National Aeronautics and Space Administration

John F. Kennedy Space Center
Kennedy Space Center, FL 32899

June 30, 2022

Reply to Attn of: SI-E2

Mr. Bruce Moore, P.G.
Florida Department of Environmental Protection
Bob Martinez Center
Mail Station 4535
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: GSA Reclamation Yard, Solid Waste Management Unit (SWMU) No. 010, 2021 Groundwater Monitoring Report, Kennedy Space Center, Florida

Dear Mr. Moore:

Please find the enclosed 2021 Groundwater Monitoring Report for the GSA Reclamation Yard, SWMU No. 010, at Kennedy Space Center, Florida, for your review. The activities and findings of the monitoring program and recommendations for its continuation were briefed to the Kennedy Space Center Remediation Team on March 9, 2022 (Meeting Minute 2203-M06).
The Team reached consensus on following items:

- Water level measurement locations for 2022 (Decision 2203-D14);
- Installation of a new monitoring well for per- and polyfluoroalkyl substances (PFAS) delineation and the sampling locations for investigation of PFAS in groundwater and surface water (Decisions 2203-D15 through 2203-D17);
- Sampling locations and analytes for the polychlorinated biphenyl/volatile organic aromatic plume on the northeast side of the site (Decision 2203-D18);
- Discontinuing groundwater monitoring for chlorinated volatile organic compounds on the west side of the site based on attainment of cleanup target levels (Decision 2203-D21); and
- Sampling locations and analytes for underground injection control monitoring (Decisions 2203-D19, 2203-D20 and 2203-D22).

NASA appreciates the Department's support in the continuing remediation progress at GSA

Reclamation Yard. If you have any questions regarding this submittal, please contact me at (321) 508-2289.

Sincerely,

Edith Johansen Digitally signed by Edith Johansen
Date: 2022.06.30 13:22:09 -04'00'

Edith (Deda) Johansen
Remediation Project Manager
Environmental Assurance Branch

Enclosure:
2021 Groundwater Monitoring Report for the GSA Reclamation Yard, Solid Waste Management Unit (SWMU) No. 010, at Kennedy Space Center, Florida

GENERAL SERVICES ADMINISTRATION RECLAMATION YARD
SWMU 010
2021 GROUNDWATER MONITORING REPORT
KENNEDY SPACE CENTER, FLORIDA

Prepared for:



Environmental Assurance Branch
National Aeronautics and Space Administration
Kennedy Space Center, Florida 32899

A-E Contract 80KSC019D0010
Task Order 80KSC019F0078

June 2022
Revision: 0

Prepared by:
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GENERAL SERVICES ADMINISTRATION RECLAMATION YARD
SWMU 010
2021 GROUNDWATER MONITORING REPORT
KENNEDY SPACE CENTER, FLORIDA

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In accordance with the provisions of Florida Statutes, Chapter 492, this Long-Term Groundwater Monitoring Report for the Kennedy Space Center Wilson Corners site located in Merritt Island, Florida, has been prepared under the direct supervision of a Professional Geologist registered in the State of Florida. This work was performed in accordance with generally accepted professional geology practices pursuant to Chapter 492 of the Florida Statutes. The data, findings, recommendations, specifications, or professional opinions were prepared solely for the use of the National Aeronautics and Space Administration and the Florida Department of Environmental Protection. AECOM makes no other warranty, either expressed or implied, and is not responsible for the interpretation by others of these data.

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ABBREVIATIONS, ACRONYMS, AND SYMBOLS

ADP	Advanced Data Package
AECOM	AECOM Technical Services, Inc.
bls	below land surface
cDCE	cis-1,2-dichloroethene
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
COC	contaminant of concern
13DCB	1,3-dichlorobenzene
14DCB	1,4-dichlorobenzene
11DCE	1,1-dichloroethene
DPT	direct push technology
ERD	Enhanced Reductive Dechlorination
EVO	emulsified vegetable oil
EZVI	emulsified zero valent iron
F.A.C.	Florida Administrative Code
ft/ft	feet elevation per foot distance
GCTL	Groundwater Cleanup Target Level
GSRY	General Services Administration Reclamation Yard
IM	Interim Measure
KSC	Kennedy Space Center
KSCRT	Kennedy Space Center Remediation Team
LDA	large diameter auger
LTM	long-term monitoring
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
NADC	Natural Attenuation Default Concentration
NASA	National Aeronautics and Space Administration
PFAS	per- and polyfluoroalkyl substances

PCB	polychlorinated biphenyl
PCE	tetrachloroethene
RCRA	Resource Conservation and Recovery Act
RIS	Remediation Information System
RRMF	Reutilization, Recycling, and Marketing Facility
SCTL	Soil Cleanup Target Level
124TCB	1,2,4-trichlorobenzene
tDCE	trans-1,2-dichloroethene
TCE	trichloroethene
TDS	total dissolved solids
TRPH	Total Recoverable Petroleum Hydrocarbons
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VO/L	vegetable oil/lactate
VOA	volatile organic aromatic
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report presents a summary of the groundwater monitoring activities that occurred in November and December 2021 at General Services Administration Reclamation Yard, Solid Waste Management Unit 010, located at the John F. Kennedy Space Center (KSC), Florida. The site is monitored under KSC's Resource Conservation and Recovery Act Corrective Action Program. This approach also meets the requirements of Chapter 62-780, Florida Administrative Code. For the purposes of this report, two separate plumes, known as the Polychlorinated Biphenyl (PCB)/Volatile Organic Aromatic (VOA) Plume and the Chlorinated Volatile Organic Compound (VOC) Plume, were identified for this site. The contaminants of concern (COCs) for the PCB/VOA Plume consists of PCBs, 1,2,4-trichlorobenzene, and breakdown products of 1,2,4-trichlorobenzene. The COCs for the Chlorinated VOC Plume are tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

The activities presented in this report include two field events: (1) November 2021 – PCB/VOA Plume groundwater sampling via Direct Push Technology – 70 groundwater samples were collected from 10 locations at varying intervals; and (2) December 2021 – Site-wide semi-annual water level measurements of 54 monitoring wells, redevelopment of 5 monitoring wells, and sampling of 35 monitoring wells.

Groundwater Flow

Based on water level measurement activities performed during this reporting period, the following conclusions are provided:

- In December 2021, groundwater flow for the site was generally to the north and northwest, with the individual zones only varying by occasional east and west components in certain areas of the site. This is generally consistent with historical observations at the site; however, there have been historical variations in groundwater flow direction at the site.

Based on water level measurement activities performed during this reporting period, the following recommendations are provided:

- Conduct annual water level measurements at 55 monitoring wells.

PCB/VOA Plume

Based on groundwater and surface water sampling activities performed during this reporting period, the following conclusions are provided:

- Groundwater results demonstrate a reduction in plume size and COC concentrations, compared to baseline sampling for the 2018 Interim Measure (IM), which included excavation using both conventional methods and large diameter auger caisson technology. Additionally, a persulfate and ferric iron mixture was added to the bottom of the excavation in some areas; therefore, six

monitoring wells in the PCB/VOA plume area plus a seventh in a background location were sampled for underground injection control (UIC) parameters. Of the six wells in the PCB/VOA plume, three had results above site target levels for sulfate, iron, manganese, sodium and/or total dissolved solids (TDS).

- Chlorinated benzene compound COCs were detected above State of Florida Groundwater Cleanup Target Levels (GCTLs) in the 10 to 30 feet below land surface zone only.
- Chlorinated benzene compound COCs were below the GCTLs in monitoring wells that bound the current PCB/VOA plume horizontally and vertically; therefore, no new monitoring well installations are recommended for delineation at this time.
- The localized shallow aquifer was affected by the addition of flowable fill during the 2018 IM, and pore volume exchange is likely slower than pre-IM, therefore, no locations or COC analytes are recommended for elimination at this time, although there have been two or more consecutive sampling events below GCTLs at some locations

Based on groundwater sampling activities performed during this reporting period, the following recommendations are provided:

- Perform annual monitoring at 28 monitoring wells and 1 surface water location with the same VOA and PCB analytes for each location as in December 2021.
- Discontinue UIC monitoring at GSRY-MW0057, GSRY-MW0061, and GSRY-MW0064.
- Continue annual UIC monitoring at GSRY-MW0049, GSRY-MW0050, and GSRY-MW0066 for the following UIC parameters: sulfate, iron, manganese, sodium, and TDS.

Chlorinated VOC Plume

Based on groundwater sampling activities performed during this reporting period, the following conclusions are provided:

- In December 2021, no site COCs were detected above GCTLs.
- Concentrations of iron or TDS remain above the site approved target levels in the three monitoring wells that were sampled for UIC parameters.

Based on groundwater sampling activities performed during this reporting period, the following recommendations are provided:

- Due to two or more consecutive events in which target VOC concentrations were below GCTLs, discontinue annual groundwater monitoring for target VOCs in the former Chlorinated VOC plume area monitoring wells; this will include discontinuing sampling of GSRY-MW0071, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, and GSRY-MW0077.
- Perform annual UIC groundwater monitoring at GSRY-MW0067 for iron and at GSRY-MW0071 and GSRY-MW0073 for iron and TDS.

1. INTRODUCTION

1.1 OVERVIEW

The National Aeronautics and Space Administration (NASA), through its Environmental Assurance Branch, is managing cleanup of two areas at the General Services Administration Reclamation Yard (GSRY) at Kennedy Space Center (KSC), Florida. The area located in the northeast portion of the GSRY has historically been referred to as the Northeast Area and is now known as the Polychlorinated Biphenyl (PCB) / Volatile Organic Aromatic (VOA) Plume. The area located in the western portion of the GSRY has been historically referred to as the Southwest Area and Southwest Hot Spot and is now referred to as the Chlorinated Volatile Organic Compound (VOC) Plume. The GSRY has been designated Solid Waste Management Unit 010 under KSC's Resource Conservation and Recovery Act (RCRA) Corrective Action Program.

AECOM Technical Services, Inc. (AECOM) has prepared this report and completed groundwater monitoring of the PCB/VOA and Chlorinated VOC Plumes at the GSRY site for NASA under contract 80KSC019D0010, Task Order 80KSC019F0078. An Advanced Data Package (ADP) was presented to the KSC Remediation Team (KSCRT) in preparation for this report. The KSCRT approved the recommendations in those presentations during a meeting on March 9, 2022. The ADP and meeting minutes are provided as **Appendix A**. This report presents the activities and findings for the November and December 2021 groundwater monitoring events. The evaluation of these data provides conclusions and recommendations for continued groundwater monitoring.

1.2 FACILITY LOCATION AND SITE USE

KSC is located on the east-central Atlantic Coast of Florida in the northern portion of Merritt Island, between the Indian River and Banana River Lagoons in Brevard County. The GSRY is located within KSC on Ransom Road between State Road 3 and Space Commerce Way, as shown on **Figure 1-1**, and in Section 7 of Township 23, Range 37 East, as shown on the United States Geological Survey 7.5-minute Orsino Quadrangle Map (United States Geological Survey 1976), which is included as **Figure 1-2**. The current site layout is presented on **Figure 1-3**.

The GSRY was constructed in the 1960s on 7 acres. It was historically used to stage transformers, air conditioners, batteries, paints, solvents, oils, pesticides, and adhesives. It is currently operated as the Reutilization, Recycling, and Marketing Facility (RRMF) by KSC's Institutional Support Contractor. The RRMF is used for the sale, recycling, and temporary storage of equipment and surplus materials. The facility operates within a security fence, which is locked during after-duty hours. The facility holds public auctions and is visited by buyers and vendors.

The main area of the yard north of the main building, and the entrance to the yard are paved with concrete. The western portion of the yard and the areas south and east of the main building are covered by sand and gravel. Ransom Road and two small retention ponds border the site to the north. Drainage ditches border the yard to the west, south, and east. The Corrosion Control Facility, also

known as the Ransom Road Sandblast Area, is located to the east, a scrap storage yard is located to the west, and undeveloped land is located to the south of the RRMF.

1.3 PCB/VOA PLUME BACKGROUND

In 1990, the Base Operations contractor completed a site-wide RCRA Facility Investigation Work Plan (NASA 1998), and additional site-wide RCRA Facility Investigation activities took place from 1998 to 2001 (NASA 2001). During the investigations, chlorobenzenes, pesticides, and PCBs were identified as contaminants of concern (COCs) in groundwater, and pesticides and PCBs were identified as COCs in soil.

An Interim Measure (IM) was completed in 2002 (NASA 2003) to remove exposed shallow soils containing PCB concentrations above the State of Florida Direct Exposure Industrial Soil Cleanup Target Level (SCTL), which was then 2.1 milligrams per kilogram (mg/kg), as provided in Table 2 of Chapter 62-777, Florida Administrative Code (F.A.C.). Approximately 400 tons of exposed soils were removed from the eastern ditch and around the southeast edge of pavement that contained PCB concentrations greater than the Industrial SCTL and were disposed of off-site at permitted facilities.

A Corrective Measures Study (CMS) to identify and evaluate potential remedial alternatives was completed between 2002 and 2004 (NASA 2004). Groundwater analytical results from CMS sampling indicated that pesticides were no longer a COC at the site. The CMS recommended additional soil excavation, which included short-term groundwater recovery via dewatering, as the remedial strategy for the site. Additional soil sampling to further delineate PCBs was completed as part of the remedial design process. The Corrective Measures Implementation Design was completed in 2005 and included an excavation plan with dewatering for the PCB/VOA Plume (NASA 2006b).

In 2006, Corrective Measures Implementation was conducted, and consisted of excavation and short-term groundwater recovery (NASA 2006a). Dewatering wells, screened from 15 to 20 feet below land surface (bls), were installed around the north, east, and a portion of the south side of the PCB/VOA Plume. During dewatering activities, approximately 265,000 gallons of impacted water were removed. Approximately 265,000 gallons of water was treated on-site by an air stripper and PCB filter cartridges to reduce VOAs and PCBs to levels suitable for discharge, and then discharged into ditches along the perimeter of the GSRY property. Approximately 1,742 tons of soil with PCB concentrations greater than or equal to the leachability SCTL of 17 mg/kg were removed at depths up to 15 feet bls for disposal at permitted facilities. The excavation was filled with verified clean fill dirt, and the area was repaved.

After completion of excavation activities, two monitoring wells (GSRY-MW0010S and GSRY-MW0010IS) were installed to replace wells that were abandoned prior to excavation activities. Groundwater sampling in 2006 and 2007, which was included in the performance monitoring for the IM, indicated that GSRY-MW0010S and GSRY-MW0010IS contained concentrations of PCBs that were below the State of Florida Groundwater Cleanup Target Levels (GCTLs) as provided in

Chapter 62-777, F.A.C.; however, chlorobenzene, trichlorobenzene, and dichlorobenzene concentrations remained above GCTLs (NASA 2008). Due to the presence of PCBs detected in the drill cuttings during well installation activities, three Direct Push Technology (DPT) locations were sampled for saturated soil analysis. Two locations had PCBs above residential SCTLs at 14 to 15 feet bls and 24 to 25 feet bls. The site transitioned to Long Term Monitoring (LTM), and in 2008, analytical results indicated that concentrations of PCBs in GSRY-MW0010S and GSRY-MW0010IS were below GCTLs for the fourth consecutive event, and LTM for PCBs was discontinued. The LTM program was suspended, and additional site assessment for chlorinated benzenes was recommended.

In 2008, NASA initiated supplemental groundwater assessment due to increasing concentrations of 1,2,4-trichlorobenzene (124TCB) in GSRY-MW0010S (NASA 2019b). From August 2008 to February 2009, groundwater samples were collected from existing monitoring wells and temporary sampling points using DPT. Concentrations of chlorinated benzenes were detected above GCTLs and above the State of Florida Natural Attenuation Default Concentrations (NADCs) provided in Table 5 of Chapter 62-777, F.A.C.

Confirmation DPT samples were collected in August 2009 from three intervals in two of the previously sampled locations (NASA 2019b). Filtered and unfiltered samples were analyzed for VOCs and PCBs. Concentrations in the filtered samples were lower than the unfiltered samples. Four unfiltered samples and one filtered sample contained PCBs: the unfiltered samples contained a maximum PCB concentration of 14 micrograms per liter (µg/L), and the filtered sample contained a maximum PCB concentration of 1.7 µg/L, which was qualified as an estimated value.

In 2009, additional monitoring wells were installed to further delineate the chlorinated benzene compounds (NASA 2012b). Monitoring well GSRY-MW0010S contained VOC concentrations that were an order of magnitude higher than what was detected in other nearby shallow wells. Because of the correlation between turbidity and groundwater contaminant concentrations, there was an indication that GSRY-MW0010S may have been damaged. In June 2010, monitoring well GSRY-MW0035 was installed approximately 4 feet south of GSRY-MW0010S. Free product containing 75 percent PCBs (Aroclor 1260) and a concentration of 124TCB at 62,000,000 µg/L was extracted from GSRY-MW0035 during development, and free product was observed again in 2011.

In 2010 and 2011, surface water samples were collected semi-annually from the retention pond on the northeast side of the GSRY (NASA 2012b). Samples were analyzed for VOCs, and analytical results indicated on one occasion, the concentration of 1,4-dichlorobenzene (14DCB) was above the State of Florida Surface Water Cleanup Target Level for Freshwater Surface Water Criteria provided in Table 1 of Chapter 62-777, F.A.C. In May 2011, free product was again observed in monitoring well GSRY-MW0035.

Soil and groundwater assessment was conducted in 2012 and continued until 2017, when the Interim Measure Work Plan for the Northeast PCB and Chlorobenzene Source Area (NASA 2017a) was

completed. A total of 564 soil samples were collected to investigate PCB soil contamination. A total of 369 soil samples were analyzed at a fixed-based laboratory by United States Environmental Protection Agency (USEPA) Methods 3550C/8082A. A total of 196 soil samples were analyzed by a field test kit, some of which were also analyzed by fixed-based laboratory analysis. Two lithological soil samples were collected to a depth of 34 feet bls. Unsaturated soil results were compared to the Direct Residential Exposure SCTL for PCBs (0.5 mg/kg) (NASA 2019b). Soil samples were collected in the vadose zone (0 to 3 feet bls) to characterize PCB concentrations of the backfilled soils within the 2006 excavation. The highest PCB concentration in the vadose zone was 29.8 mg/kg.

Saturated soil samples were collected by DPT, and based on a comparison of groundwater PCB results to saturated soil concentrations, the extent of PCBs in the saturated soils was delineated to 1 mg/kg (NASA 2017a). It was found that 1 mg/kg in saturated soils corresponded with dissolved PCB concentrations equal to or below the GCTL of 0.5 µg/L. The soil assessment indicated that 15 locations in the saturated zone contained PCB concentrations exceeding the leachability SCTL of 17 mg/kg. Soil sampling in the saturated zone revealed PCB contamination extended to a depth of 22 feet bls in an area of approximately 4,285 square feet.

In 2015, groundwater samples were collected and analyzed for PCBs from existing monitoring wells GSRY-MW0010S, GSRY-MW0035, and GSRY-MW0032 (NASA 2019b). Laboratory analytical results indicated that GSRY-MW0010S and GSRY-MW0035 contained concentrations of PCBs at 20 µg/L and 667 µg/L, respectively. Based on soil analytical results, four shallow monitoring wells were installed around the perimeter of the area in which concentrations of PCBs in saturated soils exceeded 25 mg/kg which roughly corresponds with the leachability GCTL of 17 mg/kg. Additionally, one deep monitoring well (GSRY-MW0048) was installed to vertically delineate PCBs. Those wells were sampled in November 2016. Three of the shallow wells yielded results above the PCB GCTL of 0.5 µg/L with a maximum of 20 µg/L. In December 2016, eight shallow monitoring wells were installed around the perimeter of the area in which concentrations of PCBs in saturated soils exceeded 1 mg/kg. In 2016, the newly installed wells, select existing wells (GSRY-MW0004S and GSRY-MW0011S), and a surface water sample (GSRY-SW0001) from the north pond, were sampled for PCB analysis. Analytical results ranged from non-detect to 1.7 µg/L in the new perimeter wells. Two perimeter wells (GSRY-MW0043 and GSRY-MW0047), which both had a PCB concentration of 1.7 µg/L, were re-developed and re-sampled in January 2017. The analytical results indicated PCB concentrations were less than 0.5 µg/L both wells. Groundwater sampling using DPT was also conducted to evaluate chlorinated benzene compounds. Analytical results indicated chlorinated benzene compounds were present with concentrations greater than GCTLs in the PCB/VOA Plume area. Concentrations of chlorinated benzene compounds also exceeded NADCs in the area near and around GSRY-MW0035, which historically contained free product. Concentrations of chlorinated benzene compounds exceeding GCTLs were not found below 24 feet bls.

In 2018, NASA implemented an IM using conventional excavation and Large Diameter Auger (LDA) caisson technology to excavate PCB-contaminated soils (NASA 2019b). The IM objectives were to reduce PCBs in unsaturated soil to below the Direct Exposure Residential SCTLs of 0.5 mg/kg, and to remove contaminant mass in the saturated soils to accelerate groundwater cleanup. Excavation of 267 cells was completed using LDA caisson technology. Excavation of 85 proposed cells was completed using conventional methods. As part of the IM, a persulfate and ferric iron mixture, Provect-OX®, was added to the bottom of excavation cells where the concentration of PCB was greater than 1 mg/kg. The LDA caisson excavation was completed in April 2018. The conventional excavation was completed in October 2018. Approximately 7,080 tons of PCB-impacted soils were removed during excavation activities and properly disposed.

Following the IM, 21 monitoring wells were installed from September 2018 through February 2019 (NASA 2019b). Groundwater monitoring was completed in September/October 2018 and February/March 2019. A surface water sample GSRY-SW0001 was collected from the north pond. Analytical results indicated chlorobenzene was detected above the GCTL in GSRY-MW0049 and GSRY-MW0050, and benzene was detected above the GCTL in GSRY-MW0036R. In monitoring well GSRY-MW0062, PCBs were detected above the GCTL. However, GSRY-MW0062 was redeveloped and resampled, and analytical results indicated PCBs were below detection limits. The surface water sample GSRY-SW0001 had no COC concentrations above detection limits in March 2019.

Underground Injection Control (UIC) sampling was conducted at a subset of monitoring wells in September 2018 to monitor the residual effects of the Provect-OX® treatment. UIC parameter concentrations were compared to select site approved target levels. Analytical results indicated sulfate, iron, manganese, or sodium were detected above the site approved target levels in either GSRY-MW0049 or GSRY-MW0050.

In February 2020 and October 2020, two monitoring wells were installed, GSRY-MW0066 and GSRY-MW0075, respectively (NASA 2021c). Both were screened within the 10 to 30 feet bls zone and were installed to assist with horizontal delineation of the PCB/VOA Plume to the west and east, respectively. Groundwater monitoring was completed in December 2019 and May/June 2020. Groundwater results for monitoring wells GSRY-MW0049 and GSRY-MW0050 indicated a decreasing trend for 124TCB, and an increasing trend for 14DCB. Groundwater results for monitoring well GSRY-MW0049 indicated an increasing trend for 1,3-dichlorobenzene (13DCB). Additionally, PCB concentrations in several monitoring wells were above the GCTL in the December 2019 sampling event; however, PCB concentrations were below the GCTL in the sampled wells for the May/June 2020 sampling event. Concentrations of UIC parameters iron, sulfate, and total dissolved solids (TDS) remained above applicable site approved target level criteria in monitoring wells GSRY-MW0049 and GSRY-MW0050, located within the former Provect-OX® treatment area. Concentrations of UIC parameters during December 2019 and May 2020 were below the applicable site approved target level criteria in perimeter wells GSRY-MW0057, GSRY-

MW0061, and GSRY-MW0064, indicating these analytes are not migrating outside of the treatment area.

Semi-Annual Groundwater Monitoring was conducted in December 2020 and May/June 2021 (NASA 2021a). In May/June 2021, Chlorinated benzene compounds were detected above the target levels in the 10 to 30 feet bls zone only. Groundwater analytical results continued to demonstrate a reduction in plume size and COC concentrations compared to baseline sampling for the 2018 LDA excavation IM. Concentrations of UIC parameters iron, sulfate, and TDS remained above applicable target level criteria in monitoring wells GSRY-MW0049, GSRY-MW0050, and GSRY-MW0066. The sampling frequency was changed from semi-annual to annual, alternating between wet and dry seasons.

1.4 CHLORINATED VOC PLUME BACKGROUND

In 1990, the Base Operations contractor completed a site-wide RCRA Facility Investigation Report (NASA 1998). Additional site-wide RCRA Facility Investigation activities took place from 1998 to 2001 (NASA 2001). Past handling practices resulted in releases of solvents to the environment in the Chlorinated VOC Plume area. During the investigation, tetrachloroethene (PCE), trichloroethene (TCE), and other VOCs created by their degradation were identified in groundwater and soils in the Chlorinated VOC Plume.

A CMS for removal of solvent-impacted soils to a depth of 16 feet bls was completed in 2004 (NASA 2004), and the Corrective Measures Implementation (CMI) by excavation was completed in 2006 (NASA 2006b). During the backfill process, sodium permanganate was added to chemically oxidize additional solvents. In 2007, sodium permanganate was injected in the western portion of the site to address rebounding concentrations in groundwater. LTM was initiated after the 2006 and 2007 CMI activities were completed.

Results from LTM activities indicated increasing trends in VOC concentrations that exceeded GCTLs and NADCs. Therefore, LTM was suspended, and supplemental site assessment activities were conducted from 2008 to 2010.

In 2011, following further assessment and remedial alternatives evaluation, enhanced reductive dechlorination (ERD), through injection, using emulsified zero valent iron (EZVI) and vegetable oil/lactate (VO/L) or emulsified vegetable oil (EVO), was selected as an additional treatment method for the Chlorinated VOC Plume source area (NASA 2012a). The IM Work Plan was approved in May 2012 and included baseline sampling, two in situ treatment events, and six performance monitoring events using DPT.

In 2012 and 2013, baseline groundwater sampling was conducted using DPT. Concentrations of PCE were detected up to 170,000 µg/L within the Chlorinated VOC Plume source zone at the former GSRY-DPT3005 location (NASA 2019c). During the 2013 DPT sampling event, dense non-aqueous phase liquid was encountered at 21 to 22 feet bls in the south-center of the Chlorinated VOC Plume

treatment area. The Chlorinated VOC Plume COCs are PCE, TCE, trans-1,2-dichloroethene (tDCE), cis-1,2-dichloroethene (cDCE), 1,1-dichloroethene (11DCE), and vinyl chloride (VC).

Prior to injections in 2013, monitoring wells within a 50-foot radius of influence were abandoned (NASA 2019c). The first ERD injection event was conducted in November 2013. Approximately 9,060 gallons of EZVI were injected at 28 locations, and approximately 26,000 gallons of VO/L were injected at 13 locations. Analytical data from the first through fourth DPT performance monitoring events (July 2014 to September 2016) indicated 97 percent reduction of PCE and 71 percent reduction for target COCs.

The second ERD injection event for the Chlorinated VOC Plume was conducted in March 2017 (NASA 2019c). Approximately 3,894 gallons of EZVI were injected at 6 locations, and approximately 12,077 gallons of EVO were injected at 18 locations. Approximately 441 pounds of an anti-methanogenic agent, Provect-CH4, was added to the EZVI and EVO solutions to limit methane production and increase dechlorination efficiency. The fifth and sixth DPT performance monitoring events were conducted in October 2017 and August 2018, respectively. Analytical data from these events indicated detections of PCE and VC were above GCTLs, and VC was above NADCs within the Chlorinated VOC Plume treatment area. The COC concentrations in groundwater were below GCTLs to the north of the Chlorinated VOC Plume treatment area.

In November 2019, eight monitoring wells (GSRY-MW0067 through GSRY-MW0074) were installed within the Chlorinated VOC Plume area (NASA 2021b). Groundwater monitoring was completed in December 2019 and May 2020. Groundwater laboratory analytical results indicated that concentrations of COCs were at or below GCTLs in December 2019 and May 2020. During both events, UIC monitoring, associated with the ERD process, was conducted in three monitoring wells (GSRY-MW0067, GSRY-MW0071, and GSRY-MW0073) for analysis of total recoverable petroleum hydrocarbons (TRPH), iron, and TDS. Analytical results indicated TRPH was below the GCTL in the three wells, iron was above the GCTL in one well (GSRY-MW0073), and TDS was above the GCTL in two wells (GSRY-MW0071 and GSRY-MW0073).

In October 2020, temporary sampling points were installed using DPT to sample groundwater and assess the degradation of chlorinated VOCs in areas where there are no monitoring wells, and to assess the Chlorinated VOC Plume delineation (NASA 2021a). Laboratory analytical results for this event indicated that VOC concentrations were either not detected or below the GCTL in every sample, except for GSRY-DPT3076. One sample collected from GSRY-DPT3076 in the 15 to 19 feet bls depth interval indicated that PCE, TCE, and VC concentrations were above the GCTL for PCE, TCE, and VC.

In December 2020 and May-June 2021, semi-annual groundwater monitoring was conducted (NASA 2021a). In May 2021, two new monitoring wells, GSRY-MW0076 and GSRY-MW0077, were installed to investigate the GSRY-DPT3076 results. In May 2021, no concentrations of site COCs were detected above GCTLs. The May 2021 results continued to demonstrate Chlorinated VOCs

have been reduced below GCTLs in the ERD treatment area, including down-gradient and cross-gradient. Concentrations of iron and TDS were detected above the site approved target level or maximum baseline criteria in monitoring wells GSRY-MW0071 and GSRY-MW0073. The sampling frequency was changed from semi-annual to annual, alternating between wet and dry seasons.

1.5 PURPOSE

The purpose of this report is to present the field activities and results of the November and December 2021 groundwater monitoring events. Additionally, this report provides recommendations for future assessment and monitoring activities.

1.6 REPORT ORGANIZATION

The remainder of this report is organized as follows:

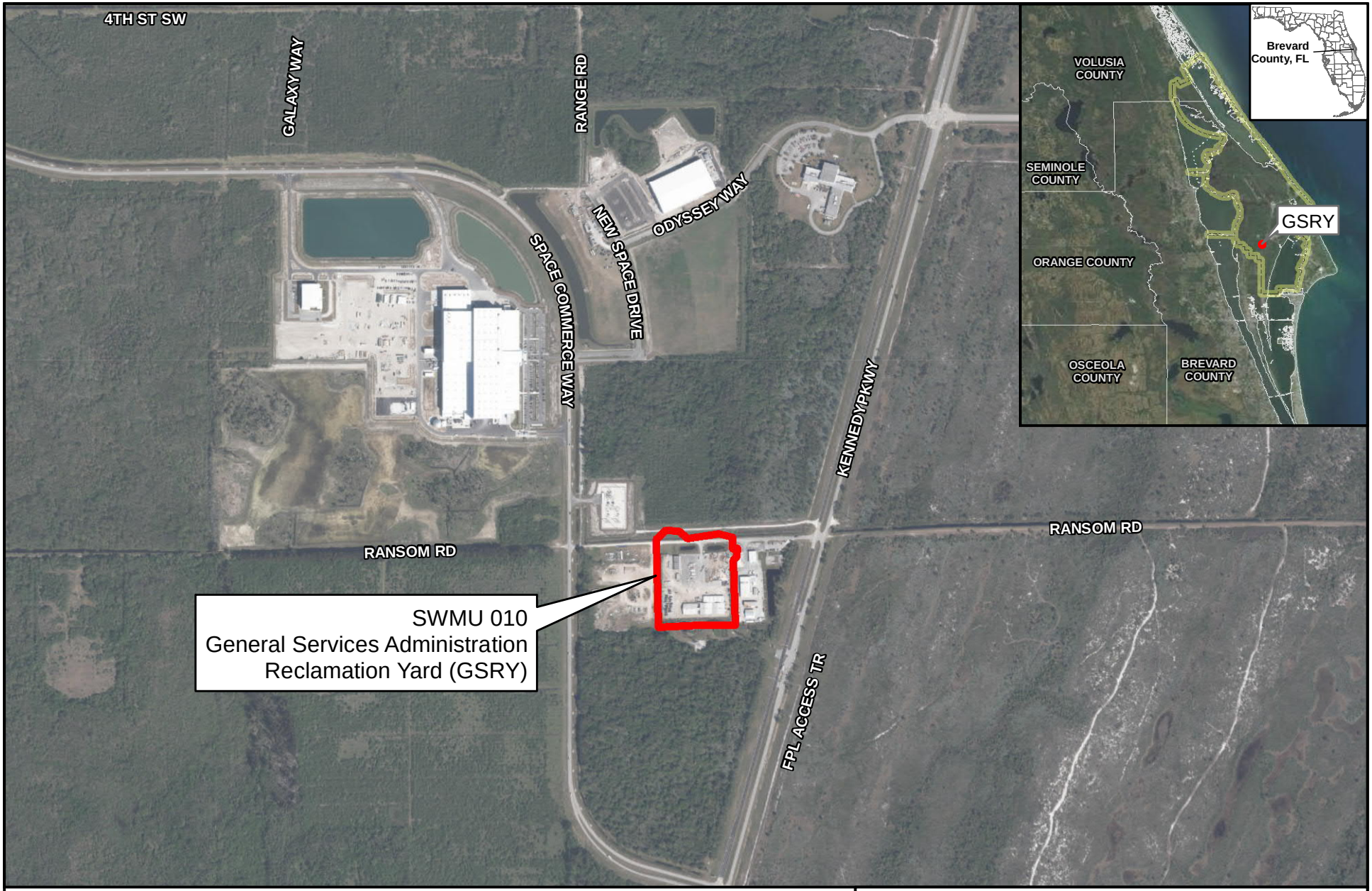
Section 2: Field Activities and Groundwater Flow. This section describes the methodology used for the groundwater monitoring activities.

Section 3: PCB/VOA Plume Analytical Results. This section summarizes the results of the November and December 2021 groundwater monitoring activities in the PCB/VOA Plume area.

Section 4: Chlorinated VOC Plume Analytical Results. This section summarizes the results of the December 2021 groundwater monitoring activities in the Chlorinated VOC Plume area.

Section 5: Conclusions and Recommendations. This section discusses conclusions based on recent and historical data and presents recommendations for future activities at the site.

Section 6: References. This section provides a listing of the documents used in developing this report.



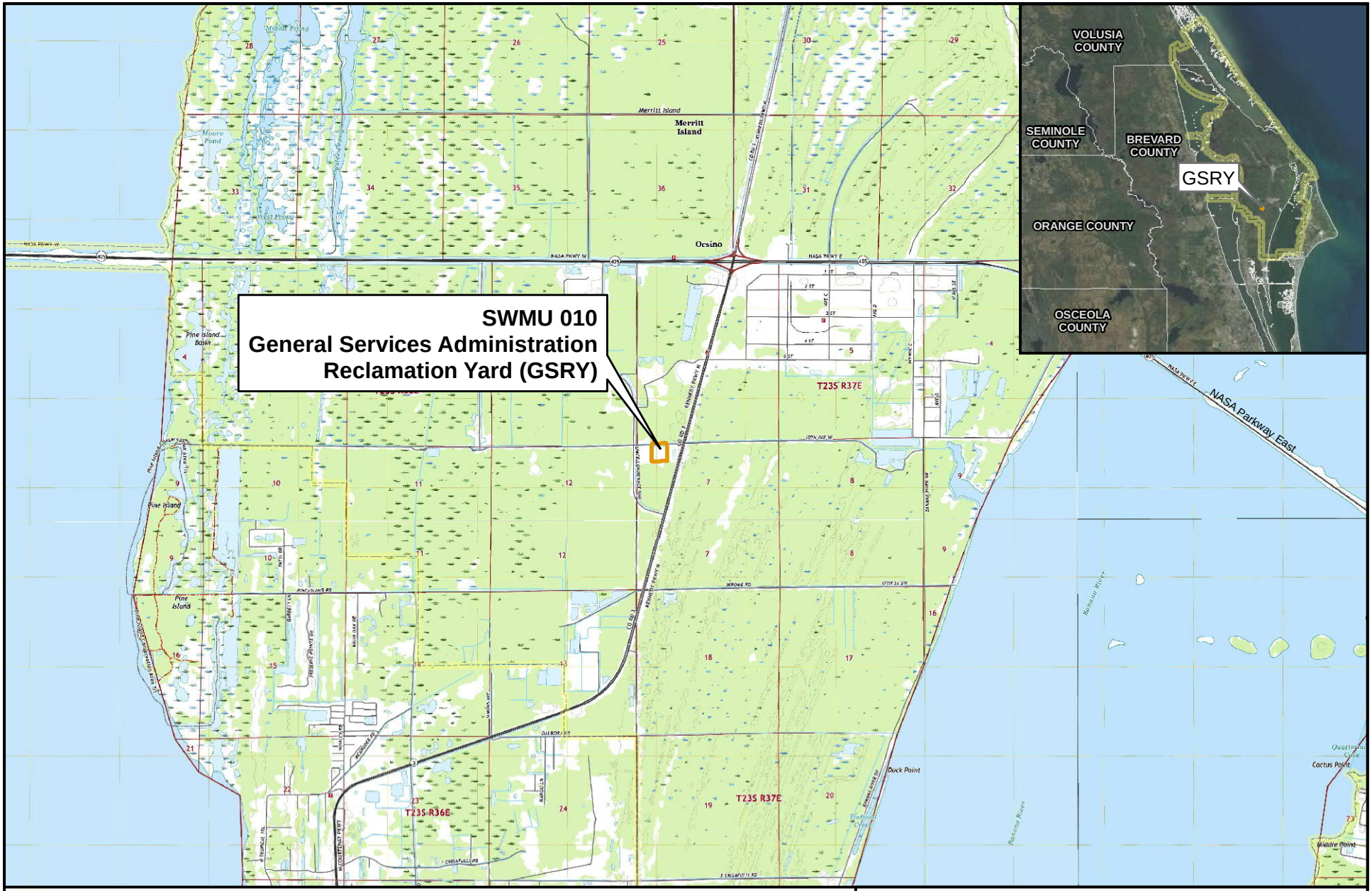
Kennedy Space Center Property Boundary

Notes:
1. GSRY = General Services Administration Reclamation Yard
2. SWMU = Solid Waste Management Unit
3. PCB = Polychlorinated Biphenyl
4. VOA = Volatile Organic Analyte
5. Aerial Source: State of Florida, Date: 2018

N

0 1,000 2,000 Feet

FIGURE 1-1
Site Location Map
General Services Administration Reclamation Yard (GSRY)
PCB/VOA Plume
SWMU 010
NASA Kennedy Space Center, Florida



Kennedy Space Center Property Boundary

Notes:
1. SWMU = Solid Waste Management Unit
2. SWMU = Solid Waste Management Unit
3. PCB = Polychlorinated Biphenyl
4. VOA = Volatile Organic Analyte
5. Aerial Source: State of Florida, Date: 2018
6. U.S. Geological Survey, 20210211, USGS US Topo 7.5-minute maps for Orsino, Courtenay, Cape Canaveral and False Cape, FL

N

0 5,000 10,000 Feet

FIGURE 1-2
Topographic Quadrangle Map
General Services Administration Reclamation Yard (GSRY)
PCB/VOA Plume
SWMU 010
NASA Kennedy Space Center, Florida



Legend

- Surface Water Sample Location
- Shallow Monitoring Well
- Intermediate-Shallow Monitoring Well
- Intermediate-Deep Monitoring Well

Notes:
- Vertical Datum is NAVD88 (ft)
- ft bls = feet below land surface
- PCB = Polychlorinated Biphenyl
- VOA = Volatile Organic Aromatics
- VOC = Volatile Organic Compound
- (16-21 ft bls) = Monitoring Well Screen Interval
- Aerial Source: FDOT 2018

N

0 70 140 Feet

FIGURE 1-3
Site Layout

General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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2. FIELD ACTIVITIES AND GROUNDWATER FLOW

2.1 OVERVIEW

Two field events were conducted during the reporting period: a groundwater sampling event using DPT along with a mobile lab in November 2021, and an annual groundwater monitoring event in December 2021. Field activities were conducted in accordance with Florida Department of Environmental Protection Standard Operating Procedures (FDEP 2018), the KSC Sampling and Analysis Plan (NASA 2017b), and the KSC Decision Process Document for the RCRA Corrective Action Program (NASA 2019a). Analytical results for the PCB/VOA Plume and the Chlorinated VOC Plume are discussed in Sections 3 and 4, respectively. The 2021 Groundwater Monitoring Plan is presented in **Table 2-1**, and the monitoring well locations are presented on **Figure 1-3**.

Investigation-derived waste from field activities was contained in properly labeled 55-gallon drums, which were stored on NASA-provided spill pallets, and secured with cargo straps to be properly disposed of by NASA. Field notes and field logs are provided in **Appendix B**.

2.2 DEPTH TO GROUNDWATER MEASUREMENTS

In December 2021, prior to sampling, water levels were measured in 54 monitoring wells: 17 are included in the Chlorinated VOC Plume, and 37 are included in the PCB/VOA Plume area. Wells from both areas were used when evaluating groundwater flow direction to enable contouring across the entire site, which improved the accuracy of the groundwater contours. Groundwater level measurements were compared to top-of-casing survey data to determine a relative groundwater elevation for each well. These elevations were then used to construct groundwater contour figures.

2.3 GROUNDWATER ELEVATIONS, FLOW DIRECTION, AND GRADIENT

In December 2021, groundwater flow for the site was generally to the north and northwest, with the individual zones only varying by occasional east and west components. This is generally consistent with historical observations at the site; however, flow direction at the site has varied during past monitoring events. Groundwater level measurements were recorded from site wells prior to sampling and are summarized in **Table 2-2**. Groundwater contour maps for December 2021, representing the different zones for each event, are provided on **Figures 2-1** through **2-3**.

Groundwater flow direction for each zone in December 2021 is discussed below.

- 2 to 18 feet bls, **Figure 2-1**: Depth to water ranged from 0.62 to 3.29 feet bls, with an average depth to groundwater of 2.50 feet bls. Groundwater elevations indicated a north flow direction and a horizontal gradient of 0.0013 feet elevation per foot distance (ft/ft) from monitoring well GSRY-MW0008S to GSRY-MW0004S.
- 10 to 30 feet bls, **Figure 2-2**: Depth to water ranged from 0.90 to 4.57 feet bls, with an average depth to groundwater of 2.30 feet bls. Groundwater elevations indicated a north flow direction and a horizontal gradient of 0.0002 ft/ft from monitoring well GSRY-MW0064 to GSRY-

MW0066 in the PCB VOA Plume area, and a horizontal gradient of 0.0005 ft/ft from monitoring well GSRY-MW0072 to GSRY-MW0013M in the Chlorinated VOC Plume area.

- 30 to 40 feet bls, **Figure 2-3**: Depth to water ranged from 0.07 to 1.52 feet bls, with an average depth to groundwater of 0.99 feet bls. Groundwater elevations indicated a northwest flow direction and a horizontal gradient of 0.0012 ft/ft from monitoring well GSRY-MW0062 to GSRY-MW0058.

Vertical gradients were calculated at several well pairs across the site using the December 2021 groundwater elevation data. In the PCB/VOA Plume area, the vertical gradient was 0.0044 ft/ft downward between monitoring wells GSRY-MW0036R and GSRY-MW0066 and was 0.1213 ft/ft downward between monitoring wells GSRY-MW0050 and GSRY-MW0059. In the Chlorinated VOC Plume area, the vertical gradient was 0.0000 ft/ft between monitoring wells GSRY-MW0074 and GSRY-MW0073.

2.4 GROUNDWATER MONITORING

In December 2021, AECOM personnel collected 35 groundwater samples from monitoring wells and one surface water sample from the northeast retention pond. Prior to sampling, five monitoring wells (GSRY-MW0002IS, GSRY-MW0049, GSRY-MW0050, GSRY-MW0071, and GSRY-MW0073) were redeveloped to remove sediments and stagnant water. The redeveloped wells were then given at least 24 hours of rest before purging and sampling. During the December 2021 event, groundwater sampling for per- and polyfluoroalkyl substances (PFAS) was also conducted from eight monitoring wells across the site. These PFAS results will be presented and discussed under a separate cover.

During monitoring well purging, the following geochemical parameters were recorded at regular intervals: pH, temperature, dissolved oxygen, conductivity, oxidation reduction potential, salinity, and turbidity. Groundwater samples were submitted to a fixed-based laboratory, ENCO Laboratories, Inc., for analysis by USEPA Method 8260B for a select list of VOCs and USEPA Method 8082A for total PCBs. Select monitoring wells were also analyzed for UIC parameters, including sulfate, iron, manganese, sodium, and TDS

Table 2-1
2021 Groundwater Monitoring Plan
General Services Administration Reclamation Yard (SMWU 010)

Location ID	Screened Interval (feet bls)	Water Levels	Sampled							
			VOCs	PCBs	Sulfate	Iron	Manganese	Sodium	Total Dissolved Solids	PFAS
2 to 18 feet bls										
MW0002S	2 to 12	X								
MW0003S	2 to 12	X								
MW0004S	2 to 12	X								
MW0005S	2 to 12	X								
MW0006S	2 to 12	X								
MW0007S	2 to 12	X								
MW0008S	2 to 12	X								
MW0009S	2 to 12	X								
MW0011S	2 to 12	X		X						
MW0018S	2 to 12	X								
MW0030R	8 to 18	X	X	X						
MW0031	8 to 18	X	X	X						
MW0036R	2 to 12	X	X	X						
MW0040	2 to 12	X	X	X						
MW0041	2 to 12	X	X	X						
MW0042R	2 to 12	X	X	X						
MW0043	2 to 12	X	X	X						
MW0044	2 to 12	X	X	X						
MW0045	2 to 12	X								
MW0046R	2 to 12	X	X	X						
MW0053	2 to 12	X	X	X						
MW0054	8 to 18	X	X	X						
MW0055	8 to 18	X	X	X						X
MW0060	2 to 12	X	X	X						
MW0065	4 to 14	X								
MW0074	7 to 17	X	X							X
10 to 30 feet bls										
MW0002IS	25 to 30	X			X	X	X	X	X	X
MW0004IS	25 to 30	X								
MW0013M	16 to 21	X								
MW0014M	15 to 20	X								
MW0015M	16 to 21	X								
MW0049	25 to 30	X	X	X	X	X	X	X	X	
MW0050	25 to 30	X	X	X	X	X	X	X	X	
MW0051	25 to 30	X	X	X						
MW0052	14 to 24	X	X	X						
MW0056	14 to 24	X	X	X						
MW0057	20 to 30	X	X	X	X	X	X	X	X	
MW0061	20 to 30	X	X		X	X	X	X	X	
MW0063	14 to 24	X	X	X						
MW0064	20 to 30	X	X		X	X	X	X	X	X
MW0066	20 to 30	X	X	X	X	X	X	X	X	X
MW0067	10 to 20	X				X				
MW0068	10 to 20	X								
MW0069	10 to 20	X								
MW0070	10 to 20	X								
MW0071	13 to 23	X	X			X			X	
MW0072	11 to 21	X								
MW0073	17 to 27	X	X			X			X	X
MW0075	20 to 30	X	X							
MW0076	10 to 20	X	X							
MW0077	10 to 20	X	X							
30 to 40 feet bls										
MW0058	30 to 40	X	X	X						X
MW0059	30 to 40	X	X	X						X
MW0062	30 to 40	X	X	X						
Surface Water										
SW0001			X	X						

Notes:
bls = below land surface
PFAS = per- and polyflouroalkyl substances
PCBs = polychlorinated biphenyls
SWMU = Solid Waste Management Unit
VOCs = Volatile Organic Compounds

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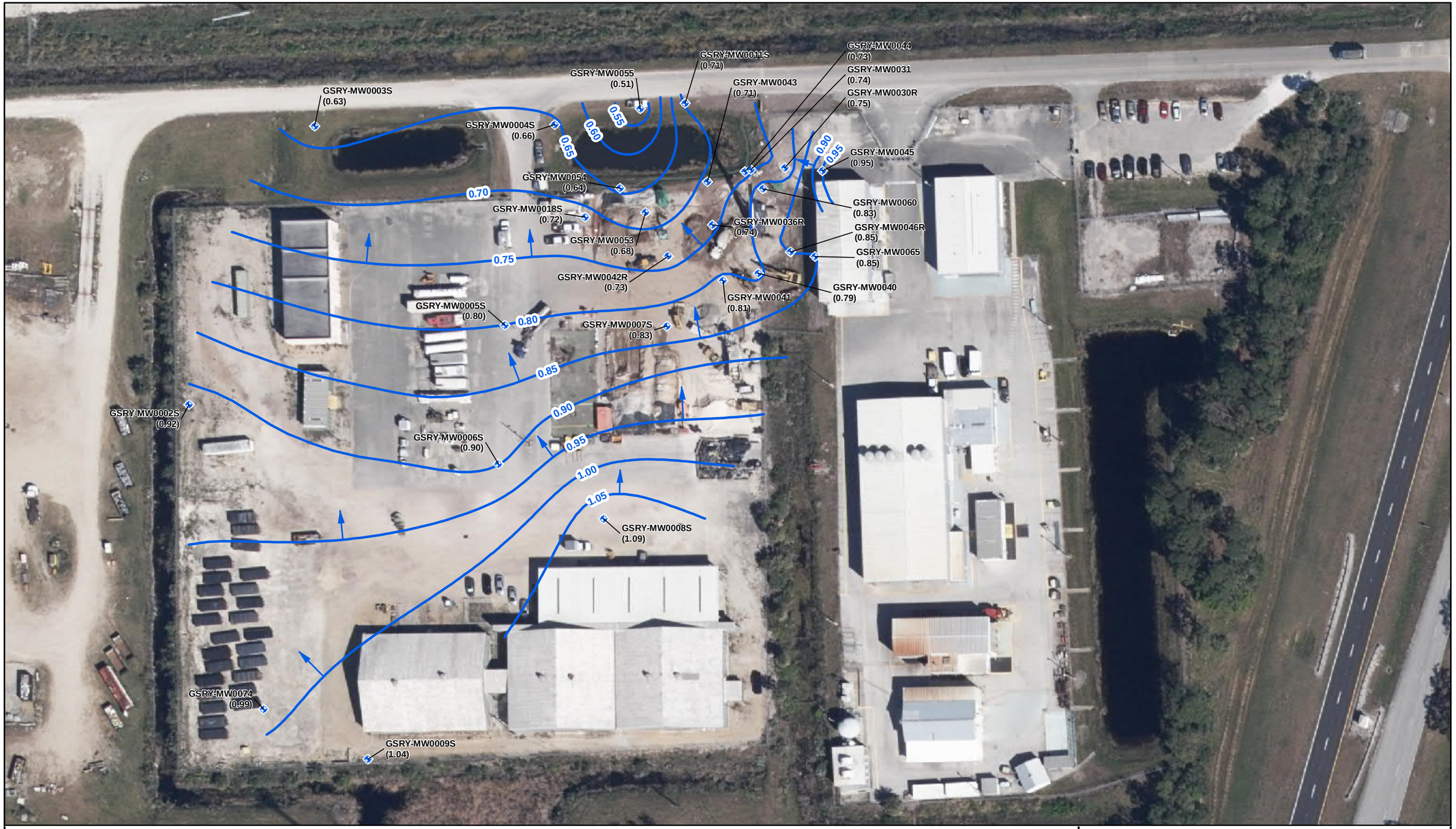
Table 2-2
Groundwater Elevation Data
General Services Administration Reclamation Yard (SMWU 010)

Well ID	Plume Area	Screen Interval (ft bls)	TOC Elevation (ft NAVD88)	March 4, 2019		December 16, 2019		May 19, 2020		December 8, 2020		May 18, 2021		December 7, 2021	
				Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)
2 to 18 feet bls															
GSRY-MW0002S	cVOC	2 to 12	2.50	NM		2.18	0.32	3.68	-1.18	1.64	0.86	2.57	-0.07	1.58	0.92
GSRY-MW0003S	cVOC	2 to 12	3.44	NM		2.94	0.50	4.55	-1.11	2.72	0.72	3.58	-0.14	2.81	0.63
GSRY-MW0004S	PCB/VOA	2 to 12	3.30	NM		2.92	0.38	4.36	-1.06	2.56	0.74	3.40	-0.10	2.64	0.66
GSRY-MW0005S	PCB/VOA	2 to 12	3.60	NM		3.18	0.42	4.20	-0.60	2.79	0.81	3.65	-0.05	2.80	0.80
GSRY-MW0006S	PCB/VOA	2 to 12	3.50	NM		3.09	0.41	4.55	-1.05	2.64	0.86	3.50	0.00	2.60	0.90
GSRY-MW0007S	PCB/VOA	2 to 12	3.50	NM		3.04	0.46	4.50	-1.00	2.66	0.84	NM		2.67	0.83
GSRY-MW0008S	PCB/VOA	2 to 12	3.66	NM		3.11	0.55	4.51	-0.85	2.61	1.05	3.50	0.16	2.57	1.09
GSRY-MW0009S	cVOC	2 to 12	2.76	NM		2.43	0.33	3.90	-1.14	1.82	0.94	2.76	0.00	1.72	1.04
GSRY-MW0011S	PCB/VOA	2 to 12	3.71	NM		3.15	0.56	4.68	-0.97	2.93	0.78	3.76	-0.05	3.00	0.71
GSRY-MW0018S	PCB/VOA	2 to 12	3.64	NM		3.18	0.46	4.70	-1.06	2.88	0.76	3.72	-0.08	2.92	0.72
GSRY-MW0030R	PCB/VOA	8 to 18	3.58	4.30	-0.72	3.08	0.50	4.54	-0.96	2.80	0.78	3.62	-0.04	2.83	0.75
GSRY-MW0031	PCB/VOA	8 to 18	3.32	4.03	-0.71	2.80	0.52	4.25	-0.93	2.64	0.68	3.38	-0.06	2.58	0.74
GSRY-MW0036R	PCB/VOA	2 to 12	3.58	4.34	-0.76	3.13	0.45	4.62	-1.04	2.83	0.75	3.68	-0.10	2.84	0.74
GSRY-MW0040	PCB/VOA	2 to 12	2.95	3.75	-0.80	2.65	0.30	4.02	-1.07	2.22	0.73	3.04	-0.09	2.16	0.79
GSRY-MW0041	PCB/VOA	2 to 12	3.14	4.81	-1.67	2.73	0.41	4.15	-1.01	2.33	0.81	3.20	-0.06	2.33	0.81
GSRY-MW0042R	PCB/VOA	2 to 12	3.33	4.10	-0.77	2.91	0.42	4.36	-1.03	2.56	0.77	3.43	-0.10	2.60	0.73
GSRY-MW0043	PCB/VOA	2 to 12	3.47	4.28	-0.81	3.03	0.44	4.50	-1.03	2.78	0.69	3.60	-0.13	2.76	0.71
GSRY-MW0044	PCB/VOA	2 to 12	3.04	3.81	-0.77	2.52	0.52	4.00	-0.96	2.63	0.41	3.11	-0.07	2.31	0.73
GSRY-MW0045	PCB/VOA	2 to 12	4.19	3.65	0.54	3.66	0.53	5.00	-0.81	3.32	0.87	4.00	0.19	3.24	0.95
GSRY-MW0046R	PCB/VOA	2 to 12	1.47	2.12	-0.65	0.99	0.48	2.35	-0.88	0.42	1.05	1.48	-0.01	0.62	0.85
GSRY-MW0053	PCB/VOA	2 to 12	3.70	4.50	-0.80	3.29	0.41	4.78	-1.08	2.97	0.73	3.84	-0.14	3.02	0.68
GSRY-MW0054	PCB/VOA	8 to 18	2.68	3.50	-0.82	2.28	0.40	3.78	-1.10	1.98	0.70	2.84	-0.16	2.04	0.64
GSRY-MW0055	PCB/VOA	8 to 18	3.80	4.70	-0.90	3.34	0.46	4.95	-1.15	3.17	0.63	4.02	-0.22	3.29	0.51
GSRY-MW0060	PCB/VOA	2 to 12	3.38	4.03	-0.65	2.89	0.49	4.30	-0.92	2.61	0.77	3.40	-0.02	2.55	0.83
GSRY-MW0065	PCB/VOA	4 to 14	3.65	4.24	-0.59	3.18	0.47	4.48	-0.83	2.80	0.85	3.60	0.05	2.80	0.85
GSRY-MW0074	cVOC	7 to 17	2.63	NM		2.35	0.28	3.80	-1.17	1.65	0.98	2.53	0.10	1.64	0.99
10 to 30 feet bls															
GSRY-MW0002IS	cVOC	25 to 30	5.64	NM		5.29	0.35	6.75	-1.11	4.68	0.96	5.61	0.03	4.56	1.08
GSRY-MW0004IS	PCB/VOA	25 to 30	3.31	NM		NM		4.57	-1.26	2.67	0.64	3.57	-0.26	2.67	0.64
GSRY-MW0013M	cVOC	16 to 21	3.25	NM		2.83	0.42	4.33	-1.08	2.41	0.84	3.30	-0.05	2.38	0.87
GSRY-MW0014M	cVOC	15 to 20	3.17	NM		2.70	0.47	4.22	-1.05	2.29	0.88	3.17	0.00	2.28	0.89
GSRY-MW0015M	cVOC	16 to 21	5.40	NM		5.04	0.36	6.58	-1.18	4.58	0.82	5.48	-0.08	4.57	0.83
GSRY-MW0049	PCB/VOA	25 to 30	2.01	2.80	-0.79	1.51	0.50	2.93	-0.92	0.98	1.03	1.88	0.13	1.12	0.89
GSRY-MW0050	PCB/VOA	25 to 30	3.41	4.06	-0.65	2.85	0.56	4.36	-0.95	2.53	0.88	3.42	-0.01	2.55	0.86
GSRY-MW0051	PCB/VOA	25 to 30	3.08	4.19	-1.11	2.53	0.55	3.88	-0.80	2.13	0.95	3.07	0.01	2.18	0.90
GSRY-MW0052	PCB/VOA	14 to 24	3.14	3.82	-0.68	2.68	0.46	4.15	-1.01	2.30	0.84	3.15	-0.01	2.29	0.85
GSRY-MW0056	PCB/VOA	14 to 24	3.37	4.11	-0.74	2.85	0.52	4.35	-0.98	2.59	0.78	3.50	-0.13	2.58	0.79
GSRY-MW0057	PCB/VOA	20 to 30	3.15	3.90	-0.75	2.61	0.54	4.14	-0.99	2.38	0.77	3.23	-0.08	2.40	0.75
GSRY-MW0061	PCB/VOA	20 to 30	3.90	4.51	-0.61	3.29	0.61	4.78	-0.88	3.02	0.88	3.90	0.00	3.02	0.88
GSRY-MW0063	PCB/VOA	14 to 24	1.80	2.42	-0.62	1.30	0.50	2.68	-0.88	1.28	0.52	1.75	0.05	0.90	0.90
GSRY-MW0064	PCB/VOA	20 to 30	3.64	4.24	-0.60	3.05	0.59	4.48	-0.84	2.75	0.89	3.58	0.06	2.73	0.91
GSRY-MW0066	PCB/VOA	20 to 30	3.40	NM		NM		4.42	-1.02	2.59	0.81	3.47	-0.07	2.58	0.82
GSRY-MW0067	cVOC	10 to 20	3.25	NM		2.93	0.32	4.41	-1.16	2.37	0.88	3.31	-0.06	2.32	0.93
GSRY-MW0068	cVOC	10 to 20	2.95	NM		2.64	0.31	4.11	-1.16	2.19	0.76	2.98	-0.03	1.96	0.99

Table 2-2
Groundwater Elevation Data
General Services Administration Reclamation Yard (SMWU 010)

Well ID	Plume Area	Screen Interval (ft bls)	TOC Elevation (ft NAVD88)	March 4, 2019		December 16, 2019		May 19, 2020		December 8, 2020		May 18, 2021		December 7, 2021	
				Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Water Elevation (ft NAVD88)
10 to 30 feet bls															
GSRY-MW0069	cVOC	10 to 20	2.98	NM		2.71	0.27	4.18	-1.20	2.05	0.93	3.05	-0.07	1.98	1.00
GSRY-MW0070	cVOC	10 to 20	2.22	NM		1.94	0.28	3.40	-1.18	1.29	0.93	2.26	-0.04	1.21	1.01
GSRY-MW0071	cVOC	13 to 23	3.32	NM		3.06	0.26	4.56	-1.24	2.32	1.00	3.38	-0.06	2.33	0.99
GSRY-MW0072	cVOC	11 to 21	2.75	NM		2.45	0.30	3.94	-1.19	1.82	0.93	2.78	-0.03	1.72	1.03
GSRY-MW0073	cVOC	17 to 27	2.63	NM		2.33	0.30	3.88	-1.25	1.73	0.90	2.70	-0.07	1.64	0.99
GSRY-MW0075	PCB/VOA	17 to 27	1.88	NM		NM		NM		0.98	0.90	1.81	0.07	0.98	0.90
GSRY-MW0076	cVOC	10 to 20	3.13	NM		NM		NM		NM		3.15	-0.02	2.18	0.95
GSRY-MW0077	cVOC	10 to 20	3.19	NM		NM		NM		NM		3.25	-0.06	2.29	0.90
30 to 40 feet bls															
GSRY-MW0058	PCB/VOA	30 to 40	3.09	3.20	-0.11	1.79	1.30	3.55	-0.46	1.47	1.62	2.60	0.49	1.37	1.72
GSRY-MW0059	PCB/VOA	30 to 40	3.29	3.40	-0.11	1.98	1.31	3.76	-0.47	1.71	1.58	2.80	0.49	1.52	1.77
GSRY-MW0062	PCB/VOA	30 to 40	1.85	1.91	-0.06	0.58	1.27	2.27	-0.42	0.17	1.68	1.31	0.54	0.07	1.78

Notes:
BTOC = below top of casing
cVOC = chlorinated volatile organic compound
ft bls = feet below land surface
NAVD88 = North American Vertical Datum of 1988
NM = not measured
PCB/VOA = polychlorinated biphenyl / volatile organic aromatic
TOC = top of casing



Legend

- Monitoring Well - 2 to 18 feet bls
- Groundwater Contour (NAVD88 ft.)
- Approximate Direction of Groundwater Flow
- (0.99) Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 7, 2021
- Groundwater Contour Interval = 0.05 Ft.
- * = Not used in contouring.
- Aerial Source: FDOT 2018

N

0 70 140 Feet

FIGURE 2-1
Groundwater Contour Map – December 7, 2021
2 to 18 feet bls

General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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Legend

- Monitoring Well - 10 to 30 feet bls
- Groundwater Contour (Dashed Where Inferred) (NAVD88 ft.)
- Approximate Direction of Groundwater Flow
- (1.03) Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 7, 2021
- Groundwater Contour Interval = 0.05 Ft.
- * = Not used in contouring.
- Aerial Source: FDOT 2018

N

0 70 140 Feet

FIGURE 2-2
Groundwater Contour Map – December 7, 2021
10 to 30 feet bls

General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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Legend

- Monitoring Well - 30 to 40 feet bls
- Groundwater Contour (NAVD88 ft.)
- Approximate Direction of Groundwater Flow
- (1.72) Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 7, 2021
- Groundwater Contour Interval = 0.02 Ft.
- * = Not used in contouring.
- Aerial Source: FDOT 2018

N

0 70 140 Feet

FIGURE 2-3
Groundwater Contour Map – December 7, 2021
30 to 40 feet bls

General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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3. PCB/VOA PLUME ANALYTICAL RESULTS

3.1 OVERVIEW

This section presents the results of the November and December 2021 groundwater monitoring activities for the PCB/VOA Plume. The goals of the 2021 LTM activities were to determine groundwater flow characteristics, monitor the downgradient concentration trends, and monitor select locations internal to the groundwater plume. Groundwater analytical results from each zone are summarized in **Table 3-1** and are depicted on **Figures 3-1** through **3-3**. Laboratory analytical reports are provided in **Appendix C**. Data were uploaded to the Remediation Information System (RIS) upon receipt. The RIS completion tickets are provided in **Appendix D**.

3.2 DPT GROUNDWATER SAMPLING

In November 2021, AECOM provided oversight for Groundwater Protection, Inc., a division of Drillpro, LLC, during the installation of temporary sample points using DPT. A total of 70 groundwater samples were collected from 10 DPT borings, GSRY-DPT3083 through GSRY-DPT3092. Groundwater samples were collected from each borehole at depth intervals of 6 to 10, 10 to 14, 14 to 18, 18 to 22, 22 to 26, 26 to 30, and 30 to 34 feet bls for analysis of benzene and chlorinated benzene compounds by Pace Analytical, which provided on-site mobile laboratory services throughout the event. The DPT groundwater sampling was conducted to confirm degradation of chlorinated benzenes in areas where there are no monitoring wells and to update the delineation of the chlorinated benzene plume.

3.3 DPT GROUNDWATER ANALYTICAL RESULTS

Laboratory analytical results for the DPT sampling event indicated that chlorinated benzene concentrations were either not detected or below GCTLs in the areas sampled.

3.4 MONITORING WELL GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS

Groundwater samples were submitted to a fixed-based laboratory, ENCO Laboratories, Inc., for one or more of the following analysis: USEPA Method 8260B for a select list of VOCs (benzene, chlorobenzene, 1,2-dichlorobenzene, 13DCB, 14DCB, 1,2,3-trichlorobenzene, and 124TCB), USEPA Method 8082A for total PCBs, or select UIC parameters (sulfate, iron, manganese, sodium, or TDS).

3.4.1 2 to 18 Feet Bls

Samples were collected from 14 monitoring wells. A summary of site COC concentrations in groundwater for the 2 to 18 feet bls interval is presented on **Figure 3-1**. There were no detections of site COCs above GCTLs in the 2 to 18 feet bls interval.

3.4.2 10 to 30 Feet Bls

Samples were collected from 12 monitoring wells. A summary of site COC concentrations in groundwater for the 10 to 30 feet bls interval is presented on **Figure 3-2**. The GCTL contours for 13DCB, 14DCB, 124TCB, and chlorobenzene are also presented on **Figure 3-2**.

Groundwater sampling results for December 2021 indicated that VOC concentrations were greater than the GCTL in two monitoring wells (GSRY-MW0049 and GSRY-MW0050). Concentrations of 13DCB and 14DCB have fluctuated in GSRY-MW0049 since December 2019. Concentrations of 14DCB and 124TCB have decreased in GSRY-MW0050 since December 2019. Chlorobenzene was above the GCTL in GSRY-MW0049 for the first time in December 2021, and the well has shown an increasing trend for chlorobenzene since December 2019. There were no detections of PCBs above GCTLs in the 10 to 30 feet bls interval.

3.4.3 30 to 40 Feet Bls

Samples were collected from three monitoring wells. A summary of site COC concentrations in groundwater for the 30 to 40 feet bls interval is presented on **Figure 3-3**. There were no detections of site COCs above GCTLs in the 30 to 40 feet bls interval.

3.4.4 Underground Injection Control Monitoring

Groundwater sampling conducted in December 2021 included UIC monitoring. Seven monitoring wells were sampled for sulfate, iron, manganese, sodium, and TDS. This UIC sampling is conducted to monitor the groundwater for residual effects from the Provect-OX® treatment at the bottom of select LDA caisson excavation cells during the 2018 IM. Monitoring well GSRY-MW0002IS is located adjacent to the western property boundary and is the farthest well from the IM area with a corresponding screen interval. This monitoring well was sampled to represent the site-specific background concentrations for UIC parameters in the PCB/VOA plume area. Monitoring wells GSRY-MW0049, GSRY-MW0050, and GSRY MW0066 are in the zone where Provect-OX® was applied. GSRY-MW0057 is located at the northern perimeter of the former excavation area and historically downgradient of the treatment area. GSRY-MW0061 is at the northeast perimeter of the former excavation, and GSRY-MW0064 is southeast of and historically upgradient of the former excavation perimeter. The UIC analytical results are presented in **Table 3-2**.

Laboratory analytical results indicate that concentrations were above the site approved target levels in GSRY-MW0049 for sulfate, iron, manganese, and TDS; and GSRY-MW0050 and GSRY-MW0066 for sulfate, iron, sodium, and TDS. The remaining wells and parameters were below target levels in December 2021.

3.4.5 Surface Water Analytical Results

In December 2021, one surface water sample GSRY-SW0001 was collected from the retention pond in the northeast area of the site. In December 2021, the surface water sample collected was analyzed

for benzene, chlorinated benzene compounds, and PCBs. The surface water sample had detections of chlorobenzene and 14DCB in December 2021, but the concentrations are below the State of Florida Surface Water Criteria for Freshwater.

