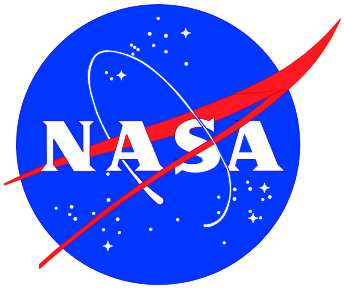
WILSON CORNERS
SWMU 001
2019-2020 ANNUAL LONG-TERM MONITORING REPORT
KENNEDY SPACE CENTER, FLORIDA

Prepared for:



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

November 2021
Revision: 0

Prepared by:

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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.

This item has been digitally signed and sealed by:

Chadwick Lee, P.G. Date
Project Manager
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ABBREVIATIONS AND ACRONYMS

ADP	Advance Data Package
bls	below land surface
cDCE	cis-1,2-dichloroethene
COC	contaminant of concern
DPT	direct push technology
DO	dissolved oxygen
FDEP	Florida Department of Environmental Protection
ft/ft	feet elevation per foot distance
GCTL	Groundwater Cleanup Target Level
HCP	high concentration plume
IM	Interim Measures
KSC	Kennedy Space Center
KSCRT	KSC Remediation Team
LDA	large diameter auger
LTM	long-term monitoring
NADC	Natural Attenuation Default Concentration
NASA	National Aeronautics and Space Administration
PDB	passive diffusion bag
ORP	oxidation-reduction potential
RCRA	Resource Conservation and Recovery Act
RIS	Remediation Information System
SWMU	Solid Waste Management Unit
TCE	trichloroethene
VC	vinyl chloride
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report presents a summary of the long-term monitoring (LTM) activities that occurred in 2019 and 2020 at Wilson Corners, Solid Waste Management Unit 001, at the John F. Kennedy Space Center (KSC), Florida. The site is monitored under KSC's Resource Conservation and Recovery Act Corrective Action Program. Adaptive site management is being utilized through ongoing assessment, design, and interim measures. This approach also meets the requirements of Chapter 62-780, Florida Administrative Code. The goal of LTM at this site is threefold: to determine groundwater flow characteristics, monitor the downgradient concentration trends, and monitor select locations internal to the groundwater plume. Every 5 years, upgradient and side-gradient monitoring wells are sampled to verify delineation. The last time this was performed was in 2015. Sampling of these wells in 2020 was replaced with the direct push technology investigations in October 2020 and April 2021.

The activities presented in this report include three field events: (1) December 2019 - groundwater gauging of 38 monitoring wells and sampling of 36 monitoring wells; (2) May 2020 - groundwater sampling of 7 monitoring wells; and (3) December 2020 - groundwater gauging of 49 monitoring wells and sampling of 43 monitoring wells. During the December 2019 and May 2020 events, monitoring wells were sampled using passive diffusion bags and were analyzed for a "full list" of volatile organic compounds (VOCs), including Freon 113. During the December 2020 event, the low flow sampling method was used, and samples were analyzed for a "select list" of VOCs, including Freon 113.

The following conclusions can be made based on the 2019 and 2020 LTM results:

- In December 2019 and December 2020, groundwater flow for the site was generally to the west with the individual zones only varying by occasional northerly and southerly components. This is generally consistent with historical observations at the site.
- The GCTL plume continues to extend both horizontally and vertically beyond our current monitoring well network.
- The vertical extent of VOCs was historically generally delineated by monitoring wells screened greater than 48 feet bls. The results from the two vertical extent monitoring wells WILC-MW0078 and WILC-MW0130 that were sampled during the 2019 and 2020 LTM indicate that groundwater VOC concentrations in both wells were greater than the GCTL.
- Freon 113 was not detected above GCTLs during the 2019 and 2020 LTM events.

Based on groundwater sampling activities performed during this reporting period, including recent DPT groundwater sampling conducted for the implementation of an air sparge system, the following recommendations are provided:

- Install 10 new monitoring wells, which will be sampled along with 49 existing monitoring wells, to assist with delineation of the low concentration plume. The wells are listed in **Table 4-1**, and the proposed locations are presented on **Figures 4-1** through **4-5**. (Figures 4-1, 4-2, 4-3, and 4-5 also show updated plumes and proposed performance monitoring well locations. This information will be discussed and presented under a separate cover.)

- Modify the annual LTM sampling plan as presented in **Table 4-1**.

- Sampling for future events at the site will be conducted using low flow pumping methods.

The next annual LTM sampling event is currently planned for December 2021. Please note the 10 new monitoring wells will not be installed before this event but will be installed as part of the upcoming IM construction and will be sampled during baseline sampling, along with the 49 existing monitoring wells. Following this sampling event, it is recommended that the Annual LTM be combined with the performance monitoring under the IM implementation, and LTM be temporarily discontinued.

Objectives of the 2021 LTM are to: (i) evaluate groundwater gradient and flow direction by collecting depth to water measurements from LTM wells; (ii) continue monitoring the peripheral VOC trends in the northern, southern, and western portions of the site by monitoring existing wells and installing and monitoring new wells as recommended; and (iii) monitor select internal plume wells.

SECTION I

INTRODUCTION

1.1 OVERVIEW

The National Aeronautics and Space Administration (NASA), through its Environmental Assurance Branch, is managing cleanup of Wilson Corners, Solid Waste Management Unit (SWMU) 001 at the John F. Kennedy Space Center (KSC), Florida. The site is monitored under KSC's Resource Conservation and Recovery Act (RCRA) Corrective Action Program. Adaptive site management is being utilized through ongoing assessment, design, and interim measures. Annual long-term monitoring (LTM) of the groundwater is also being conducted at the site. This approach also meets the requirements of Chapter 62-780, Florida Administrative Code.

AECOM Technical Services, Inc. prepared this LTM Report and completed field activities at the Wilson Corners site for NASA under Contract 80KSC019D0010, Task Order 80KSC019F0082. Advance Data Packages (ADPs) were presented to the KSC Remediation Team (KSCRT) in preparation for this report. The KSCRT approved the recommendations within those presentations during meetings on April 16, 2020 and April 29, 2021. The APDs and meeting minutes are provided as **Appendix A**. This report presents the activities and findings of the December 2019, March 2020, May 2020, and December 2020 clearing, gauging, and sampling events compared to previously collected groundwater data. The evaluation of these data provides conclusions and recommendations for continued groundwater assessment and monitoring.

1.2 FACILITY LOCATION AND SITE USE

Wilson Corners is located on Beach Road (State Road 402) northwest of the intersection of Kennedy Parkway (State Road 3) and Beach Road (State Road 402). The site location is depicted on **Figure 1-1**. The site is currently vacant and located within Section 22 of Township 21S, Range 36E, as shown on the United States Geological Survey 7.5-minute Wilson topographic Quadrangle Map which is included as **Figure 1-2**.

The site operated as a general store prior to NASA acquisition in the early 1960s. From 1963 to 1974, it operated as a propellant systems components laboratory. During this time, trichloroethene (TCE) was stored onsite in aboveground storage tanks and was used in the laboratory and in an outside cleaning facility. TCE was the primary solvent for cleaning components and was discharged to the ground via drain fields and direct spillage. Eventually, TCE was phased out and replaced with Freon 113. The facility ceased operations, and the buildings and structures at the site were abandoned and razed in 1974. The site is currently unoccupied. The Historical Site Layout is included as **Figure 1-3**.

1.3 BACKGROUND

Site assessment and investigations began in the mid-1980s. Supplemental assessment activities to delineate the overall dissolved plume were conducted from May 2005 through July 2010 and included collection of 600 groundwater samples using direct push technology (DPT) drilling and installation of 66 monitoring wells. During monitoring well installation, membrane interface probe borings with cone penetrometer testing was conducted at three locations, and soil cores to evaluate site lithology were collected at five locations.

High resolution site characterization activities were conducted between April 2011 and December 2017, which included 15 DPT groundwater sampling events, to delineate areas with elevated concentrations of contaminants of concern (COCs) within the dissolved plume. The DPT events consisted of 4,175 groundwater samples, collected from 551 locations. Sampling was generally performed at 4-foot depth intervals at various depths from 6 to 80 feet below land surface (bls). During assessment activities, seven additional soil borings were advanced to further understand the subsurface composition and locate low permeability zones.

During site investigations, four hot spots were delineated. A hot spot is an area where COCs are 10 times the State of Florida Natural Attenuation Default Concentrations (NADCs). Groundwater re-assessment is ongoing. The hot spot locations are presented on **Figure 1-3**.

Several remedial actions have removed or treated approximately 22,000 pounds of TCE mass. From 1989 to 1999, a pump and treat system was operated for plume containment. From 2003 to 2004, the shallow organic hardpan was excavated and treated with low temperature thermal desorption. From 2004 to 2007, treatment was focused on the central source area, and chemical oxidation, biostimulation, and pumping were conducted. From 2014 to 2015, soil mixing with steam and zero valent iron was conducted in the Hot Spot 1 treatment area.

In 2017, the Hot Spot 2 Large Diameter Auger (LDA) with Steam and Zero Valent Iron Interim Measures (IM) Work Plan (NASA 2017c) was approved; however, prior to implementation, an air sparge pilot test was conducted to test different lithologies. It was determined that air sparging is suitable to 50 feet bls. The lithologies tested were the organic hardpan at 10 to 15 feet bls, the Anastasia formation at approximately 22 to 32 feet bls, and the low permeability silty sand at approximately 35 to 50 feet bls. The Air Sparge Pilot Test Report (NASA 2017b) received Florida Department of Environmental Protection (FDEP) approval in March 2018. NASA still plans to implement the LDA with steam and zero valent iron in the Hot Spot 2 area following the implementation of the air sparge IM.

In August 2018, the Air Sparge IM Work Plan (NASA 2018), to remediate the entire NADC plume above 50 feet bls, received FDEP approval. The IM Work Plan includes installation of up

to 366 air sparge wells. The IM Work Plan recommended DPT sampling prior to the installation of the system.

In October 2020 and April 2021, groundwater sampling using DPT was performed, which indicated changes in the high concentration plume (HCP) boundaries. NADC plume expansion was observed to the west and degradation was observed in the east. This data was used to refine the air sparge treatment system layout and to establish baseline conditions in the treatment area. Implementation of the air sparge treatment system to remediate the HCP is underway. This DPT groundwater data will be presented in a future ADP and discussed under a separate cover.

Currently, there are no known soil or sediment impacts at the site. The groundwater COCs are chlorinated volatile organic compounds (VOCs) and primarily consist of TCE, cis-1,2-dichloroethene (cDCE), vinyl chloride (VC), and Freon 113. As of 2018, the horizontal extent of the plume was approximately 25 acres for COCs above the State of Florida Groundwater Cleanup Target Levels (GCTLs).

The vertical extent of the GCTL plume extends to greater than 70 feet bls; however, vertical migration is limited by a fine-grained unit at approximately 50 feet bls. COCs have exceeded the GCTLs in two deep monitoring wells, which are located within the Hot Spot 2 area, and screened from 56 to 66 feet bls and 65 to 70 feet bls.

The LTM work plan was presented in the Supplemental Site Assessment Report (NASA 2006), and semi-annual groundwater LTM was initiated in December 2006. The sampling frequency was changed to annual in 2012, which was based on recommendations presented in the 2011 Annual Long-Term Monitoring Report (NASA 2012).

The goal of LTM at this site is threefold: to determine groundwater flow characteristics, monitor the downgradient concentration trends, and monitor select locations internal to the groundwater plume.

Every 5 years, upgradient and side-gradient monitoring wells are sampled to verify delineation. The last 5-year sampling event was in 2015, and the 2020 sampling event was replaced with DPT investigations in October 2020 and April 2021 as part of the evaluation of the HCP prior to installation of the air sparge system.

The most recent LTM report submitted to FDEP was the 2018 Annual LTM Report (NASA 2019b).

1.4 PURPOSE

The purpose of this report is to present the field activities and results of the 2019 and 2020 LTM events. Additionally, this report provides recommendations for future assessment and monitoring activities.

1.5 REPORT ORGANIZATION

The remainder of this report is organized as follows:

Section II: *Field Activities.* This section describes the methodology used for the 2019 and 2020 LTM activities.

Section III*: Sampling Results.* This section summarizes the results of the 2019 and 2020 LTM activities.

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

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

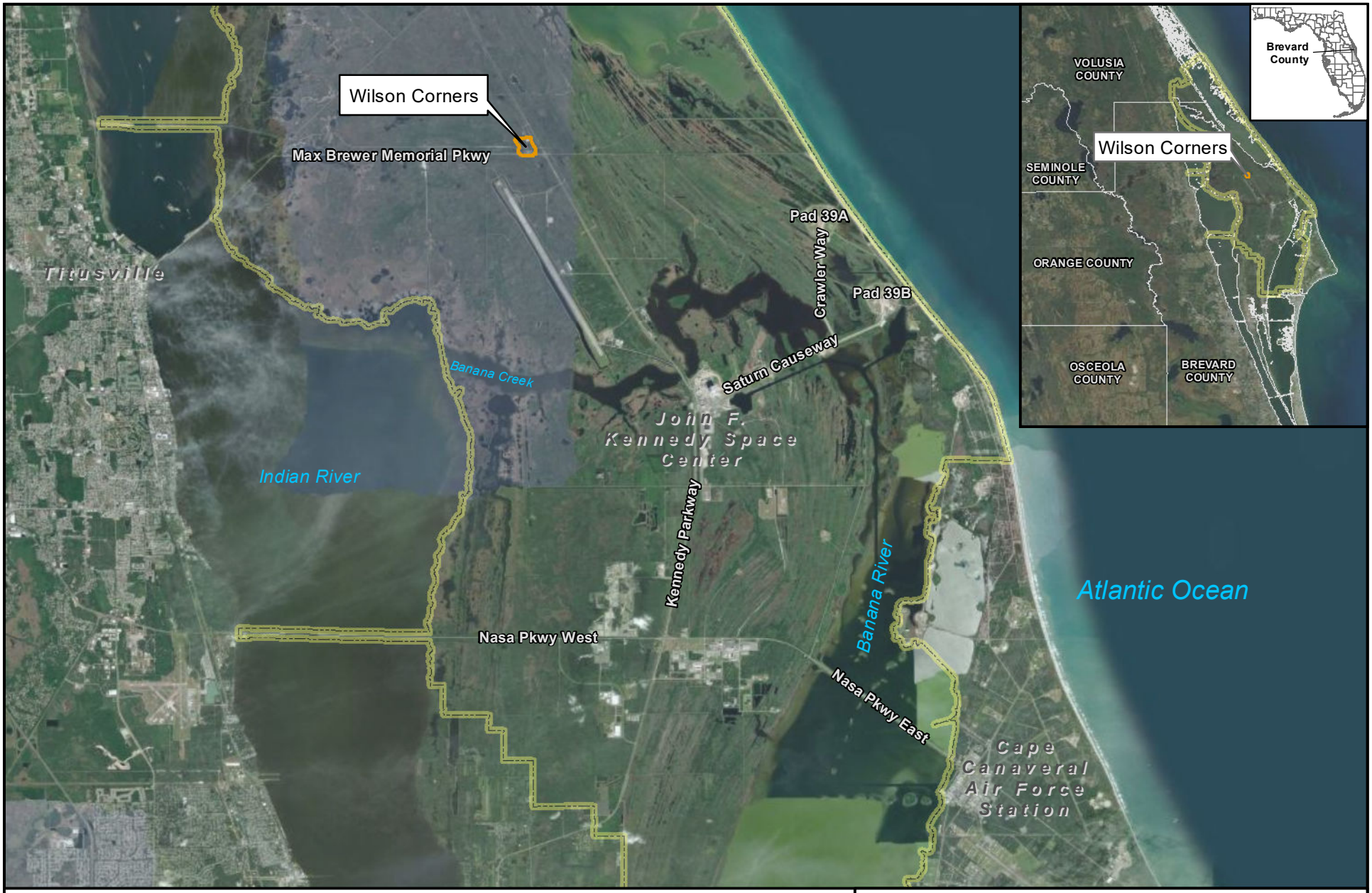
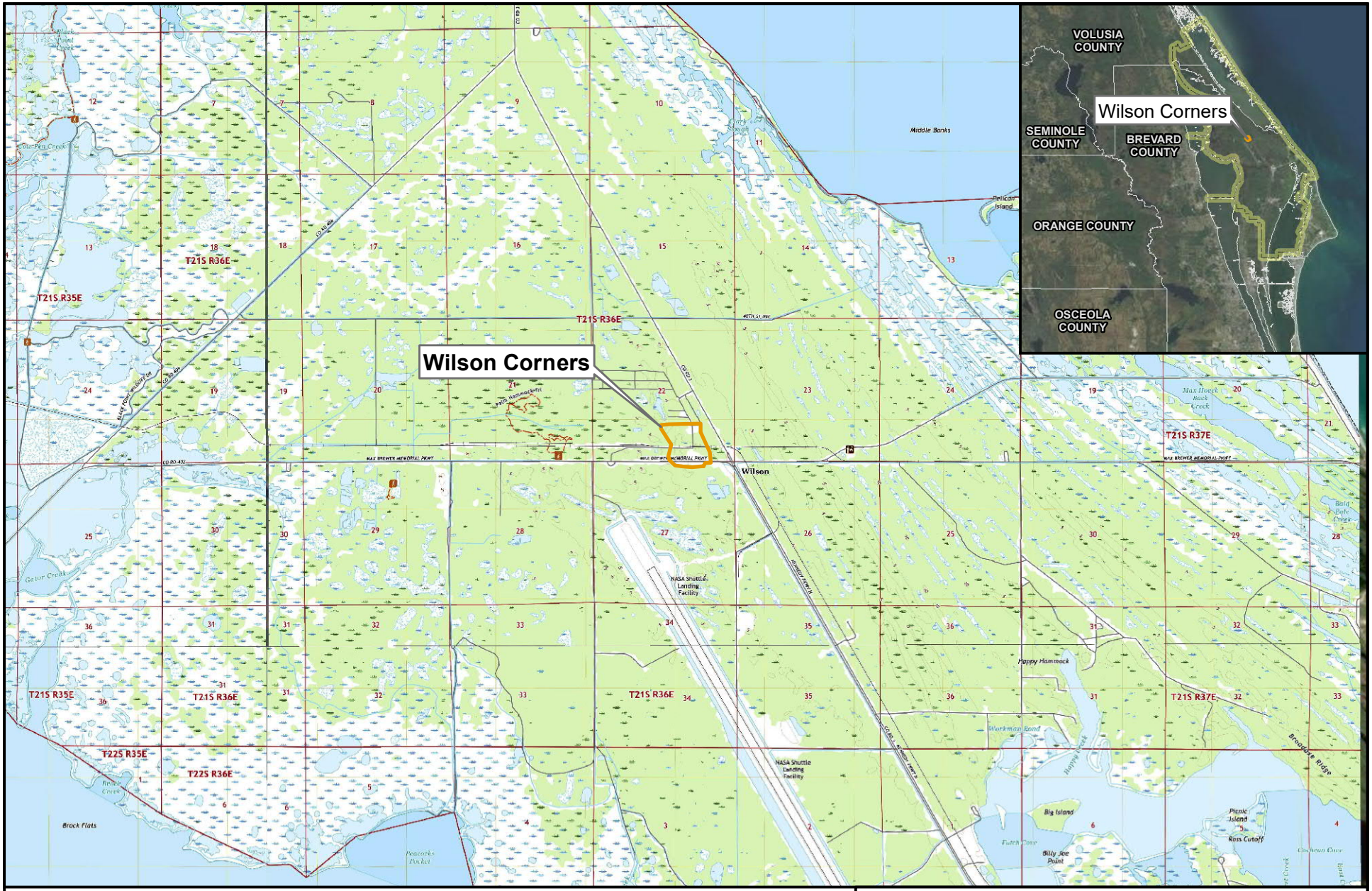


FIGURE 1-1
Site Location Map

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida



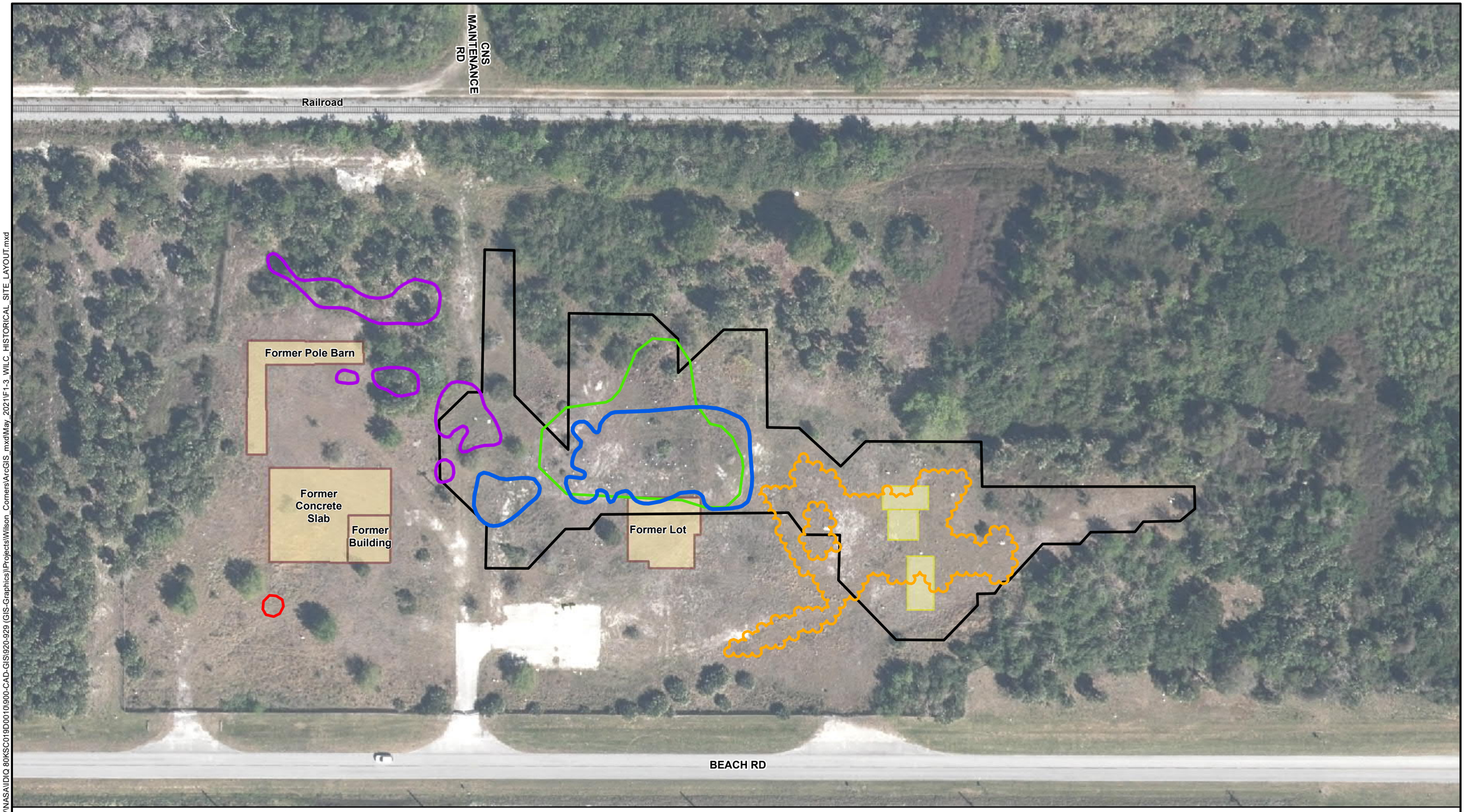
Notes:
1. SWMU = Solid Waste Management Unit
2. Aerial Source: State of Florida, Date: 2018
3. U.S. Geological Survey, 20210211, USGS US Topo 7.5-minute maps for Wilson, Mims, Titusville and Orsino, FL

N

0 5,000 10,000 Feet

FIGURE 1-2
Topographic Quadrangle Map

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida



Legend

- Hot Spot 1 Treatment
- Hot Spot 2
- Hot Spot 3
- Hot Spot 4
- Area of Deep Zone Injection and Pumping Activities
- Former Excavation Area
- Former Cleaning Tower Pad
- Former Structure

Add notes:
- Aerial Source: FDOT 2018
- CNS = Canaveral National Seashore
- SWMU = Solid Waste Management Unit

N

0 80 160 Feet

FIGURE 1-3
Historical Site Layout

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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SECTION II

FIELD ACTIVITIES

2.1 OVERVIEW

Two annual LTM field events were conducted in December 2019 and 2020 at the Wilson Corners site. During the 2019 event, field personnel were unable to access several monitoring wells due to dense vegetation covering the paths. In March 2020, AECOM field personnel marked the paths to be cleared, and under NASA supervision, the paths were cleared by another NASA subcontractor. In May 2020, the remaining monitoring wells were accessed and sampled. Field activities were conducted in general accordance with FDEP Standard Operating Procedures (FDEP 2018), the KSC Sampling and Analysis Plan (NASA 2017a), and the KSC Decision Process Document for the RCRA Corrective Action Program (NASA 2019a). The current 2019-2020 LTM plan is presented as **Table 2-1**. The locations of the site monitoring wells are presented on **Figure 2-1**, and the locations of the wells that were sampled during the 2019 and 2020 LTM events are presented on **Figure 2-2**.

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

On December 18, 2019 and December 2, 2020, water levels were measured in 38 and 49 monitoring wells, respectively. In December 2019, due to dense vegetation, 11 monitoring wells were not accessible, and therefore, water levels were not measured in those wells during the event. Measurements were recorded from the top of casing of each monitoring well using an electronic water level probe. Groundwater elevation at each monitoring well was calculated by subtracting the depth-to-groundwater from the top of casing elevation.

2.3 GROUNDWATER SAMPLING

On December 3, 2019, passive diffusion bags (PDBs) were deployed in 36 monitoring wells listed in Table 2-1. Due to dense vegetation, seven monitoring wells were not accessible. On December 18 and 19, 2019, groundwater samples were collected from the PDBs. On March 17, 2020, the paths were marked for clearing, and PDBs were deployed in the seven remaining monitoring wells. On May 8, 2020, following the clearing of the paths by another NASA contractor, groundwater samples were collected from the PDBs.

