TGE RESOURCES, INC.

Environmental Consulting,
Engineering and Industrial Hygiene

Vapor Intrusion Mitigation System – Supplemental Performance Testing
Former Payless Auto Mart
29805 Pacific Highway South
Federal Way, King County, Washington
WA Ecology Cleanup Site/Facility ID Nos. – 5427 / 7222592
WA Ecology VCP Project ID No. – NW3270
Lat. 47.33537° / Long. - 122.3126°
King County Parcel No. 042104-9157
TGE Project No.: R13411.11

Prepared for:

MultiCare Health System, a Washington Nonprofit Corporation
315 Martin Luther King Jr. Way
Tacoma, Washington 98415-0299

March 14, 2022

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Subject: **Vapor Intrusion Mitigation System – Supplemental Confirmation Testing**
Federal Way Emergency Center
29805 Pacific Highway South
Federal Way, King County, Washington
WA Ecology Cleanup Site/Facility ID Nos. – 5427 / 7222592
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Dear Sir or Madam:

TGE Resources, Inc. ("TGE") has completed Vapor Intrusion Mitigation System (VIMS) Supplemental Performance Testing at the Former Payless Auto Mart (redeveloped as the MultiCare Health System – Federal Way Emergency Center), located at 29805 Pacific Highway South in Federal Way, King County, Washington, hereinafter referred to as the "Property" (**Figure 1 – Property Location Map**). The objective of supplemental VIMS testing at the Property has been to further evaluate the performance/effectiveness of the engineered, sub-slab vapor intrusion mitigation system (VIMS) installed during construction of the current healthcare building. Specifically, the VIMS at the Property was installed to mitigate the potential risk of exposure of facility occupants due to the presence of volatile organic compounds (VOCs) previously identified in soil vapor within the Property's limits.

Property Background

The Property consists of a reported 1.72 acres (74,877 square feet) of land. Prior use of the Property included fueling station/restaurant facilities from the 1920s to 1960s and an equipment rental/repair facility in the late 1960s/early 1970s, until occupancy of the Site in 2007 by a used car sales/repair facility (Payless Auto Mart) and a repossession and impound lot (portions controlled by the federal government). MultiCare Health System, a Washington Nonprofit Corporation (hereinafter "MultiCare" or "MHS"), executed a ground lease agreement with the Site's current owner (NIKLEXI LLC) in 2017, which was transferred from MHS to "CF Federal Way, LLC" in 2020. Following execution of the ground lease, the Property was repurposed/redeveloped in 2020 with a 9,872 square foot healthcare facility with associated paved parking facilites.

As documented in a Phase I Environmental Site Assessment (ESA) prepared by TGE in July 2017 and updated in 2020, a review of historical resources identified a former fuel station, dry cleaner, and abandoned gravel pit/quarry all positioned in the Site vicinity with no apparent/recorded characterization

performed at these locations. The occupant of adjoining land north (a Shell branded fuel station) was identified within city directory publications as a fueling/service station with concurrent use of underground petroleum storage tanks (USTs) since at least the mid-1930s in very near proximity to the Property, with a recorded release (lead and petroleum products) to the environment and associated administrative-formal/compliance activity. Historic use of adjoining land west as a gravel pit/quarry from at least the 1940s through the 1980s may have included landfilling of materials of unknown character and possible hazardous materials/hazardous waste management, as well as an open cleanup site identified as the "Redondo Oil Pit". Each such location should be considered a potential contributing factor in consideration of soil vapor findings in excess of Ecology's screening levels at the Property.

Two preliminary subsurface investigations were conducted by TGE at the Property between 2017 and 2019 due to the presence of Phase I Recognized Environmental Conditions (RECs) and to characterize pathway-of-construction (POC) soil/fill material in areas slated for intended excavation/disturbance during new construction earthwork. Additionally, a surface soil characterization event was conducted by Environmental Associates, Inc. ("EAI" - the landowner's environmental consultant) in August 2018, during which TGE collected "split" samples of Site soil. Gasoline petroleum products (NWTPH-Gx), diesel/residual petroleum products (NWTPH-Dx), various VOCs, and Resource Conservation and Recovery Act (RCRA) 8 metals (arsenic) impacts to soil were found at concentrations in excess of laboratory detection limits and/or respective Washington State Department of Ecology ("Ecology") Model Toxics Control Act (MTCA) screening limits. Pre-development investigation identified the presence of VOC analytes acrolein, benzene, 1,3-butadiene, chloroform, ethylene dibromide (EDB), naphthalene, tetrachloroethene (PCE), and trichloroethene (TCE) in soil vapor (collected from within the proposed footprint of the new healthcare facility's building) at concentrations exceeding applicable MTCA Method B cleanup levels.

Additional soil/fill material characterization studies and the excavation/removal of three sumps and associated piping from the former building were conducted by TGE in January 2020 to advance Soil Management Plan objectives for the earthwork contractor (in preparation for Property redevelpment), to profile material for landfill disposal, and to further document completion of impacted soil removal for purposes of supporting regulatory case closure. During the early stages of Property redevelopment (March 2020), impacted soil/fill materials were removed by permitted soil excavation and disposal at a Sub-Title D Landfill.

Given confirmed soil vapor impact from current/historic Property and adjacent commercial property uses, MHS opted to utilize permanent engineering controls to preemptively mitigate the possibility of future vapor intrusion into the planned healthcare facilty. This was accomplished coincident with Property pre-development planning and involved the design and installation of a robust VIMS to mitigate the risk of VOC exposure to future occupants of the Property. The system, as installed, is comprised of a sub-slab vapor barrier/membrane system with "passive" venting design, as well as "active" forced air capability to effectively depressurize the new building slab. Four sets of soil vapor monitoring probes were installed both above (designated "P1A" through "P4A") and below ("P1B" through "P4B") the system membrane (a total of eight) to allow for periodic effectiveness monitoring of the system (**Figure 2 - Supplemental VIMS Performance Testing Details Map**). Construction oversight, component testing, and installation certification by the PE of record validated the integrity and compliant installation of the VIMS, as designed.

As previously stated, the purposes of VIMS design/installation was "preemptive mitigation" to minimize the potential risk for vapor intrusion within the newly-contructed building, not "remediation" of soil vapor. Routine system compliance testing is currently ongoing (August 2021, November 2021, and February

2022) on a quarterly basis and will continue for a period of one year to demonstrate system effectiveness. Supplemental certification testing, that is the subject of this submittal, was conducted to provide additional supporting evidence that protective measures (to the maximum extent practicable) have been achieved respecting vapor intrusion risk, the vapor intrusion exposure pathway is "incomplete", and MTCA requirements for protection of human health have been achieved.

To demonstrate protective conditions respecting potential vapor intrusion at the Property's building, TGE concurrently conducted the following assessment efforts:

- an additional VIMS probe sampling event;
- an indoor and ambient air testing event (Tier II evaluation);
- installation and sampling of sub-pavement (shallow) vapor pins at ten locations in near proximity to the Property's building; and
- differential pressure monitoring of the building interior with respect to the sub-slab zone beneath the VIMS barrier (via a corresponding probe point).

VIMS Probe Sampling Event

Prior to the current assessment conducted on November 15, 2021, an initial VIMS probe vapor sampling was conducted on August 24, 2021. VIMS vapor samples were collected in accordance with practices described within the ITRC Guidance "*Vapor Intrusion Pathway: A Practical Guideline*", dated January 2007, and in relevant guidance documents. During each sampling event, eight vapor samples were collected from the installed VIMS sampling ports, "P1B" through "P4B" and "P1A" through "P4A (**Figure 2**), via airflow restricting assemblies attached to each sampling point, which were in turn attached to 1.0-liter stainless-steel Summa® canisters for sample collection. Summa canisters and airflow restricting assemblies were certified clean and leak-free when provided to TGE by Pace Analytical National in Mt. Juliet, Tennessee. Initially at negative pressure, and following performance of a "shut-in" ("leak") test, the canister airflow restricting assemblies were opened and the canisters were left to equilibrate over an approximately five-minute sample collection period. All Summa canisters and airflow restrictive assemblies were recorded with respect to sample port designation, sample collection date, and sample collection time. Following sample collection within the Summa canisters, the flow train valves were closed and the canisters were collected and shipped via overnight delivery to the contract laboratory for VOCs analysis via EPA Method TO-15.

Soil vapor samples collected in August and November 2021 from VIMS probes placed below the mitigation barrier were reported by the analytical laboratory to not contain VOCs in excess of laboratory detection limits, or if detected, concentrations were below ("pass") respective Ecology MTCA Method B screening levels. With few exceptions, analytes detected above laboratory detection limits were reported at lower concentrations in samples from VIMS probes located above the mitigation barrier than those detected in samples from VIMS probes placed below the mitigation barrier; thereby demonstrating the effectiveness of the VIMS.

VIMS probe vapor sample results for the Property are summarized in **Table 1**, and photographic documentation is provided as **Attachment 1**.

Indoor and Ambient Air Evaluation

An indoor and ambient (exterior) air testing event (Tier II evaluation) was conducted concurrently with VIMS probe vapor sampling to provide an additional line of evidence that Property conditions are protective of human health (per MTCA requirements), vapor intrusion is not resulting in unacceptably high levels of indoor contaminants, and the vapor intrusion exposure pathway at the Property is incomplete.

Specifically, certified clean and leak-free Summa canisters and airflow restricting assemblies were provided to TGE by the contract laboratory. Initially at negative pressure, the canister airflow restricting assemblies were opened and the canisters were left to equilibrate over an approximately 24-hour sample collection period. All Summa canisters and airflow restrictive assemblies were recorded with respect to initial/final pressure, sample location, collection date, and collection time. Following sample collection within the Summa canisters, the flow train valves were closed and the canisters were collected and shipped via overnight delivery to the contract laboratory for VOCs analysis via EPA Method TO-15.

Per Ecology guidance, and based on the current use of the Property building as an emergency care clinic with use/storage/disposal of various alcohols, solvents, and cleaners (both liquid and aerosol); the interior layout of the building; and positive-pressure operation of the HVAC system; samples were placed at a height of 1.5 meters above ground within an interior hallway adjacent to staff offices, breakroom, and nurse station (i.e., where building occupants spend a significant period of time, yet somewhat distant from background source areas) and upwind and downwind of the building; near the building, yet distant enough to preclude sample influence by the building (**Figure 2**).

Laboratory analysis of the indoor and exterior ambient air samples demonstrated an absence of VOC concentrations above respective MTCA Method B screening levels, with the exception of carbon tetrachloride and TCE. However, as reported, “upwind” ambient air concentrations of these contaminants were more elevated than interior “indoor” air levels. As such, per Ecology draft guidance, it is concluded that the presence of carbon tetrachloride and TCE within the Property’s building is related to background sources and not representative of a soil vapor intrustion condition.

Interior/Exterior Ambient Air Analytical Results		
Analysis	**VOCs - (TO-15)**	**VOCs - (TO-15)**
Analyte	**Carbon Tetrachloride**	**Trichloroethene**
WA Indoor Air Method B Carcinogenic Screening Level	0.417	0.3339
WA Indoor Air Method B Non-Carcinogenic Screening Level	45.71	0.914
Sample Location		
Interior	**0.465 J**	**0.534 J**
Exterior	**0.474 J**	**34**

Note:
- Bold/highlighted type represents a concentration in excess of the applicable WA Ecology MTCA Method B screening level.

Indoor and ambient air sample results for the Property are summarized in **Table 2**, and laboratory reports and sample chain-of-custody documentation are provided for reference as **Attachment 2**.

Sub-Pavement Soil Vapor Assessment

As previously discussed, elevated contaminant concentrations were identified in soil during the due diligence subsurface assessments completed between 2017 and 2020 prior to Property redevelopment. Therefore, as previously discussed a VIMS was designed and included in Property redevelopment as a preemptive mitigation measure for the newly-constructed healthcare facility.

In conjunction with on-going VIMS performance testing (quarterly testing of soil vapor samples from sub-slab probes), a sub-pavement soil vapor assessment was conducted concurrently with probe sampling and a Tier II evaluation of indoor and ambient air (summarized above). This assessment included the collection of shallow soil vapor samples at ten locations from beneath paved areas of the Propety in close proximtity east and south of the newly-constructed Property building (**Figure 2**). At each point around the building, a stainless-steel sub-pavement vapor pin was installed via hammer drill through an approximately three-inch thick layer of asphalt and a four-inch layer of sand/gravel base material. The shallow soil vapor test points (designated TVMP-3 through TVMP-12) were improved with silicone sleeves to form a surface seal and vapor intakes set within the top of the underlying soil strata (at a depth of approximately 12 inches below grade).

Following installation, the sub-pavement vapor points were left for a period of approximately 24-hours to equilibrate prior to sample collection. Following performance of a shut-in ("leak") test, a shallow soil vapor sample was collected from each vapor pin using 1.0-liter stainless-steel Summa® canisters equipped with airflow restricting assemblies set for an approximately five-minute sample collection period. Each sample was recorded with respect to sample designation, collection date, initial/final pressure, and collection time. Following sample collection within the Summa canisters, the flow train valves were closed and the canisters were collected and shipped via overnight delivery to the contract laboratory for VOCs analysis via EPA Method TO-15.

Reported shallow soil vapor concentrations were compared to respective MTCA Method B soil vapor screening levels (**Table 2**). While concentrations of multiple VOCs were found in shallow soil vapor, the VOC analyte 1,3-butadiene (previously reported with elevated soil vapor levels in 2017) was not reported above MTCA screening levels. However, the VOC benzene (previously reported with elevated soil vapor levels in 2017 and 2018) was reported above the MTCA Method B cancer screening level, yet significantly below concentration levels reported in 2017/2018. Additionally, an elevated level of the VOC naphthalene was reported in TVMP-6 (located adjacent and downgradient of a former automotive service vacility vehicle bay) at 3.57 micrograms per cubic meter ($\mu g/m^3$), which slightly exceeds the applicable screening level of 2.5 $\mu g/m^3$. However, naphthalene was not detected in samples from either VIMS probes placed below or above the mitigation barrier.

Sub-pavement soil vapor sample results for the Property are summarized in **Table 3**, and laboratory reports and sample chain-of-custody documentation are provided for reference as **Attachment 2**.

Differential Pressure Monitoring

As generally accepted, the primary force for soil vapor intrusion is pressure-driven soil gas migration (advection), and the primary barrier to VOC entry into a slab-on-grade building is it's foundation. For the subject building, a sub-slab barrier membrane was installed with seals placed at preferential advective flow pathways (e.g., utility penetrations, joints, sumps, drains, sewer pipes, etc.) to eliminate these potential migration pathways. Furthermore, the protection provided by the building foundation and VIMS membrane were augmented by system operation in active mode for sub-slab membrane depressurization.

To further demonstrate the VIMS barrier system integrity/effectiveness as a mitigation measure for potential soil vapor intrusion, differential pressure across the building foundation and sub-slab membrane was monitored over a 24-hour "late fall" period. Pressure measurements were measured and logged using a temparture-compensated digital micromanometer (Engineering Solutions, Inc. OmniGuard 4) with a pressure sensitivity of 0.001 inches water column (in. wc) and the data logging rate set at one measurement per 15 minutes for the 24-hour monitoring period (November 15-16, 2021).

Relative pressure measurement points were established within the staff hallway and at VIMS sub-barrier Probe 2 (**Figure 2**). A zero check was performed at initiation, and throughout the monitoring period the recorded cross-slab differential pressure was maintained at greater than -0.250 in. wc, which is well above the the US Naval Facilities Engineering Command (NAVFAC) recommended design goal of -0.02 in. wc minimum sub-slab vacuum and sufficient to overcome reasonably anticipated changes in meteorological and building ventilation conditions.

Response to Ecology Comments for VIMS Design/Installation

Following initial evaluation of plans and specifications for a VIMS installed within a similar MHS facility constructed in Puyallup (South Hill OCED) and Tacoma (Parkalnd OCED), Washington, preliminary comments pertaining to the design were provided to TGE by Ecology personnel. Agency comments were provided to the VIMS design engineer (Mr. John Sepich, P.E. – Brownfield Subslab) for review. Written responses to agency comments are provided for reference herein as **Attachment 3**, prior to submittal for further agency consideration.

Findings

Multiple lines of evidence have been compiled from post-construction, supplemental VIMS performance testing, which has demonstrated effective mitigation of soil vapors attributable to sub-slab VOC constituents.

- Quarterly VIMS performance testing has demonstrated that VOC analytes previously identified in soil vapor at the Property (resulting from historic Property and adjacent off-property opertions) are under effective mitigation for the developed Property. More specifically, quarterly (i.e., seasonal) VIMS sample collection and data evaluation has demonstrated that MTCA Method B unrestricted (residential) subslab soil gas cleanup levels (above the VIMS membrane) have been achieved (i.e., protection of building occupants is proved).

- Elevated concentrations of the VOC analytes acrolein, benzene, 1,3-butadiene, chloroform, EDB, naphthalene, PCE, and TCE, previously found in soil vapor above MTCA Method B screening levels within the planned building location, were not reported in shallow, sub-pavement soil vapor in close proximity to the building, with the exception of benzene. Additionally, sub-pavement soil vapor from TVMP-6 (positioned adjacent and downgradient to a former automotive service vacility vehicle bay) was found with napthalene above the MTCA screening level. Historic Property sources for these fuel-related constituents and their current presence likely resulted from historical use for retail fuel sales/storage, automobile repair/service, and vehicle impounding; indicative of a current anthropogenic condition posing a vapor intrusion risk. However, indoor concentrations of benzene and napthalene were not reported in excess of Ecology MTCA Method B screening levels; thereby demonstrating the effectiveness of the VIMS.

- Indoor and ambient exterior air sampling (Tier II evaluation) demonstrated an absence of VOC constituent concentrations above respective MTCA Method B screening levels, with the exception of carbon tetrachloride and TCE. However, it was concluded that carbon tetrachloride and TCE within the Property building is related to background sources and not representative of a soil vapor intrusion condition. Therefore, potential vapor intrusion at the Property is not resulting in unacceptably high levels of indoor contaminants, the vapor intrusion exposure pathway at the Property is incomplete, and Property conditions are protective of human health (per MTCA requirements).

- Differential pressure readings across the building foundation and sub-slab membrane were recorded over an approximately 24-hour period to evaluate relative pressure levels resulting from VIMS sub-slab depressurization and positive-pressure operation of the building's engineered HVAC system. Targeted differential pressure levels documented a static level of greater than -0.250 in. wc, which is well above the NAVFAC recommended design goal of -0.02 in. wc. Combination of enhanced positive pressure within the Property building and active depressurization of the sub-membrane (sub-slab) region provide a general safety factor to building occupants and is a key parameter in the operation and performance of the VIMS.

Recommendations

Based on the results of this study, and within stated project limitations and qualifications made part of this effort, TGE provides the following suggested courses of action:

- due to a preponderance of data supporting the conclusion that indoor air is not impacted by soil vapor intrusion resulting from historical Property use and/or trespass of hazardous substances to the Property from adjacent properties, it has been demonstrated that the vapor intrusion pathway at the Property is incomplete and further VIMS performance testing is not believed necessary;

- TGE requests agency determination that "no further action" is necessary at the Property and that Ecology has "no interest" in ordering further corrective action; and

- conduct annual operations and maintenance (O&M) inspections of the Property's VIMS components to document continued functionality of the system over its useful life.

Qualifications

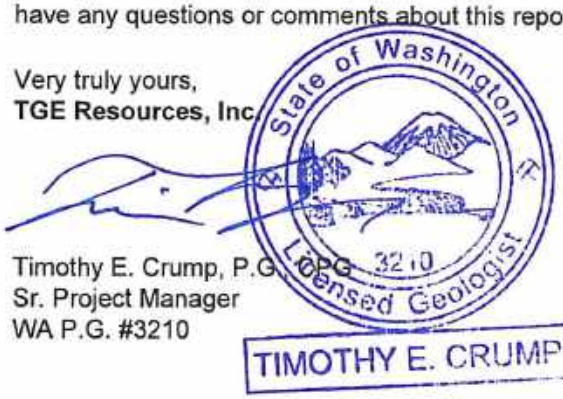
Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This company is not responsible for independent conclusions, opinions, or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Conclusions presented in this report are professional opinions based solely upon visual observations and testing of soil vapor and ambient air at the subject property, as described in this report. They are intended exclusively for the purpose outlined herein and at the Property and project indicated. This report is intended for the sole use of the Client, and its representatives. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

It should be recognized that this study was not intended to be a definitive investigation of contamination across the subject property. Although the scope of services for this investigation included analytical testing of soil vapor and indoor/outdoor ambient air, it is possible that currently, unrecognized contamination may exist at the Property and that the levels of this potential contamination may vary across the Property. Opinions and recommendations presented herein apply to Property conditions existing at the time of our investigation and those reasonably foreseeable. They cannot necessarily apply to Property changes of which this company is not aware and has not had the opportunity to evaluate.

We appreciate the opportunity to provide MHS and The Centurion Foundation with these services. If you have any questions or comments about this report please contact us at your convenience.

Very truly yours,
TGE Resources, Inc.