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Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-DPT3083	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	**14**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	**1.6**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	**1.4**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3084	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3085	6-10	11/19/2021	0.50 U	**0.55**	0.50 U	**0.58**	**1.4**	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	**12**	**0.87**	**19**	**33**	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	**4.3**	0.50 U	**7.5**	**14**	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3086	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3087	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3088	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3089	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-DPT3090	6-10	11/19/2021	0.50 U	**8.2**	0.50 U	0.50 U	**0.99**	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	**27**	0.50 U	0.50 U	**1.4**	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	**5.8**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	**2.3**	0.50 U	0.50 U	**0.98**	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	**4.6**	0.50 U	**1.8**	**4.2**	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3091	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-DPT3092	6-10	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	10-14	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	14-18	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	18-22	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	22-26	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	26-30	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
	30-34	11/19/2021	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U	
GSRY-MW0004S	2-12	1/6/2017								0.5 U
GSRY-MW0011S	2-12	1/6/2017								0.5 U
		5/19/2020								0.19 U
		12/10/2020								0.20 U
		5/19/2021								0.20 U
		12/8/2021								0.50 U
GSRY-MW0030R	8-18	3/4/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.19 U
		5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0031	8-18	2/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.22 U
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.55 I**	0.61 U	0.50 U	0.19 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0036R	2-12	3/4/2019	**2.4**	**36**	**4.0**	**6.7**	**12**	0.86 U	**1.8**	0.50 U
		12/17/2019	**2.8**	**78.2**	**3.2**	**10.3**	**13.9**	**1.2 I**	**6.6**	**0.77 J**
		5/19/2020	**2.1**	**50.2**	**15.5**	**9.4**	**21.6**	**1.4 I**	**5.9**	0.19 U
		12/9/2020	**0.80 I**	**24.3**	**1.6**	**3.4**	**6.8**	0.61 U	**1.1 I**	0.20 U
		12/14/2020	**1.1**	**26.7**	**1.5**	**3.5**	**6.9**	0.61 U	**0.85 I**	
		5/18/2021	**1.4**	**35.2**	**5.6**	**6.5**	**14.9**	**1.9**	**4.5**	0.20 U
		12/9/2021	**0.83 I**	**19**	**1.9**	**3.2**	**7.9**	0.86 U	**2.1**	0.50 U

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-MW0040	2-12	12/13/2016								0.5 U
		2/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	**0.27 I**	0.61 U	0.50 U	
		5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0041	2-12	12/14/2016								0.5 U
		2/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/9/2020								0.20 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0042R	2-12	2/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**2.3**	0.32 U	**0.69 I**	**3.5**	0.61 U	0.50 U	
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.30 I**	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		5/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0043	2-12	12/13/2016								**1.7**
		1/6/2017								0.5 U
		3/15/2019	0.71 U	**43**	**2.2**	**13**	**23**	**1.5**	**13**	0.50 U
		12/17/2019	0.31 U	**7.3**	**0.80 I**	**6.0**	**12.1**	0.61 U	**3.1**	**2.7**
		5/21/2020	0.31 UJ	**9.9 J**	**1.0 J**	**3.0 J**	**8.2 J**	**0.72 IJ**	**4.4 J**	0.20 U
		12/9/2020	0.31 U	**10.8**	**1.4**	**31.6**	**43.3**	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	**11.9**	**0.89 I**	**30.5**	**44.8**	0.61 U	**0.50 I**	
		5/19/2021	0.23 U	**2**	**0.25 I**	**1.4**	**8.3**	0.28 U	**0.74 I**	0.20 U
		12/8/2021	0.71 U	**6.6**	**0.75 I**	**4.2**	**23**	0.86 U	0.70 U	0.50 U

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-MW0044	2-12	12/13/2016								0.5 U
		2/15/2019	0.71 U	0.72 U	0.73 U	**1.4**	**3.5**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**0.38 I**	0.32 U	**0.34 I**	**0.64 I**	0.61 U	0.50 U	0.22 U
		5/20/2020	0.31 U	0.20 U	0.32 U	**0.39 I**	**0.87 I**	0.61 U	0.50 U	0.19 U
		12/9/2020	0.31 U	**0.63 I**	0.32 U	**0.55 I**	**2.3**	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	**1.3**	0.32 U	**0.99 I**	**4.1**	0.61 U	0.50 U	
		5/18/2021	0.23 U	**0.93 I**	**0.27 I**	**0.83 I**	**3.1**	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	**1.0**	0.73 U	0.77 U	**2.5**	0.86 U	0.70 U	0.50 U
GSRY-MW0045	2-12	12/13/2016								0.5 U
		1/6/2017								0.5 U
		2/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
GSRY-MW0046R	2-12	3/4/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0049	25-30	9/27/2018	3.6 U	3.6 U	**16**	**22**	**39**	**73**	**350**	0.50 U
		2/15/2019	3.6 U	3.6 U	**8.6**	**17**	**52**	**82**	**460**	0.50 U
		12/16/2019	1.6 U	**13.6**	**10.9**	**490**	**268**	3.1 U	**71.7**	0.22 U
		5/20/2020	**0.34 I**	**28.6**	**5.0**	**1140**	**369**	0.61 U	**3.1**	0.21 U
		12/9/2020	3.1 U	**35.1**	**3.4 I**	**766**	**249**	6.1 U	5.0 U	0.20 U
		12/14/2020	3.1 U	**29.1**	3.2 U	**641**	**213**	6.1 U	5.0 U	
		5/19/2021	1.1 U	**61.9**	**2.9 I**	**949**	**317**	1.4 U	1.1 U	**0.49**
		12/8/2021	7.1 U	**110**	7.3 U	**1100**	**350**	8.6 U	**20**	0.50 U
GSRY-MW0050	25-30	9/27/2018	7.1 U	7.2 U	**12**	**47**	**82**	**130**	**950**	0.50 U
		2/14/2019	0.71 U	**15**	**2.1**	**16**	**49**	**13**	**88**	0.50 U
		12/18/2019	0.31 U	**53.8**	**34.4**	**189 Q**	**359 Q**	**25.0**	**206 Q**	**0.99**
		5/19/2020	0.78 U	**24.1**	**16.0**	**106**	**220**	**8.2**	**77.5**	0.20 U
		12/9/2020	1.6 U	**32.6**	**16.6**	**145**	**299**	**14.5**	**120**	0.20 U
		12/14/2020	1.6 U	**32.5**	**15.2**	**136**	**291**	**11**	**107**	
		5/18/2021	0.23 U	**32.9**	**15.1**	**121**	**240 L**	**10.3**	**93**	**2.8**
		6/16/2021	0.78 U	**30.7**	**10.7**	**95.9**	**206**	**7.5**	**65.7**	**0.81**
		12/9/2021	0.71 U	**31**	**11**	**110**	**210**	**14**	**110**	0.50 U
GSRY-MW0051	25-30	9/27/2018	0.71 U	0.72 U	0.73 U	0.77 U	**5.6**	0.86 U	**5.4**	0.50 U
		2/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	**1.5**	0.86 U	0.70 U	0.50 U
		12/18/2019	0.31 U	0.20 U	0.32 U	0.22 UQ	0.26 UQ	0.61 U	0.50 UQ	0.21 U
		5/20/2020	0.31 U	0.20 U	0.32 U	**0.35 I**	**2.3**	0.61 U	0.50 U	0.20 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.34 I**	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	0.16 U	0.14 U	**1.1**	**6.5**	0.28 U	0.21 U	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	**1.1**	0.86 U	0.70 U	0.50 U
GSRY-MW0052	14-24	2/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.34 I**	0.61 U	0.50 U	0.20 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-MW0053	2-12	2/12/2019	0.71 U	**10**	0.73 U	**1.9**	**4.0**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**25**	**0.78 I**	**4.0**	**18.6**	0.61 U	0.50 U	0.20 U
		5/19/2020	0.31 U	**6.5**	0.32 U	**1.7**	**4.7**	0.61 U	0.50 U	0.19 U
		12/11/2020	0.31 U	**4.3**	0.32 U	**0.90 I**	**2.7**	0.61 U	0.50 U	0.20 U
		5/20/2021	0.23 U	**3.1**	0.14 U	**0.87 I**	**1.8**	0.28 U	0.21 U	0.20 U
		12/8/2021	0.71 U	**2.1**	0.73 U	**3.0**	**2.0**	0.86 U	0.70 U	0.50 U
GSRY-MW0054	8-18	2/14/2019	0.71 U	**57**	0.73 U	0.77 U	**1.0**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**41.2**	0.32 U	**1.4**	**3.8**	0.61 U	0.50 U	
		5/20/2020	0.31 U	**12.3**	0.32 U	**0.58 I**	**1.4**	0.61 U	0.50 U	0.20 U
		12/9/2020								0.20 U
		12/10/2020	0.31 U	**7.2**	0.32 U	**2.2**	**4.5**	0.61 U	0.50 U	
		5/19/2021	0.23 U	**3.3**	0.14 U	**0.25 I**	**0.57 I**	0.28 U	0.21 U	0.20 U
		12/8/2021	0.71 U	**1.2**	0.73 U	**1.0**	**1.4**	0.86 U	0.70 U	0.50 U
GSRY-MW0055	8-18	2/14/2019	0.71 U	**2.0**	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**0.96 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/20/2020	0.31 U	**0.51 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		5/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/8/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0056	14-24	2/15/2019	**0.74 I**	**40**	**1.1**	**20**	**48**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**3.6**	**0.42 I**	**11.0**	**15.3**	0.61 U	0.50 U	0.21 U
		5/20/2020	0.31 U	**15.9**	**1.6**	**37.6**	**73.6**	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	**13.2**	**0.96 I**	**31.3**	**50.5**	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	**21.3**	**1.8**	**53.3**	**98.4**	0.28 U	0.21 U	0.20 U
		12/8/2021	0.71 U	**17**	**1.3**	**61**	**65**	0.86 U	0.70 U	0.50 U
GSRY-MW0057	20-30	2/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	**0.45 I**	**0.92 I**	**0.79 I**	**3.7**	0.20 U
		12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0058	30-40	2/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	0.21 U
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	**0.36 I**	0.20 U
		12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0059	30-40	3/4/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/18/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
		12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
		12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0060	2-12	3/4/2019	1.4 U	**2.2**	1.5 U	1.5 U	**1.7 I**	1.7 U	**4.8**	0.50 U
		12/17/2019	**0.32 IQ**	**6.5 Q**	**0.36 IQ**	**0.89 IQ**	**3.5 Q**	**2.0 Q**	**4.7 Q**	0.20 U
		5/19/2020	**0.36 I**	**5.6**	0.32 U	**0.74 I**	**2.6**	**1.9 I**	**3.7**	0.21 U
		12/9/2020	**0.31 I**	**4.3**	**0.35 I**	**0.85 I**	**2.7**	**1.7 I**	**3.2**	0.21 U
		5/18/2021	**0.37 I**	0.16 U	**0.42 I**	**1**	**3.2**	**2.3**	**4.4**	0.20 U
		12/8/2021	0.71 U	**1.2**	0.73 U	**1.9**	**2.7**	0.86 U	**1.0**	0.50 U

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-MW0061	20-30	3/4/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/21/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		12/10/2021	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	**0.21 I**	
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	
GSRY-MW0062	30-40	3/5/2019	0.71 U	0.72 U	0.73 U	0.77 U	**1.3**	**5.9**	**55**	**2.2**
		3/20/2019	0.71 U	**6.9**	**0.91 I**	**14**	**23**	**2.4**	**21**	0.50 U
		12/16/2019	0.31 U	**0.59 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	**0.56**
		5/19/2020	0.31 U	**0.37 I**	0.32 U	**0.54 I**	**3.1**	0.61 U	**0.98 I**	**0.77**
		6/17/2020								**0.42**
		12/9/2020	0.31 U	**0.31 I**	0.32 U	0.22 U	**0.60 I**	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	**0.25 I**	0.14 U	0.21 U	**0.65 I**	**0.59 I**	**0.43 I**	0.20 U
		12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
GSRY-MW0063	14-24	3/5/2019	**0.86 I**	**6.4**	**0.88 I**	**14**	**26**	**5.3**	**41**	0.50 U
		12/16/2019	**1.2 J**	**22.3**	**4.8**	**144 J**	**108 J**	**2.6**	**28.6**	0.21 U
		5/21/2020	**0.44 I**	**13.9**	**1.3**	**76.2**	**80.1**	0.61 U	**2.2**	0.21 U
		12/9/2020	1.6 U	**35**	**1.6 I**	**245**	**138**	3.1 U	2.5 U	0.21 U
		12/14/2020	0.62 U	**30.8**	**1.1 I**	**163**	**104**	1.2 U	1.0 U	
		5/19/2021	**0.27 I**	**15.1**	**0.90 I**	**76.2**	**59.3**	0.28 U	**0.34 I**	0.21 U
		12/8/2021	0.71 U	**24**	**1.0**	**99**	**58**	0.86 U	0.70 U	0.50 U
GSRY-MW0064	20-30	3/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.31 I**	0.61 U	0.50 U	
		5/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	
		12/8/2021	0.71 U	0.72 U	0.73 U	**2.2**	**1.5**	0.86 U	0.70 U	
GSRY-MW0065	4-14	3/12/2019	0.71 U	**0.84 I**	0.73 U	0.77 U	**0.77 I**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
		5/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
		12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
GSRY-MW0066	20-30	5/19/2020	**0.72 I**	**3.9**	0.32 U	**1.2**	**3.6**	0.61 U	0.50 U	0.19 U
		12/9/2020	**0.94 I**	**12.9**	**1.1**	**22.7**	**45**	0.61 U	0.50 U	0.20 U
		12/14/2020	**1.1**	**13.3**	**1.3**	**25.2**	**53.5**	0.61 U	0.50 U	
		5/18/2021	0.23 U	**6.5**	**2.1**	**25.9**	**78.9**	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	**16**	**1.3**	**19**	**43**	0.86 U	0.70 U	0.50 U

Table 3-1
PCB/VOA Plume Groundwater and Surface Water Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*							*Semi-volatiles by Method 8082*
Analyte			BENZENE	CHLORO-BENZENE	1,2-DICHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,4-DICHLORO-BENZENE	1,2,3-TRICHLORO-BENZENE	1,2,4-TRICHLORO-BENZENE	TOTAL PCBs
FDEP GCTLs (µg/L)			1	100	600	210	75	70	70	0.5
FDEP NADCs (µg/L)			100	1000	6000	2100	7500	700	700	50
Location ID	Screened Interval (feet bls)	Sample Date								
GSRY-MW0075	17-27	12/9/2020	0.31 U	**1.3**	0.32 U	**7.2**	**7.1**	0.61 U	0.50 U	
		12/14/2020	0.31 U	**1.4**	0.32 U	**8.2**	**8.3**	0.61 U	0.50 U	
		5/18/2021	0.23 U	0.16 U	0.14 U	**0.21 I**	**0.49 I**	0.28 U	0.21 U	
		12/7/2021	0.71 U	**5.6**	0.73 U	**20**	**13**	0.86 U	0.70 U	
GSRY-SW0001		12/21/2016								0.50 U
		3/13/2019	0.71 U	**0.72 I**	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
		12/10/2020								0.20 U
		5/20/2021	0.23 U	**0.47 I**	0.14 U	0.21 U	**0.46 I**	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

Notes:
Bolded results indicate the presence of an analyte at the specified concentration
Red font indicates an exceedance of FDEP GCTLs
Highlighted cell indicates an exceedance of FDEP NADCs
Blank cells indicate the analyte was not analyzed for that specific well and date
bls = below land surface
GCTL = Groundwater Cleanup Target Level, Chapter 62-777 Florida Administrative Code, Table 1 (2005)
I = The analytical result was greater than or equal to the method detection limit, but less than the practical quantitation limit
J = Estimated value
L = Value exceeds calibration range
NADC = Natural Attenuation Default Concentration, Chapter 62-777 Florida Administrative Code, Table V (2005)
PCB/VOA Plume = Polychlorinated Biphenyl/Volatile Organic Aromatic Plume (formerly known as the Northeast Area)
PCBs = polychlorinated biphenyls
Q = The sample was analyzed beyond hold time
SWMU = Solid Waste Management Unit
U = The analyte was not detected
µg/L = micrograms per liter

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Table 3-2
PCB/VOA Plume UIC Groundwater Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*General Chemistry*		*Metals*		
Analyte			SULFATE	TDS	IRON	MANGANESE	SODIUM
Target Levels* for UIC Sampling (µg/L)			250000	1100000	1300	50	204000
Location ID	Screened Interval (feet bls)	Sample Date					
GSRY-MW0002IS**	25-30	12/10/2021	**160 I**	**1100000**	**1300**	**20.4**	**204000 V**
GSRY-MW0049	25-30	9/27/2018	**16000000**		**177000**	**1660**	**8880000**
		12/16/2019	**3180000 Q**	**7770000**	**55800**	**227**	**1870000**
		5/20/2020	**3580000**	**7610000**	**57800**	**260**	**1720000**
		12/9/2020	**2370000**	**5750000**	**37300**	**191**	**1150000**
		5/19/2021	**2770000**	**5590000**	**47900**	**259**	**1230000**
		12/8/2021	**3200000**	**480000**	**48000**	**246**	**3650000 V**
GSRY-MW0050	25-30	9/27/2018	**2600000**		**28500**	**344**	**1170000**
		12/18/2019	**112000 Q**	**1160000**	**2280**	**32.4**	**248000**
		5/19/2020	**279000**	**1430000**	**1450**	**28.2**	**295000**
		12/9/2020	**116000**	**1120000**	**1660**	**27.1**	**214000**
		5/18/2021	**259000**	**1310000**	**1600**	**31.5**	**234000**
		12/9/2021	**270000**	**1200000**	**2360**	**40.8**	**239000**
GSRY-MW0051	25-30	9/27/2018	**51000**		**1220**	**22.7 I**	**164000**
GSRY-MW0057	20-30	12/17/2019	3000 UQ	**568000**	**905**	**11.9 I**	**56500**
		5/20/2020	3000 U	**628000**	**893**	**10.9 I**	**52900**
		12/9/2020	6000 U	**634000**	**1080**	**16**	**91600**
		5/18/2021	600 U	**702000**	**1070**	**13.3 I**	**69500**
		12/9/2021	140 I	**650000**	**1000**	**13.1**	**89500 V**
GSRY-MW0061	20-30	12/16/2019	3000 UQ	**452000**	**677**	**7.8 I**	**29300**
		5/21/2020	3000 U	**564000**	**768**	**8.3 I**	**39900**
		12/10/2021	6000 U	**536000**	**973**	**11.7 I**	**46400**
		5/18/2021	600 U	**554000**	**757**	**8.6 I**	**39100**
		12/7/2021	160 I	**490000**	**792**	**8.49 I**	**51200**
GSRY-MW0064	20-30	12/17/2019	**26000 Q**	**634000**	**1160**	**16.2**	**73800**
		5/20/2020	3000 U	**660000**	**969**	**12.7 I**	**63300**
		12/11/2020	6000 U	**566000**	**996**	**12.9 I**	**61500**
		5/20/2021	600 U	**578000**	**1010**	**13.7 I**	**61000**
		12/8/2021	140 I	**230000**	**876**	**11.9**	**67000 V**
GSRY-MW0066	20-30	12/9/2020	**609000**	**2010000**	**2980**	**41.3**	**417000**
		5/18/2021	**245000**	**1170000**	**1790**	**27.3**	**186000**
		12/9/2021	**620000**	**1700000**	**2580**	**32.6**	**349000 V**

Notes:
Bolded results indicate the presence of an analyte at the specified concentration
Red font indicates an exceedance of target levels for UIC Sampling
Blank cells indicate the analyte was not analyzed for that specific well and date
*Target levels for UIC sampling are GCTL for sulfate and manganese, and site-specific background** for iron, sodium, and TDS
**Site-specific background concentrations are derived from the GSRY-MW0002IS, 12/10/21 analytical results
bls = below land surface
GCTL = Groundwater Cleanup Target Level, Chapter 62-777 Florida Administrative Code, Table 1 (2005)
I = The analytical result was greater than or equal to the method detection limit, but less than the practical quantitation limit
PCB/VOA Plume = Polychlorinated Biphenyl/Volatile Organic Aromatic Plume (formerly known as the Northeast Area)
Q = The sample was analyzed beyond hold time
SWMU = Solid Waste Management Unit
TDS = Total Dissolved Solids
U = The analyte was not detected
µg/L = micrograms per liter
UIC = Underground Injection Control
V = The analyte was detected in both the sample and the associated method blank

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GSRY-MW0011S (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
01/06/2017								0.5 U
05/19/2020								0.19 U
12/10/2020								0.20 U
05/19/2021								0.20 U
12/8/2021								0.50 U

GSRY-MW0055 (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/14/2019	0.71 U	**2.0**	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**0.96 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/20/2020	0.31 U	**0.51 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	**8.2**	0.50 U	0.50 U	**0.99**	2.0 U	2.0 U
	10-14	0.50 U	**27**	0.50 U	0.50 U	**1.4**	2.0 U	2.0 U
	14-18	0.50 U	**5.8**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW004S (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
01/06/2017								0.5 U

GSRY-MW0054 (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/14/2019	0.71 U	**57**	0.73 U	0.77 U	**1.0**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**41.2**	0.32 U	**1.4**	**3.8**	0.61 U	0.50 U	
05/20/2020	0.31 U	**12.3**	0.32 U	**0.58 I**	**1.4**	0.61 U	0.50 U	0.20 U
12/09-10/2020	0.31 U	**7.2**	0.32 U	**2.2**	**4.5**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	**3.3**	0.14 U	**0.25 I**	**0.57 I**	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	**1.2**	0.73 U	**1.0**	**1.4**	0.86 U	0.70 U	0.50 U

GSRY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	**14**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0053 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/12/2019	0.71 U	**10**	0.73 U	**1.9**	**4.0**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**25**	**0.78 I**	**4.0**	**18.6**	0.61 U	0.50 U	0.20 U
05/19/2020	0.31 U	**6.5**	0.32 U	**1.7**	**4.7**	0.61 U	0.50 U	0.19 U
12/11/2020	0.31 U	**4.3**	0.32 U	**0.90 I**	**2.7**	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	**3.1**	0.14 U	**0.87 I**	**1.8**	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	**2.1**	0.73 U	**3.0**	**2.0**	0.86 U	0.70 U	0.50 U

GSRY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0043 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								**1.7**
01/06/2017								0.5 U
03/15/2019	0.71 U	**43**	**2.2**	**13**	**23**	**1.5**	**13**	0.50 U
12/17/2019	0.31 U	**7.3**	**0.80 I**	**6.0**	**12.1**	0.61 U	**3.1**	**2.7**
05/21/2020	0.31 UJ	**9.9 J**	**1.0 J**	**3.0 J**	**8.2 J**	**0.72 IJ**	**4.4 J**	0.20 U
12/09/2020	0.31 U	**10.8**	**1.4**	**31.6**	**43.3**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	**11.9**	**0.89 I**	**30.5**	**44.8**	0.61 U	**0.50 I**	
05/19/2021	0.23 U	**2**	**0.25 I**	**1.4**	**8.3**	0.28 U	**0.74 I**	0.20 U
12/8/2021	0.71 U	**6.6**	**0.75 I**	**4.2**	**23**	0.86 U	0.70 U	0.50 U

GSRY-MW0042R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**2.3**	0.32 U	**0.69 I**	**3.5**	0.61 U	0.50 U	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.30 I**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3085

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	**0.55**	0.50 U	**0.58**	**1.4**	2.0 U	2.0 U
	10-14	0.50 U	**12**	**0.87**	**19**	**33**	2.0 U	2.0 U
	14-18	0.50 U	**4.3**	0.50 U	**7.5**	**14**	2.0 U	2.0 U

GSRY-SW0001

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/21/2016								0.50 U
03/13/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/10/2020								0.20 U
05/20/2021	0.23 U	**0.47 I**	0.14 U	0.21 U	**0.46 I**	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0041 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/14/2016								0.5 U
02/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09-10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0036R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	**2.4**	**36**	**4.0**	**6.7**	**12**	0.86 U	**1.8**	0.50 U
12/17/2019	**2.8**	**78.2**	**3.2**	**10.3**	**13.9**	**1.2 I**	**6.6**	**0.77 J**
05/19/2020	**2.1**	**50.2**	**15.5**	**9.4**	**21.6**	**1.4 I**	**5.9**	0.19 U
12/09/2020	**0.80 I**	**24.3**	**1.6**	**3.4**	**6.8**	0.61 U	**1.1 I**	0.20 U
12/14/2020	**1.1**	**26.7**	**1.5**	**3.5**	**6.9**	0.61 U	**0.85 I**	
05/18/2021	**1.4**	**35.2**	**5.6**	**6.5**	**14.9**	1.9	**4.5**	0.20 U
12/9/2021	**0.83 I**	**19**	**1.9**	**3.2**	**7.9**	0.86 U	**2.1**	0.50 U

GSRY-MW0040 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
02/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	**0.27 I**	0.61 U	0.50 U	
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0030R (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.19 U
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0045 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
01/06/2017								0.5 U
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U

GSRY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0031 (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.22 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.55 I**	0.61 U	0.50 U	0.19 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0044 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
2/15/2019	0.71 U	0.72 U	0.73 U	**1.4**	**3.5**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**0.38 I**	0.32 U	**0.34 I**	**0.64 I**	0.61 U	0.50 U	0.22 U
5/20/2020	0.31 U	0.20 U	0.32 U	**0.39 I**	**0.87 I**	0.61 U	0.50 U	0.19 U
12/9/2020	0.31 U	**0.63 I**	0.32 U	**0.55 I**	**2.3**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	**1.3**	0.32 U	**0.99 I**	**4.1**	0.61 U	0.50 U	
5/18/2021	0.23 U	**0.93 I**	**0.27 I**	**0.83 I**	**3.1**	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	**1.0**	0.73 U	0.77 U	**2.5**	0.86 U	0.70 U	0.50 U

GSRY-MW0060 (2-12)

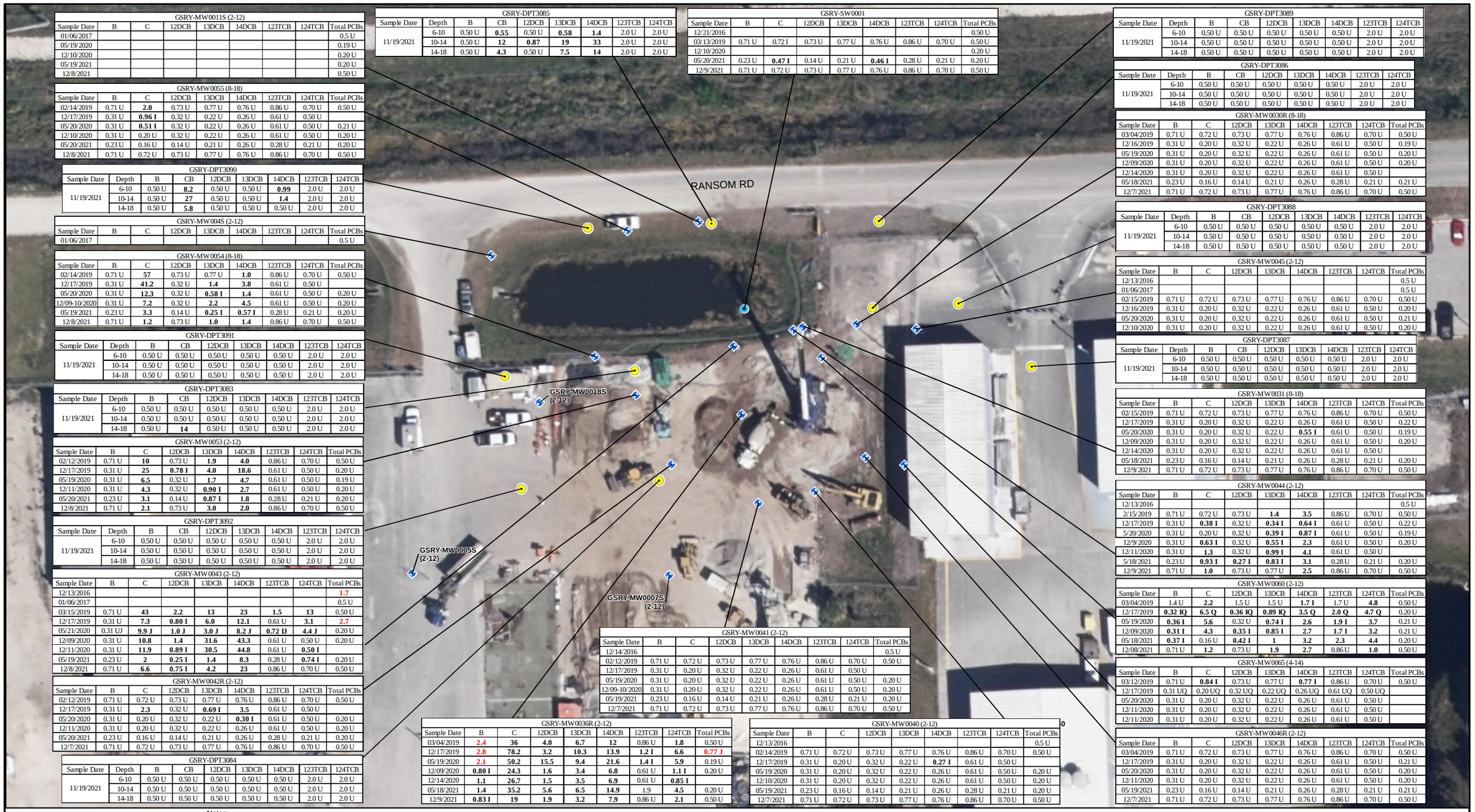
Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	1.4 U	**2.2**	1.5 U	1.5 U	**1.7 I**	1.7 U	**4.8**	0.50 U
12/17/2019	**0.32 IQ**	**6.5 Q**	**0.36 IQ**	**0.89 IQ**	**3.5 Q**	**2.0 Q**	**4.7 Q**	0.20 U
05/19/2020	**0.36 I**	**5.6**	0.32 U	**0.74 I**	**2.6**	**1.9 I**	**3.7**	0.21 U
12/09/2020	**0.31 I**	**4.3**	**0.35 I**	**0.85 I**	**2.7**	**1.7 I**	**3.2**	0.21 U
05/18/2021	**0.37 I**	0.16 U	**0.42 I**	**1**	**3.2**	**2.3**	**4.4**	0.20 U
12/08/2021	0.71 U	**1.2**	0.73 U	**1.9**	**2.7**	0.86 U	**1.0**	0.50 U

GSRY-MW0065 (4-14)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/12/2019	0.71 U	**0.84 I**	0.73 U	0.77 U	**0.77 I**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	

GSRY-MW0046R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U



Legend

- Surface Water Sample Location
- Monitoring Well - 2 to 18 feet bls
- DPT (Direct Push Technology) Location

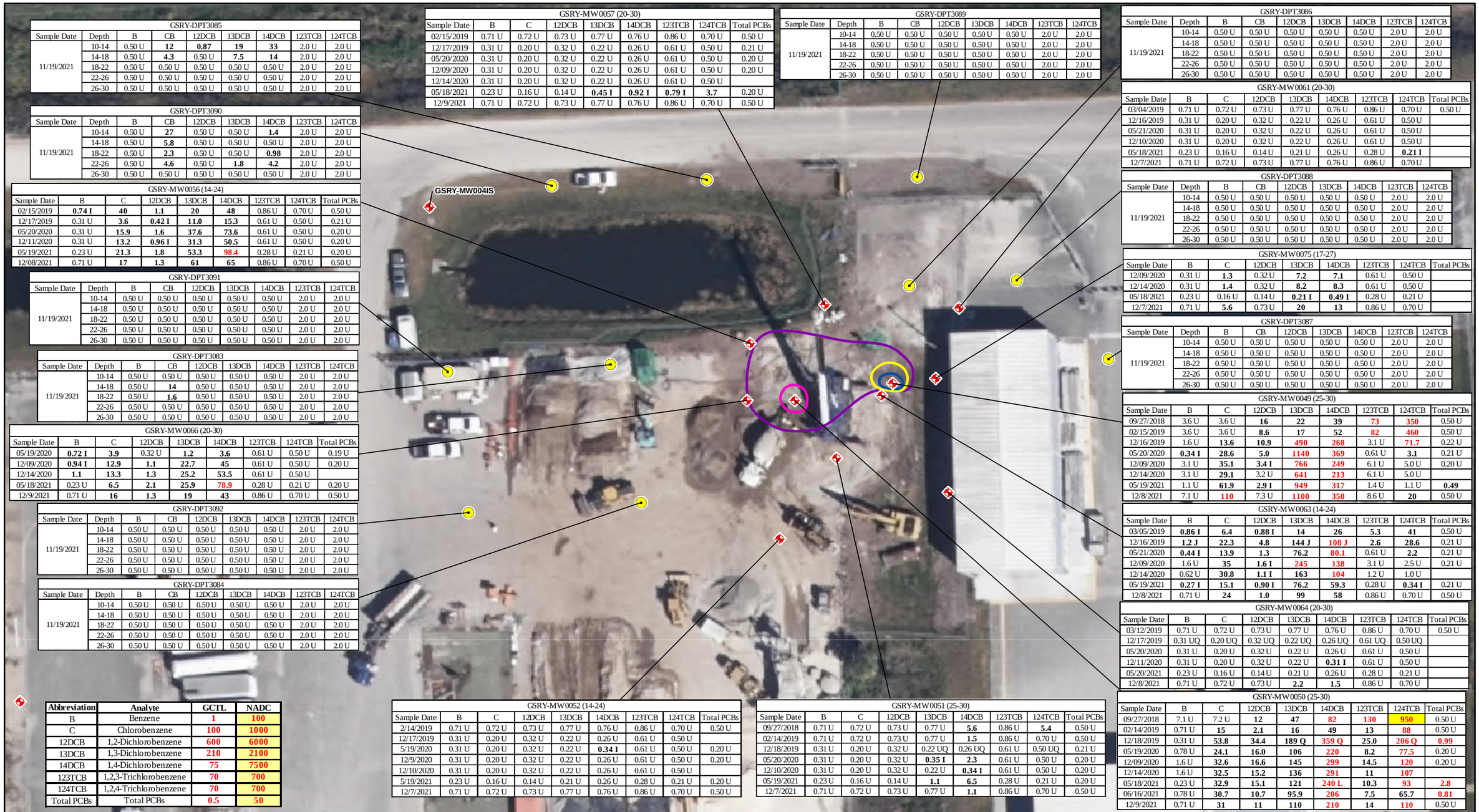
Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was not detected
- I = Indicates that the analytical result was greater than or equal to the method detection limit but less than the practical quantitation limit.
- J = Indicates an estimated value
- Q = Indicates that the sample was analyzed beyond hold time
- **Bold** indicates a detected value
- PCBs = Polychlorinated Biphenyls
- VOA = Volatile Organic Aromatic
- SWMU = Solid Waste Management Unit
- GCTL = Groundwater Cleanup Target Levels as provided in 62-777, F.A.C.
- NADC = Natural Attenuation Default Concentration as provided in 62-777, F.A.C.
- bls = below land surface
- (2-12) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial image FDOT 2018

N

0 50 100 Feet

Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50

FIGURE 3-1
Groundwater Analytical Results
2 to 18 feet bls
2016 - 2021
PCB/VOA Plume
General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida



GSRY-DPT3085

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	**12**	**0.87**	**19**	**33**	2.0 U	2.0 U
	14-18	0.50 U	**4.3**	0.50 U	**7.5**	**14**	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	**27**	0.50 U	0.50 U	**1.4**	2.0 U	2.0 U
	14-18	0.50 U	**5.8**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	**2.3**	0.50 U	0.50 U	**0.98**	2.0 U	2.0 U
	22-26	0.50 U	**4.6**	0.50 U	**1.8**	**4.2**	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0056 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	**0.74 I**	**40**	**1.1**	**20**	**48**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**3.6**	**0.42 I**	**11.0**	**15.3**	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	**15.9**	**1.6**	**37.6**	**73.6**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	**13.2**	**0.96 I**	**31.3**	**50.5**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	**21.3**	**1.8**	**53.3**	**98.4**	0.28 U	0.21 U	0.20 U
12/08/2021	0.71 U	**17**	**1.3**	**61**	**65**	0.86 U	0.70 U	0.50 U

GSRY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	**14**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	**1.6**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0066 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
05/19/2020	**0.72 I**	**3.9**	0.32 U	**1.2**	**3.6**	0.61 U	0.50 U	0.19 U
12/09/2020	**0.94 I**	**12.9**	**1.1**	**22.7**	**45**	0.61 U	0.50 U	0.20 U
12/14/2020	**1.1**	**13.3**	**1.3**	**25.2**	**53.5**	0.61 U	0.50 U	
05/18/2021	0.23 U	**6.5**	**2.1**	**25.9**	**78.9**	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	**16**	**1.3**	**19**	**43**	0.86 U	0.70 U	0.50 U

GSRY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50

GSRY-MW0057 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	**0.45 I**	**0.92 I**	**0.79 I**	**3.7**	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0052 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
2/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.34 I**	0.61 U	0.50 U	0.20 U
12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0051 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	0.71 U	0.72 U	0.73 U	0.77 U	**5.6**	0.86 U	**5.4**	0.50 U
02/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	**1.5**	0.86 U	0.70 U	0.50 U
12/18/2019	0.31 U	0.20 U	0.32 U	0.22 UQ	0.26 UQ	0.61 U	0.50 UQ	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	**0.35 I**	**2.3**	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.34 I**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	**1.1**	**6.5**	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	**1.1**	0.86 U	0.70 U	0.50 U

GSRY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0061 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/21/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	**0.21 I**	
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	

GSRY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0075 (17-27)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/09/2020	0.31 U	**1.3**	0.32 U	**7.2**	**7.1**	0.61 U	0.50 U	
12/14/2020	0.31 U	**1.4**	0.32 U	**8.2**	**8.3**	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	**0.21 I**	**0.49 I**	0.28 U	0.21 U	
12/7/2021	0.71 U	**5.6**	0.73 U	**20**	**13**	0.86 U	0.70 U	

GSRY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0049 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	3.6 U	3.6 U	**16**	**22**	**39**	**73**	**350**	0.50 U
02/15/2019	3.6 U	3.6 U	**8.6**	**17**	**52**	**82**	**460**	0.50 U
12/16/2019	1.6 U	**13.6**	**10.9**	**490**	**268**	3.1 U	**71.7**	0.22 U
05/20/2020	**0.34 I**	**28.6**	**5.0**	**1140**	**369**	0.61 U	**3.1**	0.21 U
12/09/2020	3.1 U	**35.1**	**3.4 I**	**766**	**249**	6.1 U	5.0 U	0.20 U
12/14/2020	3.1 U	**29.1**	3.2 U	**641**	**213**	6.1 U	5.0 U	
05/19/2021	1.1 U	**61.9**	**2.9 I**	**949**	**317**	1.4 U	1.1 U	**0.49**
12/8/2021	7.1 U	**110**	7.3 U	**1100**	**350**	8.6 U	**20**	0.50 U

GSRY-MW0063 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/05/2019	**0.86 I**	**6.4**	**0.88 I**	**14**	**26**	**5.3**	**41**	0.50 U
12/16/2019	**1.2 J**	**22.3**	**4.8**	**144 J**	**108 J**	**2.6**	**28.6**	0.21 U
05/21/2020	**0.44 I**	**13.9**	**1.3**	**76.2**	**80.1**	0.61 U	**2.2**	0.21 U
12/09/2020	1.6 U	**35**	**1.6 I**	**245**	**138**	3.1 U	2.5 U	0.21 U
12/14/2020	0.62 U	**30.8**	**1.1 I**	**163**	**104**	1.2 U	1.0 U	
05/19/2021	**0.27 I**	**15.1**	**0.90 I**	**76.2**	**59.3**	0.28 U	**0.34 I**	0.21 U
12/8/2021	0.71 U	**24**	**1.0**	**99**	**58**	0.86 U	0.70 U	0.50 U

GSRY-MW0064 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.31 I**	0.61 U	0.50 U	
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	
12/8/2021	0.71 U	0.72 U	0.73 U	**2.2**	**1.5**	0.86 U	0.70 U	

GSRY-MW0050 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	7.1 U	7.2 U	**12**	**47**	**82**	**130**	**950**	0.50 U
02/14/2019	0.71 U	**15**	**2.1**	**16**	**49**	**13**	**88**	0.50 U
12/18/2019	0.31 U	**53.8**	**34.4**	**189 Q**	**359 Q**	**25.0**	**206 Q**	**0.99**
05/19/2020	0.78 U	**24.1**	**16.0**	**106**	**220**	**8.2**	**77.5**	0.20 U
12/09/2020	1.6 U	**32.6**	**16.6**	**145**	**299**	**14.5**	**120**	0.20 U
12/14/2020	1.6 U	**32.5**	**15.2**	**136**	**291**	**11**	**107**	
05/18/2021	0.23 U	**32.9**	**15.1**	**121**	**240 L**	**10.3**	**93**	**2.8**
06/16/2021	0.78 U	**30.7**	**10.7**	**95.9**	**206**	**7.5**	**65.7**	**0.81**
12/9/2021	0.71 U	**31**	**11**	**110**	**210**	**14**	**110**	0.50 U

Legend

- Monitoring Well - 10 to 30 feet bls
- DPT (Direct Push Technology) Location
- Approximate Extent of 1,3-Dichlorobenzene Greater than GCTL
- Approximate Extent of 1,4-Dichlorobenzene Greater than GCTL
- Approximate Extent of 1,2,4-Trichlorobenzene Greater than GCTL
- Approximate Extent of Chlorobenzene Greater than GCTL

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was not detected
- I = Indicates that the analytical result was greater than or equal to the method detection limit but less than the practical quantitation limit.
- J = Indicates an estimated value
- Q = Indicates that the sample was analyzed beyond hold time
- **Bold** indicates a detected value
- PCBs = Polychlorinated Biphenyls
- VOA = Volatile Organic Aromatic
- SWMU = Solid Waste Management Unit
- GCTL = Groundwater Cleanup Target Levels as provided in 62-777, F.A.C.
- NADC = Natural Attenuation Default Concentration as provided in 62-777, F.A.C.
- bls = below land surface
- (14-24) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial image FDOT 2018

N

0 40 80 Feet

FIGURE 3-2
Groundwater Analytical Results
10 to 30 feet bls
2018 - 2021
PCB/VOA Plume
General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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RANSOM RD

GSRY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3085

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0058 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	**0.36 I**	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	**1.4**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0059 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/18/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0062 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/05/2019	0.71 U	0.72 U	0.73 U	0.77 U	**1.3**	**5.9**	**55**	**2.2**
03/20/2019	0.71 U	**6.9**	**0.91 I**	**14**	**23**	**2.4**	**21**	0.50 U
12/16/2019	0.31 U	**0.59 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	**0.56**
05/19/2020	0.31 U	**0.37 I**	0.32 U	**0.54 I**	**3.1**	0.61 U	**0.98 I**	**0.77**
06/17/2020								**0.42**
12/09/2020	0.31 U	**0.31 I**	0.32 U	0.22 U	**0.60 I**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	**0.25 I**	0.14 U	0.21 U	**0.65 I**	**0.59 I**	**0.43 I**	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50

Legend

- Monitoring Well - 30 to 40 feet bls
- DPT (Direct Push Technology) Location

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was not detected
- I = Indicates that the analytical result was greater than or equal to the method detection limit but less than the practical quantitation limit.
- J = Indicates an estimated value
- Q = Indicates that the sample was analyzed beyond hold time
- **Bold** indicates a detected value
- GCTL = Groundwater Cleanup Target Levels as provided in 62-777, F.A.C.
- PCBs = Polychlorinated Biphenyls
- VOA = Volatile Organic Aromatic
- (30-40) = Monitoring well screen interval in feet below land surface
- bls = below land surface
- Historical data source: RIS
- Aerial image FDOT 2018

N

0 40 80 Feet

FIGURE 3-3
Groundwater Analytical Results
30 to 40 feet bls
2018 - 2021
PCB/VOA Plume
General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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4. CHLORINATED VOC PLUME ANALYTICAL RESULTS

4.1 OVERVIEW

This section presents the results of the December 2021 groundwater monitoring activities for the Chlorinated VOC Plume. The goals of the 2021 LTM activities were to determine groundwater flow characteristics, monitor the downgradient concentration trends, and monitor select locations internal to the groundwater plume. Analytical results are provided in **Table 4-1** and are depicted on **Figures 4-1** and **4-2**. DPT groundwater analytical results from 2020 and 2021 are also presented in **Table 4-1** and **Figure 4-1** to provide recent supplemental data for the Chlorinated VOC Plume area. For ease of reference, **Figure 4-2** only includes the analytical data from the last two sampling events for each monitoring well. The laboratory analytical reports are provided in **Appendix C**. Data were uploaded to RIS upon receipt, and the RIS completion tickets are provided in **Appendix D**.

4.2 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were submitted to a fixed-based laboratory, ENCO Laboratories, Inc., for one or more of the following analyses: USEPA Method 8260B for a select list of VOCs: 11DCE, cDCE, tDCE, PCE, TCE, and VC or select UIC parameters: iron or TDS.

4.2.1 2 to 18 Feet Bls

Samples were collected from one monitoring well. Groundwater sampling results for December 2021 indicated that no site COCs were detected above the GCTL.

4.2.2 10 to 30 Feet Bls

Samples were collected from five monitoring wells. Groundwater sampling results for December 2021 indicated that no site COCs were detected above the GCTL.

4.2.3 Underground Injection Control Monitoring

Groundwater sampling conducted in December 2021 included UIC monitoring by sampling three monitoring wells for iron or TDS. The UIC monitoring is being conducted in the Chlorinated VOC Plume area to monitor for groundwater conditions that may have changed due to the ERD treatment process. The UIC analytical results are presented in **Table 4-2**.

The UIC monitoring program for the Chlorinated VOC Plume area currently includes three monitoring wells (GSRY-MW0067, GSRY-MW0071, and GSRY-MW0073). Analytical results indicate the TDS concentration was above the site approved target level in GSRY-MW0071, and iron concentrations were above the site approved target level in GSRY-MW0067, GSRY-MW0071, and GSRY-MW0073.

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Table 4-1
Chlorinated VOC Plume Groundwater Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*					
		Analyte	1,1-DI-CHLOROETHENE	CIS-1,2-DI-CHLOROETHENE	TETRA-CHLOROETHENE	TRANS-1,2-DI-CHLOROETHENE	TRI-CHLOROETHENE	VINYL CHLORIDE
		GCTL (µg/L)	7	70	3	100	3	1
		NADC (µg/L)	70	700	300	1000	300	100
Location ID	**Screened Interval (feet bls)**	**Sample Date**						
GSRY-DPT3069	7 to 11	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3070	7 to 11	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/19/2020	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3071	7 to 11	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3072	7 to 11	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3073	7 to 11	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3074	7 to 11	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3075	7 to 11	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/20/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3076	7 to 11	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/21/2021	1 U	**10**	**12**	1 U	**14**	**4**
	19 to 23	10/21/2021	1 U	1 U	**2**	1 U	1 U	1 U
	23 to 27	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3077	7 to 11	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3078	7 to 11	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3079	7 to 11	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/21/2021	1 U	1 U	**2**	1 U	**1**	1 U
	19 to 23	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/21/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3080	11 to 15	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U

Table 4-1
Chlorinated VOC Plume Groundwater Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*					
		Analyte	1,1-DI-CHLOROETHENE	CIS-1,2-DI-CHLOROETHENE	TETRA-CHLOROETHENE	TRANS-1,2-DI-CHLOROETHENE	TRI-CHLOROETHENE	VINYL CHLORIDE
		GCTL (µg/L)	7	70	3	100	3	1
		NADC (µg/L)	70	700	300	1000	300	100
Location ID	**Screened Interval (feet bls)**	**Sample Date**						
GSRY-DPT3081	7 to 11	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	11 to 15	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-DPT3082	11 to 15	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	15 to 19	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	19 to 23	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
	23 to 27	10/22/2021	1 U	1 U	1 U	1 U	1 U	1 U
GSRY-MW0013M	16 to 21	3/24/2016	0.94 U	0.53 U	0.76 U	0.73 U	0.89 U	**1.6**
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0067	10 to 20	12/16/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.50 I**
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0068	10 to 20	12/16/2019	0.32 U	**1.6**	**0.49 I**	0.22 U	**0.59 I**	**1.4**
		5/21/2020	0.32 U	**1.0**	0.22 U	0.22 U	0.35 U	**0.67 I**
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.67 I**
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0069	10 to 20	12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0070	10 to 20	12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/21/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0071	13 to 23	12/16/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/21/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0072	11 to 21	12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
GSRY-MW0073	17 to 27	12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
		12/10/2021	0.94 U	0.53 U	0.76 U	0.73 U	0.89 U	0.71 U
GSRY-MW0074	7 to 17	12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	**0.49 IJQ**
		5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
		12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**4.7**
		5/20/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
		12/10/2021	0.94 U	0.53 U	0.76 U	0.73 U	0.89 U	0.71 U

Table 4-1
Chlorinated VOC Plume Groundwater Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

Category			*Volatile Organic Compounds (VOCs) by Method 8260*					
Analyte			1,1-DI-CHLOROETHENE	CIS-1,2-DI-CHLOROETHENE	TETRA-CHLOROETHENE	TRANS-1,2-DI-CHLOROETHENE	TRI-CHLOROETHENE	VINYL CHLORIDE
GCTL (µg/L)			7	70	3	100	3	1
NADC (µg/L)			70	700	300	1000	300	100
Location ID	**Screened Interval (feet bls)**	**Sample Date**						
GSRY-MW0076	10 to 20	5/21/2021	0.27 U	**0.43 I**	**0.43 I**	0.26 U	**0.38 I**	0.23 U
		12/10/2021	0.94 U	0.53 U	0.76 U	0.73 U	0.89 U	**0.78 I**
GSRY-MW0077	10 to 20	5/21/2021	0.27 U	0.34 U	0.30 U	0.26 U	0.31 U	0.23 U
		12/10/2021	0.94 U	0.53 U	0.76 U	0.73 U	0.89 U	0.71 U

Notes:
Bolded results indicate the presence of an analyte at the specified concentration
Red font indicates an exceedance of FDEP GCTLs
Blank cells indicate the analyte was not analyzed for that specific well
bls = below land surface
GCTL = Groundwater Cleanup Target Level, Chapter 62-777 Florida Administrative Code, Table 1 (2005)
I = The analytical result was greater than or equal to the method detection limit, but less than the practical quantitation limit
J = Estimated value
NADC = Natural Attenuation Default Concentration, Chapter 62-777 Florida Administrative Code, Table V (2005)
Q = The sample was analyzed beyond hold time
SWMU = Solid Waste Manangement Unit
U = The analyte was not detected
µg/L = micrograms per liter

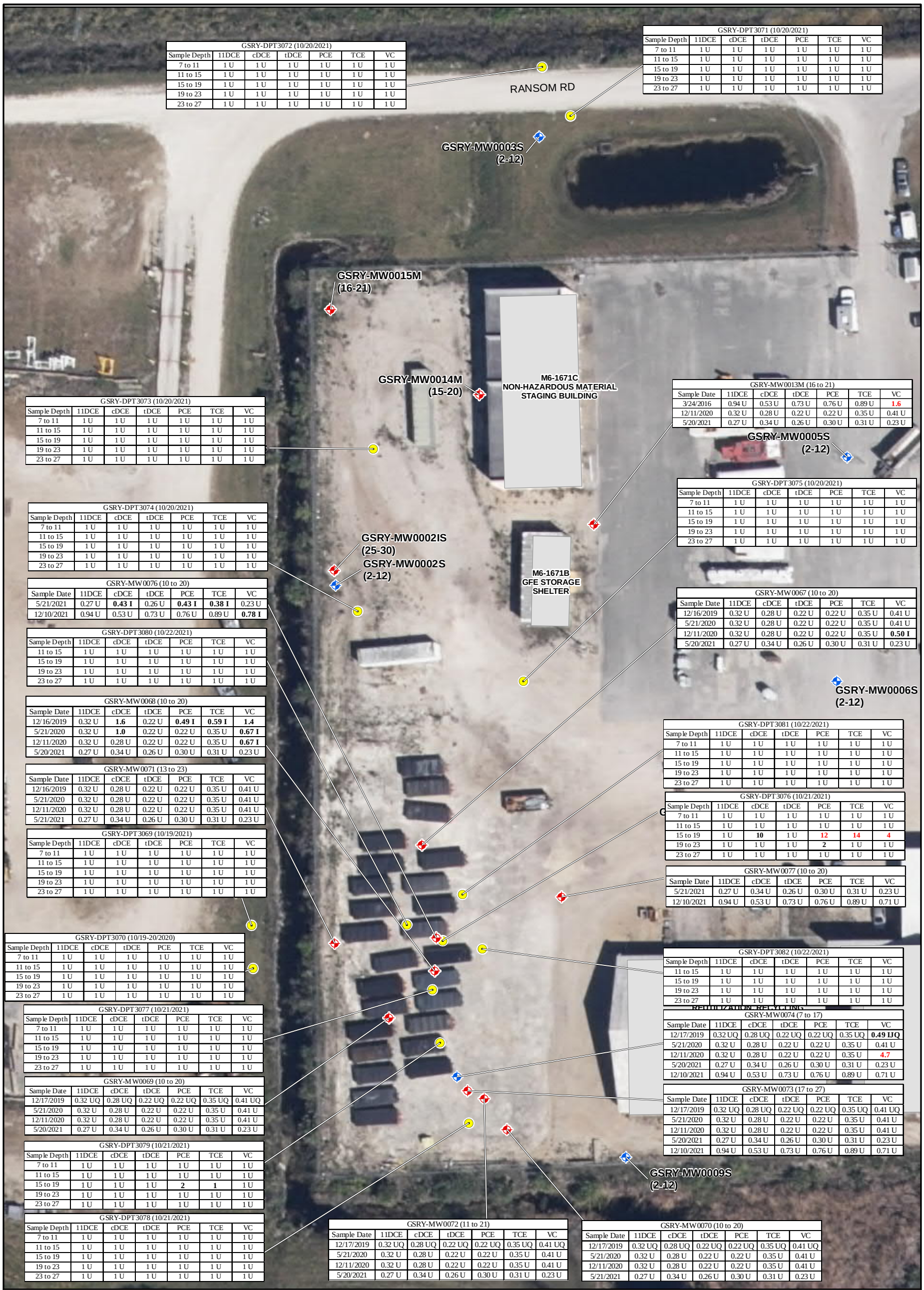
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Table 4-2
Chlorinated VOC Plume UIC Groundwater Analytical Results
General Services Administration Reclamation Yard (SMWU 010)

		Category	*Metals*	*General Chemistry*	*FL-PRO*
		Analyte	IRON	TDS	TRPH
		Target Levels* for UIC Sampling (µg/L)	1220	980000	5000
Location ID	**Screened Interval (feet bls)**	**Sample Date**			
GSRY-MW0021M**	16 to 21	11/15/2012	**1210**	**950000**	100 U
		7/21/2015**	**22900**	**930000**	100 U
		3/26/2015**	**21500**	**1100000**	100 U
GSRY-MW0022M**	16 to 21	11/15/2012	**1220**	**920000**	100 U
		7/21/2015**	**17700**	**920000**	100 U
		3/26/2015**	**12200**	**930000**	**130 I**
GSRY-MW0023M**	16 to 21	11/15/2012	**811**	**980000**	**3000**
		7/21/2015**	**20600**	**2200000**	100 U
		3/26/2015**	**39800**	**3600000**	**3100**
GSRY-MW0067***	10 to 20	12/16/2019	**2520**	**648000**	**278 IJ**
		5/21/2020	**1940**	**862000**	**203 I**
		12/11/2020	**960**	**952000**	**244 I**
		5/20/2021		**934000**	
		12/10/2021	**1420**		
GSRY-MW0071***	13 to 23	12/16/2019	**3560**	**540000**	**140 UJ**
		5/21/2020	**2220**	**988000**	**204 I**
		12/11/2020	**2260**	**1390000**	**306**
		5/21/2021		**906000**	
		12/10/2021	**2370**	**1500000**	
GSRY-MW0073***	17 to 27	12/17/2019	**10500**	**1130000**	**1860**
		5/21/2020	**5490**	**1300000**	**340**
		12/11/2020	**3480**	**1340000**	**478**
		5/20/2021	**4250**	**1310000**	
		12/10/2021	**2260**	**670000**	

Notes:
Bolded results indicate the presence of an analyte at the specified concentration
Red font indicates an exceedance of Site Approved* Target Levels for UIC Sampling
Blank cells indicate the analyte was not analyzed for that specific well
*Target levels for UIC sampling are GCTL for TRPH, and maximum baseline**** concentration for iron and TDS
**Monitoring wells were abandoned prior to the 2014 sampling, and the 2014 and 2015 sampling events listed were collected via DPT
***MW0067, MW0071, and MW0073 were installed in November 2019 and replaced the previously abanodoned wells in the UIC Program
****Maximum baseline concentrations are derived from the 11/15/2012 sampling results
bls = below land surface
GCTL = Groundwater Cleanup Target Level, Chapter 62-777 Florida Administrative Code, Table 1 (2005)
I = The analytical result was greater than or equal to the MDL, but less than the PQL
J = Estimated value
SWMU = Solid Waste Manangement Unit
TDS = Tolal Dissolved Solids
TRPH = Total Recoverable Petroleum Hydrocarbons
U = The analyte was not detected
µg/L = micrograms per liter
UIC = Underground Injection Control

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GSRY-DPT3072 (10/20/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3071 (10/20/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3073 (10/20/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0013M (16 to 21)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
3/24/2016	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	1.6
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-DPT3074 (10/20/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3075 (10/20/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0076 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/21/2021	0.27 U	**0.43 I**	0.26 U	**0.43 I**	**0.38 I**	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	**0.78 I**

GSRY-MW0067 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/16/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.50 I**
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-DPT3080 (10/22/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0068 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/16/2019	0.32 U	**1.6**	0.22 U	**0.49 I**	**0.59 I**	**1.4**
5/21/2020	0.32 U	**1.0**	0.22 U	0.22 U	0.35 U	**0.67 I**
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.67 I**
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-DPT3081 (10/22/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0071 (13 to 23)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/16/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-DPT3076 (10/21/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	**10**	1 U	**12**	**14**	**4**
19 to 23	1 U	1 U	1 U	**2**	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3069 (10/19/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0077 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-DPT3070 (10/19-20/2020)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3082 (10/22/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-DPT3077 (10/21/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0074 (7 to 17)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	**0.49 IJQ**
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	4.7
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-MW0069 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0073 (17 to 27)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-DPT3079 (10/21/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	**2**	**1**	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0072 (11 to 21)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-DPT3078 (10/21/2021)

Sample Depth	11DCE	cDCE	tDCE	PCE	TCE	VC
7 to 11	1 U	1 U	1 U	1 U	1 U	1 U
11 to 15	1 U	1 U	1 U	1 U	1 U	1 U
15 to 19	1 U	1 U	1 U	1 U	1 U	1 U
19 to 23	1 U	1 U	1 U	1 U	1 U	1 U
23 to 27	1 U	1 U	1 U	1 U	1 U	1 U

GSRY-MW0070 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/17/2019	0.32 UQ	0.28 UQ	0.22 UQ	0.22 UQ	0.35 UQ	0.41 UQ
5/21/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

Legend

- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls
- DPT (Direct Push Technology) Location

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was not detected
- I = Indicates that the analytical result was greater than or equal to the method detection limit but less than the practical quantitation limit.
- Q = Indicates that the sample was analyzed beyond hold time
- J =Indicates an estimated value
- **Bold** indicates a detected value
- SWMU = Solid Waste Management Unit
- GCTL = Groundwater Cleanup Target Levels as provided in 62-777, F.A.C.
- NADC = Natural Attenuation Default Concentration as provided in 62-777, F.A.C.
- (10-20) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial image FDOT 2018

Abbreviation	Analyte	GCTL	NADC
11DCE	1,1-Dichloroethene	7	70
cDCE	cis-1,2-Dichloroethene	70	700
tDCE	trans-1,2-Dichloroethene	100	1000
PCE	Tetrachloroethene	3	300
TCE	Trichloroethene	3	300
VC	Vinyl Chloride	1	100

N

0 50 100 Feet

FIGURE 4-1
Groundwater Analytical Results
2016 - 2021
Chlorinated VOC Plume
General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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GSRY-MW0013M (16 to 21)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0067 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.50 I**
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0076 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/21/2021	0.27 U	**0.43 I**	0.26 U	**0.43 I**	**0.38 I**	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	**0.78 I**

GSRY-MW0077 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-MW0071 (13 to 23)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0068 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.67 I**
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0074 (7 to 17)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-MW0069 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0073 (17 to 27)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U
12/10/2021	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U

GSRY-MW0072 (11 to 21)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/20/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

GSRY-MW0070 (10 to 20)

Sample Date	11DCE	cDCE	tDCE	PCE	TCE	VC
12/11/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U
5/21/2021	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U

Legend

- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was not detected
- I = Indicates that the analytical result was greater than or equal to the method detection limit but less than the practical quantitation limit.
- **Bold** indicates a detected value
- SWMU = Solid Waste Management Unit
- GCTL = Groundwater Cleanup Target Levels as provided in 62-777, F.A.C.
- NADC = Natural Attenuation Default Concentration as provided in 62-777, F.A.C.
- (10-20) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial image FDOT 2018

Abbreviation	Analyte	GCTL	NADC
11DCE	1,1-Dichloroethene	7	70
cDCE	cis-1,2-Dichloroethene	70	700
tDCE	trans-1,2-Dichloroethene	100	1000
PCE	Tetrachloroethene	3	300
TCE	Trichloroethene	3	300
VC	Vinyl Chloride	1	100

N

0 50 100 Feet

FIGURE 4-2
Groundwater Analytical Results
Last 2 Events

Chlorinated VOC Plume
General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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5. CONCLUSIONS AND RECOMMENDATIONS

The GSRY groundwater monitoring activities and results were presented to the KSCRT in March 2022, and the KSCRT agreed with the following conclusions and recommendations. The ADP and KSCRT Meeting Minutes are provided in **Appendix A**. The Proposed Groundwater Monitoring Plan, with a list of the wells and locations to be sampled and measured for water levels, is presented in **Table 5-1** and on **Figure 5-1**. The next annual groundwater monitoring event is currently planned for June-July 2022.

5.1 GROUNDWATER FLOW

Based on water level measurement activities performed during this reporting period, the following conclusions are provided:

- In December 2021, groundwater flow for the site was generally to the north and northwest, with the individual zones only varying by occasional east and west components in certain areas of the site. This is generally consistent with historical observations at the site; however, there have been historical variations in groundwater flow direction at the site.

Based on water level measurement activities performed during this reporting period, the following recommendations are provided:

- Conduct annual water level measurements at 55 monitoring wells.

5.2 PCB/VOA PLUME

Based on groundwater and surface water sampling activities performed during this reporting period, the following conclusions are provided:

- Groundwater results demonstrate a reduction in plume size and COC concentrations, compared to baseline sampling for the 2018 IM.
- Chlorinated benzene compound COCs were detected above GCTLs in the 10 to 30 feet bls zone only.
- Chlorinated benzene compound COCs were below the GCTLs in monitoring wells that bound the current PCB/VOA plume horizontally and vertically; therefore, no new monitoring well installations are recommended for delineation at this time.
- The localized shallow aquifer was affected by the addition of flowable fill during the 2018 IM, and pore volume exchange is likely slower than pre-IM, therefore, no locations or COC analytes recommended for elimination at this time, although there have been two or more consecutive sampling events below GCTLs at some locations.

Based on groundwater sampling activities performed during this reporting period, the following recommendations are provided:

- Perform annual monitoring at 28 monitoring wells and 1 surface water location with the same VOA and PCB analytes for each location as in December 2021.
- Discontinue UIC monitoring at GSRY-MW0057, GSRY-MW0061, and GSRY-MW0064.
- Continue annual UIC monitoring at GSRY-MW0049, GSRY-MW0050, and GSRY-MW0066 for UIC parameters: sulfate, iron, manganese, sodium, and TDS.

5.3 CHLORINATED VOC PLUME

Based on groundwater sampling activities performed during this reporting period, the following conclusions are provided:

- In December 2021, no site COCs were detected above GCTLs.
- Concentrations of iron or TDS remain above the site approved target levels in three monitoring wells.
- sampling events below GCTLs at some locations

Based on groundwater sampling activities performed during this reporting period, the following recommendations are provided:

- Due to two or more consecutive events in which target VOC concentrations were below GCTLs, discontinue annual groundwater monitoring for VOCs in the former Chlorinated VOC plume area monitoring wells; this will include discontinuing sampling of GSRY-MW0071, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, and GSRY-MW0077 for target VOCs.
- Perform annual UIC groundwater monitoring at GSRY-MW0067 for iron and at GSRY-MW0071 and GSRY-MW0073 for iron and TDS.

Table 5-1
2022 Proposed Groundwater Monitoring Plan
General Services Administration Reclamation Yard (SMWU 010)

Location ID	Screened Interval (feet bls)	Water Levels	Sampled						
			VOCs	PCBs	Sulfate	Iron	Manganese	Sodium	Total Dissolved Solids
2 to 18 feet bls									
MW0002S	2 to 12	X							
MW0003S	2 to 12	X							
MW0004S	2 to 12	X							
MW0005S	2 to 12	X							
MW0006S	2 to 12	X							
MW0007S	2 to 12	X							
MW0008S	2 to 12	X							
MW0009S	2 to 12	X							
MW0011S	2 to 12	X		X					
MW0018S	2 to 12	X							
MW0030R	8 to 18	X	X	X					
MW0031	8 to 18	X	X	X					
MW0036R	2 to 12	X	X	X					
MW0040	2 to 12	X	X	X					
MW0041	2 to 12	X	X	X					
MW0042R	2 to 12	X	X	X					
MW0043	2 to 12	X	X	X					
MW0044	2 to 12	X	X	X					
MW0045	2 to 12	X							
MW0046R	2 to 12	X	X	X					
MW0053	2 to 12	X	X	X					
MW0054	8 to 18	X	X	X					
MW0055	8 to 18	X	X	X					
MW0060	2 to 12	X	X	X					
MW0065	4 to 14	X							
MW0074	7 to 17	X							
10 to 30 feet bls									
MW0002IS	25 to 30	X							
MW0004IS	25 to 30	X							
MW0013M	16 to 21	X							
MW0014M	15 to 20	X							
MW0015M	16 to 21	X							
MW0049	25 to 30	X	X	X	X	X	X	X	X
MW0050	25 to 30	X	X	X	X	X	X	X	X
MW0051	25 to 30	X	X	X					
MW0052	14 to 24	X	X	X					
MW0056	14 to 24	X	X	X					
MW0057	20 to 30	X	X	X					
MW0061	20 to 30	X	X						
MW0063	14 to 24	X	X	X					
MW0064	20 to 30	X	X						
MW0066	20 to 30	X	X	X	X	X	X	X	X
MW0067	10 to 20	X				X			
MW0068	10 to 20	X							
MW0069	10 to 20	X							
MW0070	10 to 20	X							
MW0071	13 to 23	X				X			X
MW0072	11 to 21	X							
MW0073	17 to 27	X				X			X
MW0075	20 to 30	X	X						
MW0076	10 to 20	X							
MW0077	10 to 20	X							
30 to 40 feet bls									
MW0058	30 to 40	X	X	X					
MW0059	30 to 40	X	X	X					
MW0062	30 to 40	X	X	X					
Surface Water									
SW0001			X	X					

Notes:
bls = below land surface
PCBs = polychlorinated biphenyls
SWMU = Solid Waste Management Unit
VOCs = Volatile Organic Compounds

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Legend

- Surface Water Sample Location
- Monitoring Well (Sample and Water Level Measurement)
- Monitoring Well (Water Level Measurement Only)

Notes:
- Vertical Datum is NAVD88 (ft)
- ft bls = feet below land surface
- PCB = Polychlorinated Biphenyl
- VOA = Volatile Organic Aromatics
- VOC = Volatile Organic Compound
- (16-21 ft bls) = Monitoring Well Screen Interval
- Aerial Source: FDOT 2018

N

0 70 140 Feet

FIGURE 5-1
2022 Proposed Groundwater Monitoring Plan

General Services Administration Reclamation Yard (GSRY)
SWMU 010
NASA Kennedy Space Center, Florida

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Group, Inc., Merritt Island, Florida, and CORE Engineering & Construction, Inc., Winter Park, Florida.

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United States Geological Survey. 1976. Orsino, Florida Quadrangle map.