On December 3, 4, 7, and 8, 2020, groundwater samples were collected from 43 monitoring wells using low-flow sampling methods. Initially, preserved sample bottles were utilized. Due to

the presence of head space in some of the sample bottles upon arrival to the laboratory, AECOM field personnel returned to the site on December 19, 2020, and resampled 10 monitoring wells using unpreserved sample bottles.

Table 2-1
2019 - 2020 Long-Term Monitoring Plan
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Well ID	Screen Interval (ft bls)	December 2019		May 2020		December 2020	
		Water Levels	Sampled (Analytical Parameter)	Water Levels	Sampled (Analytical Parameter)	Water Levels	Sampled (Analytical Parameter)
2 to 15 ft bls							
WILC-NPSH-MW0027	10 to 15	X	Select VOCs			X	Select VOCs
WILC-NPSH-MW0036*	3 to 10					X	
WILC-MW0064	2 to 12	X	Select VOCs			X	Select VOCs
WILC-MW0074	2 to 12	X	Select VOCs			X	Select VOCs
WILC-MW0091	2 to 12	X	Select VOCs			X	Select VOCs
WILC-MW0095	2 to 12	X	Select VOCs			X	Select VOCs
WILC-MW0152**	5 to 15			X	Select VOCs	X	Select VOCs
WILC-MW0154	10 to 15	X	Select VOCs			X	Select VOCs
WILC-MW0156**	5 to 15			X	Select VOCs	X	Select VOCs
15 to 34 ft bls							
WILC-NPSH-MW0010**	29 to 34			X	Select VOCs	X	Select VOCs
WILC-NPSH-MW0017	29 to 34	X	Select VOCs			X	Select VOCs
WILC-NPSH-MW0019	29 to 34	X	Select VOCs			X	Select VOCs
WILC-NPSH-MW0020	29 to 34	X	Select VOCs			X	Select VOCs
WILC-NPSH-MW0022	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0062	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0065	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0080	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0087*	15 to 25					X	
WILC-MW0088**	29 to 34			X	Select VOCs	X	Select VOCs
WILC-MW0089	15 to 25	X	Select VOCs			X	Select VOCs
WILC-MW0090	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0096	15 to 25	X	Select VOCs			X	Select VOCs
WILC-MW0097	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0106	15 to 25	X				X	
WILC-MW0109	15 to 25	X	Select VOCs			X	Select VOCs
WILC-MW0111	29 to 34	X	Select VOCs			X	Select VOCs
WILC-MW0116	15 to 25	X	Select VOCs			X	Select VOCs
WILC-MW0125	15 to 25	X	Select VOCs			X	Select VOCs
WILC-MW0129**	15 to 25			X	Select VOCs	X	Select VOCs
WILC-MW0140	23 to 33	X	Select VOCs			X	Select VOCs
WILC-MW0142	8 to 18	X	Select VOCs			X	Select VOCs
WILC-MW0143	23 to 33	X	Select VOCs			X	Select VOCs
WILC-MW0146	23 to 33	X	Select VOCs			X	Select VOCs
WILC-MW0149**	20 to 30			X	Select VOCs	X	Select VOCs
WILC-MW0150*	20 to 30					X	
WILC-MW0151*	20 to 30					X	
WILC-MW0153**	20 to 30			X	Select VOCs	X	Select VOCs
WILC-MW0155	29 to 34	X	Select VOCs			X	Select VOCs
34 to 48 ft bls							
WILC-NPSH-MW0039	40 to 45	X	Select VOCs			X	Select VOCs
WILC-MW0046D	40 to 45	X	Select VOCs			X	Select VOCs
WILC-MW0068	40 to 45	X	Select VOCs			X	Select VOCs
WILC-MW0118	40 to 45	X	Select VOCs			X	Select VOCs
WILC-MW0141	34 to 44	X	Select VOCs			X	Select VOCs
WILC-MW0144	40 to 45	X	Select VOCs			X	Select VOCs
WILC-MW0145	38 to 48	X	Select VOCs			X	Select VOCs
WILC-MW0147	38 to 48	X	Select VOCs			X	Select VOCs
WILC-MW0148	38 to 48	X				X	
Greater than 48 ft bls							
WILC-MW0078	65 to 70	X	Select VOCs			X	Select VOCs
WILC-MW0130	56 to 66	X	Select VOCs			X	Select VOCs

Notes:
*Water level not collected because well access was obstructed due to heavy vegetation.
**Paths for wells that were inaccessible in Dec 2019, were cleared in March/April 2020, and wells were sampled in May 2020.
Blank cells indicate that the well is not included for that event or activity.
ft bls = feet below land surface
NASA = National Aeronautics and Space Administration
Select VOCs = 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, Freon 113, tetrachloroethene, trichloroethene, and vinyl chloride
SWMU = Solid Waste Management Unit
VOCs = Volatile Organic Compounds

Legend

- Monitoring Well

Add notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 80 160 Feet

Figure 2-1
Current Site Layout

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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Legend

- LTM Monitoring Well

Add notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- LTM = Long-Term Monitoring

N

0 180 360 Feet

Figure 2-2
2019 - 2020 LTM Plan
Long-Term Monitoring

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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SECTION III

SAMPLING RESULTS

3.1 OVERVIEW

This section presents the results of the 2019 and 2020 LTM activities. The goals of the 2019 and 2020 LTM activities were to determine groundwater flow characteristics, monitor the downgradient concentration trends, and monitor select locations internal to the groundwater plume.

3.2 SUMMARY OF SITE LITHOLOGY

A general summary of the site lithology is provided below:

- 2 to 15 feet bls: consists of fine sand and organic hardpan (where present);
- 15 to 34 feet bls: consists of fine sand with fragmented shells transitioning to shell hash;
- 34 to 48 feet bls: consists of shell hash transitioning to silty fine sand with interbedded layers of fine sandy clay and clayey fine sand; and
- Greater than 48 feet bls: consists of silty fine sand with interbedded layers of fine sandy clay and clayey sand transitioning to silty sand with fragmented shell.

These intervals are utilized for developing the groundwater flow maps and for presenting the groundwater VOC impacts at the site.

3.3 GROUNDWATER ELEVATIONS, FLOW DIRECTION, AND GRADIENT

In 2019 and 2020, groundwater flow for the site was generally to the west with the individual zones only varying by occasional northerly and southerly components. This is generally consistent with historical observations at the site. Groundwater level measurements were recorded from site wells prior to sampling and are summarized in **Table 3-1**. Groundwater contour maps for December 2019 and December 2020, representing the different zones for each event, are provided on **Figures 3-1** through **3-8**.

Groundwater flow direction for each zone in 2019 is listed below.

- 2 to 15 feet bls (**Figure 3-1**): Depth to water ranged from 1.52 to 3.85 feet bls with an average depth to groundwater of 3.12 feet bls. Groundwater elevations indicate a southwest flow direction and a horizontal gradient of 0.0011 feet elevation per foot distance (ft/ft) from monitoring well WILC- MW0064 to WILC-MW0095.

- 15 to 34 feet bls (**Figure 3-2**): Depth to water ranged from 1.52 to 6.31 feet bls with an average depth to groundwater of 4.16 feet bls. Groundwater elevations indicated a west flow direction and a horizontal gradient of 0.0010 ft/ft from monitoring well WILC-MW0062 to WILC-NPSH-MW0022.

- 34 to 48 feet bls (**Figure 3-3**): Depth to water ranged from 2.85 to 6.23 feet bls with an average depth to groundwater of 5.04 feet bls. Groundwater elevations indicate a northwest flow direction and a horizontal gradient of 0.0021 ft/ft from monitoring well WILC-MW0147 to WILC-NPSH-MW0039.

- Greater than 48 feet bls (**Figure 3-4**) – Only two wells were gauged. Depth to water ranged from 4.58 to 5.40 feet bls with an average depth to groundwater of 4.99 feet bls. Historical groundwater flow was northwest.

Groundwater flow direction for each zone in 2020 is listed below:

- 2 to 15 feet bls (**Figure 3-5**): Depth to water ranged from 0.33 to 5.77 feet bls with an average depth to groundwater of 3.11 feet bls. Groundwater elevations indicate a west-southwest flow direction and a horizontal gradient of 0.0036 ft/ft from monitoring well WILC-NPSH-MW0036 to WILC-MW0095.

- 15 to 34 feet bls (**Figure 3-6**): Depth to water ranged from 0.34 to 7.22 feet bls with an average depth to groundwater of 4.09 feet bls. Groundwater elevations indicated west flow direction and a horizontal gradient of 0.0009 ft/ft from monitoring well WILC-MW0129 WILC-NPSH-MW0022.

- 34 to 48 feet bls (**Figure 3-7**): Depth to water ranged from 1.81 to 6.20 feet bls with an average depth to groundwater of 4.97 feet bls. Groundwater elevations indicate a west-southwest flow direction and a horizontal gradient of 0.0009 ft/ft from monitoring well WILC-MW0147 to WILC-NPSH-MW0039.

- Greater than 48 feet bls (**Figure 3-8**) – Only two wells were gauged. Depth to water ranged from 4.35 to 5.06 feet bls with an average depth to groundwater of 4.71 feet bls. Historical groundwater flow was northwest.

Vertical gradients were calculated at several well pairs across the site; WILC-MW0064/ WILC-MW0065, WILC-MW0095/ WILC-MW0097, and WILC-MW0143/ WILC-MW0144. The vertical gradients ranged from no gradient to 0.007 ft/ft downward. The low and variable vertical gradients do not indicate a strong vertical flow component at the site.

3.4 MONITORING WELL ANALYTICAL RESULTS

Groundwater samples were submitted to a fixed-based laboratory, SGS North America, Inc., for analysis by United States Environmental Protection Agency Method 8260B for a select list of VOCs (1,1-dichloroethene, cDCE, trans-1,2-dichloroethene, Freon 113, tetrachloroethene, TCE, and VC). Groundwater analytical results are summarized in **Table 3-2**. 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**.

Groundwater sampling results for December 2019 (including May 2020) indicated that site COCs (TCE, cDCE, or VC) were detected above the GCTL in 27 monitoring wells and were detected above the NADC in 4 monitoring wells. For the December 2020 sampling event, the groundwater sampling results indicated that site COCs were detected above the GCTL in 29 monitoring wells and above the NADC in 1 monitoring well.

COC results, including the total TCE equivalents, dating from 2015 through 2020 were analyzed in select monitoring wells using the Mann-Kendall Toolkit (Mann-Kendall 2003). The following criteria were used when choosing which monitoring wells to analyze: minimum of four data points, minimum of 50% detection frequency, and concentrations historically greater than GCTLs.

There were 28 monitoring wells analyzed. Of the 28 wells, 9 wells showed a decreasing or probably decreasing trend, 7 wells showed a stable trend, and 12 wells showed no trend. None of the wells analyzed showed an increasing trend. Trend charts showing cDCE, TCE, VC, and total TCE equivalent concentrations as a function of time and the GSI Mann-Kendall Toolkit Calculation Sheets are provided in **Appendix E**. Laboratory analytical results are further discussed by depth interval below.

3.4.1 2 TO 15 FEET BLS

A summary of TCE, cDCE, and VC concentrations for groundwater in the 2 to 15 feet bls interval is presented on **Figure 3-9**. The overall VOC GCTL and NADC contours are also presented on **Figure 3-9**, which consider the most recent and historical groundwater sampling results.

Samples were collected from 9 monitoring wells, including a new monitoring well that was installed prior to the December 2019 sampling event (WILC-MW0156) by another NASA contractor. Monitoring well WILC-MW0156 is screened from 5 to 15 feet bls and is located south of WILC-MW0152 and west of WILC-NPSH-MW0036 in the northeast peripheral area of the plume. This well was installed to investigate a DPT location (WILC-DPT0548) where TCE was detected at 2,000 micrograms per liter in the 8 to 12 feet bls sample interval.

Sampling Results for December 2019 (including May 2020): Samples collected from monitoring wells WILC-NPSH-MW0027, WILC-MW0064, WILC-MW0142, and WILC- MW0156 had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-NPSH-MW0027 had a VC concentration greater than the NADC. Five monitoring wells screened within this interval had sampling results below the GCTL.

Sampling Results for December 2020: Samples collected from monitoring wells WILC-NPSH-MW0027, WILC-MW0142, WILC-MW0152, and WILC- MW0156 had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-NPSH-MW0027 had a VC concentration greater than the NADC. Five monitoring wells screened within this interval had sampling results below the GCTL.

There was a change between the 2019 and 2020 sampling events for WILC-MW0064, which had concentrations of VC above the GCTL in 2019, but was below the GCTL in 2020, and for WILC-MW0152, which had site COC concentrations below the GCTL in 2018 and 2019 but was above the GCTL for the site COCs (TCE, cDCE, and VC) in 2020.

The Mann-Kendall statistical analysis was used to analyze the data for 4 monitoring wells in the 2 to 15 feet bls depth interval. The analyses indicate equivalent TCE concentrations were generally stable in monitoring well WILC-MW0064 and decreasing in monitoring well WILC-MW0142. Monitoring wells WILC-NPSH-MW0027 and WILC-MW0152 exhibited no trend.

3.4.2 15 TO 34 FEET BLS. A summary of TCE, cDCE, and VC concentrations for groundwater in the 15 to 34 feet bls interval is presented on **Figure 3-10**. The overall VOC GCTL and NADC contours are also presented on **Figure 3-10**, which consider the most recent sampling results and historical groundwater sampling results. Samples were collected from 25 monitoring wells during both the December 2019 (including May 2020) and the December 2020 annual sampling events.

Sampling Results for December 2019 (including May 2020): Samples collected from 14 monitoring wells had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-MW0062 had a VC concentration greater than the NADC. Eleven monitoring wells screened within this interval had sampling results below the GCTL.

Sampling Results for December 2020: Samples collected from 17 monitoring wells had VOC concentrations greater than the GCTL. No monitoring wells had concentrations greater than the NADC. Eight monitoring wells screened within this interval had sampling results below the GCTL.

There was a change between the 2019 and 2020 sampling events for WILC-NPSH-MW0020, WILC-MW0109, and WILC-MW0111, which had concentrations of VC below the GCTL in 2019 but was above the GCTL in 2020. Monitoring well WILC-NPSH-MW00019 had VC concentrations below the GCTL in 2018 but above the GCTL in 2019 and 2020.

The Mann-Kendall statistical analysis was used to analyze the data for 17 monitoring wells in the 15 to 34 feet bls depth interval. The analyses indicate that equivalent TCE concentrations were stable in 4 monitoring wells and decreasing or probably decreasing in 7 monitoring wells. Monitoring wells WILC-NPSH-MW0019, WILC-NPSH-MW0020, WILC-MW0080, WILC-MW0088, WILC-MW0097, and WILC-MW0111 exhibited no trend.

3.4.3 34 TO 48 FEET BLS. A summary of TCE, cDCE, and VC concentrations for groundwater in the 34 to 48 feet bls interval is presented on **Figure 3-11**. The overall VOC GCTL and NADC contours are also presented on **Figure 3-11**, which consider the most recent sampling results and historical groundwater sampling results. Samples were collected from 8 monitoring wells during both the December 2019 (including May 2020) and the December 2020 annual sampling events.

Sampling Results for December 2019 (including May 2020): Samples collected from 7 monitoring wells had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-MW0144 had a cDCE, TCE, and VC concentrations greater than the NADC. One monitoring well had sampling results below the GCTL.

Sampling Results for December 2020: Samples collected from 6 monitoring wells had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-MW0144 had a cDCE, TCE, and VC concentrations greater than the NADC. Two monitoring wells had sampling results below the GCTL.

There was a change between the 2019 and 2020 sampling events for WILC-MW0046D, which had concentrations of VC above the GCTL in 2019 and was below the GCTL in 2020. Monitoring wells WILC-MW0068, WILC-MW0118, and WILC-MW0147 had VC concentrations below the GCTL in 2018 but above the GCTL in 2019 and 2020.

The Mann-Kendall statistical analysis was used to analyze the data for 6 monitoring wells in the 34 to 48 feet bls depth interval. The analyses indicate that equivalent TCE concentrations were stable in monitoring wells WILC-MW0118 and WILC-MW0147 and decreasing in monitoring well WILC-MW0145. Monitoring wells WILC-MW0068, WILC-MW0141, and WILC-MW0144 exhibited no trend.

3.4.4 GREATER THAN 48 FEET BLS. A summary of TCE, cDCE, and VC concentrations for groundwater in the greater than 48 feet bls interval is presented on **Figure 3-12**. The overall VOC GCTL and NADC contours are also presented on **Figure 3-12**, which consider the most recent sampling results and historical groundwater sampling results. Samples were collected from 2 monitoring wells during both the December 2019 (including May 2020) and the December 2020 annual sampling events.

Sampling Results for December 2019 (including May 2020): Samples collected from 2 monitoring wells had VOC concentrations greater than the GCTL, and the sample collected from monitoring well WILC-MW0078 had a VC concentration greater than the NADC.

Sampling Results for December 2020: Samples collected from 2 monitoring wells had VOC concentrations greater than the GCTL. No monitoring wells had VOC concentrations greater than the NADC.

There was a change between the 2019 and 2020 sampling events for WILC-MW0078, which had concentrations of VC above the NADC in 2019 and was below the NADC but above the GCTL in 2020. Monitoring well WILC-MW0130 had VC concentrations above the NADC in 2018 and below the NADC but above the GCTL in 2019 and 2020.

The Mann-Kendall statistical analysis was used to analyze the data for 2 monitoring wells in the greater than 48 feet bls depth interval. The analyses indicate that equivalent TCE concentrations were decreasing in monitoring well WILC-MW0130 and monitoring well WILC-MW0078 exhibited no trend.

3.5 NATURAL ATTENUATION EVALUATION

The current remediation strategy for the overall dissolved plume at the site is natural attenuation with LTM, while supplemental assessment and remedial actions (as IMs) are being completed for the Hot Spot areas. During previous LTM events an evaluation of site geochemical data has been performed in order to evaluate natural attenuation at the site. The historical field geochemical data (pH, conductivity, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity) and laboratory measured geochemical parameters (methane, ethane, and ethene) have consistently supported natural attenuation at the site since 2005. The groundwater sampling conducted during the 2019 LTM was accomplished using PDBs; no geochemical data was collected for wells sampled using PDBs. The groundwater sampling conducted during the 2020 LTM was accomplished using low flow pumping methods. Geochemical data from 2015 through 2020 are summarized in **Table 3-3**.

The pH values observed at the site have generally been neutral and remain within the desired range of 6 to 8.5 standard units for reductive dechlorination of chlorinated solvents. ORP values are consistently negative with most of the readings falling below -100 millivolts which is typically indicative of a reducing environment suitable for reductive dechlorination of chlorinated solvents. Lastly, DO values are consistently below 0.5 milligrams per liter indicating an anaerobic environment suitable for reductive dechlorination.

Table 3-1
Groundwater Elevation Data
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Well ID	Screen Interval (ft bls)	TOC Elevation (ft msl)	December 15, 2019			December 2, 2020		
			Time (24 hr)	Water Level (ft BTOC)	Water Elevation (ft msl)	Time (24 hr)	Water Level (ft BTOC)	Water Elevation (ft msl)
2 to 15 ft bls								
WILC-NPSH-MW0027	10 to 15	4.93	12:07	2.31	2.62	10:12	2.31	2.62
WILC-NPSH-MW0036*	3 to 10	7.48	-	-	-	12:05	3.10	4.38
WILC-MW0064	2 to 12	7.04	12:38	3.70	3.34	10:55	3.58	3.46
WILC-MW0074	2 to 12	6.48	12:01	3.85	2.63	10:07	5.77	0.71
WILC-MW0091	2 to 12	7.09	12:22	3.75	3.34	10:05	4.30	2.79
WILC-MW0095	2 to 12	6.22	12:12	3.56	2.66	10:21	5.52	0.70
WILC-MW0152*	5 to 15	3.87	-	-	-	12:11	0.33	3.54
WILC-MW0154	10 to 15	4.58	12:00	1.52	3.06	10:05	1.47	3.11
WILC-MW0156*	5 to 15	5.18	-	-	-	12:11	1.59	3.59
15 to 34 ft bls								
WILC-NPSH-MW0010	29 to 34	8.39	-	-	-	12:07	4.53	3.86
WILC-NPSH-MW0017	29 to 34	5.18	12:08	2.48	2.70	10:15	2.41	2.77
WILC-NPSH-MW0019	29 to 34	5.81	12:33	3.20	2.61	11:05	2.97	2.84
WILC-NPSH-MW0020	29 to 34	6.88	12:10	4.32	2.56	10:17	4.30	2.58
WILC-NPSH-MW0022	29 to 34	5.29	12:16	2.89	2.40	10:28	2.68	2.61
WILC-MW0062	29 to 34	7.04	13:12	3.71	3.33	11:48	3.57	3.47
WILC-MW0065	29 to 34	7.39	12:39	4.21	3.18	10:53	4.09	3.30
WILC-MW0080	29 to 34	4.86	12:37	1.59	3.27	11:45	1.51	3.35
WILC-MW0087*	15 to 25	8.24	-	-	-	10:13	5.41	2.83
WILC-MW0088*	29 to 34	8.29	-	-	-	10:12	5.47	2.82
WILC-MW0089	15 to 25	8.26	12:24	5.11	3.15	11:02	5.01	3.25
WILC-MW0090	29 to 34	8.01	12:25	4.89	3.12	11:06	4.78	3.23
WILC-MW0096	15 to 25	6.32	12:13	3.72	2.60	10:23	5.66	0.66
WILC-MW0097	29 to 34	6.33	12:14	3.71	2.62	10:24	5.66	0.67
WILC-MW0106	15 to 25	8.79	13:05	5.45	3.34	11:40	5.22	3.57
WILC-MW0109	15 to 25	7.12	12:11	4.55	2.57	10:19	4.49	2.63
WILC-MW0111	29 to 34	5.67	12:05	2.28	3.39	9:53	2.08	3.59
WILC-MW0116	15 to 25	7.73	11:58	4.65	3.08	10:02	4.52	3.21
WILC-MW0125	15 to 25	7.06	12:16	4.61	2.45	10:29	4.51	2.55
WILC-MW0129*	15 to 25	10.90	-	-	-	11:43	7.22	3.68
WILC-MW0140	23 to 33	9.27	12:54	6.03	3.24	11:17	5.86	3.41
WILC-MW0142	8 to 18	9.56	12:51	6.31	3.25	11:24	6.11	3.45
WILC-MW0143	23 to 33	9.44	12:52	6.21	3.23	11:25	5.99	3.45
WILC-MW0146	23 to 33	9.24	13:04	5.83	3.41	11:37	6.02	3.22
WILC-MW0149*	20 to 30	4.36	-	-	-	10:32	2.00	2.36
WILC-MW0150*	20 to 30	4.18	-	-	-	10:46	2.78	1.40
WILC-MW0151*	20 to 30	4.50	-	-	-	10:40	1.88	2.62
WILC-MW0153*	20 to 30	3.88	-	-	-	12:10	0.34	3.54
WILC-MW0155	29 to 34	4.57	11:59	1.52	3.05	10:04	1.41	3.16
34 to 48 ft bls								
WILC-NPSH-MW0039	40 to 45	4.77	12:44	2.85	1.92	10:39	1.81	2.96
WILC-MW0046D	40 to 45	7.15	12:46	4.44	2.71	10:35	4.50	2.65
WILC-MW0068	40 to 45	7.38	12:41	3.29	4.09	10:42	4.27	3.11
WILC-MW0118	40 to 45	8.43	11:56	5.17	3.26	9:59	5.19	3.24
WILC-MW0141	34 to 44	9.43	12:55	6.13	3.30	11:18	6.20	3.23
WILC-MW0144	40 to 50	9.49	12:53	6.23	3.26	11:27	6.04	3.45
WILC-MW0145	38 to 48	9.04	13:02	5.67	3.37	11:33	5.59	3.45
WILC-MW0147	38 to 48	9.22	13:03	5.84	3.38	11:38	5.65	3.57
WILC-MW0148	38 to 48	9.01	13:07	5.73	3.28	11:30	5.51	3.50
Greater than 48 ft bls								
WILC-MW0078	65 to 70	8.48	13:09	5.40	3.08	11:13	5.06	3.42
WILC-MW0130	56 to 66	7.66	13:10	4.58	3.08	11:11	4.35	3.31

Notes:
*Water level not collected in December 2019 because well access was obstructed due to heavy vegetation.
Blank cells indicate that the well is not included for that event or activity.
ft BTOC = feet below top of casing
ft bls = feet below land surface
ft msl = feet above mean sea level
NASA = National Aeronautics and Space Administration
SWMU = Solid Waste Management Unit
TOC = Top of Casing