Timothy E. Crump, P.G., CPG
Sr. Project Manager
WA P.G. #3210

Robin D. Franks, CHMM, RSO
President

Attachments: Figure 1 - Property Location Map
Figure 2 - Supplemental VIMS Performance Testing Details Map

Table 1 - Soil Vapor Analytical Data
Table 2 - Interior/Exterior Air Analytical Results
Table 3 - Sub-Pavement Soil Vapor Analytical Data

Attachment 1 - Photographic Documentation
Attachment 2 - Laboratory Data Reports
Attachment 3 - Brownfield Subslab Memorandum

cc: Mr. Andy Rigel – Hillis Clark Martin & Peterson P.S.
Mr. Dudley Carpenter – Emerus Hospital Partners
Mr. Ben M. Mingle – The Centurion Foundation, Inc.
Ms. Tammy Buyok – MultiCare Health System

FIGURES

Former Payless Auto Mart
29805 Pacific Highway South
Federal Way, King County, WA
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TGE RESOURCES, INC.
8048 Northcourt Road
Houston, Texas 77040

Figure 1
Site Location Map
USGS 7.5 Minute Series Topographic Map
Poverty Bay, Washington Quadrangle
2014

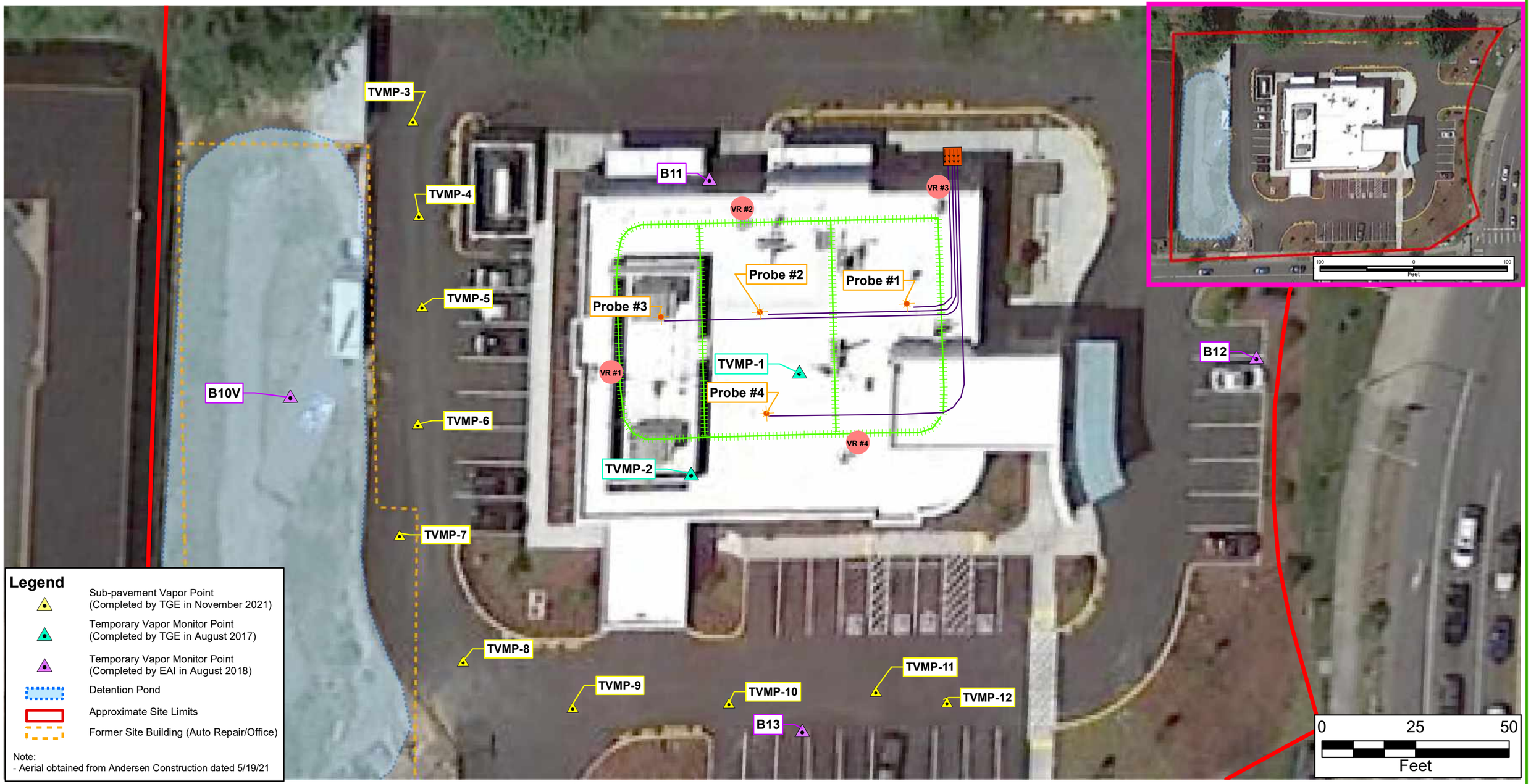

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Figure 2
Vapor Pin Boring Location Map
(Includes VIMS Probes & Former Subslab Test Locations)

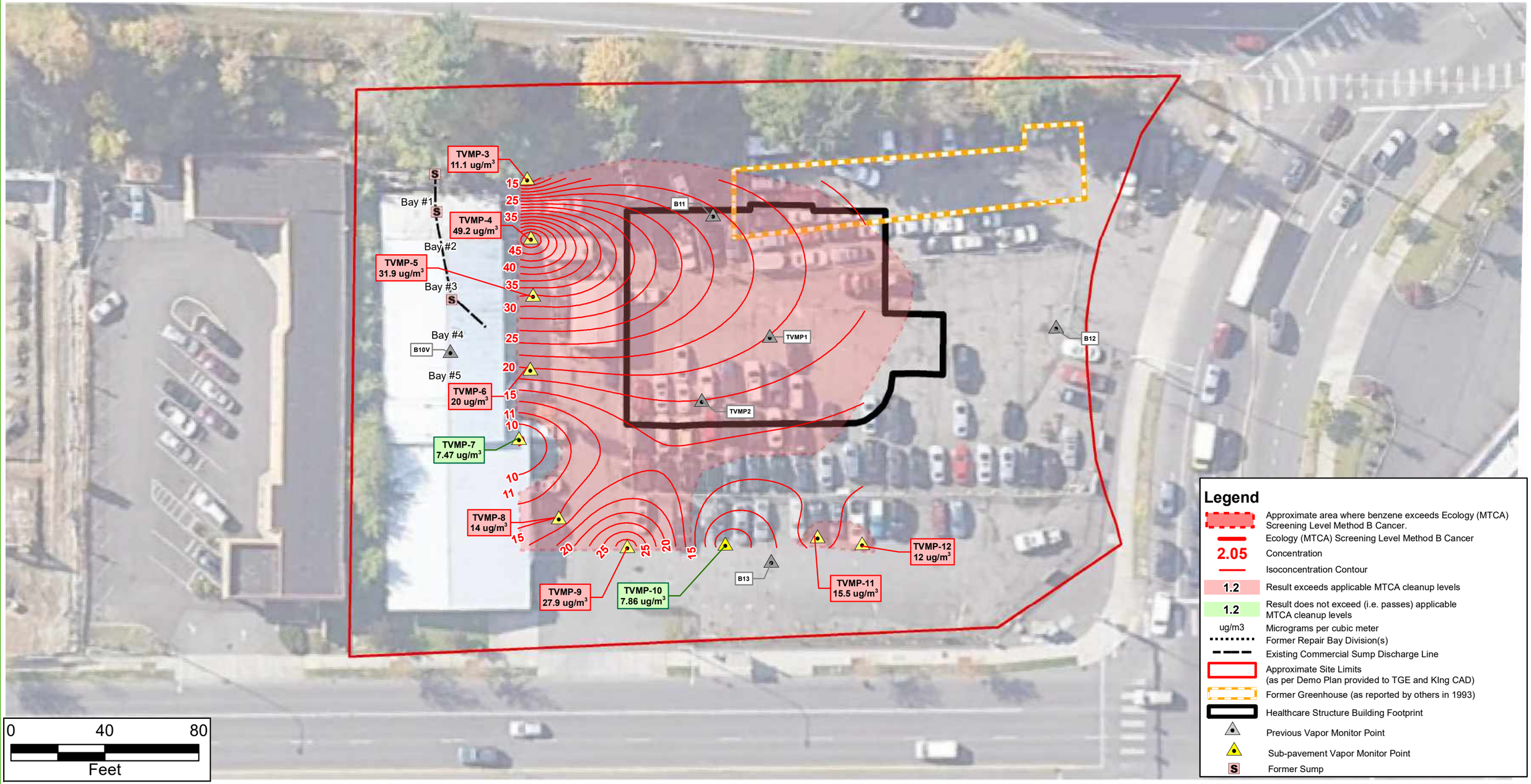

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Figure 3
Soil Vapor Isopleth Concentration Map
Benzene
(November 16, 2021)

TABLES

Table 1
SUB-SURFACE SOIL VAPOR ANALYTICAL RESULTS
Federal Way OCED
Federal Way, Washington
TGE Project No. R13411.11

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E^{-6}) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	TVMP3	TVMP4	TVMP5	TVMP6	TVMP7	TVMP8	TVMP9	TVMP10	TVMP11	TVMP12
Laboratory Identification				L1433098-01	L1433098-02	L1433098-03	L1433098-04	L1433098-05	L1433098-06	L1433098-07	L1433098-08	L1433098-09	L1433098-10
Sample Date				11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021	11/16/2021
Depth Range				1 ft	1 ft	1 ft	1 ft	1 ft	1 ft	1 ft	1 ft	1 ft	1 ft
VOAs													
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**0.408 J**	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	**0.716 J**	<0.608	<0.608	<0.608	**0.615 J**	**0.667 J**	**0.612 J**	**0.675 J**	**0.866 J**	**0.669 J**
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422	<0.422	<0.422	<0.422	<0.422	<0.422	<0.422	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302	<0.302	<0.302	<0.302	<0.302	<0.302	<0.302	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283	<0.283	<0.283	<0.283	<0.283	<0.283	<0.283	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351	<0.351	<0.351	<0.351	<0.351	<0.351	<0.351	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	**1.03**	**2.79**	**1.63**	**2.11**	**0.482 J**	<0.382	**0.53 J**	**0.741 J**	**0.972 J**	**0.569 J**
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23	<0.23	<0.23	**30.5**	**5.66**	<0.23	**9.43**	**46**	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	**0.449 J**	<0.335	<0.335	<0.335	<0.335	<0.335	<0.335	<0.335	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	<0.621	<0.621	<0.621	<0.621	<0.621	<0.621	**3.71**	<0.621	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427	<0.427	<0.427	<0.427	<0.427	<0.427	<0.427	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544	**7.98**	**11.8**	<0.544	<0.544	**6.99**	<0.544	**7.4**	<0.544
2-Propanol	NL	NL	ug/m3	**12.2**	**11.7**	**14**	**28.8**	**4.97**	**8.8**	**21.2**	**10.9**	**9**	**3.79**
4-Ethyltoluene	NL	NL	ug/m3	**2.17**	**5.55**	**2.95**	**6.48**	**0.677 J**	<0.384	<0.384	**1.77**	**1.05**	**1.2**
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313	<0.313	**11.1**	**0.884 J**	<0.313	**8.97**	<0.313	**4.14 J**	<0.313
Acetone	NL	470000	ug/m3	**65.1**	**234**	**425 E**	**447 E**	**55.1**	**29.7**	**428 E**	**35.9**	**176**	**47.8**
Allyl chloride	14	15	ug/m3	<0.357	<0.357	<0.357	<0.357	<0.357	<0.357	<0.357	<0.357	<0.357	<0.357
Benzene	11	460	ug/m3	**11.1**	**49.2**	**31.9**	**20**	**7.47**	**14**	**27.9**	**7.86**	**15.5**	**12**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471	<0.471	<0.471	<0.471	<0.471	<0.471	<0.471	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757	<0.757	<0.757	<0.757	<0.757	<0.757	<0.757	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381	<0.381	<0.381	<0.381	<0.381	<0.381	<0.381	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	**6.41**	**22.8**	**5.54**	**28.9**	**7.87**	**5.73**	**60.1**	**13.5**	**12.5**	**11.3**
Carbon tetrachloride	14	1500	ug/m3	**0.506 J**	<0.461	<0.461	**0.629 J**	<0.461	**0.468 J**	**0.576 J**	**0.496 J**	**0.649 J**	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385	<0.385	<0.385	<0.385	<0.385	<0.385	<0.385	<0.385	<0.385
Chloroethane (Ethyl Chloride)	NL	150000	ug/m3	**5.28**	<0.263	**62.5**	<0.263	<0.263	<0.263	<0.263	<0.263	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**2.21**	**10.3**	**10.2**	**5.89**	**2.5**	<0.213	**4.32**	**1.57**	**1.89**	**2.13**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313	<0.313	<0.313	<0.313	<0.313	<0.313	<0.313	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	**10.6**	**41.7**	**25.4**	**14.1**	**3.89**	**1.76**	**9.4**	**4.37**	**3.48**	**9.81**
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618	<0.618	<0.618	<0.618	<0.618	<0.618	<0.618	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.51**	**2.16**	**2.48**	<0.678	**2.42**	**2.4**	**2.29**	**2.38**	**2.66**	**2.35**
Ethanol	NL	NL	ug/m3	**183**	**159**	**108**	**57.3**	**48.1**	**68.6**	**142**	**126**	**134**	**80.9**
Ethylbenzene	NL	15000	ug/m3	**2.14**	**3.82**	**2.86**	**4.51**	**0.91**	**1.08**	**2.16**	**1.48**	**1.58**	**1.06**
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554	<0.554	<0.554	<0.554	<0.554	<0.554	<0.554	<0.554	<0.554
Heptane	NL	NL	ug/m3	**15**	**75.3**	**52.4**	**21.7**	**5.89**	<0.425	**20.1**	**10.1**	**6.3**	**19.9**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**25.9**	**192**	**105**	**57.5**	**12.9**	**8.99**	**39.5**	**8.5**	**10.1**	**42.7**
Isopropylbenzene	NL	NL	ug/m3	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382
Methyl ethyl ketone	NL	76000	ug/m3	**12.4**	**53.7**	**84.3**	**107**	**11.1**	**7.52**	**97.3**	**24.7**	**43.1**	**7.61**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359	<0.359	<0.359	<0.359	<0.359	<0.359	<0.359	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233	<0.233	<0.233	<0.233	<0.233	<0.233	<0.233	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	<0.34	<0.34	<0.34	<0.34	<0.34	**1.97**	<0.34	**4.9**	<0.34	<0.34
Naphthalene	2.5	46	ug/m3	<1.83	<1.83	<1.83	**3.57**	<1.83	<1.83	<1.83	<1.83	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	**2.78**	**5.33**	**4.55**	**6.16**	**1.21**	**1.12**	**2.13**	**1.95**	**2.09**	**1.33**
Propene	NL	NL	ug/m3	**341**	**1100**	**370**	**1410**	**387**	**15.5**	**532**	<0.16	**468**	**517**
Styrene	NL	15000	ug/m3	**0.774 J**	**1.82**	**1.58**	**1.35**	**0.557 J**	**0.681 J**	**0.944**	**0.536 J**	**1.31**	**0.587 J**
Tetrachloroethene	320	610	ug/m3	**2.91**	**8.28**	**13.3**	<0.553	**4.53**	<0.553	<0.553	<0.553	**16.4**	**2.92**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216	<0.216	<0.216	<0.216	<0.216	<0.216	<0.216	<0.216	<0.216
Toluene	NL	76000	ug/m3	**9.15**	**21**	**20.7**	**24.3**	<0.328	**11.5**	**20.5**	**13**	**9.79**	<0.328
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267	<0.267	<0.267	<0.267	<0.267	<0.267	<0.267	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331	<0.331	<0.331	<0.331	<0.331	<0.331	<0.331	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364	<0.364	<0.364	<0.364	<0.364	<0.364	**5.08**	**1.07 J**	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	<0.46	**6.13**	<0.46	<0.46	**2.23**	**1.31**	<0.46	**1.45**	<0.46	<0.46
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	**2.31**	**5.94**	**4.04**	**8.64**	**1.22**	**0.908 J**	**1.33**	**2.02**	**2.27**	**1.37**
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373	<0.373	<0.373	<0.373	<0.373	<0.373	<0.373	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408	<0.408	<0.408	<0.408	<0.408	<0.408	<0.408	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243	<0.243	<0.243	<0.243	<0.243	<0.243	<0.243	**2.41**	<0.243
Xylene (Total)	NL	1500	ug/m3	**8.06**	**10.2**	**9.19**	**17.6**	**2.96**	**2.59**	**6.33**	**5.33**	**4.51**	**3.13**

Legend

TR = 1E^{-6}	Incremental Lifetime Cancer Risk target value of 1 : 1,000,000
THQ = 1	Target hazard quotient for potential non-cancer effects
1.8	Concentration in blue indicates a level above the method detection limit (MDL) (for Reported Concentrations) and below Ecology Subslab Soil Gas Screening Levels using the "Method B" Cancer health risk model.
NL	Not Listed with a Target Screening Level per US EPA
ug/m^3	Micrograms per cubic meter
---	Soil Vapor attenutation not calculated for constituent concentrations below the laboratory sample quantitation limit.
0.1242	Concentration exceeds the Washington State Department of Ecology Subslab Soil Gas Screening Levels using the "Method B" Cancer health risk model.

Table 2
Interior/Exterior Air Analytical Results
Federal Way OCED
Federal Way, Washington
TGE Project No. R13411.11

Station Name	Indoor Air Method B Cancer (July 2021)	Indoor Air Method B Noncancer (July 2021)	Reporting Units	EXTERIOR	INTERIOR
Laboratory Identification				L1433114-02	L1433114-01
Sample Date				11/16/2021	11/16/2021
				Exterior Air Concentration	Interior Air Concentration
VOAs					
1,1,1-Trichloroethane	NL	2285.714	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	0.043	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	2285.714	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	0.156	0.091	ug/m3	<0.422	<0.422
1,1-Dichloroethane	1.563	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	91.429	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	0.914	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	91.429	ug/m3	<0.77	<0.77
1,2-Dichloroethane	0.096	3.2	ug/m3	<0.283	<0.283
1,2-Dichloropropane	0.676	1.829	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	27.42857143	ug/m3	<0.382	<0.382
1,3-Butadiene	0.083	0.91428571	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	0.227	365.714	ug/m3	<0.335	<0.335
1,4-Dioxane	0.5	13.714	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	13.714	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**2.14 J**	**5680 E**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	1371.429	ug/m3	<0.313	<0.313
Acetone	NL	14171.429	ug/m3	**4.06**	<1.39
Allyl chloride	0.417	0.457	ug/m3	<0.357	<0.357
Benzene	0.321	13.714	ug/m3	**0.495 J**	**0.309 J**
Benzyl chloride	0.051	0.457	ug/m3	<0.311	<0.311
Bromodichloromethane	0.068	NL	ug/m3	<0.471	<0.471
Bromoform	2.273	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	2.286	ug/m3	<0.381	<0.381
Carbon disulfide	NL	320	ug/m3	<0.317	<0.317
Carbon tetrachloride	0.417	45.714	ug/m3	**0.474 J**	**0.465 J**
Chlorobenzene	NL	22.857	ug/m3	<0.385	<0.385
Chloroethane	NL	4571.429	ug/m3	<0.263	<0.263
Chloroform	0.109	44.800	ug/m3	<0.349	<0.349
Chloromethane	NL	41.143	ug/m3	**0.989**	**1.06**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	2742.857	ug/m3	<0.259	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	45.714	ug/m3	**1.78**	**1.67**
Ethanol	NL	NL	ug/m3	**17.1**	**1470**
Ethylbenzene	NL	457.14285714	ug/m3	<0.362	**0.65 J**
Ethylene dibromide	0.004	4.114	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	<0.425	<0.425
Hexachlorobutadiene	0.114	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	320.00000000	ug/m3	<0.726	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	<0.382
Methyl ethyl ketone	NL	2285.714	ug/m3	<0.24	**5.07**
Methyl methacrylate	NL	320	ug/m3	<0.359	<0.359
Methyl tert butyl ether	9.615	NL	ug/m3	<0.233	<0.233
Methylene chloride	65.789	274.286	ug/m3	**1.16**	**0.514 J**
Naphthalene	0.074	1.371	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	**0.893**
Propene	NL	NL	ug/m3	<0.16	<0.16
Styrene	NL	457.14285714	ug/m3	<0.335	**0.596 J**
Tetrachloroethene	9.615	18.28571429	ug/m3	**7.47**	<0.553
Tetrahydrofuran	NL	914.28571429	ug/m3	<0.216	<0.216
Toluene	NL	2285.71428571	ug/m3	**1.24 J**	**4.33**
trans-1,2-Dichloroethene(dichloroethylene)	NL	18.28571429	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	0.33393821	0.914	ug/m3	**34**	**0.534 J**
Trichlorofluoromethane	NL	320	ug/m3	**1.2**	**1.12 J**
Trimethylbenzene, 1,2,4-	NL	27.429	ug/m3	<0.375	<0.375
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	91.429	ug/m3	<0.408	<0.408
Vinylchloride	0.284	45.714	ug/m3	<0.243	<0.243
Xylene (Total)	NL	45.714	ug/m3	**0.65 J**	**3**

