG1240136/WG1239460

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Initial Sample Wt (g)</th>
<th>Solvent Volume (mL)</th>
<th>Final Volume (mL)</th>
<th>Extract Color</th>
<th>Box ID</th>
<th>Prep Factor</th>
<th>Prep Ratio</th>
<th>DL Adjustment Factor</th>
<th>Spike Factor</th>
<th>Surrogate Factor</th>
<th>Review Analyst</th>
<th>Review Date</th>
<th>Sample Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>LSC</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>LCSD</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>1. L071756-01</td>
<td>15.61</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>2. L071756-02</td>
<td>15.88</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>3. L071756-03</td>
<td>15.20</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>4. L071756-04</td>
<td>15.57</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
</tbody>
</table>

**3546 Extractions Benchsheet**

Batch: WG1239460

<table>
<thead>
<tr>
<th>Number</th>
<th>PrePrep Batch</th>
<th>PrePrep Analyst</th>
<th>PrePrep Balance</th>
<th>PrePrep Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>L071753</td>
<td>WG1239314</td>
<td>KBK908</td>
<td>PREPREPBAL1</td>
<td>02/19/19 19:03:22</td>
</tr>
<tr>
<td>L071752</td>
<td>WG123932</td>
<td>KBK908</td>
<td>PREPREPBAL2</td>
<td>02/19/19 17:33:20</td>
</tr>
<tr>
<td>L071756</td>
<td>WG123954</td>
<td>KBK908</td>
<td>PREPREPBAL3</td>
<td>02/19/19 16:00:36</td>
</tr>
</tbody>
</table>

Analyser: KBK908  Prep Start Date/Time: 02/20/19 20:22:20-24  Prep End Date/Time: 02/21/19 00:18  Method: 3546  SOP: 330707  Balance ID: EXTBAL5  Filter Lot#: 16891855

Na2SO4: 19B19734 Amt. Used: 0.50 mL Exp. Date:04/01/19  Spiked Spike Syringe ID: 19B18438 Amt. Used: 1 Exp. Date:08/13/19

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Initial Sample Wt (g)</th>
<th>Solvent Volume (mL)</th>
<th>Final Volume (mL)</th>
<th>Extract Color</th>
<th>Box ID</th>
<th>Prep Factor</th>
<th>Prep Ratio</th>
<th>DL Adjustment Factor</th>
<th>Spike Factor</th>
<th>Surrogate Factor</th>
<th>Review Analyst</th>
<th>Review Date</th>
<th>Sample Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>LSC</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>LCSD</td>
<td>15</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
<tr>
<td>1. L071756-03</td>
<td>15.61</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td></td>
<td>0.0333</td>
<td>0.999</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>MT1647</td>
<td>02/21/19 00:39:17</td>
<td></td>
</tr>
</tbody>
</table>

Reviewed By:MT1647 on 02/21/19 00:39:17
<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Initial Sample Wt (g)</th>
<th>Solvent Volume (mL)</th>
<th>Final Volume (mL)</th>
<th>Extract Color</th>
<th>Box ID</th>
<th>Prep Factor</th>
<th>Prep Ratio</th>
<th>DL Adjustment Factor</th>
<th>Spike Factor</th>
<th>Surrogate Factor</th>
<th>Review Analyst</th>
<th>Review Date</th>
<th>Sample Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. L1071756-04</td>
<td>15.57</td>
<td>25</td>
<td>0.5</td>
<td>Colorless</td>
<td>WED</td>
<td>0.0321</td>
<td>0.963</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>MTJ647</td>
<td>02/21/19 00:39:17</td>
<td>Reviewed By:MTJ647 on 02/21/19 00:39:17</td>
</tr>
</tbody>
</table>