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-OBS-MW0001D	44 to 49	7/25/2005	0 U	0 U	0 U		0 U	**3700**	
		7/14/2014	15 U	**240**	15 U	12 U	11 U	**2100**	50 U
WILC-OBS-MW0002D	44 to 49	7/25/2005	0 U	**4400**	0 U		0 U	**2400**	
		7/14/2014	0.3 U	**1.7**	**5.7**	0.23 U	0.19 U	**83.3**	1 U
WILC-OBS-MW0004D	47 to 52	5/18/2005	10000 U	**16600**	10000 U		**1310000**	10000 U	
		12/18/2006	20000 U	**13500 I**	20000 U	20000 U	**800000**	20000 U	
		6/12/2007	1000 U	**30500**	1000 U	1000 U	**664000**	**11800**	
		7/22/2008	2700 U	**48000**	3300 U	3600 U	**390000**	**8500 I**	
		7/20/2009	**240 I**	**43000**	**240 I**	500 U	**96000**	**6800**	
		12/7/2009	**1340**	**191000**	**647**	44 U	**294000**	**18800**	
		9/8/2010	**664 I**	**77600**	**468 I**	110 U	**175000**	**28300**	
		9/8/2010	**623 I**	**148000**	**347 I**	110 U	**141000**	**21200**	
		3/16/2011	**725**	**164000**	**375 I**	110 U	**221000**	**17500**	
		9/19/2011	800 U	**200000**	950 U	1100 U	**309000**	**17300**	
		9/6/2012	160 U	**54400**	**470 I**	220 U	**156000**	**6610**	
		3/4/2016	**2400**	**350000**	**800 I**	440 U	**230000**	**75000**	280 U
WILC-OBS-MW0005D	47 to 52	7/25/2005	0 U	**53600**	0 U		**310000**	0 U	
		9/30/2014	**260 I**	**54000**	**460 I**	180 U	**62000**	**22000**	**38000**
		2/29/2016	**270 I**	**89000**	**410 I**	220 U	**50000**	**30000**	**9400**
WILC-NPSH-MW0005	30 to 35	7/27/2005	0 U	0 U	0 U		0 U	0 U	
		9/17/2009	**15 I**	**720**	**13 I**	20 U	**50**	**2100**	
		9/13/2010	16 QU	**1960 Q**	12 QU	11 QU	**60 IQ**	**3300 Q**	
		3/17/2011	**10.4**	**4050**	**19.8**	0.22 U	**115**	**4570**	
		9/19/2011	16 U	**3720**	19 U	22 U	**66 I**	**4990**	
		9/6/2012	8 U	**2140**	**13.5 I**	11 U	18 U	**6090**	
		10/20/2020	1 U	**40**	**7**		1 U	**170**	1 U
WILC-NPSH-MW0007	9.5 to 14.5	7/28/2005	0 U	0 U	0 U		0 U	0 U	
		10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0008	20 to 35	5/19/2005	**1.51**	**631**	**8.62**		**716**	**618**	
		7/25/2005	0 U	**1000**	0 U		**870**	**810**	
		12/19/2006	20 U	**1350**	**14.3 I**	20 U	20 U	**1390**	
		6/12/2007	20 U	**76**	20 U	20 U	**55.9**	**549**	
		7/23/2008	1 U	1 U	**2.6**	1 U	1 U	**5.3**	
		7/22/2009	2 U	**1.3 I**	**2.3**	2 U	**1.4 I**	**2.2**	
		12/8/2009	0.54 U	0.2 U	**3.4**	0.22 U	0.32 U	**0.67 I**	
WILC-NPSH-MW0009	29 to 34	10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0010	29 to 34	7/25/2005	0 U	0 U	0 U		0 U	0 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		5/8/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 UJ
		12/4/2020	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U	0.35 U
WILC-NPSH-MW0011	28 to 33	5/18/2005	1 U	**4.94**	1 U		1 U	1 U	
		12/19/2006	1 U	**0.75 I**	1 U	1 U	1 U	**56.6**	
		8/1/2008	0.39 U	**0.32 I**	0.32 U	0.16 U	0.23 U	**0.96**	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0013	29 to 34	7/28/2005	0 U	0 U	0 U		0 U	0 U	
WILC-NPSH-MW0015	29 to 34	5/18/2005	**4.65**	**346**	**5.67**		**120**	**64.9**	
		7/23/2009	5 U	**160**	5 U	5 U	**13**	**130**	
		12/16/2015	0.16 U	**2.5 V**	**1.1**	0.22 U	0.36 U	**3.6**	
WILC-NPSH-MW0016	29 to 34	7/27/2005	0 U	**560**	0 U		**13**	**160**	
		8/12/2009	**1.6 I**	**530**	**9**	5 U	**10**	**1200**	
		9/8/2010	1.6 U	**325**	**2.76 I**	1.1 U	**2.48 I**	**821**	
		3/16/2011	0.16 U	**175**	**6.25**	0.22 U	**3**	**1050**	
		9/20/2011	1.6 U	**278**	**3.5 I**	2.2 U	3.6 U	**1130**	
		9/6/2012	**3.31**	**712**	**11.9**	0.22 U	**2.93**	**3660**	
		12/23/2013	1.6 U	**110**	**5.1 I**	2.2 U	3.6 U	**790**	
		12/18/2014	**3.7 I**	**550**	**16**	1.1 U	**2.3 I**	**5100**	
		12/15/2015	1.6 U	**98**	**5.7 I**	2.2 U	3.6 U	**800**	
		12/21/2016	0.18 U	**120**	**8.2**	0.36 U	0.29 U	**570**	2.2 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-NPSH-MW0017	29 to 34	7/27/2005	0 U	**4**	0 U		**1**	0 U	
		8/12/2009	1 U	**5.1**	**6.5**	1 U	**1.3**	**36.6**	
		12/23/2013	8 U	**72**	**14 I**	11 U	18 U	**4500**	
		12/18/2014	8 U	**110**	9.5 U	11 U	18 U	**6000**	
		12/15/2015	8 U	**320**	**15 I**	11 U	18 U	**4000**	
		12/21/2016	**39**	**45**	**11**	0.36 U	**1.5**	**320**	2.2 U
		12/26/2017	1.8 U	**9.2 I**	2 U	3.6 U	2.9 U	**99**	22 U
		10/9/2018	1.8 U	**7.7 I**	**4.9 I**	3.6 U	2.9 U	**44**	22 U
		12/19/2019	0.32 U	**16.4**	**6.9**	0.22 U	**1.2**	**53.1**	0.48 U
		12/8/2020	0.32 U	**12.9**	**3.3**	0.22 U	**2.3**	**52**	0.48 U
WILC-NPSH-MW0018	29 to 34	5/19/2005	1 U	1 U	1 U		1 U	1 U	
		7/23/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0019	29 to 34	6/12/2007	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.39 U	0.14 U	0.32 U	0.16 U	0.23 U	0.21 U	
		7/21/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/8/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	**0.759 I**	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	**0.30 I**	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	**0.91 I**	**0.68 I**	0.22 U	0.36 U	**8.7**	
		12/15/2015	0.16 U	0.36 U	**0.66 I**	0.22 U	0.36 U	**0.96 I**	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/26/2017	0.18 U	0.24 U	**1.2**	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	**0.86 I**	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	**0.63 I**	**1.5**	0.22 U	0.35 U	**2.2**	0.48 U
		12/4/2020	0.27 U	**1**	**1.6**	0.30 U	0.31 U	**3**	0.35 U
WILC-NPSH-MW0020	29 to 34	7/28/2005	0 U	0 U	0 U		0 U	0 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	**0.88 I**	
		8/1/2008	0.39 U	**0.61 I**	0.32 U	0.16 U	0.23 U	**1.1**	
		7/22/2009	1 U	**8.7**	1 U	1 U	1 U	**2.4**	
		9/15/2010	0.16 U	**89.5**	**0.66 I**	0.11 U	0.16 U	**79.7**	
		9/19/2011	0.32 U	**24.3**	**0.70 I**	0.44 U	0.72 U	**180**	
		9/5/2012	0.16 U	**4.8**	**0.21 I**	0.22 U	0.36 U	**45.1**	
		12/23/2013	0.16 U	**2**	**1.1**	0.22 U	0.36 U	**28**	
		12/18/2014	0.16 U	**0.63 I**	**1**	0.22 U	0.36 U	**2**	
		12/15/2015	0.16 U	**2.1**	**2**	0.22 U	0.36 U	**7.6**	
		12/21/2016	0.18 U	**1.3**	0.2 U	0.36 U	0.29 U	**3.5**	2.2 U
		12/26/2017	0.18 U	**11**	**3.3**	0.36 U	0.29 U	**39**	2.2 U
		10/8/2018	0.18 U	**6**	**0.89 I**	0.36 U	0.29 U	**6.5**	2.2 U
		12/19/2019	0.32 U	0.28 U	**0.29 I**	0.22 U	0.35 U	**0.53 I**	0.48 U
		12/4/2020	0.27 U	**1.7**	**1.6**	0.30 U	0.31 U	**3.1**	0.35 U
WILC-MW0021D	40 to 45	5/18/2005	1 U	1 U	1 U		1 U	1 U	
WILC-NPSH-MW0021	29 to 34	5/18/2005	1 U	1 U	1 U		1 U	1 U	
		8/12/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0022	29 to 34	8/12/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/15/2010	0.64 U	1.44 U	0.48 U	0.44 U	0.64 U	0.88 U	
		3/17/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/26/2017	0.18 U	**1.1**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/4/2020	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U	0.35 U
WILC-NPSH-MW0023	37.5 to 42.5	5/18/2005	1 U	1 U	1 U		1 U	1 U	
		12/20/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		8/1/2008	0.54 U	**3**	0.45 U	0.22 U	0.32 U	**0.70 I**	
		7/21/2009	1 U	**3.8**	1 U	1 U	1 U	**1.3**	
		9/15/2010	0.16 U	**0.49 I**	0.12 U	0.11 U	0.16 U	**0.78 I**	
		9/19/2011	0.16 U	**1.63**	0.19 U	0.22 U	0.36 U	**3.37**	
		9/6/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-NPSH-MW0024	46 to 51	7/25/2005	0 U	**2800**	0 U		0 U	0 U	
		12/20/2006	2 U	**76.7**	**1 I**	2 U	2 U	**189**	
		7/21/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		7/16/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/8/2010	80 U	**200 I**	**1490**	55 U	80 U	**884**	
WILC-NPSH-MW0025	40 to 45	12/20/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		7/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/15/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/19/2011	0.16 U	**1.84**	0.19 U	0.22 U	0.36 U	**4.02**	
		9/5/2012	0.16 U	**1.51**	0.19 U	0.22 U	0.36 U	**3.16**	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/19/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.37 I**	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**1.1**	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-NPSH-MW0027	10 to 15	7/27/2005	0 U	**600**	0 U		**26**	**390**	
		12/20/2006	100 U	**4090**	100 U	100 U	100 U	**932**	
		6/13/2007	50 U	**2290**	50 U	50 U	50 U	**498**	
		7/31/2008	5.4 U	**2290**	**10**	2.2 U	**6.3 I**	**741**	
		7/22/2009	5 U	**140**	**12**	5 U	**13**	**490**	
		12/8/2009	1.1 U	**90.8**	**13.2**	0.44 U	**3.4**	**940**	
		9/13/2010	16 U	**4350**	**35.7 I**	11 U	**74.4 I**	**5070**	
		3/17/2011	0.8 U	**284**	**13.9**	1.1 U	**211**	**3400**	
		9/20/2011	3.2 U	**992**	**8.2 I**	4.4 U	7.2 U	**3730**	
		9/6/2012	3.2 U	**1840**	**13.2 I**	4.4 U	7.2 U	**3820**	
		12/23/2013	0.64 U	**46**	**3 I**	0.88 U	1.5 U	**480**	
		12/18/2014	3.2 U	**880**	**13 I**	4.4 U	7.2 U	**3000**	
		12/15/2015	1.6 U	**62**	**2.9 I**	2.2 U	3.6 U	**810**	
		12/21/2016	0.18 U	**38**	**5.3**	0.36 U	0.29 U	**240**	2.2 U
		12/26/2017	0.54 U	**20**	**2.8 I**	1.1 U,J4	0.87 U	**120 J4**	6.4 U
		10/9/2018	0.54 U	**38**	**2.6 I**	1.1 U	0.87 U	**150**	6.4 U
		12/19/2019	1.6 U	**351**	**3.2 I**	1.1 U	1.7 U	**696 Q**	2.4 U
		12/8/2020	1.6 U	**356**	**3.4 I**	1.1 U	1.7 U	**824**	2.4 U
WILC-NPSH-MW0030	43 to 48	7/27/2005	0 U	0 U	0 U		0 U	0 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-NPSH-MW0031	10 to 15	7/28/2005	0 U	0 U	0 U		0 U	0 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		3/17/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-NPSH-MW0034	66.5 to 71.5	7/27/2005	0 U	0 U	0 U		0 U	0 U	
WILC-NPSH-MW0035	39 to 44	7/28/2005	0 U	0 U	0 U		0 U	0 U	
		10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-NPSH-MW0036	3 to 10	7/28/2005	0 U	0 U	0 U		0 U	0 U	
		8/12/2009	5 U	5 U	5 U	5 U	5 U	5 U	
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	**4.5 I**
WILC-NPSH-MW0037	3 to 10	7/27/2005	0 U	0 U	0 U		0 U	0 U	
WILC-NPSH-MW0038	30 to 35	7/27/2005	0 U	**160**	0 U		0 U	**700**	
		8/12/2009	1 U	**31.8**	**3**	1 U	**1.1**	**110**	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-NPSH-MW0039	40 to 45	12/19/2006	1 U	1 U	1 U	1 U	1 U	1.2	
		6/12/2007	1 U	1 U	**0.52 I**	1 U	1 U	**0.82 I**	
		7/31/2008	0.54 U	**0.58 I**	**0.73 I**	0.22 U	0.32 U	0.3 U	
		7/21/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		12/8/2009	0.54 U	**0.45 I**	**1**	0.22 U	0.32 U	1	
		9/15/2010	0.16 U	**14.4**	**1.28**	0.11 U	0.16 U	20.5	
		3/16/2011	0.16 U	**1.55**	**2.76**	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	**1.33**	**3.42**	0.22 U	0.36 U	1.86	
		9/5/2012	0.16 U	**0.89 I**	**2.15**	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	**0.75 I**	**0.82 I**	0.22 U	0.36 U	**0.58 I**	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.74 I**	
		12/15/2015	0.16 U	**0.80 I**	**1.1**	0.22 U	0.36 U	15	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	1.1	2.2 U
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	**0.26 I**	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/3/2020	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U	0.35 U
WILC-NPSH-MW0040	29 to 34	7/27/2005	0 U	0 U	0 U		0 U	0 U	
		8/12/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-MW0046D	40 to 45	7/27/2005	0 U	0 U	0 U		0 U	41	
		12/26/2017	0.54 U	0.72 U	0.6 U	1.1 U	0.87 U	27	6.4 U
		10/8/2018	0.54 U	**9.9**	**0.78 I**	1.1 U	0.87 U	11	6.4 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	3.5	0.48 U
		12/10/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.89 I**	0.48 U
WILC-MW0046I	29 to 34	5/20/2005	1 U	1570	**7.9**		98.7	295	
		8/12/2009	33 I	2900	100 U	100 U	230	2600	
WILC-MW0046S	2 to 12	5/20/2005	1 U	542	**2.5**		17	56.3	
WILC-MW0047D	40 to 45	7/25/2005	0 U	20900	0 U		0 U	1700	
		7/25/2005	0 U	22400	0 U		0 U	1800	
		12/21/2006	500 U	26400	500 U	500 U	500 U	1500	
		6/12/2007	200 U	30400	129 I	200 U	200 U	2090	
		7/31/2008	27 U	6350	23 U	11 U	20.2 I	3270	
		7/21/2009	100 U	9700	100 U	100 U	470	1500	
		12/8/2009	110 U	15500	90 U	44 U	64 U	2940	
		9/13/2010	160 U	25200	120 U	110 U	160 U	5690	
		3/17/2011	28.9	14800	**31**	0.22 U	22.4	5400	
		9/20/2011	16 U	14300	19 U	22 U	36 U	6690	
		9/6/2012	29 I	16000	**24 I**	22 U	161	6570	
WILC-MW0047I	29 to 34	7/25/2005	0 U	3600	0 U		0 U	1200	
		12/20/2006	50 U	2290	50 U	50 U	711	2030	
		6/12/2007	200 U	1490	200 U	200 U	650	1830	
		7/31/2008	11 U	2390	**16.1 I**	4.4 U	557	1650	
		7/22/2009	500 U	6400	500 U	500 U	2100	1300	
		12/8/2009	11 U	1190	9 U	4.4 U	169	1740	
WILC-MW0047S	2 to 12	7/25/2005	0 U	0 U	0 U		0 U	0 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
WILC-MW0048I	29 to 34	7/28/2005	0 U	500	0 U		700	550	
		12/20/2006	5 U	143	**2.6 I**	5 U	117	1230	
		6/12/2007	20 U	1520	20 U	20 U	125	1840	
		7/31/2008	10.4	669	**4.7 I**	2.2 U	30.9	2330	
		7/22/2009	100 U	1800	100 U	100 U	150	890	
		12/8/2009	54 U	5590	45 U	22 U	33.7 I	3650	
		9/13/2010	8 U	157	**12.7 I**	5.5 U	8 U	5550	
		3/16/2011	**2.58**	161	**13.5**	**0.42 I**	4.91	2360	
		9/20/2011	3.2 U	134	**6.6 I**	4.4 U	7.2 U	2120	
		9/5/2012	**0.48 I**	**60.6**	**4.15**	0.22 U	**1.41**	260	
WILC-MW0048S	2 to 12	7/28/2005	0 U	0 U	0 U		0 U	0 U	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0049D	40 to 45	12/21/2006	50 U	**1650**	50 U	50 U	**29.4 I**	**4170**	
		6/12/2007	100 U	**1310**	100 U	100 U	**92 I**	**2850**	
		7/23/2008	**22**	**740**	**9.2 I**	7.2 U	**110**	**2300 L**	
		7/20/2009	100 U	**310**	100 U	100 U	**80 I**	**1600**	
		12/8/2009	5.4 U	**379**	**7.5 I**	2.2 U	**64.9**	**2380**	
		9/8/2010	8 U	**711**	6 U	5.5 U	**76.5**	**3100**	
		9/8/2010	8 U	**758**	6 U	5.5 U	**50.1**	**2920**	
		3/17/2011	**1.64**	**912**	**8.97**	0.22 U	**30.4**	**2590**	
		9/20/2011	3.2 U	**801**	**7 I**	4.4 U	**26.8**	**3170**	
		9/5/2012	**4.8 I**	**1470**	**11.4 I**	4.4 U	**493**	**2700**	
		10/27/2016	1.8 U	**420**	2 U	3.6 U	**38**	**1300**	22 U
		3/20/2017	0.18 U	**510 I**	**8.9**	0.36 U	**820 I**	200 U	**69000**
		5/11/2017	0.18 U	120 U	**9.2**	0.36 U	**560**	**1600**	**72000**
WILC-MW0049I	29 to 34	12/21/2006	1 U	**80.1**	**0.91 I**	1 U	**22.3**	**102**	
		7/18/2008	27 U	**290**	33 U	36 U	**100**	**430**	
		7/20/2009	**6.1**	**990**	**12**	5 U	**20**	**1200 L**	
		10/27/2016	**0.97 I**	**390**	**8.4**	0.36 U	0.29 U	**1900**	2.2 U
		3/20/2017	0.18 U	**530**	**7.3**	0.36 U	**280**	**190**	**12000**
		5/11/2017	0.18 U	**770**	**9.6**	0.36 U	**480 I**	**960**	**37000**
WILC-MW0049S	2 to 12	7/28/2005	0 U	**23**	0 U		**8**	**190**	
		12/20/2006	1 U	**14.1**	1 U	1 U	**7**	**26.8**	
		7/23/2008	1 U	**13.5**	1 U	1 U	**2.3**	**12.4**	
		7/20/2009	1 U	**28.8**	1 U	1 U	**11.9**	**5.7**	
		9/13/2010	0.16 U	**8.27**	**0.727 I**	0.11 U	**7.68**	**54.2**	
		9/20/2011	0.16 U	**28**	**1.1**	0.22 U	**9.33**	**25.2**	
		10/27/2016	0.18 U	**16**	0.2 U	0.36 U	**10**	**0.96 I**	2.2 U
		3/20/2017	0.18 U	**42**	**1.6**	0.36 U	**46**	**31**	**2400**
		5/11/2017	0.18 U	**41**	0.2 U	0.36 U	**42**	**29**	**3200**
WILC-MW0050D	40 to 45	7/28/2005	0 U	**5**	0 U		**7**	0 U	
		8/12/2009	100 U	**4500**	100 U	100 U	**4600**	**270**	
		9/30/2014	7 U	**2800**	**16 I**	7.2 U	**770**	**190**	20 U
WILC-MW0050S	2 to 12	7/28/2005	0 U	**41**	**24**		**8**	**110**	
WILC-MW0052D	40 to 45	9/17/2009	100 U	**4100**	**27 I**	100 U	**43 I**	**6900**	
		9/8/2010	**41.1**	**32500**	**29.4**	1.1 U	**41100**	**1090**	
		3/4/2016	13 U	**220**	**30 I**	11 U	**17 I**	**3200**	7 U
WILC-MW0052DD	55 to 65	7/22/2008	**6**	**1100**	**10.4**	1 U	**420**	**510**	
		9/19/2011	16 U	**8800**	19 U	22 U	**6550**	**651**	
		9/5/2012	**41 I**	**10000**	**36 I**	22 U	**4700**	**983**	
		12/19/2014	**84**	**26000**	**80**	11 U	**19000**	**5900**	
		12/19/2014	**59**	**21000**	**51**	11 U	**15000**	**3600**	
WILC-MW0052I	29 to 34	7/28/2005	0 U	**1**	0 U		**3**	0 U	
WILC-MW0052S	2 to 12	7/27/2005	0 U	**350**	0 U		0 U	**590**	
		12/21/2006	2000 U	**122000**	2000 U	2000 U	**11000**	**46100**	
		1/15/2007	2000 U	**71700**	2000 U	2000 U	**22200**	**21300**	
		6/13/2007	500 U	**46200**	500 U	500 U	**5650**	**9580**	
		8/1/2008	190 U	**15600**	160 U	79 U	**30200**	**2000**	
		7/22/2009	100 U	**2300**	100 U	100 U	**840**	**390**	
		12/7/2009	11 U	**3200**	**14.4 I**	4.4 U	**1420**	**532**	
		9/8/2010	**30.7 I**	**6360**	12 U	11 U	**6500**	**587**	
		9/8/2010	**25 I**	**4460**	12 U	11 U	**3770**	**476**	
		3/17/2011	**6.84**	**2360**	**13.1**	**0.24 I**	**170**	**187**	
		9/19/2011	8 U	**9100**	**18 I**	11 U	**126**	**1310**	
		9/5/2012	**0.76 I**	**383**	**3.96 I**	0.88 U	**43.1**	**24.7**	
WILC-MW0053D	40 to 45	12/18/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/18/2008	1 U	1 U	1 U	1 U	1 U	**2.1**	
		7/16/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-MW0053I	29 to 34	12/18/2006	1 U	1 U	**2.1**	1 U	1 U	**2.4**	
		10/5/2007	1 U	**3.7**	**1.2**	1 U	1 U	**4.3**	
		7/17/2008	1 U	**3.3**	1 U	1 U	**2.6**	**1.2**	
		7/16/2009	1 U	**1.8**	1 U	1 U	1 U	**1.2**	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0053S	2 to 12	5/19/2005	1 U	**43.4**	**2.78**		1 U	**39.4**	
		12/21/2006	1 U	**3.2**	**3.8**	1 U	**0.93 I**	**12.4**	
		6/13/2007	1 U	**31.4**	**3.1**	1 U	1 U	**51.1**	
		7/18/2008	1 U	**4.3**	**1**	1 U	1 U	**170**	
		7/16/2009	1 U	**6.9**	1 U	1 U	1 U	**3.1**	
		12/8/2009	0.54 U	**10.8**	**1.1**	0.22 U	**0.42 I**	**8.2**	
WILC-MW0054D	40 to 45	10/5/2007	1 U	**40.2**	1 U	1 U	1 U	**27.3**	
		7/21/2008	1 U	**1.2**	1 U	1 U	1 U	1 U	
WILC-MW0054I	29 to 34	10/4/2007	200 U	**18000**	200 U	200 U	**44000**	**2500**	
		7/21/2008	1 U	**96.2**	1 U	1 U	**19.5**	**21.9**	
		9/15/2010	16 U	**9720**	12 U	11 U	16 U	**2080**	
WILC-MW0054S	2 to 12	5/20/2005	1 U	**52.4**	**23**		1 U	**545**	
		10/4/2007	1 U	**13.6**	1 U	1 U	**7.1**	**1.3**	
		7/21/2008	1 U	**1.2**	**1.4**	1 U	**2.7**	1 U	
WILC-MW0055D	40 to 45	7/28/2005	0 U	**7**	0 U		0 U	**200**	
		12/19/2006	1 U	**13.6**	**1.2**	1 U	**2.2**	**58.2**	
		7/17/2008	1 U	**35.8**	**1.1**	1 U	**4.6**	**51.3**	
		7/17/2009	1 U	**35.3**	**1.1**	1 U	**6.8**	**34.8**	
		9/20/2011	0.16 U	**83.4**	**0.82 I**	0.22 U	0.36 U	**71.3**	
WILC-MW0055I	29 to 34	10/4/2007	100 U	**2600**	100 U	100 U	**240**	**1000**	
		9/15/2010	1.6 U	**155**	**10.2**	1.1 U	**5.6 I**	**59.4**	
WILC-MW0055S	2 to 12	5/19/2005	1 U	**3.3**	**0.56 J**		1 U	**1.25**	
		10/4/2007	1 U	**1.8**	1 U	1 U	1 U	**1.7**	
		9/7/2012	0.16 U	**4.21**	0.19 U	0.22 U	**1.1**	0.36 U	
WILC-MW0056S	2 to 12	5/19/2005	1 U	**4280**	**63.7**		1 U	**1410**	
		12/19/2006	10 U	**316**	**12.4**	10 U	10 U	**463**	
		6/13/2007	100 U	**11000**	**128**	100 U	100 U	**6800**	
		10/8/2007	1 U	**1.3**	1 U	1 U	1 U	**6.1**	
		7/31/2008	0.39 U	**29.6**	**1.1**	0.16 U	0.23 U	**62.2**	
		7/22/2009	1 U	**3.5**	**7.8**	1 U	1 U	**95.6**	
		12/8/2009	0.54 U	**7.2**	**13.5**	0.22 U	0.32 U	**101**	
		9/8/2010	0.16 U	**1.16**	0.12 U	0.11 U	0.16 U	**3.12**	
		9/8/2010	3.2 U	**54.6**	**12.3 I**	2.2 U	3.2 U	**630**	
		3/16/2011	**6.23**	**1920**	**73.6**	0.22 U	0.36 U	**1110**	
		9/20/2011	8 U	**6890**	**140**	11 U	**29.5 I**	**760**	
WILC-MW0057D	40 to 45	7/27/2005	0 U	0 U	0 U		0 U	0 U	
		10/8/2007	1 U	1 U	1 U	1 U	1 U	1 U	
		7/22/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		9/13/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/6/2012	**0.37 I**	**77.8**	**0.96 I**	0.22 U	**465**	**5.46**	
		10/25/2012	1 U	1 U	1 U	1 U	1 U	1 U	1 U
		12/15/2015	0.16 U	**0.58 I,V**	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0057I	29 to 34	7/27/2005	0 U	0 U	0 U	0 U	0 U	0 U	
		10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
		7/22/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		9/8/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	**0.55 I,V**	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0057S	2 to 12	7/27/2005	0 U	0 U	0 U		0 U	0 U	
		12/18/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
		7/22/2008	1 U	1 U	1 U	1 U	1 U	**1.1**	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		3/16/2011	0.16 U	**0.74 I**	0.19 U	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	**0.41 I**	0.19 U	0.22 U	0.36 U	0.36 U	
		9/10/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	**1.2 V**	0.19 U	0.22 U	0.36 U	0.36 U	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0059I	29 to 34	12/20/2006	100 U	**394**	100 U	100 U	**375**	**124**	
		6/13/2007	**95 I**	**5990**	100 U	100 U	**4050**	**833**	
		10/4/2007	200 U	**16000**	200 U	200 U	**5400**	**1500**	
		7/31/2008	270 U	**29400**	230 U	110 U	**8810**	**3730**	
		7/22/2009	500 U	**22000**	500 U	500 U	**9100**	**1800**	
		12/7/2009	270 U	**34400**	230 U	110 U	**6390**	**3790**	
		9/8/2010	64 U	**34200**	48 U	44 U	**4780**	**5660**	
		9/8/2010	64 U	**35200**	48 U	44 U	**4800**	**5510**	
		3/17/2011	**39.9**	**29800**	**31.2**	0.22 U	**2810**	**5420**	
		9/20/2011	32 U	**30800**	38 U	44 U	**2850**	72 U	
		9/6/2012	32 U	**21600**	38 U	44 U	**2740**	**7430**	
WILC-MW0060I	29 to 34	7/28/2005	0 U	**1300**	0 U		**330**	**890**	
		12/21/2006	2 U	**123**	2 U	2 U	**10**	**303**	
		7/23/2008	27 U	**5200**	33 U	36 U	**190**	**2400**	
		7/22/2009	100 U	**6700**	100 U	100 U	**260**	**2900**	
		9/15/2010	16 U	**2820**	12 U	11 U	16 U	**4620**	
		3/17/2011	**9.37**	**1880**	**25.2**	**0.39 I**	**14.1**	**6230**	
		9/20/2011	4 U	**74.3**	**21 I**	5.5 U	9 U	**4210**	
		9/5/2012	1.6 U	**188**	**11.1**	2.2 U	3.6 U	**1610**	
		12/16/2015	8 U	**130**	9.5 U	11 U	18 U	**1100**	
WILC-MW0060S	2 to 12	7/28/2005	0 U	**3**	0 U		0 U	**7**	
		8/12/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-MW0061S	2 to 12	7/25/2005	0 U	0 U	0 U		0 U	0 U	
WILC-MW0062	29 to 34	2/1/2006	0.5 U	**1.5**	**1.8**	0.5 U	0.5 U	**5**	
		12/18/2006	1 U	1 U	**3.9**	1 U	1 U	**2**	
		7/31/2008	0.39 U	0.14 U	**2**	0.16 U	0.23 U	0.21 U	
		7/16/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/8/2010	0.16 U	0.36 U	**0.246 I**	0.11 U	0.16 U	**0.556 I**	
		3/16/2011	0.16 U	0.36 U	**0.22 I**	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	**0.42 I**	**2.71**	0.22 U	0.36 U	**1.89**	
		9/5/2012	0.16 U	**0.52 I**	**1.71**	0.22 U	0.36 U	0.36 U	
		12/15/2015	**14 I**	**22000**	**23 I**	11 U	**1300**	**2000**	
		3/2/2016	52 U	**25000**	54 U	44 U	**1700**	**2600**	**6000**
		10/27/2016	90 U	**19000**	100 U	180 U	140 U	**4100**	1100 U
		12/26/2017	3.6 U	**2700**	**49**	7.2 U	**67**	**2700**	**250**
		10/8/2018	3.6 U	**560**	4 U	7.2 U	5.8 U	**660**	43 U
		12/19/2019	0.32 U	**75.4**	**3.7**	0.22 U	**1.6**	**381 Q**	0.48 U
		12/10/2020	0.32 U	**11.1**	**2.4**	0.22 U	**0.60 I**	**49.2**	0.48 U
WILC-MW0063	40 to 45	2/1/2006	0.5 U	**3.2**	0.5 U	0.5 U	0.5 U	**5**	
		12/18/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/24/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		7/16/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-MW0064	2 to 12	2/1/2006	0.5 U	**1.3**	**2**	0.5 U	0.5 U	**2**	
		12/19/2006	1 U	**6.4**	**5.2**	1 U	1 U	**12.8**	
		7/23/2008	1 U	**14.4**	**3.3**	1 U	1 U	**23.1**	
		7/20/2009	1 U	**7.8**	**1.4**	1 U	1 U	**10.3**	
		12/19/2014	0.16 U	**26**	**1.2**	0.22 U	**4.5**	**23**	
		12/15/2015	0.16 U	**64**	**2.4**	0.22 U	**0.96 I**	**37**	
		10/27/2016	0.18 U	**13**	0.2 U	0.36 U	0.29 U	**17**	2.2 U
		12/21/2016	0.18 U	**17**	**2.5**	0.36 U	0.29 U	**18**	2.2 U
		3/20/2017	0.18 U	**39**	**3.3**	0.36 U	**12**	**5.1**	**190**
		5/11/2017	0.18 U	**24**	**2.1**	0.36 U	**7.7**	**23**	**45**
		12/26/2017	0.18 U	**31**	**2.1**	0.36 U	**1.6**	**8.2**	2.2 U
		10/8/2018	0.18 U	**31**	**3.5**	0.36 U	**2.5**	**45**	2.2 U
		12/19/2019	0.32 U	**0.93 I**	**0.76 I**	0.22 U	0.35 U	**1.6**	0.48 U
		12/3/2020	0.27 U	**0.78 I**	**1.3**	0.30 U	0.31 U	**0.83 I**	0.35 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0065	29 to 34	2/1/2006	5 U	5 U	5 U	5 U	5 U	**283**	
		12/19/2006	2 U	**141**	**4.5**	2 U	**4.3**	**1070**	
		6/13/2007	50 U	**123**	50 U	50 U	50 U	**1670**	
		7/23/2008	1 U	**14.3**	**8**	1 U	**4.6**	**450**	
		7/20/2009	1 U	**4**	**6.2**	1 U	1 U	**16.1**	
		12/7/2009	**3.6**	**20.6**	**12.3**	0.22 U	**4.4**	**296**	
		9/8/2010	0.64 U	**146**	**3.45 I**	0.44 U	0.64 U	**337**	
		9/20/2011	3.2 U	**77.4**	**9.4 I**	4.4 U	7.2 U	**1540**	
		9/5/2012	1.6 U	**196**	**6.3 I**	2.2 U	3.6 U	**1090**	
		3/14/2014	4 U	**160**	**10 I**	5.5 U	**15 I**	**2100**	
		12/18/2014	3.2 U	**78**	**14 I**	**4.8 I**	7.2 U	**1700**	
		12/15/2015	0.49 U	86 U	**10**	0.22 U	0.68 U	**520**	
		12/21/2016	0.18 U	**46**	**15**	0.36 U	0.29 U	**190**	2.2 U
		12/26/2017	1.8 U	**20**	**12**	3.6 U	2.9 U	**120**	22 U
		10/8/2018	1.8 U	**16**	**4.7 I**	3.6 U	2.9 U	**52**	22 U
		12/19/2019	0.32 U	**11**	**10.0**	0.22 U	**0.37 I**	**38.6**	0.48 U
		12/3/2020	0.27 U	**10.8**	**9.2**	0.30 U	**0.36 I**	**64.1**	0.35 U
WILC-MW0066	2 to 12	2/1/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0067	29 to 34	2/1/2006	0.5 U	**0.95 I**	0.5 U	0.5 U	0.5 U	**1.4**	
		12/19/2006	1 U	**1.7**	1 U	1 U	**0.79 I**	**3.2**	
		7/31/2008	0.39 U	0.14 U	**0.92**	0.16 U	0.23 U	**0.55 I**	
		7/21/2009	2 U	**12**	**1.8 I**	2 U	**18**	**1.8 I**	
		8/12/2009	1 U	1 U	**2**	1 U	1 U	**3.1**	
WILC-MW0068	40 to 45	2/1/2006	0.5 U	**9.6**	0.5 U	0.5 U	0.5 U	**33.8**	
		12/19/2006	1 U	**0.70 I**	**1.6**	1 U	**1.3**	**74.3**	
		6/12/2007	1 U	1 U	**1.6**	1 U	**0.59 I**	**0.88 I**	
		8/1/2008	0.54 U	**31.1**	**2.7**	0.22 U	**1.3**	**102**	
		7/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		12/8/2009	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		9/8/2010	0.16 U	0.36 U	**0.22 I**	0.11 U	0.16 U	**0.343 I**	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	**2.2**	2.2 U
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	**0.75 I**	0.22 U	0.22 U	0.35 U	**3.4**	0.48 U
		12/3/2020	0.27 U	**0.73 I**	0.26 U	0.30 U	0.31 U	**2.8**	0.35 U
WILC-MW0069	29 to 34	2/1/2006	0.5 U	**20.8**	0.5 U	0.5 U	0.5 U	**22.4**	
		12/19/2006	1 U	**2.5**	1 U	1 U	1 U	**48.4**	
		7/31/2008	0.39 U	**4.9**	**0.45 I**	0.16 U	0.23 U	**61**	
		7/20/2009	1 U	**11.9**	**1.9**	1 U	**1.2**	**28.6**	
		10/16/2017	1 U	**43**	**8**	1 U	1 U	**270**	1 U
WILC-MW0070	40 to 45	2/1/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**23.7**	
		12/20/2006	1 U	1 U	1 U	1 U	1 U	**0.79 I**	
		6/12/2007	1 U	1 U	**0.74 I**	1 U	1 U	1 U	
		7/31/2008	0.39 U	**0.87**	**0.48 I**	0.16 U	**0.57 I**	**2**	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		12/8/2009	0.54 U	0.2 U	**0.47 I**	0.22 U	0.32 U	**0.31 I**	
WILC-MW0071	40 to 45	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
WILC-MW0072	29 to 34	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		8/1/2008	0.39 U	**0.79**	0.32 U	0.16 U	0.23 U	0.21 U	
		7/17/2009	1 U	**4.1**	1 U	1 U	1 U	1 U	
		9/15/2010	0.16 U	**0.93 I**	0.12 U	0.11 U	0.16 U	0.22 U	
		9/19/2011	0.16 U	**1.14**	0.19 U	0.22 U	0.36 U	**3.07**	
		9/6/2012	0.16 U	**1.43**	0.19 U	0.22 U	0.36 U	**2.97**	
		12/23/2013	0.16 U	**0.37 I**	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	**0.39 I**	0.19 U	0.22 U	0.36 U	**0.62 I**	
		12/16/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0073	2 to 12	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		7/21/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0074	2 to 12	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		12/20/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		7/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/15/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	**0.97 IV**	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/3/2020	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	0.23 U	0.35 U
WILC-MW0075	2 to 12	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		8/12/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/15/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		3/17/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	**0.88 I,V**	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0076	2 to 12	1/31/2006	0.5 U	**0.58 I**	0.5 U	0.5 U	0.5 U	0.5 U	
		12/20/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/23/2008	1 U	**1**	1 U	1 U	1 U	**1.2**	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/15/2010	0.16 U	**0.44 I**	0.12 U	0.11 U	0.16 U	**0.57 I**	
WILC-MW0077	29 to 34	1/31/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	1 U	
		7/23/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		7/22/2009	1 U	1 U	1 U	1 U	1 U	1 U	
WILC-MW0078	65 to 70	2/1/2006	0.5 U	**8**	0.5 U	0.5 U	**18.5**	**1.8**	
		12/21/2006	1 U	1 U	1 U	1 U	**1.1**	1 U	
		7/22/2008	1 U	1 U	1 U	1 U	1 U	1 U	
		7/20/2009	1 U	1 U	1 U	1 U	**1.8**	1 U	
		9/8/2010	0.16 U	0.36 U	0.12 U	0.11 U	**0.443 I**	0.22 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	**0.96 I**	**238**	0.19 U	0.22 U	**16.9**	**31.8**	
		10/25/2012	1 U	**29.8**	1 U	1 U	**3.1**	**1.7**	**110**
		12/23/2013	**9.3**	**1500**	**12**	0.22 U	**28**	**100**	
		1/22/2014	16 U	**3800**	19 U	22 U	36 U	**310**	
		7/14/2014	**6.2 I**	**2200**	**19 I**	4.6 U	**17 I**	**200**	20 U
		12/18/2014	**6.9**	**2300**	**19**	0.22 U	**3.3**	**260**	
		12/15/2015	4 U	**1100**	4.8 U	5.5 U	9 U	**82**	
		12/21/2016	0.18 U	**180**	**15**	0.36 U	**1.2**	**18**	2.2 U
		12/26/2017	0.9 U	**100**	1 U	1.8 U	1.4 U	1 U	11 U
		10/9/2018	0.9 U	**97**	1 U	1.8 U	1.4 U	**76**	11 U
		12/19/2019	0.64 U	**146**	0.44 U	0.43 U	**0.83 I**	**104**	0.96 U
		12/7/2020	0.32 U	**10.3**	0.22 U	0.22 U	**2.7**	**19.9**	0.48 U
WILC-MW0079	40 to 45	2/1/2006	0.5 U	**33.6**	0.5 U	0.5 U	**3.2**	**32.6**	
		12/20/2006	1 U	**0.62 I**	1 U	1 U	1 U	**2.8**	
		10/5/2007	1 U	1 U	1 U	1 U	1 U	1 U	
		7/31/2008	0.39 U	**3.4**	0.32 U	0.16 U	**0.37 I**	**1.6**	
		7/20/2009	1 U	**1.1**	1 U	1 U	1 U	1 U	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0080	29 to 34	12/21/2006	1 U	**27.7**	**2.7**	1 U	**1.3**	**564**	
		6/12/2007	1 U	**21.3**	**3.2**	1 U	**1.8**	**463**	
		7/31/2008	0.39 U	**0.84**	0.32 U	0.16 U	0.23 U	**16.4**	
		7/20/2009	1 U	1 U	**1.2**	1 U	1 U	1 U	
		12/7/2009	0.54 U	0.2 U	**4.5**	0.22 U	0.32 U	0.3 U	
		3/14/2014	4 U	**64**	**13 I**	5.5 U	9 U	**2000**	
		12/19/2014	**0.96 I**	**190**	**13**	0.22 U	**0.40 I**	**2500**	
		12/15/2015	0.8 U	**130**	**18**	1.1 U	1.8 U	**1500**	
		12/21/2016	0.18 U	**21**	**19**	0.36 U	0.29 U	**150**	2.2 U
		12/26/2017	0.18 U	**1.4**	**12**	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	**18**	0.36 U	0.29 U	0.2 UJ	2.2 U
		12/19/2019	0.32 U	0.28 U	**4.0**	0.22 U	0.35 U	**4.4**	0.48 U
		12/3/2020	0.27 U	**4.1**	**10.2**	0.30 U	0.31 U	**20.2**	0.35 U
WILC-MW0081	29 to 34	12/21/2006	1 U	**2.4**	1 U	1 U	1 U	**4.6**	
		6/12/2007	1 U	**4.7**	1 U	1 U	1 U	**7.3**	
		7/24/2008	1 U	**3.2**	1 U	1 U	1 U	**30.6**	
		7/17/2009	1 U	**5.8**	1 U	1 U	1 U	**35.2**	
		12/8/2009	0.54 U	**10.6**	**1.2**	0.22 U	**1.1**	**83.2**	
		12/23/2013	0.16 U	**1.5**	**3.5**	0.22 U	0.36 U	**7.2**	
		12/18/2014	0.16 U	**0.88 I**	**0.38 I**	0.22 U	0.36 U	**12**	
WILC-MW0082	29 to 34	10/12/2007	0.23 U	0.28 U	0.2 U	0.25 U	0.38 U	0.34 U	
		7/31/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
		7/21/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		12/8/2009	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	0.3 U	
WILC-MW0083	71 to 76	9/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0084	71 to 76	9/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0085	71 to 76	9/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0086	71 to 76	9/17/2009	1 U	1 U	1 U	1 U	1 U	1 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0087	15 to 25	4/7/2010	0.29 U	**0.38 I**	0.34 U	0.44 U	0.24 U	**1.3**	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	**1.5**	**0.21 I**	0.22 U	0.36 U	**20**	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/27/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0088	29 to 34	4/7/2010	0.29 U	**0.93 I**	0.34 U	0.44 U	0.24 U	**2.1**	
		9/19/2011	0.16 U	**1.5**	0.19 U	0.22 U	0.36 U	**6.62**	
		9/5/2012	0.16 U	**1.67**	0.19 U	0.22 U	0.36 U	**9.04**	
		12/23/2013	0.16 U	**1.7**	**0.20 I**	0.22 U	0.36 U	**7.6**	
		12/18/2014	0.16 U	**5.5**	**2.6**	0.22 U	0.36 U	**130**	
		12/15/2015	0.16 U	**0.44 I**	0.19 U	0.22 U	0.36 U	**3.8**	
		12/21/2016	0.18 U	**2.3**	0.2 U	0.36 U	0.29 U	**12**	2.2 U
		12/27/2017	0.18 U	**6.5**	**2.7**	0.36 U	0.29 U	**50**	2.2 U
		10/9/2018	0.18 U	**57**	**3.5**	0.36 U	0.29 U	**91**	2.2 U
		5/8/2020	0.32 U	**0.77 I**	**0.29 I**	0.22 U	0.35 U	**4.8**	0.48 UJ
		12/7/2020	0.32 U	**16.8**	**3.9**	0.22 U	0.35 U	**84.0**	0.48 U
WILC-MW0089	15 to 25	4/7/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	**0.79 I**	
		12/19/2014	0.16 U	**0.38 I**	0.19 U	0.22 U	0.36 U	**28 I**	
		12/15/2015	0.16 U	**1.6**	0.19 U	0.22 U	0.36 U	**0.99 I**	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/27/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/7/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0090	29 to 34	4/7/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	9.5	
		9/19/2011	0.16 U	**4.4**	**1.33**	0.22 U	**0.85 I**	27.5	
		9/5/2012	0.16 U	**5.35**	**0.84 I**	0.22 U	0.36 U	32.8	
		12/23/2013	0.16 U	2200	**8.7**	0.22 U	57	600	
		1/22/2014	8 U	1200	9.5 U	11 U	**24 I**	370	
		12/18/2014	0.16 U	**4.7**	**0.68 I**	0.22 U	0.36 U	42	
		12/15/2015	0.16 U	**6.2**	**1**	0.22 U	0.36 U	34	
		12/21/2016	0.18 U	**5.2**	0.2 U	0.36 U	0.29 U	24	2.2 U
		12/27/2017	0.18 U	**2.3**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	**1.3**	0.36 U	0.29 U	13	2.2 U
		12/19/2019	0.32 U	**1.5**	**2.1**	0.22 U	0.35 U	6.0	0.48 U
		12/7/2020	0.32 U	**1.8**	**3.3**	0.22 U	0.35 U	9.2	0.48 U
WILC-MW0091	2 to 12	4/7/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	**0.81 I,V**	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/27/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/7/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
WILC-MW0092	2 to 12	4/7/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		3/16/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.41 I**	
		9/20/2011	0.16 U	**0.75 I**	**1.62**	0.22 U	0.36 U	2.45	
		9/5/2012	0.16 U	**0.95 I**	0.19 U	0.22 U	0.36 U	3.26	
WILC-MW0093	15 to 25	3/26/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0094	40 to 45	4/7/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.68 I**	
		12/15/2015	0.16 U	**0.50 I,V**	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0095	2 to 12	3/25/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		3/16/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	2.5	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	**1.1 V**	0.19 U	0.22 U	0.36 U	1.7	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/10/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
WILC-MW0096	15 to 25	3/25/2010	0.29 U	**16.1**	**1.2**	0.44 U	0.24 U	113	
		9/15/2010	0.64 U	**7.68**	0.48 U	0.44 U	0.64 U	84.6	
		9/20/2011	0.32 U	**41.6**	**1.12 I**	0.44 U	0.72 U	247	
		12/21/2016	0.18 U	**24**	**4.2**	0.36 U	0.29 U	98	2.2 U
		12/26/2017	0.18 U	**20**	**5**	0.36 U	0.29 U	170	2.2 U
		10/8/2018	0.18 U	87	**6.8**	0.36 U	0.29 U	150	2.2 U
		12/19/2019	0.32 U	**6.2**	**1.7**	0.22 U	0.35 U	20.8	0.48 U
		12/10/2020	0.32 U	**5.4**	**2.2**	0.22 U	0.35 U	27.6	0.48 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0097	29 to 34	3/25/2010	0.29 U	**8.2**	0.34 U	0.44 U	**0.25 I**	15.7	
		3/17/2011	0.16 U	**3.35**	0.19 U	0.22 U	19.3	1.17	
		9/20/2011	0.32 U	**51.8**	**0.80 I**	0.44 U	0.72 U	181	
		9/5/2012	0.32 U	**21**	**1.02 I**	0.44 U	0.72 U	282	
		12/23/2013	0.32 U	**6.1**	**1.3 I**	0.44 U	0.72 U	160	
		12/18/2014	0.32 U	**4.8**	**1.8 I**	0.44 U	0.72 U	21	
		12/15/2015	0.16 U	**0.52 I**	**0.68 I**	0.22 U	0.36 U	1.8	
		12/21/2016	0.18 U	**6**	**3.3**	0.36 U	0.29 U	28	2.2 U
		12/27/2017	0.18 U	**9.1**	**4.2**	0.36 U	0.29 U	32	2.2 U
		10/8/2018	0.18 U	0.24 U	**1.2**	0.36 U	0.29 U	5.2	2.2 U
		12/19/2019	0.32 U	**10.8**	**5.7**	0.22 U	0.35 U	46.0	0.48 U
		12/10/2020	0.32 U	**7.3**	**7.9**	0.22 U	0.35 U	19.5	0.48 U
WILC-MW0098	15 to 25	3/25/2010	58 U	12200	68 U	88 U	4270	6500	
		9/8/2010	8 U	4500	**11.3 I**	5.5 U	917	5410	
		3/17/2011	49	27300	**26.4**	**1.3**	49900	8440	
		9/20/2011	32 U	17700	38 U	44 U	4070	7670	
		9/5/2012	16 U	7500	19 U	22 U	1870	1390	
		2/29/2016	65 U	2400	68 U	55 U	810	490	**21000**
WILC-MW0099	55 to 65	4/7/2010	2.9 U	88.1	3.4 U	4.4 U	56.9	66.4	
		9/8/2010	**0.522 I**	73.6	**0.395 I**	0.11 U	47.3	58.6	
		9/19/2011	1.6 U	128	1.9 U	2.2 U	36	166	
		9/5/2012	**0.54 I**	**44.1**	0.38 U	0.44 U	16.1	154	
WILC-MW0100	15 to 25	4/7/2010	101 I	13800	85 U	110 U	21100	5500	
		3/16/2011	79.7	9630	106	0.22 U	3840	9290	
		9/19/2011	160 I	31900	146 I	44 U	27200	12500	
		9/5/2012	118 I	15800	124 I	44 U	6990	7760	
		2/29/2016	**5.4 I**	930	**35**	4.4 U	19 I	1800	**24**
WILC-MW0101	2 to 12	3/25/2010	0.29 U	**9.8**	**0.40 I**	0.44 U	0.24 U	10.9	
WILC-MW0102	15 to 25	3/25/2010	**2.2**	176	**7.7**	0.44 U	3.3	708	
WILC-MW0103	29 to 34	3/25/2010	29 U	6500	34 U	44 U	24 U	2470	
WILC-MW0104	40 to 45	3/25/2010	0.29 U	1160	**9.5**	0.44 U	30.2	3280	
		9/20/2011	3.2 U	147	3.8 U	4.4 U	7.2 U	1870	
WILC-MW0105	15 to 25	3/25/2010	15 U	1500	17 U	22 U	862	1140	
		9/20/2011	0.16 U	**1.13**	0.19 U	0.22 U	0.36 U	**0.81 I**	
		9/5/2012	0.16 U	**1.08**	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0106	15 to 25	3/25/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		3/16/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/20/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	**0.98 I**	0.19 U	0.22 U	0.36 U	**0.40 I**	
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0107	15 to 25	4/8/2010	**0.32 I**	81	**10.9**	0.44 U	4.4	348	
		9/19/2011	0.16 U	**9.95**	**3.17**	0.22 U	3.8	71.8	
WILC-MW0108	2 to 12	4/8/2010	2.9 U	896	**5.9 I**	4.4 U	209	168	
		9/19/2011	3.2 U	2360	**19.6 I**	4.4 U	113	331	
WILC-MW0109	15 to 25	3/26/2010	0.29 U	**39.8**	**0.51 I**	0.44 U	0.24 U	21.8	
		9/19/2011	0.64 U	93.2	**2.16 I**	0.88 U	1.44 U	514	
		9/5/2012	0.16 U	**23.9**	**1.45**	0.22 U	0.36 U	896	
		12/23/2013	0.64 U	**51**	**2.4 I**	0.88 U	1.5 U	830	
		12/18/2014	0.64 U	**4.6**	**2.6 I**	0.88 U	1.5 U	28	
		12/15/2015	0.16 U	**2.5**	**1.6**	0.22 U	0.36 U	11	
		12/21/2016	0.18 U	**1.8**	**1.8**	0.36 U	0.29 U	4	2.2 U
		12/26/2017	0.18 U	**3.4**	**2.6**	0.36 U	0.29 U	13	2.2 U
		10/8/2018	0.18 U	**6.9**	**0.65 I**	48	0.29 U	16	2.2 U
		12/19/2019	0.32 U	0.28 U	**0.39 I**	0.22 U	0.35 U	1.3	0.48 U
		12/4/2020	0.27 U	**2.6**	**1.1**	0.30 U	0.31 U	7.8	0.35 U
WILC-MW0110	15 to 25	4/7/2010	15 U	3690	**17.5 I**	22 U	167	3630	
		3/17/2011	7.83	6200	**18.6**	0.22 U	164	2930	
		9/20/2011	32 U	3130	38 U	44 U	112 I	2610	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0111	29 to 34	3/25/2010	0.29 U	**0.35 I**	**3.4**	0.44 U	0.24 U	3	
		12/21/2016	0.18 U	0.24 U	**1.2**	0.36 U	0.29 U	1.1	2.2 U
		12/27/2017	0.18 U	0.24 U	**1.1**	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	**1.3**	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	**0.82 I**	0.22 U	0.35 U	**0.95 I**	0.48 U
		12/10/2020	0.32 U	**0.61 I**	**0.78 I**	0.22 U	0.35 U	2.8	0.48 U
WILC-MW0112	40 to 45	3/25/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
WILC-MW0113	2 to 12	3/25/2010	0.29 U	**4.6**	**0.34 I**	0.44 U	0.24 U	8.4	
WILC-MW0114	15 to 25	3/25/2010	0.29 U	**0.41 I**	0.34 U	0.44 U	0.24 U	0.28 U	
WILC-MW0115	15 to 25	3/26/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		3/17/2011	0.16 U	**24.3**	0.19 U	0.22 U	**2.65**	36.1	
		9/19/2011	0.32 U	85.9	0.38 U	0.44 U	**2.66**	112	
		9/6/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0116	15 to 25	3/26/2010	**1.8 I**	105	**13.4**	0.88 U	**1.4 I**	1860	
		9/19/2011	8 U	1110	**29 I**	11 U	18 U	3260	
		9/6/2012	6.4 U	1090	**21.6 I**	8.8 U	14.4 U	2870	
		12/23/2013	0.16 U	**9.9**	**5.6**	0.22 U	0.36 U	64	
		12/18/2014	0.16 U	**6.1**	**3**	0.22 U	0.36 U	100	
		12/16/2015	0.16 U	**31**	**2.4**	0.22 U	**0.43 I**	140	
		12/21/2016	0.18 U	**45**	**6.7**	0.36 U	0.29 U	440	2.2 U
		12/26/2017	1.8 U	**19**	2 U	3.6 U	2.9 U	150	22 U
		10/8/2018	0.36 U	0.48 U	**4.7**	0.72 U	0.58 U	11	4.3 U
		12/19/2019	0.32 U	**3.4**	**4.2**	0.22 U	**0.52 I**	12.0	0.48 U
		12/3/2020	0.27 U	**1.4**	**3.6**	0.30 U	0.31 U	5.0	0.35 U
WILC-MW0117	15 to 25	3/25/2010	58 U	11200	68 U	88 U	362	2770	
		3/17/2011	14.6	10600	**20.5**	0.22 U	598	3650	
		9/19/2011	0.16 U	**4.45**	**0.36 I**	0.22 U	0.36 U	6.3	
		9/6/2012	**0.42 I**	**60.8**	**3.89**	0.22 U	0.36 U	130	
WILC-MW0118	40 to 45	3/25/2010	0.29 U	82.6	**0.66 I**	0.44 U	3.6	210	
		9/19/2011	0.16 U	**6.11**	**0.34 I**	0.22 U	0.36 U	62.1	
		9/6/2012	0.16 U	**2.63**	**0.38 I**	0.22 U	**0.38 I**	26.7	
		12/23/2013	0.16 U	**0.74 I**	0.19 U	0.22 U	0.36 U	8	
		12/18/2014	0.16 U	**1.4**	**0.50 I**	0.22 U	0.36 U	9.3	
		12/16/2015	0.16 U	**0.48 I**	0.19 U	0.22 U	0.36 U	2.4	
		12/26/2017	0.18 U	**1.4**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 UJ	**0.27 I**	0.36 U	**0.39 I**	0.2 U	2.2 U
		12/19/2019	0.32 U	**1.5**	0.22 U	0.22 U	0.35 U	2.8	0.48 U
		12/3/2020	0.27 U	**1.0**	0.26 U	0.30 U	0.31 U	1.7	0.35 U
WILC-MW0119	29 to 34	3/26/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
WILC-MW0120	40 to 45	3/26/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0121	40 to 45	3/26/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
WILC-MW0122	15 to 25	3/26/2010	0.29 U	**4.7**	0.34 U	0.44 U	0.24 U	11.5	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	6.89	
		9/6/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.66 I**	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/16/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.37 I**	
WILC-MW0123	2 to 12	5/4/2010	0.29 U	0.32 U	0.34 U	0.44 U	0.24 U	0.28 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		9/6/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0124	15 to 25	5/4/2010	0.29 U	0.32 U	**3.4**	0.44 U	0.24 U	1.5	