APPENDIX A

ADVANCE DATA PACKAGES, AND KSC REMEDIATION TEAM MEETING MINUTES

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General Services Administration
Reclamation Yard (GSRY)
Solid Waste Management Unit (SWMU) 010

November/December 2021 Groundwater Monitoring Results

March 2022

Delivering a better world

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Outline

- Site Overview
- Groundwater Flow
- Site-Wide Per- and Polyfuoroalkyl Substances (PFAS) Investigation
- Polychlorinated Biphenyl (PCB)/Volatile Organic Aromatic (VOA) Plume Area
- Chlorinated Volatile Organic Compound (CVOC) Plume Area



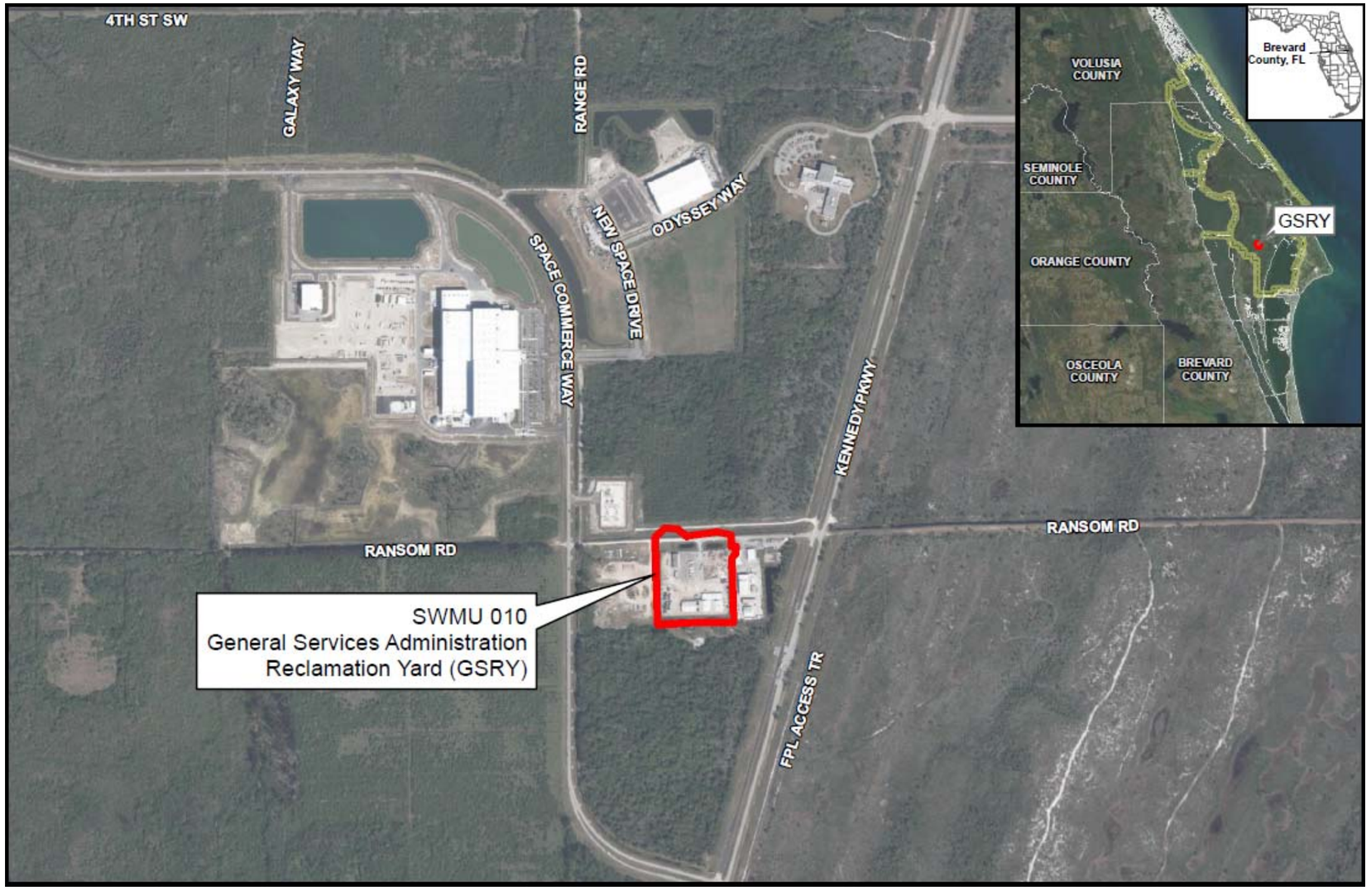
PCB/VOA Plume Area



CVOC Plume Area

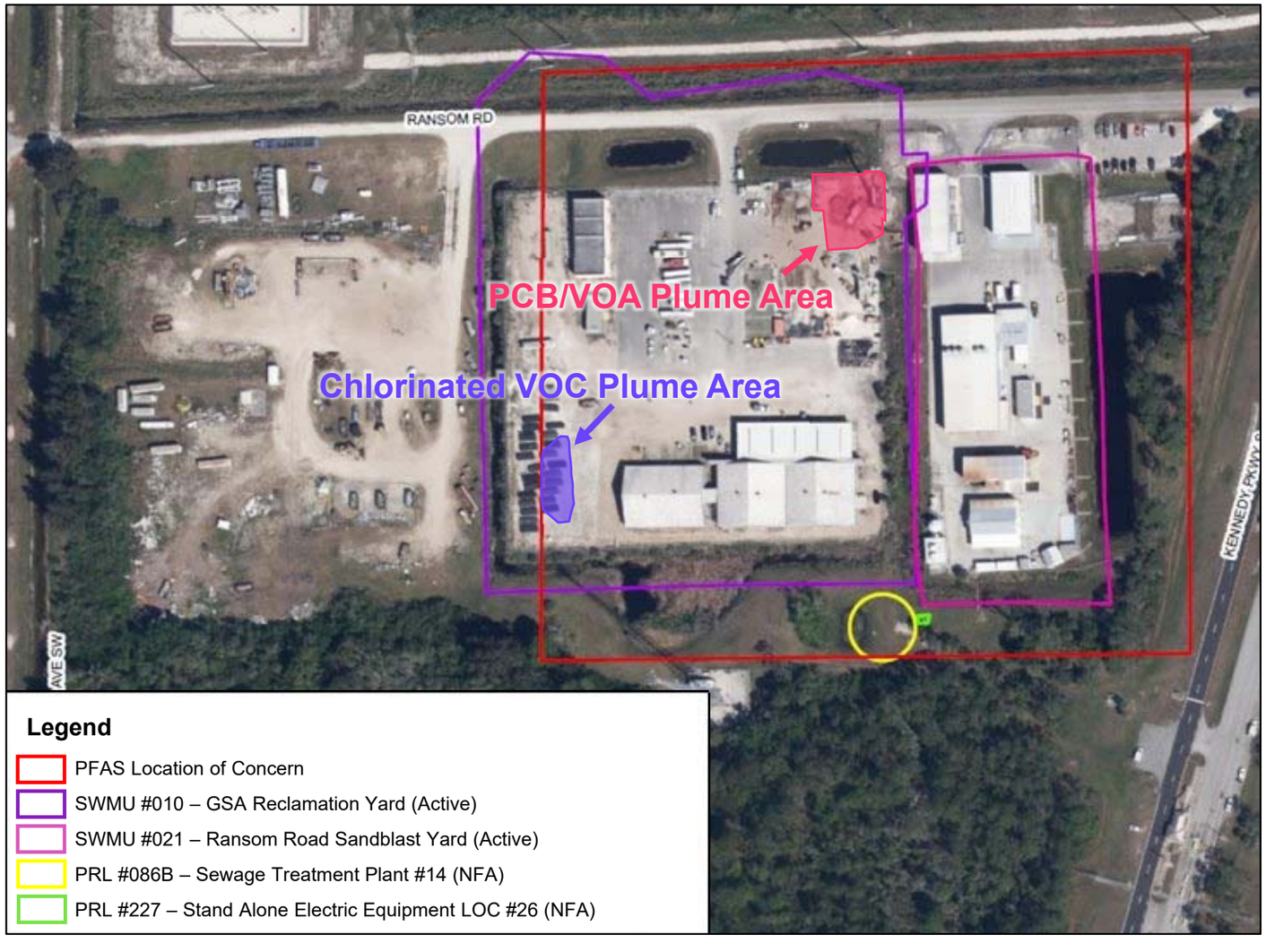
Site Overview – Site Location and General Site Background

- General Services Administration Reclamation Yard (GSRY), Solid Waste Management Unit (SWMU) #010, is located on Ransom Road between State Road 3 and Space Commerce Way, and currently operates as the Reutilization, Recycling, and Marketing Facility (RRMF).
- Constructed in the 1960s on 7 acres
- Historically staged transformers, air conditioners, batteries, paints, solvents, pesticides, and adhesives
- Current facility conducts reuse, resale, and recycling of materials and equipment

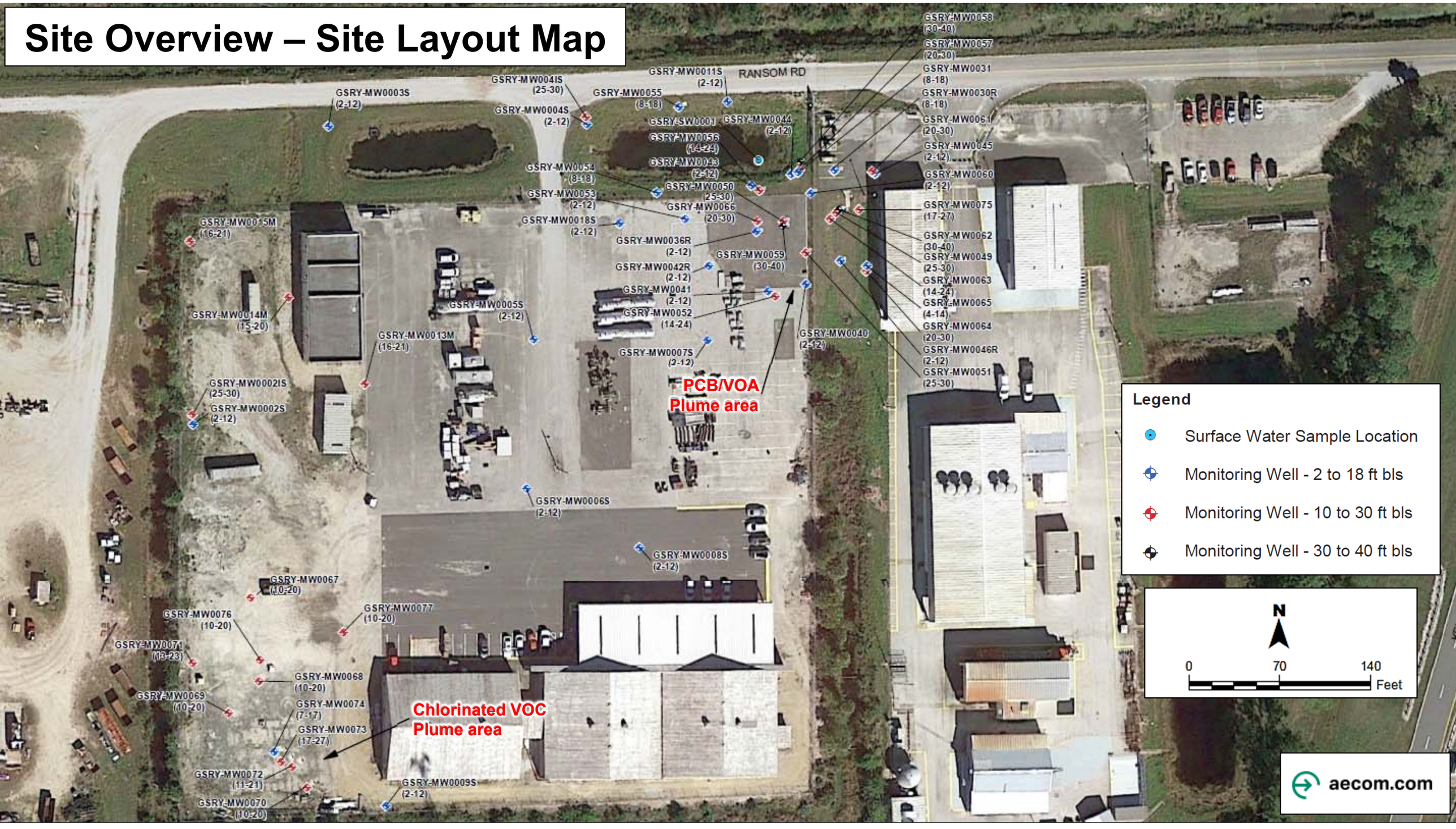


Site Overview – General Site Background

- Site areas of groundwater impacts
  - PCB/VOA Plume Area (formerly known as the Northeast Area)
  - Chlorinated VOC Plume Area (formerly known as the Southwest Area)
- Site-Wide PFAS Investigation
  - 2019 – Initial assessment and confirmatory sampling conducted in the area under the Center-Wide PFAS Investigation
  - 2020 to 2021 – Two locations of concern (LOCs) were identified: Ransom Road Sand Blast Yard (SWMU 021) and Former Sewage Treatment Plant #14 [Potential Release Location (PRL) 086B]
  - No Further Action for PFAS at both LOCs
  - PFAS will be further investigated at GSRY under existing SWMU 010
- Site-Wide PCB Soil Investigation
  - Soil sampling events are ongoing to delineate the shallow soil impacted areas
  - Results will be covered under a separate presentation and reports



Site Overview – Site Layout Map



Groundwater Flow – December 2021

- Groundwater elevation measurements collected from 54 monitoring wells

2 to 18 feet bls

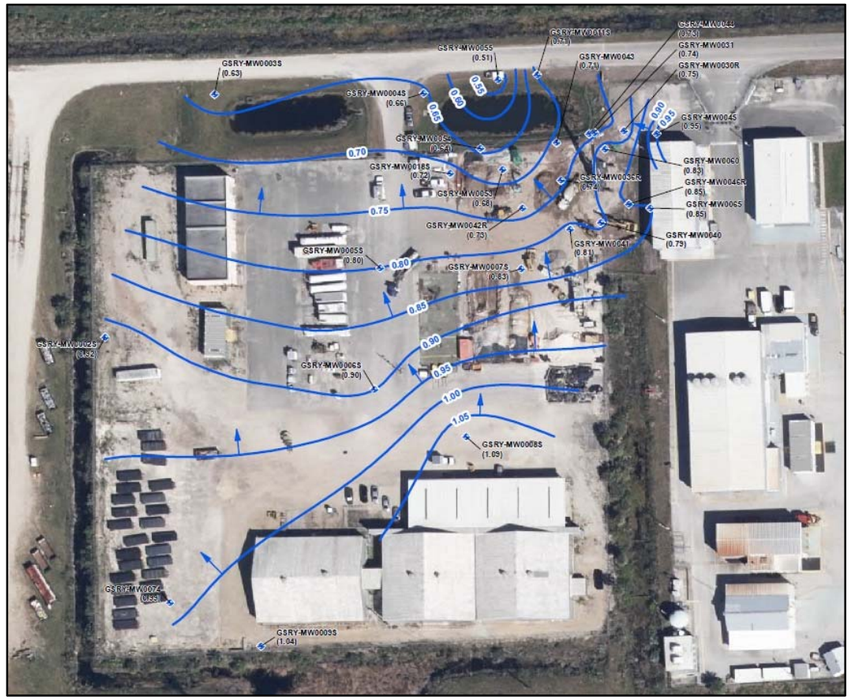
- Dec 2021 flow direction: north
- Previous groundwater flow:
  - May 2020: west-northwest
  - Dec 2020: north-northwest
  - May 2021: northwest

10 to 30 feet bls

- Dec 2021 flow direction: north
- Previous groundwater flow:
  - May 2020: west-southwest
  - Dec 2020: north
  - May 2021: north

30 to 40 feet bls

- Dec 2021 flow direction: northwest
- Previous groundwater flow:
  - May 2020: northwest
  - Dec 2020: west
  - May 2021: west-northwest







Note: bls – below land surface

Groundwater Flow – Test Consensus

- Conduct annual water level measurements at 55 monitoring wells

Well ID	Screen Interval (feet bls)
MW0002S	2 to 12
MW0002IS	25 to 30
MW003S	2 to 12
MW0004S	2 to 12
MW0004IS	25 to 30
MW0005S	2 to 12
MW0006S	2 to 12
MW0007S	2 to 12
MW0008S	2 to 12
MW0009S	2 to 12
MW0011S	2 to 12
MW0013M	16 to 21
MW0014M	15 to 20
MW0015M	16 to 21
MW0018S	2 to 12
MW0030R	8 to 18
MW0031	8 to 18
MW0036R	2 to 12

Well ID	Screen Interval (feet bls)
MW0040	2 to 12
MW0041	2 to 12
MW0042R	2 to 12
MW0043	2 to 12
MW0044	2 to 12
MW0045	2 to 12
MW0046R	2 to 12
MW0049	25 to 30
MW0050	25 to 30
MW0051	25 to 30
MW0052	14 to 24
MW0053	2 to 12
MW054	8 to 18
MW0055	8 to 18
MW0056	14 to 24
MW0057	20 to 30
MW0058	30 to 40
MW0059	30 to 40

Well ID	Screen Interval (feet bls)
MW0060	2 to 12
MW0061	20 to 30
MW0062	30 to 40
MW0063	14 to 24
MW0064	20 to 30
MW0065	4 to 14
MW0066	20 to 30
MW0067	10 to 20
MW0068	10 to 20
MW0069	10 to 20
MW0070	10 to 20
MW0071	13 to 23
MW0072	11 to 21
MW0073	17 to 27
MW0074	7 to 17
MW0075	17 to 27
MW0076	10 to 20
MW0077	10 to 20
MW0078	7 to 17

Site-Wide PFAS Groundwater and Surface Water Sampling – Previous Analytical Results

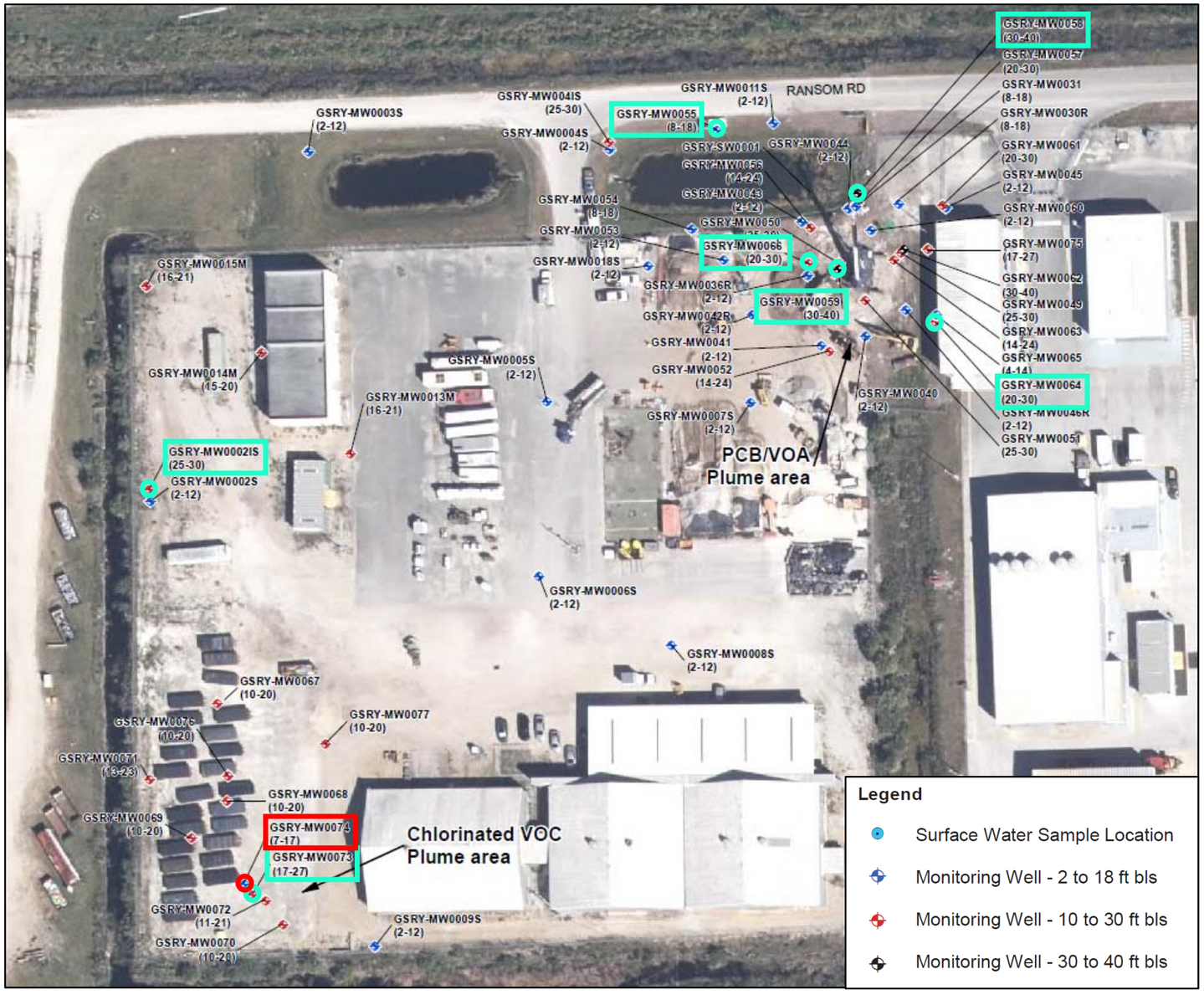
- Provisional cleanup target levels from the February 2021 Florida Department of Environmental Protection PFAS Dynamic Plan:
  - Provisional Groundwater Cleanup Target Level (pGCTL) = 70 nanograms per liter (ng/L) for perfluorooctanoic acid (PFOA) + perfluorooctane sulfonic acid (PFOS)
  - Surface Water Screening Levels (SWSLs) = 500 ng/L for PFOA and 10 ng/L for PFOS
- Center-Wide PFAS project (2020-2021):
  - 12 groundwater samples were collected from 3 DPT locations
    - Samples were below the pGCTL for PFOA+PFOS
  - 2 monitoring wells were sampled
    - MW0074: PFOA+PFOS = 122 ng/L
    - MW0060: PFOA+PFOS = 6.45 ng/L
  - 5 surface water samples were collected
    - PFOA concentrations were below the SWSL
    - PFOS concentrations were above the SWSL at 4 locations
    - maximum PFOS concentration was at SW0076: PFOS = 130 ng/L



Site-Wide PFAS Groundwater Sampling - Analytical Results

- 8 monitoring wells were sampled for PFAS
  - 5 wells (MW0055, MW0058, MW0064, MW0066, and MW0074) had detections of PFAS
  - One well (MW0074) had detections above the pGCTL for PFOA + PFOS:
    - PFOA: 89.0 ng/L
    - PFOS: 12.1 ng/L
    - PFOA + PFOS: 101.1 ng/L

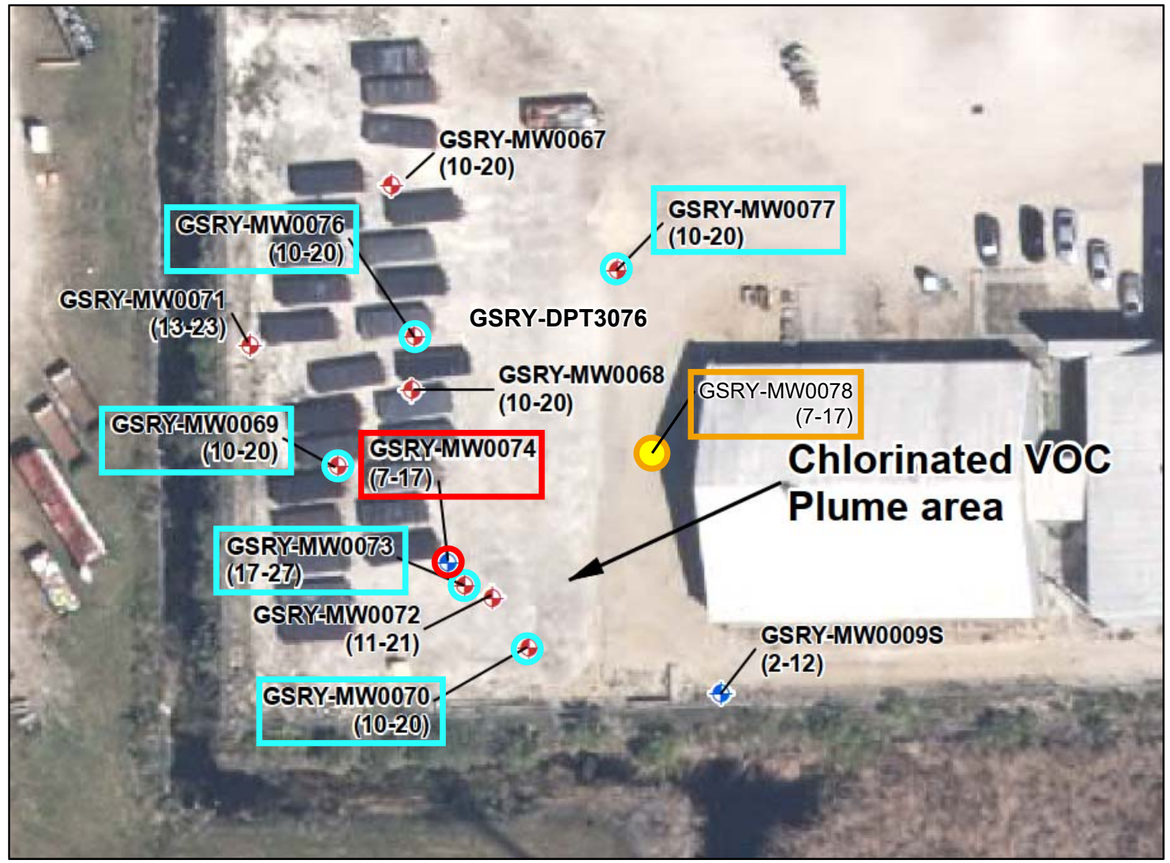




Site-Wide PFAS Groundwater Sampling – Test Consensus

- Install a new monitoring well GSRY-MW0078 for delineation to the east of GSRY-MW0074 with a screen of 7 to 17 feet bls
- Add PFAS analysis for 7 monitoring wells GSRY-MW0069, GSRY-MW0070, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, GSRY-MW0077, and GSRY-MW0078 to the annual sampling program





Legend

- Surface Water Sample Location
- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls
- Monitoring Well - 30 to 40 ft bls

N

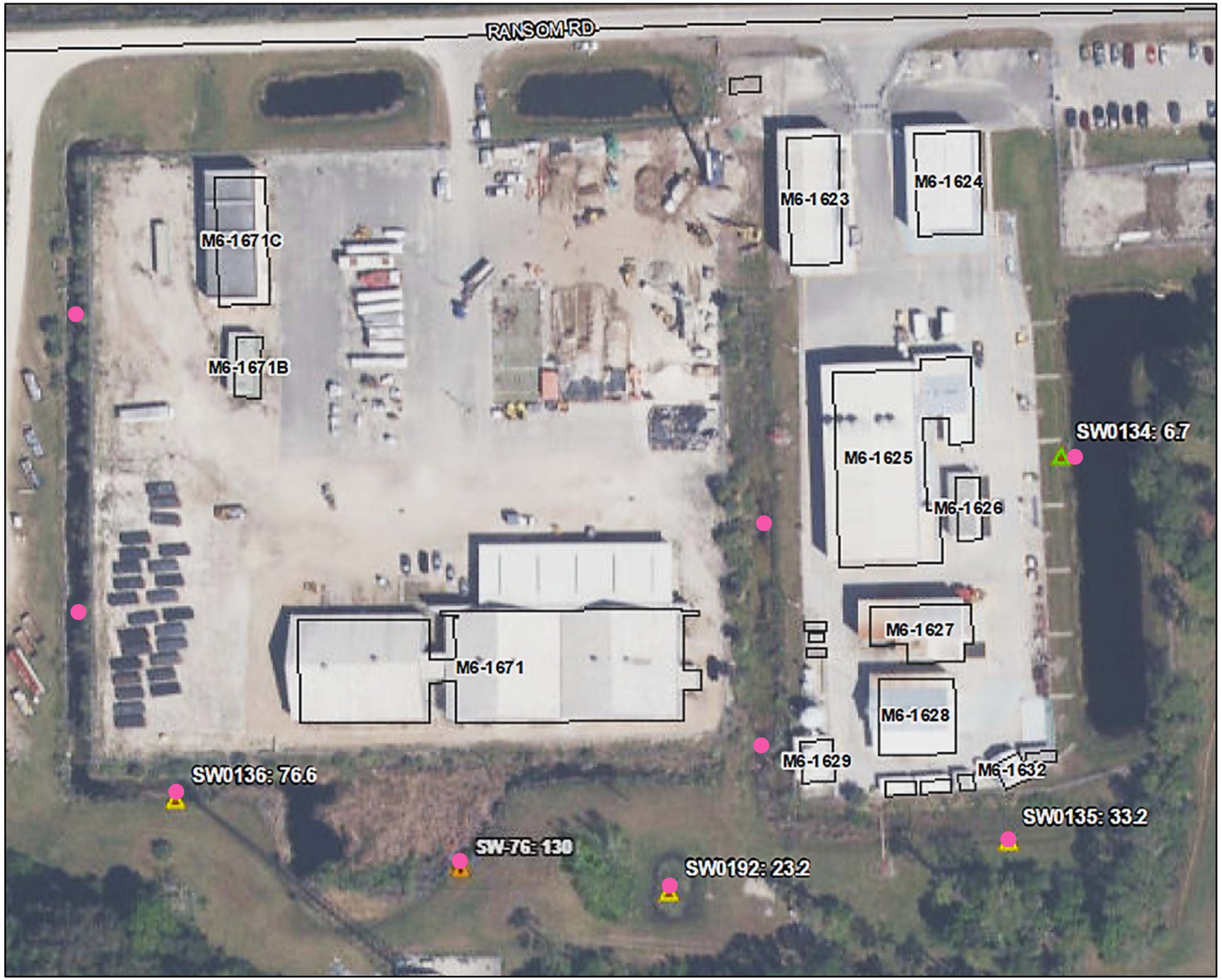
0 70 140 Feet

Site-Wide PFAS Surface Water Sampling – Test Consensus

- Collect 9 surface water samples for PFAS analysis from the water bodies surrounding the site as shown on the figure

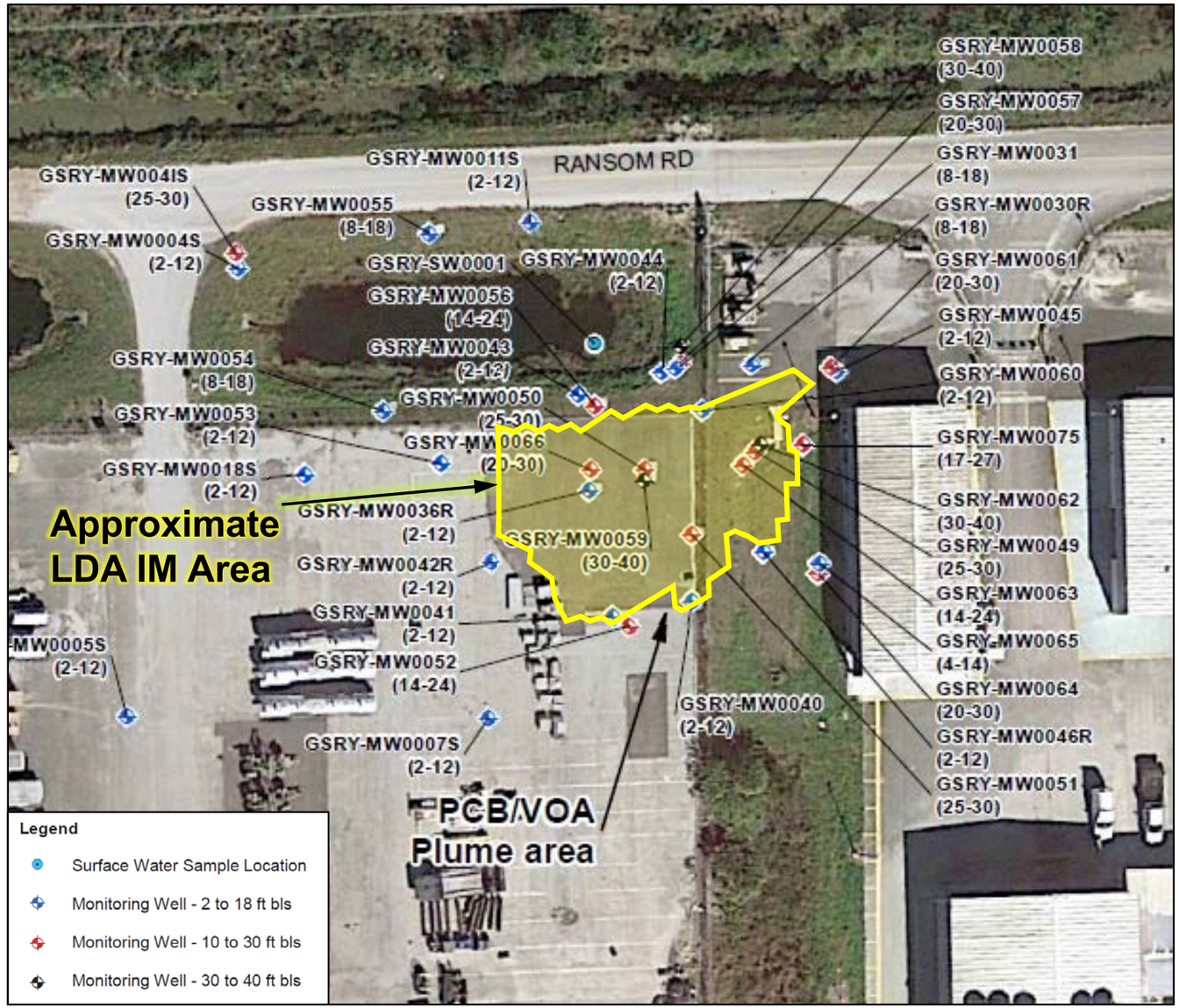
● Proposed Surface Water Sample





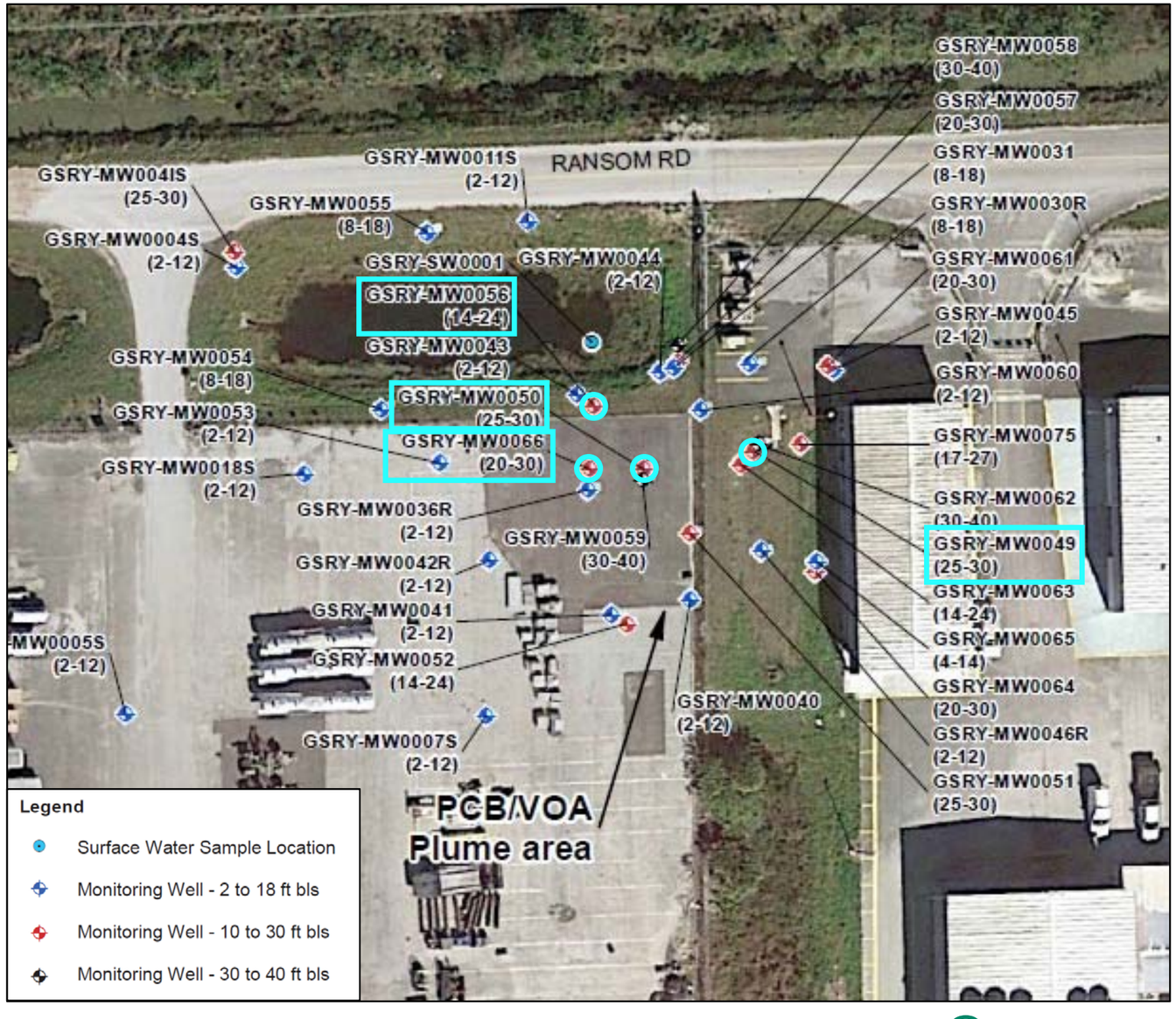
PCB/VOA Plume Area – General Background

- Dielectric fluid releases occurred from stored equipment
- PCBs and chlorobenzene compounds were present in the northeast area of the site
- Impacted soils resulted in dissolved PCB and chlorobenzene groundwater contamination
- 1999 through 2015
  - Resource Conservation and Recovery Act Facility Investigation (RFI)
  - Several Interim Measures (IMs) conducted using excavation for PCB-impacted soils
  - Corrective Measures Study for soils and groundwater conducted
  - Several events in which additional sampling for groundwater and soils were conducted
- 2018 – Large Diameter Auger (LDA) IM
  - LDA to depths of up to 25 feet below land surface in conjunction with conventional excavation for shallower soils up to 7 feet bls
  - Persulfate and ferric iron mixture was added to the bottom of select LDA borings where PCBs were greater than 1 ppm, which warranted underground injection control (UIC) monitoring



PCB/VOA Plume Area – General Background

- Sept 2018 through Feb 2019 – Installed 21 monitoring wells in the IM area
- Sept 2018 through May 2021 – Conducted four semi-annual sampling events
  - 27 to 29 monitoring wells sampled per event
  - One surface water sample was collected from the northeast pond during some of the events
  - Installed MW0066 in Feb 2020 for delineation to the west
  - Installed MW0075 in Oct 2020 for delineation to the east
- May 2021 – Collected samples from 28 monitoring wells and one surface water sample
  - Chlorobenzenes detected above State of Florida Groundwater Cleanup Target Levels (GCTLs) in MW0049, MW0050, MW0056, and MW0066
  - PCBs detected above the GCTL in MW0050 in May 2021
  - In June 2021 MW0050 was redeveloped and resampled; however, PCBs remained above the GCTL
  - Sampling frequency was changed to annual



PCB/VOA Plume Area – Scope of Work

November 2021 – Direct Push Technology (DPT) Groundwater Sampling:

- Three days of groundwater sampling from temporary sample points installed using DPT along with an on-site mobile lab
  - 70 samples collected from 10 boring locations
  - Samples analyzed for Site volatile organic compounds (VOCs):
    - benzene
    - chlorobenzene
    - 1,2 – dichlorobenzene (12DCB)
    - 1,3 – dichlorobenzene (13DCB)
    - 1,4 – dichlorobenzene (14DCB)
    - 1,2,3 – trichlorobenzene (123TCB)
    - 1,2,4 – trichlorobenzene (124TCB)

December 2021 – Annual Groundwater Monitoring:

- Three wells (MW0002IS, MW0049, and MW0050) were redeveloped prior to sampling
  - MW0002IS – redeveloped due to length of time since last sampled
  - MW0049 and MW0050 – redeveloped due to elevated total dissolve solids (TDS)
- Groundwater samples collected from 29 monitoring wells and analyzed for one or more of the following:
  - Site VOCs (see list above)
  - Total PCBs
  - UIC Parameters: sulfate, iron, manganese, sodium, or TDS
- One surface water sample was collected from the northeast retention pond and analyzed for Site VOCs and total PCBs


Northeast Retention Pond


PCB/VOA Plume - LDA IM Area

PCB/VOA Plume Area – December 2021 Groundwater Sampling Plan

Well ID	Screen Interval (feet bls)	Sampled					
		Site VOCs	PCBs	Sulfate	Fe, Mn, Na	TDS	PFAS
MW0002IS	25 to 30			X	X	X	X
MW0011S	2 to 12		X				
MW0030R	8 to 18	X	X				
MW0031	8 to 18	X	X				
MW0036R	2 to 12	X	X				
MW0040	2 to 12	X	X				
MW0041	2 to 12	X	X				
MW0042R	2 to 12	X	X				
MW0043	2 to 12	X	X				
MW0044	2 to 12	X	X				
MW0046R	2 to 12	X	X				
MW0049	25 to 30	X	X	X	X	X	
MW0050	25 to 30	X	X	X	X	X	
MW0051	25 to 30	X	X				
MW0052	14 to 24	X	X				
MW0053	2 to 12	X	X				
MW0054	8 to 18	X	X				
MW0055	8 to 18	X	X				X
MW0056	14 to 24	X	X				
MW0057	20 to 30	X	X	X	X	X	
MW0058	30 to 40	X	X				X
MW0059	30 to 40	X	X				X
MW0060	2 to 12	X	X				
MW0061	20 to 30	X		X	X	X	
MW0062	30 to 40	X	X				
MW0063	14 to 24	X	X				
MW0064	20 to 30	X		X	X	X	X
MW0066	20 to 30	X	X	X	X	X	X
MW0075	17 to 27	X					
SW0001	NA	X	X				

VOC – Volatile Organic Compound; Fe – Iron; Mn – Manganese; Na – Sodium; TDS – Total Dissolved Solids; PCBs – Polychlorinated Biphenyls; PFAS – Per- and Polyfluoroalkyl Substances

PCB/VOA Plume Area – Groundwater and Surface Water Analytical Results

- VOCs:
  - DPT groundwater samples had detections of chlorobenzene, 12DCB, 13DCB, and 14DCB in concentrations below GCTLs
  - Chlorobenzenes were above GCTLs in 2 wells
  - Chlorobenzene was above the GCTL for the first time in MW00049 and has shown an increasing trend since Dec 2019
  - 13DCB and 14DCB have fluctuated in MW0049 since Dec 2019
  - 14DCB and 124TCB have decreased in MW0050 since Dec 2019
  - 14DCB was below the GCTL in MW0056 and MW0066
  - No wells had detections of Site VOCs above GCTLs that were screened in the 2 to 18 feet bls or 30 to 40 feet bls zones
- PCBs:
  - No detections of PCBs in the wells sampled
- No wells had concentrations above State of Florida Natural Attenuation Default Concentrations (NADCs)
- The surface water sample SW0001 had detections of chlorobenzene and 14DCB, however, the concentrations were below the State of Florida Surface Water Criteria for Freshwater

MW ID	Screened Interval	Sample Date	Benzene	Chloro-benzene	13DCB	13DCB	14DCB	123TCB	124TCB	PCBs
GCTL			1	100	600	210	75	70	70	0.5
NADC			100	1,000	6,000	2,100	7,500	700	700	50
Units	feet bls		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW0049	25 to 30	9/27/2018	3.6 U	3.6 U	**16**	**22**	**39**	**73**	**350**	0.46 U
		2/15/2019	3.6 U	3.6 U	**8.6**	**17**	**52**	**82**	**460**	0.43 U
		12/16/2019	1.6 U	**13.6**	**10.9**	**490**	**268**	3.1 U	**71.7**	0.22 U
		5/20/2020	**0.34 I**	**28.6**	**5.0**	**1140**	**369**	0.61 U	**3.1**	0.21 U
		12/9/2020	3.1 U	**35.1**	**3.4 I**	**766**	**249**	6.1 U	5.0 U	0.20 U
		12/14/2020	3.1 U	**29.1**	3.2 U	**641**	**213**	6.1 U	5.0 U	
		5/19/2021	1.1 U	**61.9**	**2.9 I**	**949**	**317**	1.4 U	1.1 U	**0.49**
		12/8/2021	7.1 U	**110**	7.3 U	**1,100**	**350**	8.6 U	**20**	0.50 U
MW0050	25 to 30	9/27/2018	7.1 U	7.2 U	**12**	**47**	**82**	**130**	**950**	0.50 U
		2/14/2019	0.71 U	**15**	**2.1**	**16**	**49**	**13**	**88**	0.50 U
		12/18/2019	0.31 U	**53.8**	**34.4**	**189**	**359**	**25.0**	**206**	**0.99**
		5/19/2020	0.78 U	**24.1**	**16.0**	**106**	**220**	**8.2**	**77.5**	0.20 U
		12/9/2020	1.6 U	**32.6**	**16.6**	**145**	**299**	**14.5**	**120**	0.20 U
		12/14/2020	1.6 U	**32.5**	**15.2**	**136**	**291**	**11**	**107**	
		5/18/2021	0.23 U	**32.9**	**15.1**	**121**	**240 L**	**10.3**	**93**	**2.8**
		6/16/2021	0.78 U	**30.7**	**10.7**	**95.9**	**206**	**7.5**	**65.7**	**0.81**
		12/9/2021	0.71 U	**31**	**11**	**110**	**210**	**14**	**110**	0.50 U
MW0056	14 to 24	2/15/2019	**0.74 I**	**40**	**1.1**	**20**	**48**	0.86 U	0.70 U	0.50 U
		12/17/2019	0.31 U	**3.6**	**0.42 I**	**11.0**	**15.3**	0.61 U	0.50 U	0.21 U
		5/20/2020	0.31 U	**15.9**	**1.6**	**37.6**	**73.6**	0.61 U	0.50 U	0.20 U
		12/11/2020	0.31 U	**13.2**	**0.96 I**	**31.3**	**50.5**	0.61 U	0.50 U	0.20 U
		5/19/2021	0.23 U	**21.3**	**1.8**	**53.3**	**98.4**	0.28 U	0.21 U	0.20 U
		12/8/2021	0.71 U	**17**	**1.3**	**61**	**65**	0.86 U	0.70 U	0.50 U
MW0066	20 to 30	5/19/2020	**0.72 I**	**3.9**	0.32 U	**1.2**	**3.6**	0.61 U	0.50 U	0.19 U
		12/9/2020	**0.94 I**	**12.9**	**1.1**	**22.7**	**45**	0.61 U	0.50 U	0.20 U
		12/14/2020	**1.1**	**13.3**	**1.3**	**25.2**	**53.5**	0.61 U	0.50 U	
		5/18/2021	0.23 U	**6.5**	**2.1**	**25.9**	**78.9**	0.28 U	0.21 U	0.20 U
		12/9/2021	0.71 U	**16**	**1.3**	**19**	**46**	0.86 U	0.70 U	0.50 U

Notes: Detections are **bolded;** GCTL exceedances are **red bolded**; NADC exceedances are highlighted yellow; DCB = dichlorobenzene; TCB = trichlorobenzene; I = The analyte was detected, but below quantitation limits; U = The analyte was not detected; L = Value Exceeds Calibration Range; Blank Cell = Not Sampled; bls – below land surface; µg/L = micrograms per liter

PCB/VOA Plume Area – GW and SW Analytical Results – 2 to 18 feet bls

- Chlorobenzene compounds were detected below GCTLs at various locations
- No Site Contaminants of Concern (COCs) have been above GCTLs for at least three consecutive events

Legend

- Surface Water Sample Location
- Monitoring Well - 2 to 18 feet bls
- DPT (Direct Push Technology) Location

N

0 50 100 Feet

Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50



GSRY-MW0011S (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
01/06/2017								0.5 U
05/19/2020								0.19 U
12/10/2020								0.20 U
05/19/2021								0.20 U
12/8/2021								0.50 U

GSRY-MW0015S (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/14/2019	0.71 U	2.0	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**0.96 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/20/2020	0.31 U	**0.51 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	**8.2**	0.50 U	0.50 U	**0.99**	2.0 U	2.0 U
	10-14	0.50 U	27	0.50 U	0.50 U	1.4	2.0 U	2.0 U
	14-18	0.50 U	**5.8**	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0045 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
01/06/2017								0.5 U

GSRY-MW0054 (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/14/2019	0.71 U	57	0.73 U	0.77 U	1.0	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**41.2**	0.32 U	**1.4**	**3.8**	0.61 U	0.50 U	
05/20/2020	0.31 U	**11.3**	0.32 U	**0.58 I**	**1.4**	0.61 U	0.50 U	0.20 U
12/09-10/2020	0.31 U	**7.2**	0.32 U	**2.3**	**4.5**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	**3.3**	0.14 U	**0.25 I**	**0.57 I**	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	**1.2**	0.73 U	**1.0**	**1.4**	0.86 U	0.70 U	0.50 U

GSRY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	**14**	0.50 U	7.5	**14**	2.0 U	2.0 U

GSRY-MW0053 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/12/2019	0.71 U	**10**	0.73 U	**1.9**	**4.0**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**25**	**0.78 I**	**4.0**	**18.6**	0.61 U	0.50 U	0.20 U
05/19/2020	0.31 U	**6.5**	0.32 U	1.7	4.7	0.61 U	0.50 U	0.19 U
12/11/2020	0.31 U	**4.3**	0.32 U	**0.90 I**	2.7	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	**3.1**	0.14 U	**0.87 I**	**1.8**	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	**2.1**	0.73 U	**3.0**	**2.0**	0.86 U	0.70 U	0.50 U

GSRY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0043 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								1.7
01/06/2017								0.5 U
03/15/2019	0.71 U	**43**	**2.2**	**13**	**23**	**1.5**	**13**	0.50 U
12/17/2019	0.31 U	**7.3**	**0.80 I**	**6.0**	**12.1**	0.61 U	**3.1**	2.7
05/21/2020	0.31 UJ	**9.9 J**	**1.0 J**	**3.0 J**	**8.2 J**	**0.72 IJ**	**4.4 J**	0.20 U
12/09/2020	0.31 U	**10.8**	**1.4**	**31.6**	**43.3**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	**11.9**	**0.89 I**	**30.5**	**44.8**	0.61 U	**0.50 I**	
05/19/2021	0.23 U	**2**	**0.25 I**	**1.4**	**8.3**	0.28 U	**0.74 I**	0.20 U
12/8/2021	0.71 U	**6.6**	**0.75 I**	**4.2**	**23**	0.86 U	0.70 U	0.50 U

GSRY-MW0042R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/13/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**2.3**	0.32 U	**0.69 I**	**3.5**	0.61 U	0.50 U	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.30 I**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-SW0001

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/21/2016								0.50 U
03/13/2019	0.71 U	0.72 I	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/10/2020								0.20 U
05/20/2021	0.23 U	**0.47 I**	0.14 U	0.21 U	**0.46 I**	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0041 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/14/2016								0.5 U
02/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09-10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0036R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	**2.4**	**36**	**4.0**	**6.7**	**12**	0.86 U	**1.8**	0.50 U
12/17/2019	**2.8**	**78.2**	**3.2**	**10.3**	**13.9**	**1.2 I**	**6.6**	**0.77 J**
05/19/2020	**2.1**	**50.2**	**15.5**	**9.4**	**21.6**	**1.4 I**	**5.9**	0.19 U
12/09/2020	**0.80 I**	**24.3**	**1.6**	**3.4**	**6.8**	0.61 U	**1.1 I**	0.20 U
12/14/2020	**1.1**	**26.7**	**1.5**	**3.5**	**6.9**	0.61 U	**0.85 I**	
05/18/2021	**1.4**	**35.2**	**5.6**	**6.5**	**14.9**	1.9	**4.5**	0.20 U
12/9/2021	**0.83 I**	**19**	**1.9**	**3.2**	**7.9**	0.86 U	**2.1**	0.50 U

GSRY-MW0040 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
02/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	**0.27 I**	0.61 U	0.50 U	
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0030R (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.19 U
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0045 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
01/06/2017								0.5 U
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U

GSRY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	6-10	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0031 (8-18)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.22 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	**0.55 I**	0.61 U	0.50 U	0.19 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0044 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/13/2016								0.5 U
2/15/2019	0.71 U	0.72 U	0.73 U	**1.4**	**3.5**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	**0.38 I**	0.32 U	**0.34 I**	**0.64 I**	0.61 U	0.50 U	0.22 U
5/20/2020	0.31 U	0.20 U	0.32 U	**0.39 I**	**0.87 I**	0.61 U	0.50 U	0.19 U
12/8/2020	0.31 U	**0.63 I**	0.32 U	**0.55 I**	**2.3**	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	**1.3**	0.32 U	**0.99 I**	**4.1**	0.61 U	0.50 U	
5/18/2021	0.23 U	**0.93 I**	**0.27 I**	**0.83 I**	**3.1**	0.28 U	0.21 U	0.20 U
12/8/2021	0.71 U	**1.0**	0.73 U	0.77 U	**2.5**	0.86 U	0.70 U	0.50 U

GSRY-MW0060 (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	1.4 U	2.2	1.5 U	1.5 U	**1.7 I**	1.7 U	**4.8**	0.50 U
12/17/2019	**0.32 IQ**	**6.5 Q**	**0.36 IQ**	**0.89 IQ**	**3.5 Q**	**2.0 Q**	**4.7 Q**	0.20 U
05/19/2020	**0.36 I**	**5.6**	0.32 U	**0.74 I**	**2.6**	**1.9 I**	**3.7**	0.21 U
12/09/2020	**0.31 I**	**4.3**	**0.35 I**	**0.85 I**	**2.7**	**1.7 I**	**3.2**	0.21 U
05/18/2021	**0.37 I**	0.16 U	**0.42 I**	**1**	**3.2**	**2.3**	**4.4**	0.20 U
12/08/2021	0.71 U	**1.2**	0.73 U	**1.9**	**2.7**	0.86 U	**1.0**	0.50 U

GSRY-MW0065 (4-14)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/12/2019	0.71 U	**0.84 I**	0.73 U	0.77 U	**0.77 I**	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	

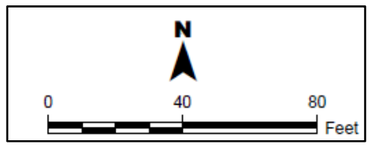
GSRY-MW0046R (2-12)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.21 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

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PCB/VOA Plume Area – GW and SW Analytical Results – 10 to 30 feet bls

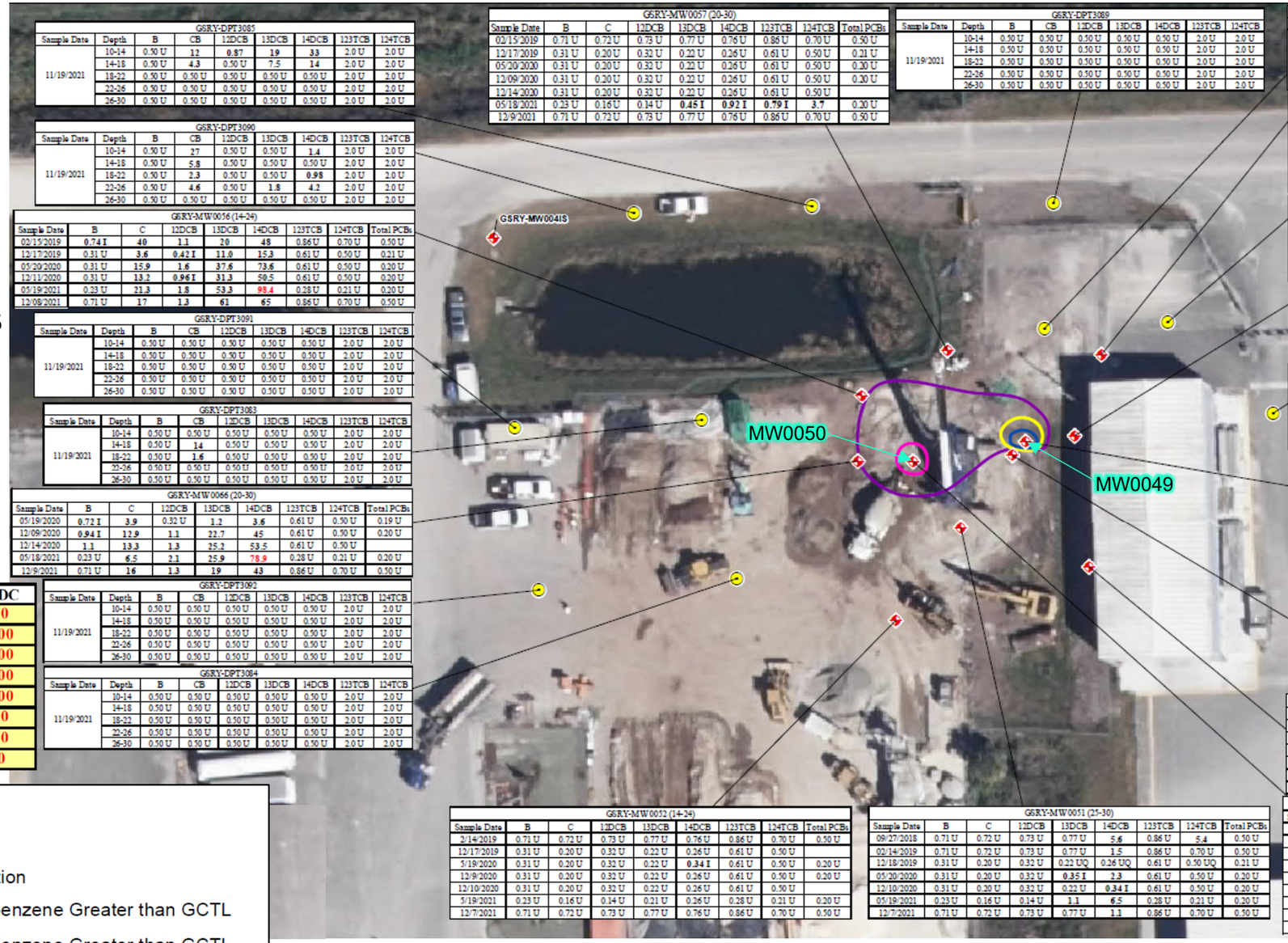
- MW0049 and MW0050 were above the GCTL for chlorobenzene compounds
- Remaining wells were below GCTLs
- No wells above NADCs



Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50

Legend

- Monitoring Well - 10 to 30 feet bls
- DPT (Direct Push Technology) Location
- Approximate Extent of 1,3-Dichlorobenzene Greater than GCTL
- Approximate Extent of 1,4-Dichlorobenzene Greater than GCTL
- Approximate Extent of 1,2,4-Trichlorobenzene Greater than GCTL
- Approximate Extent of Chlorobenzene Greater than GCTL



G6RY-DPT3085

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	12	0.87	19	33	2.0 U	2.0 U
	14-18	0.50 U	4.3	0.50 U	7.5	14	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	27	0.50 U	0.50 U	1.4	2.0 U	2.0 U
	14-18	0.50 U	5.8	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	2.3	0.50 U	0.50 U	0.98	2.0 U	2.0 U
	22-26	0.50 U	4.6	0.50 U	1.8	4.2	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0056 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.74 I	40	1.1	20	48	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	3.6	0.42 I	11.0	15.3	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	15.9	1.6	37.6	73.6	0.61 U	0.50 U	0.20 U
12/11/2020	0.31 U	13.2	0.96 I	31.3	59.5	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	21.3	1.8	53.3	98.4	0.28 U	0.21 U	0.20 U
12/08/2021	0.71 U	17	1.3	61	65	0.86 U	0.70 U	0.50 U

G6RY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	14	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	1.6	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0066 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
05/19/2020	0.72 I	3.9	0.32 U	1.2	3.6	0.61 U	0.50 U	0.19 U
12/09/2020	0.94 I	12.9	1.1	22.7	45	0.61 U	0.50 U	0.20 U
12/14/2020	1.1	13.3	1.3	25.2	53.5	0.61 U	0.50 U	
05/18/2021	0.23 U	6.5	2.1	25.9	78.9	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	16	1.3	19	43	0.86 U	0.70 U	0.50 U

G6RY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0057 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.45 I	0.92 I	0.79 I	3.7	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

G6RY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0061 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/16/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/21/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 I	
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	

G6RY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0075 (17-27)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
12/09/2020	0.31 U	1.3	0.32 U	7.2	7.1	0.61 U	0.50 U	
12/14/2020	0.31 U	1.4	0.32 U	8.2	8.3	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 I	0.49 I	0.28 U	0.21 U	
12/7/2021	0.71 U	5.6	0.73 U	20	13	0.86 U	0.70 U	

G6RY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	10-14	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	14-18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	18-22	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	22-26	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U
	26-30	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

G6RY-MW0049 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	3.6 U	3.6 U	16	22	39	73	350	0.50 U
02/15/2019	3.6 U	3.6 U	8.6	17	52	82	460	0.50 U
12/16/2019	1.6 U	13.6	10.9	490	268	3.1 U	71.7	0.22 U
05/20/2020	0.34 I	28.6	5.0	1140	369	0.61 U	3.1	0.21 U
12/09/2020	3.1 U	35.1	3.4 I	766	249	6.1 U	5.0 U	0.20 U
12/14/2020	3.1 U	29.1	3.2 U	641	213	6.1 U	5.0 U	
05/19/2021	1.1 U	61.9	2.9 I	949	317	1.4 U	1.1 U	0.49
12/8/2021	7.1 U	110	7.3 U	1100	350	8.6 U	20	0.50 U

G6RY-MW0063 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/05/2019	0.86 I	6.4	0.88 I	14	26	5.3	41	0.50 U
12/16/2019	1.2 J	22.3	4.8	144 J	108 J	2.6	28.6	0.21 U
05/21/2020	0.44 I	13.9	1.3	76.2	80.1	0.61 U	2.2	0.21 U
12/09/2020	1.6 U	35	1.6 I	245	138	3.1 U	2.5 U	0.21 U
12/14/2020	0.62 U	30.8	1.1 I	163	104	1.2 U	1.0 U	
05/19/2021	0.27 I	15.1	0.90 I	76.2	59.3	0.28 U	0.34 I	0.21 U
12/8/2021	0.71 U	24	1.0	99	58	0.86 U	0.70 U	0.50 U

G6RY-MW0064 (20-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/12/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
12/11/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.31 I	0.61 U	0.50 U	
05/20/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	
12/8/2021	0.71 U	0.72 U	0.73 U	2.2	1.5	0.86 U	0.70 U	

G6RY-MW0050 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	7.1 U	7.2 U	12	47	82	130	950	0.50 U
02/14/2019	0.71 U	15	2.1	16	49	13	88	0.50 U
12/18/2019	0.31 U	53.8	34.4	189 Q	359 Q	25.0	206 Q	0.99
05/19/2020	0.78 U	24.1	16.0	106	220	8.2	77.5	0.20 U
12/09/2020	1.6 U	32.6	16.6	145	299	14.5	120	0.20 U
12/14/2020	1.6 U	32.5	15.2	136	291	11	107	
05/18/2021	0.23 U	32.9	15.1	121	240 L	10.3	93	2.8
06/16/2021	0.78 U	30.7	10.7	95.9	206	7.5	65.7	0.81
12/9/2021	0.71 U	31	11	110	210	14	110	0.50 U

G6RY-MW0052 (14-24)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
2/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
5/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.34 I	0.61 U	0.50 U	0.20 U
12/9/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
5/19/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

G6RY-MW0051 (25-30)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
09/27/2018	0.71 U	0.72 U	0.73 U	0.77 U	5.6	0.86 U	5.4	0.50 U
02/14/2019	0.71 U	0.72 U	0.73 U	0.77 U	1.5	0.86 U	0.70 U	0.50 U
12/18/2019	0.31 U	0.20 U	0.32 U	0.22 UQ	0.26 UQ	0.61 U	0.50 UQ	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.35 I	2.3	0.61 U	0.50 U	0.20 U
12/10/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.34 I	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	0.16 U	0.14 U	1.1	6.5	0.28 U	0.21 U	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	1.1	0.86 U	0.70 U	0.50 U

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PCB/VOA Plume Area – GW and SW Analytical Results – 30 to 40 feet bls

No Site COCs have been above GCTLs for at least three consecutive events

Abbreviation	Analyte	GCTL	NADC
B	Benzene	1	100
C	Chlorobenzene	100	1000
12DCB	1,2-Dichlorobenzene	600	6000
13DCB	1,3-Dichlorobenzene	210	2100
14DCB	1,4-Dichlorobenzene	75	7500
123TCB	1,2,3-Trichlorobenzene	70	700
124TCB	1,2,4-Trichlorobenzene	70	700
Total PCBs	Total PCBs	0.5	50

RANSOM RD

GSRY-DPT3090

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3085

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0058 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
02/15/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/17/2019	0.31 UQ	0.20 UQ	0.32 UQ	0.22 UQ	0.26 UQ	0.61 UQ	0.50 UQ	0.21 U
05/20/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	**0.36 I**	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3089

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3088

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3083

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	1.4	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3086

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3091

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3087

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-DPT3084

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

GSRY-MW0059 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/04/2019	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U
12/18/2019	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
05/19/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.21 U
12/09/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.20 U
12/14/2020	0.31 U	0.20 U	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	
05/18/2021	0.23 U	0.16 U	0.14 U	0.21 U	0.26 U	0.28 U	0.21 U	0.20 U
12/9/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-MW0062 (30-40)

Sample Date	B	C	12DCB	13DCB	14DCB	123TCB	124TCB	Total PCBs
03/05/2019	0.71 U	0.72 U	0.73 U	0.77 U	**1.3**	**5.9**	55	2.2
03/20/2019	0.71 U	**6.9**	**0.91 I**	**1.4**	**23**	**2.4**	21	0.50 U
12/16/2019	0.31 U	**0.59 I**	0.32 U	0.22 U	0.26 U	0.61 U	0.50 U	0.56
05/19/2020	0.31 U	**0.37 I**	0.32 U	**0.54 I**	**3.1**	0.61 U	**0.98 I**	0.77
06/17/2020								**0.42**
12/09/2020	0.31 U	**0.31 I**	0.32 U	0.22 U	**0.60 I**	0.61 U	0.50 U	0.20 U
05/19/2021	0.23 U	**0.25 I**	0.14 U	0.21 U	**0.65 I**	**0.59 I**	**0.43 I**	0.20 U
12/7/2021	0.71 U	0.72 U	0.73 U	0.77 U	0.76 U	0.86 U	0.70 U	0.50 U

GSRY-DPT3092

Sample Date	Depth	B	CB	12DCB	13DCB	14DCB	123TCB	124TCB
11/19/2021	30-34	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U	2.0 U

Legend

- Monitoring Well - 30 to 40 feet bls
- DPT (Direct Push Technology) Location

N

0 40 80 Feet

PCB/VOA Plume Area – UIC Monitoring

- UIC monitoring is being conducted due to a persulfate and ferric iron mixture that was added to the bottom of select LDA borings during the 2018 IM
- UIC parameters will be monitored until results from two consecutive sampling events meet target levels.
- No baseline samples were collected prior to the addition of the persulfate and iron mixture; therefore, monitoring well MW0002IS, which was the farthest well from the IM area with a corresponding interval, was selected and sampled in December 2021 to represent the site-specific background concentrations. Based on those results, the following target level criteria are proposed for the PCB/VOA Plume Area UIC sampling program:

UIC Parameter	Target Level	Applicable Screening Standard
Sulfate	250,000 µg/L	State of Florida GCTL
Iron	1,300 µg/L	Site-Specific Background Concentration
Manganese	50 µg/L	State of Florida GCTL
Sodium	204,000 µg/L	Site-Specific Background Concentration
TDS	1,100,000 µg/L	Site-Specific Background Concentration

PCB/VOA Plume Area – UIC Monitoring

- 7 monitoring wells sampled
- UIC parameters: sulfate, Fe, Mn, Na, and TDS
- MW0049, MW0050, and MW0066 were above the GCTL for sulfate and above the site-specific background concentration for iron and sodium
- MW0050 and MW0066 were above the site-specific background concentration for TDS
- MW0049 was above the GCTL for manganese



MW ID	Screened Interval	Sample Date	Sulfate	Iron	Manganese	Sodium	TDS
Target Level			250,000	1,300	50	204,000	1,100,000
Units	feet bls		µg/L	µg/L	µg/L	µg/L	µg/L
MW0002IS	25 to 30	12/10/21	**160 I**	**1,300**	**20.4**	**204,000 V**	**1,100,000**
MW0049	25 to 30	5/20/2020	**3,580,000**	**57,800**	**260**	**1,720,000**	**7,610,000**
		12/9/2020	**2,370,000**	**37,300**	**191**	**1,150,000**	**5,750,000**
		5/16/2021	**2,770,000**	**47,900**	**259**	**1,230,000**	**5,590,000**
		12/8/2021	**3,200,000**	**48,000**	**246**	**3,650,000 V**	**480,000**
MW0050	25 to 30	5/19/2020	**279,000**	**1,450**	**28.2**	**295,000**	**1,430,000**
		12/9/2020	**116,000**	**1,660**	**27.1**	**214,000**	**1,112,000**
		5/18/2021	**259,000**	**1,600**	**31.5**	**234,000**	**1,310,000**
		12/9/2021	**270,000**	**2,360**	**40.8**	**239,000**	**1,200,000**
MW0057	20 to 30	5/20/2020	3,000 U	**893**	**12.7 I**	**52,900**	**628,000**
		12/9/2020	6,000 U	**1,080**	**16**	**91,600**	**634,000**
		5/18/2021	600 U	**1,070**	**13.3 I**	**69,500**	**702,000**
		12/9/2021	**140 I**	**1,000**	**13.1**	**89,500 V**	**650,000**
MW0061	20 to 30	5/21/2020	3,000 U	**768**	**8.3 I**	**39,900**	**564,000**
		12/10/2020	6,000 U	**973**	**11.7 I**	**46,400**	**536,000**
		5/18/2021	600 U	**757**	**8.6 I**	**39,100**	**554,000**
		12/7/2021	**160 I**	**792**	**8.49 I**	**51,200**	**490,000**
MW0064	20 to 30	5/20/2020	3,000 U	**969**	**12.7 I**	**63,300**	**660,000**
		12/11/2020	6,000 U	**996**	**12.9 I**	**61,500**	**566,000**
		5/20/2021	600 U	**1,010**	**13.7 I**	**61,000**	**578,000**
		12/8/2021	**140 I**	**876**	**11.9**	**67,000 V**	**230,000**
MW0066	20 to 30	12/9/2020	**609,000**	**2,980**	**41.3**	**417,000**	**2,010,000**
		5/18/2021	**245,000**	**1,790**	**27.3**	**186,000**	**1,170,000**
		12/9/2021	**620,000**	**2,580**	**32.6**	**349,000 V**	**1,700,000**



Notes:

Detections are **bolded**

Target Level exceedances are **red bolded**

*Target levels for UIC sampling are GCTL for sulfate and manganese, and site-specific background** for iron, sodium, and TDS

**site-specific background concentrations are derived from the GSRY-MW0002IS, 12/10/21 analytical results

bls – below land surface

I – the analytical result was greater than or equal to the method detection limit, but less than the practical quantitation limit

U – the analyte was not detected

µg/L – micrograms per liter

V – the analyte was detected in both the sample and the associated method blank

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PCB/VOA Plume Area – Conclusions

- Groundwater results demonstrate a reduction in plume size and COC concentrations compared to baseline sampling for the 2018 IM
- In December 2021:
  - Chlorinated benzene compound COCs were detected above GCTLs in the 10 to 30 feet bls zone only
  - Chlorinated benzene compound COCs were below the GCTL in monitoring wells GSRY-MW0056 and GSRY-MW0066; therefore, no new monitoring well installations are recommended for delineation at this time.
- The localized shallow aquifer was affected by the use of flowable fill during the 2018 IM and pore volume exchange is likely slower than pre-IM, therefore, no locations or COC analytes recommended for elimination at this time although there have been two or more consecutive sampling events below GCTLs at some locations