Notes:

1.8	Concentration in blue indicates a level above the method detection limit (MDL) (for Reported Concentrations) and below Washington Department of Ecology (Ecology) screening level (if established) for Calculated Indoor Air Concentrations.
NL	Not Listed with a Target Screening Level per Ecology
ug/m^3	Micrograms per cubic meter
20	Result exceeds Ecology's Method B carcinogenic indoor air screening level
J	Analyte is an estimated value between the Reporting Limit (RL) and Method Detection Limit (MDL) (for organics only)

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P1A	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-01	L1432540-01
Sample Location				Above Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	**0.721 J**	**0.545 J**
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	**2.24**	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**74**	**89.7**
4-Ethyltoluene	NL	NL	ug/m3	**1.25**	**0.545 J**
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	**0.802 J**	<0.313
Acetone	NL	470000	ug/m3	**39.9**	**35.4**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**3.12**	**5.62**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	**0.784**	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.562 J**	**0.484 J**
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**1.37**	**3.16**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	**3.19**	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.43**	**2.27**
Ethanol	NL	NL	ug/m3	**192 E**	**157**
Ethylbenzene	NL	15000	ug/m3	**1.5**	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**5.52**	**0.479 J**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**33.2**	<0.726
Isopropylbenzene	NL	NL	ug/m3	**3.33**	**11.8**
Methyl ethyl ketone	NL	76000	ug/m3	**4.33**	**11.9**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**2.2**	**1.16**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	**0.46 J**	<0.359
Propene	NL	NL	ug/m3	<0.16	<0.16
Styrene	NL	15000	ug/m3	**0.561 J**	<0.335
Tetrachloroethene	320	610	ug/m3	**0.842 J**	**0.74 J**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**10.6**	**1.57 J**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.28**	<0.46
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	**1.91**	**0.834 J**
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	**2.52**	<0.585

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P1B	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-05	L1432540-05
Sample Location				Below Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	**0.642 J**	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**43.3**	**19.3**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**19.4**	**6.34**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.486 J**	<0.228
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.542 J**	**0.48 J**
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**1.08**	**1.38**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	<0.259	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.64**	**2.24**
Ethanol	NL	NL	ug/m3	**64.1**	**26.8**
Ethylbenzene	NL	15000	ug/m3	<0.362	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	<0.425	<0.425
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**8.25**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	<0.382
Methyl ethyl ketone	NL	76000	ug/m3	**0.97 J**	**0.799 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**1.05**	**1.05**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	<0.359
Propene	NL	NL	ug/m3	**1.12 B J**	**0.616 B J**
Styrene	NL	15000	ug/m3	<0.335	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	<0.553
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**1.16 J**	**1.12 J**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.23**	**1.17**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	**0.484 J**
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	**0.642 J**	<0.585

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P2A	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-02	L1432540-02
Sample Location				Above Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	**0.635 J**	**0.66 J**
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	**0.738 J**	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**71**	**42.3**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**24.5**	**13**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.645**	**0.361 J**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.57 J**	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**1.21**	**2.73**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	<0.259	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.4**	**2.28**
Ethanol	NL	NL	ug/m3	**47.5**	**79.6**
Ethylbenzene	NL	15000	ug/m3	<0.362	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**0.732 J**	**0.593 J**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**5.54**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	**0.431 J**
Methyl ethyl ketone	NL	76000	ug/m3	**0.832 J**	**2.26 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**0.528 J**	**1.68**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	<0.359
Propene	NL	NL	ug/m3	**1.13 B J**	**0.837 B J**
Styrene	NL	15000	ug/m3	<0.335	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	<0.553
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**0.855 J**	**6.97**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.14**	**1.15**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	<0.375
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	<0.585	<0.585

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P2B	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-06	L1432540-06
Sample Location				Below Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	**0.544 J**	<0.544
2-Propanol	NL	NL	ug/m3	**79.2**	**767 E**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**26.9**	**14.2**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.546 J**	<0.228
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.482 J**	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**1.18**	**1.65**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	<0.259	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.24**	**2.25**
Ethanol	NL	NL	ug/m3	**67.5**	**279 E**
Ethylbenzene	NL	15000	ug/m3	<0.362	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	<0.425	<0.425
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**4.83**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	**1.97**
Methyl ethyl ketone	NL	76000	ug/m3	**1.12 J**	**2.7 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**0.604 J**	**1.48**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	<0.359
Propene	NL	NL	ug/m3	**1.05 B J**	**0.854 B J**
Styrene	NL	15000	ug/m3	**0.352 J**	**0.464 J**
Tetrachloroethene	320	610	ug/m3	<0.553	**3.12**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**0.806 J**	**2.24**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.24**	**1.11 J**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	<0.375
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	<0.585	**0.906 J**

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P3A	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-03	L1432540-03
Sample Location				Above Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	**0.973 J**
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	**4.91**	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**100**	**90.9**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**38.7**	**21.2**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**1.54**	**0.505 J**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.615 J**	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	**0.446 J**
Chloroform	3.6	1500	ug/m3	<0.349	**0.92 J**
Chloromethane	NL	1400	ug/m3	**1.48**	**7.23**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	<0.259	**0.623 J**
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.27**	**2.15**
Ethanol	NL	NL	ug/m3	**72.8**	**477 E**
Ethylbenzene	NL	15000	ug/m3	**0.473 J**	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**3.22**	**1.24**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**17.7**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	**0.58 J**
Methyl ethyl ketone	NL	76000	ug/m3	**1.58 J**	**1.98 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**0.906**	**1.55**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	**0.49 J**
Propene	NL	NL	ug/m3	**1.2 B J**	<0.16
Styrene	NL	15000	ug/m3	<0.335	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	**0.623 J**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**0.821 J**	**5.5**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	**3.48**
Trichlorofluoromethane	NL	11000	ug/m3	**1.24**	**1.15**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	<0.375
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	<0.585	**1.17 J**

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P3B	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-07	L1432540-07
Sample Location				Below Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	**1.01**
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**62.7**	**39.6**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	**0.811 J**	<0.313
Acetone	NL	470000	ug/m3	**9.48**	**9.53**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.476 J**	**0.279 J**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	<0.461	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	<0.349
Chloromethane	NL	1400	ug/m3	**1.23**	**4.77**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	**0.437 J**	<0.259
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.37**	**2.19**
Ethanol	NL	NL	ug/m3	**192 E**	**52.4**
Ethylbenzene	NL	15000	ug/m3	<0.362	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**0.642 J**	**0.462 J**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**28**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	<0.382
Methyl ethyl ketone	NL	76000	ug/m3	**0.885 J**	**1.65 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**0.587 J**	**1.43**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	**0.447 J**
Propene	NL	NL	ug/m3	**0.787 B J**	**0.585 B J**
Styrene	NL	15000	ug/m3	**0.394 J**	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	**2.23**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**2.08**	**1.74 J**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	**1.52**
Trichlorofluoromethane	NL	11000	ug/m3	**1.2**	**1.12 J**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	**0.412 J**	**0.424 J**
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	**0.815 J**	**1.09 J**

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P4A	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-04	L1432540-04
Sample Location				Above Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	**0.446 J**
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	<0.621	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**133**	**127**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	**0.441 J**
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**36.8**	**35.9**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.578 J**	**3.45**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	**0.494 J**	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	**0.372 J**
Chloromethane	NL	1400	ug/m3	**1.16**	**1.93**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	<0.259	**0.558 J**
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.32**	**2.24**
Ethanol	NL	NL	ug/m3	**63.5**	**253 E**
Ethylbenzene	NL	15000	ug/m3	<0.362	**0.676 J**
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**0.519 J**	**1.12**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**5.29**	<0.726
Isopropylbenzene	NL	NL	ug/m3	**0.392 J**	**8.21**
Methyl ethyl ketone	NL	76000	ug/m3	**0.861 J**	**6.1**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**0.569 J**	**1.63**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	<0.359	**0.391 J**
Propene	NL	NL	ug/m3	<0.16	**1.29 B J**
Styrene	NL	15000	ug/m3	<0.335	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	**12**
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**0.606 J**	**2.79**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.14**	**1.12 J**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	**0.731 J**
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	<0.585	**1.33 J**

Table 3
SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS
Former Payless Auto Mart
Federal Way, Washington
TGE Project No. R13411.11 and R13411.12

Station Name	SubSlab Soil Gas Screening Level Method B Cancer (TR=1E-6) (July 2021)	SubSlab Soil Gas Screening Level Method B Noncancer (THQ=1) (July 2021)	Reporting Units	P4B	
Sample Date				8/23/2021	11/15/2021
LabSampleID				L1394233-08	L1432540-08
Sample Location				Below Vapor Barrier	
				Reported Concentration	
VOAs: Method TO-15					
1,1,1-Trichloroethane	NL	76000	ug/m3	<0.4	<0.4
1,1,2,2-Tetrachloroethane	1.4	NL	ug/m3	<0.511	<0.511
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	76000	ug/m3	<0.608	<0.608
1,1,2-Trichloroethane	5.2	3	ug/m3	<0.422	<0.422
1,1-Dichloroethane	52	NL	ug/m3	<0.29	<0.29
1,1-Dichloroethene	NL	3000	ug/m3	<0.302	<0.302
1,2,4-Trichlorobenzene	NL	30	ug/m3	<1.1	<1.1
1,2-Dichlorobenzene	NL	3000	ug/m3	<0.77	<0.77
1,2-Dichloroethane	3.2	110	ug/m3	<0.283	<0.283
1,2-Dichloropropane	23	61	ug/m3	<0.351	<0.351
1,2-Dichlorotetrafluoroethane	NL	NL	ug/m3	<0.622	<0.622
1,3,5-Trimethylbenzene	NL	910	ug/m3	<0.382	<0.382
1,3-Butadiene	2.8	30	ug/m3	<0.23	<0.23
1,3-Dichlorobenzene	NL	NL	ug/m3	<1.09	<1.09
1,4-Dichlorobenzene	7.6	12000	ug/m3	<0.335	<0.335
1,4-Dioxane	17	460	ug/m3	<0.3	<0.3
2,2,4-Trimethylpentane	NL	NL	ug/m3	**1.01**	<0.621
2-Chlorotoluene	NL	NL	ug/m3	<0.427	<0.427
2-Hexanone	NL	460	ug/m3	<0.544	<0.544
2-Propanol	NL	NL	ug/m3	**44.2**	**72**
4-Ethyltoluene	NL	NL	ug/m3	<0.384	<0.384
4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	NL	46000	ug/m3	<0.313	<0.313
Acetone	NL	470000	ug/m3	**13.5**	**14.5**
Allyl chloride	14	15	ug/m3	<0.357	<0.357
Benzene	11	460	ug/m3	**0.556 J**	**0.323 J**
Benzyl chloride	1.7	15	ug/m3	<0.311	<0.311
Bromodichloromethane	2.3	NL	ug/m3	<0.471	<0.471
Bromoform	76	NL	ug/m3	<0.757	<0.757
Bromomethane	NL	76	ug/m3	<0.381	<0.381
Carbon disulfide	NL	11000	ug/m3	<0.317	<0.317
Carbon tetrachloride	14	1500	ug/m3	<0.461	<0.461
Chlorobenzene	NL	760	ug/m3	<0.385	<0.385
Chloroethane	NL	150000	ug/m3	<0.263	<0.263
Chloroform	3.6	1500	ug/m3	<0.349	**0.403 J**
Chloromethane	NL	1400	ug/m3	**1.18**	**1.37**
cis-1,2-Dichloroethene	NL	NL	ug/m3	<0.311	<0.311
cis-1,3-Dichloropropene	NL	NL	ug/m3	<0.313	<0.313
Cyclohexane	NL	91000	ug/m3	**1.55**	**0.754**
Dibromochloromethane	NL	NL	ug/m3	<0.618	<0.618
Dichlorodifluoromethane	NL	1500	ug/m3	**2.27**	**2.06**
Ethanol	NL	NL	ug/m3	**84.3**	**255 E**
Ethylbenzene	NL	15000	ug/m3	<0.362	<0.362
Ethylene dibromide	0.14	140	ug/m3	<0.554	<0.554
Heptane	NL	NL	ug/m3	**1.38**	**1.03**
Hexachlorobutadiene	3.8	NL	ug/m3	<1.12	<1.12
Hexane-n	NL	11000	ug/m3	**10.6**	<0.726
Isopropylbenzene	NL	NL	ug/m3	<0.382	<0.382
Methyl ethyl ketone	NL	76000	ug/m3	**1.57 J**	**1.32 J**
Methyl methacrylate	NL	11000	ug/m3	<0.359	<0.359
Methyl tert butyl ether	320	46000	ug/m3	<0.233	<0.233
Methylene chloride	2200	9100	ug/m3	**11.3**	**1.47**
Naphthalene	2.5	46	ug/m3	<1.83	<1.83
o-Xylene	NL	NL	ug/m3	**0.486 J**	**0.438 J**
Propene	NL	NL	ug/m3	<0.16	<0.16
Styrene	NL	15000	ug/m3	**0.455 J**	<0.335
Tetrachloroethene	320	610	ug/m3	<0.553	<0.553
Tetrahydrofuran	NL	30000	ug/m3	<0.216	<0.216
Toluene	NL	76000	ug/m3	**8.1**	**2.93**
trans-1,2-Dichloroethene(dichloroethylene)	NL	610	ug/m3	<0.267	<0.267
trans-1,3-Dichloropropene	NL	NL	ug/m3	<0.331	<0.331
Trichloroethene	11	30	ug/m3	<0.364	<0.364
Trichlorofluoromethane	NL	11000	ug/m3	**1.17**	**1.1 J**
Trimethylbenzene, 1,2,4-	NL	910	ug/m3	<0.375	<0.375
Vinyl Bromide	NL	NL	ug/m3	<0.373	<0.373
Vinylacetate	NL	3000	ug/m3	<0.408	<0.408
Vinylchloride	9.5	1500	ug/m3	<0.243	<0.243
Xylene (Total)	NL	1500	ug/m3	**1.01 J**	**0.997 J**

Legend

TR = $1E^{-6}$	Incremental Lifetime Cancer Risk target value of 1 : 1,000,000
THQ = 1	Target hazard quotient for potential non-cancer effects
1.8	Concentration in blue indicates a level above the method detection limit (MDL) (for Reported Concentrations) and below USEPA screening level (if established) for Calculated Indoor Air Concentrations.
NL	Not Listed with a Target Screening Level per US EPA
ug/m^3	Micrograms per cubic meter
---	Soil Vapor attenutation not calculated for constituent concentrations below the laboratory sample quantitation limit.
*	Per USEPA Guidance, "Vapor attenuation refers to the reduction in

ATTACHMENT 1

Photograph 1. View of the subject building looking west from Pacific Highway South.

Photograph 2. View of the four above-membrane and four below-membrane VIMS probe outlets.

Photograph 3. An OmniGuard 4 micromanometer used to monitor differential pressure across the building foundation and VIMS barrier.

Photograph 4. View of indoor air testing within the Site building.

Photograph 5. Installation of sub-pavement soil vapor monitoring point TVMP-10, located east of the Site building.

Photograph 6. View of sub-pavement soil vapor monitoring point TVMP-10, located east of the Site building with flush-grade cap in place.

ATTACHMENT 2

ANALYTICAL REPORT

August 31, 2021

Revised Report

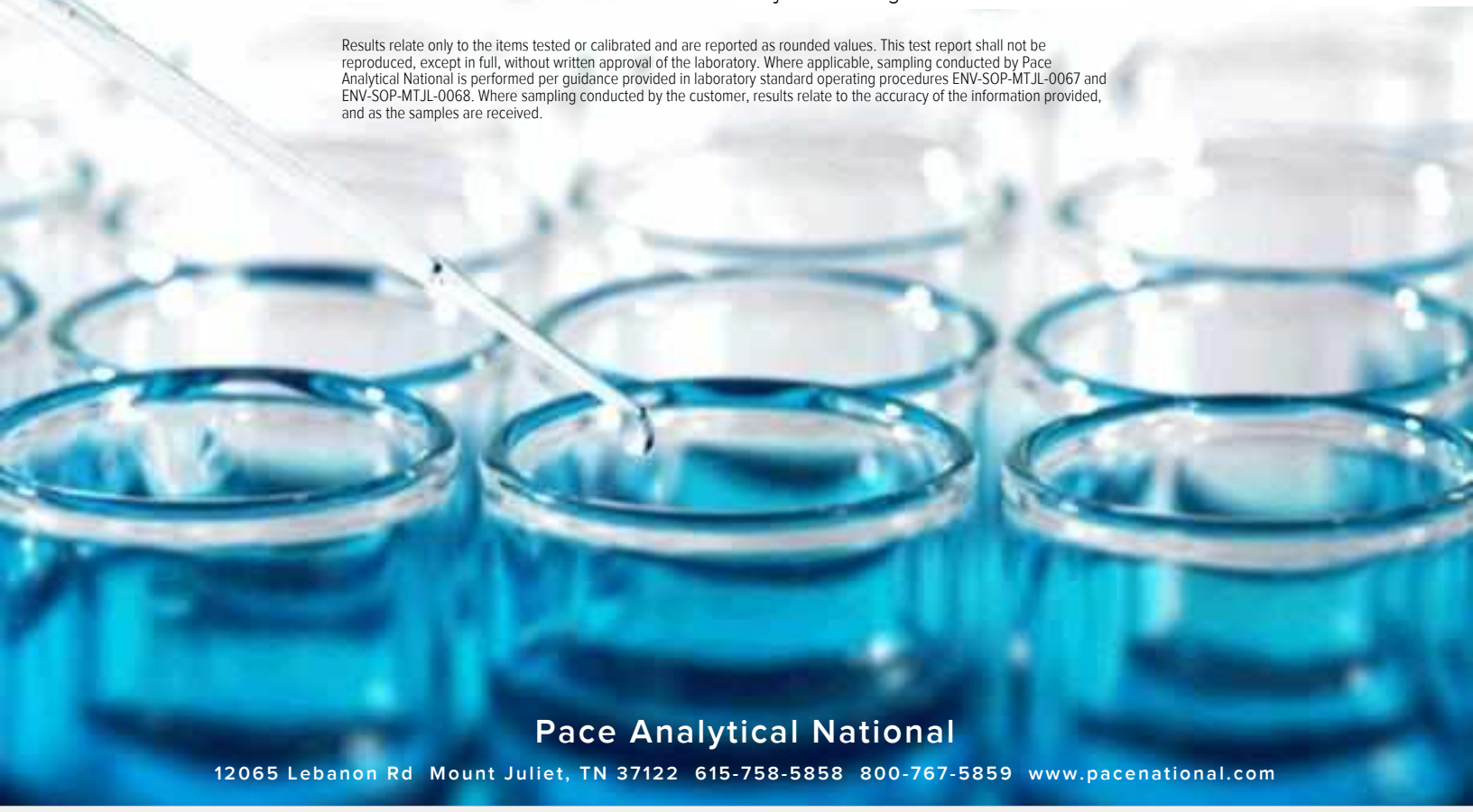
TGE Resources

Sample Delivery Group:	L1394233
Samples Received:	08/24/2021
Project Number:	R13411.06
Description:	Future Federal Way Hospital

Report To: Kristi Barnette
8048 Northcourt Road
Houston, TX 77040

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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P1A L1394233-01 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:46 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/25/21 20:56	08/25/21 20:56	CAW	Mt. Juliet, TN

P2A L1394233-02 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:47 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/25/21 21:37	08/25/21 21:37	CAW	Mt. Juliet, TN

P3A L1394233-03 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:56 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/25/21 22:17	08/25/21 22:17	CAW	Mt. Juliet, TN

P4A L1394233-04 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:55 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/25/21 22:58	08/25/21 22:58	CAW	Mt. Juliet, TN

P1B L1394233-05 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:37 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/25/21 23:37	08/25/21 23:37	CAW	Mt. Juliet, TN

P2B L1394233-06 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:37 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729113	1	08/26/21 00:17	08/26/21 00:17	CAW	Mt. Juliet, TN

P3B L1394233-07 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:35 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729132	1	08/25/21 20:42	08/25/21 20:42	CEP	Mt. Juliet, TN

P4B L1394233-08 Air

Collected by: KB/RR | Collected date/time: 08/23/21 14:35 | Received date/time: 08/24/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1729132	1	08/25/21 21:11	08/25/21 21:11	CEP	Mt. Juliet, TN

CASE NARRATIVE

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.