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0125	15 to 25	9/13/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		3/17/2011	0.16 U	**1.51**	0.19 U	0.22 U	0.36 U	**0.40 I**	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/19/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	**0.54 I**	
		12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/4/2020	0.27 U	0.34 U	0.26 U	0.30 U	0.31 U	**0.41 I**	0.35 U
WILC-MW0126	15 to 25	9/13/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/5/2012	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/23/2013	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/18/2014	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/15/2015	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
		12/21/2016	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0127	15 to 25	9/13/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
WILC-MW0128	15 to 25	9/13/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	0.22 U	
		9/19/2011	0.16 U	0.36 U	0.19 U	0.22 U	0.36 U	0.36 U	
WILC-MW0129	15 to 25	9/13/2010	0.16 U	**2.3**	**0.228 I**	0.11 U	0.16 U	**1.51**	
		3/16/2011	0.16 U	**0.55 I**	**0.20 I**	0.22 U	0.36 U	**0.68 I**	
		9/20/2011	0.16 U	**30.6**	**1.22**	0.22 U	**2.71**	**7.15**	
		12/26/2017	3.6 U	**410**	4 U	7.2 U	**320**	4 U	**1700**
		10/8/2018	3.6 U	**170**	4 U	7.2 U	**110**	4 U	**410**
		5/8/2020	3.2 U	**539**	2.2 U	2.2 U	**161**	**17.5**	**615 J**
		12/7/2020	**0.71 I**	**83.9**	**3.6**	0.22 U	**46.7**	**6.6**	**200**
WILC-MW0130	56 to 66	10/26/2012	20 U	**9 I**	20 U	20 U	6.6 UI	**12 I**	**340**
		8/13/2014	3 U	**88**	2.9 U	2.3 U	**11**	**320**	10 U
		12/19/2014	0.16 U	**11**	0.19 U	0.22 U	**6.7**	**150**	
		12/15/2015	**2.1 I**	**780**	0.95 U	1.1 U	**8.4**	**180**	
		12/21/2016	**2**	**480**	**38**	0.36 U	**5.9**	**160**	2.2 U
		12/27/2017	1.8 U	**400**	**7.8 I**	3.6 U	2.9 U	**150**	22 U
		10/9/2018	1.8 U	**300**	2 U	3.6 U	2.9 U	**160**	22 U
		12/19/2019	0.32 U	**4.9**	0.22 U	0.22 U	0.35 U	**20.0**	0.48 U
		12/10/2020	0.32 U	**4.6**	0.22 U	0.22 U	0.35 U	**21.7**	0.48 U
WILC-MW0131	58 to 68	10/26/2012	50 U	**1300**	50 U	50 U	**6300**	16 UI	50 U
		12/10/2012	100 U	**4400**	100 U	100 U	**1500**	**85 I**	**910**
		7/16/2013	**86 I**	**16000**	**30 I**	22 U	**20000**	**88 I**	
		12/23/2013	0.16 U	**8.3**	0.19 U	0.22 U	**0.79 I**	**28**	
		1/22/2014	**0.87 I**	**250**	**1.2**	0.22 U	**5.9**	**78**	
WILC-MW0132	45 to 50	10/24/2016	0.18 U	**4000**	**51**	0.36 U	**2100**	**600**	**130000**
		3/20/2017	0.18 U	**300**	**4.6**	0.36 U	**410**	**12**	**20000**
		5/11/2017	0.18 U	**410**	**17**	0.36 U	**520**	**11**	**19000**
WILC-MW0133	40 to 50	10/24/2016	0.18 U	**4900**	**39**	0.36 U	**290**	**3300**	**24000**
		3/20/2017	0.18 U	**1100**	**14**	0.36 U	**730**	**94**	**97000**
		5/11/2017	0.18 U	**1100**	**37**	0.36 U	**600**	**81**	**82000**
WILC-MW0134	10 to 20	10/27/2016	0.36 U	**25**	**10**	0.72 U	**7.7**	**14**	**270**
		3/20/2017	0.18 U	**86**	**2.9**	0.36 U	**37**	**73**	**9500**
		5/11/2017	0.18 U	24 U	**3.3**	0.36 U	29 U	**53**	**5600**
WILC-MW0135	40 to 50	10/24/2016	0.18 U	**2500**	**18**	0.36 U	**3400**	**240**	**140000**
		3/20/2017	0.18 U	**1700**	**20**	0.36 U	**5200**	**23**	**35000**
		5/11/2017	0.18 U	**1700**	**48**	0.36 U	**8100**	**20**	**60000**
WILC-MW0136	40 to 45	10/27/2016	36 U	**2600**	40 U	72 U	**2600**	**380**	**88000**
		3/20/2017	0.18 U	**410**	**4.5**	0.36 U	**1400**	**4.9**	**39000**
		5/11/2017	0.18 U	120 U	**8.2**	0.36 U	**1800**	**7.6**	**59000**
WILC-MW0137	10 to 20	10/27/2016	0.18 U	**40**	**2.6**	0.36 U	**3.7**	**14**	2.2 U
		3/20/2017	0.18 U	**31**	0.2 U	0.36 U	**160**	**51**	**7300**
		5/11/2017	0.18 U	12 U	0.2 U	0.36 U	**22**	**25**	**1800**
WILC-MW0138	10 to 20	10/27/2016	18 U	**18000**	20 U	36 U	**18000**	**1400**	**26000**
		3/20/2017	0.18 U	**690**	**4.8**	0.36 U	**88**	**6**	**100**
		5/11/2017	0.18 U	**1400**	**13**	0.36 U	**70**	**15**	110 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0139	10 to 20	10/27/2016	18 U	1500	20 U	36 U	2200	120	**11000**
		3/20/2017	0.18 U	85	**3.8**	0.36 U	28	15	**1000**
		5/11/2017	**4.1**	1500	**7.7**	0.36 U	230	27	**850**
WILC-MW0140	23 to 33	12/29/2016	4.7 U	**33**	3.6 U	3.8 U	4.4 U	400	3.6 U
		12/26/2017	0.54 U	**8.3**	0.6 U	1.1 U	0.87 U	250	6.4 U
		10/9/2018	0.54 U	**30**	**0.96 I**	1.1 U	**1.9 I**	300	6.4 U
		12/18/2019	0.32 U	**8.6**	**0.78 I**	0.22 U	0.35 U	94.8	0.48 U
		12/3/2020	0.27 U	**4.1**	**0.65 I**	0.30 U	0.31 U	55.4	0.35 U
WILC-MW0141	34 to 44	12/29/2016	4.7 U	**58**	3.6 U	3.8 U	5	280	3.6 U
		12/26/2017	0.36 U	0.48 U	0.4 U	0.72 U	0.58 U	8.4	4.3 U
		10/9/2018	0.36 U	0.48 U	0.4 U	0.72 U	0.58 U	3.3	4.3 U
		12/18/2019	0.32 U	**0.83 I**	0.22 U	0.22 U	0.35 U	9.3	0.48 U
		12/3/2020	0.27 U	**9.7**	**0.42 I**	0.30 U	0.31 U	75.6	0.35 U
WILC-MW0142	8 to 18	12/29/2016	4.7 U	430	3.6 U	3.8 U	81	3.6 U	3.6 U
		12/27/2017	0.9 U	340	**9.1**	1.8 U	20	9.2	11 U
		10/8/2018	0.9 U	240	**3.1 I**	1.8 U	15	24	11 U
		12/18/2019	0.32 U	78.1 Q	**3.5**	0.22 U	6.9	25.0	0.48 U
		12/18/2019	0.32 U	79.4	**3.2**	0.22 U	5.3	43.7	0.48 U
		12/3/2020	0.27 U	**9.8**	**6.3**	0.30 U	**1.0**	10.4	0.35 U
WILC-MW0143	23 to 33	12/29/2016	9.4 U	580	7.3 U	7.6 U	190	22	**51**
		12/27/2017	0.36 U	**29**	0.4 U	0.72 U	**1.5 I**	170	4.3 U
		10/8/2018	0.36 U	**26**	0.4 U	0.72 U	0.58 U	98	4.3 U
		12/18/2019	0.32 U	**43.3**	0.22 U	0.22 U	**2.9**	40.9	0.48 U
		12/18/2019	0.32 U	**41.8**	0.22 U	0.22 U	**2.8**	34.9	0.48 U
		12/3/2020	0.27 U	**14.0**	0.26 U	0.30 U	**1.0**	15.6	0.35 U
WILC-MW0144	40 to 50	12/29/2016	19 U	1000	15 U	15 U	210	1100	15 U
		12/27/2017	1.8 U	1100	**20**	3.6 U	83	720	22 U
		10/8/2018	1.8 U	2000	**5.6 I**	3.6 U	110	1000	22 U
		12/18/2019	1.6 U	3780 Q	**3.6 I**	1.1 U	337	622 Q	2.4 U
		12/18/2019	1.6 U	3100 Q	**7.4**	1.1 U	266	555 Q	2.4 U
		12/3/2020	**3.3 I**	2390	**5.2**	1.5 U	197	719	**16.5**
WILC-MW0145	38 to 48	12/30/2016	0.94 U	**14**	0.73 U	0.76 U	44	0.71 U	**260**
		12/27/2017	0.54 U	**9.5**	0.6 U	1.1 U	0.87 U	15	6.4 U
		10/8/2018	0.54 U	**11**	0.6 U	1.1 U	0.87 U	17	6.4 U
		12/18/2019	0.32 U	**2.7**	0.22 U	0.22 U	0.35 UQ	12.9	0.48 U
		12/18/2019	0.32 U	**3.4**	0.22 U	0.22 U	0.35 U	14.6	**3.5**
		12/10/2020	0.32 U	**2.6**	0.22 U	0.22 U	0.35 U	8.4	**7.2**
WILC-MW0146	23 to 33	12/30/2016	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U	0.73 U
		12/27/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
		12/10/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
WILC-MW0147	38 to 48	12/30/2016	0.94 U	**13**	0.73 U	0.76 U	9	2.5	**1.7**
		12/26/2017	0.54 U	**4.2**	0.6 U	1.1 U	0.87 U	0.6 U	6.4 U
		10/8/2018	0.54 U	**6.8**	0.6 U	1.1 U	**1.4 I**	0.6 U	6.4 U
		12/19/2019	0.32 U	**4.9**	**0.41 I**	0.22 U	**1.5**	8.6	0.48 U
		12/10/2020	0.32 U	**2.1**	0.22 U	0.22 U	**1.1**	5.7	0.48 U
WILC-MW0148	38 to 48	12/30/2016	0.94 U	0.53 U	0.73 U	0.76 U	0.89 U	0.71 U	0.73 U
		12/27/2017	0.36 U	0.48 U	0.4 U	0.72 U	0.58 U	0.4 U	4.3 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0149	20 to 30	12/27/2017	0.18 U	**2.4**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	0.2 U	49	0.29 U	0.2 U	2.2 U
		5/8/2020	0.32 U	**0.44 I**	0.22 U	0.22 U	0.35 U	0.41 U	0.48 UJ
		12/7/2020	0.32 U	**0.98 I**	0.22 U	0.22 U	0.35 U	0.41 U	0.48 U
WILC-MW0150	20 to 30	12/27/2017	0.18 U	**1.2**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0151	20 to 30	12/27/2017	0.18 U	**1.4**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/9/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
WILC-MW0152	5 to 15	12/27/2017	1.8 U	500	**19**	3.6 U	530	23	22 U
		10/8/2018	0.36 U	0.48 U	0.4 U	0.72 U	**2.6**	0.4 U	4.3 U
		5/8/2020	0.32 U	**16.9**	0.22 U	0.22 U	3.3	0.41 U	0.48 UJ
		12/4/2020	**1.5**	447 L	**10.2**	0.30 U	236 L	18.2	0.35 U