PCB/VOA Plume Area – Test Consensus

- Perform annual monitoring at 28 monitoring wells and one surface water location
  - Same VOA and PCB analytes for each location as in December 2021
- Discontinue UIC monitoring at GSRY-MW0057, GSRY-MW0061, and GSRY-MW0064
- Continue annual UIC monitoring at GSRY-MW0049,GSRY-MW0050, and GSRY-MW0066 for UIC parameters: sulfate, Fe, Mn, Na, and TDS



PCB/VOA Plume Area – Proposed Monitoring Well Sampling Table

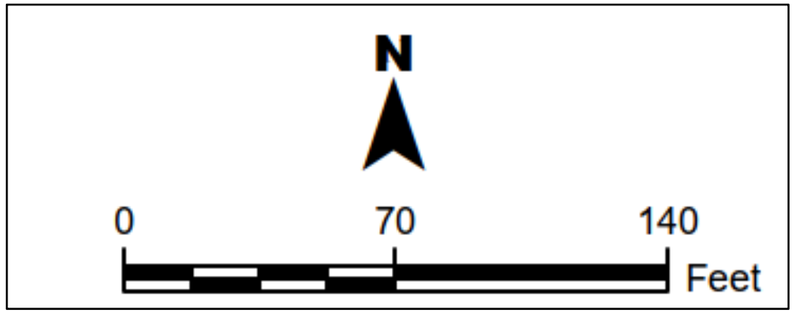
Well ID	Screen Interval (feet bls)	Site VOCs	PCBs	Sulfate	Fe	Mn	Na	TDS
MW0011S	2 to 12		X					
MW0030R	8 to 18	X	X					
MW0031	8 to 18	X	X					
MW0036R	2 to 12	X	X					
MW0040	2 to 12	X	X					
MW0041	2 to 12	X	X					
MW0042R	2 to 12	X	X					
MW0043	2 to 12	X	X					
MW0044	2 to 12	X	X					
MW0046R	2 to 12	X	X					
MW0049	25 to 30	X	X	X	X	X	X	X
MW0050	25 to 30	X	X	X	X	X	X	X
MW0051	25 to 30	X	X					
MW0052	14 to 24	X	X					
MW0053	2 to 12	X	X					
MW0054	8 to 18	X	X					
MW0055	8 to 18	X	X					
MW0056	14 to 24	X	X					
MW0057	20 to 30	X	X					
MW0058	30 to 40	X	X					
MW0059	30 to 40	X	X					
MW0060	2 to 12	X	X					
MW0061	20 to 30	X						
MW0062	30 to 40	X	X					
MW0063	14 to 24	X	X					
MW0064	20 to 30	X						
MW0066	20 to 30	X	X	X	X	X	X	X
MW0075	17 to 27	X						
SW0001	NA	X	X					

VOCs – Volatile Organic Compounds; Fe – Iron; Mn – Manganese; Na – Sodium; TDS – Total Dissolved Solids; PCBs – Polychlorinated Biphenyls; bls – below land surface

PCB/VOA Plume Area – Proposed Monitoring Well Location Figure

Legend

- Surface Water Sample Location
- Monitoring Well (Sample and Water Level Measurement)
- Monitoring Well (Water Level Measurement Only)





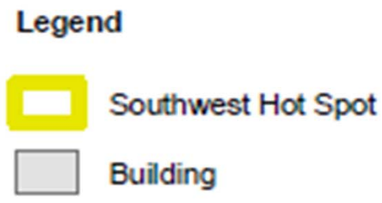


CVOC Plume Area – General Background

- Past handling practices resulted in releases of solvents
- Tetrachloroethene and possibly trichloroethene were discharged
- RFI completed from 1998 through 2005
- Several corrective measures (CMs) followed
- Site cVOCs:
  - 1,1-dichloroethene
  - cis-1,2-dichloroethene
  - trans-1,2-dichloroethene
  - tetrachloroethene
  - trichloroethene
  - vinyl chloride



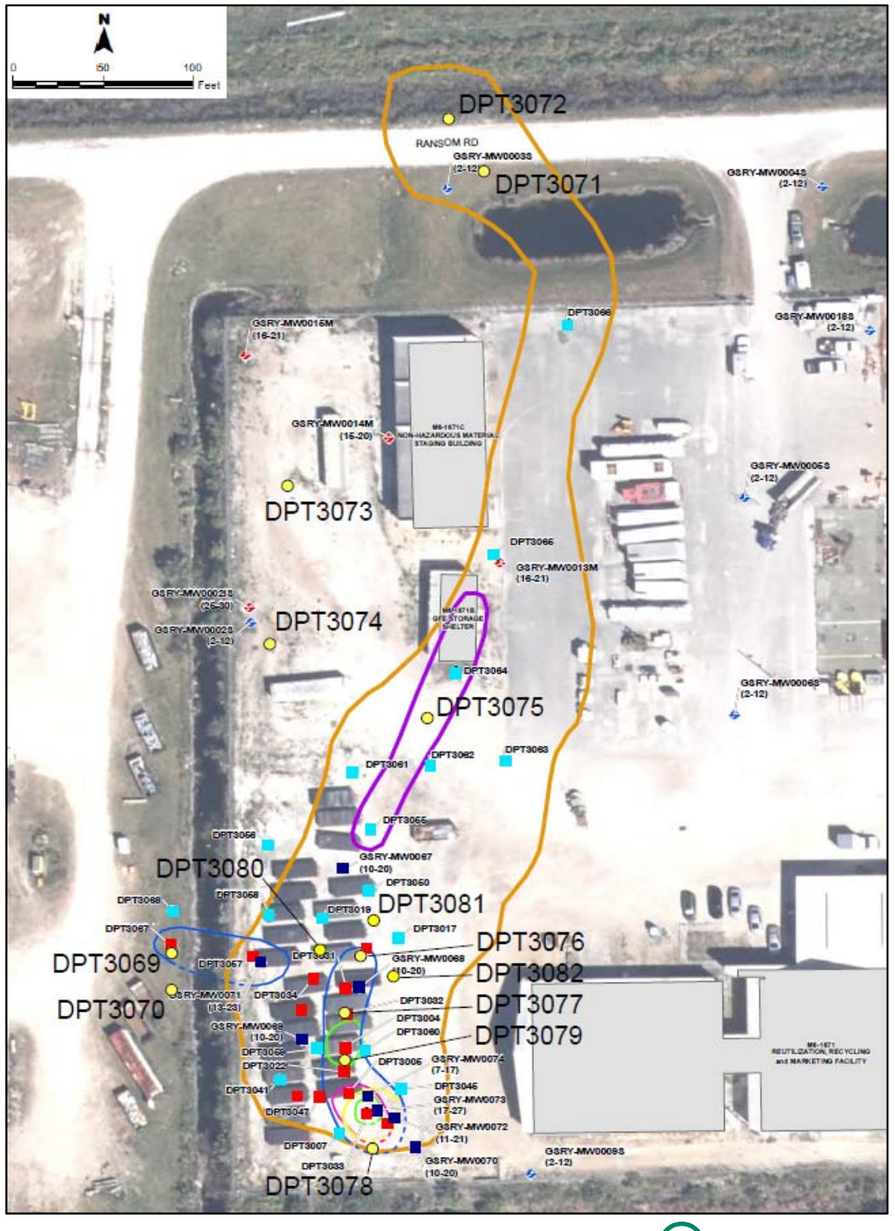




cVOC Plume Area – Post IM Groundwater Monitoring Review

- 2006 through 2017 – CMs and IMs conducted
  - Excavation of solvent-impacted soils
  - Injections of sodium permanganate
  - Enhanced reductive dechlorination (ERD) by injections of emulsified zero valent iron along with vegetable oil/lactate or emulsified vegetable oil which warranted UIC monitoring in the groundwater
- 2017 through May 2020 – Semi-annual post-IM performance monitoring
  - 2017 and 2018 – Several DPT groundwater sampling events conducted to access IM performance and overall plume extent
  - Nov 2019 – Installed 8 monitoring wells; MW0067 through MW0074
  - Dec 2019 and May 2020 Groundwater Monitoring Events – Collected samples from 8 monitoring wells and Site cVOC concentrations were at or below GCTLs for both events





Legend

- DPT Location (2018)
- Shallow Monitoring Well
- Intermediate Shallow Monitoring Well
- 2018 Tetrachloroethene (3 µg/L) (Dashed Where Inferred)
- 2018 Trichloroethene (3 µg/L) (Dashed Where Inferred)
- 2018 Vinyl Chloride (1 µg/L) (Dashed Where Inferred)
- 2018 Vinyl Chloride (100 µg/L) (Dashed Where Inferred)
- 2017 Western High Concentration Plume
- 2017 Western Low Concentration Plume
- Building
- Monitoring Well below GCTLs Sampled Since 2018
- 2018 DPT Sampling Location below GCTLs
- 2017 and 2018 DPT Sampling Location above GCTLs
- Completed 2020 DPT Sampling Location

CVOC Plume Area – Post IM Groundwater Monitoring Review

- Oct 2020 – Conducted a limited groundwater assessment via DPT and mobile lab
  - Confirmed degradation of the cVOC plumes
  - One location, DPT3076, in the north-central area of the hot spot treatment area, had detections of Site cVOCs above the GCTLs in the 15 to 19 feet bls sample interval
- Dec 2020 – Collected samples from 9 monitoring wells
  - Added MW0013M to sampling program due to a historical elevated vinyl chloride concentration above the GCTL
  - Vinyl chloride was above the GCTL in MW0074 at 4.7 µg/L
  - The remaining wells had Site cVOC concentrations below GCTLs
- May 2021 – Installed 2 new monitoring wells and collected samples from 11 monitoring wells
  - Installed MW0076 and MW0077; screened 10 to 20 feet bls
  - MW0076 is located adjacent to DPT3076 and MW0077 is located northeast of DPT3076
  - No wells had concentrations of Site cVOCs above GCTLs
  - Discontinued groundwater monitoring of MW0013M, MW0067, MW0068, MW0069, MW0070, MW0071, and MW0072
  - Discontinued UIC monitoring at MW0067 for TDS
  - Changed the sampling frequency to annual



CVOC Plume Area – UIC Monitoring

- UIC monitoring is being conducted due to chemicals that were added during ERD implementation
- UIC parameters will be monitored until results from two consecutive sampling events meet the following target levels:



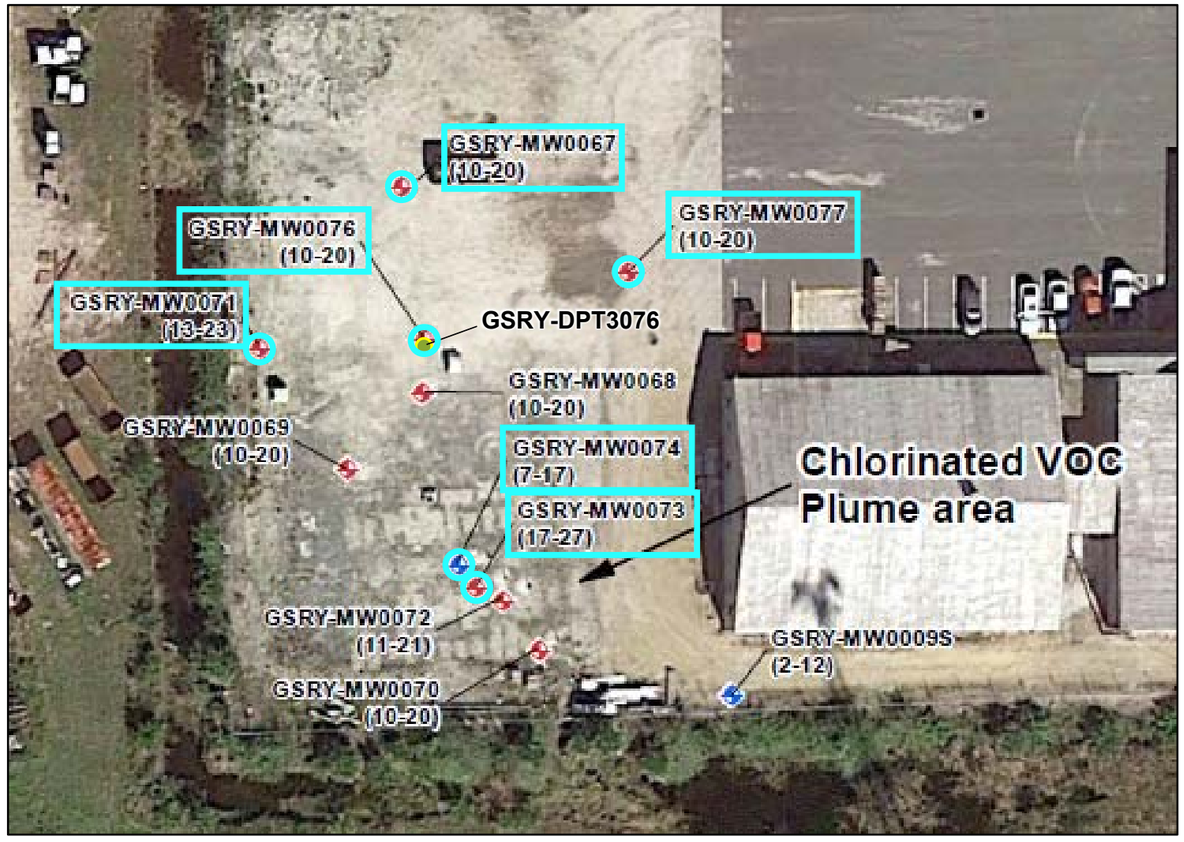
UIC Parameter	Target Level	Applicable Screening Standard
Iron	1,200 µg/L	Maximum Baseline Concentration
TDS	980,000 µg/L	Maximum Baseline Concentration

KSC – Kennedy Space Center
TDS - Total Dissolved Solids

CVOC Plume Area – Scope of Work

- MW0071 and MW0073 were redeveloped prior to sampling due to elevated TDS
- Groundwater samples were collected from 6 monitoring wells in December 2021 and analyzed for one or more of the following:
  - Site cVOCs
  - UIC Parameters: Iron or TDS





Legend

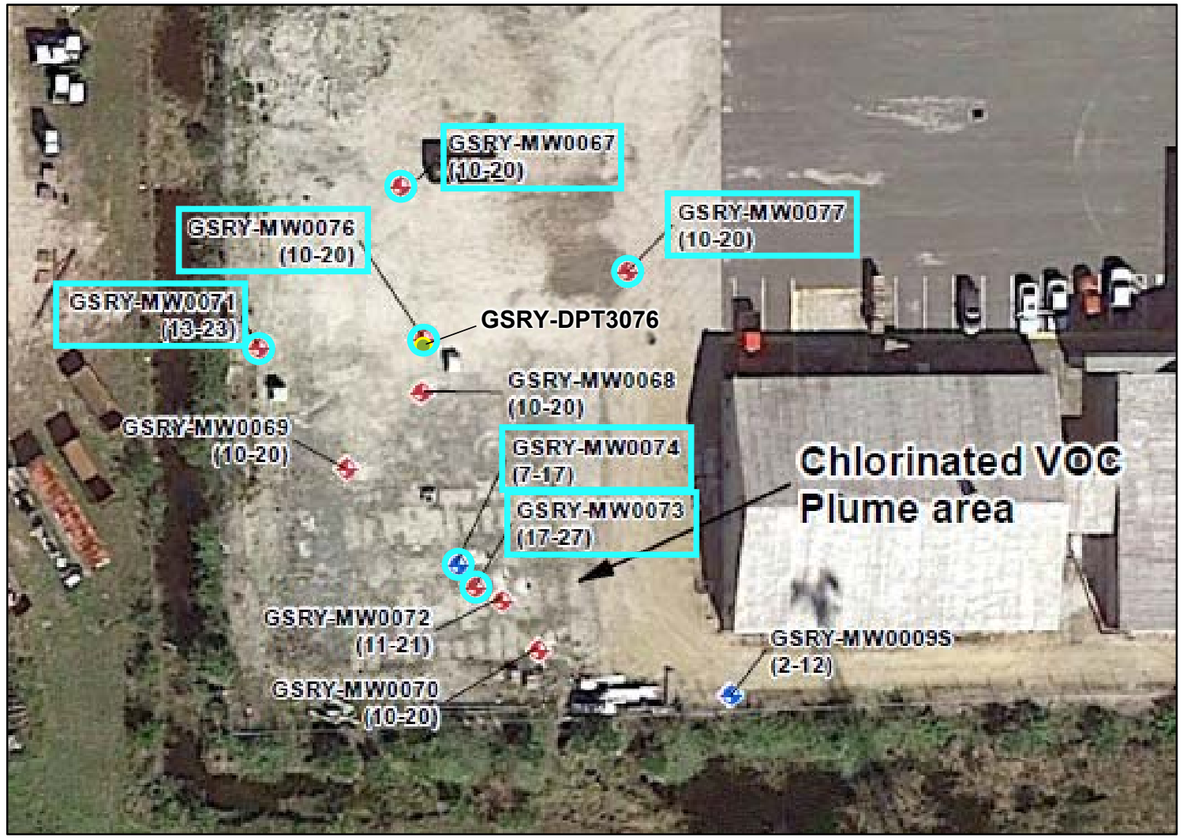
- Surface Water Sample Location
- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls
- Monitoring Well - 30 to 40 ft bls

CVOC Plume Area – Groundwater Sampling Plan

Well ID	Screen Interval (feet bls)	Sampled		
		Site cVOCs	Fe	TDS
MW0067	10 to 20		X	
MW0071	13 to 23		X	X
MW0073	17 to 27	X	X	X
MW0074	7 to 17	X		
MW0076	10 to 20	X		
MW0077	10 to 20	X		

cVOC – chlorinated volatile organic compound
Fe – iron
TDS – total dissolved solids
bls – below land surface





Legend

- Surface Water Sample Location
- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls
- Monitoring Well - 30 to 40 ft bls

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CVOC Plume Area - Groundwater
Monitoring Results and Conclusions

- Monitoring wells sampled have had no detections of Site cVOCs above GCTLs for at least two consecutive sampling events
- The December 2021 results continue to demonstrate cVOCs have been reduced below GCTLs in the CVOC Plume area which includes the ERD treatment area

Legend

- Monitoring Well - 2 to 18 ft bls
- Monitoring Well - 10 to 30 ft bls
- DPT (Direct Push Technology) Location

Abbreviation	Analyte	GCTL	NADC
11DCE	1,1-Dichloroethene	7	70
cDCE	cis-1,2-Dichloroethene	70	700
tDCE	trans-1,2-Dichloroethene	100	1000
PCE	Tetrachloroethene	3	300
TCE	Trichloroethene	3	300
VC	Vinyl Chloride	1	100

N

0 50 100 Feet



CVOC Plume Area – UIC Monitoring Results

- 3 monitoring wells sampled
- Samples analyzed for Iron and TDS
- MW0067, MW0071, and MW0073 were above the maximum baseline concentration for Iron
- MW0071 was above the maximum baseline concentration for TDS



MW ID	Screened Interval	Sample Date	Iron	TDS
Maximum Baseline Concentrations (Target Levels)		**11/15/2012**	**1,220**	**980,000**
Units	**feet bls**		**µg/L**	**µg/L**
MW0067	10 to 20	5/21/2020	**1,940**	**862,000**
		12/11/2020	**960**	**952,000**
		5/20/2021		**934,000**
		12/10/2021	**1,420**	
MW0071	13 to 23	5/21/2020	**2,220**	**988,000**
		12/11/2020	**2,260**	**1,390,000**
		5/21/2021		**906,000**
		12/10/2021	**2,370**	**1,500,000**
MW0073	17 to 27	5/21/2020	**5,490**	**1,300,000**
		12/11/2020	**3,480**	**1,340,000**
		5/20/2021	**4,250**	**1,310,000**
		12/10/2021	**2,260**	**670,000**



Detections are **bolded**
Target level exceedances are **red bolded**
TDS – total dissolved solids
Blank Cell – sample was not analyzed
µg/L – micrograms per liter
bls – below land surface

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CVOC Plume Area – Test Consensus

- Discontinue annual groundwater monitoring for site cVOCs due to at least two consecutive events in which concentrations were below GCTLs; this will include discontinuing sampling of GSRY-MW0071, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, and GSRY-MW0077 for Site cVOCs
- Perform annual UIC groundwater monitoring at GSRY-MW0067 for iron, and at GSRY-MW0071 and GSRY-MW0073 for iron and TDS

Well ID	Screen Interval (feet bls)	Sampled	
		Fe	TDS
MW0067	13 to 23	X	
MW0071	13 to 23	X	X
MW0073	17 to 27	X	X

Fe – iron
TDS – total dissolved solids
bls – below land surface



Summary of Recommendations and Path Forward

- Proposed Sample Summary

Timeframe	Area	Event	Monitoring Well Locations	Surface Water Locations
June 2022	Site-Wide	Water Level Measurements	55	
	Site-Wide	PFAS Sampling	7	9
	PCB/VOA Plume	PCB and VOA Sampling	28	1
	PCB/VOA Plume	UIC Monitoring	3	
	cVOC Plume	UIC Monitoring	3	

PCB – polychlorinated biphenyl; VOA – volatile organic aromatic; cVOC – chlorinated volatile organic compound; PFAS – per- and polyfluoroalkyl substances; UIC – underground injection control

- Path Forward
  - Recommendations for further PFAS assessment or monitoring program will be presented to KSCRT
  - Annual LTM summary and recommendations for PCB/VOA and CVOC Plumes will be presented to KSCRT
    - On approved sampling schedule (annual in alternating wet and dry seasons), next LTM event anticipated in December 2023



General Services Administration
Reclamation Yard (GSRY)
Solid Waste Management Unit (SWMU) 010

Nov/Dec 2021 Groundwater Monitoring Results

Tables and figures presenting the analytical results discussed in this ADP are attached.

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This is a partial version that only includes the minutes pertaining to the NASA GSRY SWMU 010 ADP. The GSRY minutes are boxed in red.

Revision 0 Meeting Minutes for March 8th & 9th, 2022

Attendees:

1. Bruce Moore/FDEP
2. Ryan O'Meara/NASA
3. Deda Johansen/NASA
4. Anne Chrest/NASA
5. Natasha Darre/NASA
6. Michelle Moore/NEMCON
7. Mark Speranza/Tetra Tech
8. Mark Jonnet/Tetra Tech
9. Sarah Damphousse/Tetra Tech
10. Debbie Wilson/Tetra Tech
11. Jennifer Joyal/AECOM
12. Randy Sillan/AECOM
13. Linnea King Clark/AECOM
14. Chris Marshall/AECOM
15. Richard Smith/HGL
16. Scott Starr/HGL
17. Carol Cady/HGL

2203-M01 Michelle Moore/NEMCON

Meeting Minutes and Miscellaneous Items

Team consensus was reached that Revision 1 of the meeting minutes and action/decision items for the January 2022 Team meeting will become final. Team members acknowledged and did not object to the fact that these meeting minutes may become public as part of a final report at a later date **(2203-D01).**

Open action items were reviewed and updated. No action items were closed at that time.

Results: Decision Item 2203-D01

2203-M02 Bruce Moore /FDEP

FDEP Program Update, March 2022

Goal: The objective is to summarize any changes at the Florida Department of Environmental Protection (FDEP) and provide pertinent news since the last Kennedy Space Center (KSC) Remediation Team (KSCRT) meeting.

Discussion: Bruce Moore provided a quick update on the program.

As an update to partners, FDEP has two staff vacancies: one for a professional engineer and another for a professional geologist as a

2203-M06 Chad Lee/AECOM

GSA Reclamation Yard (SWMU 010) Groundwater Monitoring Update, March 2022

Goal: The purpose is to provide a brief background for the referenced areas, summary of groundwater monitoring related work performed in November and December 2021, and consensus statements for presentation to the KSC Remediation Team (KSCRT).

Discussion:

Groundwater Flow – December 2021

A summary of work includes the collection of groundwater elevation measurements from 54 monitoring wells. Groundwater flow in December 2021 was to the north and northwest for the three zones sampled; the 2 to 18 feet below land surface (bls) zone, the 10 to 30 feet bls zone, and the 30 to 40 feet bls zone.

The Team reached consensus to conduct annual water level measurements at 55 existing monitoring wells **(2203-D14).**

Site-Wide Per- and Polyfluoroalkyl Substances (PFAS) Groundwater and Surface Water Sampling

As part of the Center-wide PFAS preliminary PFAS investigation, groundwater samples were collected from eight monitoring wells for analysis of PFAS using Environmental Protection Agency (EPA) Method 537.1. Analytical results indicate that PFAS concentrations were above the provisional groundwater cleanup target level for perfluorooctanoic acid (PFOA) + perfluorooctane sulfonic acid (PFOS) in one monitoring well (GSRY-MW0074). Further PFAS assessment is proposed. FDEP asked if there is documented usage or storage of PFAS compounds in the MW74 area? AECOM responded there was none known. However, this is a reclamation yard, so it is possible.

The Team reached consensus to install a new monitoring well GSRY-MW0078 for delineation to the east of GSRY-MW0074 with a screen of 7 to 17 feet bls **(2203-D15).** Existing wells will be used to delineate in other directions.

The Team reached consensus to add PFAS analysis for seven monitoring wells (GSRY-MW0069, GSRY-MW0070, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, GSRY-MW0077, and GSRY-MW0078) to the annual sampling program. The next annual event will be in June 2022 **(2203-D16).**

The Team reached consensus to collect nine surface water samples for PFAS analysis from the water bodies surrounding the site (proposed sample locations are provided on Slide 11) **(2203-D17).**

FDEP inquired why the stormwater ponds on Ransom Road are excluded from sampling? NASA responded that these do not connect to any ditch systems. The U-shaped ditch around the GSA Reclamation Yard and adjacent Corrosion Control Yard, and the pond to the east of Corrosion control, are believed to interconnect with wetlands at the south.

<u>Polychlorinated Biphenyl/Volatile Organic Aromatic (PCB/VOA) Plume Area (formerly known as the Northeast Area)</u>

A summary of work completed in November and December 2021 includes: three days of groundwater sampling from temporary sample points installed using direct push technology (DPT) along with an on-site mobile lab, in which 70 samples were collected from 10 boring locations for analysis of site volatile organic compounds (VOCs) using EPA Method 8260B; redevelopment of three monitoring wells prior to sampling; collection of groundwater samples from 27 monitoring wells for analysis of site VOCs using EPA Method 8260B; collection of groundwater samples from 25 monitoring wells for analysis of polychlorinated biphenyls (PCBs) using EPA Method 8082A; collection of a surface water sample at location GSRY-SW0001 in the northeast retention pond for analysis of site VOCs using EPA Method 8260B and PCBs using EPA Method 8082A; and collection of Underground Injection Control (UIC) parameters from seven monitoring wells for analysis of iron, manganese, and sodium using EPA Method 6010B, sulfate using EPA Method 300.0, and total dissolved solids (TDS) using EPA Method SM2540C.

Based on discussions of the use of KSC-wide versus site-specific background at the September 2021 KSCRT meeting, it was decided to use MW0002IS as a background well for purpose of evaluating UIC results. That well was re-developed and then sampled for the UIC analytes in December 2021.

Analytical results indicate that site chemicals of concern were above groundwater cleanup target levels in two monitoring wells. UIC parameters remained above the target level criteria in three monitoring wells based on comparison to MW0002IS results.

The Team reached consensus to perform annual monitoring at 28 monitoring wells and one surface water location; same VOA and PCB analytes for each location as in December 2021 will be analyzed (Slide 15) **(2203-D18).**

The Team reached consensus to discontinue UIC monitoring at GSRY-MW0057, GSRY-MW0061, and GSRY-MW0064 **(2203-D19).**

The Team reached consensus to continue annual UIC monitoring at GSRY-MW0049, GSRY-MW0050, and GSRY-MW0066 for UIC parameters: sulfate, iron, manganese, sodium, and TDS **(2203-D20).** Manganese was included at FDEP's suggestion.

<u>Chlorinated VOC Plume Area (formerly known as the Southwest Area)</u>

A summary of December 2021 work includes the redevelopment of two monitoring wells prior to sampling; collection of groundwater samples from six monitoring wells for analysis of site chlorinated VOCs using EPA Method 8260B; and collection of UIC parameters from three monitoring wells for analysis of iron and TDS using EPA Methods 6010B and SM2540C, respectively. Analytical results indicate that Southwest Area contaminants of concern were below groundwater cleanup target levels, and UIC parameters remained above applicable target level criteria in monitoring wells GSRY-MW0067, GSRY-MW0071, and GSRY-MW0073.

The Team reached consensus to discontinue annual groundwater monitoring for VOCs due to at least two consecutive events in which concentrations were below GCTLs. This will include discontinuing sampling of GSRY-MW0071, GSRY-MW0073, GSRY-MW0074, GSRY-MW0076, and GSRY-MW0077 for VOCs **(2203-D21).**

The Team reached consensus to perform annual UIC groundwater monitoring at GSRY-MW0067 for iron, and at GSRY-MW0071 and GSRY-MW0073 for iron and TDS **(2203-D22).**

FDEP requested a synoptic figure of the last two clean sampling events of the two wells **(2203-A04).**

Results: Decision Items 2203-D14 through D22
Action Item 2203-A04

APPENDIX B

FIELD NOTES AND FIELD LOGS

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11/8/21 GSRY DPT Event BF/CL

0800 Brittany Follett departs depot for KSC Badging office

1010 BF on-site to meet Chad Lee and Jason Wordon (Pace Mobile Lab) to check power out at CCP
- Jason was able to plug in at Tetra Tech system and set up Lab Trailer

1100 Mob to GSRY to go over locations
- start with C, D, A, and B

1130 Jason off-site to pick up DI water

1200 Jason W. on-site back at lab to begin calibration

1230 BF and CL off-site for AECOM depot

1340 BF and CL arrive at AECOM depot

BF

11/09/21

GSRY DPT Event BF
Pg 1 of 9

0650 ~~0700~~ Brittany Follett departs AEOM depot for KSC badging office

0800 BF arrives at KSC bading office to meet with Groundwater Protection - Drillers

~~H~~Weather: 64°F Hi 75°F Lo 64°F Mostly cloudy, Humidity 78%

~~HS~~: Slips/trips/falls, Machine Safety biologicals

Sow: DPT drilling at 4 locations down to a depth of 34 feet bls

Drillers arrive at badging office to pick up temp badges

0830 Depart Bcaging office for GSRY

0900 Set up on DPT Location ~~D~~ C
- GSRY - DPT3083

purge @ 0915 - 8 @ 0925
purge @ 0930 - 12 @ 0940
purge @ 0947 - 16 @ 0957
purge @ 1007 - 20 @ 1017
- 24 @ 1045
purge @ 1055 - 28 @ 1105
purge @ 1115 - 32 1125 → 2nd sample drop off

11/10/21 GSRY DPT Event BF
Pg 2 of 9

0850 Jason Werdon - Pace Mobile Lab on center - Stationed @ CCF

1020 BF departs GSRY for CCF to drop of first 4 samples

1032 Samples droped off. Back to GSRY

1040 Arrive at GSRY

1130 Grout DPT3083

1140 ~~Begin~~ Set upon DPT Location D
- GSRY-DPT3084
- 8 @ 1159
purge @ 1207 - 12 @ 1217
purge @ 1221 - 16 @ 1231
purge @ 1238 - 20 1248
purge @ 1255 - 24 1305 → 3rd sample pick up
purge @ 1315
purge @ - 28 1325
purge @ 1335 - 32 1342

1345 Grout and complete GSRY-DPT3084

→

Next Page

11/9/21 GSRY DPT Event BF
Pg 3 of 9

1425 Set up on DPT 3085 - Location A
purge @ 1432 - 8 1439
purge @ 1446 - 12 1452
purge @ 1458 - 16 1504
purge @ 1512 - 20 1518

1520 Push DPT ~~point to~~ point to 24' end of drilling due to Facility Closure @ 1530

1530 Drillers off-site

1535 BF to CCF to meet with Jason (Pace) to drop off last samples for the day

1600 BF departs CCF for AECOM depot

1710 BF arrives at AECOM depot

BF

11/10/21 GSRY DPT Event BF
Pg 4 of 9

~~0700~~ 0730 BF arrives on-site at GSRY
- H+S meeting: Slips/trips/falls, machine safety, Biologicals
- Weather 65°F Hi 74°F Lo 61°F Mostly cloudy ~~95%~~ 95% humidity
- SOW: Continue DPT activities

0730 Start purge for DPT3085
- 24 @ 0722
purge @ 0734 - 28 @ 0741
purge @ 0753 - 32 @ 0758

0802 Grout and complete DPT3085

0822 Set up on Location B
~~purge @ 0825~~ - GSRY - DPT3086
purge @ 0836 - 8 @ 0842
purge @ 0849 - 12 @ 0855
purge @ 0902 - 16 @ 0908
purge @ 0915 - 20 @ 0921
purge @ 0930 - 24 0936
purge @ 0945 - 28 @ 0950
~~purge @ 1000~~ - 32 @ 1018 -> Purging dry

1020 Grout and complete DPT3086

11/10/21 GSRY DPT Event BF
pg 5 of 9

1032 Set up on location L
-GSRY-DPT3087
purge @ 1047 - 8 @ 1053
purge @ 1104 - 12 @ 1110
purge @ 1116 - 16 @ 1122
purge @ 1128 - 20 @ 1134
purge @ 1142 - 24 @ 1147
purge @ 1155 - 28 @ 1205
purge @ 1216 - 32 @ 1222

1226 Grout DPT3087 and complete boring

1240 Set up on location K
-GSRY-DPT3088
purge @ 1246 - 8 @ 1251
purge @ 1257 - 12 @ 1302
purge @ 1307 - 16 @ 1313
purge @ 1328 - 20 @ 1328
purge @ 1337 - 24 @ 1342
purge @ 1351 - 28 @ 1408 - Needed to re-charge
purge @ 1422 - 32 @ 1437 - Needed to re-charge

1440 Grout DPT3088 and complete boring

11/10/21 GSRY DPT Event BF
pg 6 of 9

1455 Set up on Location G
-GSRY-DPT3089
purge @ 1504 - 8 @ 1509
purge @ 1518 - 12 @ 1523
purge @ 1529 - 16 @ 1535
purge @ 1543 - 20 @ 1548
purge @ 1557 - 24 @ 1602

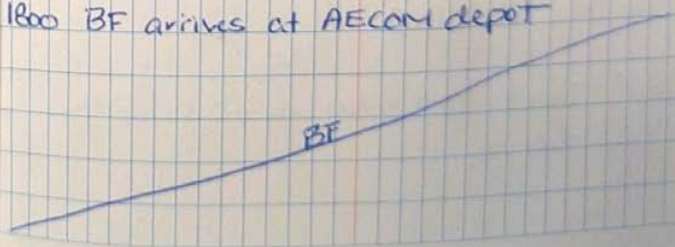
1605 Drillers off-site. BF to CCF to drop of lab samples

1620 Drop off samples with Jason (pcce)

1630 Call CL for daily check out

1640 BF departs CCF for AECOM depot

1800 BF arrives at AECOM depot



11/11/21 GSRY DPT Event BP
Pg 7 of 9

0600 BF departs from AECOM depot
0700 BF arrives on-site at GSRY to meet with drillers

0705 Begin GSRY-DPT3089
-28 @ 0708
purge 0720 -32 @ 0734 need to re-charge
↳ only enough water for 2 bottles
0740 Grout GSRY DPT3089 and complete boring

0748 Set up on Location F
-GSRY-DPT3090
purge @ 0758 -8 0803
purge @ 0809 -12 0819
purge @ 0826 -16 0831
purge @ 0838 -20 0843
purge @ 0853 -24 0858
purge @ 0906 -28 0911
purge @ 0923 -32 0928

0930 Grout DPT3090 and complete boring

11/11/21 GSRY DPT Event BF
Pg 8 of 9

0943 Set up on Location H
-GSRY-DPT3091
purge @ 1001 -8 @ 1006
purge @ 1012 -12 @ 1017
purge @ 1023 -16 @ 1028
purge @ 1035 -20 @ 1041
purge @ 1049 -24 @ 1055
purge @ 1105 -28 @ 1112
purge @ 1126 -32 @ 1131

0947 Sign-in at GSRY facility

1136 Grout DPT3091 and complete boring

150 Set up on Location I
-GSRY-DPT3092
purge @ 1200 -8 @ 1205
purge @ 1212 -12 @ 1218
purge @ 1224 -16 @ 1229
purge @ 1237 -20 @ 1243
purge @ 1252 -24 @ 1257
purge @ 1306 -28 @ 1312
purge @ 1335 -32 @ 1341

1342 Grout and complete GSRY-DPT3092

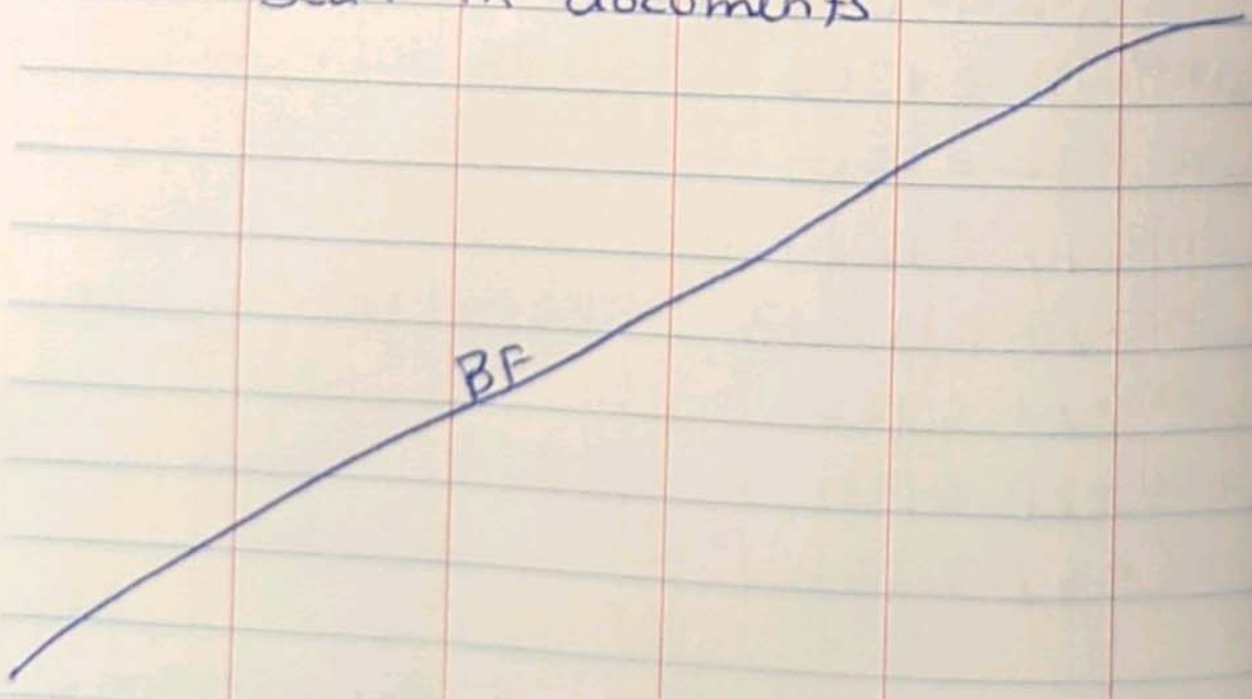
1400 Dump purge water and pack up all equipment

1430 -Drillers offsite
Samples dropped off with Jason (Pace)

1440 Call CL to fill in on activities for the day

1450 BF departs GSRY for AECOM depot

1600 BF arrives at AECOM depot to ~~up~~ unpack truck and scan in documents



NASA - GSRY Well Developments 12/06/21 Chad Lee (CL) Dustin Slater (DS)

09:10 – CL/DS onsite. Sign in. H&S tailgate.

09:25 - Unload and organize drums. Drums are stored at the west fence. ~~[redacted]~~ and are in secondary containment spill pallets.

09:45 - Mobe to MW0049 and set up to begin development. A large peristaltic pump is used along with ½" OD HDPE tubing. DTW = 0.80' BTOC. TD = 28.97' BTOC.

09:50 – Start Pump. Very dark gray color w/ no odor.

10:05 - DTW = 7.53' BTOC before stop pump.

10:05 - Stop pump. 15 gals removed @ 1.0 gpm. Water is clear with a slight yellowish color and no odor. TD = 28.98' BTOC

10:10 - Transfer water into drums and mobe to MW0050.

10:18 - DTW = 2.81; TD = 29.87' BTOC

10:20 - Start pump. Water is light gray w/ no odor.

10:35 - DTW = 7.51' BTOC then stop pump. Water is clear with no color or odor. TD = 29.87' BTOC

10:45 - Transfer water into drums and mobe to MW0002IS.

11:01 - DTW = 4.43' BTOC; 32.64' BTOC (well is a stickup with about 3.02' of casing above ground)

11:04 - Start pump. Water is gray w/ no odor.

11:19 - DTW = 6.92' BTOC; TD = 32.90' BTOC; ~~Water is~~ Stop pump. Water is clear w/ no odor. 15 gals. removed @ 1 gpm.

11:23 - Transfer water into drums and mobe to MW0073.

11:29 - DTW - 1.54' BTOC; TD = 26.64' BTOC

11:31 - Start pump; light gray w/ no odor

11:51 - DTW = 1.59' BTOC; TD = 26.87' BTOC; Stop pump. Water is clear w/ no odor. 20 gals. removed @ 1 gpm.

11:55 - Transfer water into drums and mobe to MW0071.

11:58 - DTW = 2.31' BTOC; TD = 22.52' BTOC

12:01 - Start pump. Water is light gray w/ no odor.

12:21 - DTW = 2.35' BTOC; TD = 22.67' BTOC; Stop pump. Water is clear w/ no odor. 20 gals removed @ 1 gpm.

12/7/21 NASA KSC - GSRy DS GK ND

Groundwater sampling

project # 60614327.4

personnel: Greg Kusel, Dustin Slater, Nick DeSantis

trucks: AECOM F-150 # 275, 905

Equipment: 2 Geopumps, 2 Aquatrolls, turbidity meter, 2 DTW meters, 2 Ipads

ppE: Level D + Nitrile gloves

0700 GK + ND at AECOM depot to load trucks

0730 GK + ND leave depot for KSC.

0830 GK, ND, DS (crew) onsite at GSRy.
- Safety meeting
- Sign in at GSRy office
- Set up equipment

0900 begin opening monitor wells.

GSRy Groundwater levels

Well ID	DTW (ft BTOC)	time	Well ID	DTW (ft BTOC)	time
MW 2S	1.58	0938	MW 9S	1.72	0948
MW 2IS	4.56	0937	MW 11S	3.00	1009
MW 3S	2.81	1005	MW 13M	2.38	0950
MW 4S	2.64	1006	MW 14M	2.28	0936
MW 4IS	2.67	1007	MW 15M	4.57	0935
MW 5S	2.80	0953	MW 18S	2.92	1004
MW 6S	2.60	0951	MW 30R	2.43	1012
MW 7S	2.67	0954	MW 31	2.58	1020
MW 8S	2.57	0952	MW 36R	2.84	1002

2.57 GK

12/7/21 NASA KSC - GSRy DS GK ND

GSRy Groundwater levels

Well ID	DTW (ft BTOC)	time	Well ID	DTW (ft BTOC)	time
MW 40	2.16	0957	MW 62	0.07	1015
MW 41	2.33	0955	MW 63	0.90	1014
MW 42R	2.60	1024	MW 64	2.73	1018
MW 43	2.76	1022	MW 65	2.80	1017
MW 44	2.31	1021	MW 66	2.58	1001
MW 45	3.24	100	MW 67	2.32	0939
MW 46R	0.62	1016	MW 68	1.96	0941
MW 49	1.12	1015	MW 69	1.98	0943
MW 50	2.55	1000	MW 70	1.21	0947
MW 51	2.14	0958	MW 71	2.33	0942
MW 52	2.29	0956	MW 72	1.72	0946
MW 53	3.02	1003	MW 73	1.64	0945
MW 54	2.04	1023	MW 74	1.64	0944
MW 55	3.29	1008	MW 75	0.98	1016
MW 56	2.58	1021	MW 76	2.18	0940
MW 57	2.40	1020	MW 77	2.29	0949
MW 60	2.55	1013	MW 58	1.37	1019
MW 61	3.02	1011	MW 59	1.52	0959

1025 Calibrate equipment.

1100 Crew begins sampling select monitor wells.

(List on next page)

12/7/21 NASA KSC - GSRy GK ND DS

1140 Collect GSRy-MW0052-019.0-20211207
1215 Collect GSRy-MW0041-0030-20211207
1227 Collect GSRy-MW0046R-001.5-20211207
1301 Collect GSRy-MW0030R-013.0-20211207
1330 Collect GSRy-MW0040-003.0-20211207
1351 Collect GSRy-MW0061-025.0-20211207
1420 Collect GSRy-MW0051-027.5-20211207
1425 Collect GSRy-MW0062-035.0-20211207
1459 Collect GSRy-MW0075-025.0-20211207
1515 Collect GSRy-MW0042R-003.0-20211207
GK ~~1533~~ 1530 Crew pours IDW into onsite drum
GK ~~1630~~ Drum # 225810, 220329
Shell # 222839, 220330
GK ~~1545~~ Crew is offsite. GK + ND to ENCO.
GK ~~1645~~
1645 GK + ND at ENCO to drop off Samples.
- pick up Extra PFAS bottles.
1730 GK + ND at AECOM Depot.

12/7/21
GK

12/8/21 NASA KSC - GSRy GK DS

0630 GK at AECOM depot to load truck and print Field papers.
0700 GK drives to KSC GSRy
0800 GK and DS at GSRy - sign in
- Safety meeting
- organize samples
0830 Calibrate equipment
0900 begin Sampling Select Monitor wells.
0950 Collect GSRy-MW0054-013.0-20211208
0958 Collect GSRy-MW0049-027.5-20211208
1030 Collect GSRy-MW0056-019.0-20211208
1037 Collect GSRy-MW0063-019.0-20211208
1105 Collect GSRy-MW0043-003.5-20211208
1126 Collect GSRy-MW0060-008.0-20211208
1145 Collect GSRy-MW0055-013.0-20211208
1204 Collect GSRy-MW0064-025.0-20211208
1230 Collect GSRy-MW0011S-003.5-20211208
1301 Collect GSRy-MW0053-004.0-20211208
1305 ~~1315~~ Crew pours IDW into onsite drum
Drum # 220329
Shell # 220330
1320 GK + DS offsite. DS to drop off Samples at ENCO.

12/8/21
GK

12/09/21

Pg 5 of 7

0715 Brittany Follett at AECOM depot to pick up additional IDW drum and GW Sampling equipment

0730 BF departs depot for GSRY Truck # 905

0840 BF arrives on-site to meet Dustin Slater
- H+S meeting
- Weather: 73°F Hazy
Humidity: 78% Pressure 30.12"
- SOW: continue GW sampling activiti

0900 Set up at wells and calibrate equipment

- Wells Sampled for the day:
MW-0031, MW0036R, MW0044, MW-0050, MW0057, MW005B, MW0059, MW0066, SW0001

1240 Calibrate out all equipment

12/09/21

Pg

1252 Complete Sampling for the day

1252 Depart Site for Enco to drop off samples

1400 Arrive at Enco

1435 Arrive at AECOM depot

12/10/21 GSR4 GW Event BF 10

pg 7 of 7

0715 BF arrives at depot to pick up additional ice for sample coolers

0730 BF departs for GSR4

0830 BF arrives at GSR4 to meet DS

- H+S meeting
- Weather: 68°F Sunny
- SOW: Complete GW Sampling

~~08~~ 0900 Begin calibration and set up on wells

- Wells sampled today: MW0067, MW0071, MW0073, MW0074, MW0076 MW0077, IDW01, IDW02

1205 Complete sampling event and depart site for Enco

1300 Arrive at Enco

1330 Arrive at AECOM depot

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0002IS-025.0-20211210 Sampler: Dustin Slater

Well ID: GSRY-MW0002IS Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	4.63
Top of Screen (ft-BTOR):	25	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs, Sulfate, Fe, Mn, Na, TDS, Select PFAS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	8:54			0	4.63									
12/10/2021	9:14	0.05	1	1	4.91	7.15	1725.6	0.28	7.97	24.61	39.1	0.88		
12/10/2021	9:16	0.05	0.1	1.1	4.91	7.13	1749.3	0.20	4.25	24.56	-33.8	0.90		
12/10/2021	9:18	0.05	0.1	1.2	4.91	7.14	1764.1	0.17	4.31	24.56	-59.3	0.90		
12/10/2021	9:20	0.05	0.1	1.3	4.91	7.13	1767.2	0.16	2.83	24.60	-61.3	0.91		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
8:54	9:20	26	1.3	7.13	1767.2	0.16	2.83	24.60	-61.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0011S-003.5-20211208 Sampler: Greg Kusel

Well ID: GSRY-MW0011S Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	12:25	0.05	1	1	3.12	7.17	691.9	0.61	2.73	26.33	-37.1	0.34		
12/8/2021	12:27	0.05	0.1	1.1	3.12	7.07	690.4	0.68	1.58	26.28	-40.4	0.34		
12/8/2021	12:29	0.05	0.1	1.2	3.12	6.99	684.9	0.49	0.61	26.33	-53.7	0.34		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
12:25	12:29	4	1.2	6.99	684.9	0.49	0.61	26.33	-53.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0030R-013.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0030R Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.83
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	12:34			0	2.83									
12/7/2021	12:54	0.05	1	1	2.85	6.91	727.6	0.09	2.37	27.76	-79.7	0.36		
12/7/2021	12:56	0.05	0.1	1.1	2.85	6.92	726.2	0.08	2.36	27.84	-84.6	0.36		
12/7/2021	12:58	0.05	0.1	1.2	2.85	6.91	715.8	0.08	2.37	27.82	-85.9	0.35		
12/7/2021	13:00	0.05	0.1	1.3	2.85	6.93	727.5	0.07	2.77	27.73	-86.8	0.36		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
12:34	13:00	26	1.3	6.93	727.5	0.07	2.77	27.73	-86.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0031-013.0-20211209 Sampler: Dustin Slater

Well ID: GSRY-MW0031 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.66
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	10:39			0	2.66									
12/9/2021	10:59	0.05	1	1	2.67	6.95	751.0	0.09	2.75	27.60	-74.4	0.37		
12/9/2021	11:01	0.05	0.1	1.1	2.67	6.95	743.9	0.09	2.79	26.66	-78.3	0.37		
12/9/2021	11:03	0.05	0.1	1.2	2.67	6.93	743.8	0.08	2.14	26.63	-78.7	0.37		
12/9/2021	11:05	0.05	0.1	1.3	2.67	6.91	744.8	0.09	2.17	26.57	-79.1	0.37		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:39	11:05	26	1.3	6.91	744.8	0.09	2.17	26.57	-79.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0036R-007.0-20211209 Sampler: Brittany Follett

Well ID: GSRY-MW0036R Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.91
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	12		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	10:38			0	N/A									
12/9/2021	10:58	0.05	1	1	3.13	11.03	905.6	0.05	0.92	28.51	-268.1	0.45		
12/9/2021	11:00	0.05	0.1	1.1	3.13	11.04	889.0	0.06	0.92	28.36	-271.0	0.44		
12/9/2021	11:02	0.05	0.1	1.2	3.13	11.04	894.7	0.06	0.99	28.35	-271.7	0.44		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:38	11:02	24	1.2	11.04	894.7	0.06	0.99	28.35	-271.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0040-003.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0040 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.16
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	12:55	0.05	1	1	2.35	6.81	476.3	0.05	16.96	25.29	-134.7	0.23		
12/7/2021	13:25	0.05	1.5	2.5	2.35	6.83	487.2	0.26	7.50	25.30	-149.8	0.24		
12/7/2021	13:27	0.05	0.1	2.6	2.35	6.84	487.9	0.23	8.17	25.27	-149.5	0.24		
12/7/2021	13:29	0.05	0.1	2.7	2.35	6.83	487.9	0.20	8.15	25.25	-152.4	0.24		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
12:55	13:29	34	2.7	6.83	487.9	0.20	8.15	25.25	-152.4

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0041-003.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0041 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.33
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	12:10	0.05	1	1	2.36	6.95	713.4	0.06	1.35	26.64	-122.1	0.35		
12/7/2021	12:12	0.05	0.1	1.1	2.36	6.93	710.8	0.05	2.66	26.69	-126.0	0.35		
12/7/2021	12:14	0.05	0.1	1.2	2.36	6.92	712.4	0.05	0.56	26.70	-128.1	0.35		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
12:10	12:14	4	1.2	6.92	712.4	0.05	0.56	26.70	-128.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0042R-003.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0042R Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.6
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	15:10	0.05	1	1	2.62	6.64	716.8	0.06	0.32	25.61	-194.7	0.35		
12/7/2021	15:12	0.05	0.1	1.1	2.62	6.66	706.7	0.06	0.63	25.63	-198.7	0.35		
12/7/2021	15:14	0.05	0.1	1.2	2.62	6.67	692.3	0.07	0.86	25.62	-203.5	0.34		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
15:10	15:14	4	1.2	6.67	692.3	0.07	0.86	25.62	-203.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0043-003.5-20211208 Sampler: Greg Kusel

Well ID: GSRY-MW0043 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.76
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	11:00	0.05	1	1	2.88	7.64	682.1	0.08	1.12	26.43	-266.5	0.34		
12/8/2021	11:02	0.05	0.1	1.1	2.88	7.65	685.6	0.06	1.71	26.47	-270.8	0.34		
12/8/2021	11:04	0.05	0.1	1.2	2.88	7.64	688.3	0.07	1.41	26.50	-273.5	0.34		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:00	11:04	4	1.2	7.64	688.3	0.07	1.41	26.50	-273.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0044-003.5-20211209 Sampler: Dustin Slater

Well ID: GSRY-MW0044 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.37
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	11:21			0	2.37									
12/9/2021	11:41	0.05	1	1	2.53	7.15	522.4	0.08	2.17	26.73	-246.9	0.26		
12/9/2021	11:43	0.05	0.1	1.1	2.53	7.15	521.6	0.08	2.12	26.81	-249.9	0.25		
12/9/2021	11:45	0.05	0.1	1.2	2.53	7.15	524.1	0.07	2.88	27.00	-252.0	0.26		
12/9/2021	11:47	0.05	0.1	1.3	2.53	7.15	520.8	0.08	2.12	26.91	-251.6	0.25		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:21	11:47	26	1.3	7.15	520.8	0.08	2.12	26.91	-251.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0046R-001.5-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0046R Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	0.62
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	11:16			0	0.62									
12/7/2021	11:56	0.05	2	2	0.65	6.84	519.2	0.13	1.74	24.56	-85.1	0.25		
12/7/2021	12:06	0.05	0.5	2.5	0.65	6.81	520.3	0.12	1.71	24.55	-89.6	0.25		
12/7/2021	12:16	0.05	0.5	3.0	0.65	6.83	520.3	0.12	5.33	24.62	-94.8	0.25		
12/7/2021	12:26	0.05	0.5	3.5	0.65	6.83	522.0	0.07	1.72	24.67	-98.8	0.26		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:16	12:26	70	3.5	6.83	522.0	0.07	1.72	24.67	-98.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0049-027.5-20211208 Sampler: Dustin Slater

Well ID: GSRY-MW0049 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	1.2
Top of Screen (ft-BTOR):	25	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs, Sulfate, Fe, Mn, Na, TDS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	9:13			0	1.2									
12/8/2021	9:33	0.05	1	1	1.61	6.77	6252.3	0.15	15.06	23.84	-94.6	3.45		
12/8/2021	9:53	0.05	1	2	1.61	6.73	6900.2	0.09	6.99	25.07	-100.3	3.84		
12/8/2021	9:55	0.05	0.1	2.1	1.61	6.73	6962.2	0.09	5.99	25.10	-99.2	3.87		
12/8/2021	9:57	0.05	0.1	2.2	1.61	6.72	6972.2	0.09	6.71	25.19	-98.6	3.88		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:13	9:57	44	2.2	6.72	6972.2	0.09	6.71	25.19	-98.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0050-027.5-20211209 Sampler: Greg Kusel

Well ID: GSRY-MW0050 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.67
Top of Screen (ft-BTOR):	25	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs, Sulfate, Fe, Mn, Na, TDS
Total Depth of Well (ft-BTOR):	30		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	9:25			0	N/A									
12/9/2021	9:35	0.05	0.5	0.5	3.11	7.07	2051.6	0.22	6.42	27.09	-111.8	1.06		
12/9/2021	9:37	0.05	0.1	0.6	3.11	7.07	2050.2	0.21	10.50	27.03	-112.8	1.06		
12/9/2021	9:39	0.05	0.1	0.7	3.11	7.06	2045.4	0.19	8.31	26.89	-113.3	1.06		
12/9/2021	9:41	0.05	0	0.7	N/A	7.06	2053.0	0.20	7.49	26.99	-116.7	1.06		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:25	9:41	16	0.7	7.06	2053.0	0.20	7.49	26.99	-116.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0051-027.5-20211207 Sampler: Greg Kusel

Well ID: GSRY-MW0051 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.18
Top of Screen (ft-BTOR):	25	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	14:15	0.05	1	1	2.2	7.23	1351.5	0.15	0.53	26.23	-114.8	0.68		
12/7/2021	14:17	0.05	0.1	1.1	2.2	7.22	1351.1	0.16	0.47	26.32	-113.3	0.68		
12/7/2021	14:19	0.05	0.1	1.2	2.2	7.22	1350.4	0.16	1.42	26.41	-109.9	0.68		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
14:15	14:19	4	1.2	7.22	1350.4	0.16	1.42	26.41	-109.9

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0052-019.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0052 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.29
Top of Screen (ft-BTOR):	14	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	24	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	11:35	0.05	1	1	2.31	6.99	885.6	0.13	1.41	26.01	-62.4	0.44		
12/7/2021	11:37	0.05	0.1	1.1	2.31	7.00	880.9	0.11	1.65	25.95	-66.9	0.44		
12/7/2021	11:39	0.05	0.1	1.2	2.31	7.00	879.4	0.10	2.42	25.98	-71.1	0.44		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:35	11:39	4	1.2	7.00	879.4	0.10	2.42	25.98	-71.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0053-004.0-20211208 Sampler: Dustin Slater

Well ID: GSRY-MW0053 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.09
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	12:24			0	3.09									
12/8/2021	12:54	0.05	1	1	3.11	6.93	584.9	0.05	2.41	28.29	-276.6	0.29		
12/8/2021	12:56	0.05	0.1	1.1	3.11	6.95	583.0	0.05	2.43	28.26	-278.6	0.29		
12/8/2021	12:58	0.05	0.1	1.2	3.11	6.95	584.6	0.05	2.50	28.42	-277.6	0.29		
12/8/2021	13:00	0.05	0.1	1.3	3.11	6.93	584.9	0.05	2.38	28.32	-277.6	0.29		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
12:24	13:00	36	1.3	6.93	584.9	0.05	2.38	28.32	-277.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0054-013.0-20211208 Sampler: Greg Kusel

Well ID: GSRY-MW0054 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.04
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	9:45	0.05		1	2.11	6.94	1072.7	0.11	0.37	25.60	-155.9	0.54		
12/8/2021	9:47	0.05	0.1	1.1	2.11	6.92	1077.9	0.11	0.55	25.54	-156.1	0.54		
12/8/2021	9:49	0.05	0.1	1.2	2.11	6.92	1078.4	0.12	0.32	25.55	-158.0	0.54		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:45	9:49	4	1.2	6.92	1078.4	0.12	0.32	25.55	-158.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0055-013.0-20211208 Sampler: Greg Kusel

Well ID: GSRY-MW0055 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.29
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs, PCBs, Select PFAS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	11:40	0.05	1	1	3.34	6.96	972.7	0.06	4.24	26.24	-111.3	0.49		
12/8/2021	11:42	0.05	0.1	1.1	3.34	6.96	971.1	0.08	3.41	26.23	-112.0	0.48		
12/8/2021	11:44	0.05	0.1	1.2	3.34	6.97	969.7	0.06	1.46	26.21	-112.7	0.48		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:40	11:44	4	1.2	6.97	969.7	0.06	1.46	26.21	-112.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0056-019.0-20211208 Sampler: Greg Kusel

Well ID: GSRY-MW0056 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.58
Top of Screen (ft-BTOR):	14	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	24	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	10:25	0.05	1	1	2.7	6.89	1875.7	0.10	1.92	25.98	-153.2	0.96		
12/8/2021	10:27	0.05	0.1	1.1	2.7	6.90	1869.2	0.09	0.39	26.07	-156.1	0.96		
12/8/2021	10:29	0.05	0.1	1.2	2.7	6.89	1870.5	0.10	0.37	26.05	-150.3	0.96		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:25	10:29	4	1.2	6.89	1870.5	0.10	0.37	26.05	-150.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0057-025.0-20211209 Sampler: Dustin Slater

Well ID: GSRY-MW0057 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.45
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs, Sulfate, Fe, Mn, Na, TDS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	9:57			0	2.45									
12/9/2021	10:17	0.05	1	1	2.56	7.04	1048.4	0.11	2.02	26.22	-83.3	0.53		
12/9/2021	10:19	0.05	0.1	1.1	2.56	7.02	1031.4	0.12	1.94	25.65	-81.1	0.52		
12/9/2021	10:21	0.05	0.1	1.2	2.56	7.02	1028.1	0.13	1.92	25.52	-80.6	0.51		
12/9/2021	10:23	0.05	0.1	1.3	2.56	7.02	1026.6	0.13	1.88	25.52	-80.6	0.51		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:57	10:23	26	1.3	7.02	1026.6	0.13	1.88	25.52	-80.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0058-035.0-20211209 Sampler: Dustin Slater

Well ID: GSRY-MW0058 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	1.4
Top of Screen (ft-BTOR):	30	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	40	Sample Analysis:	Select VOCs, PCBs, Select PFAS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	9:12			0	1.4									
12/9/2021	9:32	0.05	1	1	1.45	7.23	1626.7	0.15	4.06	25.19	-76.5	0.83		
12/9/2021	9:34	0.05	0.1	1.1	1.45	7.22	1619.1	0.14	4.74	25.40	-76.8	0.83		
12/9/2021	9:36	0.05	0.1	1.2	1.45	7.22	1610.7	0.14	1.75	25.53	-78.1	0.82		
12/9/2021	9:38	0.05	0.1	1.3	1.45	7.23	1602.6	0.15	1.77	25.55	-78.6	0.82		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:12	9:38	26	1.3	7.23	1602.6	0.15	1.77	25.55	-78.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0059-035.0-20211209 Sampler: Brittany Follett

Well ID: GSRY-MW0059 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	1.6
Top of Screen (ft-BTOR):	30	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	40	Sample Analysis:	Select VOCs, PCBs, Select PFAS
Total Depth of Well (ft-BTOR):	40		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	10:05			0	N/A									
12/9/2021	10:15	0.05	0.5	0.5	1.64	7.10	1465.0	0.24	1.65	26.19	-85.2	0.74		
12/9/2021	10:17	0.05	0.1	0.6	1.64	7.10	1466.9	0.21	0.65	26.19	-87.3	0.75		
12/9/2021	10:19	0.05	0.1	0.7	1.64	7.10	1469.2	0.17	0.75	26.01	-90.6	0.75		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:05	10:19	14	0.7	7.10	1469.2	0.17	0.75	26.01	-90.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0060-008.0-20211208 Sampler: Dustin Slater

Well ID: GSRY-MW0060 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.65
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	10:49			0	2.65									
12/8/2021	11:19	0.05	1.5	1.5	6.98	11.61	1772.0	0.40	2.15	26.77	-240.1	0.91		
12/8/2021	11:21	0.05	0.1	1.6	6.98	11.64	1925.0	0.30	2.27	27.00	-242.8	0.99		
12/8/2021	11:23	0.05	0.1	1.7	6.98	11.65	1937.4	0.29	2.41	26.99	-243.6	1.00		
12/8/2021	11:25	0.05	0.1	1.8	6.98	11.66	1966.0	0.29	2.21	26.92	-243.6	1.01		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:49	11:25	36	1.8	11.66	1966.0	0.29	2.21	26.92	-243.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0061-025.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0061 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.02
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, Sulfate, Fe, Mn, Na, TDS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	13:06			0	3.02									
12/7/2021	13:26	0.05	1	1	3.04	6.97	1162.6	0.11	39.24	26.50	-97.8	0.58		
12/7/2021	13:46	0.05	1	2	3.04	6.98	832.0	0.28	2.02	26.49	-38.4	0.41		
12/7/2021	13:48	0.05	0.1	2.1	3.04	6.96	838.4	0.31	2.01	26.47	-61.5	0.42		
12/7/2021	13:50	0.05	0.1	2.2	3.04	6.95	827.1	0.31	2.00	26.59	-73.7	0.41		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
13:06	13:50	44	2.2	6.95	827.1	0.31	2.00	26.59	-73.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0062-035.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0062 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	0.07
Top of Screen (ft-BTOR):	30	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	40	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	13:58			0	0.07									
12/7/2021	14:18	0.05	1	1	0.11	7.19	1753.4	0.10	1.89	26.06	-97.2	0.90		
12/7/2021	14:20	0.05	0.1	1.1	0.11	7.19	1746.8	0.11	1.88	26.07	-99.1	0.90		
12/7/2021	14:22	0.05	0.1	1.2	0.11	7.19	1738.8	0.11	1.87	26.05	-100.6	0.89		
12/7/2021	14:24	0.05	0.1	1.3	0.11	7.20	1725.0	0.10	1.91	25.99	-101.4	0.88		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
13:58	14:24	26	1.3	7.20	1725.0	0.10	1.91	25.99	-101.4

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0063-019.0-20211208 Sampler: Dustin Slater

Well ID: GSRY-MW0063 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	0.98
Top of Screen (ft-BTOR):	14	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	24	Sample Analysis:	Select VOCs, PCBs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	10:10			0	0.98									
12/8/2021	10:30	0.05	1	1	1.28	6.80	8434.6	0.09	2.06	26.13	-146.5	4.76		
12/8/2021	10:32	0.05	0.1	1.1	1.28	6.80	7584.9	0.07	4.48	26.01	-151.9	4.25		
12/8/2021	10:34	0.05	0.1	1.2	1.28	6.81	7467.1	0.07	2.19	26.18	-152.7	4.18		
12/8/2021	10:36	0.05	0.1	1.3	1.28	6.82	7564.5	0.06	1.99	26.16	-156.3	4.24		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:10	10:36	26	1.3	6.82	7564.5	0.06	1.99	26.16	-156.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0064-025.0-20211208 Sampler: Dustin Slater

Well ID: GSRY-MW0064 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	2.78
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, Sulfate, Fe, Mn, Na, TDS, Select PFAS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/8/2021	11:37			0	2.78									
12/8/2021	11:57	0.05	1	1	2.8	6.91	946.2	0.09	1.82	25.60	-89.7	0.47		
12/8/2021	11:59	0.05	0.1	1.1	2.8	6.94	937.0	0.08	2.06	25.66	-90.8	0.47		
12/8/2021	12:01	0.05	0.1	1.2	2.8	6.95	935.5	0.08	1.87	25.66	-90.9	0.47		
12/8/2021	12:03	0.05	0.1	1.3	2.8	6.94	937.3	0.08	1.83	25.68	-91.2	0.47		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:37	12:03	26	1.3	6.94	937.3	0.08	1.83	25.68	-91.2

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0066-025.0-20211209 Sampler: Brittany Follett

Well ID: GSRY-MW0066 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.71
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs, PCBs, Sulfate, Fe, Mn, Na, TDS, Select PFAS
Total Depth of Well (ft-BTOR):	30		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	11:18			0	N/A									
12/9/2021	11:28	0.05	0.5	0.5	2.74	6.94	2629.3	0.14	1.14	28.27	-125.7	1.38		
12/9/2021	11:30	0.05	0.1	0.6	2.74	6.94	2659.3	0.12	0.89	27.90	-126.4	1.39		
12/9/2021	11:32	0.05	0.1	0.7	2.74	6.94	2653.9	0.12	1.29	27.92	-126.2	1.39		
12/9/2021	11:34	0.05	0	0.7	N/A	6.93	2662.0	0.11	1.40	27.88	-126.5	1.39		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:18	11:34	16	0.7	6.93	2662.0	0.11	1.40	27.88	-126.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0067-015.0-20211210 Sampler: Dustin Slater

Well ID: GSRY-MW0067 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.42
Top of Screen (ft-BTOR):	10	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	20	Sample Analysis:	Fe
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	10:15			0	2.42									
12/10/2021	10:35	0.05	1	1	2.43	6.26	2020.3	0.08	29.84	25.64	-73.9	1.04		
12/10/2021	10:45	0.05	0.5	1.5	2.43	6.33	2072.9	0.07	10.16	25.64	-94.4	1.07		
12/10/2021	10:47	0.05	0.1	1.6	2.43	6.33	2065.5	0.07	8.95	25.61	-95.0	1.07		
12/10/2021	10:49	0.05	0.1	1.7	2.43	6.34	2071.7	0.07	8.28	25.65	-95.6	1.07		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:15	10:49	34	1.7	6.34	2071.7	0.07	8.28	25.65	-95.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0071-018.0-20211210 Sampler: Dustin Slater

Well ID: GSRY-MW0071 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.43
Top of Screen (ft-BTOR):	13	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	23	Sample Analysis:	Fe, TDS
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	11:00			0	2.43									
12/10/2021	11:20	0.05	1	1	2.51	6.48	2257.7	0.07	16.3	25.51	-92.9	1.17		
12/10/2021	11:30	0.05	0.1	1.5	2.51	6.49	2263.2	0.07	8.95	25.40	-96.0	1.18		
12/10/2021	11:32	0.05	0.1	1.6	2.51	6.49	2270.0	0.07	9.53	25.45	-96.1	1.18		
12/10/2021	11:34	0.05	0.1	1.7	2.51	6.49	2224.9	0.07	8.21	25.31	-99.2	1.15		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
11:00	11:34	34	1.7	6.49	2224.9	0.07	8.21	25.31	-99.2