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 08/31/21 10:15

Project Narrative

Corrected sample ID

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	16.8	39.9		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	0.976	3.12		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	0.252	0.784		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.665	1.37		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	0.926	3.19		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	102	192	E	1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	0.345	1.50		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.254	1.25		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.227	1.28		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.492	2.43		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	1.35	5.52		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	9.42	33.2		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	0.678	3.33		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.634	2.20		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	1.47	4.33		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	30.1	74.0		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	2.81	10.6		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.389	1.91		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.480	2.24		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	0.582	2.52		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.0*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	10.3	24.5		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	0.202	0.645		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.587	1.21		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	25.2	47.5		1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.203	1.14		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.485	2.40		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	1.57	5.54		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	28.9	71.0		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	ND	ND		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.2*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	16.3	38.7		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	0.483	1.54		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.718	1.48		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	38.6	72.8		1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.220	1.24		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.459	2.27		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	0.787	3.22		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	5.03	17.7		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.261	0.906		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	40.8	100		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	ND	ND		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	1.05	4.91		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.2*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	15.5	36.8		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.560	1.16		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	33.7	63.5		1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.203	1.14		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.469	2.32		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	1.50	5.29		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	54.2	133		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	ND	ND		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.7*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	8.17	19.4		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.521	1.08		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	34.0	64.1		1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.219	1.23		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.534	2.64		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	2.34	8.25		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.303	1.05		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	17.6	43.3		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	ND	ND		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.6*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	11.3	26.9		1	WG1729113
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729113
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1729113
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729113
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729113
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729113
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729113
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729113
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729113
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729113
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729113
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729113
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729113
Chloromethane	74-87-3	50.50	0.200	0.413	0.572	1.18		1	WG1729113
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729113
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729113
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729113
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729113
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729113
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729113
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729113
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729113
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729113
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729113
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729113
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729113
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729113
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729113
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729113
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729113
Ethanol	64-17-5	46.10	1.25	2.36	35.8	67.5		1	WG1729113
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729113
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729113
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.221	1.24		1	WG1729113
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.453	2.24		1	WG1729113
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729113
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729113
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1729113
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729113
n-Hexane	110-54-3	86.20	0.630	2.22	1.37	4.83		1	WG1729113
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729113
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1729113
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729113
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729113
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729113
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729113
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729113
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729113
2-Propanol	67-63-0	60.10	1.25	3.07	32.2	79.2		1	WG1729113
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729113
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729113
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729113
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729113
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729113
Toluene	108-88-3	92.10	0.500	1.88	ND	ND		1	WG1729113
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729113
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729113
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729113
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729113
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729113
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1729113
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729113
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729113
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729113
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729113
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729113
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.0*				WG1729113

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	3.99	9.48		1	WG1729132
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729132
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1729132
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729132
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729132
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729132
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729132
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729132
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729132
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729132
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729132
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729132
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729132
Chloromethane	74-87-3	50.50	0.200	0.413	0.595	1.23		1	WG1729132
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729132
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1729132
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729132
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729132
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729132
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729132
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729132
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729132
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729132
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729132
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729132
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729132
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729132
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729132
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729132
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729132
Ethanol	64-17-5	46.10	1.25	2.36	102	192	E	1	WG1729132
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729132
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729132
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.214	1.20		1	WG1729132
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.479	2.37		1	WG1729132
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729132
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729132
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1729132
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729132
n-Hexane	110-54-3	86.20	0.630	2.22	7.93	28.0		1	WG1729132
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729132
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1729132
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729132
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729132
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729132
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729132
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729132
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729132
2-Propanol	67-63-0	60.10	1.25	3.07	25.5	62.7		1	WG1729132
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729132
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729132
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729132
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729132
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729132
Toluene	108-88-3	92.10	0.500	1.88	0.552	2.08		1	WG1729132
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729132

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729132
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729132
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729132
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729132
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729132
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1729132
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729132
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729132
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729132
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729132
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729132
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*102*				WG1729132

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	5.67	13.5		1	WG1729132
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1729132
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1729132
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1729132
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1729132
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1729132
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1729132
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1729132
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1729132
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1729132
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1729132
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1729132
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1729132
Chloromethane	74-87-3	50.50	0.200	0.413	0.573	1.18		1	WG1729132
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1729132
Cyclohexane	110-82-7	84.20	0.200	0.689	0.451	1.55		1	WG1729132
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1729132
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1729132
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1729132
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1729132
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1729132
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1729132
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1729132
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1729132
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1729132
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1729132
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1729132
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1729132
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1729132
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1729132
Ethanol	64-17-5	46.10	1.25	2.36	44.7	84.3		1	WG1729132
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1729132
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1729132
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.208	1.17		1	WG1729132
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.458	2.27		1	WG1729132
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1729132
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1729132
Heptane	142-82-5	100	0.200	0.818	0.337	1.38		1	WG1729132
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1729132
n-Hexane	110-54-3	86.20	0.630	2.22	3.02	10.6		1	WG1729132
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1729132
Methylene Chloride	75-09-2	84.90	0.200	0.694	3.26	11.3		1	WG1729132
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1729132
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1729132
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1729132
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1729132
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1729132
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1729132
2-Propanol	67-63-0	60.10	1.25	3.07	18.0	44.2		1	WG1729132
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG1729132
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1729132
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1729132
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1729132
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1729132
Toluene	108-88-3	92.10	0.500	1.88	2.15	8.10		1	WG1729132
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1729132

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1729132
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1729132
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1729132
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1729132
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1729132
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	0.217	1.01		1	WG1729132
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1729132
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1729132
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1729132
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1729132
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1729132
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*102*				WG1729132

Method Blank (MB)

(MB) R3696623-3 08/25/21 10:32

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	U		0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.200
Ethylbenzene	U		0.0835	0.200
4-Ethyltoluene	U		0.0783	0.200
Trichlorofluoromethane	U		0.0819	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Heptane	U		0.104	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
n-Hexane	U		0.206	0.630
Isopropylbenzene	U		0.0777	0.200

Method Blank (MB)

(MB) R3696623-3 08/25/21 10:32

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl Methacrylate	U		0.0876	0.200
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
2-Propanol	U		0.264	1.25
Propene	0.469	J	0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
Toluene	U		0.0870	0.500
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl chloride	U		0.0949	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
Ethanol	U		0.265	1.25
(S) 1,4-Bromofluorobenzene	*97.4*			*60.0-140*

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

(LCS) R3696623-1 08/25/21 09:12 • (LCSD) R3696623-2 08/25/21 09:52

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.58	3.55	95.5	94.7	55.0-148			0.842	25
Propene	3.75	4.33	4.51	115	120	64.0-144			4.07	25
Dichlorodifluoromethane	3.75	4.23	4.35	113	116	64.0-139			2.80	25
1,2-Dichlorotetrafluoroethane	3.75	4.35	4.37	116	117	70.0-130			0.459	25
Chloromethane	3.75	3.90	3.87	104	103	70.0-130			0.772	25

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

(LCS) R3696623-1 08/25/21 09:12 • (LCSD) R3696623-2 08/25/21 09:52

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.57	3.69	95.2	98.4	70.0-130			3.31	25
1,3-Butadiene	3.75	3.33	3.35	88.8	89.3	70.0-130			0.599	25
Bromomethane	3.75	3.66	3.65	97.6	97.3	70.0-130			0.274	25
Chloroethane	3.75	3.53	3.56	94.1	94.9	70.0-130			0.846	25
Trichlorofluoromethane	3.75	3.88	3.88	103	103	70.0-130			0.000	25
1,1,2-Trichlorotrifluoroethane	3.75	4.29	4.30	114	115	70.0-130			0.233	25
1,1-Dichloroethene	3.75	4.12	4.28	110	114	70.0-130			3.81	25
1,1-Dichloroethane	3.75	4.29	4.30	114	115	70.0-130			0.233	25
Acetone	3.75	4.15	4.08	111	109	70.0-130			1.70	25
2-Propanol	3.75	4.03	4.11	107	110	70.0-139			1.97	25
Carbon disulfide	3.75	4.21	4.30	112	115	70.0-130			2.12	25
Methylene Chloride	3.75	4.24	4.33	113	115	70.0-130			2.10	25
MTBE	3.75	4.22	4.17	113	111	70.0-130			1.19	25
trans-1,2-Dichloroethene	3.75	4.28	4.25	114	113	70.0-130			0.703	25
n-Hexane	3.75	4.24	4.31	113	115	70.0-130			1.64	25
Vinyl acetate	3.75	4.18	4.27	111	114	70.0-130			2.13	25
Methyl Ethyl Ketone	3.75	4.41	4.31	118	115	70.0-130			2.29	25
cis-1,2-Dichloroethene	3.75	4.30	4.31	115	115	70.0-130			0.232	25
Chloroform	3.75	4.39	4.33	117	115	70.0-130			1.38	25
Cyclohexane	3.75	4.29	4.33	114	115	70.0-130			0.928	25
1,1,1-Trichloroethane	3.75	4.37	4.37	117	117	70.0-130			0.000	25
Carbon tetrachloride	3.75	4.10	4.08	109	109	70.0-130			0.489	25
Benzene	3.75	4.38	4.36	117	116	70.0-130			0.458	25
1,2-Dichloroethane	3.75	4.38	4.44	117	118	70.0-130			1.36	25
Heptane	3.75	4.45	4.34	119	116	70.0-130			2.50	25
Trichloroethylene	3.75	4.30	4.52	115	121	70.0-130			4.99	25
1,2-Dichloropropane	3.75	4.36	4.34	116	116	70.0-130			0.460	25
1,4-Dioxane	3.75	3.96	4.14	106	110	70.0-140			4.44	25
Bromodichloromethane	3.75	4.36	4.39	116	117	70.0-130			0.686	25
cis-1,3-Dichloropropene	3.75	4.29	4.31	114	115	70.0-130			0.465	25
4-Methyl-2-pentanone (MIBK)	3.75	4.29	4.19	114	112	70.0-139			2.36	25
Toluene	3.75	4.37	4.34	117	116	70.0-130			0.689	25
trans-1,3-Dichloropropene	3.75	4.44	4.37	118	117	70.0-130			1.59	25
1,1,2-Trichloroethane	3.75	4.28	4.39	114	117	70.0-130			2.54	25
Tetrachloroethylene	3.75	4.22	4.20	113	112	70.0-130			0.475	25
Methyl Butyl Ketone	3.75	4.17	4.21	111	112	70.0-149			0.955	25
Dibromochloromethane	3.75	4.28	4.38	114	117	70.0-130			2.31	25
1,2-Dibromoethane	3.75	4.40	4.31	117	115	70.0-130			2.07	25
Chlorobenzene	3.75	4.54	4.62	121	123	70.0-130			1.75	25
Ethylbenzene	3.75	4.35	4.36	116	116	70.0-130			0.230	25

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

(LCS) R3696623-1 08/25/21 09:12 • (LCSD) R3696623-2 08/25/21 09:52

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.60	8.68	115	116	70.0-130			0.926	25
o-Xylene	3.75	4.33	4.36	115	116	70.0-130			0.690	25
Styrene	3.75	4.40	4.43	117	118	70.0-130			0.679	25
Bromoform	3.75	4.13	4.25	110	113	70.0-130			2.86	25
1,1,2,2-Tetrachloroethane	3.75	4.45	4.55	119	121	70.0-130			2.22	25
4-Ethyltoluene	3.75	4.38	4.45	117	119	70.0-130			1.59	25
1,3,5-Trimethylbenzene	3.75	4.33	4.38	115	117	70.0-130			1.15	25
1,2,4-Trimethylbenzene	3.75	4.31	4.38	115	117	70.0-130			1.61	25
1,3-Dichlorobenzene	3.75	4.36	4.52	116	121	70.0-130			3.60	25
1,4-Dichlorobenzene	3.75	4.54	4.51	121	120	70.0-130			0.663	25
Benzyl Chloride	3.75	4.43	4.45	118	119	70.0-152			0.450	25
1,2-Dichlorobenzene	3.75	4.43	4.49	118	120	70.0-130			1.35	25
1,2,4-Trichlorobenzene	3.75	4.61	4.70	123	125	70.0-160			1.93	25
Hexachloro-1,3-butadiene	3.75	4.38	4.44	117	118	70.0-151			1.36	25
Naphthalene	3.75	4.50	4.57	120	122	70.0-159			1.54	25
Allyl Chloride	3.75	3.89	4.70	104	125	70.0-130			18.9	25
2-Chlorotoluene	3.75	4.36	4.43	116	118	70.0-130			1.59	25
Methyl Methacrylate	3.75	4.16	4.23	111	113	70.0-130			1.67	25
Tetrahydrofuran	3.75	4.26	4.30	114	115	70.0-137			0.935	25
2,2,4-Trimethylpentane	3.75	4.39	4.33	117	115	70.0-130			1.38	25
Vinyl Bromide	3.75	3.67	3.66	97.9	97.6	70.0-130			0.273	25
Isopropylbenzene	3.75	4.31	4.36	115	116	70.0-130			1.15	25
(S) 1,4-Bromofluorobenzene				*100*	*99.3*	*60.0-140*				

Method Blank (MB)

(MB) R3697004-3 08/25/21 09:57

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	U		0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.200
Ethylbenzene	U		0.0835	0.200
4-Ethyltoluene	U		0.0783	0.200
Trichlorofluoromethane	U		0.0819	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Heptane	U		0.104	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
n-Hexane	U		0.206	0.630
Isopropylbenzene	U		0.0777	0.200

Method Blank (MB)

(MB) R3697004-3 08/25/21 09:57

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl Methacrylate	U		0.0876	0.200
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
2-Propanol	U		0.264	1.25
Propene	0.229	J	0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
Toluene	U		0.0870	0.500
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl chloride	U		0.0949	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
Ethanol	U		0.265	1.25
(S) 1,4-Bromofluorobenzene	*102*			*60.0-140*

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

(LCS) R3697004-1 08/25/21 08:58 • (LCSD) R3697004-2 08/25/21 09:28

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.74	3.97	99.7	106	55.0-148			5.97	25
Propene	3.75	4.11	4.20	110	112	64.0-144			2.17	25
Dichlorodifluoromethane	3.75	3.97	4.08	106	109	64.0-139			2.73	25
1,2-Dichlorotetrafluoroethane	3.75	3.90	4.04	104	108	70.0-130			3.53	25
Chloromethane	3.75	3.96	4.07	106	109	70.0-130			2.74	25

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

(LCS) R3697004-1 08/25/21 08:58 • (LCSD) R3697004-2 08/25/21 09:28

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	4.05	4.11	108	110	70.0-130			1.47	25
1,3-Butadiene	3.75	3.95	4.17	105	111	70.0-130			5.42	25
Bromomethane	3.75	3.76	3.78	100	101	70.0-130			0.531	25
Chloroethane	3.75	3.88	3.92	103	105	70.0-130			1.03	25
Trichlorofluoromethane	3.75	3.89	4.12	104	110	70.0-130			5.74	25
1,1,2-Trichlorotrifluoroethane	3.75	3.92	4.05	105	108	70.0-130			3.26	25
1,1-Dichloroethene	3.75	4.20	4.39	112	117	70.0-130			4.42	25
1,1-Dichloroethane	3.75	4.24	4.50	113	120	70.0-130			5.95	25
Acetone	3.75	4.07	4.36	109	116	70.0-130			6.88	25
2-Propanol	3.75	3.96	4.19	106	112	70.0-139			5.64	25
Carbon disulfide	3.75	4.04	4.29	108	114	70.0-130			6.00	25
Methylene Chloride	3.75	4.13	4.41	110	118	70.0-130			6.56	25
MTBE	3.75	4.07	4.25	109	113	70.0-130			4.33	25
trans-1,2-Dichloroethene	3.75	4.24	4.47	113	119	70.0-130			5.28	25
n-Hexane	3.75	4.29	4.57	114	122	70.0-130			6.32	25
Vinyl acetate	3.75	4.26	4.55	114	121	70.0-130			6.58	25
Methyl Ethyl Ketone	3.75	4.26	4.63	114	123	70.0-130			8.32	25
cis-1,2-Dichloroethene	3.75	4.20	4.45	112	119	70.0-130			5.78	25
Chloroform	3.75	4.04	4.17	108	111	70.0-130			3.17	25
Cyclohexane	3.75	3.96	4.12	106	110	70.0-130			3.96	25
1,1,1-Trichloroethane	3.75	3.86	4.11	103	110	70.0-130			6.27	25
Carbon tetrachloride	3.75	3.76	3.94	100	105	70.0-130			4.68	25
Benzene	3.75	4.01	4.05	107	108	70.0-130			0.993	25
1,2-Dichloroethane	3.75	4.34	4.35	116	116	70.0-130			0.230	25
Heptane	3.75	4.39	4.44	117	118	70.0-130			1.13	25
Trichloroethylene	3.75	3.95	3.99	105	106	70.0-130			1.01	25
1,2-Dichloropropane	3.75	4.29	4.40	114	117	70.0-130			2.53	25
1,4-Dioxane	3.75	3.93	3.92	105	105	70.0-140			0.255	25
Bromodichloromethane	3.75	4.17	4.16	111	111	70.0-130			0.240	25
cis-1,3-Dichloropropene	3.75	4.05	4.15	108	111	70.0-130			2.44	25
4-Methyl-2-pentanone (MIBK)	3.75	4.40	4.45	117	119	70.0-139			1.13	25
Toluene	3.75	3.95	3.96	105	106	70.0-130			0.253	25
trans-1,3-Dichloropropene	3.75	4.14	4.09	110	109	70.0-130			1.22	25
1,1,2-Trichloroethane	3.75	3.87	3.89	103	104	70.0-130			0.515	25
Tetrachloroethylene	3.75	3.73	3.78	99.5	101	70.0-130			1.33	25
Methyl Butyl Ketone	3.75	4.54	4.71	121	126	70.0-149			3.68	25
Dibromochloromethane	3.75	3.79	3.91	101	104	70.0-130			3.12	25
1,2-Dibromoethane	3.75	3.96	4.05	106	108	70.0-130			2.25	25
Chlorobenzene	3.75	3.85	3.92	103	105	70.0-130			1.80	25
Ethylbenzene	3.75	4.02	3.94	107	105	70.0-130			2.01	25

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

(LCS) R3697004-1 08/25/21 08:58 • (LCSD) R3697004-2 08/25/21 09:28

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.17	8.11	109	108	70.0-130			0.737	25
o-Xylene	3.75	4.01	3.98	107	106	70.0-130			0.751	25
Styrene	3.75	3.98	3.97	106	106	70.0-130			0.252	25
Bromoform	3.75	3.77	3.77	101	101	70.0-130			0.000	25
1,1,2,2-Tetrachloroethane	3.75	4.21	4.17	112	111	70.0-130			0.955	25
4-Ethyltoluene	3.75	3.97	3.90	106	104	70.0-130			1.78	25
1,3,5-Trimethylbenzene	3.75	4.00	3.99	107	106	70.0-130			0.250	25
1,2,4-Trimethylbenzene	3.75	3.97	3.91	106	104	70.0-130			1.52	25
1,3-Dichlorobenzene	3.75	3.88	3.90	103	104	70.0-130			0.514	25
1,4-Dichlorobenzene	3.75	4.00	3.95	107	105	70.0-130			1.26	25
Benzyl Chloride	3.75	4.29	4.07	114	109	70.0-152			5.26	25
1,2-Dichlorobenzene	3.75	3.91	3.83	104	102	70.0-130			2.07	25
1,2,4-Trichlorobenzene	3.75	4.21	4.10	112	109	70.0-160			2.65	25
Hexachloro-1,3-butadiene	3.75	3.89	3.68	104	98.1	70.0-151			5.55	25
Naphthalene	3.75	4.14	4.04	110	108	70.0-159			2.44	25
Allyl Chloride	3.75	3.97	4.29	106	114	70.0-130			7.75	25
2-Chlorotoluene	3.75	3.96	3.99	106	106	70.0-130			0.755	25
Methyl Methacrylate	3.75	4.16	4.15	111	111	70.0-130			0.241	25
Tetrahydrofuran	3.75	4.14	4.33	110	115	70.0-137			4.49	25
2,2,4-Trimethylpentane	3.75	4.39	4.52	117	121	70.0-130			2.92	25
Vinyl Bromide	3.75	3.76	3.89	100	104	70.0-130			3.40	25
Isopropylbenzene	3.75	3.98	3.93	106	105	70.0-130			1.26	25
(S) 1,4-Bromofluorobenzene				*103*	*101*	*60.0-140*				

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	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.
U	Not detected at the Reporting Limit (or MDL where applicable).
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 (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.
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	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

* 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 Analytical.