Comments:
# Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

## Abbreviations and Definitions

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COD</td>
<td>Coefficient of Determination.</td>
</tr>
<tr>
<td>MDL</td>
<td>Method Detection Limit.</td>
</tr>
<tr>
<td>RDL</td>
<td>Reported Detection Limit.</td>
</tr>
<tr>
<td>Rec.</td>
<td>Recovery.</td>
</tr>
<tr>
<td>RPD</td>
<td>Relative Percent Difference.</td>
</tr>
<tr>
<td>RT</td>
<td>Retention Time.</td>
</tr>
<tr>
<td>SDG</td>
<td>Sample Delivery Group.</td>
</tr>
<tr>
<td>Analyte</td>
<td>The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.</td>
</tr>
</tbody>
</table>

| Dilution | If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor. |
| Limits    | These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges. |

| Qualifier | This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. |
| Result    | The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte. |

| Uncertainty (Radiochemistry) | Confidence level of 2 sigma. |

| Case Narrative (Cn) | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis. |

| Sample Summary (Ss) | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. |

## Qualifier Description

| J1 | Surrogate recovery limits have been exceeded; values are outside upper control limits. |
Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

### State Accreditations

<table>
<thead>
<tr>
<th>State</th>
<th>Accreditation Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>40660</td>
</tr>
<tr>
<td>Alaska</td>
<td>17-026</td>
</tr>
<tr>
<td>Arizona</td>
<td>AZ0612</td>
</tr>
<tr>
<td>Arkansas</td>
<td>BB-0469</td>
</tr>
<tr>
<td>California</td>
<td>2932</td>
</tr>
<tr>
<td>Colorado</td>
<td>TN00003</td>
</tr>
<tr>
<td>Connecticut</td>
<td>PH-0197</td>
</tr>
<tr>
<td>Florida</td>
<td>E87487</td>
</tr>
<tr>
<td>Georgia</td>
<td>NELAP</td>
</tr>
<tr>
<td>Georgia ¹</td>
<td>923</td>
</tr>
<tr>
<td>Idaho</td>
<td>TN00003</td>
</tr>
<tr>
<td>Illinois</td>
<td>200008</td>
</tr>
<tr>
<td>Indiana</td>
<td>CTN-01</td>
</tr>
<tr>
<td>Iowa</td>
<td>364</td>
</tr>
<tr>
<td>Kansas</td>
<td>E-10277</td>
</tr>
<tr>
<td>Kentucky ¹ ²</td>
<td>90010</td>
</tr>
<tr>
<td>Kentucky ² ³</td>
<td>16</td>
</tr>
<tr>
<td>Louisiana</td>
<td>AI30792</td>
</tr>
<tr>
<td>Louisiana ¹</td>
<td>LA1800010</td>
</tr>
<tr>
<td>Maine</td>
<td>TN0002</td>
</tr>
<tr>
<td>Maryland</td>
<td>324</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>M-TN003</td>
</tr>
<tr>
<td>Michigan</td>
<td>9958</td>
</tr>
<tr>
<td>Minnesota</td>
<td>047-999-395</td>
</tr>
<tr>
<td>Mississippi</td>
<td>TN00003</td>
</tr>
<tr>
<td>Missouri</td>
<td>340</td>
</tr>
<tr>
<td>Montana</td>
<td>CERT0086</td>
</tr>
<tr>
<td>Nebraska</td>
<td>NE-05-15-05</td>
</tr>
<tr>
<td>Nevada</td>
<td>TN-03-2002-34</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>2975</td>
</tr>
<tr>
<td>New Jersey–NELAP</td>
<td>TN002</td>
</tr>
<tr>
<td>New Mexico ¹</td>
<td>n/a</td>
</tr>
<tr>
<td>New York</td>
<td>11742</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Env375</td>
</tr>
<tr>
<td>North Carolina ¹</td>
<td>DW21704</td>
</tr>
<tr>
<td>North Carolina ³</td>
<td>41</td>
</tr>
<tr>
<td>North Dakota</td>
<td>R-140</td>
</tr>
<tr>
<td>Ohio–VAP</td>
<td>CL0069</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>9915</td>
</tr>
<tr>
<td>Oregon</td>
<td>TN200002</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>68-02979</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>LA000356</td>
</tr>
<tr>
<td>South Carolina</td>
<td>84004</td>
</tr>
<tr>
<td>South Dakota</td>
<td>n/a</td>
</tr>
<tr>
<td>Tennessee ¹ ⁴</td>
<td>2006</td>
</tr>
<tr>
<td>Texas</td>
<td>T104704245-18-15</td>
</tr>
<tr>
<td>Texas ⁵</td>
<td>LAB0152</td>
</tr>
<tr>
<td>Utah</td>
<td>TN00003</td>
</tr>
<tr>
<td>Vermont</td>
<td>VT2006</td>
</tr>
<tr>
<td>Virginia</td>
<td>460132</td>
</tr>
<tr>
<td>Washington</td>
<td>CB47</td>
</tr>
<tr>
<td>West Virginia</td>
<td>233</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>9980939910</td>
</tr>
<tr>
<td>Wyoming</td>
<td>AZ2LA</td>
</tr>
</tbody>
</table>