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0073-022.0-20211210 Sampler: Brittany Follett

Well ID: GSRY-MW0073 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.74
Top of Screen (ft-BTOR):	17	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	27	Sample Analysis:	Select CVOCs, Fe, TDS, Select PFAS
Total Depth of Well (ft-BTOR):	27		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	9:58			0	N/A									
12/10/2021	10:08	0.05	0.5	0.5	1.78	6.54	2350.5	0.11	16.70	25.04	44.0	1.22		
12/10/2021	10:18	0.05	0.5	1.0	1.78	6.55	2354.0	0.08	6.63	25.00	37.9	1.23		
12/10/2021	10:20	0.05	0	1.0	N/A	6.55	2360.7	0.08	3.79	25.10	37.3	1.23		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:58	10:20	22	1.0	6.55	2360.7	0.08	3.79	25.10	37.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0074-012.0-20211210 Sampler: Brittany Follett

Well ID: GSRY-MW0074 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.77
Top of Screen (ft-BTOR):	7	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	17	Sample Analysis:	Select CVOCs, Select PFAS
Total Depth of Well (ft-BTOR):	17		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	9:05			0	N/A									
12/10/2021	9:15	0.05	0.5	0.5	1.79	6.55	2103.8	0.16	34.01	24.69	28.9	1.09		
12/10/2021	9:25	0.05	0.5	1.0	1.79	6.57	2112.3	0.10	21.40	24.81	27.2	1.09		
12/10/2021	9:35	0.05	0.5	1.5	1.79	6.58	2104.9	0.08	14.67	25.03	25.2	1.09		
12/10/2021	9:45	0.05	0.5	2.0	1.79	6.59	2077.9	0.06	8.80	25.16	21.2	1.07		
12/10/2021	9:47	0.05	0	2.0	N/A	6.59	2110.9	0.07	6.84	25.17	21.0	1.09		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:05	9:47	42	2.0	6.59	2110.9	0.07	6.84	25.17	21.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0075-025.0-20211207 Sampler: Greg Kusel/Dustin Slater/Mad

Well ID: GSRY-MW0075 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	0.98
Top of Screen (ft-BTOR):	17	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	27	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/7/2021	14:32			0	0.98									
12/7/2021	14:52	0.05	1	1	1.09	7.10	1369.9	0.07	1.97	25.64	-143.4	0.69		
12/7/2021	14:54	0.05	0.1	1.1	1.09	7.10	1357.4	0.06	1.78	25.50	-146.2	0.69		
12/7/2021	14:56	0.05	0.1	1.2	1.09	7.09	1349.9	0.06	1.85	25.68	-148.1	0.68		
12/7/2021	14:58	0.05	0.1	1.3	1.09	7.10	1360.1	0.06	1.83	25.66	-148.8	0.69		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
14:32	14:58	26	1.3	7.10	1360.1	0.06	1.83	25.66	-148.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0076-015.0-20211210 Sampler: Brittany Follett

Well ID: GSRY-MW0076 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.28
Top of Screen (ft-BTOR):	10	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	20	Sample Analysis:	Select CVOCs
Total Depth of Well (ft-BTOR):	20		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	10:42			0	N/A									
12/10/2021	10:52	0.05	0.5	0.5	2.61	6.70	2884.8	0.11	4.83	25.51	6.8	1.52		
12/10/2021	10:54	0.05	0.1	0.6	2.61	6.69	2869.7	0.09	2.93	25.54	5.8	1.51		
12/10/2021	10:56	0.05	0.1	0.7	2.61	6.69	2834.2	0.12	2.76	25.70	4.3	1.49		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
10:42	10:56	14	0.7	6.69	2834.2	0.12	2.76	25.70	4.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-MW0077-015.0-20211210 Sampler: Dustin Slater

Well ID: GSRY-MW0077 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.38
Top of Screen (ft-BTOR):	10	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	20	Sample Analysis:	Select CVOCs
Total Depth of Well (ft-BTOR):	NM		

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/10/2021	9:34			0	2.38									
12/10/2021	9:54	0.05	1	1	2.41	7.00	1228.7	0.73	8.51	28.49	-44.4	0.62		
12/10/2021	9:56	0.05	0.1	1.1	2.41	7.01	1233.1	0.88	7.99	29.64	-39.7	0.62		
12/10/2021	9:58	0.05	0.1	1.2	2.41	7.03	1237.0	0.99	7.85	29.54	-28.7	0.62		
12/10/2021	10:00	0.05	0.1	1.3	2.41	7.03	1238.2	0.99	8.78	29.62	-26.0	0.62		

Start Purge	End Purge	Duration (min)	Total Vol (gal)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)
9:34	10:00	26	1.3	7.03	1238.2	0.99	8.78	29.62	-26.0

SURFACE WATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center PFAS

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: GSRY-SW0001-001.0-20211209 Sampler: Dustin Slater

Location ID: GSRY-SW0001 Location Type: Surface Water

Sample Analysis Select VOCs, PCBs

Remark:

Purge Information

Date	Time	Purge Rate (gal/min)	Volume Purged (gal)	Cum Vol Purged (gal)	Depth To Water (ft)	pH (S.U.)	S.C. (µS/cm)	DO (mg/l)	Turbidity (NTUs)	Temp (C)	ORP (mV)	Salinity (S.U.)	Color	Odor
12/9/2021	12:10			0	N/A									
12/9/2021	12:20	0.05		0.5	N/A	7.03		5.68		23.54	-37.8	0.12		

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/7/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	11/30/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.96
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,318.3 µS/cm
Specific Conductivity	1,538.5 µS/cm

Post Measurement

Actual Conductivity	1,210.8 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	11/30/2021

Calibration Details

Slope	1.059108
Offset	0.00 mg/L

Calibration point 100%

Concentration	9.37 mg/L
Pre Measurement	94.17 %Sat
Post Measurement	100.00 %Sat
Temperature	19.26 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/7/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	141.2 mV
Temperature	24.65 °C

Pre Measurement

pH	3.98 pH
pH mV	141.0 mV

Post Measurement

pH	4.00 pH
pH mV	141.0 mV

Calibration Point 2

pH of Buffer	7.00 pH
pH mV	-29.4 mV
Temperature	24.11 °C

Pre Measurement

pH	7.01 pH
pH mV	-29.3 mV

Post Measurement

pH	7.00 pH
pH mV	-29.3 mV

Calibration Point 3

pH of Buffer	10.00 pH
pH mV	-203.7 mV
Temperature	23.69 °C

Pre Measurement

pH	10.08 pH
pH mV	-203.3 mV

Post Measurement

pH	10.00 pH
pH mV	-202.9 mV

Slope and Offset 1

Slope	-56.85 mV/pH
Offset	-29.4 mV

Slope and Offset 2

Slope	-58.13 mV/pH
Offset	-29.4 mV

ORP

ORP Solution	ZoBell's
Offset	28.4 mV
Temperature	18.52 °C
Pre Measurement	236.0 mV
Post Measurement	237.6 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/7/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	12/7/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.946
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,410.6 µS/cm
Specific Conductivity	1,436.5 µS/cm

Post Measurement

Actual Conductivity	1,387.4 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	11/30/2021

Calibration Details

Slope	1.059108
Offset	0.00 mg/L

Calibration point 100%

Concentration	9.37 mg/L
Pre Measurement	94.17 %Sat
Post Measurement	100.00 %Sat
Temperature	19.26 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/7/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	141.2 mV
Temperature	24.65 °C

Pre Measurement

pH	3.98 pH
pH mV	141.0 mV

Post Measurement

pH	4.00 pH
pH mV	141.0 mV

Calibration Point 2

pH of Buffer	7.00 pH
pH mV	-29.4 mV
Temperature	24.11 °C

Pre Measurement

pH	7.01 pH
pH mV	-29.3 mV

Post Measurement

pH	7.00 pH
pH mV	-29.3 mV

Calibration Point 3

pH of Buffer	10.00 pH
pH mV	-203.7 mV
Temperature	23.69 °C

Pre Measurement

pH	10.08 pH
pH mV	-203.3 mV

Post Measurement

pH	10.00 pH
pH mV	-202.9 mV

Slope and Offset 1

Slope	-56.85 mV/pH
Offset	-29.4 mV

Slope and Offset 2

Slope	-58.13 mV/pH
Offset	-29.4 mV

ORP

ORP Solution	ZoBell's
Offset	39.5 mV
Temperature	24.19 °C
Pre Measurement	219.2 mV
Post Measurement	230.2 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/7/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	11/30/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.96
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,318.3 µS/cm
Specific Conductivity	1,538.5 µS/cm

Post Measurement

Actual Conductivity	1,210.8 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	11/30/2021

Calibration Details

Slope	1.059108
Offset	0.00 mg/L

Calibration point 100%

Concentration	9.37 mg/L
Pre Measurement	94.17 %Sat
Post Measurement	100.00 %Sat
Temperature	19.26 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/7/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	141.2 mV
Temperature	24.65 °C

Pre Measurement

pH	3.98 pH
pH mV	141.0 mV

Post Measurement

pH	4.00 pH
pH mV	141.0 mV

Calibration Point 2

pH of Buffer	7.00 pH
pH mV	-29.4 mV
Temperature	24.11 °C

Pre Measurement

pH	7.01 pH
pH mV	-29.3 mV

Post Measurement

pH	7.00 pH
pH mV	-29.3 mV

Calibration Point 3

pH of Buffer	10.00 pH
pH mV	-203.7 mV
Temperature	23.69 °C

Pre Measurement

pH	10.08 pH
pH mV	-203.3 mV

Post Measurement

pH	10.00 pH
pH mV	-202.9 mV

Slope and Offset 1

Slope	-56.85 mV/pH
Offset	-29.4 mV

Slope and Offset 2

Slope	-58.13 mV/pH
Offset	-29.4 mV

ORP

ORP Solution	ZoBell's
Offset	39.5 mV
Temperature	24.19 °C
Pre Measurement	219.2 mV
Post Measurement	230.2 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/7/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	12/7/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.946
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,410.6 µS/cm
Specific Conductivity	1,436.5 µS/cm

Post Measurement

Actual Conductivity	1,387.4 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	12/7/2021

Calibration Details

Slope	1.06958
Offset	0.00 mg/L

Calibration point 100%

Concentration	8.34 mg/L
Pre Measurement	99.35 %Sat
Post Measurement	100.00 %Sat
Temperature	24.80 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/7/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	141.2 mV
Temperature	24.65 °C

Pre Measurement

pH	3.98 pH
pH mV	141.0 mV

Post Measurement

pH	4.00 pH
pH mV	141.0 mV

Calibration Point 2

pH of Buffer	7.00 pH
pH mV	-29.4 mV
Temperature	24.11 °C

Pre Measurement

pH	7.01 pH
pH mV	-29.3 mV

Post Measurement

pH	7.00 pH
pH mV	-29.3 mV

Calibration Point 3

pH of Buffer	10.00 pH
pH mV	-203.7 mV
Temperature	23.69 °C

Pre Measurement

pH	10.08 pH
pH mV	-203.3 mV

Post Measurement

pH	10.00 pH
pH mV	-202.9 mV

Slope and Offset 1

Slope	-56.85 mV/pH
Offset	-29.4 mV

Slope and Offset 2

Slope	-58.13 mV/pH
Offset	-29.4 mV

ORP

ORP Solution	ZoBell's
Offset	39.5 mV
Temperature	24.19 °C
Pre Measurement	219.2 mV
Post Measurement	230.2 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/8/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	12/7/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.946
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,410.6 µS/cm
Specific Conductivity	1,436.5 µS/cm

Post Measurement

Actual Conductivity	1,387.4 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	12/7/2021

Calibration Details

Slope	1.06958
Offset	0.00 mg/L

Calibration point 100%

Concentration	8.34 mg/L
Pre Measurement	99.35 %Sat
Post Measurement	100.00 %Sat
Temperature	24.80 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/8/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	144.2 mV
Temperature	21.01 °C

Pre Measurement

pH	3.92 pH
pH mV	144.2 mV

Post Measurement

pH	4.00 pH
pH mV	142.3 mV

Calibration Point 2

pH of Buffer	7.02 pH
pH mV	-32.0 mV
Temperature	20.93 °C

Pre Measurement

pH	7.06 pH
pH mV	-32.3 mV

Post Measurement

pH	7.02 pH
pH mV	-31.6 mV

Calibration Point 3

pH of Buffer	10.04 pH
pH mV	-202.3 mV
Temperature	21.05 °C

Pre Measurement

pH	10.01 pH
pH mV	-202.3 mV

Post Measurement

pH	10.04 pH
pH mV	-199.6 mV

Slope and Offset 1

Slope	-58.35 mV/pH
Offset	-30.9 mV

Slope and Offset 2

Slope	-56.37 mV/pH
Offset	-30.9 mV

ORP

ORP Solution	ZoBell's
Offset	39.5 mV
Temperature	24.19 °C
Pre Measurement	219.2 mV
Post Measurement	230.2 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/8/2021

Sensor	**Conductivity**
Serial Number	803640
Last Calibrated	12/8/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.986
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,251.0 µS/cm
Specific Conductivity	1,351.6 µS/cm

Post Measurement

Actual Conductivity	1,307.9 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor	**RDO**
Serial Number	849125
Last Calibrated	12/7/2021

Calibration Details

Slope	1.06958
Offset	0.00 mg/L

Calibration point 100%

Concentration	8.34 mg/L
Pre Measurement	99.35 %Sat
Post Measurement	100.00 %Sat
Temperature	24.80 °C
Barometric Pressure	1,087.5 mbar

Sensor	**pH/ORP**
Serial Number	778862
Last Calibrated	12/8/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	144.2 mV
Temperature	21.01 °C

Pre Measurement

pH	3.92 pH
pH mV	144.2 mV

Post Measurement

pH	4.00 pH
pH mV	142.3 mV

Calibration Point 2

pH of Buffer	7.02 pH
pH mV	-32.0 mV
Temperature	20.93 °C

Pre Measurement

pH	7.06 pH
pH mV	-32.3 mV

Post Measurement

pH	7.02 pH
pH mV	-31.6 mV

Calibration Point 3

pH of Buffer	10.04 pH
pH mV	-202.3 mV
Temperature	21.05 °C

Pre Measurement

pH	10.01 pH
pH mV	-202.3 mV

Post Measurement

pH	10.04 pH
pH mV	-199.6 mV

Slope and Offset 1

Slope	-58.35 mV/pH
Offset	-30.9 mV

Slope and Offset 2

Slope	-56.37 mV/pH
Offset	-30.9 mV

ORP

ORP Solution	ZoBell's
Offset	37.5 mV
Temperature	21.20 °C
Pre Measurement	236.1 mV
Post Measurement	234.1 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/8/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	12/7/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.946
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,410.6 µS/cm
Specific Conductivity	1,436.5 µS/cm

Post Measurement

Actual Conductivity	1,387.4 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	12/7/2021

Calibration Details

Slope	1.06958
Offset	0.00 mg/L

Calibration point 100%

Concentration	8.34 mg/L
Pre Measurement	99.35 %Sat
Post Measurement	100.00 %Sat
Temperature	24.80 °C
Barometric Pressure	1,087.5 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/8/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	144.2 mV
Temperature	21.01 °C

Pre Measurement

pH	3.92 pH
pH mV	144.2 mV

Post Measurement

pH	4.00 pH
pH mV	142.3 mV

Calibration Point 2

pH of Buffer	7.02 pH
pH mV	-32.0 mV
Temperature	20.93 °C

Pre Measurement

pH	7.06 pH
pH mV	-32.3 mV

Post Measurement

pH	7.02 pH
pH mV	-31.6 mV

Calibration Point 3

pH of Buffer	10.04 pH
pH mV	-202.3 mV
Temperature	21.05 °C

Pre Measurement

pH	10.01 pH
pH mV	-202.3 mV

Post Measurement

pH	10.04 pH
pH mV	-199.6 mV

Slope and Offset 1

Slope	-58.35 mV/pH
Offset	-30.9 mV

Slope and Offset 2

Slope	-56.37 mV/pH
Offset	-30.9 mV

ORP

ORP Solution	ZoBell's
Offset	37.5 mV
Temperature	21.20 °C
Pre Measurement	236.1 mV
Post Measurement	234.1 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

Calibration Report

Instrument	Aqua TROLL 600
Serial Number	808878
Created	12/8/2021

Sensor: Conductivity

Serial Number	803640
Last Calibrated	12/8/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.986
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	1,251.0 µS/cm
Specific Conductivity	1,351.6 µS/cm

Post Measurement

Actual Conductivity	1,307.9 µS/cm
Specific Conductivity	1,413.0 µS/cm

Sensor: RDO

Serial Number	849125
Last Calibrated	12/8/2021

Calibration Details

Slope	0.9978893
Offset	0.00 mg/L

Calibration point 100%

Concentration	8.78 mg/L
Pre Measurement	107.22 %Sat
Post Measurement	100.00 %Sat
Temperature	22.27 °C
Barometric Pressure	1,020.9 mbar

Sensor: pH/ORP

Serial Number	778862
Last Calibrated	12/8/2021

Calibration Details

Calibration Point 1

pH of Buffer	4.00 pH
pH mV	144.2 mV
Temperature	21.01 °C

Pre Measurement

pH	3.92 pH
pH mV	144.2 mV

Post Measurement

pH	4.00 pH
pH mV	142.3 mV

Calibration Point 2

pH of Buffer	7.02 pH
pH mV	-32.0 mV
Temperature	20.93 °C

Pre Measurement

pH	7.06 pH
pH mV	-32.3 mV

Post Measurement

pH	7.02 pH
pH mV	-31.6 mV

Calibration Point 3

pH of Buffer	10.04 pH
pH mV	-202.3 mV
Temperature	21.05 °C

Pre Measurement

pH	10.01 pH
pH mV	-202.3 mV

Post Measurement

pH	10.04 pH
pH mV	-199.6 mV

Slope and Offset 1

Slope	-58.35 mV/pH
Offset	-30.9 mV

Slope and Offset 2

Slope	-56.37 mV/pH
Offset	-30.9 mV

ORP

ORP Solution	ZoBell's
Offset	37.5 mV
Temperature	21.20 °C
Pre Measurement	236.1 mV
Post Measurement	234.1 mV

Sensor	**Turbidity**
Serial Number	804275

Last Calibrated	7/15/2021

Calibration Details

Slope	1
Offset	-1.73 NTU

Calibration Point 1

Pre Measurement	1.10 NTU
Post Measurement	0.00 NTU

Sensor	**Barometric Pressure**
Serial Number	808878
Last Calibrated	Factory Defaults

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APPENDIX C

LABORATORY ANALYTICAL REPORTS

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National Aeronautics and
Space Administration

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Signature

23 October, 2020

Date

Pace Analytical Services, LLC
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November 16, 2021

Chad Lee
AECOM
150 North Orange Ave, Ste 200
Orlando, FL 32801

RE: GSA Reclaimation Yard - Kennedy Space Center

Enclosed are the analytical results for the samples received by the laboratory on the dates listed on the following page(s).

The results in this report apply to the samples analyzed in accordance with the chain of custody document. These results are in compliance with the 2009 NELAC Standards and the appropriate agencies listed below, unless otherwise noted in the case narrative. This analytical report should be reproduced in its entirety.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Molly Palzkill

Molly Palzkill

Project Manager

Certification List			Expires
DODELAP	DOD ELAP Accreditation (A2LA)	3269.01	03/31/2022
FLDOH	Florida Department of Health	E871093	06/30/2022
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2022
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2022
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2022
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2022
NYDOH	New York Department of Health	12110	04/01/2022
TCEQ	Texas Secondary NELAP Accreditation	T104704504-20-11	11/30/2021
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2022

Case Narrative

Data Quality Objectives
Pace Mobile Lab provided onsite services to support AECOM for a water investigation. Water samples were delivered in unpreserved VOA vials. Samples were analyzed for a client specific list of volatile organics.

Sample Receipt Information:
The samples were hand delivered to the on-site mobile laboratory and were received in acceptable condition.

Please see the chain of custody (COC) documentation at the end of this report for additional information.

Hold Time:
The samples were extracted and analyzed within the method required hold time.

Sample Preparation and Analysis:
The samples were prepared and analyzed in accordance with applicable method SOP, ENV-SOP-MAD1-0033.

Initial Calibration:
All criteria were within method requirements.

Continuing Calibration Verification (CCV):
All criteria were within method requirements.

Method Blanks:
The method blanks had no detects.

Laboratory Control Samples (LCSs):
The LCSs had acceptable recoveries for all analytes.

Matrix Spike/Matrix Spike Duplicates (MS/MSDs):
The MS/MSDs had acceptable recoveries for all analytes, except where noted.

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AECOM
150 North Orange Ave, Ste 200
Orlando FL, 32801

Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GSRY-DPT3083-008.0-20211109	T214502-01	Water	11/09/2021	11/09/2021
GSRY-DPT3083-012.0-20211109	T214502-02	Water	11/09/2021	11/09/2021
GSRY-DPT3083-016.0-20211109	T214502-03	Water	11/09/2021	11/09/2021
GSRY-DPT3083-020.0-20211109	T214502-04	Water	11/09/2021	11/09/2021
GSRY-DPT3083-024.0-20211109	T214502-05	Water	11/09/2021	11/09/2021
GSRY-DPT3083-028.0-20211109	T214502-06	Water	11/09/2021	11/09/2021
GSRY-DPT3083-032.0-20211109	T214502-07	Water	11/09/2021	11/09/2021
GSRY-DPT3084-008.0-20211109	T214502-08	Water	11/09/2021	11/09/2021
GSRY-DPT3084-012.0-20211109	T214502-09	Water	11/09/2021	11/09/2021
GSRY-DPT3084-016.0-20211109	T214502-10	Water	11/09/2021	11/09/2021
GSRY-DPT3084-020.0-20211109	T214502-11	Water	11/09/2021	11/09/2021
GSRY-DPT3084-024.0-20211109	T214502-12	Water	11/09/2021	11/09/2021
GSRY-DPT3084-028.0-20211109	T214502-13	Water	11/09/2021	11/09/2021
GSRY-DPT3084-032.0-20211109	T214502-14	Water	11/09/2021	11/09/2021
GSRY-DPT3085-008.0-20211109	T214502-15	Water	11/09/2021	11/09/2021
GSRY-DPT3085-012.0-20211109	T214502-16	Water	11/09/2021	11/09/2021
GSRY-DPT3085-016.0-20211109	T214502-17	Water	11/09/2021	11/09/2021
GSRY-DPT3085-020.0-20211109	T214502-18	Water	11/09/2021	11/09/2021
GSRY-DPT3085-024.0-20211110	T214503-01	Water	11/10/2021	11/10/2021
GSRY-DPT3085-028.0-20211110	T214503-02	Water	11/10/2021	11/10/2021
GSRY-DPT3085-032.0-20211110	T214503-03	Water	11/10/2021	11/10/2021
GSRY-DPT3086-008.0-20211110	T214503-04	Water	11/10/2021	11/10/2021
GSRY-DPT3086-012.0-20211110	T214503-05	Water	11/10/2021	11/10/2021
GSRY-DPT3086-016.0-20211110	T214503-06	Water	11/10/2021	11/10/2021
GSRY-DPT3086-020.0-20211110	T214503-07	Water	11/10/2021	11/10/2021
GSRY-DPT3086-024.0-20211110	T214503-08	Water	11/10/2021	11/10/2021
GSRY-DPT3086-028.0-20211110	T214503-09	Water	11/10/2021	11/10/2021
GSRY-DPT3086-032.0-20211110	T214503-10	Water	11/10/2021	11/10/2021
GSRY-DPT3087-008.0-20211110	T214503-11	Water	11/10/2021	11/10/2021
GSRY-DPT3087-012.0-20211110	T214503-12	Water	11/10/2021	11/10/2021
GSRY-DPT3087-016.0-20211110	T214503-13	Water	11/10/2021	11/10/2021
GSRY-DPT3087-020.0-20211110	T214503-14	Water	11/10/2021	11/10/2021
GSRY-DPT3087-024.0-20211110	T214503-15	Water	11/10/2021	11/10/2021
GSRY-DPT3087-028.0-20211110	T214503-16	Water	11/10/2021	11/10/2021

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AECOM
150 North Orange Ave, Ste 200
Orlando FL, 32801

Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GSRY-DPT3087-032.0-20211110	T214503-17	Water	11/10/2021	11/10/2021
GSRY-DPT3088-008.0-20211110	T214503-18	Water	11/10/2021	11/10/2021
GSRY-DPT3088-012.0-20211110	T214503-19	Water	11/10/2021	11/10/2021
GSRY-DPT3088-016.0-20211110	T214503-20	Water	11/10/2021	11/10/2021
GSRY-DPT3088-020.0-20211110	T214503-21	Water	11/10/2021	11/10/2021
GSRY-DPT3088-024.0-20211110	T214503-22	Water	11/10/2021	11/10/2021
GSRY-DPT3088-028.0-20211110	T214503-23	Water	11/10/2021	11/10/2021
GSRY-DPT3088-032.0-20211110	T214503-24	Water	11/10/2021	11/10/2021
GSRY-DPT3089-008.0-20211110	T214503-25	Water	11/10/2021	11/10/2021
GSRY-DPT3089-012.0-20211110	T214503-26	Water	11/10/2021	11/10/2021
GSRY-DPT3089-016.0-20211110	T214503-27	Water	11/10/2021	11/10/2021
GSRY-DPT3089-020.0-20211110	T214503-28	Water	11/10/2021	11/10/2021
GSRY-DPT3089-024.0-20211110	T214503-29	Water	11/10/2021	11/10/2021
GSRY-DPT3089-028.0-20211111	T214504-01	Water	11/11/2021	11/11/2021
GSRY-DPT3089-032.0-20211111	T214504-02	Water	11/11/2021	11/11/2021
GSRY-DPT3090-008.0-20211111	T214504-03	Water	11/11/2021	11/11/2021
GSRY-DPT3090-012.0-20211111	T214504-04	Water	11/11/2021	11/11/2021
GSRY-DPT3090-016.0-20211111	T214504-05	Water	11/11/2021	11/11/2021
GSRY-DPT3090-020.0-20211111	T214504-06	Water	11/11/2021	11/11/2021
GSRY-DPT3090-024.0-20211111	T214504-07	Water	11/11/2021	11/11/2021
GSRY-DPT3090-028.0-20211111	T214504-08	Water	11/11/2021	11/11/2021
GSRY-DPT3090-032.0-20211111	T214504-09	Water	11/11/2021	11/11/2021
GSRY-DPT3091-008.0-20211111	T214504-10	Water	11/11/2021	11/11/2021
GSRY-DPT3091-012.0-20211111	T214504-11	Water	11/11/2021	11/11/2021
GSRY-DPT3091-016.0-20211111	T214504-12	Water	11/11/2021	11/11/2021
GSRY-DPT3091-020.0-20211111	T214504-13	Water	11/11/2021	11/11/2021
GSRY-DPT3091-024.0-20211111	T214504-14	Water	11/11/2021	11/11/2021
GSRY-DPT3091-028.0-20211111	T214504-15	Water	11/11/2021	11/11/2021
GSRY-DPT3091-032.0-20211111	T214504-16	Water	11/11/2021	11/11/2021
GSRY-DPT3092-008.0-20211111	T214504-17	Water	11/11/2021	11/11/2021
GSRY-DPT3092-012.0-20211111	T214504-18	Water	11/11/2021	11/11/2021
GSRY-DPT3092-016.0-20211111	T214504-19	Water	11/11/2021	11/11/2021
GSRY-DPT3092-020.0-20211111	T214504-20	Water	11/11/2021	11/11/2021
GSRY-DPT3092-024.0-20211111	T214504-21	Water	11/11/2021	11/11/2021

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Project Number: 60614327

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GSRY-DPT3092-028.0-20211111	T214504-22	Water	11/11/2021	11/11/2021
GSRY-DPT3092-032.0-20211111	T214504-23	Water	11/11/2021	11/11/2021

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Project Number: 60614327

GSRY-DPT3083-008.0-20211109

T214502-01 (Water)

Date Sampled
11/09/2021 09:25

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	M
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	M
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 21:15	EPA 8260B	
Surrogate: Toluene-d8		*89.5 %*		*82.1-110*	*11/09/2021*	*11/09/2021 21:15*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.4 %*		*66.6-120*	*11/09/2021*	*11/09/2021 21:15*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.2 %*		*74.8-106*	*11/09/2021*	*11/09/2021 21:15*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3083-012.0-20211109

T214502-02 (Water)

Date Sampled
11/09/2021 09:40

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:49	EPA 8260B	
Surrogate: Toluene-d8		*92.3 %*		*82.1-110*	*11/09/2021*	*11/10/2021 01:49*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.9 %*		*66.6-120*	*11/09/2021*	*11/10/2021 01:49*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*88.0 %*		*74.8-106*	*11/09/2021*	*11/10/2021 01:49*	*EPA 8260B*	

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GSRY-DPT3083-016.0-20211109

T214502-03 (Water)

Date Sampled
11/09/2021 09:57

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
Chlorobenzene	**14**	0.50	ug/L	1	11/09/2021	11/10/2021 02:15	EPA 8260B	
Surrogate: Toluene-d8		*88.9 %*		*82.1-110*	*11/09/2021*	*11/10/2021 02:15*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.3 %*		*66.6-120*	*11/09/2021*	*11/10/2021 02:15*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.8 %*		*74.8-106*	*11/09/2021*	*11/10/2021 02:15*	*EPA 8260B*	

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GSRY-DPT3083-020.0-20211109

T214502-04 (Water)

Date Sampled
11/09/2021 10:17

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
Chlorobenzene	**1.6**	0.50	ug/L	1	11/09/2021	11/10/2021 02:40	EPA 8260B	
Surrogate: Toluene-d8		*91.4 %*		*82.1-110*	*11/09/2021*	*11/10/2021 02:40*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*82.4 %*		*66.6-120*	*11/09/2021*	*11/10/2021 02:40*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*88.8 %*		*74.8-106*	*11/09/2021*	*11/10/2021 02:40*	*EPA 8260B*	

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GSRY-DPT3083-024.0-20211109

T214502-05 (Water)

Date Sampled
11/09/2021 10:45

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 03:06	EPA 8260B	
Surrogate: Toluene-d8		*90.3 %*		*82.1-110*	*11/09/2021*	*11/10/2021 03:06*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*81.2 %*		*66.6-120*	*11/09/2021*	*11/10/2021 03:06*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.6 %*		*74.8-106*	*11/09/2021*	*11/10/2021 03:06*	*EPA 8260B*	

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GSRY-DPT3083-028.0-20211109

T214502-06 (Water)

Date Sampled
11/09/2021 11:05

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:14	EPA 8260B	
Surrogate: Toluene-d8		*87.7 %*		*82.1-110*	*11/09/2021*	*11/09/2021 18:14*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.7 %*		*66.6-120*	*11/09/2021*	*11/09/2021 18:14*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.2 %*		*74.8-106*	*11/09/2021*	*11/09/2021 18:14*	*EPA 8260B*	

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GSRY-DPT3083-032.0-20211109

T214502-07 (Water)

Date Sampled
11/09/2021 11:25

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
Chlorobenzene	**1.4**	0.50	ug/L	1	11/09/2021	11/09/2021 18:41	EPA 8260B	
Surrogate: Toluene-d8		*86.4 %*		*82.1-110*	*11/09/2021*	*11/09/2021 18:41*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.5 %*		*66.6-120*	*11/09/2021*	*11/09/2021 18:41*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*79.2 %*		*74.8-106*	*11/09/2021*	*11/09/2021 18:41*	*EPA 8260B*	

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GSRY-DPT3084-008.0-20211109

T214502-08 (Water)

Date Sampled
11/09/2021 11:59

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 16:55	EPA 8260B	
Surrogate: Toluene-d8		*87.2 %*		*82.1-110*	*11/09/2021*	*11/09/2021 16:55*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.3 %*		*66.6-120*	*11/09/2021*	*11/09/2021 16:55*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*80.1 %*		*74.8-106*	*11/09/2021*	*11/09/2021 16:55*	*EPA 8260B*	

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GSRY-DPT3084-012.0-20211109

T214502-09 (Water)

Date Sampled
11/09/2021 12:17

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:48	EPA 8260B	
Surrogate: Toluene-d8		*87.1 %*		*82.1-110*	*11/09/2021*	*11/09/2021 17:48*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.6 %*		*66.6-120*	*11/09/2021*	*11/09/2021 17:48*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.5 %*		*74.8-106*	*11/09/2021*	*11/09/2021 17:48*	*EPA 8260B*	

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GSRY-DPT3084-016.0-20211109

T214502-10 (Water)

Date Sampled
11/09/2021 12:31

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 17:21	EPA 8260B	
Surrogate: Toluene-d8		*86.4 %*		*82.1-110*	*11/09/2021*	*11/09/2021 17:21*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.3 %*		*66.6-120*	*11/09/2021*	*11/09/2021 17:21*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*80.4 %*		*74.8-106*	*11/09/2021*	*11/09/2021 17:21*	*EPA 8260B*	

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2525 Advance Road
Madison, WI 53718
608.221.8700 Phone
608.221.4889 Fax

AECOM
150 North Orange Ave, Ste 200
Orlando FL, 32801

Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

GSRY-DPT3084-020.0-20211109

T214502-11 (Water)

Date Sampled
11/09/2021 12:48

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:23	EPA 8260B	
Surrogate: Toluene-d8		*90.4 %*		*82.1-110*	*11/09/2021*	*11/09/2021 20:23*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*92.6 %*		*66.6-120*	*11/09/2021*	*11/09/2021 20:23*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.6 %*		*74.8-106*	*11/09/2021*	*11/09/2021 20:23*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3084-024.0-20211109

T214502-12 (Water)

Date Sampled
11/09/2021 13:05

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 20:49	EPA 8260B	
Surrogate: Toluene-d8		*88.7 %*		*82.1-110*	*11/09/2021*	*11/09/2021 20:49*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*91.7 %*		*66.6-120*	*11/09/2021*	*11/09/2021 20:49*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.6 %*		*74.8-106*	*11/09/2021*	*11/09/2021 20:49*	*EPA 8260B*	

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

GSRY-DPT3084-028.0-20211109

T214502-13 (Water)

Date Sampled
11/09/2021 13:25

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:32	EPA 8260B	
Surrogate: Toluene-d8		*93.3 %*		*82.1-110*	*11/09/2021*	*11/09/2021 22:32*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.7 %*		*66.6-120*	*11/09/2021*	*11/09/2021 22:32*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.2 %*		*74.8-106*	*11/09/2021*	*11/09/2021 22:32*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3084-032.0-20211109

T214502-14 (Water)

Date Sampled
11/09/2021 13:42

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 22:55	EPA 8260B	
Surrogate: Toluene-d8		*90.3 %*		*82.1-110*	*11/09/2021*	*11/09/2021 22:55*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.9 %*		*66.6-120*	*11/09/2021*	*11/09/2021 22:55*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.1 %*		*74.8-106*	*11/09/2021*	*11/09/2021 22:55*	*EPA 8260B*	

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GSRY-DPT3085-008.0-20211109

T214502-15 (Water)

Date Sampled
11/09/2021 14:39

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
1,3-Dichlorobenzene	**0.58**	0.50	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
1,4-Dichlorobenzene	**1.4**	0.50	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
Chlorobenzene	**0.55**	0.50	ug/L	1	11/09/2021	11/09/2021 23:20	EPA 8260B	
Surrogate: Toluene-d8		*91.5 %*		*82.1-110*	*11/09/2021*	*11/09/2021 23:20*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.5 %*		*66.6-120*	*11/09/2021*	*11/09/2021 23:20*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.8 %*		*74.8-106*	*11/09/2021*	*11/09/2021 23:20*	*EPA 8260B*	

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GSRY-DPT3085-012.0-20211109

T214502-16 (Water)

Date Sampled
11/09/2021 14:52

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
1,2-Dichlorobenzene	**0.87**	0.50	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
1,3-Dichlorobenzene	**19**	0.50	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
1,4-Dichlorobenzene	**33**	0.50	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
Chlorobenzene	**12**	0.50	ug/L	1	11/09/2021	11/09/2021 23:46	EPA 8260B	
Surrogate: Toluene-d8		*92.1 %*		*82.1-110*	*11/09/2021*	*11/09/2021 23:46*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.6 %*		*66.6-120*	*11/09/2021*	*11/09/2021 23:46*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.6 %*		*74.8-106*	*11/09/2021*	*11/09/2021 23:46*	*EPA 8260B*	

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GSRY-DPT3085-016.0-20211109

T214502-17 (Water)

Date Sampled
11/09/2021 15:04

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111002**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
1,3-Dichlorobenzene	**7.5**	0.50	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
1,4-Dichlorobenzene	**14**	0.50	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
Chlorobenzene	**4.3**	0.50	ug/L	1	11/09/2021	11/10/2021 01:00	EPA 8260B	
Surrogate: Toluene-d8		*92.3 %*		*82.1-110*	*11/09/2021*	*11/10/2021 01:00*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.7 %*		*66.6-120*	*11/09/2021*	*11/10/2021 01:00*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*86.0 %*		*74.8-106*	*11/09/2021*	*11/10/2021 01:00*	*EPA 8260B*	

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GSRY-DPT3085-020.0-20211109

T214502-18 (Water)

Date Sampled
11/09/2021 15:18

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111002**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/09/2021	11/10/2021 01:26	EPA 8260B	
Surrogate: Toluene-d8		*96.0 %*		*82.1-110*	*11/09/2021*	*11/10/2021 01:26*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.9 %*		*66.6-120*	*11/09/2021*	*11/10/2021 01:26*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*88.9 %*		*74.8-106*	*11/09/2021*	*11/10/2021 01:26*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3085-024.0-20211110

T214503-01 (Water)

Date Sampled
11/10/2021 07:22

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 09:37	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 09:37*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.6 %*		*66.6-120*	*11/10/2021*	*11/10/2021 09:37*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 09:37*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3085-028.0-20211110

T214503-02 (Water)

Date Sampled
11/10/2021 07:41

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:01	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 10:01*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.8 %*		*66.6-120*	*11/10/2021*	*11/10/2021 10:01*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.7 %*		*74.8-106*	*11/10/2021*	*11/10/2021 10:01*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3085-032.0-20211110

T214503-03 (Water)

Date Sampled
11/10/2021 07:58

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 10:27	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 10:27*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.8 %*		*66.6-120*	*11/10/2021*	*11/10/2021 10:27*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.3 %*		*74.8-106*	*11/10/2021*	*11/10/2021 10:27*	*EPA 8260B*	

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

GSRY-DPT3086-008.0-20211110

T214503-04 (Water)

Date Sampled
11/10/2021 08:42

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111003**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:08	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 12:08*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.3 %*		*66.6-120*	*11/10/2021*	*11/10/2021 12:08*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 12:08*	*EPA 8260B*	

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GSRY-DPT3086-012.0-20211110

T214503-05 (Water)

Date Sampled
11/10/2021 08:55

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:32	EPA 8260B	
Surrogate: Toluene-d8		*101 %*		*82.1-110*	*11/10/2021*	*11/10/2021 12:32*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.5 %*		*66.6-120*	*11/10/2021*	*11/10/2021 12:32*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.6 %*		*74.8-106*	*11/10/2021*	*11/10/2021 12:32*	*EPA 8260B*	

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GSRY-DPT3086-016.0-20211110

T214503-06 (Water)

Date Sampled
11/10/2021 09:08

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 12:58	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 12:58*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.4 %*		*66.6-120*	*11/10/2021*	*11/10/2021 12:58*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.3 %*		*74.8-106*	*11/10/2021*	*11/10/2021 12:58*	*EPA 8260B*	

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T214503-07 (Water)

Date Sampled
11/10/2021 09:21

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 13:25	EPA 8260B	
Surrogate: Toluene-d8		*104 %*		*82.1-110*	*11/10/2021*	*11/10/2021 13:25*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.0 %*		*66.6-120*	*11/10/2021*	*11/10/2021 13:25*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.4 %*		*74.8-106*	*11/10/2021*	*11/10/2021 13:25*	*EPA 8260B*	

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T214503-08 (Water)

Date Sampled
11/10/2021 09:36

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:16	EPA 8260B	
Surrogate: Toluene-d8		*100 %*		*82.1-110*	*11/10/2021*	*11/10/2021 14:16*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.3 %*		*66.6-120*	*11/10/2021*	*11/10/2021 14:16*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.4 %*		*74.8-106*	*11/10/2021*	*11/10/2021 14:16*	*EPA 8260B*	

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T214503-09 (Water)

Date Sampled
11/10/2021 09:50

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 14:43	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 14:43*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.0 %*		*66.6-120*	*11/10/2021*	*11/10/2021 14:43*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.7 %*		*74.8-106*	*11/10/2021*	*11/10/2021 14:43*	*EPA 8260B*	

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T214503-10 (Water)

Date Sampled
11/10/2021 10:18

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111003**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 15:10	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 15:10*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*89.4 %*		*66.6-120*	*11/10/2021*	*11/10/2021 15:10*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.7 %*		*74.8-106*	*11/10/2021*	*11/10/2021 15:10*	*EPA 8260B*	

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GSRY-DPT3087-008.0-20211110

T214503-11 (Water)

Date Sampled
11/10/2021 10:53

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:01	EPA 8260B	
Surrogate: Toluene-d8		*101 %*		*82.1-110*	*11/10/2021*	*11/10/2021 16:01*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*89.1 %*		*66.6-120*	*11/10/2021*	*11/10/2021 16:01*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.6 %*		*74.8-106*	*11/10/2021*	*11/10/2021 16:01*	*EPA 8260B*	

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T214503-12 (Water)

Date Sampled
11/10/2021 11:10

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:27	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 16:27*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.3 %*		*66.6-120*	*11/10/2021*	*11/10/2021 16:27*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.8 %*		*74.8-106*	*11/10/2021*	*11/10/2021 16:27*	*EPA 8260B*	

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T214503-13 (Water)

Date Sampled
11/10/2021 11:22

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 16:54	EPA 8260B	
Surrogate: Toluene-d8		*101 %*		*82.1-110*	*11/10/2021*	*11/10/2021 16:54*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.6 %*		*66.6-120*	*11/10/2021*	*11/10/2021 16:54*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 16:54*	*EPA 8260B*	

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T214503-14 (Water)

Date Sampled
11/10/2021 11:34

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:21	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 17:21*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.3 %*		*66.6-120*	*11/10/2021*	*11/10/2021 17:21*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 17:21*	*EPA 8260B*	

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T214503-15 (Water)

Date Sampled
11/10/2021 11:47

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111003**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 17:47	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 17:47*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.3 %*		*66.6-120*	*11/10/2021*	*11/10/2021 17:47*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 17:47*	*EPA 8260B*	

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GSRY-DPT3087-028.0-20211110

T214503-16 (Water)

Date Sampled
11/10/2021 12:05

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:13	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 18:13*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*89.5 %*		*66.6-120*	*11/10/2021*	*11/10/2021 18:13*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.5 %*		*74.8-106*	*11/10/2021*	*11/10/2021 18:13*	*EPA 8260B*	

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T214503-17 (Water)

Date Sampled
11/10/2021 12:22

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111003**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 18:40	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 18:40*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.9 %*		*66.6-120*	*11/10/2021*	*11/10/2021 18:40*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.4 %*		*74.8-106*	*11/10/2021*	*11/10/2021 18:40*	*EPA 8260B*	

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GSRY-DPT3088-008.0-20211110

T214503-18 (Water)

Date Sampled
11/10/2021 12:51

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111003**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:32	EPA 8260B	
Surrogate: Toluene-d8		*102 %*		*82.1-110*	*11/10/2021*	*11/10/2021 19:32*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*91.0 %*		*66.6-120*	*11/10/2021*	*11/10/2021 19:32*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.9 %*		*74.8-106*	*11/10/2021*	*11/10/2021 19:32*	*EPA 8260B*	

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T214503-19 (Water)

Date Sampled
11/10/2021 13:02

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 19:56	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 19:56*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*90.5 %*		*66.6-120*	*11/10/2021*	*11/10/2021 19:56*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.3 %*		*74.8-106*	*11/10/2021*	*11/10/2021 19:56*	*EPA 8260B*	

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T214503-20 (Water)

Date Sampled
11/10/2021 13:13

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111004**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:22	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 20:22*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*89.9 %*		*66.6-120*	*11/10/2021*	*11/10/2021 20:22*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*87.5 %*		*74.8-106*	*11/10/2021*	*11/10/2021 20:22*	*EPA 8260B*	

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T214503-21 (Water)

Date Sampled
11/10/2021 13:28

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 20:48	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 20:48*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*88.8 %*		*66.6-120*	*11/10/2021*	*11/10/2021 20:48*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*86.6 %*		*74.8-106*	*11/10/2021*	*11/10/2021 20:48*	*EPA 8260B*	

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GSRY-DPT3088-024.0-20211110

T214503-22 (Water)

Date Sampled
11/10/2021 13:42

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:14	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/10/2021 21:14*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.1 %*		*66.6-120*	*11/10/2021*	*11/10/2021 21:14*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*87.0 %*		*74.8-106*	*11/10/2021*	*11/10/2021 21:14*	*EPA 8260B*	

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T214503-23 (Water)

Date Sampled
11/10/2021 14:08

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 21:39	EPA 8260B	
Surrogate: Toluene-d8		*101 %*		*82.1-110*	*11/10/2021*	*11/10/2021 21:39*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*82.6 %*		*66.6-120*	*11/10/2021*	*11/10/2021 21:39*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*89.7 %*		*74.8-106*	*11/10/2021*	*11/10/2021 21:39*	*EPA 8260B*	

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GSRY-DPT3088-032.0-20211110

T214503-24 (Water)

Date Sampled
11/10/2021 14:37

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:05	EPA 8260B	
Surrogate: Toluene-d8		*101 %*		*82.1-110*	*11/10/2021*	*11/10/2021 22:05*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.8 %*		*66.6-120*	*11/10/2021*	*11/10/2021 22:05*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*87.2 %*		*74.8-106*	*11/10/2021*	*11/10/2021 22:05*	*EPA 8260B*	

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T214503-25 (Water)

Date Sampled
11/10/2021 15:09

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:30	EPA 8260B	
Surrogate: Toluene-d8		*106 %*		*82.1-110*	*11/10/2021*	*11/10/2021 22:30*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.0 %*		*66.6-120*	*11/10/2021*	*11/10/2021 22:30*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*87.6 %*		*74.8-106*	*11/10/2021*	*11/10/2021 22:30*	*EPA 8260B*	

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T214503-26 (Water)

Date Sampled
11/10/2021 15:23

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 22:56	EPA 8260B	
Surrogate: Toluene-d8		*105 %*		*82.1-110*	*11/10/2021*	*11/10/2021 22:56*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.1 %*		*66.6-120*	*11/10/2021*	*11/10/2021 22:56*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*90.1 %*		*74.8-106*	*11/10/2021*	*11/10/2021 22:56*	*EPA 8260B*	

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T214503-27 (Water)

Date Sampled
11/10/2021 15:35

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111004**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/10/2021 23:22	EPA 8260B	
Surrogate: Toluene-d8		*104 %*		*82.1-110*	*11/10/2021*	*11/10/2021 23:22*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.6 %*		*66.6-120*	*11/10/2021*	*11/10/2021 23:22*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*89.2 %*		*74.8-106*	*11/10/2021*	*11/10/2021 23:22*	*EPA 8260B*	

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GSRY-DPT3089-020.0-20211110

T214503-28 (Water)

Date Sampled
11/10/2021 15:48

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 00:38	EPA 8260B	
Surrogate: Toluene-d8		*104 %*		*82.1-110*	*11/10/2021*	*11/11/2021 00:38*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.9 %*		*66.6-120*	*11/10/2021*	*11/11/2021 00:38*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*90.4 %*		*74.8-106*	*11/10/2021*	*11/11/2021 00:38*	*EPA 8260B*	

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T214503-29 (Water)

Date Sampled
11/10/2021 16:02

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111004**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/10/2021	11/11/2021 01:04	EPA 8260B	
Surrogate: Toluene-d8		*103 %*		*82.1-110*	*11/10/2021*	*11/11/2021 01:04*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.0 %*		*66.6-120*	*11/10/2021*	*11/11/2021 01:04*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*87.2 %*		*74.8-106*	*11/10/2021*	*11/11/2021 01:04*	*EPA 8260B*	

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GSRY-DPT3089-028.0-20211111

T214504-01 (Water)

Date Sampled
11/11/2021 07:08

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	M
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 10:54	EPA 8260B	
Surrogate: Toluene-d8		*97.2 %*		*82.1-110*	*11/11/2021*	*11/11/2021 10:54*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*91.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 10:54*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.0 %*		*74.8-106*	*11/11/2021*	*11/11/2021 10:54*	*EPA 8260B*	

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GSRY-DPT3089-032.0-20211111

T214504-02 (Water)

Date Sampled
11/11/2021 07:34

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:20	EPA 8260B	
Surrogate: Toluene-d8		*94.5 %*		*82.1-110*	*11/11/2021*	*11/11/2021 11:20*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.7 %*		*66.6-120*	*11/11/2021*	*11/11/2021 11:20*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*80.4 %*		*74.8-106*	*11/11/2021*	*11/11/2021 11:20*	*EPA 8260B*	

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T214504-03 (Water)

Date Sampled
11/11/2021 08:03

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111005**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
1,4-Dichlorobenzene	**0.99**	0.50	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
Chlorobenzene	**8.2**	0.50	ug/L	1	11/11/2021	11/11/2021 11:46	EPA 8260B	
Surrogate: Toluene-d8		*95.8 %*		*82.1-110*	*11/11/2021*	*11/11/2021 11:46*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 11:46*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.9 %*		*74.8-106*	*11/11/2021*	*11/11/2021 11:46*	*EPA 8260B*	

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GSRY-DPT3090-012.0-20211111

T214504-04 (Water)

Date Sampled
11/11/2021 08:19

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111005**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
1,4-Dichlorobenzene	**1.4**	0.50	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
Chlorobenzene	**27**	0.50	ug/L	1	11/11/2021	11/11/2021 12:10	EPA 8260B	
Surrogate: Toluene-d8		*92.2 %*		*82.1-110*	*11/11/2021*	*11/11/2021 12:10*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.4 %*		*66.6-120*	*11/11/2021*	*11/11/2021 12:10*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.8 %*		*74.8-106*	*11/11/2021*	*11/11/2021 12:10*	*EPA 8260B*	

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GSRY-DPT3090-016.0-20211111

T214504-05 (Water)

Date Sampled
11/11/2021 08:31

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111005**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
Chlorobenzene	**5.8**	0.50	ug/L	1	11/11/2021	11/11/2021 12:37	EPA 8260B	
Surrogate: Toluene-d8		*98.1 %*		*82.1-110*	*11/11/2021*	*11/11/2021 12:37*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 12:37*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.1 %*		*74.8-106*	*11/11/2021*	*11/11/2021 12:37*	*EPA 8260B*	

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GSRY-DPT3090-020.0-20211111

T214504-06 (Water)

Date Sampled
11/11/2021 08:43

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
1,4-Dichlorobenzene	**0.98**	0.50	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
Chlorobenzene	**2.3**	0.50	ug/L	1	11/11/2021	11/11/2021 13:04	EPA 8260B	
Surrogate: Toluene-d8		*96.4 %*		*82.1-110*	*11/11/2021*	*11/11/2021 13:04*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 13:04*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.0 %*		*74.8-106*	*11/11/2021*	*11/11/2021 13:04*	*EPA 8260B*	

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T214504-07 (Water)

Date Sampled
11/11/2021 08:58

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
1,3-Dichlorobenzene	**1.8**	0.50	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
1,4-Dichlorobenzene	**4.2**	0.50	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
Chlorobenzene	**4.6**	0.50	ug/L	1	11/11/2021	11/11/2021 13:29	EPA 8260B	
Surrogate: Toluene-d8		*93.6 %*		*82.1-110*	*11/11/2021*	*11/11/2021 13:29*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*82.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 13:29*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.6 %*		*74.8-106*	*11/11/2021*	*11/11/2021 13:29*	*EPA 8260B*	

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T214504-08 (Water)

Date Sampled
11/11/2021 09:11

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 13:55	EPA 8260B	
Surrogate: Toluene-d8		*94.9 %*		*82.1-110*	*11/11/2021*	*11/11/2021 13:55*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.0 %*		*66.6-120*	*11/11/2021*	*11/11/2021 13:55*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.7 %*		*74.8-106*	*11/11/2021*	*11/11/2021 13:55*	*EPA 8260B*	

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T214504-09 (Water)

Date Sampled
11/11/2021 09:28

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111005**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 14:22	EPA 8260B	
Surrogate: Toluene-d8		*97.0 %*		*82.1-110*	*11/11/2021*	*11/11/2021 14:22*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*87.2 %*		*66.6-120*	*11/11/2021*	*11/11/2021 14:22*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.4 %*		*74.8-106*	*11/11/2021*	*11/11/2021 14:22*	*EPA 8260B*	

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GSRY-DPT3091-008.0-20211111

T214504-10 (Water)

Date Sampled
11/11/2021 10:06

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:15	EPA 8260B	
Surrogate: Toluene-d8		*97.1 %*		*82.1-110*	*11/11/2021*	*11/11/2021 15:15*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.4 %*		*66.6-120*	*11/11/2021*	*11/11/2021 15:15*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*81.0 %*		*74.8-106*	*11/11/2021*	*11/11/2021 15:15*	*EPA 8260B*	

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GSRY-DPT3091-012.0-20211111

T214504-11 (Water)

Date Sampled
11/11/2021 10:17

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 15:41	EPA 8260B	
Surrogate: Toluene-d8		*94.7 %*		*82.1-110*	*11/11/2021*	*11/11/2021 15:41*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.7 %*		*66.6-120*	*11/11/2021*	*11/11/2021 15:41*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.6 %*		*74.8-106*	*11/11/2021*	*11/11/2021 15:41*	*EPA 8260B*	

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T214504-12 (Water)

Date Sampled
11/11/2021 10:28

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:08	EPA 8260B	
Surrogate: Toluene-d8		*97.4 %*		*82.1-110*	*11/11/2021*	*11/11/2021 16:08*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.1 %*		*66.6-120*	*11/11/2021*	*11/11/2021 16:08*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.3 %*		*74.8-106*	*11/11/2021*	*11/11/2021 16:08*	*EPA 8260B*	

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T214504-13 (Water)

Date Sampled
11/11/2021 10:41

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:32	EPA 8260B	
Surrogate: Toluene-d8		*97.1 %*		*82.1-110*	*11/11/2021*	*11/11/2021 16:32*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.6 %*		*66.6-120*	*11/11/2021*	*11/11/2021 16:32*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.7 %*		*74.8-106*	*11/11/2021*	*11/11/2021 16:32*	*EPA 8260B*	

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GSRY-DPT3091-024.0-20211111

T214504-14 (Water)

Date Sampled
11/11/2021 10:55

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 20:37	EPA 8260B	
Surrogate: Toluene-d8		*96.1 %*		*82.1-110*	*11/11/2021*	*11/11/2021 20:37*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.6 %*		*66.6-120*	*11/11/2021*	*11/11/2021 20:37*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.9 %*		*74.8-106*	*11/11/2021*	*11/11/2021 20:37*	*EPA 8260B*	

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T214504-15 (Water)

Date Sampled
11/11/2021 11:12

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:03	EPA 8260B	
Surrogate: Toluene-d8		*95.1 %*		*82.1-110*	*11/11/2021*	*11/11/2021 21:03*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.3 %*		*66.6-120*	*11/11/2021*	*11/11/2021 21:03*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*85.4 %*		*74.8-106*	*11/11/2021*	*11/11/2021 21:03*	*EPA 8260B*	

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GSRY-DPT3091-032.0-20211111

T214504-16 (Water)

Date Sampled
11/11/2021 11:31

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111005**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:30	EPA 8260B	
Surrogate: Toluene-d8		*97.2 %*		*82.1-110*	*11/11/2021*	*11/11/2021 21:30*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.7 %*		*66.6-120*	*11/11/2021*	*11/11/2021 21:30*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*86.5 %*		*74.8-106*	*11/11/2021*	*11/11/2021 21:30*	*EPA 8260B*	

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T214504-17 (Water)

Date Sampled
11/11/2021 12:05

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Lab #21								
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111006**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	M, X
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	M, X
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	M, X
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	M, X
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	M, X
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 21:56	EPA 8260B	
Surrogate: Toluene-d8		*95.8 %*		*82.1-110*	*11/11/2021*	*11/11/2021 21:56*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.2 %*		*66.6-120*	*11/11/2021*	*11/11/2021 21:56*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*86.6 %*		*74.8-106*	*11/11/2021*	*11/11/2021 21:56*	*EPA 8260B*	

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T214504-18 (Water)

Date Sampled
11/11/2021 12:18

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111006**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 16:58	EPA 8260B	
Surrogate: Toluene-d8		*96.5 %*		*82.1-110*	*11/11/2021*	*11/11/2021 16:58*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*86.4 %*		*66.6-120*	*11/11/2021*	*11/11/2021 16:58*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.8 %*		*74.8-106*	*11/11/2021*	*11/11/2021 16:58*	*EPA 8260B*	

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T214504-19 (Water)

Date Sampled
11/11/2021 12:29

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111006**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:23	EPA 8260B	
Surrogate: Toluene-d8		*96.4 %*		*82.1-110*	*11/11/2021*	*11/11/2021 17:23*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.9 %*		*66.6-120*	*11/11/2021*	*11/11/2021 17:23*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.2 %*		*74.8-106*	*11/11/2021*	*11/11/2021 17:23*	*EPA 8260B*	

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T214504-20 (Water)

Date Sampled
11/11/2021 12:43

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111006**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 17:49	EPA 8260B	
Surrogate: Toluene-d8		*95.7 %*		*82.1-110*	*11/11/2021*	*11/11/2021 17:49*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*84.5 %*		*66.6-120*	*11/11/2021*	*11/11/2021 17:49*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.0 %*		*74.8-106*	*11/11/2021*	*11/11/2021 17:49*	*EPA 8260B*	

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

GSRY-DPT3092-024.0-20211111

T214504-21 (Water)

Date Sampled
11/11/2021 12:57

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111006**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:27	EPA 8260B	
Surrogate: Toluene-d8		*93.9 %*		*82.1-110*	*11/11/2021*	*11/11/2021 18:27*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*83.8 %*		*66.6-120*	*11/11/2021*	*11/11/2021 18:27*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*83.6 %*		*74.8-106*	*11/11/2021*	*11/11/2021 18:27*	*EPA 8260B*	

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

GSRY-DPT3092-028.0-20211111

T214504-22 (Water)

Date Sampled
11/11/2021 13:12

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by Method 8260 - Purge and Trap					**Preparation Batch: T111006**			
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 18:53	EPA 8260B	
Surrogate: Toluene-d8		*95.8 %*		*82.1-110*	*11/11/2021*	*11/11/2021 18:53*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*85.4 %*		*66.6-120*	*11/11/2021*	*11/11/2021 18:53*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*84.5 %*		*74.8-106*	*11/11/2021*	*11/11/2021 18:53*	*EPA 8260B*	

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Project Number: 60614327

GSRY-DPT3092-032.0-20211111

T214504-23 (Water)

Date Sampled
11/11/2021 13:41

Pace Analytical - Lab #21

Volatile Organic Compounds by Method 8260 - Purge and Trap — **Preparation Batch: T111006**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,3-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
1,2-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
1,3-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
1,4-Dichlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
Benzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
Chlorobenzene	ND	0.50	ug/L	1	11/11/2021	11/11/2021 19:20	EPA 8260B	
Surrogate: Toluene-d8		*93.0 %*		*82.1-110*	*11/11/2021*	*11/11/2021 19:20*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*82.0 %*		*66.6-120*	*11/11/2021*	*11/11/2021 19:20*	*EPA 8260B*	
Surrogate: 1,2-Dichlorobenzene-d4		*82.5 %*		*74.8-106*	*11/11/2021*	*11/11/2021 19:20*	*EPA 8260B*	

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

Volatile Organic Compounds by Method 8260 - Purge and Trap - Quality Control

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T111002 - EPA 5030B										
Blank (T111002-BLK1)				Prepared: 11/09/2021 Analyzed: 11/09/2021 19:59						
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Benzene	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Surrogate: Toluene-d8	*9.18*		*ug/L*	*10.00*		*91.8*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*9.54*		*ug/L*	*10.00*		*95.4*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*8.35*		*ug/L*	*10.00*		*83.5*	*74.8-106*			
LCS (T111002-BS1)				Prepared: 11/09/2021 Analyzed: 11/09/2021 19:07						
1,2,3-Trichlorobenzene	5.11	2.0	ug/L	5.000		102	78.7-114			
1,2,4-Trichlorobenzene	4.87	2.0	ug/L	5.000		97.4	77.4-115			
1,2-Dichlorobenzene	4.74	0.50	ug/L	5.000		94.8	80-120			
1,3-Dichlorobenzene	4.64	0.50	ug/L	5.000		92.8	80-120			
1,4-Dichlorobenzene	4.43	0.50	ug/L	5.000		88.6	80-120			
Benzene	4.97	0.50	ug/L	5.000		99.4	85.5-111			
Chlorobenzene	4.73	0.50	ug/L	5.000		94.6	80-120			
Surrogate: Toluene-d8	*4.93*		*ug/L*	*5.000*		*98.6*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.79*		*ug/L*	*5.000*		*95.8*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.79*		*ug/L*	*5.000*		*95.8*	*74.8-106*			
Matrix Spike (T111002-MS1)	**Source: T214502-01**			Prepared: 11/09/2021 Analyzed: 11/09/2021 21:41						
1,2,3-Trichlorobenzene	4.83	2.0	ug/L	5.000	ND	96.6	80.2-107			
1,2,4-Trichlorobenzene	4.87	2.0	ug/L	5.000	ND	97.4	78.2-104			
1,2-Dichlorobenzene	4.86	0.50	ug/L	5.000	ND	97.2	80-120			
1,3-Dichlorobenzene	4.80	0.50	ug/L	5.000	0.150	93.0	80-120			
1,4-Dichlorobenzene	4.82	0.50	ug/L	5.000	0.400	88.4	80-120			
Benzene	5.75	0.50	ug/L	5.000	0.130	112	85-114			
Chlorobenzene	5.08	0.50	ug/L	5.000	0.330	95.0	80-120			
Surrogate: Toluene-d8	*5.14*		*ug/L*	*5.000*		*103*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.88*		*ug/L*	*5.000*		*97.6*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*5.01*		*ug/L*	*5.000*		*100*	*74.8-106*			
Matrix Spike Dup (T111002-MSD1)	**Source: T214502-01**			Prepared: 11/09/2021 Analyzed: 11/09/2021 22:06						
1,2,3-Trichlorobenzene	5.75	2.0	ug/L	5.000	ND	115	80.2-107	17.4	20	M
1,2,4-Trichlorobenzene	5.52	2.0	ug/L	5.000	ND	110	78.2-104	12.5	20	M
1,2-Dichlorobenzene	5.04	0.50	ug/L	5.000	ND	101	80-120	3.64	20	
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.000	0.150	94.8	80-120	1.86	20	
1,4-Dichlorobenzene	4.93	0.50	ug/L	5.000	0.400	90.6	80-120	2.26	20	
Benzene	5.71	0.50	ug/L	5.000	0.130	112	85-114	0.698	20	
Chlorobenzene	5.16	0.50	ug/L	5.000	0.330	96.6	80-120	1.56	20	
Surrogate: Toluene-d8	*5.18*		*ug/L*	*5.000*		*104*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.59*		*ug/L*	*5.000*		*91.8*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.91*		*ug/L*	*5.000*		*98.2*	*74.8-106*			

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Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

Volatile Organic Compounds by Method 8260 - Purge and Trap - Quality Control

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T111003 - EPA 5030B										
Blank (T111003-BLK1)				Prepared: 11/10/2021 Analyzed: 11/10/2021 11:18						
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Benzene	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Surrogate: Toluene-d8	*9.69*		*ug/L*	*10.00*		*96.9*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*10.0*		*ug/L*	*10.00*		*100*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*8.35*		*ug/L*	*10.00*		*83.5*	*74.8-106*			
LCS (T111003-BS1)				Prepared: 11/10/2021 Analyzed: 11/10/2021 14:02						
1,2,3-Trichlorobenzene	4.77	2.0	ug/L	5.000		95.4	78.7-114			
1,2,4-Trichlorobenzene	4.60	2.0	ug/L	5.000		92.0	77.4-115			
1,2-Dichlorobenzene	5.02	0.50	ug/L	5.000		100	80-120			
1,3-Dichlorobenzene	4.95	0.50	ug/L	5.000		99.0	80-120			
1,4-Dichlorobenzene	4.86	0.50	ug/L	5.000		97.2	80-120			
Benzene	5.12	0.50	ug/L	5.000		102	85.5-111			
Chlorobenzene	4.84	0.50	ug/L	5.000		96.8	80-120			
Surrogate: Toluene-d8	*4.96*		*ug/L*	*5.000*		*99.2*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.95*		*ug/L*	*5.000*		*99.0*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.97*		*ug/L*	*5.000*		*99.4*	*74.8-106*			
Matrix Spike (T111003-MS1)	**Source: T214503-01**			Prepared: 11/10/2021 Analyzed: 11/10/2021 13:08						
1,2,3-Trichlorobenzene	4.14	2.0	ug/L	5.000	ND	82.8	80.2-107			
1,2,4-Trichlorobenzene	4.25	2.0	ug/L	5.000	ND	85.0	78.2-104			
1,2-Dichlorobenzene	4.88	0.50	ug/L	5.000	ND	97.6	80-120			
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.000	ND	97.8	80-120			
1,4-Dichlorobenzene	4.80	0.50	ug/L	5.000	ND	96.0	80-120			
Benzene	5.23	0.50	ug/L	5.000	ND	105	85-114			
Chlorobenzene	4.81	0.50	ug/L	5.000	ND	96.2	80-120			
Surrogate: Toluene-d8	*4.93*		*ug/L*	*5.000*		*98.6*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.99*		*ug/L*	*5.000*		*99.8*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.87*		*ug/L*	*5.000*		*97.4*	*74.8-106*			
Matrix Spike Dup (T111003-MSD1)	**Source: T214503-01**			Prepared: 11/10/2021 Analyzed: 11/10/2021 13:35						
1,2,3-Trichlorobenzene	4.60	2.0	ug/L	5.000	ND	92.0	80.2-107	10.5	20	
1,2,4-Trichlorobenzene	4.48	2.0	ug/L	5.000	ND	89.6	78.2-104	5.27	20	
1,2-Dichlorobenzene	5.04	0.50	ug/L	5.000	ND	101	80-120	3.23	20	
1,3-Dichlorobenzene	4.96	0.50	ug/L	5.000	ND	99.2	80-120	1.42	20	
1,4-Dichlorobenzene	4.90	0.50	ug/L	5.000	ND	98.0	80-120	2.06	20	
Benzene	5.23	0.50	ug/L	5.000	ND	105	85-114	0.00	20	
Chlorobenzene	4.91	0.50	ug/L	5.000	ND	98.2	80-120	2.06	20	
Surrogate: Toluene-d8	*5.10*		*ug/L*	*5.000*		*102*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*5.03*		*ug/L*	*5.000*		*101*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.99*		*ug/L*	*5.000*		*99.8*	*74.8-106*			

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Project Number: 60614327

Volatile Organic Compounds by Method 8260 - Purge and Trap - Quality Control

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T111004 - EPA 5030B										
Blank (T111004-BLK1)				Prepared: 11/10/2021 Analyzed: 11/10/2021 16:38						
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Benzene	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Surrogate: Toluene-d8	*9.84*		*ug/L*	*10.00*		*98.4*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*10.1*		*ug/L*	*10.00*		*101*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*8.44*		*ug/L*	*10.00*		*84.4*	*74.8-106*			
LCS (T111004-BS1)				Prepared: 11/10/2021 Analyzed: 11/10/2021 18:54						
1,2,3-Trichlorobenzene	4.72	2.0	ug/L	5.000		94.4	78.7-114			
1,2,4-Trichlorobenzene	4.64	2.0	ug/L	5.000		92.8	77.4-115			
1,2-Dichlorobenzene	4.99	0.50	ug/L	5.000		99.8	80-120			
1,3-Dichlorobenzene	5.04	0.50	ug/L	5.000		101	80-120			
1,4-Dichlorobenzene	4.99	0.50	ug/L	5.000		99.8	80-120			
Benzene	5.48	0.50	ug/L	5.000		110	85.5-111			
Chlorobenzene	5.12	0.50	ug/L	5.000		102	80-120			
Surrogate: Toluene-d8	*5.29*		*ug/L*	*5.000*		*106*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*5.12*		*ug/L*	*5.000*		*102*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.99*		*ug/L*	*5.000*		*99.8*	*74.8-106*			
Matrix Spike (T111004-MS1)	**Source: T214503-19**			Prepared: 11/10/2021 Analyzed: 11/10/2021 18:00						
1,2,3-Trichlorobenzene	4.36	2.0	ug/L	5.000	ND	87.2	80.2-107			
1,2,4-Trichlorobenzene	4.46	2.0	ug/L	5.000	ND	89.2	78.2-104			
1,2-Dichlorobenzene	4.87	0.50	ug/L	5.000	ND	97.4	80-120			
1,3-Dichlorobenzene	5.06	0.50	ug/L	5.000	ND	101	80-120			
1,4-Dichlorobenzene	4.93	0.50	ug/L	5.000	ND	98.6	80-120			
Benzene	5.62	0.50	ug/L	5.000	0.350	105	85-114			
Chlorobenzene	5.01	0.50	ug/L	5.000	ND	100	80-120			
Surrogate: Toluene-d8	*5.16*		*ug/L*	*5.000*		*103*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.92*		*ug/L*	*5.000*		*98.4*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.88*		*ug/L*	*5.000*		*97.6*	*74.8-106*			
Matrix Spike Dup (T111004-MSD1)	**Source: T214503-19**			Prepared: 11/10/2021 Analyzed: 11/10/2021 18:27						
1,2,3-Trichlorobenzene	4.54	2.0	ug/L	5.000	ND	90.8	80.2-107	4.04	20	
1,2,4-Trichlorobenzene	4.53	2.0	ug/L	5.000	ND	90.6	78.2-104	1.56	20	
1,2-Dichlorobenzene	4.99	0.50	ug/L	5.000	ND	99.8	80-120	2.43	20	
1,3-Dichlorobenzene	5.02	0.50	ug/L	5.000	ND	100	80-120	0.794	20	
1,4-Dichlorobenzene	4.97	0.50	ug/L	5.000	ND	99.4	80-120	0.808	20	
Benzene	5.71	0.50	ug/L	5.000	0.350	107	85-114	1.59	20	
Chlorobenzene	5.11	0.50	ug/L	5.000	ND	102	80-120	1.98	20	
Surrogate: Toluene-d8	*5.26*		*ug/L*	*5.000*		*105*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*5.05*		*ug/L*	*5.000*		*101*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.91*		*ug/L*	*5.000*		*98.2*	*74.8-106*			

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Project Number: 60614327

Volatile Organic Compounds by Method 8260 - Purge and Trap - Quality Control

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T111005 - EPA 5030B										
Blank (T111005-BLK1)				Prepared: 11/11/2021 Analyzed: 11/11/2021 11:31						
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Benzene	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Surrogate: Toluene-d8	*9.43*		*ug/L*	*10.00*		*94.3*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*10.0*		*ug/L*	*10.00*		*100*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*8.14*		*ug/L*	*10.00*		*81.4*	*74.8-106*			
LCS (T111005-BS1)				Prepared: 11/11/2021 Analyzed: 11/11/2021 10:36						
1,2,3-Trichlorobenzene	4.53	2.0	ug/L	5.000		90.6	78.7-114			
1,2,4-Trichlorobenzene	4.50	2.0	ug/L	5.000		90.0	77.4-115			
1,2-Dichlorobenzene	4.85	0.50	ug/L	5.000		97.0	80-120			
1,3-Dichlorobenzene	4.91	0.50	ug/L	5.000		98.2	80-120			
1,4-Dichlorobenzene	4.91	0.50	ug/L	5.000		98.2	80-120			
Benzene	5.35	0.50	ug/L	5.000		107	85.5-111			
Chlorobenzene	4.90	0.50	ug/L	5.000		98.0	80-120			
Surrogate: Toluene-d8	*5.04*		*ug/L*	*5.000*		*101*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.99*		*ug/L*	*5.000*		*99.8*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.84*		*ug/L*	*5.000*		*96.8*	*74.8-106*			
Matrix Spike (T111005-MS1)	**Source: T214504-01**			Prepared: 11/11/2021 Analyzed: 11/11/2021 11:58						
1,2,3-Trichlorobenzene	3.30	2.0	ug/L	5.000	ND	66.0	80.2-107			M
1,2,4-Trichlorobenzene	4.31	2.0	ug/L	5.000	ND	86.2	78.2-104			
1,2-Dichlorobenzene	4.77	0.50	ug/L	5.000	ND	95.4	80-120			
1,3-Dichlorobenzene	4.80	0.50	ug/L	5.000	ND	96.0	80-120			
1,4-Dichlorobenzene	4.81	0.50	ug/L	5.000	0.100	94.2	80-120			
Benzene	5.33	0.50	ug/L	5.000	ND	107	85-114			
Chlorobenzene	4.82	0.50	ug/L	5.000	ND	96.4	80-120			
Surrogate: Toluene-d8	*5.00*		*ug/L*	*5.000*		*100*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*5.04*		*ug/L*	*5.000*		*101*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.80*		*ug/L*	*5.000*		*96.0*	*74.8-106*			
Matrix Spike Dup (T111005-MSD1)	**Source: T214504-01**			Prepared: 11/11/2021 Analyzed: 11/11/2021 12:26						
1,2,3-Trichlorobenzene	3.17	2.0	ug/L	5.000	ND	63.4	80.2-107	4.02	20	M
1,2,4-Trichlorobenzene	4.33	2.0	ug/L	5.000	ND	86.6	78.2-104	0.463	20	
1,2-Dichlorobenzene	4.70	0.50	ug/L	5.000	ND	94.0	80-120	1.48	20	
1,3-Dichlorobenzene	4.85	0.50	ug/L	5.000	ND	97.0	80-120	1.04	20	
1,4-Dichlorobenzene	4.76	0.50	ug/L	5.000	0.100	93.2	80-120	1.04	20	
Benzene	5.28	0.50	ug/L	5.000	ND	106	85-114	0.943	20	
Chlorobenzene	4.85	0.50	ug/L	5.000	ND	97.0	80-120	0.620	20	
Surrogate: Toluene-d8	*5.00*		*ug/L*	*5.000*		*100*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*5.00*		*ug/L*	*5.000*		*100*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.75*		*ug/L*	*5.000*		*95.0*	*74.8-106*			

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MOBILE LAB SERVICES

2525 Advance Road
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AECOM
150 North Orange Ave, Ste 200
Orlando FL, 32801

Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

Volatile Organic Compounds by Method 8260 - Purge and Trap - Quality Control

Pace Analytical - Lab #21

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T111006 - EPA 5030B										
Blank (T111006-BLK1)				Prepared: 11/11/2021 Analyzed: 11/11/2021 17:43						
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Benzene	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Surrogate: Toluene-d8	*9.72*		*ug/L*	*10.00*		*97.2*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*10.1*		*ug/L*	*10.00*		*101*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*8.26*		*ug/L*	*10.00*		*82.6*	*74.8-106*			
LCS (T111006-BS1)				Prepared: 11/11/2021 Analyzed: 11/11/2021 22:23						
1,2,3-Trichlorobenzene	4.70	2.0	ug/L	5.000		94.0	78.7-114			
1,2,4-Trichlorobenzene	4.59	2.0	ug/L	5.000		91.8	77.4-115			
1,2-Dichlorobenzene	4.79	0.50	ug/L	5.000		95.8	80-120			
1,3-Dichlorobenzene	4.61	0.50	ug/L	5.000		92.2	80-120			
1,4-Dichlorobenzene	4.42	0.50	ug/L	5.000		88.4	80-120			
Benzene	5.52	0.50	ug/L	5.000		110	85.5-111			
Chlorobenzene	4.75	0.50	ug/L	5.000		95.0	80-120			
Surrogate: Toluene-d8	*5.11*		*ug/L*	*5.000*		*102*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.55*		*ug/L*	*5.000*		*91.0*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.84*		*ug/L*	*5.000*		*96.8*	*74.8-106*			
Matrix Spike (T111006-MS1)	**Source: T214504-17**			Prepared: 11/11/2021 Analyzed: 11/11/2021 18:38						
1,2,3-Trichlorobenzene	4.72	2.0	ug/L	5.000	ND	94.4	80.2-107			
1,2,4-Trichlorobenzene	4.64	2.0	ug/L	5.000	ND	92.8	78.2-104			
1,2-Dichlorobenzene	7.26	0.50	ug/L	5.000	ND	145	80-120			M
1,3-Dichlorobenzene	7.47	0.50	ug/L	5.000	ND	149	80-120			M
1,4-Dichlorobenzene	6.21	0.50	ug/L	5.000	ND	124	80-120			M
Benzene	5.87	0.50	ug/L	5.000	0.320	111	85-114			
Chlorobenzene	5.01	0.50	ug/L	5.000	ND	100	80-120			
Surrogate: Toluene-d8	*5.20*		*ug/L*	*5.000*		*104*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*7.60*		*ug/L*	*5.000*		*152*	*66.6-120*			*S*
Surrogate: 1,2-Dichlorobenzene-d4	*7.36*		*ug/L*	*5.000*		*147*	*74.8-106*			*S*
Matrix Spike Dup (T111006-MSD1)	**Source: T214504-17**			Prepared: 11/11/2021 Analyzed: 11/11/2021 19:05						
1,2,3-Trichlorobenzene	3.11	2.0	ug/L	5.000	ND	62.2	80.2-107	41.1	20	M, X
1,2,4-Trichlorobenzene	3.04	2.0	ug/L	5.000	ND	60.8	78.2-104	41.7	20	M, X
1,2-Dichlorobenzene	4.76	0.50	ug/L	5.000	ND	95.2	80-120	41.6	20	X
1,3-Dichlorobenzene	4.88	0.50	ug/L	5.000	ND	97.6	80-120	41.9	20	X
1,4-Dichlorobenzene	4.79	0.50	ug/L	5.000	ND	95.8	80-120	25.8	20	X
Benzene	5.89	0.50	ug/L	5.000	0.320	111	85-114	0.340	20	
Chlorobenzene	4.91	0.50	ug/L	5.000	ND	98.2	80-120	2.02	20	
Surrogate: Toluene-d8	*5.23*		*ug/L*	*5.000*		*105*	*82.1-110*			
Surrogate: 4-Bromofluorobenzene	*4.97*		*ug/L*	*5.000*		*99.4*	*66.6-120*			
Surrogate: 1,2-Dichlorobenzene-d4	*4.78*		*ug/L*	*5.000*		*95.6*	*74.8-106*			

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AECOM
150 North Orange Ave, Ste 200
Orlando FL, 32801

Project: GSA Reclaimation Yard - Kennedy Space Center
Project Number: 60614327

Notes and Definitions

X	Precision for the matrix spike duplicate, laboratory control sample duplicate or lab duplicate was outside of control limits.
S	Surrogate recovery was outside of laboratory control limits.
M	The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory control limits.
ND	Analyte NOT DETECTED at or above the reporting limit or limit of detection (if listed).
NR	Not Reported
dry	Sample results reported on a dry weight basis. Detection limits (if listed) and reporting limits have been adjusted for the solids content. If the word 'dry' does not appear after the units, results are reported on an as-is basis.
RPD	Relative Percent Difference

Detection limits (if listed) and reporting limits have been adjusted for dilutions, if reported.