Company Name/Address:
TGE Resources

8048 Northcourt Road
Houston, TX 77040

Billing Information:
Kim Pham
8048 Northcourt Road
Houston, TX 77040

Pres Chk

Report to:
Kristi Barnette

Email To:
krbarnette@tgeresources.com;tecrump@tgeres

Project Description:
Federal Way OCED

City/State Collected: Federal Way, WA

Please Circle: (PT) MT CT ET

Phone: **713-744-5800**

Client Project #
R13411.06

Lab Project #
TGERESHTX-R13411

Collected by (print):
K. Barnette R. Thompson

Site/Facility ID #

P.O. #
9626

Collected by (signature):

Immediately Packed on Ice N X Y ___

Rush? (Lab MUST Be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa									Remarks	Sample # (lab only)
P1A	Grab	Air	–	8/23/21	1446	1	X										-01
P2A	Grab	Air	–	8/23/21	1447	1	X										-02
P3A	Grab	Air	–	8/23/21	1456	1	X										-03
P4A	Grab	Air	–	8/23/21	1455	1	X										-04
P1B	Grab	Air	–	8/23/21	1437	1	X										-05
P2B	Grab	Air	–	8/23/21	1437	1	X										-06
P3B	Grab	Air	–	8/23/21	1435	1	X										-07
P4B	Grab	Air	–	8/23/21	1435	1	X										-08
		Air															
		Air															

Chain of Custody Page ___ of ___

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1394233

Table # L-017

Acctnum: **TGERESHTX**

Template: **T193127**

Prelogin: **P868583**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 9362 4956 6867

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		X N
Bottles arrive intact:		X N
Correct bottles used:		X N
Sufficient volume sent:		X N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		X N

	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	
Relinquished by : (Signature)	8/23/21	1500			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
				Amb 8	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8-24-21 Time: 0930	Hold: Condition: NCF / OK
			B. Barnes		

ANALYTICAL REPORT

November 24, 2021

TGE Resources

Sample Delivery Group:	L1432540
Samples Received:	11/17/2021
Project Number:	R13411.12
Description:	Off-Campus Emergency Department - Federal Way

Report To: Kristi Barnette
8048 Northcourt Road
Houston, TX 77040

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

P1A L1432540-01 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:50 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 15:37	11/18/21 15:37	DAH	Mt. Juliet, TN

P2A L1432540-02 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:42 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 16:06	11/18/21 16:06	CEP	Mt. Juliet, TN

P3A L1432540-03 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 12:06 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 16:35	11/18/21 16:35	MBF	Mt. Juliet, TN

P4A L1432540-04 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:59 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 17:04	11/18/21 17:04	CEP	Mt. Juliet, TN

P1B L1432540-05 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:42 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 17:33	11/18/21 17:33	CEP	Mt. Juliet, TN

P2B L1432540-06 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:51 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 18:02	11/18/21 18:02	CEP	Mt. Juliet, TN

P3B L1432540-07 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 12:06 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 18:31	11/18/21 18:31	CEP	Mt. Juliet, TN

P4B L1432540-08 Air

Collected by: R. Thompson | Collected date/time: 11/15/21 11:59 | Received date/time: 11/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1776553	1	11/18/21 19:00	11/18/21 19:00	CEP	Mt. Juliet, TN

CASE NARRATIVE

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.

Mark W. Beasley
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 13:06
Project Name: Off-Campus Emergency Department - Federal Way	Laboratory Job Number: L1432540-01, 02, 03, 04, 05, 06, 07 and 08
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1776553

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 13:06
Project Name: Off-Campus Emergency Department - Federal Way	Laboratory Job Number: L1432540-01, 02, 03, 04, 05, 06, 07 and 08
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1776553

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 13:06
Project Name: Off-Campus Emergency Department - Federal Way	Laboratory Job Number: L1432540-01, 02, 03, 04, 05, 06, 07 and 08
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1776553

ER #[1]	Description
1	TO-15 WG1776553 L1432540-03, 04, 06 and 08: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	35.4		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	5.62		1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.484	J	1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	3.16		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	157		1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	0.545	J	1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.27		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	0.479	J	1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	11.8		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.16		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	11.9		1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	89.7		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	0.740	J	1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	1.57	J	1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	0.834	J	1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.545	J	1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	U		1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	U		1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*99.5*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	13.0		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.361	J	1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	2.73		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	79.6		1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.15		1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.28		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.660	J	1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	0.593	J	1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	0.431	J	1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.68		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	2.26	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	42.3		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	0.837	B J	1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	6.97		1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	U		1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	U		1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*98.8*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	21.2		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.505	J	1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	0.446	J	1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	0.920	J	1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	7.23		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	0.623	J	1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	477	E	1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.15		1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.15		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.973	J	1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	1.24		1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	0.580	J	1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.55		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	1.98	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	90.9		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	0.623	J	1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	5.50		1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	3.48		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	1.17	J	1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	0.490	J	1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*96.9*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	35.9		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	3.45		1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	0.372	J	1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.93		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	0.558	J	1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	253	E	1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	0.676	J	1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	0.441	J	1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.12	J	1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.24		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	1.12		1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	8.21		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.63		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	6.10		1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	127		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	1.29	B J	1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	12.0		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	2.79		1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	0.731	J	1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.446	J	1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	1.33	J	1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	0.391	J	1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*98.3*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	6.34		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	U		1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.480	J	1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.38		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	26.8		1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.17		1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.24		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	U		1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.05		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	0.799	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	19.3		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	0.616	B J	1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	1.12	J	1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	0.484	J	1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	U		1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	U		1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*98.3*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	14.2		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	U		1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.65		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	279	E	1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.11	J	1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.25		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	U		1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	1.97		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.48		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	2.70	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	767	E	1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	0.854	B J	1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	0.464	J	1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	3.12		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	2.24		1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	0.906	J	1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	U		1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*99.9*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	9.53		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.279	J	1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	4.77		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	52.4		1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.12	J	1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.19		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	0.462	J	1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.43		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	1.65	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	39.6		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	0.585	B J	1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	2.23		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	1.74	J	1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	1.52		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	0.424	J	1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	1.01		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	1.09	J	1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	0.447	J	1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*99.2*		*60.0-140*	WG1776553

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	14.5		1	WG1776553
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1776553
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.323	J	1	WG1776553
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1776553
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1776553
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1776553
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1776553
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1776553
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1776553
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1776553
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1776553
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1776553
Chloroform	67-66-3	119	0.349	0.973	0.973	0.403	J	1	WG1776553
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.37		1	WG1776553
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1776553
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	0.754		1	WG1776553
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1776553
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1776553
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1776553
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1776553
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1776553
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1776553
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1776553
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1776553
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1776553
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1776553
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1776553
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1776553
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1776553
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1776553
Ethanol	64-17-5	46.10	0.500	2.36	2.36	255	E	1	WG1776553
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1776553
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1776553
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.10	J	1	WG1776553
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.06		1	WG1776553
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1776553
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1776553
Heptane	142-82-5	100	0.425	0.818	0.818	1.03		1	WG1776553
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1776553
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1776553
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1776553
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.47		1	WG1776553
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1776553
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	1.32	J	1	WG1776553
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1776553
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1776553
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1776553
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1776553
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	72.0		1	WG1776553
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1776553
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1776553
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1776553
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1776553
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1776553
Toluene	108-88-3	92.10	0.328	1.88	1.88	2.93		1	WG1776553
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1776553

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1776553
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1776553
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1776553
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1776553
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1776553
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1776553
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1776553
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1776553
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1776553
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	0.997	J	1	WG1776553
o-Xylene	95-47-6	106	0.359	0.867	0.867	0.438	J	1	WG1776553
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.5*		*60.0-140*	WG1776553

Method Blank (MB)

(MB) R3731149-3 11/18/21 09:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	U		0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.200
Ethylbenzene	U		0.0835	0.200
4-Ethyltoluene	U		0.0783	0.200
Trichlorofluoromethane	U		0.0819	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Heptane	U		0.104	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
n-Hexane	U		0.206	0.630
Isopropylbenzene	U		0.0777	0.200

Method Blank (MB)

(MB) R3731149-3 11/18/21 09:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl Methacrylate	U		0.0876	0.200
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
2-Propanol	U		0.264	1.25
Propene	0.121	J	0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
Toluene	U		0.0870	0.500
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl chloride	U		0.0949	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
Ethanol	U		0.265	1.25
(S) 1,4-Bromofluorobenzene	*96.3*			*60.0-140*

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

(LCS) R3731149-1 11/18/21 08:36 • (LCSD) R3731149-2 11/18/21 09:06

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.51	3.78	93.6	101	55.0-148			7.41	25
Propene	3.75	3.41	3.30	90.9	88.0	64.0-144			3.28	25
Dichlorodifluoromethane	3.75	3.86	3.79	103	101	64.0-139			1.83	25
1,2-Dichlorotetrafluoroethane	3.75	3.84	3.82	102	102	70.0-130			0.522	25
Chloromethane	3.75	3.82	3.82	102	102	70.0-130			0.000	25

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

(LCS) R3731149-1 11/18/21 08:36 • (LCSD) R3731149-2 11/18/21 09:06

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.79	3.81	101	102	70.0-130			0.526	25
1,3-Butadiene	3.75	4.06	3.21	108	85.6	70.0-130			23.4	25
Bromomethane	3.75	3.85	3.90	103	104	70.0-130			1.29	25
Chloroethane	3.75	3.97	3.73	106	99.5	70.0-130			6.23	25
Trichlorofluoromethane	3.75	3.78	3.78	101	101	70.0-130			0.000	25
1,1,2-Trichlorotrifluoroethane	3.75	3.85	3.76	103	100	70.0-130			2.37	25
1,1-Dichloroethene	3.75	3.96	3.99	106	106	70.0-130			0.755	25
1,1-Dichloroethane	3.75	3.83	3.88	102	103	70.0-130			1.30	25
Acetone	3.75	4.14	3.98	110	106	70.0-130			3.94	25
2-Propanol	3.75	3.79	3.69	101	98.4	70.0-139			2.67	25
Carbon disulfide	3.75	4.08	3.94	109	105	70.0-130			3.49	25
Methylene Chloride	3.75	3.93	3.89	105	104	70.0-130			1.02	25
MTBE	3.75	3.80	3.79	101	101	70.0-130			0.264	25
trans-1,2-Dichloroethene	3.75	3.83	3.78	102	101	70.0-130			1.31	25
n-Hexane	3.75	3.88	3.87	103	103	70.0-130			0.258	25
Vinyl acetate	3.75	4.05	3.95	108	105	70.0-130			2.50	25
Methyl Ethyl Ketone	3.75	3.65	3.65	97.3	97.3	70.0-130			0.000	25
cis-1,2-Dichloroethene	3.75	3.86	3.82	103	102	70.0-130			1.04	25
Chloroform	3.75	3.83	3.84	102	102	70.0-130			0.261	25
Cyclohexane	3.75	3.84	3.80	102	101	70.0-130			1.05	25
1,1,1-Trichloroethane	3.75	3.81	3.87	102	103	70.0-130			1.56	25
Carbon tetrachloride	3.75	3.88	3.84	103	102	70.0-130			1.04	25
Benzene	3.75	3.86	3.79	103	101	70.0-130			1.83	25
1,2-Dichloroethane	3.75	3.92	3.77	105	101	70.0-130			3.90	25
Heptane	3.75	3.92	3.77	105	101	70.0-130			3.90	25
Trichloroethylene	3.75	3.91	3.68	104	98.1	70.0-130			6.06	25
1,2-Dichloropropane	3.75	3.90	3.75	104	100	70.0-130			3.92	25
1,4-Dioxane	3.75	4.07	3.74	109	99.7	70.0-140			8.45	25
Bromodichloromethane	3.75	4.05	3.81	108	102	70.0-130			6.11	25
cis-1,3-Dichloropropene	3.75	4.01	3.97	107	106	70.0-130			1.00	25
4-Methyl-2-pentanone (MIBK)	3.75	4.19	4.00	112	107	70.0-139			4.64	25
Toluene	3.75	3.83	3.78	102	101	70.0-130			1.31	25
trans-1,3-Dichloropropene	3.75	4.05	3.83	108	102	70.0-130			5.58	25
1,1,2-Trichloroethane	3.75	3.76	3.71	100	98.9	70.0-130			1.34	25
Tetrachloroethylene	3.75	3.77	3.60	101	96.0	70.0-130			4.61	25
Methyl Butyl Ketone	3.75	4.28	4.15	114	111	70.0-149			3.08	25
Dibromochloromethane	3.75	4.17	3.96	111	106	70.0-130			5.17	25
1,2-Dibromoethane	3.75	3.91	3.87	104	103	70.0-130			1.03	25
Chlorobenzene	3.75	3.80	3.76	101	100	70.0-130			1.06	25
Ethylbenzene	3.75	3.76	3.73	100	99.5	70.0-130			0.801	25

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

(LCS) R3731149-1 11/18/21 08:36 • (LCSD) R3731149-2 11/18/21 09:06

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.84	7.59	105	101	70.0-130			3.24	25
o-Xylene	3.75	3.89	3.87	104	103	70.0-130			0.515	25
Styrene	3.75	3.93	3.89	105	104	70.0-130			1.02	25
Bromoform	3.75	4.14	4.21	110	112	70.0-130			1.68	25
1,1,2,2-Tetrachloroethane	3.75	3.97	3.93	106	105	70.0-130			1.01	25
4-Ethyltoluene	3.75	3.97	3.93	106	105	70.0-130			1.01	25
1,3,5-Trimethylbenzene	3.75	3.91	3.76	104	100	70.0-130			3.91	25
1,2,4-Trimethylbenzene	3.75	3.85	3.84	103	102	70.0-130			0.260	25
1,3-Dichlorobenzene	3.75	4.00	3.91	107	104	70.0-130			2.28	25
1,4-Dichlorobenzene	3.75	4.10	4.08	109	109	70.0-130			0.489	25
Benzyl Chloride	3.75	5.57	5.18	149	138	70.0-152			7.26	25
1,2-Dichlorobenzene	3.75	4.08	4.09	109	109	70.0-130			0.245	25
1,2,4-Trichlorobenzene	3.75	4.01	3.92	107	105	70.0-160			2.27	25
Hexachloro-1,3-butadiene	3.75	3.76	3.71	100	98.9	70.0-151			1.34	25
Naphthalene	3.75	4.39	4.27	117	114	70.0-159			2.77	25
Allyl Chloride	3.75	3.91	3.97	104	106	70.0-130			1.52	25
2-Chlorotoluene	3.75	3.95	3.77	105	101	70.0-130			4.66	25
Methyl Methacrylate	3.75	3.90	3.87	104	103	70.0-130			0.772	25
Tetrahydrofuran	3.75	3.88	3.90	103	104	70.0-137			0.514	25
2,2,4-Trimethylpentane	3.75	3.88	3.83	103	102	70.0-130			1.30	25
Vinyl Bromide	3.75	3.69	3.59	98.4	95.7	70.0-130			2.75	25
Isopropylbenzene	3.75	3.83	3.76	102	100	70.0-130			1.84	25
(S) 1,4-Bromofluorobenzene				*104*	*103*	*60.0-140*				

GLOSSARY OF TERMS

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	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.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
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 (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.
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	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

* 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 Analytical.

Company Name/Address:
TGE Resources

8048 Northcourt Road
Houston, TX 77040

Billing Information:
Kim Pham
8048 Northcourt Road
Houston, TX 77040

Pres Chk

Report to:
Kristi Barnette

Email To: **krbarnette@tgeresources.com**

Project Description:
Off-Campus Emergency Department - Federal Way

City/State Collected: Federal Way, WA

Please Circle: (PT) MT CT ET

Phone: **713-744-5800**

Client Project #
R13411.06
12

Lab Project #
TGERESHTX-R1341106

Collected by (print):
R. Thompson

Site/Facility ID #

P.O. #
9694

Collected by (signature):

Immediately Packed on Ice N X Y

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa									Remarks	Sample # (lab only)
P1A	Grab	Air	—	11/15/21	1150	1	X										-01
~~P1B~~ P2A	Grab	Air	—	11/15/21	1142	1	X										-02
~~P1C~~ P3A	Grab	Air	—	11/15/21	1206	1	X										-03
P4A	Grab	Air	—	11/15/21	1159	1	X										-04
P1B	Grab	Air	—	11/15/21	1142	1	X										-05
P2B	Grab	Air	—	11/15/21	1151	1	X										-06
P3B	Grab	Air	—	11/15/21	1206	1	X										-07
P4B	Grab	Air	—	11/15/21	1159	1	X										-08
		Air															

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1432540

Table # L-123

Acctnum: TGERESHTX

Template: T199149

Prelogin: P886542

PM: 134 - Mark W. Beasley

PB: LX 11/8/21

Shipped Via: FedEx Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5349 7613 6486 6497

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC 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
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date: 11/15/21	Time: 1700	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: AM °C Bottles Received: 8 — If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) B. Barnes	Date: 11-17-21 Time: 0900 — Hold: — Condition: NCF / OK

ANALYTICAL REPORT

November 24, 2021

TGE Resources

Sample Delivery Group:	L1433098
Samples Received:	11/18/2021
Project Number:	R13411.11
Description:	Off-Campus Emergency Department ? Federal Way

Report To: Kristi Barnette
8048 Northcourt Road
Houston, TX 77040

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

TVMP-3 L1433098-01 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 12:50 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 19:30	11/19/21 19:30	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 19:12	11/20/21 19:12	CAW	Mt. Juliet, TN

TVMP-4 L1433098-02 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 12:15 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 20:13	11/19/21 20:13	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 19:49	11/20/21 19:49	CAW	Mt. Juliet, TN

TVMP-5 L1433098-03 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 11:51 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 20:55	11/19/21 20:55	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 20:27	11/20/21 20:27	CAW	Mt. Juliet, TN

TVMP-6 L1433098-04 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 12:12 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 21:38	11/19/21 21:38	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 21:04	11/20/21 21:04	CAW	Mt. Juliet, TN

TVMP-7 L1433098-05 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 11:02 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 22:21	11/19/21 22:21	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 21:42	11/20/21 21:42	CAW	Mt. Juliet, TN

TVMP-8 L1433098-06 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 10:42 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 23:04	11/19/21 23:04	DAH	Mt. Juliet, TN

TVMP-9 L1433098-07 Air

Collected by: Tim Crump | Collected date/time: 11/16/21 10:50 | Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/19/21 23:47	11/19/21 23:47	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 22:19	11/20/21 22:19	CAW	Mt. Juliet, TN

TVMP-10 L1433098-08 Air

Collected by: Tim Crump
Collected date/time: 11/16/21 09:30
Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/20/21 00:29	11/20/21 00:29	DAH	Mt. Juliet, TN

TVMP-11 L1433098-09 Air

Collected by: Tim Crump
Collected date/time: 11/16/21 10:11
Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/20/21 01:14	11/20/21 01:14	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 22:57	11/20/21 22:57	CAW	Mt. Juliet, TN

TVMP-12 L1433098-10 Air

Collected by: Tim Crump
Collected date/time: 11/16/21 10:02
Received date/time: 11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777332	1	11/20/21 01:57	11/20/21 01:57	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777816	10	11/20/21 23:34	11/20/21 23:34	CAW	Mt. Juliet, TN

CASE NARRATIVE

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.