### Third Party  Federal Accreditations

<table>
<thead>
<tr>
<th>Accreditation</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2LA – ISO 17025</td>
<td>1461.01</td>
</tr>
<tr>
<td>A2LA – ISO 17025 ²</td>
<td>1461.02</td>
</tr>
<tr>
<td>AIHA-LAP, LLC EMLAP</td>
<td>100789</td>
</tr>
<tr>
<td>Canada</td>
<td>1461.01</td>
</tr>
<tr>
<td>DOD</td>
<td>1461.01</td>
</tr>
<tr>
<td>EPA–Crypto</td>
<td>TN00003</td>
</tr>
<tr>
<td>USDA</td>
<td>P330-15-00234</td>
</tr>
</tbody>
</table>

¹ Drinking Water  ² Underground Storage Tanks  ³ Aquatic Toxicity  ⁴ Chemical/Microbiological  ⁵ Mold  ⁶ Wastewater  n/a Accreditation not applicable

### Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.
### Sample ID

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Comp/Grab</th>
<th>Matrix</th>
<th>Depth</th>
<th>Date</th>
<th>Time</th>
<th>No. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>G</td>
<td>SS</td>
<td>5.0</td>
<td>2/18/19</td>
<td>15:00</td>
<td>x</td>
</tr>
<tr>
<td>South</td>
<td>G</td>
<td>SS</td>
<td>5.5</td>
<td>2/18/19</td>
<td>15:00</td>
<td>x</td>
</tr>
<tr>
<td>East</td>
<td>G</td>
<td>SS</td>
<td>8.0</td>
<td>2/18/19</td>
<td>10:00</td>
<td>x</td>
</tr>
<tr>
<td>West</td>
<td>G</td>
<td>SS</td>
<td>5.5</td>
<td>2/18/19</td>
<td>16:00</td>
<td>x</td>
</tr>
</tbody>
</table>

### Remarks:

* Matrix:
  - SS - Soil
  - AIR - Air
  - GW - Groundwater
  - WW - WasteWater
  - DW - Drinking Water
  - OT - Other

* Sample returned via: UPS, FedEx, Courier

### Tracking:

- Tracking #: 4761 5988 1660

### Sample Receipt Checklist:

- Sample Seal Present/Intact: [Y] [N]
- Sample Signed/Accurate: [Y] [N]
- Bottles Arrive Intact: [Y] [N]
- Correct Bottles Used: [Y] [N]
- Sufficient Volume Sent: [Y] [N]
- If Applicable:
  - VOA Zero Headspace: [Y] [N]
  - Preservation Correct/Checked: [Y] [N]

### Analysis/Container/Preservative:

- pH: [Blank]
- Temp: [Blank]
- Flow: [Blank]
- Other: [Blank]

### Chain of Custody

- L# 1071756
- Table #: C115
- Acctnm: SME
- Template: [Blank]
- Prelogin: [Blank]
- TSR: 690 - Tom Mellette
- PB: [Blank]
- Shipped Via: [Blank]
- Sample # (lab only): 01, 02, 03, 04