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CHAIN OF CUSTODY

No. 14493 Page: 1 of: 2

Lab Work Order #: T214502-1

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave, Ste 200, Orlando, FL
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 60614327 PO Number:
Project Name: GSRY DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	Preservation Codes / Analyses Requested: A						Comments	Lab ID	Lab Receipt Time
					8260C 3								
GSRY-DPT3083-008.0-20211109	11/09/21	0925	W	3	X							01	1033
GSRY-DPT3083-012.0-20211109	11/09/21	0940	W	3	X							02	1033
GSRY-DPT3083-016.0-20211109	11/09/21	0957	W	3	X							03	1033
GSRY-DPT3083-020.0-20211109	11/09/21	1017	W	3	X							04	1033
GSRY-DPT3083-024.0-20211109	11/09/21	1045	W	3	X							05	1315
GSRY-DPT3083-028.0-20211109	11/09/21	1105	W	3	X							06	1315
GSRY-DPT3083-032.0-20211109	11/09/21	1125	W	3	X							07	1315
GSRY-DPT3084-008.0-20211109	11/09/21	1159	W	3	X							08	1315
GSRY-DPT3084-012.0-20211109	11/09/21	1217	W	3	X							09	1315
GSRY-DPT3084-016.0-20211109	11/09/21	1231	W	3	X							10	1315

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
BF	11/9/21	1551	J. Worden	11/9/2021	1551
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

Rev. 12/15

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CHAIN OF CUSTODY

No. 14494 Page: 2 of: 2

Lab Work Order #: T214502

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave. Ste 200, Orlando, FL
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 60614327 PO Number:
Project Name: GSRY DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	8260						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3084-020.0-20211109	11/09/21	1248	W	3	X							11	1315
GSRY-DPT3084-024.0-20211109	11/09/21	1305	W	3	X							12	1315
GSRY-DPT3084-028.0-20211109	11/09/21	1325	W	3	X							13	1551
GSRY-DPT3084-032.0-20211109	11/09/21	1342	W	3	X							14	1551
GSRY-DPT3085-008.0-20211109	11/09/21	1439	W	3	X							15	1551
GSRY-DPT3085-012.0-20211109	11/09/21	1452	W	3	X							16	1551
GSRY-DPT3085-016.0-20211109	11/09/21	1504	W	3	X							17	~~1551~~ 15
GSRY-DPT3085-020.0-20211109	11/09/21	1518	W	3	X							18	1551

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By: [signature] Date: 11/9/21 Time: 1551
Received By: [signature] Date: 11/9/2021 Time: 1551

Relinquished By: Date: Time:
Received By: Date: Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

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CHAIN OF CUSTODY

No. 14495 Page: 1 of: 3

Lab Work Order #: T214503

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ste 200, Orlando, FL
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 60614.327 PO Number:
Project Name: GSRY DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	8260						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3085-024.0-20211110	11/10/21	0722	W	3	X							01	9:00
GSRY-DPT3085-028.0-20211110	11/10/21	0741	W	3	X							02	9:00
GSRY-DPT3085-032.0-20211110	11/10/21	0758	W	3	X							03	9:00
GSRY-DPT3086-008.0-20211110	11/10/21	0842	W	3	X							04	11:00
GSRY-DPT3086-012.0-20211110	11/10/21	0855	W	3	X							05	11:00
GSRY-DPT3086-016.0-20211110	11/10/21	0908	W	3	X							06	11:00
GSRY-DPT3086-020.0-20211110	11/10/21	0921	W	3	X							07	11:00
GSRY-DPT3086-024.0-20211110	11/10/21	0936	W	3	X							08	11:00
GSRY-DPT3086-028.0-20211110	11/10/21	0950	W	3	X							09	11:00
GSRY-DPT3086-032.0-20211110	11/10/21	1018	W	3	X							10	11:00

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By: [signature] Date: 11/10/21 Time: 1621
Received By: J. Woods Date: 11/10/2021 Time: 1621

Relinquished By: Date: Time:
Received By: Date: Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

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CHAIN OF CUSTODY

No. 14496 Page: 2 of: 3

Lab Work Order #: T 214503

Report To: Chad Lee
Company: AFRCOM
Address 1: 150 N. Orange Ave Ste 200 Orlando F
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: UCC14327 PO Number:
Project Name: GSRY DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	8260						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3087-008.0-20211110	11/10/21	1053	W	3	X							11	11:00
GSRY-DPT3087-017.0-20211110	11/10/21	1110	W	3	X							12	13:00
GSRY-DPT3087-016.0-20211110	11/10/21	1122	W	3	X							13	1300
GSRY-DPT3087-020.0-20211110	11/10/21	1134	W	3	X							14	1300
GSRY-DPT3087-024.0-20211110	11/10/21	1147	W	3	X							15	1300
GSRY-DPT3087-028.0-20211110	11/10/21	1205	W	3	X							16	1300
GSRY-DPT3087-032.0-20211110	11/10/21	1222	W	3	X							17	1300
GSRY-DPT3088-008.0-20211110	11/10/21	1251	W	3	X							18	13:00
GSRY-DPT3088-012.0-20211110	11/10/21	1302	W	3	X							19	1621
GSRY-DPT3088-016.0-20211110	11/10/21	1313	W	3	X							20	1621

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

	Date	Time	Received By	Date	Time
Relinquished By:	11/10/21	1621	Received By: J.Worden	11/10/2021	1621
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

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CHAIN OF CUSTODY

No. 14497

Page: 3 of: 3

Lab Work Order #: T214503

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave. Ste 200, Orlando, FL
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 60614327 PO Number:
Project Name: GSRY DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	A (8260)						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3088-020.0-20211110	11/10/21	1328	W	3								21	1621
GSRY-DPT3088-024.0-20211110	11/10/21	1342	W	3								22	1621
GSRY-DPT3088-028.0-20211110	11/10/21	1408	W	3								23	1621
GSRY-DPT3088-32.0-20211110	11/10/21	1437	W	3								24	1621
GSRY-DPT3089-008.0-20211110	11/10/21	1509	W	3								25	1621
GSRY-DPT3089-012.0-20211110	11/10/21	1523	W	3								26	1621
GSRY-DPT3089-016.0-20211110	11/10/21	1535	W	3								27	1621
GSRY-DPT3089-020.0-20211110	11/10/21	1548	W	3								28	1621
GSRY-DPT3089-024.0-20211110	11/10/21	1602	W	3								29	1621

OR 11/10/2021

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

	Relinquished By:	Date:	Time:	Received By:	Date:	Time:
		11/10/21	1621	J. Gordon	11/10/21	1621
	Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

Rev. 12/15

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CHAIN OF CUSTODY

No. 14498 0 11/11/2021 Page: 1 of: 3

Lab Work Order #: T214504

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave. Ste. 200, Orlando, FL
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 1.60614327 PO Number:
Project Name: GSRY - DPT
Project Location (City, State): Kennedy Space Center, FL
Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	A 8260						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3089-078.0-20211111	11/11/21	0708	W	3	X							-01	9:00
GSRY-DPT3089-032.5-20211111	11/11/21	0734	W	3	X						Not enough water for 3 bottles	02	9:00
GSRY-DPT3090-008.0-20211111	11/11/21	0803	W	3	X							03	9:00
GSRY-DPT3090-012.0-20211111	11/11/21	0819	W	3	X							04	9:00
GSRY-DPT3090-016.0-20211111	11/11/21	0831	W	3	X							05	9:00
GSRY-DPT3090-020.0-20211111	11/11/21	0843	W	3	X							06	9:00
GSRY-DPT3090-24.0-20211111	11/11/21	0858	W	3	X							07	~~9:00~~ 11/12
GSRY-DPT3090-028.0-20211111	11/11/21	0911	W	3	X							08	~~9:00~~ 11/12
GSRY-DPT3090-032.0-20211111	11/11/21	0928	W	3	X							09	~~9:00~~ 11/12
GSRY-DPT3091-008.0-20211111	11/11/21	1006	W	3	X							10	~~9:00~~ 11/12

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	11/11/21	1355	[signature]	11/11/21	1355
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

Rev. 12/15

Pace Analytical - ECCS Division
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

No. 14499 Page: 2 of: 3

Lab Work Order #: T214504

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave., Ste 200, Orlando, F
Address 2:
E-mail Address:

Project Number: 60614327 PO Number:
Project Name: GSRY - DPT
Project Location (City, State): Kennedy Space Center, FL

Preservation Codes
Analyses Requested

Turn Around (check one): ☐ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Britton Emmett

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	8240						Comments	Lab ID	Lab Receipt Time
GSRY-DPT3091-012.0-20211111	11/11/21	1017	W	3	X							11	~~1300~~ 1114
GSRY-DPT3091-016.0-20211111	11/11/21	1028	W	3	X							12	1300 1114
GSRY-DPT3091-020.0-20211111	11/11/21	1041	W	3	X							13	~~1300~~ 1114
GSRY-DPT3091-024.0-20211111	11/11/21	1055	W	3	X							14	~~1300~~ 1114
GSRY-DPT3091-028.0-20211111	11/11/21	1112	W	3	X							15	1300 1114
GSRY-DPT3091-032.0-20211111	11/11/21	1131	W	3	X							16	~~T3~~ 1140
GSRY-DPT3092-008.0-20211111	11/11/21	1205	W	3	X							17	1355
GSRY-DPT3092-012.0-20211111	11/11/21	1218	W	3	X							18	1355
GSRY-DPT3092-016.0-20211111	11/11/21	1229	W	3	X							19	1355
GSRY-DPT3092-020.0-20211111	11/11/21	1243	W	3	X							20	1355

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By: [signature] Date: 11/11/21 Time: 1755
Relinquished By: Date: Time:

Received By: J. Worden Date: 11/11/2021 Time: 1355
Received By: Date: Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

Rev. 12/15

Pace Analytical - ECCS Division
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

Page: 3 of: 3

Lab Work Order #: T214504

Report To: Chad Lee
Company: AECOM
Address 1: 150 N. Orange Ave. Ste 200, Orlando FL
Address 2:
E-mail Address:

Project Number: 60614327 PO Number:
Project Name: GSR4
Project Location (City, State): Kennedy Space Center, FL

Preservation Codes
Analyses Requested

Turn Around (check one): ☐ Normal ☐ R
If Rush, Report Due Date:
Sampled By (Print): Brittany Follett

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	8260						Comments	Lab ID	Lab Receipt Time
GSR4-DPT3092-024.0-20211111	11/11/21	1257	W	3	☒	☐	☐	☐	☐	☐		21	1355
GSR4-DPT3092-028.0-20211111	11/11/21	1312	W	3	☒	☐	☐	☐	☐	☐		22	1355
GSR4-DPT3092-032.0-20211111	11/11/21	1341	W	3	☒	☐	☐	☐	☐	☐		23	1355
					☐	☐	☐	☐	☐	☐			
					☐	☐	☐	☐	☐	☐			
					☐	☐	☐	☐	☐	☐			
					☐	☐	☐	☐	☐	☐			
					☐	☐	☐	☐	☐	☐			
					☐	☐	☐	☐	☐	☐			

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Copy:

	Date:	Time:		Date:	Time:
Relinquished By:	11/11/21	1355	Received By: J. Worden	11/11/2021	1355
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☐ Intact ☐ Not Intact
Shipped Via:
Receipt Temp:
Thermometer #/ Exp. Date:
Temp Blank: ☐ Y ☐ N

Rev. 12/15

Environmental Conservation Laboratories, Inc.
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www.encolabs.com

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James W. Gregory
James W Gregory
2021.01.26 09:23:37 -05'00'

Signature

January 26, 2021
Date

Environmental Conservation Laboratories, Inc.
James W. Gregory
Senior Vice President
10775 Central Port Drive Orlando, FL 32824
(407) 826-5314
jgregory@encolabs.com

ENCO Laboratories
Accurate. Timely. Responsive. Innovative.

10775 Central Port Drive
Orlando FL, 32824
Phone: 407.826.5314 FAX: 407.850.6945

Tuesday, December 21, 2021
AECOM Technical Services, Inc. (SE004)
Attn: Teresa Amentt Jennings
150 N. Orange Ave, Suite 200
Orlando, FL 32801

RE: Laboratory Results for
Project Number: 60614327.4, Project Name/Desc: NASA KSC - GSA Reclamation Yard
ENCO Workorder(s): AE09397

Dear Teresa Amentt Jennings,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, December 7, 2021.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,



Kaitlin Dylnicki

Project Manager

Enclosure(s)

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0030R-013.0-20211207 **Lab ID: AE09397-01** **Sampled: 12/07/21 13:01** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 11:45
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 11:45
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 13:19

Client ID: GSRY-MW0040-003.0-20211207 **Lab ID: AE09397-02** **Sampled: 12/07/21 13:30** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 11:56
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 11:56
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 13:47

Client ID: GSRY-MW0041-003.0-20211207 **Lab ID: AE09397-03** **Sampled: 12/07/21 12:15** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 12:08
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 12:08
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 14:14

Client ID: GSRY-MW0042R-003.0-20211207 **Lab ID: AE09397-04** **Sampled: 12/07/21 15:15** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 12:19
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 12:19
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 14:42

Client ID: GSRY-MW0046R-001.5-20211207 **Lab ID: AE09397-05** **Sampled: 12/07/21 12:27** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 12:30
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 12:30
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 15:10

Client ID: GSRY-MW0051-0.27.5-20211207 **Lab ID: AE09397-06** **Sampled: 12/07/21 14:20** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 12:53
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 12:53
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 15:38

Client ID: GSRY-MW0052-019.0-20211207 **Lab ID: AE09397-07** **Sampled: 12/07/21 11:40** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 13:04
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 13:04
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 16:05

Client ID: GSRY-MW0061-025.0-20211207 **Lab ID: AE09397-08** **Sampled: 12/07/21 13:51** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/05/22		12/14/21	11:10	12/16/21 13:56
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 16:33
EPA 9056A	NO PREP	01/04/22		12/10/21	15:03	12/13/21 01:27
SM 2540C-2011	NO PREP	12/14/21		12/10/21	17:49	12/15/21 09:25

Client ID: GSRY-MW0062-035.0-20211207 **Lab ID: AE09397-09** **Sampled: 12/07/21 14:25** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/07/22	12/07/22	12/10/21	07:15	12/10/21 13:15
EPA 8082A	[CALC]	12/07/22		12/10/21	07:15	12/10/21 13:15
EPA 8260D	EPA 5030B_MS	12/21/21		12/08/21	00:00	12/08/21 17:01

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0075-025.0-20211207 **Lab ID: AE09397-10** **Sampled: 12/07/21 14:59** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/21/21	12/08/21 00:00	12/08/21 17:29

Client ID: GSRY-TB01-20211207 **Lab ID: AE09397-11** **Sampled: 12/07/21 08:30** **Received: 12/07/21 16:46**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/21/21	12/08/21 00:00	12/08/21 17:56

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0051-0.27.5-20211207 **Lab ID:** AE09397-06

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,4-Dichlorobenzene	1.1		0.76	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0061-025.0-20211207 **Lab ID:** AE09397-08

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	792		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	8.49	I	0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	51200		27.0	500	ug/L	EPA 6010D	
Sulfate	160	I	66	5000	ug/L	EPA 9056A	
Total Dissolved Solids	490000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0075-025.0-20211207 **Lab ID:** AE09397-10

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	20		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	13		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	5.6		0.72	1.0	ug/L	EPA 8260D	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0030R-013.0-20211207 **Lab Sample ID:** AE09397-01 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 13:01 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 13:19	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*108 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 13:19*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*99 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 13:19*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 13:19*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 11:45	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 11:45	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*113 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 11:45*	*JJB*	
Decachlorobiphenyl	*1.4*	*1*	*1.00*	*138 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 11:45*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0040-003.0-20211207 **Lab Sample ID:** AE09397-02 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 13:30 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 13:47	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*105 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 13:47*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*99 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 13:47*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 13:47*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 11:56	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 11:56	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*109 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 11:56*	*JJB*	
Decachlorobiphenyl	*1.3*	*1*	*1.00*	*133 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 11:56*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0041-003.0-20211207 **Lab Sample ID:** AE09397-03 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 12:15 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 14:14	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*107 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 14:14*	*KKW*	
Dibromofluoromethane	*51*	*1*	*50.0*	*102 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 14:14*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*103 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 14:14*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 12:08	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 12:08	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.3*	*1*	*1.00*	*127 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 12:08*	*JJB*	
Decachlorobiphenyl	*1.7*	*1*	*1.00*	*166 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 12:08*	*JJB*	*QS-03*

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0042R-003.0-20211207 **Lab Sample ID:** AE09397-04 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 15:15 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 14:42	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*107 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 14:42*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*99 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 14:42*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 14:42*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 12:19	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 12:19	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.0*	*1*	*1.00*	*102 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 12:19*	*JJB*	
Decachlorobiphenyl	*1.6*	*1*	*1.00*	*159 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 12:19*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0046R-001.5-20211207 **Lab Sample ID:** AE09397-05 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 12:27 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 15:10	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 15:10*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*101 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 15:10*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 15:10*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 12:30	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 12:30	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*110 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 12:30*	*JJB*	
Decachlorobiphenyl	*1.5*	*1*	*1.00*	*150 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 12:30*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0051-0.27.5-20211207 **Lab Sample ID:** AE09397-06 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 14:20 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
1,4-Dichlorobenzene [106-46-7]^	**1.1**		ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 15:38	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*109 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 15:38*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*99 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 15:38*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*105 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 15:38*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 12:53	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 12:53	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.86*	*1*	*1.00*	*86 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 12:53*	*JJB*	
Decachlorobiphenyl	*1.2*	*1*	*1.00*	*117 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 12:53*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0052-019.0-20211207 **Lab Sample ID:** AE09397-07 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 11:40 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 16:05	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*108 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 16:05*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 16:05*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*103 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 16:05*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 13:04	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 13:04	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*108 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 13:04*	*JJB*	
Decachlorobiphenyl	*1.3*	*1*	*1.00*	*130 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 13:04*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0061-025.0-20211207 **Lab Sample ID:** AE09397-08 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 13:51 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 16:33	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*107 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 16:33*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 16:33*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 16:33*	*KKW*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**792**		ug/L	1	11.0	50.0	1L14016	EPA 6010D	12/16/21 13:56	NRB	
Manganese [7439-96-5]^	**8.49**	I	ug/L	1	0.770	10.0	1L14016	EPA 6010D	12/16/21 13:56	NRB	
Sodium [7440-23-5]^	**51200**		ug/L	1	27.0	500	1L14016	EPA 6010D	12/16/21 13:56	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**160**	I	ug/L	1	66	5000	1L10040	EPA 9056A	12/13/21 01:27	ASR	
Total Dissolved Solids^	**490000**		ug/L	1	10000	10000	1L10027	SM 2540C-2011	12/15/21 09:25	LAM	

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ANALYTICAL RESULTS

Description: GSRY-MW0062-035.0-20211207 **Lab Sample ID:** AE09397-09 **Received:** 12/07/21 16:46
Matrix: Ground Water **Sampled:** 12/07/21 14:25 **Work Order:** AE09397
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 17:01	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 17:01*	*KKW*	
Dibromofluoromethane	*52*	*1*	*50.0*	*103 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:01*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:01*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 13:15	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 13:15	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.2*	*1*	*1.00*	*118 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 13:15*	*JJB*	
Decachlorobiphenyl	*1.3*	*1*	*1.00*	*134 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 13:15*	*JJB*	

Description: GSRY-MW0075-025.0-20211207 **Lab Sample ID:** AE09397-10 **Received:** 12/07/21 16:46
Matrix: Ground Water **Sampled:** 12/07/21 14:59 **Work Order:** AE09397
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
1,3-Dichlorobenzene [541-73-1]^	**20**		ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
1,4-Dichlorobenzene [106-46-7]^	**13**		ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	
Chlorobenzene [108-90-7]^	**5.6**		ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 17:29	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 17:29*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*101 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:29*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*103 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:29*	*KKW*	

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ANALYTICAL RESULTS

Description: GSRY-TB01-20211207 **Lab Sample ID:** AE09397-11 **Received:** 12/07/21 16:46

Matrix: Ground Water **Sampled:** 12/07/21 08:30 **Work Order:** AE09397

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Greg Kusel/Dustin Slater/M

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L08022	EPA 8260D	12/08/21 17:56	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*105 %*	*41-142*	*1L08022*	*EPA 8260D*	*12/08/21 17:56*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*53-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:56*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L08022*	*EPA 8260D*	*12/08/21 17:56*	*KKW*	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L08022 - EPA 5030B_MS

Blank (1L08022-BLK1) Prepared: 12/08/2021 00:00 Analyzed: 12/08/2021 09:37

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*52*			*ug/L*	*50.0*		*104*	*41-142*			
Dibromofluoromethane	*52*			*ug/L*	*50.0*		*104*	*53-146*			
Toluene-d8	*54*			*ug/L*	*50.0*		*109*	*41-146*			

LCS (1L08022-BS1) Prepared: 12/08/2021 00:00 Analyzed: 12/08/2021 08:41

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0		103	43-168			
1,2,4-Trichlorobenzene	22		1.0	ug/L	20.0		112	52-159			
1,2-Dichlorobenzene	21		1.0	ug/L	20.0		105	63-131			
1,3-Dichlorobenzene	21		1.0	ug/L	20.0		107	66-129			
1,4-Dichlorobenzene	20		1.0	ug/L	20.0		98	65-133			
Benzene	22		1.0	ug/L	20.0		112	56-136			
Chlorobenzene	22		1.0	ug/L	20.0		109	51-139			
4-Bromofluorobenzene	*53*			*ug/L*	*50.0*		*106*	*41-142*			
Dibromofluoromethane	*53*			*ug/L*	*50.0*		*106*	*53-146*			
Toluene-d8	*56*			*ug/L*	*50.0*		*111*	*41-146*			

Matrix Spike (1L08022-MS1) Prepared: 12/08/2021 00:00 Analyzed: 12/08/2021 18:24

Source: AE09635-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	19		1.0	ug/L	20.0	0.86 U	93	43-168			
1,2,4-Trichlorobenzene	21		1.0	ug/L	20.0	0.70 U	106	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	113	63-131			
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	116	66-129			
1,4-Dichlorobenzene	21		1.0	ug/L	20.0	0.76 U	106	65-133			
Benzene	22		1.0	ug/L	20.0	0.71 U	112	56-136			
Chlorobenzene	24		1.0	ug/L	20.0	0.72 U	119	51-139			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			
Dibromofluoromethane	*52*			*ug/L*	*50.0*		*104*	*53-146*			
Toluene-d8	*53*			*ug/L*	*50.0*		*106*	*41-146*			

Matrix Spike Dup (1L08022-MSD1) Prepared: 12/08/2021 00:00 Analyzed: 12/08/2021 18:52

Source: AE09635-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	22		1.0	ug/L	20.0	0.86 U	109	43-168	16	26	
1,2,4-Trichlorobenzene	23		1.0	ug/L	20.0	0.70 U	114	52-159	7	24	
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	113	63-131	0.3	25	
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	114	66-129	2	23	
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	102	65-133	4	23	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L08022 - EPA 5030B_MS - Continued

Matrix Spike Dup (1L08022-MSD1) Continued Prepared: 12/08/2021 00:00 Analyzed: 12/08/2021 18:52

Source: AE09635-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	22		1.0	ug/L	20.0	0.71 U	110	56-136	1	14	
Chlorobenzene	23		1.0	ug/L	20.0	0.72 U	115	51-139	3	13	
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*107*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*101*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*105*	*41-146*			

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L10003 - EPA 3510C

Blank (1L10003-BLK1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:48

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016	0.32	U	0.50	ug/L							
PCB-1221	0.46	U	0.50	ug/L							
PCB-1232	0.47	U	0.50	ug/L							
PCB-1242	0.49	U	0.50	ug/L							
PCB-1248	0.49	U	0.50	ug/L							
PCB-1254	0.50	U	0.50	ug/L							
PCB-1260	0.48	U	0.50	ug/L							
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*107*	*38-142*			
Decachlorobiphenyl	*1.0*			*ug/L*	*1.00*		*103*	*34-159*			

LCS (1L10003-BS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:59

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	13		0.50	ug/L	10.0		132	11-162			
PCB-1260	14		0.50	ug/L	10.0		141	10-166			
2,4,5,6-TCMX	*1.0*			*ug/L*	*1.00*		*104*	*38-142*			
Decachlorobiphenyl	*1.3*			*ug/L*	*1.00*		*131*	*34-159*			

Matrix Spike (1L10003-MS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:11

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	15		0.50	ug/L	10.0	0.49 U	150	11-162			
PCB-1260	16		0.50	ug/L	10.0	0.48 U	158	10-166			
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*122*	*38-142*			
Decachlorobiphenyl	*1.7*			*ug/L*	*1.00*		*171*	*34-159*			*QS-03*

Matrix Spike Dup (1L10003-MSD1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:23

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	12		0.50	ug/L	10.0	0.49 U	123	11-162	20	23	
PCB-1260	14		0.50	ug/L	10.0	0.48 U	140	10-166	12	13	
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*108*	*38-142*			
Decachlorobiphenyl	*1.5*			*ug/L*	*1.00*		*151*	*34-159*			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L14016 - EPA 3005A

Blank (1L14016-BLK1) Prepared: 12/14/2021 11:10 Analyzed: 12/16/2021 11:35

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	27.0	U	500	ug/L							

LCS (1L14016-BS1) Prepared: 12/14/2021 11:10 Analyzed: 12/16/2021 11:54

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	492		10.0	ug/L	495		99	80-120			
Sodium	25200		500	ug/L	25200		100	80-120			

Matrix Spike (1L14016-MS1) Prepared: 12/14/2021 11:10 Analyzed: 12/16/2021 12:01

Source: AE09396-11

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2490		50.0	ug/L	2500	11.0 U	99	75-125			
Manganese	501		10.0	ug/L	495	0.770 U	101	75-125			
Sodium	51800		500	ug/L	25200	26200	101	75-125			

Matrix Spike Dup (1L14016-MSD1) Prepared: 12/14/2021 11:10 Analyzed: 12/16/2021 12:04

Source: AE09396-11

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2470		50.0	ug/L	2500	11.0 U	99	75-125	0.6	20	
Manganese	501		10.0	ug/L	495	0.770 U	101	75-125	0.07	20	
Sodium	51700		500	ug/L	25200	26200	101	75-125	0.2	20	

Classical Chemistry Parameters - Quality Control

Batch 1L10027 - NO PREP

Blank (1L10027-BLK1) Prepared: 12/10/2021 17:49 Analyzed: 12/15/2021 09:25

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L10027-BS1) Prepared: 12/10/2021 17:49 Analyzed: 12/15/2021 09:25

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	100000		10000	ug/L	100000		102	90-110			

Duplicate (1L10027-DUP1) Prepared: 12/10/2021 17:49 Analyzed: 12/15/2021 09:25

Source: AE08877-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	52000		10000	ug/L		48000			8	20	

Batch 1L10040 - NO PREP

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Classical Chemistry Parameters - Quality Control

Batch 1L10040 - NO PREP - Continued

Blank (1L10040-BLK1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:29

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	66	U	5000	ug/L							

LCS (1L10040-BS1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000		100	80-120			

Matrix Spike (1L10040-MS2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 00:57

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	99	80-120			

Matrix Spike Dup (1L10040-MSD2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 01:12

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	100	80-120	0.5	15	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*****	Not reported due to interference.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
QS-03	Surrogate recovery outside acceptance limits
QV-01	The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

AEO9397

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO	Project Name: NASA KSC - GSA Reclamation Yard			COC No.	Page: 1 of 3
	Site Location: GSRY - PCB VOC Area			PO No. 138535	Project No. 60614327.4 Phase:
	TO No.: 80KSC019F0078	AECOM Project Manager:	Chad Lee cc: Jennifer Joyal	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747	Madan Parsotan / (321) 696-6000	Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to Jennifer Chastain Cc: Teresa Amentt Jennings
				Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A

Lab Name: ENCO Turnaround Time(specify): Standard 14 day

Sample Analysis Requested (*Enter number of containers for each test*)

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	(3) Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW 8260B (Unpreserved)	Comments
	GSRY-MW0011S-	GSRY-MW0011S	202112		WG	N	G	2		2						
	GSRY-MW0030R- 013.0- 20211207	GSRY-MW0030R	20211207	1301	WG	N	G	5	2 VOA 1 GK	1 Y					2	
	GSRY-MW0031-	GSRY-MW0031	202112		WG	N	G	5	3	2						
	GSRY-MW0036R-	GSRY-MW0036R	202112		WG	N	G	5	3	2						
	GSRY-MW0040- 003.0- 20211207	GSRY-MW0040	202112 07	~~1300~~ 1330 GK	WG	N	G	5	2 VOA GK	1 Y					2	
	GSRY-MW0041- 003.0- 20211207	GSRY-MW0041	202112 07	1215	WG	N	G	5	2 VOA GK	1 Y					2	
	GSRY-MW0042R- 003.0- 20211207	GSRY-MW0042R	202112 07	1515	WG	N	G	5	2 VOA GK	1 Y					2	
	GSRY-MW0043-	GSRY-MW0043	202112		WG	N	G	5	3	2						
	GSRY-MW0044-	GSRY-MW0044	202112		WG	N	G	5	3	2						
	GSRY-MW0046R- 001.5- 20211207	GSRY-MW0046R	202112 07	1227	WG	N	G	5	2 VOA	1 Y					2	
	GSRY-MW0049-	GSRY-MW0049	202112		WG	N	G	8	3	2	1	1	1			
	GSRY-MW0050-	GSRY-MW0050	202112		WG	N	G	8	3	2	1	1	1			

***Field* Comments:**
Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment: 26 415 0.3C

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1	[signature]	12.06.21	11:10	Greg Kusel	12/7/21	0700
2	Greg Kusel	12/7/21	1645			
3				[signature]	12/07/21	16:40

Samples Iced?(check) Yes ✓ No____
Shipping Company:
Tracking No:
Date Shipped:

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: 4 DEG C=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

AE09397

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO	Project Name: NASA KSC - GSA Reclamation Yard			COC No.	Page: 2 of 3
	Site Location: GSRY - PCB VOC Area			PO No. 138535	Project No. 60614327.4 Phase:
	TO No.: 80KSC019F0078	AECOM Project Manager:	**Chad Lee cc: Jennifer Joyal**	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747	Madan Parsotan / (321) 696-6000	Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to Jennifer Chastain Cc: Teresa Amentt Jennings
Lab Name: ENCO		Turnaround Time(specify):	Standard 14 day	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A

Sample Analysis Requested (*Enter number of containers for each test*)

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	(3) Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW 8260B (unpreserved)					Comments
	GSRY-MW0051- 027.5 - 20211207	GSRY-MW0051	20211207	1420	WG	N	G	5	2 GK 1	1					2					
	GSRY-MW0052- 019.0 - 20211207	GSRY-MW0052	20211207	1140	WG	N	G	5	2 GK 1	1					2					
GK	~~GSRY-MW0053 027.5 - 20211207~~	~~GSRY-MW0053~~	~~20211207~~		~~WG~~	~~N~~	~~G~~	~~5~~	~~2 GK 1~~						~~2~~					
	GSRY-MW0054-	GSRY-MW0054	202112		WG	N	G	5	3	2										
	GSRY-MW0055-	GSRY-MW0055	202112		WG	N	G	7	3	2				2						
	GSRY-MW0056-	GSRY-MW0056	202112		WG	N	G	5	3	2										
	GSRY-MW0057-	GSRY-MW0057	202112		WG	N	G	8	3	2	1	1	1							
	GSRY-MW0058-	GSRY-MW0058	202112		WG	N	G	7	3	2				2						
	GSRY-MW0059-	GSRY-MW0059	202112		WG	N	G	7	3	2				2						
	GSRY-MW0060-	GSRY-MW0060	202112		WG	N	G	5	3	2										
	GSRY-MW0061- 025.0 - 20211207	GSRY-MW0061	20211207	1351	WG	N	G	7 GK	2		1	1	1		2					
	GSRY-MW0062- 035.0 - 20211207	GSRY-MW0062	20211207	1425	WG	N	G	5	2	1					2					

***Field* Comments:**
Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment: 2 6 4S 0.3°C

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1	[signature]	12-06-21	11:10	[signature]	12/7/21	0700
2	[signature]	12/7/21	1645			
3				[signature]	12/7/21	16:46

Samples Iced?(check) Yes ✓ No ____
Shipping Company:
Tracking No:
Date Shipped:

(1) **AA**=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: **AB**=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: **4 DEG C**=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

AEO9397

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 3 of 3

ENCO

Project Name: NASA KSC - GSA Reclamation Yard	PO No. 138535	Project No. 60614327.4	Phase:
Site Location: GSRY - PCB VOC Area	Send Invoice To: Instructions in MSA# 21S-27172-GV03		EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
TO No.: 80KSC019F0078 — AECOM Project Manager: **Chad Lee cc: Jennifer Joyal**	Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando		Report to Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # — Greg Kusel / (772) 631-7426; Dustin Slater / (407) 766-0747; Madan Parsotan / (321) 696-6000	Deliver Samples To: ENCO Orlando		Site-Spicific WS#15 from QAPP: 15-17A

Lab Name: ENCO — Turnaround Time(specify): Standard 14 day

Sample Analysis Requested (*Enter number of containers for each test*)

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	(3) Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW 8260B (unpreserved)	Comments
	GSRY-MW0063-	GSRY-MW0063	202112		WG	N	G	5	3	2						
	GSRY-MW0064-	GSRY-MW0064	202112		WG	N	G	8	3		1	1	1	2		
	GSRY-MW0066-	GSRY-MW0066	202112		WG	N	G	10	3	2	1	1	1	2		
	GSRY-MW0075- 025.0-20211207	GSRY-MW0075	20211207	1459	WG	N	G	4	2						2	
	GRSY-MW0002IS-	GRSY-MW0002IS	202112		WS	N	G	5			1	1	1	2		
	GRSY-SW0001-	GRSY-SW0001	202112		WS	N	G	5	3	2						
	GSRY-FB01-	GSRY-FB01	202112		WQ	FB	G	2						2		
	GSRY-IDW01-	GSRY-IDW01	202112		IDW	IDW	G	7	3	2				2		
	GSRY-TB01- 20211207	GSRY-TB01	20211207	0830	WQ	TB	G	4	2					0	2	

***Field* Comments:**
Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment: 26 415 03C

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1					12/07/21	0700
2		12/7/21	1645			
3					12/07/21	16:46

Samples Iced?(check) Yes ✓ No ____
Shipping Company:
Tracking No:
Date Shipped:

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

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ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

10775 Central Port Drive
Orlando FL, 32824
Phone: 407.826.5314 FAX: 407.850.6945

Tuesday, December 28, 2021
AECOM Technical Services, Inc. (SE004)
Attn: Teresa Amentt Jennings
150 N. Orange Ave, Suite 200
Orlando, FL 32801

RE: Laboratory Results for
Project Number: 60614327.4, Project Name/Desc: NASA KSC - GSA Reclamation Yard
ENCO Workorder(s): AE09403

Dear Teresa Amentt Jennings,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, December 10, 2021.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,



Kaitlin Dylnicki

Project Manager

Enclosure(s)

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0067-015.0-20211210 **Lab ID: AE09403-01** **Sampled: 12/10/21 10:50** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/08/22	12/17/21 10:11	12/20/21 09:41

Client ID: GSRY-MW0071-018.0-20211210 **Lab ID: AE09403-02** **Sampled: 12/10/21 11:35** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/08/22	12/17/21 10:11	12/20/21 12:26
SM 2540C-2011	NO PREP	12/17/21	12/16/21 10:39	12/20/21 13:22

Client ID: GSRY-MW0073-022.0-20211210 **Lab ID: AE09403-03** **Sampled: 12/10/21 10:21** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/08/22	12/17/21 10:11	12/20/21 12:30
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 11:06
SM 2540C-2011	NO PREP	12/17/21	12/16/21 10:39	12/20/21 13:22

Client ID: GSRY-MW0074-012.0-20211210 **Lab ID: AE09403-04** **Sampled: 12/10/21 09:48** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 12:29

Client ID: GSRY-MW0076-015.0-20211210 **Lab ID: AE09403-05** **Sampled: 12/10/21 10:57** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 12:57

Client ID: GSRY-MW0077-015.0-20211210 **Lab ID: AE09403-06** **Sampled: 12/10/21 10:01** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 13:25

Client ID: GSRY-IDW01-20211210 **Lab ID: AE09403-08** **Sampled: 12/10/21 11:40** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 13:52

Client ID: GSRY-TB02-20211210 **Lab ID: AE09403-09** **Sampled: 12/10/21 09:30** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 14:20

Client ID: GSRY-IDW02-20211210 **Lab ID: AE09403-10** **Sampled: 12/10/21 11:50** **Received: 12/10/21 13:04**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/24/21	12/12/21 09:48	12/12/21 14:47

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0067-015.0-20211210 **Lab ID:** AE09403-01

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	1420		11.0	50.0	ug/L	EPA 6010D	

Client ID: GSRY-MW0071-018.0-20211210 **Lab ID:** AE09403-02

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	2370		11.0	50.0	ug/L	EPA 6010D	
Total Dissolved Solids	1500000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0073-022.0-20211210 **Lab ID:** AE09403-03

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	2260		11.0	50.0	ug/L	EPA 6010D	
Total Dissolved Solids	670000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0076-015.0-20211210 **Lab ID:** AE09403-05

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Vinyl chloride	0.78	I	0.71	1.0	ug/L	EPA 8260D	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0067-015.0-20211210 **Lab Sample ID:** AE09403-01 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 10:50 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**1420**		ug/L	1	11.0	50.0	1L17006	EPA 6010D	12/20/21 09:41	NRB	

Description: GSRY-MW0071-018.0-20211210 **Lab Sample ID:** AE09403-02 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 11:35 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**2370**		ug/L	1	11.0	50.0	1L17006	EPA 6010D	12/20/21 12:26	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Total Dissolved Solids^	**1500000**		ug/L	1	10000	10000	1L16007	SM 2540C-2011	12/20/21 13:22	LAM	

Description: GSRY-MW0073-022.0-20211210 **Lab Sample ID:** AE09403-03 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 10:21 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 11:06	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 11:06*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 11:06*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 11:06*	*KKW*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**2260**		ug/L	1	11.0	50.0	1L17006	EPA 6010D	12/20/21 12:30	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Total Dissolved Solids^	**670000**		ug/L	1	10000	10000	1L16007	SM 2540C-2011	12/20/21 13:22	LAM	

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ANALYTICAL RESULTS

Description: GSRY-MW0074-012.0-20211210 **Lab Sample ID:** AE09403-04 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 09:48 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 12:29	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 12:29*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*97 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 12:29*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 12:29*	*KKW*	

Description: GSRY-MW0076-015.0-20211210 **Lab Sample ID:** AE09403-05 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 10:57 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	
Vinyl chloride [75-01-4]^	**0.78**	I	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 12:57	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*55*	*1*	*50.0*	*110 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 12:57*	*KKW*	
Dibromofluoromethane	*51*	*1*	*50.0*	*103 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 12:57*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*105 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 12:57*	*KKW*	

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ANALYTICAL RESULTS

Description: GSRY-MW0077-015.0-20211210 **Lab Sample ID:** AE09403-06 **Received:** 12/10/21 13:04
Matrix: Ground Water **Sampled:** 12/10/21 10:01 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 13:25	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*105 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 13:25*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*99 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 13:25*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 13:25*	*KKW*	

Description: GSRY-IDW01-20211210 **Lab Sample ID:** AE09403-08 **Received:** 12/10/21 13:04
Matrix: Water **Sampled:** 12/10/21 11:40 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:**

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 13:52	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 13:52*	*KKW*	
Dibromofluoromethane	*50*	*1*	*50.0*	*99 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 13:52*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*103 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 13:52*	*KKW*	

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ANALYTICAL RESULTS

Description: GSRY-TB02-20211210 **Lab Sample ID:** AE09403-09 **Received:** 12/10/21 13:04
Matrix: Water **Sampled:** 12/10/21 09:30 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:**

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 14:20	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*105 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 14:20*	*KKW*	
Dibromofluoromethane	*51*	*1*	*50.0*	*102 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 14:20*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*103 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 14:20*	*KKW*	

Description: GSRY-IDW02-20211210 **Lab Sample ID:** AE09403-10 **Received:** 12/10/21 13:04
Matrix: Water **Sampled:** 12/10/21 11:50 **Work Order:** AE09403
Project: NASA KSC - GSA Reclamation Yard **Sampled By:**

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,1-Dichloroethene [75-35-4]^	0.94	U	ug/L	1	0.94	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	
cis-1,2-Dichloroethene [156-59-2]^	0.53	U	ug/L	1	0.53	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	
Tetrachloroethene [127-18-4]^	0.76	U	ug/L	1	0.76	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	
trans-1,2-Dichloroethene [156-60-5]^	0.73	U	ug/L	1	0.73	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	
Trichloroethene [79-01-6]^	0.89	U	ug/L	1	0.89	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	
Vinyl chloride [75-01-4]^	0.71	U	ug/L	1	0.71	1.0	1L12001	EPA 8260D	12/12/21 14:47	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*104 %*	*41-142*	*1L12001*	*EPA 8260D*	*12/12/21 14:47*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*53-146*	*1L12001*	*EPA 8260D*	*12/12/21 14:47*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*103 %*	*41-146*	*1L12001*	*EPA 8260D*	*12/12/21 14:47*	*KKW*	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L12001 - EPA 5030B_MS

Blank (1L12001-BLK1) Prepared: 12/12/2021 00:00 Analyzed: 12/12/2021 10:39

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	0.94	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.53	U	1.0	ug/L							
Tetrachloroethene	0.76	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.73	U	1.0	ug/L							
Trichloroethene	0.89	U	1.0	ug/L							
Vinyl chloride	0.71	U	1.0	ug/L							
4-Bromofluorobenzene	*53*			*ug/L*	*50.0*		*106*	*41-142*			
Dibromofluoromethane	*48*			*ug/L*	*50.0*		*96*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*103*	*41-146*			

LCS (1L12001-BS1) Prepared: 12/12/2021 00:00 Analyzed: 12/12/2021 09:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	19		1.0	ug/L	20.0		96	47-139			
cis-1,2-Dichloroethene	20		1.0	ug/L	20.0		102	56-128			
Tetrachloroethene	20		1.0	ug/L	20.0		98	60-147			
trans-1,2-Dichloroethene	21		1.0	ug/L	20.0		103	54-134			
Trichloroethene	19		1.0	ug/L	20.0		95	62-135			
Vinyl chloride	17		1.0	ug/L	20.0		84	20-167			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*101*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*41-146*			

Matrix Spike (1L12001-MS1) Prepared: 12/12/2021 00:00 Analyzed: 12/12/2021 11:34

Source: AE09403-03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	24		1.0	ug/L	20.0	0.94 U	121	47-139			
cis-1,2-Dichloroethene	23		1.0	ug/L	20.0	0.53 U	115	56-128			
Tetrachloroethene	23		1.0	ug/L	20.0	0.76 U	113	60-147			
trans-1,2-Dichloroethene	24		1.0	ug/L	20.0	0.73 U	121	54-134			
Trichloroethene	22		1.0	ug/L	20.0	0.89 U	110	62-135			
Vinyl chloride	18		1.0	ug/L	20.0	0.71 U	92	20-167			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*109*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*103*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*105*	*41-146*			

Matrix Spike Dup (1L12001-MSD1) Prepared: 12/12/2021 00:00 Analyzed: 12/12/2021 12:02

Source: AE09403-03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	23		1.0	ug/L	20.0	0.94 U	116	47-139	4	16	
cis-1,2-Dichloroethene	23		1.0	ug/L	20.0	0.53 U	115	56-128	0.3	17	
Tetrachloroethene	22		1.0	ug/L	20.0	0.76 U	108	60-147	5	21	
trans-1,2-Dichloroethene	25		1.0	ug/L	20.0	0.73 U	123	54-134	2	20	
Trichloroethene	21		1.0	ug/L	20.0	0.89 U	107	62-135	3	20	
Vinyl chloride	18		1.0	ug/L	20.0	0.71 U	90	20-167	3	24	
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*107*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*101*	*53-146*			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L12001 - EPA 5030B_MS - Continued

Matrix Spike Dup (1L12001-MSD1) Continued Prepared: 12/12/2021 00:00 Analyzed: 12/12/2021 12:02

Source: AE09403-03

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Toluene-d8	*51*			*ug/L*	*50.0*		*102*	*41-146*			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L17006 - EPA 3005A

Blank (1L17006-BLK1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:34

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	27.0	U	500	ug/L							

Blank (1L17006-BLK2) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 13:33

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	**4520**		500	ug/L							

LCS (1L17006-BS1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:38

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	492		10.0	ug/L	495		99	80-120			
Sodium	25100		500	ug/L	25200		100	80-120			

LCS (1L17006-BS2) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 13:36

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	493		10.0	ug/L	495		100	80-120			
Sodium	27700		500	ug/L	25200		110	80-120			

Matrix Spike (1L17006-MS1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:44

Source: AE09403-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	3840		50.0	ug/L	2500	1420	97	75-125			
Manganese	513		10.0	ug/L	495	24.3	99	75-125			
Sodium	250000		500	ug/L	25200	228000	88	75-125			

Matrix Spike Dup (1L17006-MSD1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:47

Source: AE09403-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	3890		50.0	ug/L	2500	1420	99	75-125	1	20	
Manganese	517		10.0	ug/L	495	24.3	100	75-125	0.9	20	
Sodium	256000		500	ug/L	25200	228000	110	75-125	2	20	

Batch AA69829 - 1L17037

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Serial Dilution (AA69829-SRD1)

Prepared: 12/17/2021 09:08 Analyzed: 12/21/2021 12:54

Source: AE09762-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sodium	837000		0.500	ug/L		813000			3		

Classical Chemistry Parameters - Quality Control

Batch 1L13037 - NO PREP

Blank (1L13037-BLK1)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 08:30

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	66	U	5000	ug/L							

LCS (1L13037-BS1)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 08:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000		99	80-120			

Matrix Spike (1L13037-MS1)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 12:52

Source: AE09156-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	56000		5000	ug/L	50000	12000	88	80-120			

Matrix Spike (1L13037-MS2)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:21

Source: AE09157-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	53000		5000	ug/L	50000	5300	96	80-120			

Matrix Spike Dup (1L13037-MSD1)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:06

Source: AE09156-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	57000		5000	ug/L	50000	12000	90	80-120	2	15	

Matrix Spike Dup (1L13037-MSD2)

Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:36

Source: AE09157-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000	5300	90	80-120	6	15	

Batch 1L16007 - NO PREP

Blank (1L16007-BLK2)

Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L16007-BS1)

Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	96000		10000	ug/L	100000		96	90-110			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Classical Chemistry Parameters - Quality Control

Batch 1L16007 - NO PREP - Continued

Duplicate (1L16007-DUP2) Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Source: AE09768-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	220000		10000	ug/L		210000			3	20	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*****	Not reported due to interference.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
QM-17	Matrix spike recovery was outside acceptance limits due to high concentrations of analyte in source sample.
QM-18	Serial dilution did not meet method requirements. Sample results validated from acceptable post spike recovery.
QV-01	The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

AE09403

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

	Project Name: NASA KSC - GSA Reclamation Yard		COC No.	Page: 1 of 1	
	Site Location: GSRY - Chlorinated VOC Area		PO No. 138535	Project No. 60614327.4	Phase:
	TO No.: 80KSC019F0078	AECOM Project Manager: **Chad Lee cc: Jennifer Joyal**	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain	Cc: Teresa Amentt Jennings
			Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to Jennifer Chastain	Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17B	
Lab Name:	ENCO	Turnaround Time(specify): Standard	**Sample Analysis Requested** (*Enter number of containers for each test*)		

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	(3) Total No. of Containers	HCl Select CVOCs by SW8260B (Preserved)	HNO3 Fe by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537								Comments
	GSRY-MW0067-015.0-20211210	GSRY-MW0067	20211210	1050	WG	N	G	1		1										
	GSRY-MW0071-018.0-20211210	GSRY-MW0071	20211210	1135	WG	N	G	2		1	1									
	GSRY-MW0073-022.0-20211210	GSRY-MW0073	20211210	1021	WG	N	G	7	3	1	1	2								
	GSRY-MW0074-012.0-20211210	GSRY-MW0074	20211210	0948	WG	N	G	5	3			2								
	GSRY-MW0076-015.0-20211210	GSRY-MW0076	20211210	1057	WG	N	G	3	3											
	GSRY-MW0077-015.0-20211210	GSRY-MW0077	20211210	1001	WG	N	G	3	3											
	GSRY-FB02-20211210	GSRY-FB02	20211210	1200	WQ	FB	G	2				2								
	GSRY-IDW02-20211210	GSRY-IDW02	20211210	1140	IDW	IDW	G	5	3			2								
	GSRY-TB02-20211210	GSRY-TB02	20211210	0930	WQ	TB	G	2	2											
	GSRY-IDW02-20211210	GSRY-IDW02	20211210	1150	IDW	IDW	G					2								

***Field* Comments:**
Report only per QAPP WS #15-17B

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment: 26-559 0.1°C

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12-06-21	10:40		12/10/21	0700
2		12/10/21	1303		12/10/21	13:04
3						

Samples Iced?(check) Yes ✓ No____
Shipping Company:
Tracking No:
Date Shipped:

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: **4 DEG C**=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

ENCO Laboratories
Accurate. Timely. Responsive. Innovative.

10775 Central Port Drive
Orlando FL, 32824
Phone: 407.826.5314 FAX: 407.850.6945

Tuesday, December 28, 2021
AECOM Technical Services, Inc. (SE004)
Attn: Teresa Amentt Jennings
150 N. Orange Ave, Suite 200
Orlando, FL 32801

RE: Laboratory Results for
Project Number: 60614327.4, Project Name/Desc: NASA KSC - GSA Reclamation Yard
ENCO Workorder(s): AE09403

Dear Teresa Amentt Jennings,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, December 10, 2021.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,



Kaitlin Dylnicki

Project Manager

Enclosure(s)

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0002IS-025.0-20211210 **Lab ID:** AE09403-11 **Sampled:** 12/10/21 09:21 **Received:** 12/10/21 13:04

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/08/22	12/17/21 10:11	12/20/21 12:33
EPA 9056A	NO PREP	01/07/22	12/13/21 12:33	12/14/21 12:23
SM 2540C-2011	NO PREP	12/17/21	12/16/21 10:39	12/20/21 13:22

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0002IS-025.0-20211210 **Lab ID:** AE09403-11

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	1300		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	20.4		0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	204000	V	27.0	500	ug/L	EPA 6010D	
Sulfate	160	I	66	5000	ug/L	EPA 9056A	
Total Dissolved Solids	1100000		10000	10000	ug/L	SM 2540C-2011	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0002IS-025.0-20211210 **Lab Sample ID:** AE09403-11 **Received:** 12/10/21 13:04

Matrix: Ground Water **Sampled:** 12/10/21 09:21 **Work Order:** AE09403

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**1300**		ug/L	1	11.0	50.0	1L17006	EPA 6010D	12/20/21 12:33	NRB	
Manganese [7439-96-5]^	**20.4**		ug/L	1	0.770	10.0	1L17006	EPA 6010D	12/20/21 12:33	NRB	
Sodium [7440-23-5]^	**204000**	V	ug/L	1	27.0	500	1L17006	EPA 6010D	12/20/21 12:33	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**160**	I	ug/L	1	66	5000	1L13037	EPA 9056A	12/14/21 12:23	ASR	
Total Dissolved Solids^	**1100000**		ug/L	1	10000	10000	1L16007	SM 2540C-2011	12/20/21 13:22	LAM	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L17006 - EPA 3005A

Blank (1L17006-BLK1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:34

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	27.0	U	500	ug/L							

Blank (1L17006-BLK2) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 13:33

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	**4520**		500	ug/L							

LCS (1L17006-BS1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:38

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	492		10.0	ug/L	495		99	80-120			
Sodium	25100		500	ug/L	25200		100	80-120			

LCS (1L17006-BS2) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 13:36

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	493		10.0	ug/L	495		100	80-120			
Sodium	27700		500	ug/L	25200		110	80-120			

Matrix Spike (1L17006-MS1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:44

Source: AE09403-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	3840		50.0	ug/L	2500	1420	97	75-125			
Manganese	513		10.0	ug/L	495	24.3	99	75-125			
Sodium	250000		500	ug/L	25200	228000	88	75-125			

Matrix Spike Dup (1L17006-MSD1) Prepared: 12/17/2021 10:11 Analyzed: 12/20/2021 09:47

Source: AE09403-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	3890		50.0	ug/L	2500	1420	99	75-125	1	20	
Manganese	517		10.0	ug/L	495	24.3	100	75-125	0.9	20	
Sodium	256000		500	ug/L	25200	228000	110	75-125	2	20	

Batch AA69829 - 1L17037

Serial Dilution (AA69829-SRD1) Prepared: 12/17/2021 09:08 Analyzed: 12/21/2021 12:54

Source: AE09762-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sodium	837000		0.500	ug/L		813000			3		

Classical Chemistry Parameters - Quality Control

Batch 1L13037 - NO PREP

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Classical Chemistry Parameters - Quality Control

Blank (1L13037-BLK1) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 08:30

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	66	U	5000	ug/L							

LCS (1L13037-BS1) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 08:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000		99	80-120			

Matrix Spike (1L13037-MS1) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 12:52

Source: AE09156-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	56000		5000	ug/L	50000	12000	88	80-120			

Matrix Spike (1L13037-MS2) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:21

Source: AE09157-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	53000		5000	ug/L	50000	5300	96	80-120			

Matrix Spike Dup (1L13037-MSD1) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:06

Source: AE09156-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	57000		5000	ug/L	50000	12000	90	80-120	2	15	

Matrix Spike Dup (1L13037-MSD2) Prepared: 12/13/2021 12:33 Analyzed: 12/14/2021 13:36

Source: AE09157-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000	5300	90	80-120	6	15	

Batch 1L16007 - NO PREP

Blank (1L16007-BLK2) Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L16007-BS1) Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	96000		10000	ug/L	100000		96	90-110			

Duplicate (1L16007-DUP2) Prepared: 12/16/2021 10:39 Analyzed: 12/20/2021 13:22

Source: AE09768-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	220000		10000	ug/L		210000			3	20	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*	Not reported due to interference.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

AE09403

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

	Project Name: NASA KSC - GSA Reclamation Yard		COC No.	Page: 1 of 1	
	Site Location: GSRY - Chlorinated VOC Area		PO No. 138535	Project No. 60614327.4	Phase:
	TO No.: 80KSC019F0078	AECOM Project Manager: **Chad Lee cc: Jennifer Joyal**	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain	Cc: Teresa Amentt Jennings
			Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to Jennifer Chastain	Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17B	
Lab Name:	ENCO	Turnaround Time(specify): Standard	**Sample Analysis Requested** (*Enter number of containers for each test*)		

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	(3) Total No. of Containers	HCl Select CVOCs by SW8260B (Preserved)	HNO3 Fe by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537								Comments
	GSRY-MW0067-015.0-20211210	GSRY-MW0067	20211210	1050	WG	N	G	1		1										
	GSRY-MW0071-018.0-20211210	GSRY-MW0071	20211210	1135	WG	N	G	2		1	1									
	GSRY-MW0073-022.0-20211210	GSRY-MW0073	20211210	1021	WG	N	G	7	3	1	1	2								
	GSRY-MW0074-012.0-20211210	GSRY-MW0074	20211210	0948	WG	N	G	5	3			2								
	GSRY-MW0076-015.0-20211210	GSRY-MW0076	20211210	1057	WG	N	G	3	3											
	GSRY-MW0077-015.0-20211210	GSRY-MW0077	20211210	1001	WG	N	G	3	3											
	GSRY-FB02-20211210	GSRY-FB02	20211210	1200	WQ	FB	G	2				2								
	GSRY-IDW02-20211210	GSRY-IDW02	20211210	1140	IDW	IDW	G	5	3			2								
	GSRY-TB02-20211210	GSRY-TB02	20211210	0930	WQ	TB	G	2	2											
	GSRY-IDW02-20211210	GSRY-IDW02	20211210	1150	IDW	IDW	G					2								

***Field* Comments:**
Report only per QAPP WS #15-17B

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment: 26-559 0.1°C

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12-06-21	10:40		12/10/21	0700
2		12/10/21	1303		12/10/21	13:04
3						

Samples Iced?(check) Yes ✓ No____
Shipping Company:
Tracking No:
Date Shipped:

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: **4 DEG C**=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

December 30, 2021

Kaitlin Dylnicki
Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida 32824

Re: NASA PFAS - Dylnicki
Work Order: 566059
SDG: AE09403-1

Dear Kaitlin Dylnicki:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 14, 2021. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4523.

Sincerely,

Samuel Hogan
Project Manager

Purchase Order: GELP20-0372
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ENCL001 Environmental Conservation Laboratories

Client SDG: AE09403−1 GEL Work Order: 566059

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Samuel Hogan.