Table 3-2
Groundwater Analytical Results
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Category			*Volatile Organic Compounds (VOCs)*						*Freon*
Analyte			**1,1-DICHLOROETHENE**	**CIS-1,2-DICHLOROETHENE**	**TRANS-1,2-DICHLOROETHENE**	**TETRACHLOROETHENE**	**TRICHLOROETHENE**	**VINYL CHLORIDE**	**1,1,2-TRICHLOROTRIFLUORO ETHANE**
GCTLs (µg/L)			**7**	**70**	**100**	**3**	**3**	**1**	**210000**
NADCs (µg/L)			**70**	**700**	**1000**	**300**	**300**	**100**	**2100000**
Location ID	**Screened Interval (ft bls)**	**Sample Date**							
WILC-MW0153	20 to 30	12/27/2017	0.18 U	**0.94 I**	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		5/8/2020	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	0.41 U	0.48 UJ
		12/4/2020	0.27 U	**0.38 I**	**0.38 I**	0.30 U	0.31 U	**0.50 I**	0.35 U
WILC-MW0154	5 to 15	12/26/2017	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	0.2 U	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	0.22 U	0.22 U	0.35 U	**0.83 I**	0.48 U
		12/3/2020	0.27 U	**0.72 I**	0.26 U	0.30 U	0.31 U	**0.56 I**	0.35 U
WILC-MW0155	29 to 34	12/26/2017	0.18 U	0.24 U	**1.6**	0.36 U	0.29 U	0.2 U	2.2 U
		10/8/2018	0.18 U	0.24 U	**1.9**	0.36 U	0.29 U	0.2 U	2.2 U
		12/19/2019	0.32 U	0.28 U	**0.74 I**	0.22 U	0.35 U	**0.74 I**	0.48 U
		12/3/2020	0.27 U	0.34 U	**0.32 I**	0.30 U	0.31 U	**0.41 I**	0.35 U
WILC-MW0156	5 to 15	5/8/2020	0.32 U	**73.3**	**8.6**	0.22 U	**85.3**	**9.8**	**79.6**
		12/8/2020	0.32 U	**63.3**	**9.8**	0.22 U	**89.9**	**24.7**	**46.9**
WILC-PW-MW1515	10 to 15	5/19/2005	1 U	1 U	1 U		1 U	1 U	
		12/19/2006	1 U	1 U	1 U	1 U	1 U	**3.2**	
		8/1/2008	0.54 U	0.2 U	0.45 U	0.22 U	0.32 U	**3.5**	
		7/17/2009	1 U	1 U	1 U	1 U	1 U	**1.2**	
		9/15/2010	0.16 U	0.36 U	0.12 U	0.11 U	0.16 U	**1.02**	

Notes:
Bolded results indicate the presence of an analyte at the specified concentration
Red font indicates an exceedance of FDEP GCTLs or Site Approved Target Levels for UIC Sampling
Yellow Highlighted cell indicates an exceedance of FDEP NADCs
Blank cells indicate the analyte was not analyzed for that specific well
ft bls = feet below land surface
GCTL = Groundwater Cleanup Target Level, Chapter 62-777 Florida Administrative Code, Table 1 (2005)
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
NADC = Natural Attenuation Default Concentration, Chapter 62-777 Florida Administrative Code, Table V (2005)
NASA = National Aeronautics and Space Administration
Q = Indicates that the sample was analyzed beyond hold time
SWMU = Solid Waste Management Unit
1,1,2-Trichlorotrifluoromethane is also known as Freon 113 or CFC-113
U = Indicates the analyte was not detected
µg/L = micrograms per liter

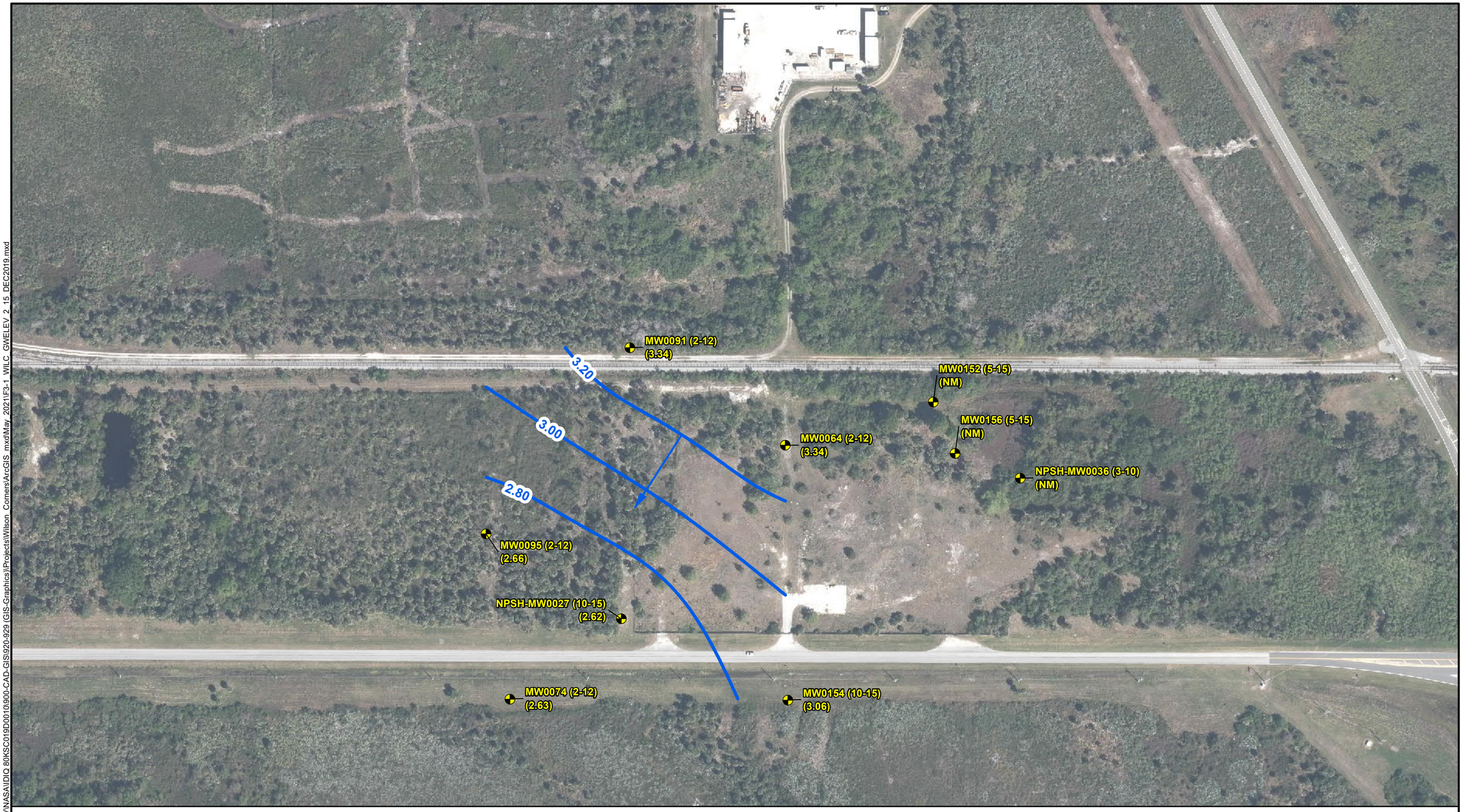
Table 3-3
Natural Attenuation Field Sampling Parameters
2015 - 2020
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Location ID	Screened Interval (ft bls)	Sample Date	pH	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTUs)
WILC-OBS-MW0004D	47 to 52	3/4/2016	7.45	24.0	3,110	0.33	-10	13.4
WILC-OBS-MW0005D	47 to 52	2/29/2016	8.45	24.8	4,336	0.23	-44	15.8
WILC-NPSH-MW0010	29 to 34	12/4/2020	7.00	23.0	1,205	0.12	-198	4.77
WILC-NPSH-MW0017	29 to 34	12/8/2020	7.18	16.9	1,121	0.28	-125	0.57
WILC-NPSH-MW0019	29 to 34	12/4/2020	7.05	21.8	1,671	0.33	-120	0.98
WILC-NPSH-MW0020	29 to 34	12/4/2020	6.89	22.1	3,421	0.29	-69	
WILC-NPSH-MW0022	29 to 34	12/4/2020	7.02	23.5	7,664	0.37	-56	8.16
WILC-NPSH-MW0027	10 to 15	12/8/2020	6.96	23.7	1,042	0.21	-107	1.22
WILC-NPSH-MW0039	40 to 45	12/3/2020	7.02	24.1	4,005	0.17	-50	7.36
WILC-MW0046D	40 to 45	12/10/2020	6.81	21.3	3,875	0.25	-132	9.85
WILC-MW0049D	40 to 45	10/27/2016	7.01	26.1	5,711	0.22	-84	201
		3/20/2017	7.12	26.3	3,756	0.25	100	32.9
		5/11/2017	6.88	25.8	6,339	0.11	-49	14.4
WILC-MW0049I	29 to 34	10/27/2016	6.61	26.0	1,058	0.30	-70	3.38
		3/20/2017	7.30	26.4	1,076	6.20	86	8.26
		5/11/2017	6.86	25.3	1,141	0.16	-62	3.80
WILC-MW0049S	2 to 12	10/27/2016	6.64	27.4	614	0.21	-40	18.4
		3/20/2017	6.68	26.3	888	0.31	133	5.15
		5/11/2017	6.65	25.5	1,138	0.11	-47	7.90
WILC-MW0062	29 to 34	3/2/2016	8.70	22.1	1,869	0.39	-80	2.53
		10/27/2016	6.62	25.4	1,790	0.56	-62	3.86
		12/10/2020	6.51	22.2	1,417	0.20	-194	0.62
WILC-MW0064	2 to 12	10/27/2016	6.44	26.3	564	0.12	-70	3.84
		3/20/2017	6.81	25.1	481	0.56	25	11.9
		5/11/2017	6.26	26.5	566	0.19	35	9.30
		12/3/2020	6.51	23.6	915	0.14	-84	1.70
WILC-MW0065	29 to 34	12/3/2020	6.63	23.9	2,560	0.20	-143	1.22
WILC-MW0068	40 to 45	12/3/2020	6.97	24.0	9,869	0.18	-80	1.09
WILC-MW0069	29 to 34	10/16/2017	6.49	24.9	1,685	0.70	-115	12.4
WILC-MW0074	2 to 12	12/3/2020	7.19	22.9	580	0.31	-82	3.27
WILC-MW0078	65 to 70	12/7/2020	7.50	21.2	2,573	0.21	-202	7.10
WILC-MW0080	29 to 34	12/3/2020	6.57	23.2	2,905	0.62	-121	2.10
WILC-MW0088	29 to 34	12/7/2020	7.52	21.5	1,343	0.60	-54	3.79
WILC-MW0089	15 to 25	12/7/2020	7.22	18.3	660	0.39	-187	3.62
WILC-MW0090	29 to 34	12/7/2020	7.13	17.1	983	0.28	-97	9.21
WILC-MW0091	2 to 12	12/7/2020	6.05	21.1	134	0.27	-97	3.34
WILC-MW0095	2 to 12	12/10/2020	5.15	19.1	218	0.35	85	1.13
WILC-MW0096	15 to 25	12/10/2020	6.68	18.6	991	0.25	-29	1.05
WILC-MW0097	29 to 34	12/10/2020	6.68	18.0	2,171	0.32	-33	1.02
WILC-MW0098	15 to 25	2/29/2016	8.89	23.0	1,047	0.34	-4	6.12
WILC-MW0100	15 to 25	2/29/2016	8.24	25.1	1,233	0.23	-147	5.96
WILC-MW0109	15 to 25	12/4/2020	7.01	22.9	1,593	0.66	-66	13.7
WILC-MW0111	29 to 34	12/10/2020	6.63	24.2	1,122	0.31	-182	6.13
WILC-MW0116	15 to 25	12/3/2020	6.92	24.0	1,156	0.28	-161	3.83
WILC-MW0118	40 to 45	12/3/2020	7.08	23.6	2,029	0.28	-105	10.1
WILC-MW0125	15 to 25	12/4/2020	7.16	23.1	1,843	0.21	-26	15.3
WILC-MW0129	15 to 25	12/7/2020	6.76	20.6	997	0.25	-94	7.60
WILC-MW0130	56 to 66	12/15/2015	6.93	25.7	8,534	0.16	15	27.2
		12/10/2020	7.04	24.0	6,140	0.16	-242	0.39
WILC-MW0132	45 to 50	10/24/2016	6.11	25.7	4,625	0.17	-31	50.0
		3/20/2017	7.05	25.5	4,832	1.90	38	4.71
		5/11/2017	6.87	24.6	6,778	0.42	-67	3.73
WILC-MW0133	40 to 50	10/24/2016	6.28	25.6	5,000	0.20	-364	8.46
		3/20/2017	7.03	25.8	5,263	3.74	-38	8.73
		5/11/2017	6.79	24.7	7,395	0.19	-113	6.30
WILC-MW0134	10 to 20	10/27/2016	6.00	26.7	649	0.24	-54	13.6
		3/20/2017	6.96	25.8	755	0.26	-139	5.20
		5/11/2017	6.73	25.0	1,020	0.08	-87	9.40
WILC-MW0135	40 to 50	10/24/2016	6.28	25.7	4,690	0.16	-312	14.6
		3/20/2017	6.90	26.9	4,949	0.20	-60	13.1
		5/11/2017	6.80	25.0	7,001	0.35	-12	5.30
WILC-MW0136	40 to 45	10/27/2016	7.10	26.7	5,617	1.80	-177	39.2
		3/20/2017	7.07	26.3	4,989	0.47	-43	2.95
		5/11/2017	6.87	25.4	7,114	0.17	-62	4.20
WILC-MW0137	10 to 20	10/27/2016	6.33	26.6	795	0.12	-127	12.5
		3/20/2017	6.97	25.4	742	0.29	-110	70.4
		5/11/2017	6.80	25.6	1,009	0.04	-83	6.50
WILC-MW0138	10 to 20	10/27/2016	6.32	25.2	654	0.25	-94	15.8
		3/20/2017	6.87	25.2	1,196	0.29	41	13.0
		5/11/2017	6.69	25.9	1,864	0.13	-102	3.39
WILC-MW0139	10 to 20	10/27/2016	6.20	26.7	851	0.13	-94	18.8
		3/20/2017	6.91	22.9	744	0.20	-141	4.19
		5/11/2017	6.76	25.9	1,072	0.12	-91	5.61