Mark W. Beasley
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 10:35
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433098-01, 02, 03, 04, 05, 06, 07, 08, 09 and 10
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777332 and WG1777816

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 10:35
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433098-01, 02, 03, 04, 05, 06, 07, 08, 09 and 10
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777332 and WG1777816

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 10:35
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433098-01, 02, 03, 04, 05, 06, 07, 08, 09 and 10
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777332 and WG1777816

ER #[1]	Description
1	TO-15 WG1777332 L1433098-03, 04 and 07: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	65.1		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	11.1		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	6.41		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.506	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	5.28		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	2.21		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	10.6		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	0.449	J	1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	183		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	2.14		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	2.17		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.51		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.716	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	15.0		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	25.9		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	12.4		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	12.2		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	341		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	0.774	J	1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	2.91		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	9.15		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	2.31		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	1.03		1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	8.06		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	2.78		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.7*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*101*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	234		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	49.2		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	22.8		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	10.3		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	41.7		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	159		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	3.82		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	5.55		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	6.13		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.16		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	75.3		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	192		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	53.7		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	11.7		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	1100		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	1.82		1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	8.28		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	21.0		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	5.94		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	2.79		1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	10.2		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	5.33		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*98.4*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*103*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	425	E	1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	31.9		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	5.54		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	62.5		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	10.2		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	25.4		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	108		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	2.86		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	2.95		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.48		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	52.4		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	105		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	7.98		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	84.3		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	14.0		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	370		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	1.58		1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	13.3		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	20.7		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	4.04		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	1.63		1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	9.19		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	4.55		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*96.7*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*102*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	447	E	1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	20.0		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	28.9		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.629	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	5.89		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	14.1		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	57.3		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	4.51		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	6.48		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	U		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	21.7		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	57.5		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	11.8		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	107		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	11.1		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	3.57		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	28.8		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	1410		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	1.35		1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	24.3		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	8.64		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	2.11		1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	17.6		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	6.16		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*96.6*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*102*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	55.1		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	7.47		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	30.5		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	7.87		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	2.50		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	3.89		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	48.1		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	0.910		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	0.677	J	1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	2.23		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.42		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.615	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	5.89		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	12.9		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	11.1		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	0.884	J	1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	4.97		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	387		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	0.557	J	1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	4.53		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	U		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	1.22		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.482	J	1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	2.96		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	1.21		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*96.4*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*102*		*60.0-140*	WG1777816

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	29.7		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	14.0		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	5.66		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	5.73		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.468	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	U		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	1.76		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	68.6		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	1.08		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.31		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.40		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.667	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	U		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	8.99		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.97		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	7.52		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	8.80		1	WG1777332
Propene	115-07-1	42.10	0.160	2.15	2.15	15.5		1	WG1777332
Styrene	100-42-5	104	0.335	0.851	0.851	0.681	J	1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	11.5		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	0.908	J	1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	2.59		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	1.12		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.8*		*60.0-140*	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	428	E	1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	27.9		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	60.1		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.576	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	4.32		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	9.40		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	142		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	2.16		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.29		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.612	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	20.1		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	39.5		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	6.99		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	97.3		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	8.97		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	21.2		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	532		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	0.944		1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	20.5		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	1.33		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.530	J	1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	6.33		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	2.13		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.2*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*101*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	35.9		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	7.86		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	9.43		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	13.5		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.496	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.57		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	4.37		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	126		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	1.48		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	1.77		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.45		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.38		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.675	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	10.1		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	8.50		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	4.90		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	24.7		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	10.9		1	WG1777332
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1777332
Styrene	100-42-5	104	0.335	0.851	0.851	0.536	J	1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	13.0		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	5.08		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	2.02		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.741	J	1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	3.71		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	5.33		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	1.95		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.7*		*60.0-140*	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	176		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	15.5		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	46.0		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	12.5		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.649	J	1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.89		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	3.48		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	134		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	1.58		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	1.05		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.66		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.866	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	6.30		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	10.1		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	7.40		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	43.1		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	4.14	J	1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	9.00		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	468		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	1.31		1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	16.4		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	9.79		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	0.408	J	1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	1.07	J	1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	2.27		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.972	J	1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	2.41		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	4.51		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	2.09		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*101*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*103*		*60.0-140*	WG1777816

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	47.8		1	WG1777332
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777332
Benzene	71-43-2	78.10	0.228	0.639	0.639	12.0		1	WG1777332
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777332
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777332
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777332
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777332
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777332
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	11.3		1	WG1777332
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	U		1	WG1777332
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777332
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777332
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777332
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	2.13		1	WG1777332
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777332
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	9.81		1	WG1777332
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777332
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777332
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777332
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777332
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777332
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777332
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777332
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777332
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777332
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777332
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777332
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777332
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777332
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777332
Ethanol	64-17-5	46.10	0.500	2.36	2.36	80.9		1	WG1777332
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	1.06		1	WG1777332
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	1.20		1	WG1777332
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	U		1	WG1777332
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	2.35		1	WG1777332
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	0.669	J	1	WG1777332
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777332
Heptane	142-82-5	100	0.425	0.818	0.818	19.9		1	WG1777332
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777332
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	42.7		1	WG1777332
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777332
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	U		1	WG1777332
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777332
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	7.61		1	WG1777332
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777332
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777332
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777332
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777332
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	3.79		1	WG1777332
Propene	115-07-1	42.10	1.60	2.15	21.5	517		10	WG1777816
Styrene	100-42-5	104	0.335	0.851	0.851	0.587	J	1	WG1777332
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777332
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	2.92		1	WG1777332
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777332
Toluene	108-88-3	92.10	0.328	1.88	1.88	U		1	WG1777332
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777332

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777332
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777332
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	U		1	WG1777332
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	1.37		1	WG1777332
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	0.569	J	1	WG1777332
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777332
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777332
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777332
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777332
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	3.13		1	WG1777332
o-Xylene	95-47-6	106	0.359	0.867	0.867	1.33		1	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*97.2*		*60.0-140*	WG1777332
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*102*		*60.0-140*	WG1777816

Method Blank (MB)

(MB) R3731925-3 11/19/21 12:22

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	0.118	J	0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.200
Ethylbenzene	U		0.0835	0.200
4-Ethyltoluene	U		0.0783	0.200
Trichlorofluoromethane	U		0.0819	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Heptane	U		0.104	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
n-Hexane	U		0.206	0.630
Isopropylbenzene	U		0.0777	0.200

Method Blank (MB)

(MB) R3731925-3 11/19/21 12:22

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl Methacrylate	U		0.0876	0.200
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
2-Propanol	U		0.264	1.25
Propene	U		0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
Toluene	U		0.0870	0.500
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl chloride	U		0.0949	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
Ethanol	U		0.265	1.25
(S) 1,4-Bromofluorobenzene	*100*			*60.0-140*

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

(LCS) R3731925-1 11/19/21 09:42 • (LCSD) R3731925-2 11/19/21 10:25

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.09	4.13	109	110	55.0-148			0.973	25
Propene	3.75	4.11	4.24	110	113	64.0-144			3.11	25
Dichlorodifluoromethane	3.75	4.35	4.45	116	119	64.0-139			2.27	25
1,2-Dichlorotetrafluoroethane	3.75	4.19	4.39	112	117	70.0-130			4.66	25
Chloromethane	3.75	4.34	4.37	116	117	70.0-130			0.689	25

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

(LCS) R3731925-1 11/19/21 09:42 • (LCSD) R3731925-2 11/19/21 10:25

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	4.37	4.48	117	119	70.0-130			2.49	25
1,3-Butadiene	3.75	4.26	4.38	114	117	70.0-130			2.78	25
Bromomethane	3.75	4.24	4.32	113	115	70.0-130			1.87	25
Chloroethane	3.75	4.27	4.47	114	119	70.0-130			4.58	25
Trichlorofluoromethane	3.75	4.32	4.47	115	119	70.0-130			3.41	25
1,1,2-Trichlorotrifluoroethane	3.75	4.20	4.32	112	115	70.0-130			2.82	25
1,1-Dichloroethene	3.75	4.21	4.35	112	116	70.0-130			3.27	25
1,1-Dichloroethane	3.75	4.17	4.32	111	115	70.0-130			3.53	25
Acetone	3.75	3.93	4.05	105	108	70.0-130			3.01	25
2-Propanol	3.75	3.99	4.09	106	109	70.0-139			2.48	25
Carbon disulfide	3.75	4.02	4.07	107	109	70.0-130			1.24	25
Methylene Chloride	3.75	4.13	4.28	110	114	70.0-130			3.57	25
MTBE	3.75	4.10	4.29	109	114	70.0-130			4.53	25
trans-1,2-Dichloroethene	3.75	4.26	4.31	114	115	70.0-130			1.17	25
n-Hexane	3.75	4.13	4.27	110	114	70.0-130			3.33	25
Vinyl acetate	3.75	3.94	4.05	105	108	70.0-130			2.75	25
Methyl Ethyl Ketone	3.75	4.10	4.32	109	115	70.0-130			5.23	25
cis-1,2-Dichloroethene	3.75	4.15	4.31	111	115	70.0-130			3.78	25
Chloroform	3.75	4.14	4.21	110	112	70.0-130			1.68	25
Cyclohexane	3.75	4.18	4.22	111	113	70.0-130			0.952	25
1,1,1-Trichloroethane	3.75	4.02	4.17	107	111	70.0-130			3.66	25
Carbon tetrachloride	3.75	3.97	4.10	106	109	70.0-130			3.22	25
Benzene	3.75	4.10	4.16	109	111	70.0-130			1.45	25
1,2-Dichloroethane	3.75	4.17	4.17	111	111	70.0-130			0.000	25
Heptane	3.75	4.02	4.13	107	110	70.0-130			2.70	25
Trichloroethylene	3.75	3.98	3.96	106	106	70.0-130			0.504	25
1,2-Dichloropropane	3.75	4.02	4.18	107	111	70.0-130			3.90	25
1,4-Dioxane	3.75	3.94	3.94	105	105	70.0-140			0.000	25
Bromodichloromethane	3.75	3.99	4.03	106	107	70.0-130			0.998	25
cis-1,3-Dichloropropene	3.75	4.08	4.09	109	109	70.0-130			0.245	25
4-Methyl-2-pentanone (MIBK)	3.75	4.37	4.34	117	116	70.0-139			0.689	25
Toluene	3.75	4.02	4.14	107	110	70.0-130			2.94	25
trans-1,3-Dichloropropene	3.75	4.05	4.16	108	111	70.0-130			2.68	25
1,1,2-Trichloroethane	3.75	3.98	4.09	106	109	70.0-130			2.73	25
Tetrachloroethylene	3.75	3.86	3.94	103	105	70.0-130			2.05	25
Methyl Butyl Ketone	3.75	4.41	4.45	118	119	70.0-149			0.903	25
Dibromochloromethane	3.75	3.95	3.97	105	106	70.0-130			0.505	25
1,2-Dibromoethane	3.75	4.01	4.05	107	108	70.0-130			0.993	25
Chlorobenzene	3.75	4.03	4.13	107	110	70.0-130			2.45	25
Ethylbenzene	3.75	4.17	4.21	111	112	70.0-130			0.955	25

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

(LCS) R3731925-1 11/19/21 09:42 • (LCSD) R3731925-2 11/19/21 10:25

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.48	8.59	113	115	70.0-130			1.29	25
o-Xylene	3.75	4.15	4.19	111	112	70.0-130			0.959	25
Styrene	3.75	4.25	4.35	113	116	70.0-130			2.33	25
Bromoform	3.75	3.84	3.90	102	104	70.0-130			1.55	25
1,1,2,2-Tetrachloroethane	3.75	4.25	4.35	113	116	70.0-130			2.33	25
4-Ethyltoluene	3.75	4.30	4.45	115	119	70.0-130			3.43	25
1,3,5-Trimethylbenzene	3.75	4.33	4.55	115	121	70.0-130			4.95	25
1,2,4-Trimethylbenzene	3.75	4.35	4.50	116	120	70.0-130			3.39	25
1,3-Dichlorobenzene	3.75	4.43	4.43	118	118	70.0-130			0.000	25
1,4-Dichlorobenzene	3.75	4.64	4.58	124	122	70.0-130			1.30	25
Benzyl Chloride	3.75	4.60	4.69	123	125	70.0-152			1.94	25
1,2-Dichlorobenzene	3.75	4.48	4.49	119	120	70.0-130			0.223	25
1,2,4-Trichlorobenzene	3.75	4.30	4.41	115	118	70.0-160			2.53	25
Hexachloro-1,3-butadiene	3.75	4.38	4.41	117	118	70.0-151			0.683	25
Naphthalene	3.75	4.47	4.67	119	125	70.0-159			4.38	25
Allyl Chloride	3.75	3.93	3.93	105	105	70.0-130			0.000	25
2-Chlorotoluene	3.75	4.27	4.41	114	118	70.0-130			3.23	25
Methyl Methacrylate	3.75	4.09	4.14	109	110	70.0-130			1.22	25
Tetrahydrofuran	3.75	4.34	4.33	116	115	70.0-137			0.231	25
2,2,4-Trimethylpentane	3.75	4.24	4.33	113	115	70.0-130			2.10	25
Vinyl Bromide	3.75	4.28	4.45	114	119	70.0-130			3.89	25
Isopropylbenzene	3.75	4.25	4.28	113	114	70.0-130			0.703	25
(S) 1,4-Bromofluorobenzene				*101*	*101*	*60.0-140*				

Method Blank (MB)

(MB) R3732038-3 11/20/21 07:07

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Propene	0.0988	J	0.0932	1.25
(S) 1,4-Bromofluorobenzene	*101*			*60.0-140*

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

(LCS) R3732038-1 11/20/21 05:49 • (LCSD) R3732038-2 11/20/21 06:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Propene	3.75	4.61	4.63	123	123	64.0-144			0.433	25
(S) 1,4-Bromofluorobenzene				*102*	*102*	*60.0-140*				

GLOSSARY OF TERMS

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	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.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
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 (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.
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	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

* 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 Analytical.

Company Name/Address:
TGE Resources
8048 Northcourt Road
Houston, TX 77040

Billing Information:
Kim Pham
8048 Northcourt Road
Houston, TX 77040

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report to: Kristi Barnette

Email To: krbarnette@tgeresources.com

Project Description: Off-Campus Emergency Department ? Federal Way

City/State Collected: Federal Way, WA

Please Circle: PT MT CT ET

SDG # L1433098
L-156
Table

Phone: 713-744-5800

Client Project # R13411.11

Lab Project # TGERESHTX-R1341111

Collected by (print): Tim Cramp

Site/Facility ID #

P.O. # 9695

Acctnum: TGERESHTX
Template: T199145
Prelogin: P886535
PM: 134 - Mark W. Beasley
PB: [illegible] 11/11/21
Shipped Via: FedEX Ground

Collected by (signature): [signature]

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N X Y ___

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa	Remarks	Sample # (lab only)
TVMP-3	Grab	Air	—	11/16/21	1250	1	X		-01
TVMP-4	Grab	Air	—	11/16/21	1215	1	X		-02
TVMP-5	Grab	Air	—	11/16/21	1151	1	X		-03
TVMP-6	Grab	Air	—	11/16/21	1212	1	X		-04
TVMP-7	Grab	Air	—	11/16/21	1102	1	X		-05
TVMP-8	Grab	Air	—	11/16/21	1042	1	X		-06
TVMP-9	Grab	Air	—	11/16/21	1050	1	X		-07
TVMP-10	Grab	Air	—	11/16/21	0930	1	X		-08
TVMP-11	Grab	Air	—	11/16/21	1011	1	X		-09
TVMP-12	Grab	Air	—	11/16/21	1002	1	X		-10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ______

Remarks:

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ______

Tracking # 5349 7813 6501, 6590

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC 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
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No (circled) HCL / MeoH TBR	
[signature]	11/16/21	2000			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: Amb °C	Bottles Received: 10
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) B. Banao	Date: 11-18-21	Time: 0930

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK (circled)

ANALYTICAL REPORT

November 24, 2021

TGE Resources

Sample Delivery Group:	L1433114
Samples Received:	11/18/2021
Project Number:	R13411.11
Description:	Off-Campus Emergency Department ? Federal Way

Report To: Kristi Barnette
8048 Northcourt Road
Houston, TX 77040

Entire Report Reviewed By:

Mark W. Beasley
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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INTERIOR L1433114-01 Air

Collected by	Collected date/time	Received date/time
Tim Crump	11/16/21 08:43	11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777205	1	11/19/21 23:38	11/19/21 23:38	FKG	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777820	20	11/20/21 23:02	11/20/21 23:02	FKG	Mt. Juliet, TN

EXTERIOR L1433114-02 Air

Collected by	Collected date/time	Received date/time
Tim Crump	11/16/21 08:46	11/18/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1777205	1	11/20/21 00:19	11/20/21 00:19	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1777820	1	11/20/21 23:44	11/20/21 23:44	FKG	Mt. Juliet, TN

CASE NARRATIVE

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.

Mark W. Beasley
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 17:17
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433114-01 and 02
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777205 and WG1777820

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 17:17
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433114-01 and 02
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777205 and WG1777820

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
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3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 11/24/2021 17:17
Project Name: Off-Campus Emergency Department ? Federal Way	Laboratory Job Number: L1433114-01 and 02
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1777205 and WG1777820

ER #[1]	Description
1	TO-15 WG1777820 L1433114-01: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	U		1	WG1777205
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777205
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.309	J	1	WG1777205
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777205
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777205
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777205
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777205
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777205
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1777205
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.465	J	1	WG1777205
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777205
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777205
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777205
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	1.06		1	WG1777205
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777205
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1777205
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777205
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777205
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777205
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777205
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777205
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777205
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777205
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777205
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777205
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777205
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777205
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777205
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777205
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777205
Ethanol	64-17-5	46.10	9.99	2.36	47.1	1470		20	WG1777820
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	0.650	J	1	WG1777205
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1777205
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.12	J	1	WG1777205
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	1.67		1	WG1777205
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1777205
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777205
Heptane	142-82-5	100	0.425	0.818	0.818	U		1	WG1777205
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777205
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1777205
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777205
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	0.514	J	1	WG1777205
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777205
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	5.07		1	WG1777205
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777205
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777205
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777205
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777205
2-Propanol	67-63-0	60.10	13.0	3.07	61.5	5680	E	20	WG1777820
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1777205
Styrene	100-42-5	104	0.335	0.851	0.851	0.596	J	1	WG1777205
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777205
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	U		1	WG1777205
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777205
Toluene	108-88-3	92.10	0.328	1.88	1.88	4.33		1	WG1777205
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777205

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777205
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777205
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	0.534	J	1	WG1777205
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1777205
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1777205
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777205
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777205
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777205
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777205
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	3.00		1	WG1777205
o-Xylene	95-47-6	106	0.359	0.867	0.867	0.893		1	WG1777205
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*95.7*		*60.0-140*	WG1777205
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*98.0*		*60.0-140*	WG1777820

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	2.97	4.06		1	WG1777820
Allyl chloride	107-05-1	76.53	0.357	0.626	0.626	U		1	WG1777205
Benzene	71-43-2	78.10	0.228	0.639	0.639	0.495	J	1	WG1777205
Benzyl Chloride	100-44-7	127	0.311	1.04	1.04	U		1	WG1777205
Bromodichloromethane	75-27-4	164	0.471	1.34	1.34	U		1	WG1777205
Bromoform	75-25-2	253	0.757	6.21	6.21	U		1	WG1777205
Bromomethane	74-83-9	94.90	0.381	0.776	0.776	U		1	WG1777205
1,3-Butadiene	106-99-0	54.10	0.230	4.43	4.43	U		1	WG1777205
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.622	U		1	WG1777205
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.26	0.474	J	1	WG1777205
Chlorobenzene	108-90-7	113	0.385	0.924	0.924	U		1	WG1777205
Chloroethane	75-00-3	64.50	0.263	0.528	0.528	U		1	WG1777205
Chloroform	67-66-3	119	0.349	0.973	0.973	U		1	WG1777205
Chloromethane	74-87-3	50.50	0.213	0.413	0.413	0.989		1	WG1777205
2-Chlorotoluene	95-49-8	126	0.427	1.03	1.03	U		1	WG1777205
Cyclohexane	110-82-7	84.20	0.259	0.689	0.689	U		1	WG1777205
Dibromochloromethane	124-48-1	208	0.618	1.70	1.70	U		1	WG1777205
1,2-Dibromoethane	106-93-4	188	0.554	1.54	1.54	U		1	WG1777205
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	1.20	U		1	WG1777205
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	1.20	U		1	WG1777205
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	1.20	U		1	WG1777205
1,2-Dichloroethane	107-06-2	99	0.283	0.810	0.810	U		1	WG1777205
1,1-Dichloroethane	75-34-3	98	0.290	0.802	0.802	U		1	WG1777205
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	0.793	U		1	WG1777205
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	0.793	U		1	WG1777205
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	0.793	U		1	WG1777205
1,2-Dichloropropane	78-87-5	113	0.351	0.924	0.924	U		1	WG1777205
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	0.908	U		1	WG1777205
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	0.908	U		1	WG1777205
1,4-Dioxane	123-91-1	88.10	0.300	0.721	0.721	U		1	WG1777205
Ethanol	64-17-5	46.10	0.500	2.36	2.36	17.1		1	WG1777820
Ethylbenzene	100-41-4	106	0.362	0.867	0.867	U		1	WG1777205
4-Ethyltoluene	622-96-8	120	0.384	0.982	0.982	U		1	WG1777205
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.12	1.20		1	WG1777205
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	0.989	1.78		1	WG1777205
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	1.53	U		1	WG1777205
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	1.40	U		1	WG1777205
Heptane	142-82-5	100	0.425	0.818	0.818	U		1	WG1777205
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	6.73	U		1	WG1777205
n-Hexane	110-54-3	86.20	0.726	2.22	2.22	U		1	WG1777205
Isopropylbenzene	98-82-8	120.20	0.382	0.983	0.983	U		1	WG1777205
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.694	1.16		1	WG1777205
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	5.11	U		1	WG1777205
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.69	U		1	WG1777205
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	5.12	U		1	WG1777205
Methyl methacrylate	80-62-6	100.12	0.359	0.819	0.819	U		1	WG1777205
MTBE	1634-04-4	88.10	0.233	0.721	0.721	U		1	WG1777205
Naphthalene	91-20-3	128	1.83	3.30	3.30	U		1	WG1777205
2-Propanol	67-63-0	60.10	0.649	3.07	3.07	2.14	J	1	WG1777820
Propene	115-07-1	42.10	0.160	2.15	2.15	U		1	WG1777205
Styrene	100-42-5	104	0.335	0.851	0.851	U		1	WG1777205
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	1.37	U		1	WG1777205
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.36	7.47		1	WG1777205
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	0.590	U		1	WG1777205
Toluene	108-88-3	92.10	0.328	1.88	1.88	1.24	J	1	WG1777205
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	4.66	U		1	WG1777205

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	SDL ug/m3	Unadj. MQL ug/m3	MQL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	1.09	U		1	WG1777205
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	1.09	U		1	WG1777205
Trichloroethylene	79-01-6	131	0.364	1.07	1.07	34.0		1	WG1777205
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	0.982	U		1	WG1777205
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	0.982	U		1	WG1777205
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	0.934	U		1	WG1777205
Vinyl chloride	75-01-4	62.50	0.243	0.511	0.511	U		1	WG1777205
Vinyl Bromide	593-60-2	106.95	0.373	0.875	0.875	U		1	WG1777205
Vinyl acetate	108-05-4	86.10	0.408	0.704	0.704	U		1	WG1777205
m&p-Xylene	1330-20-7	106	0.585	1.73	1.73	0.650	J	1	WG1777205
o-Xylene	95-47-6	106	0.359	0.867	0.867	U		1	WG1777205
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*95.8*		*60.0-140*	WG1777205
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*				*101*		*60.0-140*	WG1777820

Method Blank (MB)