Reviewed by 

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0002IS-025.0-20211210	Project:	ENCL00421
Sample ID:	566059001	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 09:21		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000669	0.00191	ug/L	0.0203	1	JMB3	12/20/21	1603	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000669	0.00189	ug/L	0.0203	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00134	0.00406	ug/L	0.0203	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00134	0.00406	ug/L	0.0203	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000669	0.00180	ug/L	0.0203	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000791	0.00203	ug/L	0.0203	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
Perfluorohexane sulfonic acid (PFHxS)	U	ND	0.000669	0.00185	ug/L	0.0203	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.000811	0.00203	ug/L	0.0203	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
Perfluorooctane sulfonic acid (PFOS)	U	ND	0.000811	0.00203	ug/L	0.0203	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000811	0.00203	ug/L	0.0203	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000811	0.00203	ug/L	0.0203	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000669	0.00203	ug/L	0.0203	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl PFCs	Extraction in Liquid	TC2	12/17/21	0842	2209414

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0002IS-025.0-20211210	Project:	ENCL00421
Sample ID:	566059001	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: December 30, 2021

Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida

Contact: **Kaitlin Dylnicki**

Workorder: **566059**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2209415											
QC1204981567 LCS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0195			0.0195	ug/L		100	(59%-144%)	JMB3	12/20/21	13:26
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0207			0.0215	ug/L		104	(67%-136%)			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0193			0.0209	ug/L		109	(68%-135%)			
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0207			0.0168	ug/L		81	(67%-144%)			
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0207			0.0226	ug/L		109	(57%-139%)			
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0207			0.0207	ug/L		100	(59%-145%)			
Perfluorobutane sulfonic acid (PFBS)	0.0183			0.0189	ug/L		103	(70%-144%)			
Perfluorodecanoic acid (PFDA)	0.0207			0.0197	ug/L		95	(65%-145%)			
Perfluorododecanoic acid (PFDOA)	0.0207			0.0215	ug/L		104	(65%-137%)			
Perfluoroheptanoic acid (PFHpA)	0.0207			0.0223	ug/L		108	(71%-133%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0189			0.0184	ug/L		98	(67%-145%)			
Perfluorohexanoic acid (PFHxA)	0.0207			0.0214	ug/L		103	(70%-138%)			
Perfluorononanoic acid (PFNA)	0.0207			0.0200	ug/L		96	(69%-133%)			
Perfluorooctane sulfonic acid (PFOS)	0.0207			0.0210	ug/L		101	(65%-133%)			

QC Summary

Workorder: **566059**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorooctanoic acid (PFOA)	0.0207			0.0206	ug/L		100	(66%-139%)	JMB3	12/20/21	13:26
Perfluorotetradecanoic acid (PFTDA)	0.0207			0.0205	ug/L		99	(66%-138%)			
Perfluorotridecanoic acid (PFTrDA)	0.0207			0.0254	ug/L		123	(58%-140%)			
Perfluoroundecanoic acid (PFUnDA)	0.0207			0.0213	ug/L		103	(63%-135%)			
QC1204981566 MB											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)			U	ND	ug/L					12/20/21	13:15
4,8-Dioxa-3H-perfluorononanoic acid (DONA)			U	ND	ug/L						
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)			U	ND	ug/L						
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)			U	ND	ug/L						
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)			U	ND	ug/L						
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)			U	ND	ug/L						
Perfluorobutane sulfonic acid (PFBS)			U	ND	ug/L						
Perfluorodecanoic acid (PFDA)			U	ND	ug/L						
Perfluorododecanoic acid (PFDOA)			U	ND	ug/L						
Perfluoroheptanoic acid (PFHpA)			U	ND	ug/L						
Perfluorohexane sulfonic acid (PFHxS)			U	ND	ug/L						

QC Summary

Workorder: 566059

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorohexanoic acid (PFHxA)				U	ND	ug/L				JMB3	12/20/21 13:15
Perfluorononanoic acid (PFNA)				U	ND	ug/L					
Perfluorooctane sulfonic acid (PFOS)				U	ND	ug/L					
Perfluorooctanoic acid (PFOA)				U	ND	ug/L					
Perfluorotetradecanoic acid (PFTDA)				U	ND	ug/L					
Perfluorotridecanoic acid (PFTrDA)				U	ND	ug/L					
Perfluoroundecanoic acid (PFUnDA)				U	ND	ug/L					
QC1204981568 564949006 MS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0165	U	ND		0.0148	ug/L		90	(42%-138%)		12/20/21 12:42
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0176	U	ND		0.0204	ug/L		116	(62%-132%)		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0164	U	ND		0.0167	ug/L		102	(54%-139%)		
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0176	U	ND		0.0236	ug/L		134	(51%-159%)		
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0176	U	ND		0.0188	ug/L		107	(38%-148%)		
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0176	U	ND		0.0193	ug/L		110	(40%-144%)		
Perfluorobutane sulfonic acid (PFBS)	0.0155		0.00180		0.0185	ug/L		108	(52%-147%)		
Perfluorodecanoic acid (PFDA)	0.0176	U	ND		0.0216	ug/L		119	(44%-143%)		

QC Summary

Workorder: 566059

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorododecanoic acid (PFDOA)	0.0176	U	ND		0.0194	ug/L		111	(45%-142%)	JMB3	12/20/21 12:42
Perfluoroheptanoic acid (PFHpA)	0.0176		0.00324		0.0217	ug/L		105	(51%-149%)		
Perfluorohexane sulfonic acid (PFHxS)	0.0160		0.00290		0.0225	ug/L		122	(50%-148%)		
Perfluorohexanoic acid (PFHxA)	0.0176		0.00651		0.0308	ug/L		138	(50%-150%)		
Perfluorononanoic acid (PFNA)	0.0176	I	0.000850		0.0185	ug/L		101	(54%-146%)		
Perfluorooctane sulfonic acid (PFOS)	0.0176		0.00903		0.0259	ug/L		96	(42%-150%)		
Perfluorooctanoic acid (PFOA)	0.0176		0.00994		0.0308	ug/L		119	(50%-151%)		
Perfluorotetradecanoic acid (PFTDA)	0.0176	U	ND		0.0187	ug/L		106	(41%-148%)		
Perfluorotridecanoic acid (PFTrDA)	0.0176	U	ND		0.0279	ug/L		159*	(41%-142%)		
Perfluoroundecanoic acid (PFUnDA)	0.0176	U	ND		0.0171	ug/L		98	(44%-141%)		
QC1204981569 564949006 MSD											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0167	U	ND		0.0138	ug/L	7	82	(0%-36%)		12/20/21 12:53
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0177	U	ND		0.0184	ug/L	10	104	(0%-28%)		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0165	U	ND		0.0168	ug/L	0	101	(0%-33%)		
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0177	U	ND		0.0258	ug/L	9	145	(0%-28%)		
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0177	U	ND		0.0204	ug/L	8	115	(0%-36%)		

QC Summary

Workorder: **566059**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds												
Batch 2209415												
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0177	U	ND		0.0186	ug/L	4	105	(0%-36%)	JMB3	12/20/21	12:53
Perfluorobutane sulfonic acid (PFBS)	0.0157		0.00180		0.0179	ug/L	3	103	(0%-27%)			
Perfluorodecanoic acid (PFDA)	0.0177	U	ND		0.0184	ug/L	16	100	(0%-35%)			
Perfluorododecanoic acid (PFDOA)	0.0177	U	ND		0.0207	ug/L	6	117	(0%-30%)			
Perfluoroheptanoic acid (PFHpA)	0.0177		0.00324		0.0204	ug/L	6	97	(0%-26%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0162		0.00290		0.0187	ug/L	19	98	(0%-31%)			
Perfluorohexanoic acid (PFHxA)	0.0177		0.00651		0.0288	ug/L	7	126	(0%-26%)			
Perfluorononanoic acid (PFNA)	0.0177	I	0.000850		0.0184	ug/L	1	99	(0%-30%)			
Perfluorooctane sulfonic acid (PFOS)	0.0177		0.00903		0.0262	ug/L	1	97	(0%-31%)			
Perfluorooctanoic acid (PFOA)	0.0177		0.00994		0.0303	ug/L	2	115	(0%-28%)			
Perfluorotetradecanoic acid (PFTDA)	0.0177	U	ND		0.0204	ug/L	9	115	(0%-32%)			
Perfluorotridecanoic acid (PFTrDA)	0.0177	U	ND		0.0267	ug/L	4	151*	(0%-35%)			
Perfluoroundecanoic acid (PFUnDA)	0.0177	U	ND		0.0190	ug/L	10	107	(0%-34%)			

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **566059**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

A	The TIC is a suspected aldol-condensation product
B	The target analyte was detected in the associated blank.
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	Concentration of the target analyte exceeds the instrument calibration range
I	The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.
J	See case narrative for an explanation
JNX	Non Calibrated Compound
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
Q	Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UJ	Compound cannot be extracted
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

LCMSMS-Misc
Technical Case Narrative
Environmental Conservation Laboratories
SDG #: AE09403-1
Work Order #: 566059

Product: **The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS**
Analytical Method: EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15
Analytical Procedure: GL-OA-E-076 REV# 12
Analytical Batches: 2209415 and 2209414

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
566059001	GSRY-MW0002IS-025.0-20211210
1204981566	Method Blank (MB)
1204981567	Laboratory Control Sample (LCS)
1204981568	564949006(NonSDG) Matrix Spike (MS)
1204981569	564949006(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CCV Requirements
Calibration verification standard (ICV or CCV) requirements have not been met for sample 566059001 (GSRY-MW0002IS-025.0-20211210) in this batch in this SDG. One or more target analytes failed acceptance criteria with a positive bias in the standards bracketing the samples in this SDG. These target analytes were not detected in the associated environmental samples; therefore, the non-compliance had no adverse effect on the data.

Quality Control (QC) Information

Matrix Spike (MS) Recovery Statement
The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1204981568 (Non SDG 564949006MS)	Perfluorohexanoic acid (PFHxA)	138* (72%-129%)
	Perfluorotridecanoic acid (PFTrDA)	159* (41%-142%)
1204981569 (Non SDG 564949006MSD)	Perfluorotridecanoic acid (PFTrDA)	151* (41%-142%)

Internal Standard (ISTD) Acceptance

Sample and its MS/MSD (See Below) did not meet all internal standard acceptance criteria. As the MS/MSD displayed similar internal standard recoveries as the parent sample, the failures were attributed to matrix interference and the data were reported as is.

Sample	Analyte	Value
1204981568 (Non SDG 564949006MS)	1, 2-13C2 Fluorotelomer sulfonate 4:2	DOD|245* (50%-150%)|DODQSM5|245* (50%-150%)|GEL|245* (40%-160%)
	Perfluoro-n-[13C4]butanoic acid	and DOD|39* (50%-150%)|DODQSM5|39* (50%-150%)|GEL|39* (40%-160%)
1204981569 (Non SDG 564949006MSD)	1, 2-13C2 Fluorotelomer sulfonate 4:2	DOD|206* (50%-150%)|DODQSM5|206* (50%-150%)|GEL|206* (40%-160%)
	Perfluoro-n-[13C4]butanoic acid	and DOD|40* (50%-150%)|DODQSM5|40* (50%-150%)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

SUBCONTRACT ORDER Standard TAT

ENCO Orlando

AE09403 564882 12/10/21

SENDING LABORATORY:

ENCO Orlando
10775 Central Port Drive
Orlando, FL 32824
Phone: 407.826.5314
Fax: 407.850.6945
Project Manager: Kaitlin Dylnicki

RECEIVING LABORATORY:

GEL Laboratories, Inc. (SC)
2040 Savage Road
Charleston, SC 29407
Phone :(843) 556-8171
Fax: (843) 766-1178
Project State of Origin: Florida

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0073-022.0-2021121	Ground Water	10-Dec-21 10:21	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 10:21	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (E)	250mLP (F)	250mLP (G)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0074-012.0-2021121	Ground Water	10-Dec-21 09:48	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 09:48	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (C)	250mLP (D)	250mLP (E)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-FB01-20211210	Water	10-Dec-21 12:00	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 12:00	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (A)	250mLP (B)	~~5mLV (C)~~ 12/10/21	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-IDW01-20211210	Water	10-Dec-21 11:40	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 11:40	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (C)	250mLP (D)	5mLV (E)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-IDW02-20211210	Water	10-Dec-21 11:50	8260 not marked on COC but vials received, JA

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 11:50	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (C)	250mLP (D)	5mLV (E)	

Released By	Date	Received By	Date
AA	12/10/21		12-14-21 0935
Released By	Date	Received By	Date

SUBCONTRACT ORDER

ENCO Orlando

AE09403

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0021S-025.0-202112	Ground Water	10-Dec-21 09:21	Sample not on COC, JAJ 12/10/21.

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 09:21	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (C)	250mLP (D)	250mLP (E)	

Released By	Date	Received By	Date
			12-14-21 0935
Released By	Date	Received By	Date

SH

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ENCL	**SDG/AR/COC/Work Order:** 564-882
Received By: DC	**Date Received:** 12-N-21
Carrier and Tracking Number	Circle Applicable: FedEx Express / FedEx Ground / UPS / Field Services / Courier / Other 5307 8833 1663

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 **CPM / mR/Hr** **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius **TEMP:** 6°
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR6-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials GB Date 12/15/21 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 30 December 2021

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122021−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−21−19
Utah NELAP	SC000122021−36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

December 30, 2021

Kaitlin Dylnicki
Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida 32824

Re: NASA PFAS - Dylnicki
Work Order: 564882
SDG: AE09403

Dear Kaitlin Dylnicki:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 14, 2021. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Client NCR

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4523.

Sincerely,

Samuel Hogan
Project Manager

Purchase Order: GELP20-0372
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ENCL001 Environmental Conservation Laboratories

Client SDG: AE09403 GEL Work Order: 564882

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

I The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Samuel Hogan.

Reviewed by _____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0073-022.0-20211210	Project:	ENCL00421
Sample ID:	564882001	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 10:21		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000617	0.00176	ug/L	0.0187	1	JMB3	12/20/21	1757	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000617	0.00174	ug/L	0.0187	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00123	0.00374	ug/L	0.0187	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00123	0.00374	ug/L	0.0187	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000617	0.00166	ug/L	0.0187	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000729	0.00187	ug/L	0.0187	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
Perfluorohexane sulfonic acid (PFHxS)	U	ND	0.000617	0.00170	ug/L	0.0187	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.000748	0.00187	ug/L	0.0187	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
Perfluorooctane sulfonic acid (PFOS)	U	ND	0.000748	0.00187	ug/L	0.0187	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000748	0.00187	ug/L	0.0187	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000748	0.00187	ug/L	0.0187	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000617	0.00187	ug/L	0.0187	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl PFCs	Extraction in Liquid	TC2	12/17/21	0842	2209414

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0073-022.0-20211210	Project:	ENCL00421
Sample ID:	564882001	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0074-012.0-20211210	Project:	ENCL00421
Sample ID:	564882002	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 09:48		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000589	0.00168	ug/L	0.0179	1	JMB3	12/20/21	1521	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000589	0.00179	ug/L	0.0179	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000589	0.00166	ug/L	0.0179	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00118	0.00357	ug/L	0.0179	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00118	0.00357	ug/L	0.0179	1					
Perfluorobutane sulfonic acid (PFBS)		0.00271	0.000589	0.00159	ug/L	0.0179	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000697	0.00179	ug/L	0.0179	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000589	0.00179	ug/L	0.0179	1					
Perfluoroheptanoic acid (PFHpA)		0.0120	0.000589	0.00179	ug/L	0.0179	1					
Perfluorohexane sulfonic acid (PFHxS)		0.0255	0.000589	0.00163	ug/L	0.0179	1					
Perfluorohexanoic acid (PFHxA)		0.0216	0.000715	0.00179	ug/L	0.0179	1					
Perfluorononanoic acid (PFNA)	I	0.00103	0.000589	0.00179	ug/L	0.0179	1					
Perfluorooctane sulfonic acid (PFOS)		0.0121	0.000715	0.00179	ug/L	0.0179	1					
Perfluorooctanoic acid (PFOA)		0.0890	0.000715	0.00179	ug/L	0.0179	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000715	0.00179	ug/L	0.0179	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000589	0.00179	ug/L	0.0179	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000589	0.00179	ug/L	0.0179	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000589	0.00179	ug/L	0.0179	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	TC2	12/17/21	0842	2209414

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0074-012.0-20211210	Project:	ENCL00421
Sample ID:	564882002	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-FB01-20211210	Project:	ENCL00421
Sample ID:	564882003	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 12:00		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000670	0.00191	ug/L	0.0203	1	JMB3	12/20/21	1532	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000670	0.00189	ug/L	0.0203	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00134	0.00406	ug/L	0.0203	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00134	0.00406	ug/L	0.0203	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000670	0.00181	ug/L	0.0203	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000791	0.00203	ug/L	0.0203	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
Perfluorohexane sulfonic acid (PFHxS)	U	ND	0.000670	0.00185	ug/L	0.0203	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.000812	0.00203	ug/L	0.0203	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
Perfluorooctane sulfonic acid (PFOS)	U	ND	0.000812	0.00203	ug/L	0.0203	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000812	0.00203	ug/L	0.0203	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000812	0.00203	ug/L	0.0203	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000670	0.00203	ug/L	0.0203	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl PFCs	Extraction in Liquid	TC2	12/17/21	0842	2209414

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-FB01-20211210	Project:	ENCL00421
Sample ID:	564882003	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-IDW01-20211210	Project:	ENCL00421
Sample ID:	564882004	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 11:40		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000602	0.00172	ug/L	0.0182	1	JMB3	12/20/21	1542	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000602	0.00182	ug/L	0.0182	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000602	0.00170	ug/L	0.0182	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00120	0.00365	ug/L	0.0182	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00120	0.00365	ug/L	0.0182	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000602	0.00162	ug/L	0.0182	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000712	0.00182	ug/L	0.0182	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000602	0.00182	ug/L	0.0182	1					
Perfluoroheptanoic acid (PFHpA)	I	0.000921	0.000602	0.00182	ug/L	0.0182	1					
Perfluorohexane sulfonic acid (PFHxS)		0.00485	0.000602	0.00166	ug/L	0.0182	1					
Perfluorohexanoic acid (PFHxA)		0.00296	0.000730	0.00182	ug/L	0.0182	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000602	0.00182	ug/L	0.0182	1					
Perfluorooctane sulfonic acid (PFOS)		0.00766	0.000730	0.00182	ug/L	0.0182	1					
Perfluorooctanoic acid (PFOA)		0.00320	0.000730	0.00182	ug/L	0.0182	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000730	0.00182	ug/L	0.0182	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000602	0.00182	ug/L	0.0182	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000602	0.00182	ug/L	0.0182	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000602	0.00182	ug/L	0.0182	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	LD1	12/23/21	1654	2211482
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	TC2	12/17/21	0842	2209414

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-IDW01-20211210	Project:	ENCL00421
Sample ID:	564882004	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-IDW02-20211210	Project:	ENCL00421
Sample ID:	564882005	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	10-DEC-21 11:50		
Receive Date:	14-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000624	0.00178	ug/L	0.0189	1	JMB3	12/20/21	1553	2209415	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000624	0.00189	ug/L	0.0189	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000624	0.00176	ug/L	0.0189	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00125	0.00378	ug/L	0.0189	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00125	0.00378	ug/L	0.0189	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000624	0.00168	ug/L	0.0189	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000738	0.00189	ug/L	0.0189	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000624	0.00189	ug/L	0.0189	1					
Perfluoroheptanoic acid (PFHpA)	I	0.00175	0.000624	0.00189	ug/L	0.0189	1					
Perfluorohexane sulfonic acid (PFHxS)		0.00388	0.000624	0.00172	ug/L	0.0189	1					
Perfluorohexanoic acid (PFHxA)		0.00404	0.000757	0.00189	ug/L	0.0189	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000624	0.00189	ug/L	0.0189	1					
Perfluorooctane sulfonic acid (PFOS)		0.00548	0.000757	0.00189	ug/L	0.0189	1					
Perfluorooctanoic acid (PFOA)		0.0107	0.000757	0.00189	ug/L	0.0189	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000757	0.00189	ug/L	0.0189	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000624	0.00189	ug/L	0.0189	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000624	0.00189	ug/L	0.0189	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000624	0.00189	ug/L	0.0189	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl PFCs	Extraction in Liquid	TC2	12/17/21	0842	2209414

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Certificate of Analysis

Report Date: December 30, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-IDW02-20211210	Project:	ENCL00421
Sample ID:	564882005	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: December 30, 2021

Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida

Contact: **Kaitlin Dylnicki**

Workorder: **564882**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2209415											
QC1204981567 LCS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0195			0.0195	ug/L		100	(59%-144%)	JMB3	12/20/21	13:26
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0207			0.0215	ug/L		104	(67%-136%)			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0193			0.0209	ug/L		109	(68%-135%)			
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0207			0.0168	ug/L		81	(67%-144%)			
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0207			0.0226	ug/L		109	(57%-139%)			
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0207			0.0207	ug/L		100	(59%-145%)			
Perfluorobutane sulfonic acid (PFBS)	0.0183			0.0189	ug/L		103	(70%-144%)			
Perfluorodecanoic acid (PFDA)	0.0207			0.0197	ug/L		95	(65%-145%)			
Perfluorododecanoic acid (PFDOA)	0.0207			0.0215	ug/L		104	(65%-137%)			
Perfluoroheptanoic acid (PFHpA)	0.0207			0.0223	ug/L		108	(71%-133%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0189			0.0184	ug/L		98	(67%-145%)			
Perfluorohexanoic acid (PFHxA)	0.0207			0.0214	ug/L		103	(70%-138%)			
Perfluorononanoic acid (PFNA)	0.0207			0.0200	ug/L		96	(69%-133%)			
Perfluorooctane sulfonic acid (PFOS)	0.0207			0.0210	ug/L		101	(65%-133%)			

QC Summary

Workorder: 564882

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorooctanoic acid (PFOA)	0.0207			0.0206	ug/L		100	(66%-139%)	JMB3	12/20/21	13:26
Perfluorotetradecanoic acid (PFTDA)	0.0207			0.0205	ug/L		99	(66%-138%)			
Perfluorotridecanoic acid (PFTrDA)	0.0207			0.0254	ug/L		123	(58%-140%)			
Perfluoroundecanoic acid (PFUnDA)	0.0207			0.0213	ug/L		103	(63%-135%)			
QC1204981566 MB											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)			U	ND	ug/L					12/20/21	13:15
4,8-Dioxa-3H-perfluorononanoic acid (DONA)			U	ND	ug/L						
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)			U	ND	ug/L						
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)			U	ND	ug/L						
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)			U	ND	ug/L						
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)			U	ND	ug/L						
Perfluorobutane sulfonic acid (PFBS)			U	ND	ug/L						
Perfluorodecanoic acid (PFDA)			U	ND	ug/L						
Perfluorododecanoic acid (PFDOA)			U	ND	ug/L						
Perfluoroheptanoic acid (PFHpA)			U	ND	ug/L						
Perfluorohexane sulfonic acid (PFHxS)			U	ND	ug/L						

QC Summary

Workorder: 564882

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorohexanoic acid (PFHxA)				U	ND	ug/L				JMB3	12/20/21 13:15
Perfluorononanoic acid (PFNA)				U	ND	ug/L					
Perfluorooctane sulfonic acid (PFOS)				U	ND	ug/L					
Perfluorooctanoic acid (PFOA)				U	ND	ug/L					
Perfluorotetradecanoic acid (PFTDA)				U	ND	ug/L					
Perfluorotridecanoic acid (PFTrDA)				U	ND	ug/L					
Perfluoroundecanoic acid (PFUnDA)				U	ND	ug/L					
QC1204981568 564949006 MS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0165	U	ND		0.0148	ug/L		90	(42%-138%)		12/20/21 12:42
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0176	U	ND		0.0204	ug/L		116	(62%-132%)		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0164	U	ND		0.0167	ug/L		102	(54%-139%)		
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0176	U	ND		0.0236	ug/L		134	(51%-159%)		
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0176	U	ND		0.0188	ug/L		107	(38%-148%)		
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0176	U	ND		0.0193	ug/L		110	(40%-144%)		
Perfluorobutane sulfonic acid (PFBS)	0.0155		0.00180		0.0185	ug/L		108	(52%-147%)		
Perfluorodecanoic acid (PFDA)	0.0176	U	ND		0.0216	ug/L		119	(44%-143%)		

QC Summary

Workorder: **564882**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds											
Batch 2209415											
Perfluorododecanoic acid (PFDOA)	0.0176	U	ND		0.0194	ug/L		111	(45%-142%)	JMB3	12/20/21 12:42
Perfluoroheptanoic acid (PFHpA)	0.0176		0.00324		0.0217	ug/L		105	(51%-149%)		
Perfluorohexane sulfonic acid (PFHxS)	0.0160		0.00290		0.0225	ug/L		122	(50%-148%)		
Perfluorohexanoic acid (PFHxA)	0.0176		0.00651		0.0308	ug/L		138	(50%-150%)		
Perfluorononanoic acid (PFNA)	0.0176	I	0.000850		0.0185	ug/L		101	(54%-146%)		
Perfluorooctane sulfonic acid (PFOS)	0.0176		0.00903		0.0259	ug/L		96	(42%-150%)		
Perfluorooctanoic acid (PFOA)	0.0176		0.00994		0.0308	ug/L		119	(50%-151%)		
Perfluorotetradecanoic acid (PFTDA)	0.0176	U	ND		0.0187	ug/L		106	(41%-148%)		
Perfluorotridecanoic acid (PFTrDA)	0.0176	U	ND		0.0279	ug/L		159*	(41%-142%)		
Perfluoroundecanoic acid (PFUnDA)	0.0176	U	ND		0.0171	ug/L		98	(44%-141%)		
QC1204981569 564949006 MSD											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0167	U	ND		0.0138	ug/L	7	82	(0%-36%)		12/20/21 12:53
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0177	U	ND		0.0184	ug/L	10	104	(0%-28%)		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0165	U	ND		0.0168	ug/L	0	101	(0%-33%)		
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0177	U	ND		0.0258	ug/L	9	145	(0%-28%)		
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0177	U	ND		0.0204	ug/L	8	115	(0%-36%)		

QC Summary

Workorder: **564882**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds												
Batch 2209415												
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0177	U	ND		0.0186	ug/L	4	105	(0%-36%)	JMB3	12/20/21	12:53
Perfluorobutane sulfonic acid (PFBS)	0.0157		0.00180		0.0179	ug/L	3	103	(0%-27%)			
Perfluorodecanoic acid (PFDA)	0.0177	U	ND		0.0184	ug/L	16	100	(0%-35%)			
Perfluorododecanoic acid (PFDOA)	0.0177	U	ND		0.0207	ug/L	6	117	(0%-30%)			
Perfluoroheptanoic acid (PFHpA)	0.0177		0.00324		0.0204	ug/L	6	97	(0%-26%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0162		0.00290		0.0187	ug/L	19	98	(0%-31%)			
Perfluorohexanoic acid (PFHxA)	0.0177		0.00651		0.0288	ug/L	7	126	(0%-26%)			
Perfluorononanoic acid (PFNA)	0.0177	I	0.000850		0.0184	ug/L	1	99	(0%-30%)			
Perfluorooctane sulfonic acid (PFOS)	0.0177		0.00903		0.0262	ug/L	1	97	(0%-31%)			
Perfluorooctanoic acid (PFOA)	0.0177		0.00994		0.0303	ug/L	2	115	(0%-28%)			
Perfluorotetradecanoic acid (PFTDA)	0.0177	U	ND		0.0204	ug/L	9	115	(0%-32%)			
Perfluorotridecanoic acid (PFTrDA)	0.0177	U	ND		0.0267	ug/L	4	151*	(0%-35%)			
Perfluoroundecanoic acid (PFUnDA)	0.0177	U	ND		0.0190	ug/L	10	107	(0%-34%)			

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **564882**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

A	The TIC is a suspected aldol-condensation product
B	The target analyte was detected in the associated blank.
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	Concentration of the target analyte exceeds the instrument calibration range
I	The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.
J	See case narrative for an explanation
JNX	Non Calibrated Compound
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
Q	Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UJ	Compound cannot be extracted
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

LCMSMS-Misc
Technical Case Narrative
Environmental Conservation Laboratories
SDG #: AE09403
Work Order #: 564882

Product: **The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS**
Analytical Method: EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15
Analytical Procedure: GL-OA-E-076 REV# 12
Analytical Batches: 2209415 and 2209414

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
564882001	GSRY-MW0073-022.0-20211210
564882002	GSRY-MW0074-012.0-20211210
564882003	GSRY-FB01-20211210
564882004	GSRY-IDW01-20211210
564882005	GSRY-IDW02-20211210
1204981566	Method Blank (MB)
1204981567	Laboratory Control Sample (LCS)
1204981568	564949006(NonSDG) Matrix Spike (MS)
1204981569	564949006(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CCV Requirements
Calibration verification standards (ICV or CCV) requirements have not been met for samples 564882001 (GSRY-MW0073-022.0-20211210), 564882002 (GSRY-MW0074-012.0-20211210), 564882003 (GSRY-FB01-20211210), 564882004 (GSRY-IDW01-20211210), 564882005 (GSRY-IDW02-20211210) and 564882006 (GSRY-MW0002IS-025.0-20211210) in this batch in this SDG. One or more target analytes failed acceptance criteria with a positive bias in the standards bracketing the samples in this SDG. These target analytes were not detected in the associated environmental samples; therefore, the non-compliance had no adverse effect on the data.

Quality Control (QC) Information

Matrix Spike (MS) Recovery Statement
The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1204981568 (Non SDG 564949006MS)	Perfluorohexanoic acid (PFHxA)	138* (72%-129%)

	Perfluorotridecanoic acid (PFTrDA)	159* (41%-142%)
1204981569 (Non SDG 564949006MSD)	Perfluorotridecanoic acid (PFTrDA)	151* (41%-142%)

Internal Standard (ISTD) Acceptance
Sample and its MS/MSD (See Below) did not meet all internal standard acceptance criteria. As the MS/MSD displayed similar internal standard recoveries as the parent sample, the failures were attributed to matrix interference and the data were reported as is.

Sample	Analyte	Value
1204981568 (Non SDG 564949006MS)	1, 2-13C2 Fluorotelomer sulfonate 4:2	DOD|245* (50%-150%)|DODQSM5|245* (50%-150%)|GEL|245* (40%-160%)
	Perfluoro-n-[13C4]butanoic acid	and DOD|39* (50%-150%)|DODQSM5|39* (50%-150%)|GEL|39* (40%-160%)
1204981569 (Non SDG 564949006MSD)	1, 2-13C2 Fluorotelomer sulfonate 4:2	DOD|206* (50%-150%)|DODQSM5|206* (50%-150%)|GEL|206* (40%-160%)
	Perfluoro-n-[13C4]butanoic acid	and DOD|40* (50%-150%)|DODQSM5|40* (50%-150%)

Samples (See Below) did not meet all internal standard acceptance criteria. The samples were re-extracted and the failures were confirmed, therefore the failures were attributed to matrix interference and the data were reported from the original extraction.

Sample	Analyte	Value
564882004 (GSRY-IDW01-20211210)	N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	18* (50%-150%)
	Perfluoro-n-[1, 2, 3, 4, 5, 6, 7-13C7] undecanoic acid	44* (50%-150%)

Technical Information

Sample Re-extraction/Re-analysis
The following samples were re-extracted to confirm internal standard (IS) failure. The IS failures were confirmed and are attributed to matrix interference. The original results will be reported. 564882004 (GSRY-IDW01-20211210).

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

SUBCONTRACT ORDER Standard TAT

ENCO Orlando

AE09403 564882 12/10/21

SENDING LABORATORY:

ENCO Orlando
10775 Central Port Drive
Orlando, FL 32824
Phone: 407.826.5314
Fax: 407.850.6945
Project Manager: Kaitlin Dylnicki

RECEIVING LABORATORY:

GEL Laboratories, Inc. (SC)
2040 Savage Road
Charleston, SC 29407
Phone :(843) 556-8171
Fax: (843) 766-1178
Project State of Origin: Florida

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0073-022.0-2021121	Ground Water	10-Dec-21 10:21	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 10:21	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (E)	250mLP (F)	250mLP (G)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0074-012.0-2021121	Ground Water	10-Dec-21 09:48	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 09:48	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (C)	250mLP (D)	250mLP (E)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-FB01-20211210	Water	10-Dec-21 12:00	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 12:00	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (A)	250mLP (B)	~~5mLV (C)~~ 12/10/21	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-IDW01-20211210	Water	10-Dec-21 11:40	

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 11:40	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (C)	250mLP (D)	5mLV (E)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-IDW02-20211210	Water	10-Dec-21 11:50	8260 not marked on COC but vials received, JA

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 11:50	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (C)	250mLP (D)	5mLV (E)	

Released By	Date	Received By	Date
JA	12/10/21		12-14-21 0935
Released By	Date	Received By	Date

SUBCONTRACT ORDER

ENCO Orlando

AE09403

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0021S-025.0-202112	Ground Water	10-Dec-21 09:21	Sample not on COC, JAJ 12/10/21.

Analysis	Due	Expires	Analysis Comments
PFAS	17-Dec-21 15:00	24-Dec-21 09:21	14 analyte 537 GELP21-0027
Containers Supplied:			
5mLV (C)	250mLP (D)	250mLP (E)	

Released By	Date	Received By	Date
			12-14-21 0935
Released By	Date	Received By	Date

SH

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: FNCL	**SDG/AR/COC/Work Order:** 564-882
Received By: DC	**Date Received:** 12-N-21
Carrier and Tracking Number	Circle Applicable: FedEx Express / FedEx Ground / UPS / Field Services / Courier / Other 5307 8833 1663

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 **CPM / mR/Hr** **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius **TEMP:** 6°
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR6-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials GB Date 12/15/21 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 30 December 2021

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122021−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−21−19
Utah NELAP	SC000122021−36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

ENCO Laboratories
Accurate. Timely. Responsive. Innovative.

10775 Central Port Drive
Orlando FL, 32824
Phone: 407.826.5314 FAX: 407.850.6945

Thursday, December 23, 2021
AECOM Technical Services, Inc. (SE004)
Attn: Teresa Amentt Jennings
150 N. Orange Ave, Suite 200
Orlando, FL 32801

RE: Laboratory Results for
Project Number: 60614327.4, Project Name/Desc: NASA KSC - GSA Reclamation Yard
ENCO Workorder(s): AE09687

Dear Teresa Amentt Jennings,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, December 8, 2021.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,



Kaitlin Dylnicki

Project Manager

Enclosure(s)

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0011S-003.5-20211208 **Lab ID: AE09687-01** **Sampled: 12/08/21 12:30** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 13:26
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 13:26

Client ID: GSRY-MW0043-003.5-20211208 **Lab ID: AE09687-02** **Sampled: 12/08/21 11:05** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 13:38
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 13:38
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 11:34

Client ID: GSRY-MW0049-027.5-20211208 **Lab ID: AE09687-03** **Sampled: 12/08/21 09:58** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/06/22		12/16/21	10:07	12/17/21 11:44
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 13:49
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 13:49
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 12:03
SM 2540C-2011	NO PREP	12/15/21		12/10/21	18:27	12/13/21 16:20

Client ID: GSRY-MW0049-027.5-20211208 **Lab ID: AE09687-03RE1** **Sampled: 12/08/21 09:58** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/06/22	12/16/21	10:07	12/17/21 15:57
EPA 8260D	EPA 5030B_MS	12/22/21	12/13/21	09:03	12/13/21 12:10
EPA 9056A	NO PREP	01/05/22	12/10/21	15:03	12/13/21 12:24

Client ID: GSRY-MW0053-004.0-20211208 **Lab ID: AE09687-04** **Sampled: 12/08/21 13:01** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 14:00
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 14:00
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 12:32

Client ID: GSRY-MW0054-013.0-20211208 **Lab ID: AE09687-05** **Sampled: 12/08/21 09:50** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 14:11
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 14:11
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 13:00

Client ID: GSRY-MW0055-013.0-20211208 **Lab ID: AE09687-06** **Sampled: 12/08/21 11:45** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 14:22
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 14:22
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 13:29

Client ID: GSRY-MW0056-019.0-20211208 **Lab ID: AE09687-07** **Sampled: 12/08/21 10:30** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 14:34
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 14:34
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 13:58

Client ID: GSRY-MW0060-008.0-20211208 **Lab ID: AE09687-08** **Sampled: 12/08/21 11:26** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 14:56
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 14:56
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 14:27

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0063-019.0-20211208 **Lab ID: AE09687-09** **Sampled: 12/08/21 10:37** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/08/22	12/08/22	12/10/21	07:15	12/10/21 15:07
EPA 8082A	[CALC]	12/08/22		12/10/21	07:15	12/10/21 15:07
EPA 8260D	EPA 5030B_MS	12/22/21		12/10/21	00:00	12/10/21 14:55

Client ID: GSRY-MW0063-019.0-20211208 **Lab ID: AE09687-09RE1** **Sampled: 12/08/21 10:37** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/22/21	12/13/21	09:03	12/13/21 12:37

Client ID: GSRY-MW0064-025.0-20211208 **Lab ID: AE09687-10** **Sampled: 12/08/21 12:04** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/06/22	12/16/21	10:07	12/17/21 11:50
EPA 8260D	EPA 5030B_MS	12/22/21	12/10/21	00:00	12/10/21 15:24
EPA 9056A	NO PREP	01/05/22	12/10/21	15:03	12/13/21 02:28
SM 2540C-2011	NO PREP	12/15/21	12/10/21	18:27	12/13/21 16:20

Client ID: GSRY-TB02-20211208 **Lab ID: AE09687-11** **Sampled: 12/08/21 08:00** **Received: 12/08/21 15:05**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/22/21	12/10/21	00:00	12/10/21 15:52

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0043-003.5-20211208 **Lab ID: AE09687-02**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2-Dichlorobenzene	0.75	I	0.73	1.0	ug/L	EPA 8260D	
1,3-Dichlorobenzene	4.2		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	23		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	6.6		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0049-027.5-20211208 **Lab ID: AE09687-03**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2,4-Trichlorobenzene	20		7.0	10	ug/L	EPA 8260D	
1,4-Dichlorobenzene	350		7.6	10	ug/L	EPA 8260D	
Chlorobenzene	110		7.2	10	ug/L	EPA 8260D	
Iron - Total	48000		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	246		0.770	10.0	ug/L	EPA 6010D	
Total Dissolved Solids	480000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0049-027.5-20211208 **Lab ID: AE09687-03RE1**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	1100		38	50	ug/L	EPA 8260D	
Sodium - Total	3650000	V	1350	25000	ug/L	EPA 6010D	
Sulfate	3200000		3300	250000	ug/L	EPA 9056A	

Client ID: GSRY-MW0053-004.0-20211208 **Lab ID: AE09687-04**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	3.0		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	2.0		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	2.1		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0054-013.0-20211208 **Lab ID: AE09687-05**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	1.0		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	1.4		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	1.2		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0056-019.0-20211208 **Lab ID: AE09687-07**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2-Dichlorobenzene	1.3		0.73	1.0	ug/L	EPA 8260D	
1,3-Dichlorobenzene	61		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	65		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	17		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0060-008.0-20211208 **Lab ID: AE09687-08**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2,4-Trichlorobenzene	1.0		0.70	1.0	ug/L	EPA 8260D	
1,3-Dichlorobenzene	1.9		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	2.7		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	1.2		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0063-019.0-20211208 **Lab ID: AE09687-09**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2-Dichlorobenzene	1.0		0.73	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	58		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	24		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0063-019.0-20211208 **Lab ID: AE09687-09RE1**

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	99		3.8	5.0	ug/L	EPA 8260D	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0064-025.0-20211208 **Lab ID:** AE09687-10

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,3-Dichlorobenzene	2.2		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	1.5		0.76	1.0	ug/L	EPA 8260D	
Iron - Total	876		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	11.9		0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	67000	V	27.0	500	ug/L	EPA 6010D	
Sulfate	140	I	66	5000	ug/L	EPA 9056A	
Total Dissolved Solids	230000		10000	10000	ug/L	SM 2540C-2011	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0011S-003.5-20211208 **Lab Sample ID:** AE09687-01 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 12:30 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 13:26	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 13:26	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*112 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 13:26*	*JJB*	
Decachlorobiphenyl	*1.4*	*1*	*1.00*	*141 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 13:26*	*JJB*	

Description: GSRY-MW0043-003.5-20211208 **Lab Sample ID:** AE09687-02 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 11:05 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
1,2-Dichlorobenzene [95-50-1]^	**0.75**	I	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
1,3-Dichlorobenzene [541-73-1]^	**4.2**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
1,4-Dichlorobenzene [106-46-7]^	**23**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	
Chlorobenzene [108-90-7]^	**6.6**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 11:34	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*93 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 11:34*	*nmc*	
Dibromofluoromethane	*51*	*1*	*50.0*	*103 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 11:34*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*94 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 11:34*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 13:38	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 13:38	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*110 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 13:38*	*JJB*	
Decachlorobiphenyl	*1.8*	*1*	*1.00*	*175 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 13:38*	*JJB*	*QS-03*

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0049-027.5-20211208 **Lab Sample ID:** AE09687-03 **Received:** 12/08/21 15:05

Matrix: Ground Water **Sampled:** 12/08/21 09:58 **Work Order:** AE09687

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	8.6	U	ug/L	10	8.6	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	**20**		ug/L	10	7.0	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	
1,2-Dichlorobenzene [95-50-1]^	7.3	U	ug/L	10	7.3	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	
1,3-Dichlorobenzene [541-73-1]^	**1100**		ug/L	50	38	50	1L13012	EPA 8260D	12/13/21 12:10	KKW	
1,4-Dichlorobenzene [106-46-7]^	**350**		ug/L	10	7.6	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	
Benzene [71-43-2]^	7.1	U	ug/L	10	7.1	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	
Chlorobenzene [108-90-7]^	**110**		ug/L	10	7.2	10	1L10006	EPA 8260D	12/10/21 12:03	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*92 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 12:03*	*nmc*	
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L13012*	*EPA 8260D*	*12/13/21 12:10*	*KKW*	
Dibromofluoromethane	*51*	*1*	*50.0*	*102 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 12:03*	*nmc*	
Dibromofluoromethane	*50*	*1*	*50.0*	*99 %*	*53-146*	*1L13012*	*EPA 8260D*	*12/13/21 12:10*	*KKW*	
Toluene-d8	*46*	*1*	*50.0*	*92 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 12:03*	*nmc*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L13012*	*EPA 8260D*	*12/13/21 12:10*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 13:49	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 13:49	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*112 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 13:49*	*JJB*	
Decachlorobiphenyl	*1.0*	*1*	*1.00*	*101 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 13:49*	*JJB*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**48000**		ug/L	1	11.0	50.0	1L15039	EPA 6010D	12/17/21 11:44	NRB	
Manganese [7439-96-5]^	**246**		ug/L	1	0.770	10.0	1L15039	EPA 6010D	12/17/21 11:44	NRB	
Sodium [7440-23-5]^	**3650000**	V	ug/L	50	1350	25000	1L15039	EPA 6010D	12/17/21 15:57	NRB	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0049-027.5-20211208 **Lab Sample ID:** AE09687-03 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 09:58 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**3200000**		ug/L	50	3300	250000	1L10040	EPA 9056A	12/13/21 12:24	ASR	
Total Dissolved Solids^	**480000**		ug/L	1	10000	10000	1L10038	SM 2540C-2011	12/13/21 16:20	LAM	

Description: GSRY-MW0053-004.0-20211208 **Lab Sample ID:** AE09687-04 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 13:01 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
1,3-Dichlorobenzene [541-73-1]^	**3.0**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
1,4-Dichlorobenzene [106-46-7]^	**2.0**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	
Chlorobenzene [108-90-7]^	**2.1**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 12:32	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*92 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 12:32*	*nmc*	
Dibromofluoromethane	*53*	*1*	*50.0*	*105 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 12:32*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*93 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 12:32*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 14:00	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 14:00	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.92*	*1*	*1.00*	*92 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 14:00*	*JJB*	
Decachlorobiphenyl	*1.6*	*1*	*1.00*	*156 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 14:00*	*JJB*	

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ANALYTICAL RESULTS

Description: GSRY-MW0054-013.0-20211208 **Lab Sample ID:** AE09687-05 **Received:** 12/08/21 15:05

Matrix: Ground Water **Sampled:** 12/08/21 09:50 **Work Order:** AE09687

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
1,3-Dichlorobenzene [541-73-1]^	**1.0**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
1,4-Dichlorobenzene [106-46-7]^	**1.4**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	
Chlorobenzene [108-90-7]^	**1.2**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 13:00	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*91 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 13:00*	*nmc*	
Dibromofluoromethane	*51*	*1*	*50.0*	*101 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:00*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*94 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:00*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 14:11	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 14:11	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.76*	*1*	*1.00*	*76 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 14:11*	*JJB*	
Decachlorobiphenyl	*1.2*	*1*	*1.00*	*121 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 14:11*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0055-013.0-20211208 **Lab Sample ID:** AE09687-06 **Received:** 12/08/21 15:05

Matrix: Ground Water **Sampled:** 12/08/21 11:45 **Work Order:** AE09687

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 13:29	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*92 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 13:29*	*nmc*	
Dibromofluoromethane	*52*	*1*	*50.0*	*104 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:29*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*93 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:29*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 14:22	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 14:22	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.83*	*1*	*1.00*	*83 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 14:22*	*JJB*	
Decachlorobiphenyl	*1.1*	*1*	*1.00*	*111 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 14:22*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0056-019.0-20211208 **Lab Sample ID:** AE09687-07 **Received:** 12/08/21 15:05

Matrix: Ground Water **Sampled:** 12/08/21 10:30 **Work Order:** AE09687

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
1,2-Dichlorobenzene [95-50-1]^	**1.3**		ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
1,3-Dichlorobenzene [541-73-1]^	**61**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
1,4-Dichlorobenzene [106-46-7]^	**65**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	
Chlorobenzene [108-90-7]^	**17**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 13:58	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*92 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 13:58*	*nmc*	
Dibromofluoromethane	*51*	*1*	*50.0*	*102 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:58*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*94 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 13:58*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 14:34	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 14:34	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.99*	*1*	*1.00*	*99 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 14:34*	*JJB*	
Decachlorobiphenyl	*1.3*	*1*	*1.00*	*126 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 14:34*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0060-008.0-20211208 **Lab Sample ID:** AE09687-08 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 11:26 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	**1.0**		ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
1,3-Dichlorobenzene [541-73-1]^	**1.9**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
1,4-Dichlorobenzene [106-46-7]^	**2.7**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	
Chlorobenzene [108-90-7]^	**1.2**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 14:27	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*93 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 14:27*	*nmc*	
Dibromofluoromethane	*53*	*1*	*50.0*	*106 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 14:27*	*nmc*	
Toluene-d8	*47*	*1*	*50.0*	*94 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 14:27*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 14:56	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 14:56	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.0*	*1*	*1.00*	*100 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 14:56*	*JJB*	
Decachlorobiphenyl	*1.5*	*1*	*1.00*	*148 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 14:56*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0063-019.0-20211208 **Lab Sample ID:** AE09687-09 **Received:** 12/08/21 15:05

Matrix: Ground Water **Sampled:** 12/08/21 10:37 **Work Order:** AE09687

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	
1,2-Dichlorobenzene [95-50-1]^	**1.0**		ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	
1,3-Dichlorobenzene [541-73-1]^	**99**		ug/L	5	3.8	5.0	1L13012	EPA 8260D	12/13/21 12:37	KKW	
1,4-Dichlorobenzene [106-46-7]^	**58**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	
Chlorobenzene [108-90-7]^	**24**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 14:55	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 14:55*	*nmc*	
4-Bromofluorobenzene	*52*	*1*	*50.0*	*104 %*	*41-142*	*1L13012*	*EPA 8260D*	*12/13/21 12:37*	*KKW*	
Dibromofluoromethane	*55*	*1*	*50.0*	*109 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 14:55*	*nmc*	
Dibromofluoromethane	*51*	*1*	*50.0*	*103 %*	*53-146*	*1L13012*	*EPA 8260D*	*12/13/21 12:37*	*KKW*	
Toluene-d8	*48*	*1*	*50.0*	*96 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 14:55*	*nmc*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L13012*	*EPA 8260D*	*12/13/21 12:37*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 15:07	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 15:07	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*0.80*	*1*	*1.00*	*80 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 15:07*	*JJB*	
Decachlorobiphenyl	*1.2*	*1*	*1.00*	*123 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 15:07*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0064-025.0-20211208 **Lab Sample ID:** AE09687-10 **Received:** 12/08/21 15:05
Matrix: Ground Water **Sampled:** 12/08/21 12:04 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
1,3-Dichlorobenzene [541-73-1]^	**2.2**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
1,4-Dichlorobenzene [106-46-7]^	**1.5**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 15:24	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*45*	*1*	*50.0*	*90 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 15:24*	*nmc*	
Dibromofluoromethane	*51*	*1*	*50.0*	*102 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 15:24*	*nmc*	
Toluene-d8	*46*	*1*	*50.0*	*92 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 15:24*	*nmc*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**876**		ug/L	1	11.0	50.0	1L15039	EPA 6010D	12/17/21 11:50	NRB	
Manganese [7439-96-5]^	**11.9**		ug/L	1	0.770	10.0	1L15039	EPA 6010D	12/17/21 11:50	NRB	
Sodium [7440-23-5]^	**67000**	V	ug/L	1	27.0	500	1L15039	EPA 6010D	12/17/21 11:50	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**140**	I	ug/L	1	66	5000	1L10040	EPA 9056A	12/13/21 02:28	ASR	
Total Dissolved Solids^	**230000**		ug/L	1	10000	10000	1L10038	SM 2540C-2011	12/13/21 16:20	LAM	

Description: GSRY-TB02-20211208 **Lab Sample ID:** AE09687-11 **Received:** 12/08/21 15:05
Matrix: Water **Sampled:** 12/08/21 08:00 **Work Order:** AE09687
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** Enco

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 15:52	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*93 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 15:52*	*nmc*	
Dibromofluoromethane	*54*	*1*	*50.0*	*109 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 15:52*	*nmc*	
Toluene-d8	*48*	*1*	*50.0*	*95 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 15:52*	*nmc*	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L10006 - EPA 5030B_MS

Blank (1L10006-BLK1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 10:36

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*45*			*ug/L*	*50.0*		*89*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*46*			*ug/L*	*50.0*		*92*	*41-146*			

LCS (1L10006-BS1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 08:04

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	25		1.0	ug/L	20.0		123	43-168			
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0		124	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0		114	63-131			
1,3-Dichlorobenzene	22		1.0	ug/L	20.0		110	66-129			
1,4-Dichlorobenzene	21		1.0	ug/L	20.0		106	65-133			
Benzene	22		1.0	ug/L	20.0		112	56-136			
Chlorobenzene	22		1.0	ug/L	20.0		109	51-139			
4-Bromofluorobenzene	*49*			*ug/L*	*50.0*		*98*	*41-142*			
Dibromofluoromethane	*54*			*ug/L*	*50.0*		*109*	*53-146*			
Toluene-d8	*49*			*ug/L*	*50.0*		*99*	*41-146*			

Matrix Spike (1L10006-MS1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 08:41

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	25		1.0	ug/L	20.0	0.86 U	124	43-168			
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0	0.70 U	127	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	116	63-131			
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	113	66-129			
1,4-Dichlorobenzene	22		1.0	ug/L	20.0	0.76 U	108	65-133			
Benzene	23		1.0	ug/L	20.0	0.71 U	116	56-136			
Chlorobenzene	23		1.0	ug/L	20.0	0.72 U	113	51-139			
4-Bromofluorobenzene	*47*			*ug/L*	*50.0*		*94*	*41-142*			
Dibromofluoromethane	*52*			*ug/L*	*50.0*		*104*	*53-146*			
Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*41-146*			

Matrix Spike Dup (1L10006-MSD1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 09:10

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	24		1.0	ug/L	20.0	0.86 U	121	43-168	2	26	
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0	0.70 U	125	52-159	2	24	
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	113	63-131	3	25	
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	113	66-129	0	23	
1,4-Dichlorobenzene	22		1.0	ug/L	20.0	0.76 U	108	65-133	0.6	23	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L10006 - EPA 5030B_MS - Continued

Matrix Spike Dup (1L10006-MSD1) Continued Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 09:10

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	23		1.0	ug/L	20.0	0.71 U	114	56-136	2	14	
Chlorobenzene	22		1.0	ug/L	20.0	0.72 U	112	51-139	0.4	13	
4-Bromofluorobenzene	*48*			*ug/L*	*50.0*		*96*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*41-146*			

Batch 1L13012 - EPA 5030B_MS

Blank (1L13012-BLK1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 09:24

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*52*			*ug/L*	*50.0*		*104*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*100*	*53-146*			
Toluene-d8	*50*			*ug/L*	*50.0*		*100*	*41-146*			

LCS (1L13012-BS1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 08:28

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	19		1.0	ug/L	20.0		97	43-168			
1,2,4-Trichlorobenzene	21		1.0	ug/L	20.0		105	52-159			
1,2-Dichlorobenzene	20		1.0	ug/L	20.0		100	63-131			
1,3-Dichlorobenzene	20		1.0	ug/L	20.0		99	66-129			
1,4-Dichlorobenzene	18		1.0	ug/L	20.0		91	65-133			
Benzene	19		1.0	ug/L	20.0		93	56-136			
Chlorobenzene	19		1.0	ug/L	20.0		95	51-139			
4-Bromofluorobenzene	*53*			*ug/L*	*50.0*		*106*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*41-146*			

Matrix Spike (1L13012-MS1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 11:14

Source: AE09759-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	20		1.0	ug/L	20.0	0.86 U	98	43-168			
1,2,4-Trichlorobenzene	22		1.0	ug/L	20.0	0.70 U	110	52-159			
1,2-Dichlorobenzene	21		1.0	ug/L	20.0	0.73 U	105	63-131			
1,3-Dichlorobenzene	21		1.0	ug/L	20.0	0.77 U	106	66-129			
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	100	65-133			
Benzene	22		1.0	ug/L	20.0	0.71 U	108	56-136			
Chlorobenzene	22		1.0	ug/L	20.0	0.72 U	111	51-139			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L13012 - EPA 5030B_MS - Continued

Matrix Spike (1L13012-MS1) Continued Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 11:14

Source: AE09759-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*101*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*103*	*41-146*			

Matrix Spike Dup (1L13012-MSD1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 11:42

Source: AE09759-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0	0.86 U	106	43-168	8	26	
1,2,4-Trichlorobenzene	24		1.0	ug/L	20.0	0.70 U	118	52-159	7	24	
1,2-Dichlorobenzene	21		1.0	ug/L	20.0	0.73 U	107	63-131	3	25	
1,3-Dichlorobenzene	22		1.0	ug/L	20.0	0.77 U	110	66-129	3	23	
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	99	65-133	0.9	23	
Benzene	21		1.0	ug/L	20.0	0.71 U	103	56-136	5	14	
Chlorobenzene	21		1.0	ug/L	20.0	0.72 U	106	51-139	5	13	
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*103*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*103*	*41-146*			

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L10003 - EPA 3510C

Blank (1L10003-BLK1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:48

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016	0.32	U	0.50	ug/L							
PCB-1221	0.46	U	0.50	ug/L							
PCB-1232	0.47	U	0.50	ug/L							
PCB-1242	0.49	U	0.50	ug/L							
PCB-1248	0.49	U	0.50	ug/L							
PCB-1254	0.50	U	0.50	ug/L							
PCB-1260	0.48	U	0.50	ug/L							
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*107*	*38-142*			
Decachlorobiphenyl	*1.0*			*ug/L*	*1.00*		*103*	*34-159*			

LCS (1L10003-BS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:59

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	13		0.50	ug/L	10.0		132	11-162			
PCB-1260	14		0.50	ug/L	10.0		141	10-166			
2,4,5,6-TCMX	*1.0*			*ug/L*	*1.00*		*104*	*38-142*			
Decachlorobiphenyl	*1.3*			*ug/L*	*1.00*		*131*	*34-159*			

Matrix Spike (1L10003-MS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:11

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	15		0.50	ug/L	10.0	0.49 U	150	11-162			
PCB-1260	16		0.50	ug/L	10.0	0.48 U	158	10-166			

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QUALITY CONTROL DATA

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L10003 - EPA 3510C - Continued

Matrix Spike (1L10003-MS1) Continued Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:11

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*122*	*38-142*			
Decachlorobiphenyl	*1.7*			*ug/L*	*1.00*		*171*	*34-159*			*QS-03*

Matrix Spike Dup (1L10003-MSD1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:23

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	12		0.50	ug/L	10.0	0.49 U	123	11-162	20	23	
PCB-1260	14		0.50	ug/L	10.0	0.48 U	140	10-166	12	13	
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*108*	*38-142*			
Decachlorobiphenyl	*1.5*			*ug/L*	*1.00*		*151*	*34-159*			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L15039 - EPA 3005A

Blank (1L15039-BLK1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 09:42

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	27.0	U	500	ug/L							

Blank (1L15039-BLK2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 14:24

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	**1250**		500	ug/L							

LCS (1L15039-BS1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 09:46

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2430		50.0	ug/L	2500		97	80-120			
Manganese	494		10.0	ug/L	495		100	80-120			
Sodium	25300		500	ug/L	25200		100	80-120			

LCS (1L15039-BS2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 14:28

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2420		50.0	ug/L	2500		97	80-120			
Manganese	494		10.0	ug/L	495		100	80-120			
Sodium	26300		500	ug/L	25200		104	80-120			

Matrix Spike (1L15039-MS1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 09:52

Source: AE09748-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	4940		50.0	ug/L	2500	2010	117	75-125			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L15039 - EPA 3005A - Continued

Matrix Spike (1L15039-MS1) Continued Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 09:52

Source: AE09748-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Manganese	731		10.0	ug/L	495	226	102	75-125			
Sodium	36600		500	ug/L	25200	10800	102	75-125			

Matrix Spike (1L15039-MS2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:00

Source: AE09748-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	4570		50.0	ug/L	2500	1990	103	75-125			
Manganese	573		10.0	ug/L	495	80.5	99	75-125			
Sodium	38000		500	ug/L	25200	13000	99	75-125			

Matrix Spike Dup (1L15039-MSD1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 09:55

Source: AE09748-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	4370		50.0	ug/L	2500	2010	95	75-125	12	20	
Manganese	715		10.0	ug/L	495	226	99	75-125	2	20	
Sodium	36400		500	ug/L	25200	10800	101	75-125	0.7	20	

Classical Chemistry Parameters - Quality Control

Batch 1L10038 - NO PREP

Blank (1L10038-BLK1) Prepared: 12/10/2021 18:27 Analyzed: 12/13/2021 16:20

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L10038-BS1) Prepared: 12/10/2021 18:27 Analyzed: 12/13/2021 16:20

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	94000		10000	ug/L	100000		94	90-110			

Duplicate (1L10038-DUP1) Prepared: 12/10/2021 18:27 Analyzed: 12/13/2021 16:20

Source: AE09662-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	220000		10000	ug/L		220000			0.9	20	

Batch 1L10040 - NO PREP

Blank (1L10040-BLK1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:29

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	66	U	5000	ug/L							

LCS (1L10040-BS1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000		100	80-120			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Classical Chemistry Parameters - Quality Control

Batch 1L10040 - NO PREP - Continued

Matrix Spike (1L10040-MS2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 00:57

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	99	80-120			

Matrix Spike Dup (1L10040-MSD2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 01:12

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	100	80-120	0.5	15	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*****	Not reported due to interference.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
QS-03	Surrogate recovery outside acceptance limits
QV-01	The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

AE09087

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 1 of 3

Project Name: NASA KSC - GSA Reclamation Yard | PO No. 138535 | Project No. 60614327.4 | Phase:

Site Location: GSRY - PCB VOC Area | Send Invoice To: Instructions in MSA# 21S-27172-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0078 | AECOM Project Manager: **Chad Lee cc: Jennifer Joyal** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to: Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # | Greg Kusel / (772) 631-7426 | Dustin Slater / (407) 766-0747 | Brittany Follett / (419) 302-0236 | Deliver Samples To: ENCO Orlando | Site-Spicific WS#15 from QAPP: 15-17A

Lab Name: ENCO | Turnaround Time(specify): Standard 14 day | **Sample Analysis Requested** (*Enter number of containers for each test*)

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW8260B (Unpreserved)					Comments
	GSRY-MW0011S- 003.5-20211208	GSRY-MW0011S	20211208	1230	WG	N	G	1		1 GK										
	~~GSRY-MW0030R-~~	~~GSRY-MW0030R~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0031-~~	~~GSRY-MW0031~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0036R-~~	~~GSRY-MW0036R~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0040-~~	~~GSRY-MW0040~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0041-~~	~~GSRY-MW0041~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0042R-~~	~~GSRY-MW0042R~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	GSRY-MW0043- 003.5-20211208	GSRY-MW0043	20211208	1105	WG	N	G	5	2	1 GK					2					
	~~GSRY-MW0044-~~	~~GSRY-MW0044~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	~~GSRY-MW0046R-~~	~~GSRY-MW0046R~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2					
	GSRY-MW0049- 027.5-20211208	GSRY-MW0049	20211208	0958	WG	N	G		2	2	1	1	1		2					
	~~GSRY-MW0050-~~	~~GSRY-MW0050~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2	1	1	1		2					

***Field* Comments:**

Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Samples Iced?(check) Yes_____ No_____

Shipping Company:

Tracking No:

Date Shipped:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12/8/21	0700	Greg Kusel	12/8/21	0700
2		12/8/21	1505		12/8/21	1505
3						

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: 4 DEG C=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

LQ-630 5.7°C

AE09687

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO

Project Name: NASA KSC - GSA Reclamation Yard		COC No.	Page: 2 of 3
Site Location: GSRY - PCB VOC Area		PO No. 138535	Project No. 60614327.4 / Phase:
TO No.: 80KSC019F0078	AECOM Project Manager: Chad Lee cc: Jennifer Joyal	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
		Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426 / Dustin Slater / (407) 765-0747 / Brittany Follett / (419) 302-0236	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A
Lab Name: ENCO	Turnaround Time(specify): Standard 14 day	**Sample Analysis Requested** (*Enter number of containers for each test*)	

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW8260B (Unpreserved)	Comments
	~~GSRY-MW0051~~	~~GSRY-MW0051~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2	
	~~GSRY-MW0052~~	~~GSRY-MW0052~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2	
	GSRY-MW0053-004.0-20211208	GSRY-MW0053	20211208	1301	WG	N	G		2	2					2	
	GSRY-MW0054-013.0-20211208	GSRY-MW0054	20211208	0950	WG	N	G	5	2	1 1/2K					2	
	GSRY-MW0055-013.0-20211208	GSRY-MW0055	20211208	1145	WG	N	G	7	2	1 1/2K				2	2	
	GSRY-MW0056-019.0-20211208	GSRY-MW0056	20211208	1030	WG	N	G	5	2	1 1/2K					2	
	~~GSRY-MW0057~~	~~GSRY-MW0057~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2	1	1	1		2	
	~~GSRY-MW0058~~	~~GSRY-MW0058~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2				2	2	
	~~GSRY-MW0059~~	~~GSRY-MW0059~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2				2	2	
	GSRY-MW0060-008.0-20211208	GSRY-MW0060	20211208	1126	WG	N	G		2	2					2	
	~~GSRY-MW0061~~	~~GSRY-MW0061~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2		1	1	1		2	
	~~GSRY-MW0062~~	~~GSRY-MW0062~~	~~202112~~		~~WG~~	~~N~~	~~G~~		2	2					2	

***Field* Comments:**
Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:
Samples Iced?(check) Yes_____ No_____
Shipping Company:
Tracking No:
Date Shipped:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12/8/21	0700	Greg Kusel	12/8/21	0700
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(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Sweb or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

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Rev 8/19

AE09687

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO

Project Name:	NASA KSC - GSA Reclamation Yard			COC No.	Page: 3 of 3
Site Location:	GSRY - PCB VOC Area			PO No. 138535	Project No. 60614327.4 / Phase:
TO No.:	80KSC019F0078	AECOM Project Manager:	Chad Lee cc: Jennifer Joyal	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747	Brittany Follett / (419) 302-0236	Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to: Jennifer Chastain Cc: Teresa Amentt Jennings
Lab Name:	ENCO	Turnaround Time(specify):	Standard 14 day	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A

Sample Analysis Requested (*Enter number of containers for each test*)

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	GSRY-MW0063-019.0-20211208	GSRY-MW0063	20211208	1037	WG	N	G		2	2					2	
	GSRY-MW0064-025.0-20211208	GSRY-MW0064	20211208	1204	WG	N	G		2		1	1	1	2	2	
	~~GSRY-MW0066-~~	~~GSRY-MW0066~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~	~~1~~	~~1~~	~~1~~	~~2~~	~~2~~	
	~~GSRY-MW0075-~~	~~GSRY-MW0075~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~						~~2~~	
	~~GRSY-MW0002IS-~~	~~GRSY-MW0002IS~~	~~202112~~		~~WS~~	~~N~~	~~G~~				~~1~~	~~1~~	~~1~~	~~2~~		
	~~GRSY-SW0001-~~	~~GRSY-SW0001~~	~~202112~~		~~WS~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~	
	~~GSRY-IDW01-~~	~~GSRY-IDW01~~	~~202112~~		~~IDW~~	~~IDW~~	~~G~~		~~2~~	~~2~~				~~2~~	~~2~~	
	~~GSRY-TB01-~~	~~GSRY-TB01~~	~~202112~~		~~WQ~~	~~TB~~	~~G~~		2						2	
	GSRY-TB02-20211208	GSRY-TB02	20211208	0800	WQ	TB	G	4	2						2	

***Field* Comments:**
Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:
Samples Iced?(check) Yes_____ No_____
Shipping Company:
Tracking No:
Date Shipped:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12/8/21	0700		12/8/21	0700
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(1) **AA**=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

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Rev 8/19

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

December 17, 2021

Kaitlin Dylnicki
Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida 32824

Re: NASA PFAS - Dylnicki
Work Order: 564629
SDG: AE09687

Dear Kaitlin Dylnicki:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 10, 2021. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4523.

Sincerely,

Nina Gampe for
Samuel Hogan
Project Manager

Purchase Order: GELP20-0372
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ENCL001 Environmental Conservation Laboratories

Client SDG: AE09687 GEL Work Order: 564629

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

I The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Samuel Hogan.

Reviewed by _____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0055-013.0-2021120	Project:	ENCL00421
Sample ID:	564629001	Client ID:	ENCL001
Matrix:	Ground Water		
Collect Date:	08-DEC-21 11:45		
Receive Date:	10-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000595	0.00170	ug/L	0.0180	1	JMB3	12/14/21	1942	2207747	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000595	0.00180	ug/L	0.0180	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000595	0.00168	ug/L	0.0180	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00119	0.00360	ug/L	0.0180	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00119	0.00360	ug/L	0.0180	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000595	0.00160	ug/L	0.0180	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000703	0.00180	ug/L	0.0180	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000595	0.00180	ug/L	0.0180	1					
Perfluoroheptanoic acid (PFHpA)	I	0.000635	0.000595	0.00180	ug/L	0.0180	1					
Perfluorohexane sulfonic acid (PFHxS)	I	0.00146	0.000595	0.00164	ug/L	0.0180	1					
Perfluorohexanoic acid (PFHxA)		0.00405	0.000721	0.00180	ug/L	0.0180	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000595	0.00180	ug/L	0.0180	1					
Perfluorooctane sulfonic acid (PFOS)		0.00234	0.000721	0.00180	ug/L	0.0180	1					
Perfluorooctanoic acid (PFOA)	I	0.000771	0.000721	0.00180	ug/L	0.0180	1					
Perfluorotetradecanoic acid (PFTDA)	I	0.000902	0.000721	0.00180	ug/L	0.0180	1					
Perfluorotridecanoic acid (PFTrDA)	I	0.000790	0.000595	0.00180	ug/L	0.0180	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000595	0.00180	ug/L	0.0180	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000595	0.00180	ug/L	0.0180	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	LD1	12/14/21	1031	2207745

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0055-013.0-2021120	Project:	ENCL00421
Sample ID:	564629001	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0064-025.0-2021120	Project:	ENCL00421
Sample ID:	564629002	Client ID:	ENCL001
Matrix:	Ground Water		
Collect Date:	08-DEC-21 12:04		
Receive Date:	10-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000661	0.00189	ug/L	0.0200	1	JMB3	12/14/21	1953	2207747	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000661	0.00200	ug/L	0.0200	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000661	0.00187	ug/L	0.0200	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00132	0.00400	ug/L	0.0200	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00132	0.00400	ug/L	0.0200	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000661	0.00178	ug/L	0.0200	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000781	0.00200	ug/L	0.0200	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000661	0.00200	ug/L	0.0200	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000661	0.00200	ug/L	0.0200	1					
Perfluorohexane sulfonic acid (PFHxS)		0.00264	0.000661	0.00182	ug/L	0.0200	1					
Perfluorohexanoic acid (PFHxA)		0.00399	0.000801	0.00200	ug/L	0.0200	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000661	0.00200	ug/L	0.0200	1					
Perfluorooctane sulfonic acid (PFOS)		0.00811	0.000801	0.00200	ug/L	0.0200	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000801	0.00200	ug/L	0.0200	1					
Perfluorotetradecanoic acid (PFTDA)	I	0.00111	0.000801	0.00200	ug/L	0.0200	1					
Perfluorotridecanoic acid (PFTrDA)	I	0.000802	0.000661	0.00200	ug/L	0.0200	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000661	0.00200	ug/L	0.0200	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000661	0.00200	ug/L	0.0200	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	LD1	12/14/21	1031	2207745

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 17, 2021

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0064-025.0-2021120	Project:	ENCL00421
Sample ID:	564629002	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: December 17, 2021

Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida

Contact: **Kaitlin Dylnicki**

Workorder: **564629**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2207747											
QC1204978365 LCS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0191			0.0195	ug/L		102	(59%-144%)	JMB3	12/14/21	17:07
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0203			0.0223	ug/L		110	(67%-136%)			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0189			0.0216	ug/L		114	(68%-135%)			
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0203			0.0166	ug/L		82	(67%-144%)			
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0203			0.0187	ug/L		92	(57%-139%)			
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0203			0.0204	ug/L		100	(59%-145%)			
Perfluorobutane sulfonic acid (PFBS)	0.0180			0.0181	ug/L		101	(70%-144%)			
Perfluorodecanoic acid (PFDA)	0.0203			0.0229	ug/L		113	(65%-145%)			
Perfluorododecanoic acid (PFDOA)	0.0203			0.0246	ug/L		121	(65%-137%)			
Perfluoroheptanoic acid (PFHpA)	0.0203			0.0223	ug/L		110	(71%-133%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0185			0.0195	ug/L		105	(67%-145%)			
Perfluorohexanoic acid (PFHxA)	0.0203			0.0229	ug/L		113	(70%-138%)			
Perfluorononanoic acid (PFNA)	0.0203			0.0227	ug/L		112	(69%-133%)			
Perfluorooctane sulfonic acid (PFOS)	0.0203			0.0228	ug/L		112	(65%-133%)			

QC Summary

Workorder: 564629

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 2207747										
Perfluorooctanoic acid (PFOA)	0.0203			0.0222	ug/L		109	(66%-139%)	JMB3	12/14/21 17:07
Perfluorotetradecanoic acid (PFTDA)	0.0203			0.0213	ug/L		105	(66%-138%)		
Perfluorotridecanoic acid (PFTrDA)	0.0203			0.0247	ug/L		122	(58%-140%)		
Perfluoroundecanoic acid (PFUnDA)	0.0203			0.0215	ug/L		106	(63%-135%)		
QC1204978366 LCSD										
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0190			0.0205	ug/L	5	108	(0%-27%)		12/14/21 17:17
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0202			0.0218	ug/L	2	108	(0%-26%)		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0188			0.0215	ug/L	0	114	(0%-26%)		
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0202			0.0166	ug/L	0	82	(0%-25%)		
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0202			0.0208	ug/L	11	103	(0%-27%)		
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0202			0.0211	ug/L	4	105	(0%-27%)		
Perfluorobutane sulfonic acid (PFBS)	0.0179			0.0183	ug/L	1	102	(0%-23%)		
Perfluorodecanoic acid (PFDA)	0.0202			0.0227	ug/L	1	113	(0%-26%)		
Perfluorododecanoic acid (PFDOA)	0.0202			0.0216	ug/L	13	107	(0%-26%)		
Perfluoroheptanoic acid (PFHpA)	0.0202			0.0241	ug/L	8	119	(0%-23%)		
Perfluorohexane sulfonic acid (PFHxS)	0.0184			0.0223	ug/L	14	121	(0%-27%)		

QC Summary

Workorder: 564629

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 2207747										
Perfluorohexanoic acid (PFHxA)	0.0202			0.0231	ug/L	1	114	(0%-27%)	JMB3	12/14/21 17:17
Perfluorononanoic acid (PFNA)	0.0202			0.0204	ug/L	11	101	(0%-25%)		
Perfluorooctane sulfonic acid (PFOS)	0.0202			0.0227	ug/L	0	112	(0%-25%)		
Perfluorooctanoic acid (PFOA)	0.0202			0.0224	ug/L	1	111	(0%-27%)		
Perfluorotetradecanoic acid (PFTDA)	0.0202			0.0197	ug/L	8	98	(0%-26%)		
Perfluorotridecanoic acid (PFTrDA)	0.0202			0.0239	ug/L	3	118	(0%-31%)		
Perfluoroundecanoic acid (PFUnDA)	0.0202			0.0237	ug/L	10	117	(0%-26%)		
QC1204978364 MB										
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)			U	ND	ug/L					12/14/21 16:56
4,8-Dioxa-3H-perfluorononanoic acid (DONA)			U	ND	ug/L					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)			U	ND	ug/L					
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)			U	ND	ug/L					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)			U	ND	ug/L					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)			U	ND	ug/L					
Perfluorobutane sulfonic acid (PFBS)			U	ND	ug/L					
Perfluorodecanoic acid (PFDA)			U	ND	ug/L					

QC Summary

Workorder: 564629

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2207747											
Perfluorododecanoic acid (PFDOA)			U	ND	ug/L				JMB3	12/14/21	16:56
Perfluoroheptanoic acid (PFHpA)			U	ND	ug/L						
Perfluorohexane sulfonic acid (PFHxS)			U	ND	ug/L						
Perfluorohexanoic acid (PFHxA)			U	ND	ug/L						
Perfluorononanoic acid (PFNA)			U	ND	ug/L						
Perfluorooctane sulfonic acid (PFOS)			U	ND	ug/L						
Perfluorooctanoic acid (PFOA)			U	ND	ug/L						
Perfluorotetradecanoic acid (PFTDA)			U	ND	ug/L						
Perfluorotridecanoic acid (PFTrDA)			U	ND	ug/L						
Perfluoroundecanoic acid (PFUnDA)			U	ND	ug/L						

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Concentration of the target analyte exceeds the instrument calibration range
- I The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.
- J See case narrative for an explanation

QC Summary

Workorder: **564629**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

JNX Non Calibrated Compound

N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor

N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor

N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

Q Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UJ Compound cannot be extracted

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

LCMSMS-Misc
Technical Case Narrative
Environmental Conservation Laboratories
SDG #: AE09687
Work Order #: 564629

Product: **The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS**
Analytical Method: EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15
Analytical Procedure: GL-OA-E-076 REV# 12
Analytical Batches: 2207747 and 2207745

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
564629001	GSRY-MW0055-013.0-2021120
564629002	GSRY-MW0064-025.0-2021120
1204978364	Method Blank (MB)
1204978365	Laboratory Control Sample (LCS)
1204978366	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Internal Standard (ISTD) Acceptance
MB and LCS (See Below) failed internal standard acceptance criteria for Perfluoro-n-[1,2-13C2]hexadecanoic acid (M2PFHxDA). TNSL workorder 564578 was the only workorder requiring this internal standard and the associated target analytes. TNSL workorder 564578 was therefore re-extracted. Reported data for all other workorders in this batch were not affected by the low M2PFHxDA recoveries in the MB and LCS.