Table 3-3
Natural Attenuation Field Sampling Parameters
2015 - 2020
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Location ID	Screened Interval (ft bls)	Sample Date	pH	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTUs)
WILC-MW0140	23 to 33	12/3/2020	6.76	26.1	1,127	0.68	-53	4.20
WILC-MW0141	34 to 44	12/3/2020	7.00	24.9	1,537	0.41	-113	3.70
WILC-MW0142	8 to 18	12/27/2017	5.99	26.5	1,400	1.00	-27	9.50
		12/18/2019	6.45	24.0	885	0.24	-57	12.8
		12/3/2020	6.16	26.2	784	0.32	-20	1.80
WILC-MW0143	23 to 33	12/27/2017	6.69	27.0	1,670	0.49	-112	10.8
		12/18/2019	7.32	25.1	1,728	0.09	-135	5.02
		12/3/2020	7.04	26.6	1,265	0.34	-115	3.10
WILC-MW0144	40 to 50	12/27/2017	6.71	26.0	3,390	0.20	-152	3.70
		12/18/2019	7.00	25.2	2,370	0.11	-109	14.8
		12/3/2020	6.67	26.6	2,183	0.28	-68	4.70
WILC-MW0145	38 to 48	12/27/2017	7.00	27.0	3,110	0.30	-122	10.1
		12/18/2019	7.20	24.5	2,699	0.16	-122	16.1
		12/10/2020	7.06	24.6	2,738	0.43	-285	4.59
WILC-MW0146	23 to 33	12/10/2020	8.45	24.2	1,760	0.15	-317	10.2
WILC-MW0147	38 to 48	12/10/2020	7.00	23.8	3,655	0.39	-286	5.75
WILC-MW0148	38 to 48	12/27/2017	7.17	27.5	3,130	0.30	-117	9.80
WILC-MW0149	20 to 30	12/7/2020	7.59	20.3	713	0.57	12	8.36
WILC-MW0152	5 to 15	12/4/2020	6.68	23.2	713	0.19	-156	1.03
WILC-MW0153	20 to 30	12/4/2020	7.20	23.0	975	0.16	-192	71.2
WILC-MW0154	5 to 15	12/3/2020	6.87	23.7	713	0.29	-141	7.36
WILC-MW0155	29 to 34	12/3/2020	7.02	23.8	1,211	0.28	-85	7.98
WILC-MW0156	5 to 15	12/8/2020	6.53	14.2	787	0.49	-127	2.06

Notes:
Blank cells indicate the parameter was no recorded for that specific well or sampling event
°C = degrees Celsius
ft bls = feet below land surface
mg/L = milligrams per liter
mV = millivolts
NASA = National Aeronautics and Space Administration
NTUs = Nephelometric turbidity units
SWMU = Solid Waste Management Unit
µS/cm = microsiemens per centimeter



Legend

- Monitoring Well - 2 to 15 ft bls
- Groundwater Contour (ft NAVD)
- Approximate Direction of Groundwater Flow
- 2.62 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- NM = Not Measured
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-1
Groundwater Contour Map - December 18, 2019
2 to 15 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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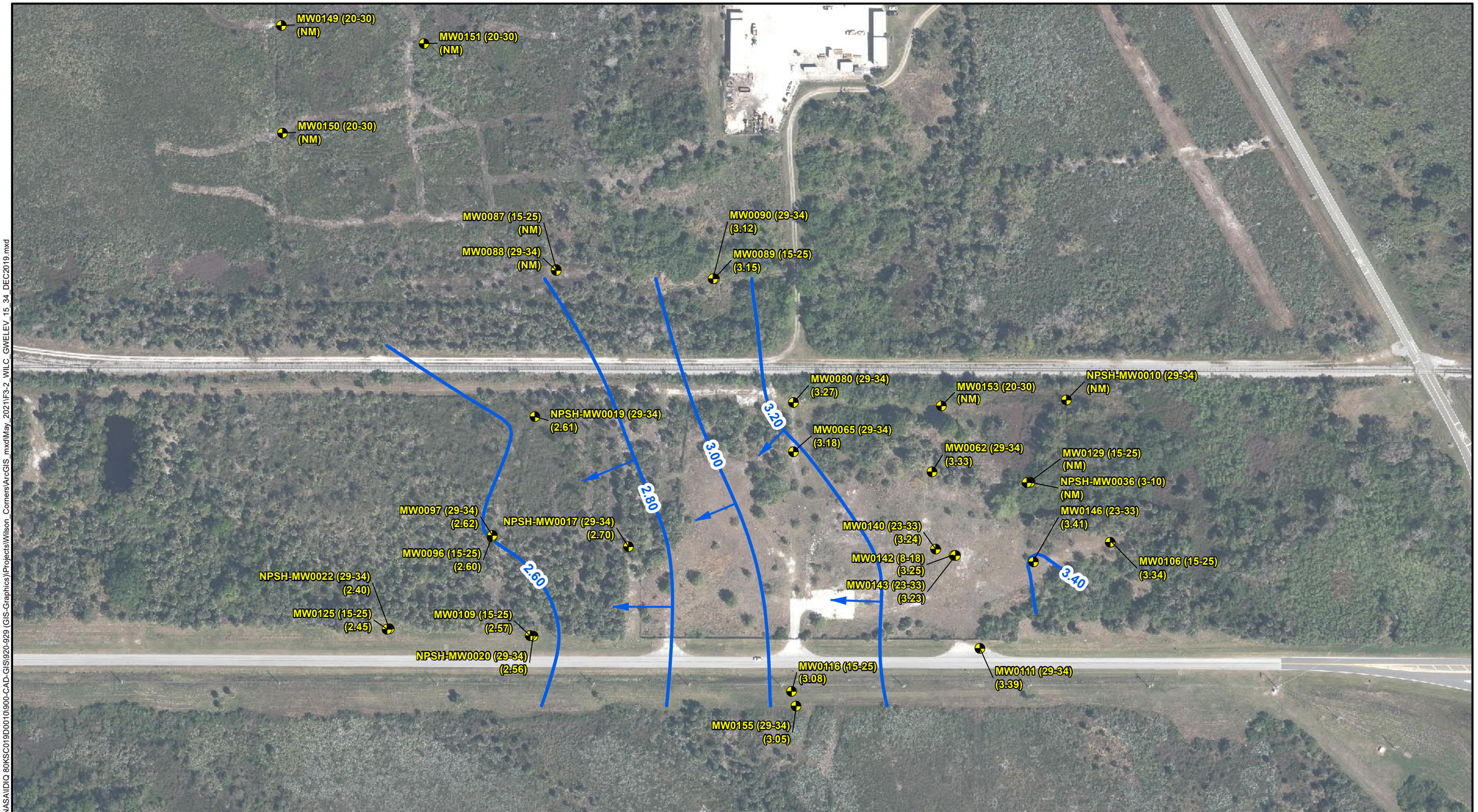

Legend

- Monitoring Well - 15 to 34 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 2.57 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- NM = Not Measured
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

Figure 3-2
Groundwater Contour Map - December 18, 2019
15 to 34 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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Legend

- Monitoring Well - 34 to 48 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 2.71 Groundwater Elevation (NAVD88 ft)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- * = Not used in contouring
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-3
Groundwater Contour Map - December 18, 2019
34 to 48 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Legend

Monitoring Well - Greater than 48 ft bls

3.08 Groundwater Elevation (NAVD88 ft)

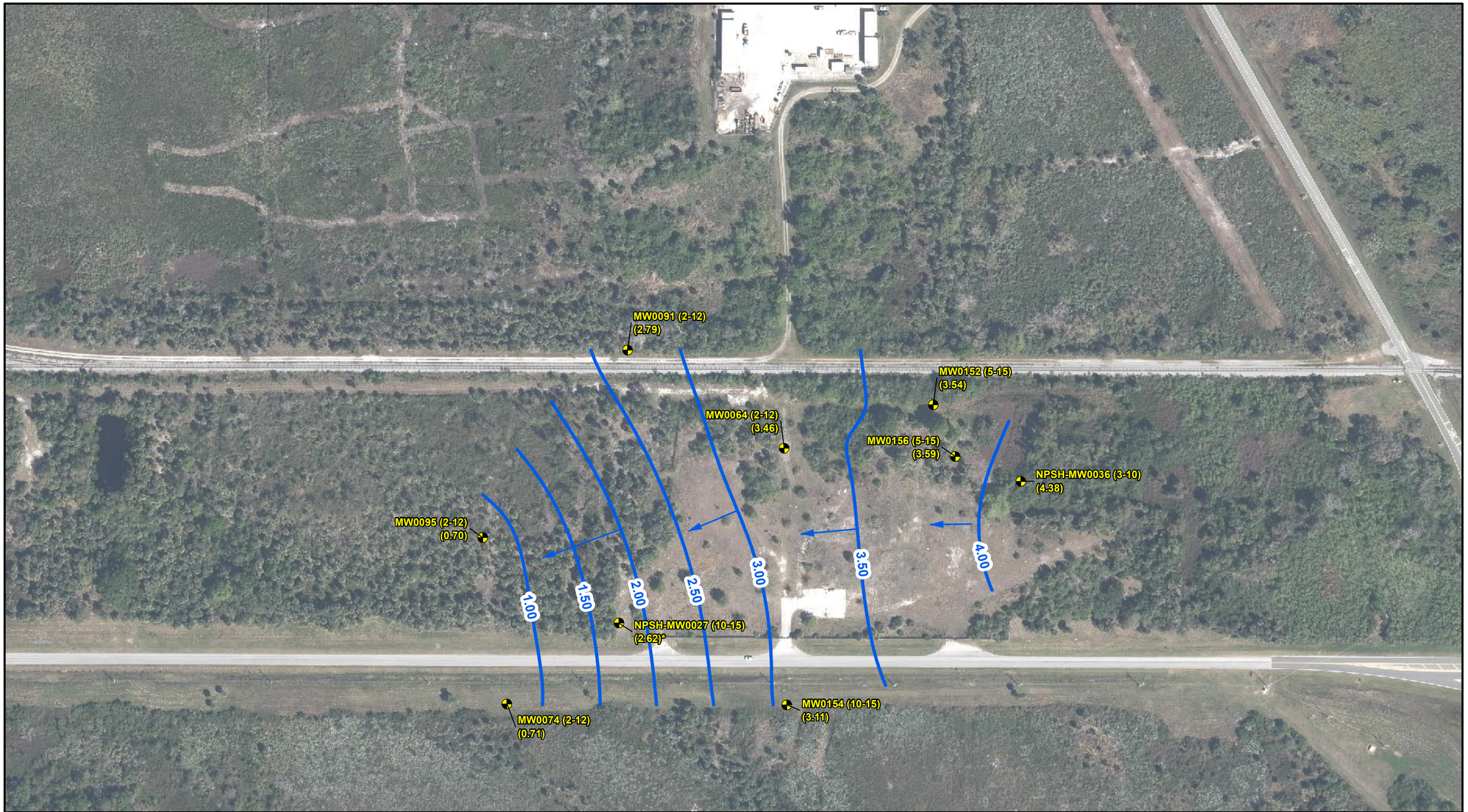
Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Aerial Source: FDOT 2018
- ft bls = feet below land surface
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-4
Groundwater Contour Map - December 18, 2019
Greater Than 48 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida



Legend

- Monitoring Well - 2 to 15 ft bls
- Groundwater Contour (ft NAVD)
- Approximate Direction of Groundwater Flow
- 3.11 Groundwater Elevation (NAVD88 ft)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 2, 2020
- Groundwater Contour Interval = 0.50 Ft.
- Aerial Source: FDOT 2018
- * = Not used in contouring
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-5
Groundwater Contour Map - December 2, 2020
2 to 15 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

MW0149 (20-30)
(2.36)
MW0151 (20-30)
(2.62)
2.40
MW0150 (20-30)
(1.40)*
MW0087 (15-25)
(2.83)
MW0088 (29-34)
(2.82)
MW0089 (15-25)
(3.25)
MW0090 (29-34)
(3.23)
2.60
2.80
3.00
3.20
3.40
3.60
NPSH-MW0019 (29-34)
(2.84)
MW0080 (29-34)
(3.35)
MW0153 (20-30)
(3.54)
NPSH-MW0010 (29-34)
(3.86)
3.80
MW0065 (29-34)
(3.30)
MW0062 (29-34)
(3.47)
MW0129 (15-25)
(3.68)
MW0097 (29-34)
(0.67)*
MW0096 (15-25)
(0.66)*
MW0140 (23-33)
(3.41)
MW0146 (23-33)
(3.22)
3.40
MW0106 (15-25)
(3.57)
NPSH-MW0017 (29-34)
(2.77)
MW0142 (8-18)
(3.45)
MW0143 (23-33)
(3.45)
NPSH-MW0022 (29-34)
(2.61)
MW0125 (15-25)
(2.55)
MW0111 (29-34)
(3.59)
MW0109 (15-25)
(2.63)
2.60
NPSH-MW0020 (29-34)
(2.58)
MW0116 (15-25)
(3.21)
MW0155 (29-34)
(3.16)

Legend

- Monitoring Well - 15 to 34 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 2.55 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 2, 2020
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- * = Not used in contouring
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-6
Groundwater Contour Map – December 2, 2020
15 to 34 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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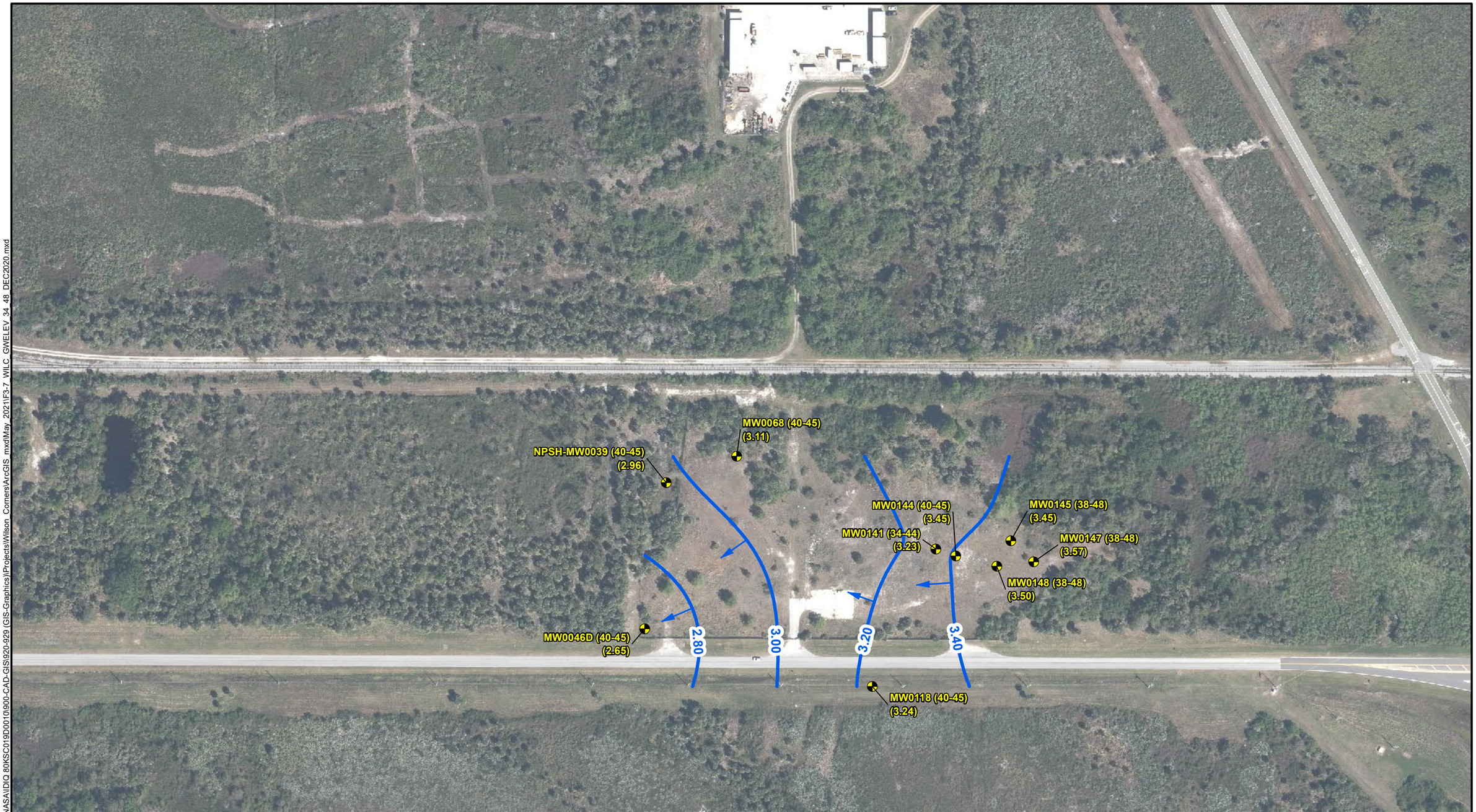

Legend

- Monitoring Well - 34 to 48 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 2.65 Groundwater Elevation (NAVD88 ft)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 2, 2020
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-7
Groundwater Contour Map – December 2, 2020
34 to 48 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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Legend

Monitoring Well - Greater than 48 ft bls

3.31 Groundwater Elevation (NAVD88 ft)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 2, 2020
- Aerial Source: FDOT 2018
- ft bls = feet below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit

N

0 180 360 Feet

FIGURE 3-8
Groundwater Contour Map – December 2, 2020
Greater Than 48 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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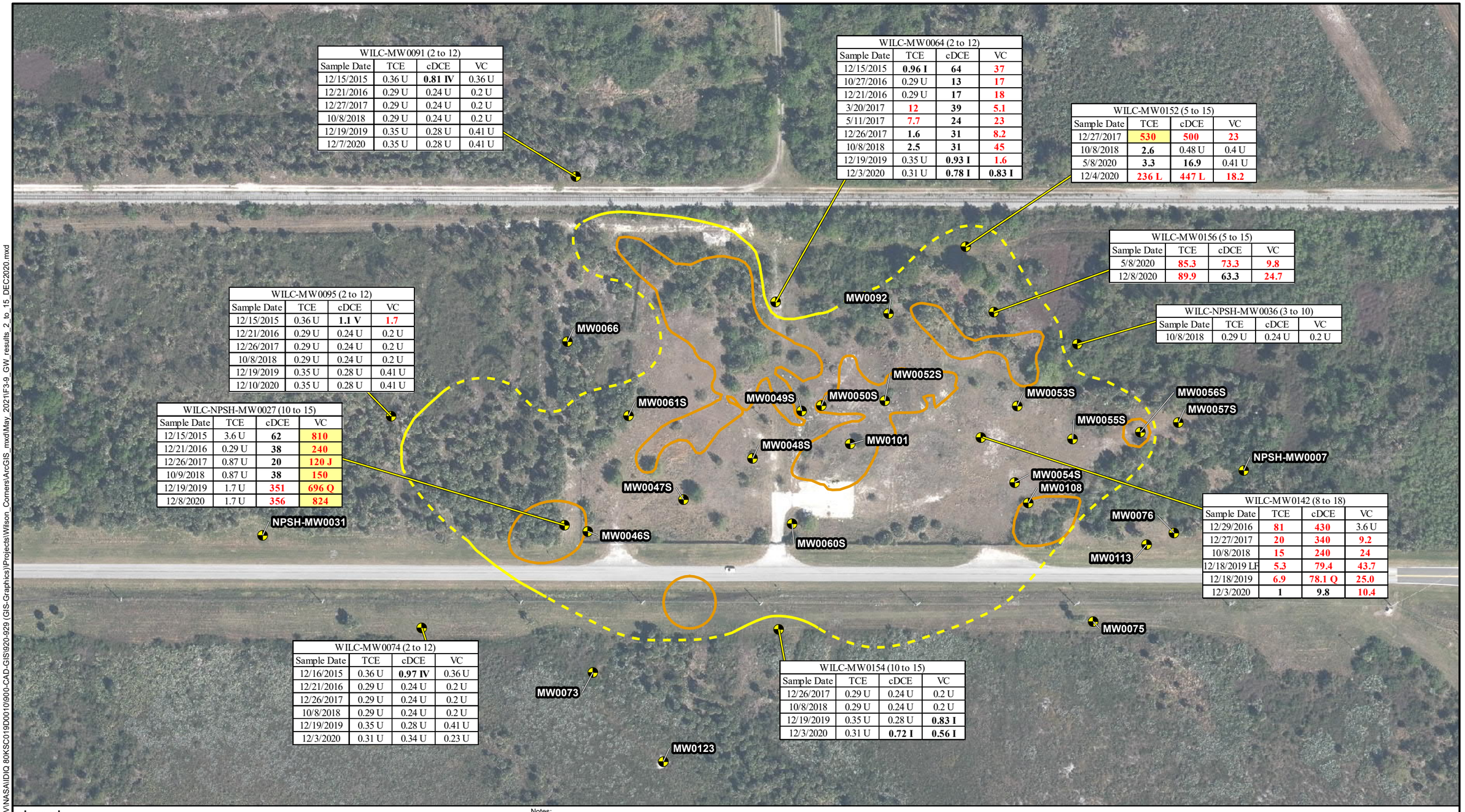

WILC-MW0091 (2 to 12)			
Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**0.81 IV**	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/7/2020	0.35 U	0.28 U	0.41 U