(MB) R3731785-3 11/19/21 10:15

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	U		0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.200
Ethylbenzene	U		0.0835	0.200
4-Ethyltoluene	U		0.0783	0.200
Trichlorofluoromethane	U		0.0819	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Heptane	U		0.104	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
n-Hexane	U		0.206	0.630
Isopropylbenzene	U		0.0777	0.200

Method Blank (MB)

(MB) R3731785-3 11/19/21 10:15

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl Methacrylate	U		0.0876	0.200
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
Propene	0.199	J	0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
Toluene	U		0.0870	0.500
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl chloride	U		0.0949	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
(S) 1,4-Bromofluorobenzene	*96.8*			*60.0-140*

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

(LCS) R3731785-1 11/19/21 08:52 • (LCSD) R3731785-2 11/19/21 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Propene	3.75	3.69	3.76	98.4	100	64.0-144			1.88	25
Dichlorodifluoromethane	3.75	3.64	3.72	97.1	99.2	64.0-139			2.17	25
1,2-Dichlorotetrafluoroethane	3.75	3.86	3.89	103	104	70.0-130			0.774	25
Chloromethane	3.75	3.56	3.52	94.9	93.9	70.0-130			1.13	25
Vinyl chloride	3.75	3.63	3.79	96.8	101	70.0-130			4.31	25
1,3-Butadiene	3.75	3.47	3.58	92.5	95.5	70.0-130			3.12	25
Bromomethane	3.75	3.59	3.53	95.7	94.1	70.0-130			1.69	25

QUALITY CONTROL SUMMARY

L1433114-01,02

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

(LCS) R3731785-1 11/19/21 08:52 • (LCSD) R3731785-2 11/19/21 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloroethane	3.75	3.53	3.55	94.1	94.7	70.0-130			0.565	25
Trichlorofluoromethane	3.75	3.77	3.79	101	101	70.0-130			0.529	25
1,1,2-Trichlorotrifluoroethane	3.75	3.86	3.81	103	102	70.0-130			1.30	25
1,1-Dichloroethene	3.75	3.74	3.74	99.7	99.7	70.0-130			0.000	25
1,1-Dichloroethane	3.75	3.71	3.77	98.9	101	70.0-130			1.60	25
Acetone	3.75	3.62	3.59	96.5	95.7	70.0-130			0.832	25
Carbon disulfide	3.75	3.62	3.99	96.5	106	70.0-130			9.72	25
Methylene Chloride	3.75	3.70	3.64	98.7	97.1	70.0-130			1.63	25
MTBE	3.75	3.70	3.75	98.7	100	70.0-130			1.34	25
trans-1,2-Dichloroethene	3.75	3.87	3.78	103	101	70.0-130			2.35	25
n-Hexane	3.75	3.73	3.70	99.5	98.7	70.0-130			0.808	25
Vinyl acetate	3.75	3.52	3.43	93.9	91.5	70.0-130			2.59	25
Methyl Ethyl Ketone	3.75	3.80	3.84	101	102	70.0-130			1.05	25
cis-1,2-Dichloroethene	3.75	3.71	3.66	98.9	97.6	70.0-130			1.36	25
Chloroform	3.75	3.71	3.69	98.9	98.4	70.0-130			0.541	25
Cyclohexane	3.75	3.62	3.57	96.5	95.2	70.0-130			1.39	25
1,1,1-Trichloroethane	3.75	3.75	3.67	100	97.9	70.0-130			2.16	25
Carbon tetrachloride	3.75	3.65	3.63	97.3	96.8	70.0-130			0.549	25
Benzene	3.75	3.69	3.70	98.4	98.7	70.0-130			0.271	25
1,2-Dichloroethane	3.75	3.72	3.78	99.2	101	70.0-130			1.60	25
Heptane	3.75	3.16	3.20	84.3	85.3	70.0-130			1.26	25
Trichloroethylene	3.75	3.71	3.73	98.9	99.5	70.0-130			0.538	25
1,2-Dichloropropane	3.75	3.65	3.64	97.3	97.1	70.0-130			0.274	25
1,4-Dioxane	3.75	3.59	3.52	95.7	93.9	70.0-140			1.97	25
Bromodichloromethane	3.75	3.66	3.65	97.6	97.3	70.0-130			0.274	25
cis-1,3-Dichloropropene	3.75	3.72	3.68	99.2	98.1	70.0-130			1.08	25
4-Methyl-2-pentanone (MIBK)	3.75	3.69	3.74	98.4	99.7	70.0-139			1.35	25
Toluene	3.75	3.80	3.77	101	101	70.0-130			0.793	25
trans-1,3-Dichloropropene	3.75	3.69	3.72	98.4	99.2	70.0-130			0.810	25
1,1,2-Trichloroethane	3.75	3.64	3.63	97.1	96.8	70.0-130			0.275	25
Tetrachloroethylene	3.75	3.75	3.83	100	102	70.0-130			2.11	25
Methyl Butyl Ketone	3.75	3.63	3.64	96.8	97.1	70.0-149			0.275	25
Dibromochloromethane	3.75	3.79	3.78	101	101	70.0-130			0.264	25
1,2-Dibromoethane	3.75	3.78	3.80	101	101	70.0-130			0.528	25
Chlorobenzene	3.75	3.74	3.80	99.7	101	70.0-130			1.59	25
Ethylbenzene	3.75	3.72	3.70	99.2	98.7	70.0-130			0.539	25
m&p-Xylene	7.50	7.46	7.50	99.5	100	70.0-130			0.535	25
o-Xylene	3.75	3.66	3.71	97.6	98.9	70.0-130			1.36	25
Styrene	3.75	3.70	3.72	98.7	99.2	70.0-130			0.539	25
Bromoform	3.75	3.83	3.81	102	102	70.0-130			0.524	25

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

(LCS) R3731785-1 11/19/21 08:52 • (LCSD) R3731785-2 11/19/21 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	3.75	3.72	3.67	99.2	97.9	70.0-130			1.35	25
4-Ethyltoluene	3.75	3.71	3.67	98.9	97.9	70.0-130			1.08	25
1,3,5-Trimethylbenzene	3.75	3.63	3.62	96.8	96.5	70.0-130			0.276	25
1,2,4-Trimethylbenzene	3.75	3.68	3.67	98.1	97.9	70.0-130			0.272	25
1,3-Dichlorobenzene	3.75	3.66	3.75	97.6	100	70.0-130			2.43	25
1,4-Dichlorobenzene	3.75	3.71	3.63	98.9	96.8	70.0-130			2.18	25
Benzyl Chloride	3.75	3.67	3.63	97.9	96.8	70.0-152			1.10	25
1,2-Dichlorobenzene	3.75	3.65	3.65	97.3	97.3	70.0-130			0.000	25
1,2,4-Trichlorobenzene	3.75	4.01	3.86	107	103	70.0-160			3.81	25
Hexachloro-1,3-butadiene	3.75	4.01	3.94	107	105	70.0-151			1.76	25
Naphthalene	3.75	3.92	3.94	105	105	70.0-159			0.509	25
Allyl Chloride	3.75	3.61	3.26	96.3	86.9	70.0-130			10.2	25
2-Chlorotoluene	3.75	3.73	3.69	99.5	98.4	70.0-130			1.08	25
Methyl Methacrylate	3.75	3.74	3.73	99.7	99.5	70.0-130			0.268	25
Tetrahydrofuran	3.75	3.56	3.69	94.9	98.4	70.0-137			3.59	25
2,2,4-Trimethylpentane	3.75	3.66	3.71	97.6	98.9	70.0-130			1.36	25
Vinyl Bromide	3.75	3.64	3.65	97.1	97.3	70.0-130			0.274	25
Isopropylbenzene	3.75	3.65	3.59	97.3	95.7	70.0-130			1.66	25
(S) 1,4-Bromofluorobenzene				*98.9*	*98.1*	*60.0-140*				

Method Blank (MB)

(MB) R3732302-3 11/20/21 07:27

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
2-Propanol	U		0.264	1.25
Ethanol	U		0.265	1.25
(S) 1,4-Bromofluorobenzene	*99.6*			*60.0-140*

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

(LCS) R3732302-1 11/20/21 06:02 • (LCSD) R3732302-2 11/20/21 06:45

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.03	4.22	107	113	55.0-148			4.61	25
Acetone	3.75	4.05	4.10	108	109	70.0-130			1.23	25
2-Propanol	3.75	4.15	4.12	111	110	70.0-139			0.726	25
(S) 1,4-Bromofluorobenzene				*101*	*101*	*60.0-140*				

GLOSSARY OF TERMS

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	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.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
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 (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.
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	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

* 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 Analytical.

Company Name/Address:
TGE Resources

8048 Northcourt Road
Houston, TX 77040

Billing Information:
Kim Pham
8048 Northcourt Road
Houston, TX 77040

Pres Chk

Report to:
Kristi Barnette

Email To: **krbarnette@tgeresources.com**

Project Description:
Off-Campus Emergency Department ? Federal Way

City/State Collected: **Federal Way, WA**

Please Circle: PT MT CT ET

Phone: **713-744-5800**

Client Project #
R13411.11

Lab Project #
TGERESHTX-R1341111

Collected by (print):
Tim Crum

Site/Facility ID #

P.O. #
9695

Collected by (signature):

Immediately Packed on Ice N X Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

TO-15 Summa

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TO-15 Summa	Remarks	Sample # (lab only)
Interior	Grab	Air	—	11/16/21	0843	1	X		-01
Exterior	Grab	Air	—	11/16/21	0846	1	X		-02
		Air							-03 MM

Chain of Custody Page 1 of 1

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1453114

Table # L-159

Acctnum: **TGERESHTX**

Template: **T199145**

Prelogin: **P886535**

PM: **134 - Mark W. Beasley**

PB: ESL 11/16/21

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS / FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC 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
RAD Screen <0.5 mR/hr:		Y N

Relinquished by: (Signature)	Date: 11/16/21	Time: 0905	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: Amb °C Bottles Received: 2
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) B. Bana	Date: 11-18-21 Time: 0930

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ATTACHMENT 3

Sepich Enterprises, LLC, dba
BROWNFIELD SUBSLAB
4007 McCullough Ave. #469, San Antonio TX 78212
5655 Lindero Canyon Road, Suite 106-3, Westlake Village, CA 91362
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MEMORANDUM

Date: January 21, 2022
To: Kristi Barnette, Tim Crump
From: John Sepich, Jason Herman
Re: Ecology Comments on South Hill VIMS Design

Brownfield Subslab (BFSS) prepared Vapor Intrusion Mitigation System (VIMS) plans and specifications, as a subcontractor to TGE Resources Inc. (TGE), for a project entitled "Off-Campus Emergency Department, 132nd Street East and Meridian Avenue East, South Hill." The Washington State Department of Ecology (Ecology) has provided comments regarding that project. Ecology's comments and BFSS responses are presented below:

***General Comments**: It is Ecology's understanding that TGE Resources Inc. is considering using the South Hill mitigation system as built as a "template" for future contaminated site construction projects. Ecology does not recommend this type of approach unless site-specific data, factors, and details are carefully examined to ensure that the South Hill mitigation design is appropriate for use at each individual site. The following general comments are provided below that would apply to any site:*

> **Response to General Comments**: Because field conditions vary widely between individual sites, and because soil vapor intrusion mitigation system materials and techniques are ever evolving, previous projects are not "templates" for subsequent projects, as each project site requires review of site-specific conditions to ensure the design and construction of a system to provide conditions protective of human health. Each design is based upon specific site conditions, environmental sample data, proposed building foundation type, and the latest materials or techniques available.

***Comment#1**: Please specify that the vapor mitigation system that is installed shall meet the requirements of ASTM E2435-05 (Standard Guide for Application of Engineering Controls to Facilitate Use or Redevelopment of Chemical-Affected Properties). As stated in ASTM E2435-05, if chemicals of concern reductions greater than 80% must be achieved, some type of active depressurization system will usually be required.*

Response #1: The vapor intrusion mitigation system that is installed is in conformance with ASTM E2435 including the following, as related to sub-slab mitigation systems:

- conduct of preliminary site investigations, studies, and assessments;
- engineering design and specification of controls (see attached as-builts);
- qualifications of environmental professionals (see resumes attached);
- quality assurance and quality control during construction (see inspection reports attached); and
- post construction performance monitoring and maintenance (data still being generated).

Specific elements designed into the vapor intrusion mitigation system are also in conformance with ASTM E2435, although in some cases there are newer materials than those cited in the older ASTM guidance. Specific elements of the VIMS design include use of the following system components:

- Sub-slab membrane material generically known as "EVOH" (ethyl vinyl alcohol), which is approximately two orders of magnitude more impermeable to volatile organic compounds (VOCs) than the "HDPE" (high density polyethylene) material cited in the ASTM document, and several orders of magnitude more impermeable to VOCs than the spray-on or other materials cited in the referenced ASTM document (see membrane manufacturer's literature attached);
- Subslab depressurization piping in a permeable layer (see as-builts);
- Trench dams, which are referred to as "trench saddles" in the ASTM guidance (see as-builts);
- Conduit seals, which are not included in the referenced ASTM guidance (see as-builts); and
- Active depressurization using radon fans (see as-builts).

Comment #2*: In addition to ASTM E2435-05, ASTM standards E1643-11 (Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs) and E1745-11 (Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs) should be reviewed and implemented as applicable to the selected vapor mitigation product.*

Response #2: The VIMS design to each site conforms to the intent of E1643 for water vapor control; although, it should be noted that ASTM E1643 suggests only "lapped" membrane panels, whereas the subject VIMS were constructed with tight joints that were smoke tested to document a proper seal at all joints/seams.

The VIMS design to each site also conforms to the intent E1745-11 as the EVOH membranes for VOCs utilized for these systems are much less permeable than typical membranes used for water vapor (see membrane manufacturer's literature attached).

Comment #3*: The active depressurization system must establish a radius of influence beyond the footprint of the vapor barrier.*

Response #3: The subject VIMS is designed for vapor intrusion mitigation for newly-constructed healthcare buildings and not as a site remediation system. The "active" VIMS at the subject projects are intended to affect only the extents of the vapor barrier. That barrier is coincident with the footprint/perimeter footings of each building. The subject active sub-slab mitigation system (VIMS) is intended to mitigate vapor intrusion into the site building (only), rather than to gather or unnecessarily attract VOCs towards the building.

Comment #4*: Ecology recommends that mitigation systems be designed and installed by an experienced radon mitigator or another environmental professional with vapor mitigation system design and installation experience.*

Response #4: The subject VIMS were designed by experienced environmental professionals (Washington State P.E.) with mitigation system design experience (see resumes attached). While the VIMS were not specifically installed by the environmental professionals, a qualified subcontractor to the site development general contractor was used for the project. That subcontractor's installation work was executed under the direct supervision of the environmental professionals and subject to "special-inspection" (i.e., deputy-type inspection). Daily reports were prepared to document both the subcontractor's work and the leak testing of the membrane (see inspection reports attached).

Comment #5*: The following details should be included in the Mitigation Design and Installation Plan:*

a. Ventilation piping layout showing radius of influence and basis.
b. Civil construction details depicting the vapor barrier and ventilation piping in relation to slab footings, supports, and trench drains.
c. Details about the blower and exhaust system including vapor monitoring points.

Response #5: VIMS piping and membrane plans, membrane details, vent piping details, monitoring probe details, trench dam details, conduit seal details, and active system/fan details are provided on the construction documents for each project (see as-builts attached to this memorandum). Radius of influence of the

active VIMS was designed to reach from perimeter footing to perimeter footing, based upon the placement and spacing of the vent piping and the other specifics such as the permeable layer.

Sub-slab vacuum monitoring conducted by TGE in November 2021 via sub-slab probes at both the Federal Way[1] and Parkland[2] sites demonstrated a relative pressure differential in excess of -0.25 inches of water column ("H_2O) for both buildings (see data attached), as compared to the NAVFAC[2011] recommended design goal of -0.02 "H_2O minimum sub-slab vacuum. VIMS systems at these sites are of the same size and design as the South Hill site[3] (data still being generated).

Comment #6*: A non-woven geotextile should be placed directly under the vapor barrier. Installation of the geotextile is an industry standard during the installation of vapor barrier in new construction where contaminated vapors are a perceived risk. The purpose of the geotextile is precautionary as it provides a cushioning layer during the vapor barrier installation and subsequent concrete pour to help prevent against accidental rips and tears in the liner.*

Response #6: The membrane portion of each VIMS was installed upon a two-inch thick sand layer (see attached as-builts). This sand material serves as the referenced cushion against any larger materials that may be present in the subgrade.

Comment #7*: After the sub-grade (engineered fill or native soil) has been properly prepared (such as by removing undesirable items, leveling, and compacting the soil), a non-woven geotextile should be installed. The purpose of the geotextile is to prevent finer-grained materials in the sub-grade and/or sand from a cushioning layer (if used) from being mixed into the permeable sub-slab coarse gravel layer that houses the vapor conveyance piping.*

Response #7: As detailed in Comment #7 (above), the membrane portion of each VIMS was installed upon a two-inch thick sand layer (see attached as-builts). The specification for this sand material does not allow for random construction grade sand, but calls for a specific gradation of material so that the specified sand serves as a cushion against any larger materials that may be present in the subgrade.

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[1] *Federal Way Hospital, 29805 Pacific Highway South, Federal Way, WA*
[2] *Parkland Hospital, 14815 Pacific Avenue South, Parkland, WA*
[3] *Campus Emergency Department / 132nd Street East and Meridian Avenue East, South Hill, WA*

Additionally, a second one-inch thick sand layer was installed above the membrane and vent piping, as well as a 16-ounce geotextile protection course. This second layer serves both as a permeable layer for the upper (above-membrane) probes and as a protection layer from concrete workers and materials during the slab construction. The geotextile is installed above the one-inch sand layer and is also another layer of protection from concrete workers and materials during the slab construction.

Comment #8*: NAVFAC (2011) recommends that eight inches or more of a highly permeable, coarse aggregate, such as American Association of State Highway and Transportation Officials (AASHTO) #57 stone be used for the permeable sub-slab layer that houses the sub-slab vapor collection piping. There should be a minimum of 2 inches of stone above and below the vapor conveyance piping to prevent slab cracking.*

Response #8: The VIMS membrane was placed upon a two-inch sand layer, and an additional one-inch sand layer was placed upon the completed vent piping and membrane. The design plans were subject to project architectural and structural review prior to being issued for vapor control. Slab cracking has not been observed. This layering system has been widely used at numerous locations, in various regions across the country, over past decades with no known foundation issues. It follows several city and state guidelines for similar vapor intrusion systems.

Comment #9*: As recommended by NAVFAC (2011), sizing the conveyance pipe should be based on the square feet of the area to be vented and the number of pipe fittings used between the sub-slab plenum box and the vent termination point. Drag coefficient tables exist for different pipe diameters and assorted fittings. The designer of the system should plan for twice the number of pipe fittings when calculating the pressure drop associated with a riser pipe system (NAVFAC, 2011).*

Response #9: The Fantech Model HP220 radon fans used within the VIMS at these project sites (see fan curve attached) provide approximately 2.2 "H_2O pressure head at 40 cubic feet per minute (cfm) and approximately 1.6 "H_2O pressure head at 100 cfm. Using a nomograph (see calculations attached), it was calculated that the vent riser head loss is approximately 0.6 "H_2O at 100 cfm, and approximately 0.1 "H_2O at 40 cfm. The actual pipe length including allowances for fittings was assumed to be approximately twenty feet. This leaves adequate vacuum for active system operation. The primary purpose of an "active" sub-slab system is not to move airflow, but to provide a vacuum across the underside of the membrane so that any VOC leakage would be oriented downward (i.e., away

from the building foundation) rather than upward. Lower flows which satisfy the vacuum criteria are preferred to higher flows. Higher flows can draw VOCs towards the sub-slab area and result in higher sub-slab concentrations and/or greater VOC emissions to the surrounding atmosphere.

Comment #10*: Subslab HP220 radon fans used at this project show conveyance pipe should have 5/8-inch condensate drain holes that face down at 4-inch intervals (NAVFAC, 2011). If factory perforated pipe is used, one set of holes should face down.*

Response #10: AdvanEdge 12-inch flat pipe was utilized for the conveyance piping for the VIMS. This piping is factory perforated on both sides and is widely used and accepted for these types of systems. As such, condensate does not gather in this piping system. In addition, the VIMS design plans call for all vent riser horizontal components to slope backward to the soil to prevent condensate buildup in the above-slab portion of the system piping (see attached as-builts).

Comment #11*: As noted by NAVFAC (2011), footings at grade changes and thickened slabs often create isolated sub-slab areas. These isolated areas need to be addressed by placing adequate gravel below them or by adding conveyance pipe or other venting products to provide a conduit to connect these isolated areas to the system.*

Response #11: The foundations for these buildings do not contain any "isolated areas" in the slab or footing design. Adequate VIMS venting and membrane was provided (see attached as-builts).