Sample	Analyte	Value
1204978364 (MB)	Perfluoro-n-[1, 2-13C2]hexadecanoic acid (M2PFHxDA)	and DOD|33* (50%-150%)|DODQSM5|33* (50%-150%)|DOE|33* (50%-150%)
1204978365 (LCS)	Perfluoro-n-[1, 2-13C2]hexadecanoic acid (M2PFHxDA)	and DOD|46* (50%-150%)|DODQSM5|46* (50%-150%)|DOE|46* (50%-150%)

Miscellaneous Information

Additional Comments
A LCS/LCSD pair was extracted and analyzed in place of sample matrix QC.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

SUBCONTRACT ORDER

ENCO Orlando

AE09687

564629

Standard TAT

SENDING LABORATORY:

ENCO Orlando
10775 Central Port Drive
Orlando, FL 32824
Phone: 407.826.5314
Fax: 407.850.6945
Project Manager: Kaitlin Dylnicki

RECEIVING LABORATORY:

GEL Laboratories, Inc. (SC)
2040 Savage Road
Charleston, SC 29407
Phone :(843) 556-8171
Fax: (843) 766-1178
Project State of Origin: Florida

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0055-013.0-2021120	Ground Water	08-Dec-21 11:45	

Analysis	Due	Expires	Analysis Comments
PFAS	15-Dec-21 15:00	22-Dec-21 11:45	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (F)	250mLP (G)	5mLV (H)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0064-025.0-2021120	Ground Water	08-Dec-21 12:04	

Analysis	Due	Expires	Analysis Comments
PFAS	15-Dec-21 15:00	22-Dec-21 12:04	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (H)	250mLP (I)	5mLV (J)	

Released By	Date	Received By	Date
K. Dylnicki	12/9/21		12-10-21 0920
Released By	Date	Received By	Date

GEL Laboratories LLC

SH

SAMPLE RECEIPT & REVIEW FORM

Client: ENCL	**SDG/AR/COC/Work Order:** 564029
Received By: DC	**Date Received:** 12-10-21
Carrier and Tracking Number	Circle Applicable: FedEx Express / FedEx Ground / UPS / Field Services / Courier / Other — 5307 8833 1505

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 **CPM / mR/Hr** **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 2°
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR6-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials GAB Date 12/13/21 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 17 December 2021

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122021−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−21−19
Utah NELAP	SC000122021−36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

ENCO Laboratories
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10775 Central Port Drive
Orlando FL, 32824
Phone: 407.826.5314 FAX: 407.850.6945

Thursday, December 23, 2021
AECOM Technical Services, Inc. (SE004)
Attn: Teresa Amentt Jennings
150 N. Orange Ave, Suite 200
Orlando, FL 32801

RE: Laboratory Results for
Project Number: 60614327.4, Project Name/Desc: NASA KSC - GSA Reclamation Yard
ENCO Workorder(s): AE09726

Dear Teresa Amentt Jennings,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Thursday, December 9, 2021.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,



Kaitlin Dylnicki

Project Manager

Enclosure(s)

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0031-013.0-20211209 **Lab ID: AE09726-01** **Sampled: 12/09/21 11:06** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/10/21	07:15	12/10/21 15:18
EPA 8082A	[CALC]	12/09/22		12/10/21	07:15	12/10/21 15:18
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 16:21

Client ID: GSRY-MW0036R-007.0-20211209 **Lab ID: AE09726-02** **Sampled: 12/09/21 11:03** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/10/21	07:15	12/10/21 15:30
EPA 8082A	[CALC]	12/09/22		12/10/21	07:15	12/10/21 15:30
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 16:50

Client ID: GSRY-MW0044-003.5-20211209 **Lab ID: AE09726-03** **Sampled: 12/09/21 11:48** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 11:11
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 11:11
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 17:19

Client ID: GSRY-MW0050-027.5-20211209 **Lab ID: AE09726-04** **Sampled: 12/09/21 09:42** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/07/22		12/16/21	10:07	12/17/21 13:05
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 11:22
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 11:22
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 17:48
SM 2540C-2011	NO PREP	12/16/21		12/15/21	17:15	12/17/21 13:40

Client ID: GSRY-MW0050-027.5-20211209 **Lab ID: AE09726-04RE1** **Sampled: 12/09/21 09:42** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/23/21	12/13/21	09:03	12/13/21 13:05
EPA 9056A	NO PREP	01/06/22	12/10/21	15:03	12/13/21 11:55

Client ID: GSRY-MW0057-025.0-20211209 **Lab ID: AE09726-05** **Sampled: 12/09/21 10:24** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/07/22		12/16/21	10:07	12/17/21 13:09
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 11:33
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 11:33
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 18:16
EPA 9056A	NO PREP	01/06/22		12/10/21	15:03	12/13/21 05:33
SM 2540C-2011	NO PREP	12/16/21		12/13/21	16:55	12/23/21 14:20

Client ID: GSRY-MW0057-025.0-20211209 **Lab ID: AE09726-05RE1** **Sampled: 12/09/21 10:24** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/23/21	12/13/21	09:03	12/13/21 10:19

Client ID: GSRY-MW0058-035.0-20211209 **Lab ID: AE09726-06** **Sampled: 12/09/21 09:39** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 11:44
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 11:44
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	00:00	12/10/21 18:45

Client ID: GSRY-MW0058-035.0-20211209 **Lab ID: AE09726-06RE1** **Sampled: 12/09/21 09:39** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/23/21	12/13/21	09:03	12/13/21 10:47

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: GSRY-MW0059-035.0-20211209 **Lab ID: AE09726-07** **Sampled: 12/09/21 10:20** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 11:56
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 11:56
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	12:41	12/11/21 06:45

Client ID: GSRY-MW0066-025.0-20211209 **Lab ID: AE09726-08** **Sampled: 12/09/21 11:35** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 6010D	EPA 3005A	06/07/22		12/16/21	10:07	12/17/21 13:13
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 12:18
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 12:18
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	12:41	12/11/21 07:13
SM 2540C-2011	NO PREP	12/16/21		12/13/21	16:55	12/23/21 14:20

Client ID: GSRY-MW0066-025.0-20211209 **Lab ID: AE09726-08RE1** **Sampled: 12/09/21 11:35** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 9056A	NO PREP	01/06/22	12/10/21	15:03	12/13/21 12:10

Client ID: GSRY-SW0001-001.0-20211209 **Lab ID: AE09726-09** **Sampled: 12/09/21 12:21** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8082A	EPA 3510C	12/09/22	12/09/22	12/16/21	08:00	12/16/21 12:29
EPA 8082A	[CALC]	12/09/22		12/16/21	08:00	12/16/21 12:29
EPA 8260D	EPA 5030B_MS	12/23/21		12/10/21	12:41	12/11/21 07:41

Client ID: GSRY-TB01-20211209 **Lab ID: AE09726-10** **Sampled: 12/09/21 09:00** **Received: 12/09/21 15:00**

Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260D	EPA 5030B_MS	12/23/21	12/10/21	12:41	12/11/21 08:09

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

SAMPLE DETECTION SUMMARY

Client ID: GSRY-MW0036R-007.0-20211209 **Lab ID:** AE09726-02

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2,4-Trichlorobenzene	2.1		0.70	1.0	ug/L	EPA 8260D	
1,2-Dichlorobenzene	1.9		0.73	1.0	ug/L	EPA 8260D	
1,3-Dichlorobenzene	3.2		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	7.9		0.76	1.0	ug/L	EPA 8260D	
Benzene	0.83	I	0.71	1.0	ug/L	EPA 8260D	
Chlorobenzene	19		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0044-003.5-20211209 **Lab ID:** AE09726-03

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,4-Dichlorobenzene	2.5		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	1.0		0.72	1.0	ug/L	EPA 8260D	

Client ID: GSRY-MW0050-027.5-20211209 **Lab ID:** AE09726-04

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2,3-Trichlorobenzene	14		0.86	1.0	ug/L	EPA 8260D	
1,2-Dichlorobenzene	11		0.73	1.0	ug/L	EPA 8260D	
Chlorobenzene	31		0.72	1.0	ug/L	EPA 8260D	
Iron - Total	2360		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	40.8		0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	239000	V	27.0	500	ug/L	EPA 6010D	
Total Dissolved Solids	1200000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0050-027.5-20211209 **Lab ID:** AE09726-04RE1

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2,4-Trichlorobenzene	110		7.0	10	ug/L	EPA 8260D	
1,3-Dichlorobenzene	110		7.7	10	ug/L	EPA 8260D	
1,4-Dichlorobenzene	210		7.6	10	ug/L	EPA 8260D	
Sulfate	270000		260	20000	ug/L	EPA 9056A	

Client ID: GSRY-MW0057-025.0-20211209 **Lab ID:** AE09726-05

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Iron - Total	1000		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	13.1		0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	89500	V	27.0	500	ug/L	EPA 6010D	
Sulfate	140	I	66	5000	ug/L	EPA 9056A	
Total Dissolved Solids	650000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0066-025.0-20211209 **Lab ID:** AE09726-08

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
1,2-Dichlorobenzene	1.3		0.73	1.0	ug/L	EPA 8260D	
1,3-Dichlorobenzene	19		0.77	1.0	ug/L	EPA 8260D	
1,4-Dichlorobenzene	43		0.76	1.0	ug/L	EPA 8260D	
Chlorobenzene	16		0.72	1.0	ug/L	EPA 8260D	
Iron - Total	2580		11.0	50.0	ug/L	EPA 6010D	
Manganese - Total	32.6		0.770	10.0	ug/L	EPA 6010D	
Sodium - Total	349000	V	27.0	500	ug/L	EPA 6010D	
Total Dissolved Solids	1700000		10000	10000	ug/L	SM 2540C-2011	

Client ID: GSRY-MW0066-025.0-20211209 **Lab ID:** AE09726-08RE1

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Sulfate	620000		660	50000	ug/L	EPA 9056A	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0031-013.0-20211209 **Lab Sample ID:** AE09726-01 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 11:06 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 16:21	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*95 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 16:21*	*nmc*	
Dibromofluoromethane	*54*	*1*	*50.0*	*108 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 16:21*	*nmc*	
Toluene-d8	*49*	*1*	*50.0*	*98 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 16:21*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 15:18	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 15:18	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*110 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 15:18*	*JJB*	
Decachlorobiphenyl	*1.2*	*1*	*1.00*	*123 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 15:18*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0036R-007.0-20211209 **Lab Sample ID:** AE09726-02 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 11:03 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	**2.1**		ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
1,2-Dichlorobenzene [95-50-1]^	**1.9**		ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
1,3-Dichlorobenzene [541-73-1]^	**3.2**		ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
1,4-Dichlorobenzene [106-46-7]^	**7.9**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
Benzene [71-43-2]^	**0.83**	I	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	
Chlorobenzene [108-90-7]^	**19**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 16:50	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 16:50*	*nmc*	
Dibromofluoromethane	*54*	*1*	*50.0*	*108 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 16:50*	*nmc*	
Toluene-d8	*48*	*1*	*50.0*	*95 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 16:50*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	QV-01
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L10003	EPA 8082A	12/10/21 15:30	JJB	QV-01
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/10/21 15:30	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.0*	*1*	*1.00*	*100 %*	*38-142*	*1L10003*	*EPA 8082A*	*12/10/21 15:30*	*JJB*	
Decachlorobiphenyl	*1.4*	*1*	*1.00*	*141 %*	*34-159*	*1L10003*	*EPA 8082A*	*12/10/21 15:30*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0044-003.5-20211209 **Lab Sample ID:** AE09726-03 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 11:48 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
1,4-Dichlorobenzene [106-46-7]^	**2.5**		ug/L	1	0.76	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	
Chlorobenzene [108-90-7]^	**1.0**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 17:19	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 17:19*	*nmc*	
Dibromofluoromethane	*53*	*1*	*50.0*	*105 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 17:19*	*nmc*	
Toluene-d8	*49*	*1*	*50.0*	*98 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 17:19*	*nmc*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 11:11	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 11:11	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.2*	*1*	*1.00*	*123 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 11:11*	*JJB*	
Decachlorobiphenyl	*1.1*	*1*	*1.00*	*111 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 11:11*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0050-027.5-20211209 **Lab Sample ID:** AE09726-04 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 09:42 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	**14**		ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 17:48	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	**110**		ug/L	10	7.0	10	1L13012	EPA 8260D	12/13/21 13:05	KKW	
1,2-Dichlorobenzene [95-50-1]^	**11**		ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 17:48	nmc	
1,3-Dichlorobenzene [541-73-1]^	**110**		ug/L	10	7.7	10	1L13012	EPA 8260D	12/13/21 13:05	KKW	
1,4-Dichlorobenzene [106-46-7]^	**210**		ug/L	10	7.6	10	1L13012	EPA 8260D	12/13/21 13:05	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 17:48	nmc	
Chlorobenzene [108-90-7]^	**31**		ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 17:48	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*93 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 17:48*	*nmc*	
4-Bromofluorobenzene	*54*	*1*	*50.0*	*107 %*	*41-142*	*1L13012*	*EPA 8260D*	*12/13/21 13:05*	*KKW*	
Dibromofluoromethane	*53*	*1*	*50.0*	*105 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 17:48*	*nmc*	
Dibromofluoromethane	*49*	*1*	*50.0*	*97 %*	*53-146*	*1L13012*	*EPA 8260D*	*12/13/21 13:05*	*KKW*	
Toluene-d8	*48*	*1*	*50.0*	*95 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 17:48*	*nmc*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L13012*	*EPA 8260D*	*12/13/21 13:05*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 11:22	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 11:22	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.0*	*1*	*1.00*	*104 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 11:22*	*JJB*	
Decachlorobiphenyl	*0.96*	*1*	*1.00*	*96 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 11:22*	*JJB*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**2360**		ug/L	1	11.0	50.0	1L15040	EPA 6010D	12/17/21 13:05	NRB	
Manganese [7439-96-5]^	**40.8**		ug/L	1	0.770	10.0	1L15040	EPA 6010D	12/17/21 13:05	NRB	
Sodium [7440-23-5]^	**239000**	V	ug/L	1	27.0	500	1L15040	EPA 6010D	12/17/21 13:05	NRB	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0050-027.5-20211209 **Lab Sample ID:** AE09726-04 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 09:42 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**270000**		ug/L	4	260	20000	1L10040	EPA 9056A	12/13/21 11:55	ASR	
Total Dissolved Solids^	**1200000**		ug/L	1	10000	10000	1L15048	SM 2540C-2011	12/17/21 13:40	LAM	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0057-025.0-20211209 **Lab Sample ID:** AE09726-05 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 10:24 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L13012	EPA 8260D	12/13/21 10:19	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L13012	EPA 8260D	12/13/21 10:19	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 18:16	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L13012	EPA 8260D	12/13/21 10:19	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L13012	EPA 8260D	12/13/21 10:19	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 18:16	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 18:16	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*93 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 18:16*	*nmc*	
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*41-142*	*1L13012*	*EPA 8260D*	*12/13/21 10:19*	*KKW*	
Dibromofluoromethane	*54*	*1*	*50.0*	*109 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 18:16*	*nmc*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*53-146*	*1L13012*	*EPA 8260D*	*12/13/21 10:19*	*KKW*	
Toluene-d8	*48*	*1*	*50.0*	*96 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 18:16*	*nmc*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L13012*	*EPA 8260D*	*12/13/21 10:19*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 11:33	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 11:33	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*107 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 11:33*	*JJB*	
Decachlorobiphenyl	*0.84*	*1*	*1.00*	*84 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 11:33*	*JJB*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**1000**		ug/L	1	11.0	50.0	1L15040	EPA 6010D	12/17/21 13:09	NRB	
Manganese [7439-96-5]^	**13.1**		ug/L	1	0.770	10.0	1L15040	EPA 6010D	12/17/21 13:09	NRB	
Sodium [7440-23-5]^	**89500**	V	ug/L	1	27.0	500	1L15040	EPA 6010D	12/17/21 13:09	NRB	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0057-025.0-20211209 **Lab Sample ID:** AE09726-05 **Received:** 12/09/21 15:00
Matrix: Ground Water **Sampled:** 12/09/21 10:24 **Work Order:** AE09726
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, M. Parso

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**140**	I	ug/L	1	66	5000	1L10040	EPA 9056A	12/13/21 05:33	ASR	
Total Dissolved Solids^	**650000**		ug/L	1	10000	10000	1L13044	SM 2540C-2011	12/23/21 14:20	LAM	

Description: GSRY-MW0058-035.0-20211209 **Lab Sample ID:** AE09726-06 **Received:** 12/09/21 15:00
Matrix: Ground Water **Sampled:** 12/09/21 09:39 **Work Order:** AE09726
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10006	EPA 8260D	12/10/21 18:45	nmc	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L13012	EPA 8260D	12/13/21 10:47	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10006	EPA 8260D	12/10/21 18:45	nmc	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10006	EPA 8260D	12/10/21 18:45	nmc	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L13012	EPA 8260D	12/13/21 10:47	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10006	EPA 8260D	12/10/21 18:45	nmc	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10006	EPA 8260D	12/10/21 18:45	nmc	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*41-142*	*1L10006*	*EPA 8260D*	*12/10/21 18:45*	*nmc*	
4-Bromofluorobenzene	*53*	*1*	*50.0*	*105 %*	*41-142*	*1L13012*	*EPA 8260D*	*12/13/21 10:47*	*KKW*	
Dibromofluoromethane	*53*	*1*	*50.0*	*106 %*	*53-146*	*1L10006*	*EPA 8260D*	*12/10/21 18:45*	*nmc*	
Dibromofluoromethane	*49*	*1*	*50.0*	*99 %*	*53-146*	*1L13012*	*EPA 8260D*	*12/13/21 10:47*	*KKW*	
Toluene-d8	*49*	*1*	*50.0*	*98 %*	*41-146*	*1L10006*	*EPA 8260D*	*12/10/21 18:45*	*nmc*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*41-146*	*1L13012*	*EPA 8260D*	*12/13/21 10:47*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 11:44	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 11:44	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*107 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 11:44*	*JJB*	
Decachlorobiphenyl	*0.86*	*1*	*1.00*	*86 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 11:44*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0059-035.0-20211209 **Lab Sample ID:** AE09726-07 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 10:20 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10029	EPA 8260D	12/11/21 06:45	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*104 %*	*41-142*	*1L10029*	*EPA 8260D*	*12/11/21 06:45*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*97 %*	*53-146*	*1L10029*	*EPA 8260D*	*12/11/21 06:45*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L10029*	*EPA 8260D*	*12/11/21 06:45*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 11:56	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 11:56	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*109 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 11:56*	*JJB*	
Decachlorobiphenyl	*0.98*	*1*	*1.00*	*98 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 11:56*	*JJB*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

ANALYTICAL RESULTS

Description: GSRY-MW0066-025.0-20211209 **Lab Sample ID:** AE09726-08 **Received:** 12/09/21 15:00

Matrix: Ground Water **Sampled:** 12/09/21 11:35 **Work Order:** AE09726

Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
1,2-Dichlorobenzene [95-50-1]^	**1.3**		ug/L	1	0.73	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
1,3-Dichlorobenzene [541-73-1]^	**19**		ug/L	1	0.77	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
1,4-Dichlorobenzene [106-46-7]^	**43**		ug/L	1	0.76	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	
Chlorobenzene [108-90-7]^	**16**		ug/L	1	0.72	1.0	1L10029	EPA 8260D	12/11/21 07:13	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*105 %*	*41-142*	*1L10029*	*EPA 8260D*	*12/11/21 07:13*	*KKW*	
Dibromofluoromethane	*48*	*1*	*50.0*	*95 %*	*53-146*	*1L10029*	*EPA 8260D*	*12/11/21 07:13*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*105 %*	*41-146*	*1L10029*	*EPA 8260D*	*12/11/21 07:13*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 12:18	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 12:18	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.1*	*1*	*1.00*	*114 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 12:18*	*JJB*	
Decachlorobiphenyl	*0.84*	*1*	*1.00*	*84 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 12:18*	*JJB*	

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Iron [7439-89-6]^	**2580**		ug/L	1	11.0	50.0	1L15040	EPA 6010D	12/17/21 13:13	NRB	
Manganese [7439-96-5]^	**32.6**		ug/L	1	0.770	10.0	1L15040	EPA 6010D	12/17/21 13:13	NRB	
Sodium [7440-23-5]^	**349000**	V	ug/L	1	27.0	500	1L15040	EPA 6010D	12/17/21 13:13	NRB	

Classical Chemistry Parameters

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Sulfate [14808-79-8]^	**620000**		ug/L	10	660	50000	1L10040	EPA 9056A	12/13/21 12:10	ASR	
Total Dissolved Solids^	**1700000**		ug/L	1	10000	10000	1L13044	SM 2540C-2011	12/23/21 14:20	LAM	

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ANALYTICAL RESULTS

Description: GSRY-SW0001-001.0-20211209 **Lab Sample ID:** AE09726-09 **Received:** 12/09/21 15:00
Matrix: Ground Water **Sampled:** 12/09/21 12:21 **Work Order:** AE09726
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** G.Kusel, D.Slater, B.Follett

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10029	EPA 8260D	12/11/21 07:41	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*107 %*	*41-142*	*1L10029*	*EPA 8260D*	*12/11/21 07:41*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*53-146*	*1L10029*	*EPA 8260D*	*12/11/21 07:41*	*KKW*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*41-146*	*1L10029*	*EPA 8260D*	*12/11/21 07:41*	*KKW*	

Polychlorinated Biphenyls by GC

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
PCB-1016 [12674-11-2]^	0.32	U	ug/L	1	0.32	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1221 [11104-28-2]^	0.46	U	ug/L	1	0.46	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1232 [11141-16-5]^	0.47	U	ug/L	1	0.47	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1242 [53469-21-9]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1248 [12672-29-6]^	0.49	U	ug/L	1	0.49	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1254 [11097-69-1]^	0.50	U	ug/L	1	0.50	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
PCB-1260 [11096-82-5]^	0.48	U	ug/L	1	0.48	0.50	1L16001	EPA 8082A	12/16/21 12:29	JJB	
Total PCBs	0.50	U	ug/L	1	0.50	0.50	[CALC]	EPA 8082A	12/16/21 12:29	JJB	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,5,6-TCMX	*1.2*	*1*	*1.00*	*117 %*	*38-142*	*1L16001*	*EPA 8082A*	*12/16/21 12:29*	*JJB*	
Decachlorobiphenyl	*1.0*	*1*	*1.00*	*100 %*	*34-159*	*1L16001*	*EPA 8082A*	*12/16/21 12:29*	*JJB*	

Description: GSRY-TB01-20211209 **Lab Sample ID:** AE09726-10 **Received:** 12/09/21 15:00
Matrix: Water **Sampled:** 12/09/21 09:00 **Work Order:** AE09726
Project: NASA KSC - GSA Reclamation Yard **Sampled By:** ENCO - ORL

Volatile Organic Compounds by GCMS

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,3-Trichlorobenzene [87-61-6]^	0.86	U	ug/L	1	0.86	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
1,2,4-Trichlorobenzene [120-82-1]^	0.70	U	ug/L	1	0.70	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
1,2-Dichlorobenzene [95-50-1]^	0.73	U	ug/L	1	0.73	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
1,3-Dichlorobenzene [541-73-1]^	0.77	U	ug/L	1	0.77	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
1,4-Dichlorobenzene [106-46-7]^	0.76	U	ug/L	1	0.76	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
Benzene [71-43-2]^	0.71	U	ug/L	1	0.71	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	
Chlorobenzene [108-90-7]^	0.72	U	ug/L	1	0.72	1.0	1L10029	EPA 8260D	12/11/21 08:09	KKW	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*104 %*	*41-142*	*1L10029*	*EPA 8260D*	*12/11/21 08:09*	*KKW*	
Dibromofluoromethane	*49*	*1*	*50.0*	*97 %*	*53-146*	*1L10029*	*EPA 8260D*	*12/11/21 08:09*	*KKW*	
Toluene-d8	*52*	*1*	*50.0*	*103 %*	*41-146*	*1L10029*	*EPA 8260D*	*12/11/21 08:09*	*KKW*	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L10006 - EPA 5030B_MS

Blank (1L10006-BLK1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 10:36

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*45*			*ug/L*	*50.0*		*89*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*46*			*ug/L*	*50.0*		*92*	*41-146*			

LCS (1L10006-BS1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 08:04

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	25		1.0	ug/L	20.0		123	43-168			
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0		124	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0		114	63-131			
1,3-Dichlorobenzene	22		1.0	ug/L	20.0		110	66-129			
1,4-Dichlorobenzene	21		1.0	ug/L	20.0		106	65-133			
Benzene	22		1.0	ug/L	20.0		112	56-136			
Chlorobenzene	22		1.0	ug/L	20.0		109	51-139			
4-Bromofluorobenzene	*49*			*ug/L*	*50.0*		*98*	*41-142*			
Dibromofluoromethane	*54*			*ug/L*	*50.0*		*109*	*53-146*			
Toluene-d8	*49*			*ug/L*	*50.0*		*99*	*41-146*			

Matrix Spike (1L10006-MS1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 08:41

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	25		1.0	ug/L	20.0	0.86 U	124	43-168			
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0	0.70 U	127	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	116	63-131			
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	113	66-129			
1,4-Dichlorobenzene	22		1.0	ug/L	20.0	0.76 U	108	65-133			
Benzene	23		1.0	ug/L	20.0	0.71 U	116	56-136			
Chlorobenzene	23		1.0	ug/L	20.0	0.72 U	113	51-139			
4-Bromofluorobenzene	*47*			*ug/L*	*50.0*		*94*	*41-142*			
Dibromofluoromethane	*52*			*ug/L*	*50.0*		*104*	*53-146*			
Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*41-146*			

Matrix Spike Dup (1L10006-MSD1) Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 09:10

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	24		1.0	ug/L	20.0	0.86 U	121	43-168	2	26	
1,2,4-Trichlorobenzene	25		1.0	ug/L	20.0	0.70 U	125	52-159	2	24	
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	113	63-131	3	25	
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	113	66-129	0	23	
1,4-Dichlorobenzene	22		1.0	ug/L	20.0	0.76 U	108	65-133	0.6	23	

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L10006 - EPA 5030B_MS - Continued

Matrix Spike Dup (1L10006-MSD1) Continued Prepared: 12/10/2021 00:00 Analyzed: 12/10/2021 09:10

Source: AE09673-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	23		1.0	ug/L	20.0	0.71 U	114	56-136	2	14	
Chlorobenzene	22		1.0	ug/L	20.0	0.72 U	112	51-139	0.4	13	
4-Bromofluorobenzene	*48*			*ug/L*	*50.0*		*96*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*41-146*			

Batch 1L10029 - EPA 5030B_MS

Blank (1L10029-BLK1) Prepared: 12/10/2021 12:41 Analyzed: 12/10/2021 22:54

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*52*			*ug/L*	*50.0*		*105*	*41-142*			
Dibromofluoromethane	*49*			*ug/L*	*50.0*		*97*	*53-146*			
Toluene-d8	*50*			*ug/L*	*50.0*		*101*	*41-146*			

LCS (1L10029-BS1) Prepared: 12/10/2021 12:41 Analyzed: 12/10/2021 21:03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0		106	43-168			
1,2,4-Trichlorobenzene	24		1.0	ug/L	20.0		121	52-159			
1,2-Dichlorobenzene	24		1.0	ug/L	20.0		118	63-131			
1,3-Dichlorobenzene	23		1.0	ug/L	20.0		116	66-129			
1,4-Dichlorobenzene	21		1.0	ug/L	20.0		107	65-133			
Benzene	23		1.0	ug/L	20.0		114	56-136			
Chlorobenzene	23		1.0	ug/L	20.0		113	51-139			
4-Bromofluorobenzene	*53*			*ug/L*	*50.0*		*106*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*101*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*41-146*			

Matrix Spike (1L10029-MS1) Prepared: 12/10/2021 12:41 Analyzed: 12/10/2021 21:31

Source: AE09725-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0	0.86 U	105	43-168			
1,2,4-Trichlorobenzene	23		1.0	ug/L	20.0	0.70 U	117	52-159			
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	115	63-131			
1,3-Dichlorobenzene	23		1.0	ug/L	20.0	0.77 U	116	66-129			
1,4-Dichlorobenzene	21		1.0	ug/L	20.0	0.76 U	107	65-133			
Benzene	22		1.0	ug/L	20.0	0.71 U	112	56-136			
Chlorobenzene	23		1.0	ug/L	20.0	0.72 U	115	51-139			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L10029 - EPA 5030B_MS - Continued

Matrix Spike (1L10029-MS1) Continued Prepared: 12/10/2021 12:41 Analyzed: 12/10/2021 21:31

Source: AE09725-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dibromofluoromethane	*49*			*ug/L*	*50.0*		*98*	*53-146*			
Toluene-d8	*51*			*ug/L*	*50.0*		*103*	*41-146*			

Matrix Spike Dup (1L10029-MSD1) Prepared: 12/10/2021 12:41 Analyzed: 12/10/2021 21:58

Source: AE09725-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0	0.86 U	107	43-168	2	26	
1,2,4-Trichlorobenzene	24		1.0	ug/L	20.0	0.70 U	120	52-159	3	24	
1,2-Dichlorobenzene	23		1.0	ug/L	20.0	0.73 U	113	63-131	2	25	
1,3-Dichlorobenzene	22		1.0	ug/L	20.0	0.77 U	111	66-129	5	23	
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	102	65-133	5	23	
Benzene	22		1.0	ug/L	20.0	0.71 U	112	56-136	0.3	14	
Chlorobenzene	23		1.0	ug/L	20.0	0.72 U	113	51-139	2	13	
4-Bromofluorobenzene	*55*			*ug/L*	*50.0*		*109*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*100*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*41-146*			

Batch 1L13012 - EPA 5030B_MS

Blank (1L13012-BLK1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 09:24

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	0.86	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.70	U	1.0	ug/L							
1,2-Dichlorobenzene	0.73	U	1.0	ug/L							
1,3-Dichlorobenzene	0.77	U	1.0	ug/L							
1,4-Dichlorobenzene	0.76	U	1.0	ug/L							
Benzene	0.71	U	1.0	ug/L							
Chlorobenzene	0.72	U	1.0	ug/L							
4-Bromofluorobenzene	*52*			*ug/L*	*50.0*		*104*	*41-142*			
Dibromofluoromethane	*50*			*ug/L*	*50.0*		*100*	*53-146*			
Toluene-d8	*50*			*ug/L*	*50.0*		*100*	*41-146*			

LCS (1L13012-BS1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 08:28

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	19		1.0	ug/L	20.0		97	43-168			
1,2,4-Trichlorobenzene	21		1.0	ug/L	20.0		105	52-159			
1,2-Dichlorobenzene	20		1.0	ug/L	20.0		100	63-131			
1,3-Dichlorobenzene	20		1.0	ug/L	20.0		99	66-129			
1,4-Dichlorobenzene	18		1.0	ug/L	20.0		91	65-133			
Benzene	19		1.0	ug/L	20.0		93	56-136			
Chlorobenzene	19		1.0	ug/L	20.0		95	51-139			
4-Bromofluorobenzene	*53*			*ug/L*	*50.0*		*106*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*41-146*			

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QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L13012 - EPA 5030B_MS - Continued

Matrix Spike (1L13012-MS1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 11:14

Source: AE09759-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	20		1.0	ug/L	20.0	0.86 U	98	43-168			
1,2,4-Trichlorobenzene	22		1.0	ug/L	20.0	0.70 U	110	52-159			
1,2-Dichlorobenzene	21		1.0	ug/L	20.0	0.73 U	105	63-131			
1,3-Dichlorobenzene	21		1.0	ug/L	20.0	0.77 U	106	66-129			
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	100	65-133			
Benzene	22		1.0	ug/L	20.0	0.71 U	108	56-136			
Chlorobenzene	22		1.0	ug/L	20.0	0.72 U	111	51-139			
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*101*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*103*	*41-146*			

Matrix Spike Dup (1L13012-MSD1) Prepared: 12/13/2021 00:00 Analyzed: 12/13/2021 11:42

Source: AE09759-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	21		1.0	ug/L	20.0	0.86 U	106	43-168	8	26	
1,2,4-Trichlorobenzene	24		1.0	ug/L	20.0	0.70 U	118	52-159	7	24	
1,2-Dichlorobenzene	21		1.0	ug/L	20.0	0.73 U	107	63-131	3	25	
1,3-Dichlorobenzene	22		1.0	ug/L	20.0	0.77 U	110	66-129	3	23	
1,4-Dichlorobenzene	20		1.0	ug/L	20.0	0.76 U	99	65-133	0.9	23	
Benzene	21		1.0	ug/L	20.0	0.71 U	103	56-136	5	14	
Chlorobenzene	21		1.0	ug/L	20.0	0.72 U	106	51-139	5	13	
4-Bromofluorobenzene	*54*			*ug/L*	*50.0*		*108*	*41-142*			
Dibromofluoromethane	*51*			*ug/L*	*50.0*		*103*	*53-146*			
Toluene-d8	*52*			*ug/L*	*50.0*		*103*	*41-146*			

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L10003 - EPA 3510C

Blank (1L10003-BLK1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:48

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016	0.32	U	0.50	ug/L							
PCB-1221	0.46	U	0.50	ug/L							
PCB-1232	0.47	U	0.50	ug/L							
PCB-1242	0.49	U	0.50	ug/L							
PCB-1248	0.49	U	0.50	ug/L							
PCB-1254	0.50	U	0.50	ug/L							
PCB-1260	0.48	U	0.50	ug/L							
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*107*	*38-142*			
Decachlorobiphenyl	*1.0*			*ug/L*	*1.00*		*103*	*34-159*			

LCS (1L10003-BS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:59

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	13		0.50	ug/L	10.0		132	11-162			
PCB-1260	14		0.50	ug/L	10.0		141	10-166			
2,4,5,6-TCMX	*1.0*			*ug/L*	*1.00*		*104*	*38-142*			

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QUALITY CONTROL DATA

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L10003 - EPA 3510C - Continued

LCS (1L10003-BS1) Continued Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 10:59

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Decachlorobiphenyl	*1.3*			*ug/L*	*1.00*		*131*	*34-159*			

Matrix Spike (1L10003-MS1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:11

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	15		0.50	ug/L	10.0	0.49 U	150	11-162			
PCB-1260	16		0.50	ug/L	10.0	0.48 U	158	10-166			
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*122*	*38-142*			
Decachlorobiphenyl	*1.7*			*ug/L*	*1.00*		*171*	*34-159*			*QS-03*

Matrix Spike Dup (1L10003-MSD1) Prepared: 12/10/2021 07:15 Analyzed: 12/10/2021 11:23

Source: AE09561-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	12		0.50	ug/L	10.0	0.49 U	123	11-162	20	23	
PCB-1260	14		0.50	ug/L	10.0	0.48 U	140	10-166	12	13	
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*108*	*38-142*			
Decachlorobiphenyl	*1.5*			*ug/L*	*1.00*		*151*	*34-159*			

Batch 1L16001 - EPA 3510C

Blank (1L16001-BLK1) Prepared: 12/16/2021 08:00 Analyzed: 12/16/2021 10:14

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016	0.32	U	0.50	ug/L							
PCB-1221	0.46	U	0.50	ug/L							
PCB-1232	0.47	U	0.50	ug/L							
PCB-1242	0.49	U	0.50	ug/L							
PCB-1248	0.49	U	0.50	ug/L							
PCB-1254	0.50	U	0.50	ug/L							
PCB-1260	0.48	U	0.50	ug/L							
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*116*	*38-142*			
Decachlorobiphenyl	*0.75*			*ug/L*	*1.00*		*75*	*34-159*			

LCS (1L16001-BS1) Prepared: 12/16/2021 08:00 Analyzed: 12/16/2021 10:26

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	14		0.50	ug/L	10.0		139	11-162			
PCB-1260	13		0.50	ug/L	10.0		127	10-166			
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*116*	*38-142*			
Decachlorobiphenyl	*0.80*			*ug/L*	*1.00*		*80*	*34-159*			

Matrix Spike (1L16001-MS1) Prepared: 12/16/2021 08:00 Analyzed: 12/16/2021 10:37

Source: AE09780-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	15		0.50	ug/L	10.0	0.49 U	148	11-162			
PCB-1260	14		0.50	ug/L	10.0	0.48 U	136	10-166			

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QUALITY CONTROL DATA

Polychlorinated Biphenyls by GC - Quality Control

Batch 1L16001 - EPA 3510C - Continued

Matrix Spike (1L16001-MS1) Continued Prepared: 12/16/2021 08:00 Analyzed: 12/16/2021 10:37

Source: AE09780-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2,4,5,6-TCMX	*1.2*			*ug/L*	*1.00*		*122*	*38-142*			
Decachlorobiphenyl	*0.86*			*ug/L*	*1.00*		*86*	*34-159*			

Matrix Spike Dup (1L16001-MSD1) Prepared: 12/16/2021 08:00 Analyzed: 12/16/2021 10:48

Source: AE09780-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
PCB-1016/1242	12		0.50	ug/L	10.0	0.49 U	122	11-162	19	23	
PCB-1260	10		0.50	ug/L	10.0	0.48 U	105	10-166	26	13	QM-11
2,4,5,6-TCMX	*1.1*			*ug/L*	*1.00*		*113*	*38-142*			
Decachlorobiphenyl	*0.81*			*ug/L*	*1.00*		*81*	*34-159*			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L15040 - EPA 3005A

Blank (1L15040-BLK1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:25

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	**66.0**	**I**	500	ug/L							

Blank (1L15040-BLK2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 14:31

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	11.0	U	50.0	ug/L							
Manganese	0.770	U	10.0	ug/L							
Sodium	**712**		500	ug/L							

LCS (1L15040-BS1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:29

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2400		50.0	ug/L	2500		96	80-120			
Manganese	488		10.0	ug/L	495		99	80-120			
Sodium	25100		500	ug/L	25200		100	80-120			

LCS (1L15040-BS2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 14:35

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2400		50.0	ug/L	2500		96	80-120			
Manganese	488		10.0	ug/L	495		99	80-120			
Sodium	25900		500	ug/L	25200		102	80-120			

Matrix Spike (1L15040-MS1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:36

Source: AE09400-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	4070		50.0	ug/L	2500	1960	84	75-125			

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QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 1L15040 - EPA 3005A - Continued

Matrix Spike (1L15040-MS1) Continued Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:36

Source: AE09400-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Manganese	434		10.0	ug/L	495	7.94	86	75-125			
Sodium	949000		500	ug/L	25200	916000	132	75-125			QM-17

Matrix Spike (1L15040-MS2) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:49

Source: AE09400-06

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	2590		50.0	ug/L	2500	190	96	75-125			
Manganese	491		10.0	ug/L	495	2.46	99	75-125			
Sodium	30400		500	ug/L	25200	5760	98	75-125			

Matrix Spike Dup (1L15040-MSD1) Prepared: 12/16/2021 10:07 Analyzed: 12/17/2021 10:41

Source: AE09400-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	4050		50.0	ug/L	2500	1960	84	75-125	0.4	20	
Manganese	434		10.0	ug/L	495	7.94	86	75-125	0.1	20	
Sodium	941000		500	ug/L	25200	916000	101	75-125	0.8	20	

Post Spike (1L15040-PS1) Prepared: 12/17/2021 11:20 Analyzed: 12/17/2021 15:23

Source: AE09400-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sodium	920		0.500	mg/L	25.2	897	88	80-120			

Classical Chemistry Parameters - Quality Control

Batch 1L10040 - NO PREP

Blank (1L10040-BLK1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:29

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	66	U	5000	ug/L							

LCS (1L10040-BS1) Prepared: 12/10/2021 15:03 Analyzed: 12/12/2021 23:44

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	50000		5000	ug/L	50000		100	80-120			

Matrix Spike (1L10040-MS2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 00:57

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	99	80-120			

Matrix Spike Dup (1L10040-MSD2) Prepared: 12/10/2021 15:03 Analyzed: 12/13/2021 01:12

Source: AE09689-02

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	75000		5000	ug/L	50000	25000	100	80-120	0.5	15	

Batch 1L13044 - NO PREP

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QUALITY CONTROL DATA

Classical Chemistry Parameters - Quality Control

Batch 1L13044 - NO PREP - Continued

Blank (1L13044-BLK1) Prepared: 12/13/2021 16:55 Analyzed: 12/23/2021 14:20

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L13044-BS1) Prepared: 12/13/2021 16:55 Analyzed: 12/23/2021 14:20

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	110000		10000	ug/L	100000		108	90-110			

Duplicate (1L13044-DUP1) Prepared: 12/13/2021 16:55 Analyzed: 12/23/2021 14:20

Source: AE08347-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	460000		10000	ug/L		450000			0.4	20	

Batch 1L15048 - NO PREP

Blank (1L15048-BLK1) Prepared: 12/15/2021 17:15 Analyzed: 12/17/2021 13:40

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (1L15048-BS1) Prepared: 12/15/2021 17:15 Analyzed: 12/17/2021 13:40

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	100000		10000	ug/L	100000		100	90-110			

Duplicate (1L15048-DUP1) Prepared: 12/15/2021 17:15 Analyzed: 12/17/2021 13:40

Source: AE09725-08

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	280000		10000	ug/L		290000			2	20	

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FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*****	Not reported due to interference.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
QM-11	Precision between duplicate matrix spikes of the same sample was outside acceptance limits.
QM-17	Matrix spike recovery was outside acceptance limits due to high concentrations of analyte in source sample.
QS-03	Surrogate recovery outside acceptance limits
QV-01	The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

AEO9726

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO

Project Name:	NASA KSC - GSA Reclamation Yard	COC No.	Page: 1 of 3
Site Location:	GSRY - PCB VOC Area	PO No. 138535	Project No. 60614327.4 Phase:
TO No.: 80KSC019F0078	AECOM Project Manager: **Chad Lee cc: Jennifer Joyal**	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
		Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426 Dustin Slater / (407) 766-0747 Brittany Follett / (419) 302-0236	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A
Lab Name:	ENCO Turnaround Time(specify): Standard 14 day	**Sample Analysis Requested** (*Enter number of containers for each test*)	

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW8260B (Unpreserved)	Comments
	~~GSRY-MW0011S-~~	~~GSRY-MW0011S~~	~~202112~~		WG	N	G			2						
	~~GSRY-MW0030R-~~	~~GSRY-MW0030R~~	~~202112~~		WG	N	G		2	2					2	
	GSRY-MW0031- 013--20211209	GSRY-MW0031	202112 09	1106	WG	N	G		2	2					2	
	GSRY-MW0036R- 007.0-202109	GSRY-MW0036R	202112 09	1103	WG	N	G		2	2					2	
	~~GSRY-MW0040-~~	~~GSRY-MW0040~~	~~202112~~		WG	N	G		2	2					2	
	~~GSRY-MW0041-~~	~~GSRY-MW0041~~	~~202112~~		WG	N	G		2	2					2	
	~~GSRY-MW0042R-~~	~~GSRY-MW0042R~~	~~202112~~		WG	N	G		2	2					2	
	~~GSRY-MW0043-~~	~~GSRY-MW0043~~	~~202112~~		WG	N	G		2	2					2	
	GSRY-MW0044- 003.5-20211209	GSRY-MW0044	202112 09	1148	WG	N	G		2	2					2	
	~~GSRY-MW0046R-~~ 001.5-20211209	~~GSRY-MW0046R~~	~~202112 09~~		WG	N	G		2	2					2	
	~~GSRY-MW0049-~~	~~GSRY-MW0049~~	~~202112~~		WG	N	G		2	2	1	1	1		2	
	~~GSRY-MW0050-~~ 027.5-20211209	~~GSRY-MW0050~~	~~20211209~~	0942	WG	N	G		2	2	1	1	1		2	

***Field* Comments:** ↑ Keep this Sample ↑

Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Samples Iced?(check) Yes_____ No_____

Shipping Company:

Tracking No:

Date Shipped:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1					12/9/21	0700
2		12/9/21	1307	Charlene S. Pasipanki	12/9/21	1500
3						

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: 4 DEG C=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

1.2°C a - 2025

AE09726

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

ENCO

Project Name:	NASA KSC - GSA Reclamation Yard	COC No.	Page: 2 of 3
Site Location:	GSRY - PCB VOC Area	PO No. 138535	Project No. 60614327.4 Phase:
TO No.: 80KSC019F0078	AECOM Project Manager: **Chad Lee cc: Jennifer Joyal**	Send Invoice To: Instructions in MSA# 21S-27172-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
		Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando	Report to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	Greg Kusel / (772) 631-7426 Dustin Slater / (407) 766-0747 Brittany Follett / (419) 302-0236	Deliver Samples To: ENCO Orlando	Site-Spicific WS#15 from QAPP: 15-17A
Lab Name:	ENCO Turnaround Time(specify): Standard 14 day	**Sample Analysis Requested** (*Enter number of containers for each test*)	

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW8260B (Unpreserved)					Comments
	~~GSRY-MW0051-~~	~~GSRY-MW0051~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	~~GSRY-MW0052-~~	~~GSRY-MW0052~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	~~GSRY-MW0053-~~	~~GSRY-MW0053~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	~~GSRY-MW0054-~~	~~GSRY-MW0054~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	~~GSRY-MW0055-~~	~~GSRY-MW0055~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~				2	2					
	~~GSRY-MW0056-~~	~~GSRY-MW0056~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	GSRY-MW0057- 035.0-20211209	GSRY-MW0057	202112 09	1024	WG	N	G		2	2	1	1	1		2					
	GSRY-MW0058- 035.0-20211209	GSRY-MW0058	20211209	0939	WG	N	G		2	2				2	2					
	GSRY-MW0059- 035.0-20211209	GSRY-MW0059	20211209	1020	WG	N	G		2	2				2	2					
	~~GSRY-MW0060-~~	~~GSRY-MW0060~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					
	~~GSRY-MW0061-~~	~~GSRY-MW0061~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~		~~1~~	~~1~~	~~1~~		~~2~~					
	~~GSRY-MW0062-~~	~~GSRY-MW0062~~	~~202112~~		~~WG~~	~~N~~	~~G~~		~~2~~	~~2~~					~~2~~					

***Field* Comments:**

Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1					12/9/21	0700
2		12/9/21	1507	Carlene S. Pasipanki	12/9/21	1500
3						

Samples Iced?(check) Yes_____ No_____

Shipping Company:

Tracking No:

Date Shipped:

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: 4 DEG C=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

1.2°C C-2005

AEO1726

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 3 of 3

Project Name: NASA KSC - GSA Reclamation Yard | PO No. 138535 | Project No. 60614327.4 | Phase:

Site Location: GSRY - PCB VOC Area | Send Invoice To: Instructions in MSA# 21S-27172-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0078 | AECOM Project Manager: **Chad Lee cc: Jennifer Joyal** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to: Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # | Greg Kusel / (772) 631-7426 | Dustin Slater / (407) 766-0747 | Brittany Follett / (419) 302-0236 | Deliver Samples To: ENCO Orlando | Site-Spicific WS#15 from QAPP: 15-17A

Lab Name: ENCO | Turnaround Time(specify): Standard 14 day

Sample Analysis Requested (*Enter number of containers for each test*)

Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (YYYYMMDD)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	G=Grab C=Comp	Total No. of Containers	HCl Select VOCs by SW8260B (Preserved)	4 DEG PCBs by SW8082A	4 DEG Sulfate by SW9056A	HNO3 Fe, Mn, Na by SW6010B	4 DEG TDS by SM2540C	4 DEG Select PFAS by 537	4 DEG Select VOCs by SW8260B (Unpreserved)	Comments
	GSRY-MW0063-	GSRY-MW0063	202112		WG	N	G		2	2					2	
	GSRY-MW0064-	GSRY-MW0064	202112		WG	N	G		2		1	1	1	2	2	
	GSRY-MW0066- 025.0-20211209	GSRY-MW0066	202112 09	1135	WG	N	G		2	2	1	1	1	2	2	
	GSRY-MW0075-	GSRY-MW0075	202112		WG	N	G		2						2	
	GRSY-MW0002IS-	GRSY-MW0002IS	202112		WS	N	G				1	1	1	2		
	GRSY-SW0001- 001.0-20211209	GRSY-SW0001	202112 09	1221	WS	N	G		2	2					2	
	GSRY-IDW01-	GSRY-IDW01	202112		IDW	IDW	G		2	2				2	2	
	GSRY-TB01- 20211209	GSRY-TB01	202112 09	0900	WQ	TB	G		2						2	

***Field* Comments:**

Report only per QAPP WS #15-17A

***Lab* Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Samples Iced?(check) Yes_____ No_____

Shipping Company:

Tracking No:

Date Shipped:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1						
2		12/9/21	1507	Darlene S. Pasipanki	12/9/21	15:00
3						

(1) AA=Ambient air, **AQ**=Air quality control, **ASB**=Asbestos, **CK**=Caulk, **DS**=Storm drain sediment, **GS**=Soil gas, **IC**=IDW Concrete, **IDD**=IDW Solid, **IDS**=IDW soil, **IDW**=IDW Water, **LF**=Free Product, **MA**=Mastic, **PC**=Paint Chips, **SC**=Cement/Concrete, **SE**=Sediment, **SL**=Sludge, **SO**=Soil, **SQ**=Soil/Solid quality control, **SSD**=Subsurface sediment, **SU**=Surface soil (<6 in), **SW**=Swab or wipe, **TA**=Animal tissue, **TP**=Plant tissue, **TQ**=Tissue quality control, **WG**=Ground water, **WL**=Leachate, **WO**=Ocean water, **WP**=Drinking water, **WQ**=Water quality control, **WR**=Ground water effluent, **WS**=Surface water, **WU**=Storm water, **WW**=Waste water

(2) Sample Type: AB=Ambient Blk, **EB**=Equipment Blk, **FB**=Field Blk, **FD**=Field Duplicate Sample, **IDW**=Investigative-Derived Waste, **MIS**=Incremental Sampling Methodology, **N**=Normal Environmental Sample, **TB**=Trip Blk

(3) Preservative added: **4 DEG C**=Cool to 4 degrees, **Dark**=Store in Darkness, store cool at 4 degrees C **H2SO4**=Hydrogen sulfate, **H2SO4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3PO4 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaO4S**=Sodium bisulfate preservation, **HNO3 <2**=Adjust to pH < 2 with nitric acid, **MeOH**=Methanol preservation, **Na2O3S2**=Sodium thiosulfate, **Na2O3S2 3/gal**=Add 3 mL 10% sodium thiosulfate per l-gal, **Na2O3S2 4/4oz**=4 drops of 10% sodium thiosulfate to 4 oz, **NaHSO4 <2**=Adjust to pH < 2 with sodium hydrogen sulfate, NaOH >12=Adjust to pH > 12 with sodium hydroxide, NaOH >9=Adjust to pH >9 with sodium hydroxide, **VitC 0.6/500**=0.6 g of ascorbic acid to 500mLs, **ZnAct 2/500**=Add 2 mL of zinc acetate to 500mLs, **ZnAct+NaOH >9**=Zinc acetate and NaOH to pH>9; store cool at 4C If **NO preservative** added leave blank **Rev 8/19**

1.20C C-2025.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

January 06, 2022

Kaitlin Dylnicki
Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida 32824

Re: NASA PFAS - Dylnicki
Work Order: 564630
SDG: AE09726

Dear Kaitlin Dylnicki:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 10, 2021. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4523.

Sincerely,

Samuel Hogan
Project Manager

Purchase Order: GELP20-0372
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ENCL001 Environmental Conservation Laboratories

Client SDG: AE09726 GEL Work Order: 564630

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

I The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Samuel Hogan.

Reviewed by _____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 6, 2022

Company : Environmental Conservation Laboratories, Inc.
Address : 10775 Central Port Drive

Orlando, Florida 32824
Contact: Kaitlin Dylnicki
Project: NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0058-035.0-20211209	Project:	ENCL00421
Sample ID:	564630001	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	09-DEC-21 09:39		
Receive Date:	10-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000647	0.00185	ug/L	0.0196	1	JMB3	12/14/21	2003	2207747	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000647	0.00183	ug/L	0.0196	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00129	0.00392	ug/L	0.0196	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00129	0.00392	ug/L	0.0196	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000647	0.00175	ug/L	0.0196	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000765	0.00196	ug/L	0.0196	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
Perfluorohexane sulfonic acid (PFHxS)	U	ND	0.000647	0.00178	ug/L	0.0196	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.000784	0.00196	ug/L	0.0196	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
Perfluorooctane sulfonic acid (PFOS)	I	0.000887	0.000784	0.00196	ug/L	0.0196	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000784	0.00196	ug/L	0.0196	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000784	0.00196	ug/L	0.0196	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000647	0.00196	ug/L	0.0196	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	LD1	12/14/21	1031	2207745

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 6, 2022

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0058-035.0-20211209	Project:	ENCL00421
Sample ID:	564630001	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 6, 2022

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0059-035.0-20211209	Project:	ENCL00421
Sample ID:	564630002	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	09-DEC-21 10:20		
Receive Date:	10-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000586	0.00167	ug/L	0.0178	1	JMB3	12/14/21	2014	2207747	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000586	0.00165	ug/L	0.0178	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00117	0.00355	ug/L	0.0178	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00117	0.00355	ug/L	0.0178	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000586	0.00158	ug/L	0.0178	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000692	0.00178	ug/L	0.0178	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
Perfluorohexane sulfonic acid (PFHxS)	U	ND	0.000586	0.00162	ug/L	0.0178	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.000710	0.00178	ug/L	0.0178	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
Perfluorooctane sulfonic acid (PFOS)	U	ND	0.000710	0.00178	ug/L	0.0178	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000710	0.00178	ug/L	0.0178	1					
Perfluorotetradecanoic acid (PFTDA)	U	ND	0.000710	0.00178	ug/L	0.0178	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000586	0.00178	ug/L	0.0178	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl	PFCs Extraction in Liquid	LD1	12/14/21	1031	2207745

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: January 6, 2022

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0059-035.0-20211209	Project:	ENCL00421
Sample ID:	564630002	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 6, 2022

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0066-025.0-20211209	Project:	ENCL00421
Sample ID:	564630003	Client ID:	ENCL001
Matrix:	GW		
Collect Date:	09-DEC-21 11:35		
Receive Date:	10-DEC-21		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
EPA 537.1Mod PFCs by LC-MS/MS "As Received"												
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	U	ND	0.000589	0.00168	ug/L	0.0178	1	JMB3	12/14/21	2024	2207747	1
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	U	ND	0.000589	0.00178	ug/L	0.0178	1					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	U	ND	0.000589	0.00166	ug/L	0.0178	1					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	U	ND	0.00118	0.00357	ug/L	0.0178	1					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	U	ND	0.00118	0.00357	ug/L	0.0178	1					
Perfluorobutane sulfonic acid (PFBS)	U	ND	0.000589	0.00159	ug/L	0.0178	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.000696	0.00178	ug/L	0.0178	1					
Perfluorododecanoic acid (PFDOA)	U	ND	0.000589	0.00178	ug/L	0.0178	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.000589	0.00178	ug/L	0.0178	1					
Perfluorohexane sulfonic acid (PFHxS)	I	0.000803	0.000589	0.00162	ug/L	0.0178	1					
Perfluorohexanoic acid (PFHxA)		0.00386	0.000714	0.00178	ug/L	0.0178	1					
Perfluorononanoic acid (PFNA)	U	ND	0.000589	0.00178	ug/L	0.0178	1					
Perfluorooctane sulfonic acid (PFOS)	I	0.00157	0.000714	0.00178	ug/L	0.0178	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.000714	0.00178	ug/L	0.0178	1					
Perfluorotetradecanoic acid (PFTDA)	I	0.000779	0.000714	0.00178	ug/L	0.0178	1					
Perfluorotridecanoic acid (PFTrDA)	I	0.000623	0.000589	0.00178	ug/L	0.0178	1					
Perfluoroundecanoic acid (PFUnDA)	U	ND	0.000589	0.00178	ug/L	0.0178	1					
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	U	ND	0.000589	0.00178	ug/L	0.0178	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537.1 Mod, PFAS, Compl PFCs	Extraction in Liquid	LD1	12/14/21	1031	2207745

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 6, 2022

Company :	Environmental Conservation Laboratories, Inc.
Address :	10775 Central Port Drive
	Orlando, Florida 32824
Contact:	Kaitlin Dylnicki
Project:	NASA PFAS - Dylnicki

Client Sample ID:	GSRY-MW0066-025.0-20211209	Project:	ENCL00421
Sample ID:	564630003	Client ID:	ENCL001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: January 6, 2022

Environmental Conservation Laboratories, Inc.
10775 Central Port Drive
Orlando, Florida

Contact: **Kaitlin Dylnicki**

Workorder: **564630**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2207747											
QC1204978365 LCS											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0191			0.0195	ug/L		102	(59%-144%)	JMB3	12/14/21	17:07
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0203			0.0223	ug/L		110	(67%-136%)			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0189			0.0216	ug/L		114	(68%-135%)			
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0203			0.0166	ug/L		82	(67%-144%)			
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0203			0.0187	ug/L		92	(57%-139%)			
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0203			0.0204	ug/L		100	(59%-145%)			
Perfluorobutane sulfonic acid (PFBS)	0.0180			0.0181	ug/L		101	(70%-144%)			
Perfluorodecanoic acid (PFDA)	0.0203			0.0229	ug/L		113	(65%-145%)			
Perfluorododecanoic acid (PFDOA)	0.0203			0.0246	ug/L		121	(65%-137%)			
Perfluoroheptanoic acid (PFHpA)	0.0203			0.0223	ug/L		110	(71%-133%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0185			0.0195	ug/L		105	(67%-145%)			
Perfluorohexanoic acid (PFHxA)	0.0203			0.0229	ug/L		113	(70%-138%)			
Perfluorononanoic acid (PFNA)	0.0203			0.0227	ug/L		112	(69%-133%)			
Perfluorooctane sulfonic acid (PFOS)	0.0203			0.0228	ug/L		112	(65%-133%)			

QC Summary

Workorder: 564630

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2207747											
Perfluorooctanoic acid (PFOA)	0.0203			0.0222	ug/L		109	(66%-139%)	JMB3	12/14/21	17:07
Perfluorotetradecanoic acid (PFTDA)	0.0203			0.0213	ug/L		105	(66%-138%)			
Perfluorotridecanoic acid (PFTrDA)	0.0203			0.0247	ug/L		122	(58%-140%)			
Perfluoroundecanoic acid (PFUnDA)	0.0203			0.0215	ug/L		106	(63%-135%)			
QC1204978366 LCSD											
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	0.0190			0.0205	ug/L	5	108	(0%-27%)		12/14/21	17:17
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	0.0202			0.0218	ug/L	2	108	(0%-26%)			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	0.0188			0.0215	ug/L	0	114	(0%-26%)			
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)	0.0202			0.0166	ug/L	0	82	(0%-25%)			
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	0.0202			0.0208	ug/L	11	103	(0%-27%)			
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	0.0202			0.0211	ug/L	4	105	(0%-27%)			
Perfluorobutane sulfonic acid (PFBS)	0.0179			0.0183	ug/L	1	102	(0%-23%)			
Perfluorodecanoic acid (PFDA)	0.0202			0.0227	ug/L	1	113	(0%-26%)			
Perfluorododecanoic acid (PFDOA)	0.0202			0.0216	ug/L	13	107	(0%-26%)			
Perfluoroheptanoic acid (PFHpA)	0.0202			0.0241	ug/L	8	119	(0%-23%)			
Perfluorohexane sulfonic acid (PFHxS)	0.0184			0.0223	ug/L	14	121	(0%-27%)			

QC Summary

Workorder: 564630

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 2207747										
Perfluorohexanoic acid (PFHxA)	0.0202			0.0231	ug/L	1	114	(0%-27%)	JMB3	12/14/21 17:17
Perfluorononanoic acid (PFNA)	0.0202			0.0204	ug/L	11	101	(0%-25%)		
Perfluorooctane sulfonic acid (PFOS)	0.0202			0.0227	ug/L	0	112	(0%-25%)		
Perfluorooctanoic acid (PFOA)	0.0202			0.0224	ug/L	1	111	(0%-27%)		
Perfluorotetradecanoic acid (PFTDA)	0.0202			0.0197	ug/L	8	98	(0%-26%)		
Perfluorotridecanoic acid (PFTrDA)	0.0202			0.0239	ug/L	3	118	(0%-31%)		
Perfluoroundecanoic acid (PFUnDA)	0.0202			0.0237	ug/L	10	117	(0%-26%)		
QC1204978364 MB										
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)			U	ND	ug/L					12/14/21 16:56
4,8-Dioxa-3H-perfluorononanoic acid (DONA)			U	ND	ug/L					
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)			U	ND	ug/L					
Hexafluoropropyleneoxide dimer acid (HFPO-DA)(Gen-X)			U	ND	ug/L					
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)			U	ND	ug/L					
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)			U	ND	ug/L					
Perfluorobutane sulfonic acid (PFBS)			U	ND	ug/L					
Perfluorodecanoic acid (PFDA)			U	ND	ug/L					

QC Summary

Workorder: 564630

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 2207747											
Perfluorododecanoic acid (PFDOA)			U	ND	ug/L				JMB3	12/14/21	16:56
Perfluoroheptanoic acid (PFHpA)			U	ND	ug/L						
Perfluorohexane sulfonic acid (PFHxS)			U	ND	ug/L						
Perfluorohexanoic acid (PFHxA)			U	ND	ug/L						
Perfluorononanoic acid (PFNA)			U	ND	ug/L						
Perfluorooctane sulfonic acid (PFOS)			U	ND	ug/L						
Perfluorooctanoic acid (PFOA)			U	ND	ug/L						
Perfluorotetradecanoic acid (PFTDA)			U	ND	ug/L						
Perfluorotridecanoic acid (PFTrDA)			U	ND	ug/L						
Perfluoroundecanoic acid (PFUnDA)			U	ND	ug/L						

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Concentration of the target analyte exceeds the instrument calibration range
- I The reported value is greater than or equal to the laboratory method detection limit but less than the laboratory practical quantitation limit.
- J See case narrative for an explanation

QC Summary

Workorder: **564630**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

JNX Non Calibrated Compound

N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor

N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor

N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

Q Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UJ Compound cannot be extracted

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

LCMSMS-Misc
Technical Case Narrative
Environmental Conservation Laboratories
SDG #: AE09726
Work Order #: 564630

Product: **The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS**
Analytical Method: EPA 537.1 Mod, PFAS, Compliant with QSM Table B-15
Analytical Procedure: GL-OA-E-076 REV# 12
Analytical Batches: 2207747 and 2207745

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
564630001	GSRY-MW0058-035.0-20211209
564630002	GSRY-MW0059-035.0-20211209
564630003	GSRY-MW0066-025.0-20211209
1204978364	Method Blank (MB)
1204978365	Laboratory Control Sample (LCS)
1204978366	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Internal Standard (ISTD) Acceptance
MB and LCS (See Below) failed internal standard acceptance criteria for Perfluoro-n-[1,2-13C2]hexadecanoic acid (M2PFHxDA). TNSL workorder 564578 was the only workorder requiring this internal standard and the associated target analytes. TNSL workorder 564578 was therefore re-extracted. Reported data for all other workorders in this batch were not affected by the low M2PFHxDA recoveries in the MB and LCS.

Sample	Analyte	Value
1204978364 (MB)	Perfluoro-n-[1, 2-13C2]hexadecanoic acid (M2PFHxDA)	and DOD|33* (50%-150%)|DODQSM5|33* (50%-150%)
1204978365 (LCS)	Perfluoro-n-[1, 2-13C2]hexadecanoic acid (M2PFHxDA)	and DOD|46* (50%-150%)|DODQSM5|46* (50%-150%)

Miscellaneous Information

Additional Comments
A LCS/LCSD pair was extracted and analyzed in place of sample matrix QC.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Standard TAT

SUBCONTRACT ORDER

ENCO Orlando

AE09726 564630

SENDING LABORATORY:

ENCO Orlando
10775 Central Port Drive
Orlando, FL 32824
Phone: 407.826.5314
Fax: 407.850.6945
Project Manager: Kaitlin Dylnicki

RECEIVING LABORATORY:

GEL Laboratories, Inc. (SC)
2040 Savage Road
Charleston, SC 29407
Phone :(843) 556-8171
Fax: (843) 766-1178
Project State of Origin: Florida

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0058-035.0-2021120	Ground Water	09-Dec-21 09:39	

Analysis	Due	Expires	Analysis Comments
PFAS	16-Dec-21 15:00	23-Dec-21 09:39	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (B)	250mLP (C)	5mLV (D)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0059-035.0-2021120	Ground Water	09-Dec-21 10:20	

Analysis	Due	Expires	Analysis Comments
PFAS	16-Dec-21 15:00	23-Dec-21 10:20	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (B)	250mLP (C)	5mLV (D)	

Sub Lab ID	Originating Lab ID	Client Matrix	Date Sampled	Sample Comments
	GSRY-MW0066-025.0-2021120	Ground Water	09-Dec-21 11:35	

Analysis	Due	Expires	Analysis Comments
PFAS	16-Dec-21 15:00	23-Dec-21 11:35	14 analyte 537 GELP21-0027
Containers Supplied:			
250mLP (B)	250mLP (C)	5mLV (D)	

Released By	Date	Received By	Date
	12/9/21		1210-21 0926
Released By	Date	Received By	Date

GEL Laboratories LLC

SH

SAMPLE RECEIPT & REVIEW FORM

Client: ENCL	**SDG/AR/COC/Work Order:** 540630
Received By: DC	**Date Received:** 12-10-21
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 5307 8833 1505

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 2°
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR6-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?		✓		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?		✓		If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials GB Date 12/13/21 Page 1 of 1

List of current GEL Certifications as of 06 January 2022

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122021−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−21−19
Utah NELAP	SC000122021−36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

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APPENDIX D

RIS COMPLETION TICKETS

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Data Checker

Completion Ticket

On 4/19/2022 at 11:33 AM the following files were submitted to Tetra Tech

COMPLETION_AECOM_GSRY_20220414.txt

LITHOLOGY_AECOM_GSRY_20220414.txt

LOCATION_AECOM_GSRY_20220414.txt

PROJECT_AECOM_GSRY_20220414.txt

RESULT_AECOM_GSRY_20220414.txt

SAMPLE_AECOM_GSRY_20220414.txt

WATER_AECOM_GSRY_20220414.txt

The following comment was provided with this submission:
Hello! Attached is the December 2021 GSRY data. Please let me know if there are any issues. thanks! Jen

If you need to identify this session at a later date you may use the Ticket Key:

TetraTechExternalClientsProtectedDataRepository2022419_388847422_kedd_AECOM

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