WILC-MW0064 (2 to 12)			
Sample Date	TCE	cDCE	VC
12/15/2015	**0.96 I**	**64**	**37**
10/27/2016	0.29 U	**13**	**17**
12/21/2016	0.29 U	**17**	**18**
3/20/2017	**12**	**39**	**5.1**
5/11/2017	**7.7**	**24**	**23**
12/26/2017	**1.6**	**31**	**8.2**
10/8/2018	**2.5**	**31**	**45**
12/19/2019	0.35 U	**0.93 I**	**1.6**
12/3/2020	0.31 U	**0.78 I**	**0.83 I**

WILC-MW0152 (5 to 15)			
Sample Date	TCE	cDCE	VC
12/27/2017	**530**	**500**	**23**
10/8/2018	**2.6**	0.48 U	0.4 U
5/8/2020	**3.3**	**16.9**	0.41 U
12/4/2020	**236 L**	**447 L**	**18.2**

WILC-MW0156 (5 to 15)			
Sample Date	TCE	cDCE	VC
5/8/2020	**85.3**	**73.3**	**9.8**
12/8/2020	**89.9**	**63.3**	**24.7**

WILC-NPSH-MW0036 (3 to 10)			
Sample Date	TCE	cDCE	VC
10/8/2018	0.29 U	0.24 U	0.2 U

WILC-MW0095 (2 to 12)			
Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**1.1 V**	**1.7**
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/10/2020	0.35 U	0.28 U	0.41 U

WILC-NPSH-MW0027 (10 to 15)			
Sample Date	TCE	cDCE	VC
12/15/2015	3.6 U	**62**	**810**
12/21/2016	0.29 U	**38**	**240**
12/26/2017	0.87 U	**20**	**120 J**
10/9/2018	0.87 U	**38**	**150**
12/19/2019	1.7 U	**351**	**696 Q**
12/8/2020	1.7 U	**356**	**824**

WILC-MW0142 (8 to 18)			
Sample Date	TCE	cDCE	VC
12/29/2016	**81**	**430**	3.6 U
12/27/2017	**20**	**340**	**9.2**
10/8/2018	**15**	**240**	**24**
12/18/2019 LF	**5.3**	**79.4**	**43.7**
12/18/2019	**6.9**	**78.1 Q**	**25.0**
12/3/2020	**1**	**9.8**	**10.4**

WILC-MW0074 (2 to 12)			
Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	**0.97 IV**	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/3/2020	0.31 U	0.34 U	0.23 U

WILC-MW0154 (10 to 15)			
Sample Date	TCE	cDCE	VC
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	**0.83 I**
12/3/2020	0.31 U	**0.72 I**	**0.56 I**

Legend

- Monitoring Well
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was undetected
- I = Indicates the analyte was detected but below the reporting limit; therefore, an estimated value
- Q = Results from run #2
- L = Indicates value exceeds calibration range
- V = Indicates the analyte was detected in both the sample and the associated method blank
- **Bold** indicates a detected value
- LF = sample was collected using low-flow techniques
- bls = below land surface
- 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.
- NPSH = National Park Service Headquarters
- (1-11) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial Source: FDOT 2018

N

0 140 280 Feet

FIGURE 3-9
Groundwater Analytical Results
2 to 15 feet bls
2015 - 2020
Wilson Corners (WILC)
Solid Waste Management Unit 001
NASA Kennedy Space Center, Florida

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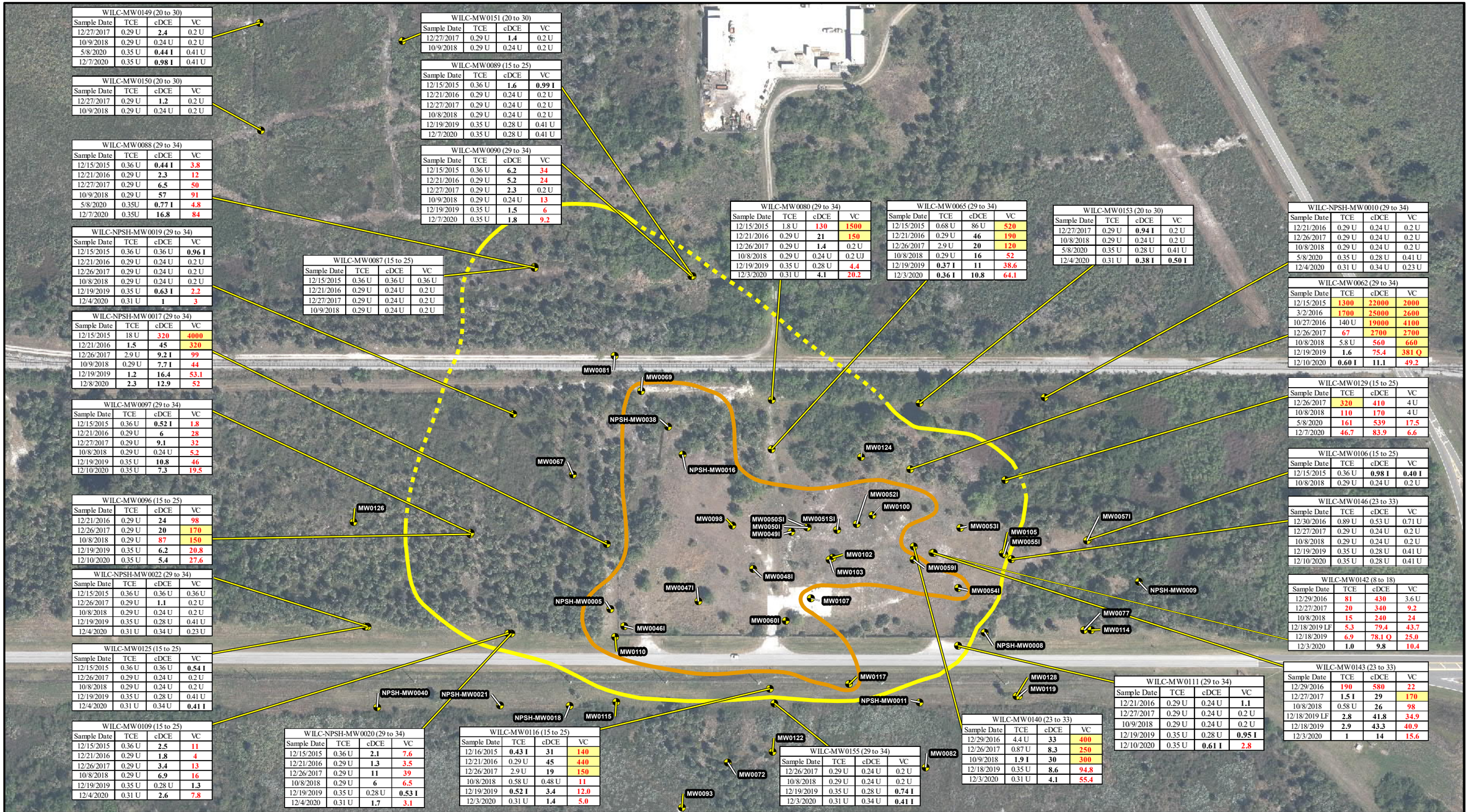


WILC-MW0149 (20 to 30)

Sample Date	TCE	cDCE	VC
12/27/2017	0.29 U	**2.4**	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
5/8/2020	0.35 U	**0.44 I**	0.41 U
12/7/2020	0.35 U	**0.98 I**	0.41 U

WILC-MW0150 (20 to 30)

Sample Date	TCE	cDCE	VC
12/27/2017	0.29 U	**1.2**	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U

WILC-MW0088 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**0.44 I**	3.8
12/21/2016	0.29 U	**2.3**	12
12/27/2017	0.29 U	**6.5**	50
10/9/2018	0.29 U	**57**	91
5/8/2020	0.35U	**0.77 I**	4.8
12/7/2020	0.35U	**16.8**	84

WILC-NPSH-MW0019 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.36 U	**0.96 I**
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	**0.63 I**	2.2
12/4/2020	0.31 U	**1**	3

WILC-NPSH-MW0017 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	18 U	320	4000
12/21/2016	**1.5**	**45**	320
12/26/2017	2.9 U	**9.2 I**	99
10/9/2018	0.29 U	**7.7 I**	44
12/19/2019	**1.2**	**16.4**	53.1
12/8/2020	**2.3**	**12.9**	52

WILC-MW0097 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**0.52 I**	1.8
12/21/2016	0.29 U	**6**	28
12/27/2017	0.29 U	**9.1**	32
10/8/2018	0.29 U	0.24 U	5.2
12/19/2019	0.35 U	**10.8**	46
12/10/2020	0.35 U	**7.3**	19.5

WILC-MW0096 (15 to 25)

Sample Date	TCE	cDCE	VC
12/21/2016	0.29 U	**24**	98
12/26/2017	0.29 U	**20**	170
10/8/2018	0.29 U	87	150
12/19/2019	0.35 U	**6.2**	20.8
12/10/2020	0.35 U	**5.4**	27.6

WILC-NPSH-MW0022 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.36 U	0.36 U
12/26/2017	0.29 U	**1.1**	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/4/2020	0.31 U	0.34 U	0.23 U

WILC-MW0125 (15 to 25)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.36 U	**0.54 I**
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/4/2020	0.31 U	0.34 U	**0.41 I**

WILC-MW0109 (15 to 25)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**2.5**	11
12/21/2016	0.29 U	**1.8**	4
12/26/2017	0.29 U	**3.4**	13
10/8/2018	0.29 U	**6.9**	16
12/19/2019	0.35 U	0.28 U	**1.3**
12/4/2020	0.31 U	**2.6**	7.8

WILC-MW0151 (20 to 30)

Sample Date	TCE	cDCE	VC
12/27/2017	0.29 U	**1.4**	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U

WILC-MW0089 (15 to 25)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**1.6**	**0.99 I**
12/21/2016	0.29 U	0.24 U	0.2 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/7/2020	0.35 U	0.28 U	0.41 U

WILC-MW0090 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**6.2**	34
12/21/2016	0.29 U	**5.2**	24
12/27/2017	0.29 U	**2.3**	0.2 U
10/9/2018	0.29 U	0.24 U	13
12/19/2019	0.35 U	**1.5**	6
12/7/2020	0.35 U	**1.8**	9.2

WILC-MW0087 (15 to 25)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.36 U	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U

WILC-MW0080 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	1.8 U	130	1500
12/21/2016	0.29 U	**21**	150
12/26/2017	0.29 U	**1.4**	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 UJ
12/19/2019	0.35 U	0.28 U	4.4
12/3/2020	0.31 U	**4.1**	20.2

WILC-MW0065 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.68 U	86 U	520
12/21/2016	0.29 U	**46**	190
12/26/2017	2.9 U	**20**	120
10/8/2018	0.29 U	**16**	52
12/19/2019	**0.37 I**	**11**	38.6
12/3/2020	**0.36 I**	**10.8**	64.1

WILC-MW0153 (20 to 30)

Sample Date	TCE	cDCE	VC
12/27/2017	0.29 U	**0.94 I**	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
5/8/2020	0.35 U	0.28 U	0.41 U
12/4/2020	0.31 U	**0.38 I**	**0.50 I**

WILC-NPSH-MW0010 (29 to 34)

Sample Date	TCE	cDCE	VC
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
5/8/2020	0.35 U	0.28 U	0.41 U
12/4/2020	0.31 U	0.34 U	0.23 U

WILC-MW0062 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	1300	22000	2000
3/2/2016	1700	25000	2600
10/27/2016	140 U	19000	4100
12/26/2017	67	2700	2700
10/8/2018	5.8 U	560	660
12/19/2019	**1.6**	75.4	381 Q
12/10/2020	**0.60 I**	**11.1**	49.2

WILC-MW0129 (15 to 25)

Sample Date	TCE	cDCE	VC
12/26/2017	320	410	4 U
10/8/2018	110	170	4 U
5/8/2020	161	539	17.5
12/7/2020	46.7	83.9	6.6

WILC-MW0106 (15 to 25)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**0.98 I**	**0.40 I**
10/8/2018	0.29 U	0.24 U	0.2 U

WILC-MW0146 (23 to 33)

Sample Date	TCE	cDCE	VC
12/30/2016	0.89 U	0.53 U	0.71 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/10/2020	0.35 U	0.28 U	0.41 U

WILC-MW0142 (8 to 18)

Sample Date	TCE	cDCE	VC
12/29/2016	81	430	3.6 U
12/27/2017	20	340	9.2
10/8/2018	15	240	24
12/18/2019 LF	5.3	79.4	43.7
12/18/2019	6.9	78.1 Q	25.0
12/3/2020	**1.0**	**9.8**	10.4

WILC-MW0143 (23 to 33)

Sample Date	TCE	cDCE	VC
12/29/2016	190	580	22
12/27/2017	**1.5 I**	**29**	170
10/8/2018	0.58 U	**26**	98
12/18/2019 LF	**2.8**	**41.8**	34.9
12/18/2019	**2.9**	**43.3**	40.9
12/3/2020	**1**	**14**	15.6

WILC-MW0111 (29 to 34)

Sample Date	TCE	cDCE	VC
12/21/2016	0.29 U	0.24 U	**1.1**
12/27/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	**0.95 I**
12/10/2020	0.35 U	**0.61 I**	2.8

WILC-NPSH-MW0020 (29 to 34)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	**2.1**	7.6
12/21/2016	0.29 U	**1.3**	3.5
12/26/2017	0.29 U	**11**	39
10/8/2018	0.29 U	**6**	6.5
12/19/2019	0.35 U	0.28 U	**0.53 I**
12/4/2020	0.31 U	**1.7**	3.1

WILC-MW0116 (15 to 25)

Sample Date	TCE	cDCE	VC
12/16/2015	**0.43 I**	**31**	140
12/21/2016	0.29 U	**45**	440
12/26/2017	2.9 U	**19**	150
10/8/2018	0.58 U	0.48 U	11
12/19/2019	**0.52 I**	**3.4**	12.0
12/3/2020	0.31 U	**1.4**	5.0

WILC-MW0155 (29 to 34)

Sample Date	TCE	cDCE	VC
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	**0.74 I**
12/3/2020	0.31 U	0.34 U	**0.41 I**

WILC-MW0140 (23 to 33)

Sample Date	TCE	cDCE	VC
12/29/2016	4.4 U	**33**	400
12/26/2017	0.87 U	**8.3**	250
10/9/2018	**1.9 I**	**30**	300
12/18/2019	0.35 U	**8.6**	94.8
12/3/2020	0.31 U	**4.1**	55.4

Legend

- Monitoring Well
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

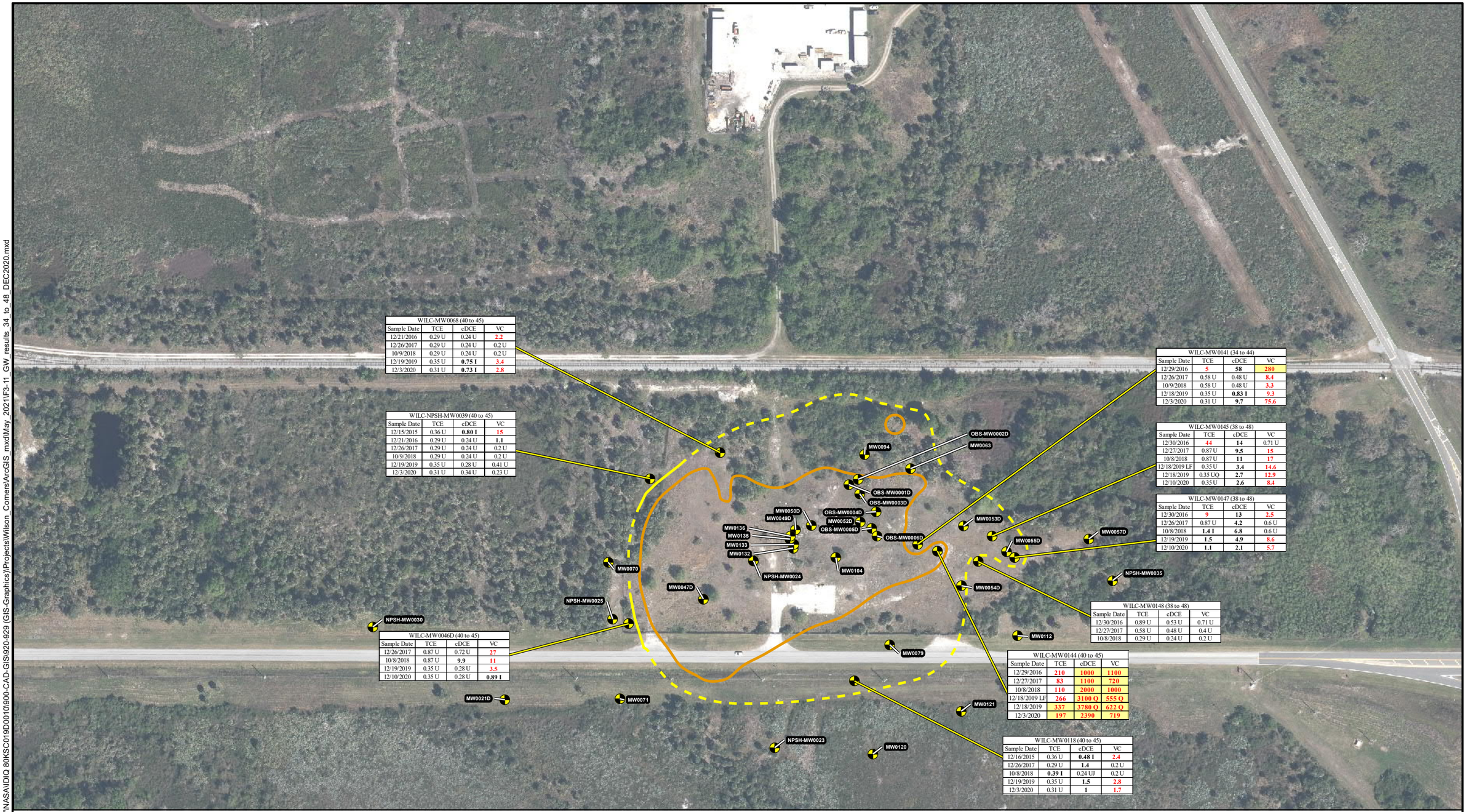
Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was undetected
- I = Indicates the analyte was detected but below the reporting limit; therefore, an estimated value
- Q = Results from run #2
- **Bold** indicates a detected value
- LF = sample was collected using low-flow techniques
- bls = below land surface
- 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.
- NPSH = National Park Service Headquarters
- (1-11) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial Source: FDOT 2018

N

0 180 360 Feet

FIGURE 3-10
Groundwater Analytical Results
15 - 34 ft bls
2015 - 2020
Wilson Corners (WILC)
Solid Waste Management Unit 001
NASA Kennedy Space Center, Florida



Legend

- Monitoring Well
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was undetected
- I = Indicates the analyte was detected but below the reporting limit; therefore, an estimated value
- Q = Results from run #2
- J = Analyte concentration detected below the method detection limit
- **Bold** indicates a detected value
- LF = sample was collected using low-flow techniques
- bls = below land surface
- 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.
- NPSH = National Park Service Headquarters
- (1-11) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial Source: FDOT 2018

N

0 180 360 Feet

FIGURE 3-11
Groundwater Analytical Results
34 - 48 ft bls
2015 - 2020
Wilson Corners (WILC)
Solid Waste Management Unit 001
NASA Kennedy Space Center, Florida

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WILC-MW0130 (56 to 66)			
Sample Date	TCE	cDCE	VC
12/15/2015	**8.4**	**780**	**180**
12/21/2016	**5.9**	**480**	**160**
12/27/2017	2.9 U	**400**	**150**
10/9/2018	2.9 U	**300**	**160**
12/19/2019	0.35 U	**4.9**	**20**
12/10/2020	0.35 U	**4.6**	**21.7**

WILC-MW0086 (71 to 76)			
Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.36 U	0.36 U

WILC-MW0083 (71 to 76)			
Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.36 U	0.36 U

MW0099

MW0085

NPSH-MW0034

MW0084

WILC-MW0078 (65 to 70)			
Sample Date	TCE	cDCE	VC
12/15/2015	9 U	**1100**	**82**
12/21/2016	**1.2**	**180**	**18**
12/26/2017	1.4 U	**100**	1 U
10/9/2018	1.4 U	**97**	**76**
12/19/2019	**0.83 I**	**146**	**104**
12/7/2020	**2.7**	**10.3**	**19.9**

Legend

- Monitoring Well
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)

Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

Notes:
- Concentrations are in micrograms per Liter (µg/L)
- U = Indicates that the analyte was undetected
- I = Indicates the analyte was detected but below the reporting limit; therefore, an estimated value
- **Bold** indicates a detected value
- bls = below land surface
- 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.
- NPSH = National Park Service Headquarters
- (1-11) = Monitoring well screen interval in feet below land surface
- Historical data source: RIS
- Aerial Source: FDOT 2018

N

0 180 360 Feet

FIGURE 3-12
Groundwater Analytical Results
Greater than 48 ft bls
2015 - 2020
Wilson Corners (WILC)
Solid Waste Management Unit 001
NASA Kennedy Space Center, Florida

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SECTION IV

CONCLUSIONS AND RECOMMENDATIONS

The Wilson Corners LTM activities and results were presented to the KSCRT in April 2020 and April 2021, and the KSCRT agreed with the following conclusions and recommendations. The ADPs and meeting minutes are provided in **Appendix A**.

The following conclusions can be made based on the 2019 and 2020 LTM results:

- In December 2019 and December 2020, groundwater flow for the site was generally to the west with the individual zones only varying by occasional northerly and southerly components. This is generally consistent with historical observations at the site.
- The GCTL plume continues to extend both horizontally and vertically beyond our current monitoring well network.
- The vertical extent of VOCs was historically generally delineated by monitoring wells screened greater than 48 feet bls. The results from the two vertical extent monitoring wells WILC-MW0078 and WILC-MW0130 that were sampled during the 2019 and 2020 LTM indicate that groundwater VOC concentrations in both wells were greater than the GCTL.
- Freon 113 was not detected above GCTLs during the 2019 and 2020 LTM events.

Based on groundwater sampling activities performed during this reporting period, including recent DPT groundwater sampling conducted for the implementation of an air sparge system, the following recommendations are provided:

- Install 10 new monitoring wells, which will be sampled along with 49 existing monitoring wells, to assist with delineation of the low concentration plume. The wells are listed in **Table 4-1**, and the proposed locations are presented on **Figures 4-1** through **4-5**. (Figures 4-1, 4-2, 4-3, and 4-5 also show updated plumes and proposed performance monitoring well locations. This information will be discussed and presented under a separate cover.)
- Modify the annual LTM sampling plan as presented in **Table 4-1**.
- Sampling for future events at the site will be conducted using low flow pumping methods.

The next annual LTM sampling event is currently planned for December 2021. Please note the 10 new monitoring wells will not be installed before this event but will be installed as part of the upcoming IM construction and will be sampled during baseline sampling, along with the 49 existing monitoring wells. Following this sampling event, it is recommended that the Annual LTM be combined with the performance monitoring under the IM implementation, and LTM be temporarily discontinued.

Objectives of the 2021 LTM are to: (i) evaluate groundwater gradient and flow direction by collecting depth to water measurements from LTM wells; (ii) continue monitoring the peripheral VOC trends in the northern, southern, and western portions of the site by monitoring existing wells and installing and monitoring new wells as recommended; and (iii) monitor select internal plume wells.