Comment #12*: All manufacturer's specifications and/or recommendations for sealing vapor barrier seams, penetrations, and foundation contacts must be followed. The specified vapor barrier must be continuous across all enclosed rooms and that any plumbing, conduit, support columns, or other penetrations that are required to come through the barrier must be sealed.*

Response #12: All manufacturer's specifications and/or recommendations for sealing vapor barrier seams, penetrations, and foundation contacts were followed (except when more rigorous procedures were specified on the design plans). The vapor barrier for each building was continuous across all enclosed rooms. Any plumbing, conduit, support columns, and/or other penetrations of the VIMS barrier were "booted", per the details shown on the design plans (see attached as-builts). All work was completed, witnessed, and tested by a full-time special inspector (see attached inspection reports).

Comment #13: Vapor barrier material*: The vapor barrier material must be compatible with and resist degradation from known contaminants.*

a. *EPA (2008) states that high-density polyethylene (HDPE, 40-60 mil), 30 mil low density polyethylene (LDPE) or very low density polyethylene (VDPE), or spray applied material (for example Liquid Boot), can be used as vapor barrier material. NAVFAC (2011) also mentions the use of cross laminate polyethylene or polyolefin. The most important part of the effectiveness of any vapor barrier system is achieving a tight seal to foundation walls and around utility penetrations throughout the membrane (NAVFAC, 2011). Since the NAVFAC (2011) fact sheet was published, vapor barrier technologies have continued to evolve and now there are several other options also.*
b. *A 40 mil HDPE vapor barrier has traditionally been a minimum industry standard for many scenarios. This is not commonly used in vapor mitigation system and a more practical and accepted barrier system was utilized*
c. *At sites that have several volatile organic compounds combined with other compounds such as methane, a more protective barrier may be justified. One product that may be appropriate for this situation is an EVOH barrier resin/HDPE barrier. This barrier is superior to traditional HDPE barriers in terms of chemical resistance and vapor permeance.*

Response #13: Raven Vapor-Block-Plus (VB+) 20-mil EVOH membrane was used for the VIMS at each project site (see attached manufacturer's literature). In that EVOH material is approximately two orders of magnitude less permeable than HDPE material, a 20-mil EVOH membrane is far superior to a 40-mil HDPE barrier. The membrane contractor installed the specified EVOH membrane material under continuous special inspection and under the direct supervision of the design engineer (see attached inspection reports).

Comment #14*: The concrete slab installer must not be allowed to puncture the vapor barrier to drain off extra water that may be associated with the concrete finishing process (NAVFAC, 2011).*

Response #14: Puncturing of the membrane was specifically prohibited during the concrete pouring/installation, and oversight of the VIMS membrane installation and foundation pouring/finishing was conducted under continuous inspection and direct supervision of the design engineer (see attached inspection reports).

Comment #15*: A leak test of the membrane system (such as a smoke test) must be conducted to ensure that no leaks exist (EPA, 2008) at seams, penetrations, or along*

contacts with foundations or walls. Where leaks are identified, repairs should be made and then retested until no leaks are detected.

Response #15: Smoke tests were performed at the completion of each increment of the membrane installation, and witnessed by the special inspector (see attached inspection reports). Any observed leaks were identified and repaired per manufacturer standards and then retested until no leaks were detected.

Comment #16*: NAVFAC (2011) recommends a design goal to create a minimum sub-slab negative pressure of -0.02 inches of water column (in. w.c.) at the area that is the most distant from the plenum box using a blower that consumes no more than 140 watts and can move 200 cubic feet per minute (CFM) at 1.0 in. w.c. static pressure. According to NAVFAC (2011), if there is clean, crushed, stone and 4-inch conveyance piping, a blower that can move 200 CFM at -1.0 in. w.c. can create a vacuum field of -0.02 in. w.c. or greater over a 4,000 ft^2 area.*

Response #16: The Fantech Model HP220 radon fans installed in the VIMS at each project site (see attached fan curve) indicates an approximately 1 "H_2O pressure head at 200 cfm. As previously stated, differential vacuum readings in excess of -0.250 "H_2O were measured by TGE in November 2021 in the sub-slab probes using this design. As such, the NAVFAC recommended goal has been achieved.

Comment #17*: As recommended by NAVFAC (2011), during the construction phase, soil probes should be embedded in the stone within the permeable sub-slab layer to allow testing of system effectiveness after the slab has been poured. This is done to prevent the need to drill through the concrete to install pressure monitoring points and minimizes the risk of damaging sub-slab utilities or voiding the vapor barrier warranty. Probes should be located distant from the plenum box near the projected end of the negative pressure field. These probes could be as numerous as one per isolated foundation area and at least one probe should be installed per 5,000 ft^2 of slab area and for each different slab elevation (NAVFAC, 2011).*

Response #17: Subslab probes were installed in pairs both above and below the VIMS membrane at each of four locations, totaling eight probes (see as-builts). Each building footprint measures approximately 10,000 square feet in size. Therefore, approximately one pair of probes per 2,500 square feet of building footprint was installed (approximately twice the NAVFAC recommended density).

Comment #18*: As recommended by NAVFAC (2011), the effectiveness of the depressurization system should be quantified after the slab is poured and cured for at*

least 14 days. The pressure field extensions should be measured at the sample ports that are at the end of the embedded probes. A micro-manometer that can measure to a sensitivity of -0.001 in. w.c. should be used. The minimum induced sub-slab vacuum field in an unfinished, unheated building should be –0.02 in. w.c. Sampling for indoor air contaminant concentrations should occur once the building is weather tight and the air handling systems are operational (NAVFAC, 2011).

Response #18: Again, a relative pressure differential in excess of -0.250 "H_2O was measured by TGE in November 2021 in the sub-slab probes at both the Federal Way and Parkland sites (see Response to Comment #5, above). At this point, the buildings were weather tight, the air handling systems were operating, and the recorded sub-slab vacuum field exceeded the NAVFAC recommended value.

Comment #19*: The following plans and/or reports should be prepared and submitted for Ecology review and comment:*

a. Mitigation Design and Installation Plan. This plan shall include the results of pressure field extension testing, system specifications, installation schedule, and post-mitigation performance and air quality goals. The plan shall also include figures that show the locations and diameter of piping and locations of pressure monitoring points.

b. Vapor Mitigation System Construction Report. This report shall include a description of the as-built system, its design and performance specifications, and data and observations collected to demonstrate that the system is performing as designed.

c. Mitigation System O&M and Sampling and Analysis Plan. This plan shall propose those activities (such as inspections and monitoring and any training of facility personnel on system O&M) that will commence post-construction to verify on-going system performance and achievement of mitigation goals. It will include roles and responsibilities and a schedule for all proposed and anticipated post-construction activities.

Response #19:

a. For the "Mitigation Design and Installation Plan", refer to the attached as-built plans;
b. For the "Vapor Mitigation System Construction Report", refer to the attached Certification Report; and
c. For the "Mitigation System O&M and Sampling and Analysis Plan", refer to the "GENERAL NOTES" provided in response to Specific Comment #3 provided below in this memorandum.

South Hill As-Built Specific Comments:

1. ***Specific Comment**: Sheet VC-10 states "fans to be activated if post construction monitoring shows above membrane VOC levels exceeding regional screening levels for shallow soil vapor." Ecology does not agree that a passive system is adequate because concentration reductions of greater than 98% are needed for 1,1,2,2-tetrachloroethene, 1,3-budadiene, benzene, and trichloroethene to reach MTCA Method B Indoor Air Cleanup Levels. Therefore, it is necessary that the as-built be revised to have an active system with fans. A passive system is not an acceptable option.*

   Response to Specific Comment No. 1: Per the VIMS performance monitoring plan for the site, provided in response to Specific Comment No. 3 later in this memorandum:

   - "Start-up data shall determine whether modifications to the system are necessary. The system may be converted to active SSP or SSD mode to achieve IA or shallow SV standards."
   - "If adjustments are made to a VIMS system after an initial failure to directly or presumptively meet SLs, then additional VIMS probe monitoring is required until successful results are obtained."

   As provided above, the VIMS for the South Hill facility was converted to an "active" system.

2. ***Specific Comment**: As recommended in the ITRC Post-Installation Fact Sheet, confirmation testing after active system installation should include pressure field extension (PFE) confirmation, system vacuum, air flow and velocity, sub-slab, indoor air, and outdoor ambient air sampling. Sub-slab differential pressure should also be monitored for an extended period of time (weeks) and during different seasons (summer and winter) to determine if the passive system is adequate to maintain a negative pressure during various temperature, barometric, and wind-induced pressure gradients. The ITRC also mention that smoke and tracer gas testing are also post-installation options for testing air flow patterns.*

   Response to Specific Comment No. 2: Per the monitoring plan for the site, provided in response to Specific Comment No. 3 below:

   - "Start-up data shall determine whether modifications to the system are necessary. The system may be converted to active SSP or SSD mode to achieve IA or shallow SV standards.
   - "If adjustments are made to a VIMS system after an initial failure to directly or presumptively meet SLs, then additional VIMS probe monitoring is required until successful results are obtained."

As previously stated, exceedances of neither soil nor groundwater screening levels were identified during subsurface assessment of the Site; and, the design/construction of a VIMS was conducted as a preemptive mitigation method. Per draft Ecology guidance ("Draft Guidance for Evaluating Vapor Intrusion in Washington State", dated November 2021), the MTCA Cleanup Rule does not contain requirements for achieving soil vapor cleanup. As such, soil vapor sampling via the VIMS probes was deemed sufficient to demonstrate that following Site redevelopment the soil vapor exposure pathway was "incomplete" and conditions were protective of human health in accordance with requirements of MTCA.

3. ***Specific Comment****: Please modify the as-built drawing to incorporate the above General Comments.*

Response to Specific Comment No. 3: As-built drawings have been modified to include the following language:

VAPOR INTRUSION MITIGATIONS SYSTEM (VIMS) GENERAL NOTES
(to be included on all VIMS engineering drawings)

Because field conditions vary widely at individual sites, and because soil vapor intrusion mitigation materials and techniques are ever evolving, VIMS designs should be based upon site specifics, building foundation types, and latest materials or techniques.

If volatile organic chemical (VOC) reductions of greater than 80% must be achieved, some type of active system should be considered. Design should be done by qualified environmental professionals based upon:

- preliminary site investigations, studies and assessments; and
- selection of appropriate engineering controls.

System shall be constructed with:

- quality assurance and quality control during construction; and
- post construction performance monitoring and maintenance.

Specific design elements shall include:

- Subslab membrane;
- Subslab perforated piping in a permeable layer;
- Trench dams;
- Conduit seals; and
- Ability to be activated using radon fans.

For VOC VIMS, smoke tested tight joints are preferred to lapped joints.

An active system should not attempt to establish a radius of influence beyond the

footprint of the vapor barrier unless the mitigation system is also part of a remediation system. Unnecessary vacuum can move remote soil vapor towards the building, exacerbate subslab VOC concentrations, and result in exceedances of air emissions standards in some cases. VIMS systems should be operated gently and minimally so that they do not affect adjacent properties or structures. Subslab pressurization, rather than de-pressurization, can often provide necessary results with less environmental impact.

Mitigation systems should be designed by an appropriately registered professional experienced in VOC VIMS. Reliance upon radon mitigation techniques alone may not produce desired results, due to the greater difficulty and the different materials, and techniques required to control VOCs as compared to radon.

Systems should not be installed by the designing environmental professionals, unless third party inspections are provided by independent environmental professionals. Normally the design environmental professional provides design and inspection services. To provide all three (design, construction, and inspection) is equivalent to "grading one's own paper" and can result in construction phase short-cuts detrimental to the project. Daily reports should be created documenting VIMS work including the leak testing of the membrane, and should include photographs of work as necessary. To summarize, environmental professionals can provide design and inspection; or design and construction; but should not be responsible for construction and inspection on the same project.

The following details should be included in the Mitigation Design and Installation Plan:

- membrane layout;
- vent piping layout;
- permeable layer(s) layout;
- membrane details in relation to footings, penetrations and vent trenches;
- vent piping details in relation to footings and membrane;
- monitoring probe details;
- trench dam details;
- conduit seal details; and
- blower and exhaust system details including vapor monitoring points.

A subgrade inspection is necessary before any membrane can be placed. After the sub-grade (engineered fill or native soil) has been properly prepared - such as by removing undesirable items, leveling, and compacting the soil - a protection course may be needed directly under the vapor barrier. This lower protection course may be a non-woven geotextile, clean fine-grained sand, or other material specified by the design professional. Depending upon the VIMS subslab "sandwich" design the geotextile may also serve to prevent finer-grained materials from being mixed into coarser material.

A protection course may also be necessary above the membrane. This layer can be a geotextile, roofing felt, or often a sand layer to serve both as a permeable layer for upper (above-membrane) probes and as a protection layer to prevent damage to the membrane

from rebar chairs, rebar, and/or concrete work traffic during slab construction.

The design of the permeable layers and vent pipe spacing must take into account the specific site conditions and the objectives of the VIMS. In some cases, there may not be a calculable risk at a site, even without a VIMS. In other cases, the risk may be high. Value engineering is as important in VIMS design as it is in other areas of engineering design (big load: big beam; small load: small beam, etc.).

Normally it is good to select fans for active systems that can provide at least two inches of vacuum at the fan.

For VIMS systems which are designed to be active at start-up, or which may possibly be converted to active in the future, perforated vent piping may be two-inch up to four-inch diameter, or equivalent cross-sectional area flat pipe. For systems where there is no risk shown, or where risk is marginal, it may be acceptable to use flat vent rather than pipe.

Isolated sub-slab areas (waffled foundations) should be penetrated by vent pipe; or other venting techniques should be utilized to provide ventilation between these isolated areas and the rest of the subslab venting system.

Manufacturer's specifications and/or recommendations for sealing vapor barrier seams, penetrations, and foundation contacts should be followed. The vapor barrier should be continuous across the subslab between foundations. Any plumbing, conduit, support columns, or other penetrations that penetrate the barrier must be "booted" or otherwise sealed.

The vapor barrier material must be compatible with and resist degradation from known contaminants. When dealing with VOC vapors in microgram per cubic meter concentrations, this is usually not a major consideration. Both HDPE and EVOH are acceptable against a wide range of chemicals. While spray-on material is by itself effective for use against radon and/or methane, it can absorb and desorb VOCs across the field of the membrane. Therefore, a laminated sandwich including sheet plastic should be used with spray-on membranes when VOCs are the vapor of concern.

The concrete slab installer must not be allowed to puncture the vapor barrier to drain off extra water that may be associated with the concrete finishing process.

A leak test of the membrane system (such as a smoke test) must be conducted to ensure that no leaks exist at seams, penetrations, or along contacts with foundations or walls. Where leaks are identified, repairs should be made and then retested until no leaks are detected.

Design goals may include:

- creating some minimum sub-slab negative pressure (say -0.02 "H_2O);
- creating some minimum sub-slab positive pressure; or
- reducing subslab VOC concentrations to meet indoor air screening levels when

multiplied times an attenuation factor (e.g., 0.03).

During the construction phase, soil probes should be embedded within the permeable sub-slab layer to allow testing of system effectiveness after the slab has been poured. Probes should be located generally midway between adjacent vent piping runs to provide worst case results when monitoring for vacuum or VOC concentrations. These probes could be as numerous as one per isolated foundation area. At least one probe should be installed per 5,000 ft^2 of slab area for smaller buildings. For larger buildings (some projects involve footprints of up to one million square feet or even more) the environmental professional's judgment may determine some less dense spacing and number of probes. Probes may be installed only below the membrane; or they may be installed in pairs above and below the membrane.

Sampling for indoor air contaminant concentrations is generally not preferred over sampling subslab concentrations and applying an attenuation factor. There are many indoor sources of VOCs, and it can be difficult to determine whether indoor air exceedances are the result of soil vapor intrusion, or some other source. Sampling for indoor air contaminant concentrations should occur once the building is weather tight and the air handling systems are operational.

A vapor intrusion and sampling plan is suggested below:

VAPOR INTRUSION SAMPLING AND O&M

Abbreviations:
- AA - Ambient Air
- AF - Attenuation Factor
- IA - indoor air
- SSD - sub-slab depressurization / venting
- SV - soil vapor
- VIMS - vapor intrusion mitigation system
- USEPA - United States Environmental Protection Agency
- VOC - volatile organic compound

AFs: Volatile organic compound (VOC) vapor concentrations from the soil attenuate (lessen in concentration) as they move into buildings. The ratio of the indoor air VOC concentration to the soil VOC concentration is known as the "attenuation factor" or AF.

VIMS: Vapor intrusion mitigation system (VIMS) mitigates the movement of VOCs from the soil to indoor air (IA), causing them to attenuate to a greater degree than through natural attenuation. Some VOCs are from indoor sources and these are not attenuated by VIMS.

SLs: A number of IA VOC regulatory concentration limits, called Screening Levels (SLs), that have been set for residential and non-residential occupancies. VIMS must control IA VOC concentrations to values less than or equal to SL VOC concentrations set by USEPA, local, or other agencies.

Modes of Operation: The VIMS is designed to work in:
- passive SSD (sub-slab depressurization) mode; or
- with contingency operation in active SSD mode using fans to augment or replace natural ventilation.

Special Inspection. A special inspector shall witness the VIMS work and shall be, or shall report to, an appropriately registered environmental professional. The special

inspector shall keep daily logs of the vapor control work done to ensure that all elements and systems are constructed per the drawings and specifications.

Start-up: VIMS are normally started up in the passive SSD / venting mode.

Monitoring Probes: Projects may or may not have sub-slab monitoring probes. When sub-slab monitoring probes are provided, they may be in pairs above and below the membrane, or they may be singly located usually below the membrane.

Performance Monitoring: Effectiveness of the VIMS system may be presumptively monitored based upon sub-slab soil vapor (SV) concentrations. The sub-slab SV concentrations are either compared directly to published SV SLs or multiplied by an attenuation factor of 0.001 and compared against IA SLs (as applicable). In the absence of probes or for other reasons the IA VOC concentrations can also be measured directly, usually by time-weighted sampling.

- Sampling may include the use of:
  - field electronic equipment for screening;
  - tedlar bags;
  - Summa canisters; and/or
  - sorbent samplers.
- Summa canisters may be used for up to 24-hour time weighted sampling; and sorbent samplers may be used if longer sampling periods are desired
- Start-up data shall determine whether modifications to the system are necessary. The system may be converted to active SSP or SSD mode to achieve IA or shallow SV standards.
- If adjustments are made to a VIMS system after an initial failure to directly or presumptively meet SLs, then additional monitoring is required until successful results are obtained.
- Sampling shall be quarterly with a one-year review to determine the necessity of continued sampling.

Sampling Personnel Qualifications. All sampling shall be done by or under the direct supervision of an appropriately registered environmental professional.

VIMS Engineer's Certification. The environmental professional should certify in writing that the project has been constructed per the approved plans; that it has successfully passed verification monitoring requirements; and that it is suitable for the intended occupancy.

4. ***Specific Comment****: Please provide the basis for the sub-slab vent pipe size and spacing. Please also provide any calculations pertaining to above General Comment #9.*

Response to Specific Comment No. 4: Regarding basis for subslab vent size, the subslab vent system utilizes a twelve-inch wide ADS flat pipe, which approximately has the same cross-sectional area as a four-inch diameter round pipe.

Regarding calculations pertaining to General Comment No. 9, as previously discussed above, the Fantech Model HP220 radon fans used at this project (see attached fan curve) indicates an approximately 2.2 "H_2O pressure head at 40 cfm and an approximately 1.6 "H_2O pressure head at 100 cfm. Using a nomograph, it was calculated that the vent riser head loss is approximately 0.6 "H_2O at 100 cfm,

and approximately 0.1 "H_2O at 40 cfm (see fan curve and nomograph calculations attached). Therefore, adequate vacuum is provided for active VIMS operation.

5. ***Specific Comment****: Ecology does not agree with the proposed material (sand) and thickness (2-inch) for the sub-slab permeable layer. See above General Comments #8 and 11.*

   Response to Specific Comment No. 5: Actual vacuum monitoring at subslab probes at the Federal Way[4] and Parkland[5] sites shows a vacuum in excess of -0.25 "H_2O, as compared to the NAVFAC[2011] recommended design goal of negative 0.02 "H_2O minimum sub-slab vacuum (see data attached). VIMS systems at these sites are of the same size and design as the South Hill Site.[6]

6. ***Specific Comment****: Please include a description on how the vapor mitigation system can controlled/balance individual areas within the building footprint.*

   Response to Specific Comment No. 6: The VIMS system includes four fans, each of which can be considered to serve an irregular quadrant of the subslab grid system. The fans can be run singly, two at a time, three at a time, or all four at once. The system can also be run in negative or positive pressure mode. The mode of fan operation can be adjusted to affect VOC concentrations at one or more subslab probes.

Attachments:

- Example Engineer's Certification Letter
- Example Field Inspection Report and Photographs
- As-builts
- Professional Resumes
  - John Sepich
  - Jason Herman
- Subslab Monitoring Data
- Membrane Manufacturer's Product Literature
- Calculations
  - Fan curve
  - Nomograph
  - Head loss

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[4] *Federal Way Hospital, 29805 Pacific Highway South, Federal Way, WA*
[5] *Parkland Hospital, 14815 Pacific Avenue South, Parkland, WA*
[6] *Campus Emergency Department / 132nd Street East and Meridian Avenue East, South Hill, WA*