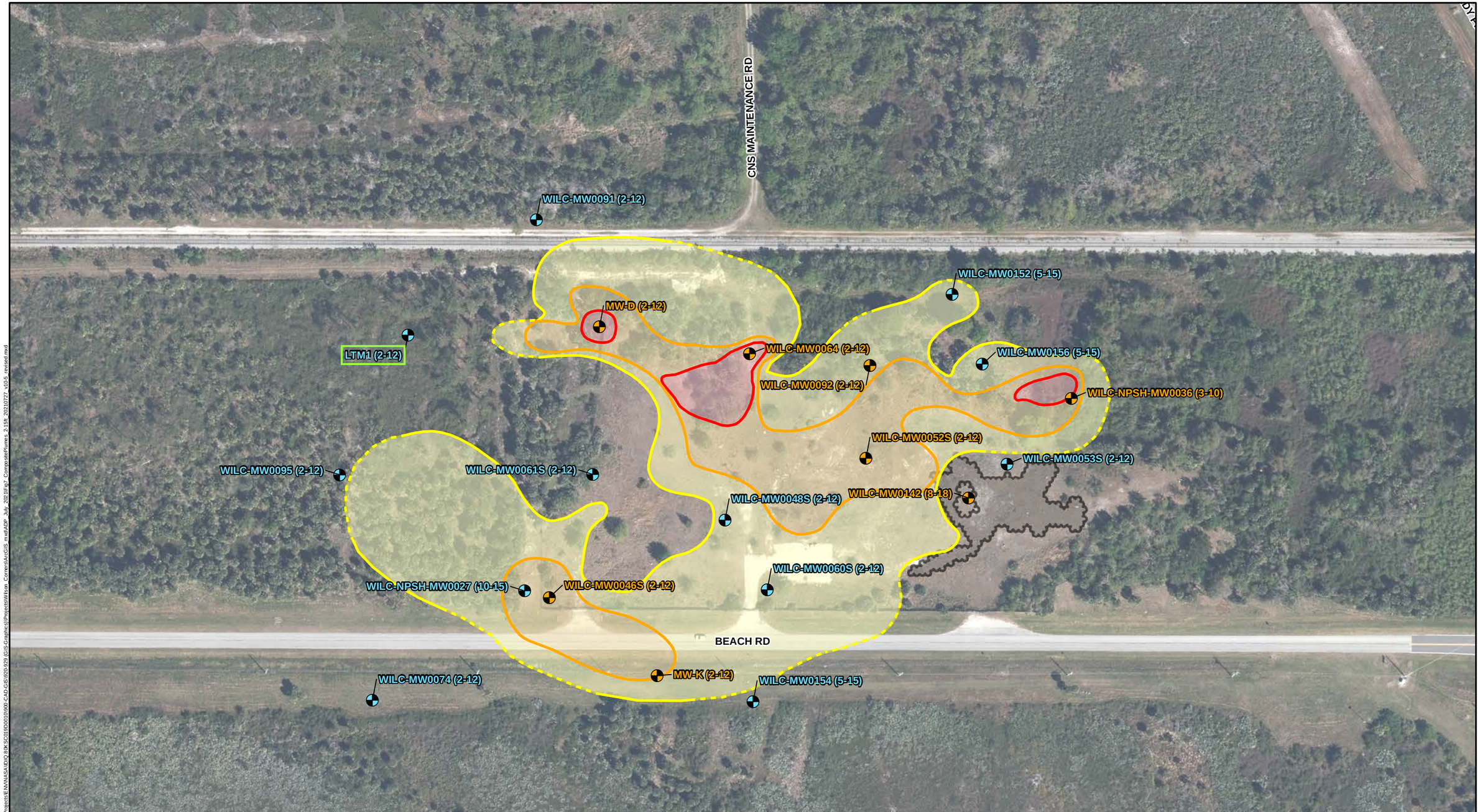
Table 4-1
2021 Proposed Long-Term Monitoring Plan
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Well ID	Screen Interval (ft bls)	New Well Proposed for Installation	Proposed 2021 LTM Plan	
			Water Levels	Sampled (Analytical Parameter)
2 to 15 ft bls				
WILC-NPSH-MW0027	10 to 15		X	Select VOCs
WILC-MW0048S	2 to 12		X	Select VOCs
WILC-MW0053S	2 to 12		X	Select VOCs
WILC-MW0057S	2 to 12		X	
WILC-MW0060S	2 to 12		X	Select VOCs
WILC-MW0061S	2 to 12		X	Select VOCs
WILC-MW0074	2 to 12		X	Select VOCs
WILC-MW0091	2 to 12		X	Select VOCs
WILC-MW0095	2 to 12		X	Select VOCs
WILC-MW0152	5 to 15		X	Select VOCs
WILC-MW0154	5 to 15		X	Select VOCs
WILC-MW0156	5 to 15		X	Select VOCs
LTM1	2 to 12	X	X	Select VOCs
15 to 34 ft bls				
WILC-NPSH-MW0010	29 to 34		X	Select VOCs
WILC-NPSH-MW0011	28 to 33		X	Select VOCs
WILC-NPSH-MW0015	29 to 34		X	
WILC-NPSH-MW0018	29 to 34		X	Select VOCs
WILC-NPSH-MW0019	29 to 34		X	Select VOCs
WILC-NPSH-MW0020	29 to 34		X	Select VOCs
WILC-MW0040	29 to 34		X	Select VOCs
WILC-MW0047I	29 to 34		X	Select VOCs
WILC-MW0054I	29 to 34		X	Select VOCs
WILC-MW0060I	29 to 34		X	Select VOCs
WILC-MW0065	29 to 34		X	
WILC-MW0069	29 to 34		X	Select VOCs
WILC-MW0077	29 to 34		X	Select VOCs
WILC-MW0080	29 to 34		X	
WILC-MW0087	15 to 25		X	Select VOCs
WILC-MW0088	29 to 34		X	Select VOCs
WILC-MW0089	15 to 25		X	
WILC-MW0090	29 to 34		X	Select VOCs
WILC-MW0096	15 to 25		X	Select VOCs
WILC-MW0097	29 to 34		X	Select VOCs
WILC-MW0107	15 to 25		X	Select VOCs
WILC-MW0109	15 to 25		X	Select VOCs
WILC-MW0111	29 to 34		X	Select VOCs
WILC-MW0114	15 to 25		X	Select VOCs
WILC-MW0115	15 to 25		X	Select VOCs
WILC-MW0116	15 to 25		X	
WILC-MW0117	15 to 25		X	Select VOCs
WILC-MW0122	15 to 25		X	Select VOCs
WILC-MW0126	15 to 25		X	Select VOCs
WILC-MW0129	15 to 25		X	Select VOCs
WILC-MW0140	23 to 33		X	
WILC-MW0149	20 to 30		X	
WILC-MW0153	20 to 30		X	Select VOCs
LTM2	24 to 34	X	X	Select VOCs
LTM3	24 to 34	X	X	Select VOCs
LTM4	24 to 34	X	X	Select VOCs
LTM9	24 to 34	X	X	Select VOCs
LTM10	24 to 34	X	X	Select VOCs

Table 4-1
2021 Proposed Long-Term Monitoring Plan
Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

Well ID	Screen Interval (ft bls)	New Well Proposed for Installation	Proposed 2021 LTM Plan	
			Water Levels	Sampled (Analytical Parameter)
34 to 48 ft bls				
WILC-MW0021D	40 to 45		X	Select VOCs
WILC-NPSH-MW0023	37.5 to 42.5		X	Select VOCs
WILC-NPSH-MW0030	43 to 48		X	Select VOCs
WILC-MW0046D	40 to 45		X	Select VOCs
WILC-MW0053D	40 to 45		X	Select VOCs
WILC-MW0054D	40 to 45		X	Select VOCs
WILC-MW0055D	40 to 45		X	Select VOCs
WILC-MW0057D	40 to 45		X	
WILC-MW0070	40 to 45		X	Select VOCs
WILC-MW0079	40 to 45		X	Select VOCs
WILC-MW0118	40 to 45		X	Select VOCs
WILC-MW0141	34 to 44		X	
WILC-MW0145	38 to 48		X	
WILC-MW0147	38 to 48		X	
LTM5	35 to 45	X	X	Select VOCs
LTM6	35 to 45	X	X	Select VOCs
LTM7	42 to 52	X	X	Select VOCs
Greater than 48 ft bls				
WILC-MW0078	65 to 70		X	Select VOCs
WILC-MW0130	56 to 66		X	Select VOCs
LTM8	70 to 80	X	X	Select VOCs

Notes:
Blank cells indicate that the well is not included for that event or activity.
ft bls = feet below land surface
NASA = National Aeronautics and Space Administration
Select VOCs = 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, Freon 113, tetrachloroethene, trichloroethene, and vinyl chloride
SWMU = Solid Waste Management Unit
VOCs = Volatile Organic Compounds



Legend

- LTM Well Location
- Performance Monitoring Well Location
- Hot Spot 1 Treatment Area
- Proposed LTM Well Location
- 2-15 ft bls CVOC Low Concentration Plume (LCP) (Area: 8.2 Acres/358,210 ft2)
- 2-15 ft bls CVOC High Concentration Plume (HCP) (Area: 2.4 Acres/106,597 ft2)
- 2-15 ft bls CVOC 10x NADC Plume (Area: 0.3 Acres/14,116 ft2)
- Contaminant Contour Inferred

Notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- Plume extents and depths are based on DPT Analytical results

N

0 100 200 Feet

FIGURE 4-1
Proposed Monitoring Well Locations
2 to 15 feet bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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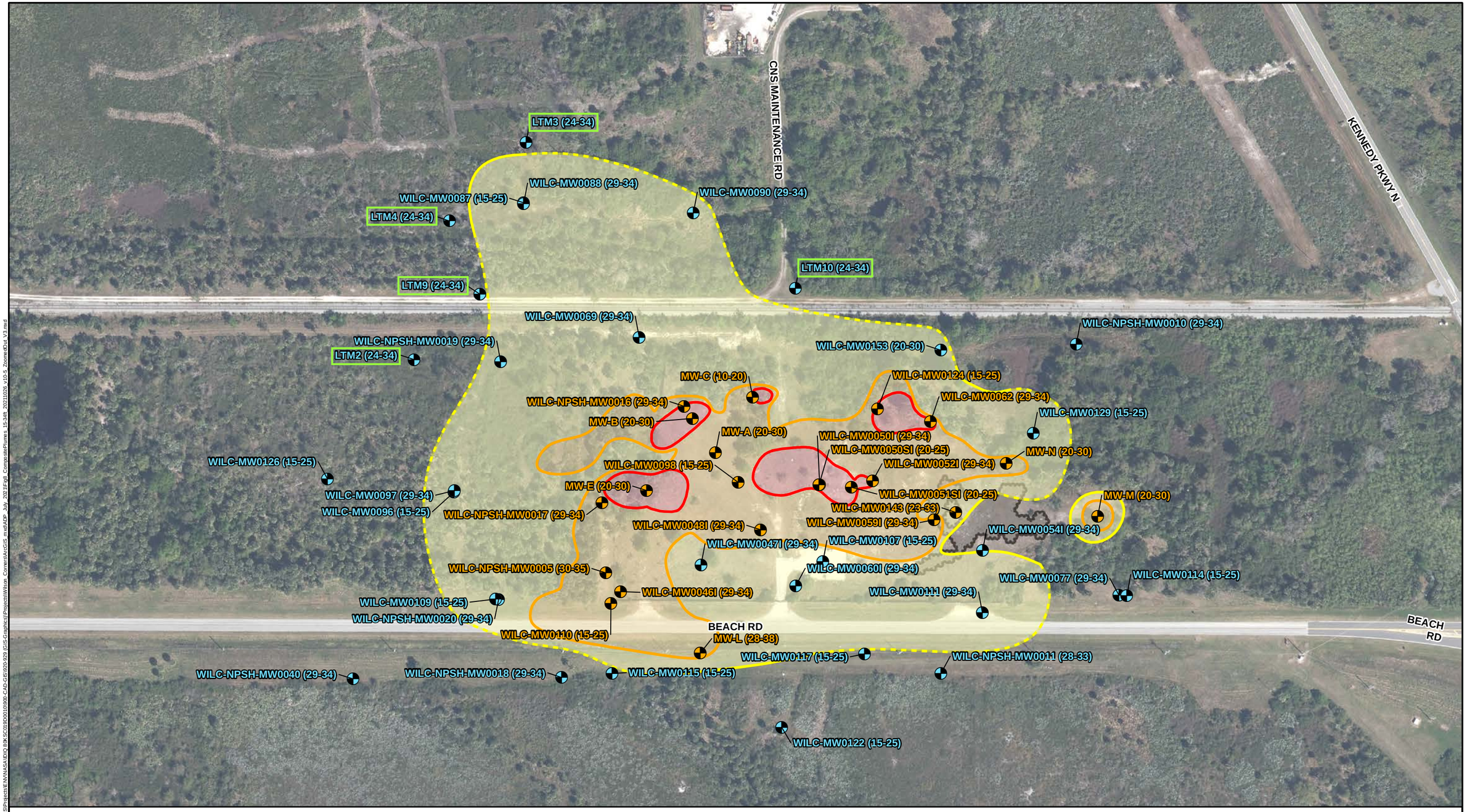

Legend

- LTM Well Location
- Performance Monitoring Well Location
- Hot Spot 1 Treatment Area
- Proposed LTM Well Location
- 15-35 ft bls CVOC Low Concentration Plume (LCP) (Area: 16.6 Acres/723,727 ft2)
- 15-35 ft bls CVOC High Concentration Plume (HCP) (Area: 4.9 Acres/211,545 ft2)
- 15-35 ft bls CVOC 10x NADC Plume (Area: 0.7 Acres/32,262 ft2)
- Contaminant Contour Inferred

Notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- Plume extents and depths are based on DPT Analytical results

N

0 150 300 Feet

FIGURE 4-2
Proposed Monitoring Well Locations
15 to 34 feet bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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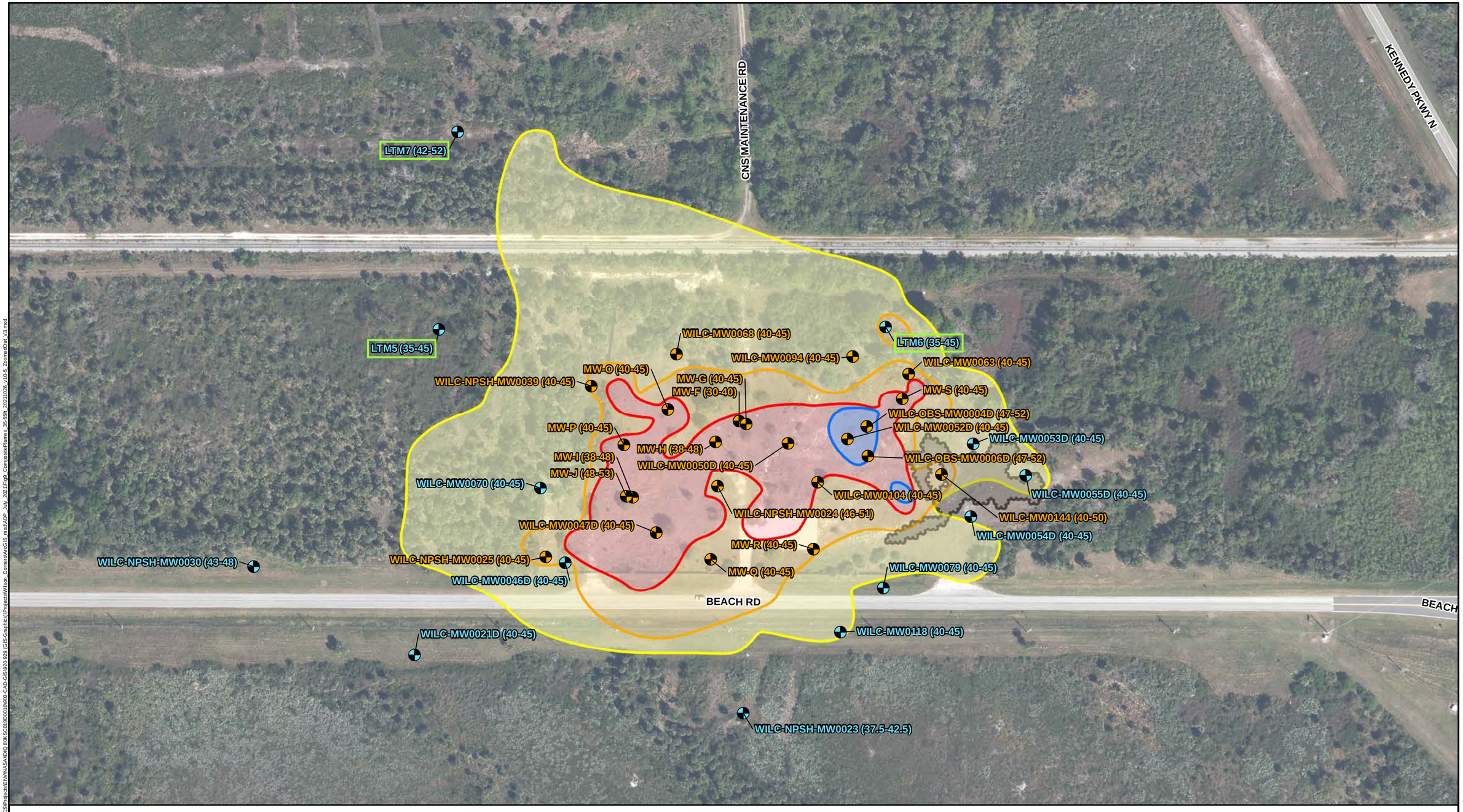

Legend

- LTM Well Location
- Performance Monitoring Well Location
- Hot Spot 1 Treatment Area
- Proposed LTM Well Location
- 35-55 ft bls CVOC Low Concentration Plume (LCP) (Area: 11.9 Acres/518,455 ft2)
- 35-55 ft bls CVOC High Concentration Plume (HCP) (Area: 4.4 Acres/192,237 ft2)
- 35-55 ft bls CVOC 10x NADC Plume (Area: 2.1 Acres/92,587 ft2)
- 35-55 ft bls CVOC 100x NADC Plume (Area: 0.15 Acres/6,326 ft2)

Notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- Plume extents and depths are based on DPT Analytical results

N

0 100 200 Feet

FIGURE 4-3
Proposed Monitoring Well Locations
34 to 48 feet bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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Legend

- LTM Well Locations
- > 48 ft bls CVOC Low Concentration Plume (LCP) (Area: 0.1 Acres/3,814 ft2)
- Contaminant Contour Inferred
- Proposed LTM Well Location

Notes:
- bls = below land surface
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- Aerial Source: FDOT 2018

N

0 150 300 Feet

FIGURE 4-4
Proposed Monitoring Well Locations
Greater than 48 ft bls

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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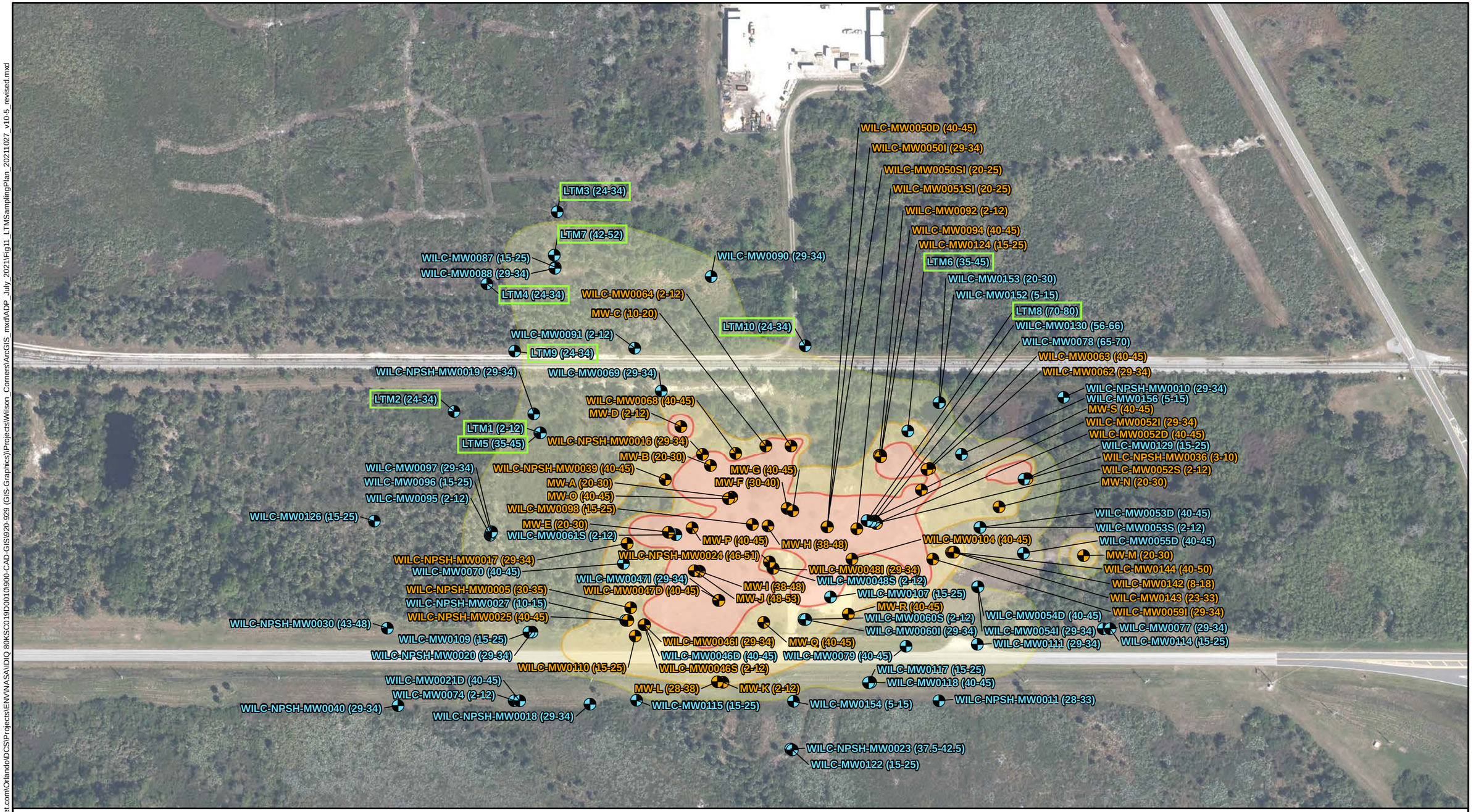

Legend

- LTM Well Locations
- Performance Monitoring Well Locations
- Overall CVOC Low Concentration Plume (LCP) (Area: 17.0 Acres/739,876 ft2)
- Overall CVOC High Concentration Plume (HCP) (Area: 6.7 Acres/293,227 ft2)
- 10x NADC Overall CVOC Plume (Area: 3.0 Acres/129,077 ft2)
- Proposed LTM Well Location

Notes:
- Aerial Source: FDOT 2018
- NPSH = National Park Service Headquarters
- SWMU = Solid Waste Management Unit
- Plume extents and depths are based on DPT Analytical results

N

0 150 300 Feet

Figure 4-5
Long-Term Monitoring Sampling Plan

Wilson Corners - SWMU 001
NASA Kennedy Space Center, Florida

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SECTION V

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APPENDIX A

ADVANCE DATA PACKAGES
AND
KSC REMEDIATION TEAM MEETING MINUTES

(PROVIDED IN THE ELECTRONIC COPY ONLY)

Meeting Minutes Report

August 2020 Team Meeting

Meeting Date From: 8/13/2020 To: 8/13/2020

Meeting ID: 2008

Location Description: Kennedy Space Center-FL

Meeting Type: Full Partnering Team Meeting

Meeting Topic:	**Wilson Corners (SWMU 001) Long Term Monitoring, August 2020**		
Minute: 2008-M5	**Site:**	**Goal:**	**Discussion:**
Presenter: McCoy, Michael	WILSON CORNERS (SWMU 001)	This ADP provided a brief background for the site and a summary of work performed in December 2019, March 2020 and May 2020.	A brief site history was provided for FDEP. The summary of work performed in December 2019, March 2020 and May 2020 included: Measurement of water levels from 38 monitoring wells (MWs) in December 2019 to determine groundwater flow direction. Eleven wells could not be accessed due to dense vegetation. Collection of groundwater samples from 36 MWs in December 2019 using passive diffusion bags (PDBs). The samples were analyzed for volatile organic compounds (VOCs) using US Environmental Protection Agency (USEPA) Method 8260B. Seven wells could not be accessed due to dense vegetation. Marking of paths was conducted in March 2020 to prepare for an environmental survey and path clearing by a NASA contractor to provide access to MWs that were not able to be sampled in December 2019. Groundwater samples were collected from seven MWs in May 2020 using PDBs. The samples were analyzed for VOCs using USEPA Method

Presenter: McCoy, Michael	WILSON CORNERS (SWMU 001)	This ADP provided a brief background for the site and a summary of work performed in December 2019, March 2020 and May 2020.	8260B. The suitability of PDBs for sampling Freon was investigated by sampling four wells using both PDBs and low flow sampling. Monitoring well locations MW0142, MW0143, MW0144, and MW0145 were the wells picked for sampling. Bad news is we didn't see Freon 113 in the PDBs; the good news is that we didn't see it in the low flow sampling either, with the exception of the 3.5µg/L hit shown on slide 19. It would be ideal for comparison to have detections to look at; that was unfortunate. Sample results from wells MW0156 and MW0129 were the only other wells we saw detections of Freon 113. As a follow up to this test consensus, FDEP elaborated in the meeting that it is not that we cannot use PDBs, but we need to collect both and show a good correlation between the two for a site. PDB results cannot be used to close out a site though. For site closure, NASA would need to switch to low-flow sampling. It is a decision monetarily or contractually, that you decide to use the PDB sampling methodology. Although previous FDEP Representatives approved the PDB usage, it would be fine to see the correlation to support continued use since this site will not be closing for quite some time. Groundwater flow at the site in December 2019 for the shallow zones (2 to 15 feet [ft] below land surface [bls] and 15 to 30 ft bls) was to the southwest. Groundwater flow in the intermediate zone (23 to 35 ft bls) was to the west and was to the northwest in the deep interval (34 to 55 feet bls). These flow directions generally agree with historical evaluations. Analytical results indicate that site constituents of concern were above groundwater cleanup target levels in 27 MWs and natural attenuation default concentrations in 4 MWs. Mann-Kendall trend analysis indicated either stable, decreasing, or no trend in concentrations identified in 20 wells, and increasing or probably increasing trends in 3 wells. FDEP inquired with respect to groundwater elevation, are we seeing bouncing around of contaminant concentrations with high/low water table as a result of rainfall, etc.? AECOM responded they did not look at that, but they can take a look at this moving forward. FDEP offered that percolation from high rainfall might affect results. It may be helpful to overlay the Hot Spot areas and the last time you treated the area. It would be interesting to see when and where we last hit the HS and trend that information. FDEP observed that perhaps you are starting to see rebound or something infiltrating downward that was not treated. Need to monitor and if it continues to increase, make sure you are vertically delineated. NASA stated there will

Presenter: McCoy, Michael	WILSON CORNERS (SWMU 001)	This ADP provided a brief background for the site and a summary of work performed in December 2019, March 2020 and May 2020.	be a 366 air sparge system installed at this site. At Hot Spot 1, NASA remarked the it is known that contamination is located upgradient of that, and we do expect to have VOCs migrate into the treatment area. FDEP inquired when is the construction planned for this site? NASA stated it is slated to begin January 2021. The project has DPT to be completed in October 2020. Following the DPT work, the construction will kick off in Nov/Dec/Jan timeframe. FDEP inquired if the Team anticipates issues with getting in lines and equipment installed due to the dense vegetation? NASA stated that most of the vegetation will be removed with the exception of the larger trees.
Decision:35	The Team reached consensus to sample MW0129 and MW0156 using both PDBs and low -flow sampling during the December 2020 sampling event to use for comparison.		
Decision:36	The Team reached consensus to continue annual sampling of 43 monitoring wells to include: NPSH-MW0027, MW0064, MW0074, MW0091, MW0095, MW0152, MW0154, MW0156, MW0089, MW0096, MW0109, MW0116, MW0125, MW0129, MW0142, MW0149, MW0153, NPSH-MW0010, NPSH-MW0017, NPSH-MW0019, NPSH-MW0020, NPSH-MW0022, MW0062, MW0065, MW0080, MW0088, MW0090, MW0097, MW0111, MW0140, MW0143, MW0146, MW0155, NPSH-MW0039, MW0046D, MW0068, MW0118, MW0141, MW0144, MW0145, MW0147, MW0078, MW0130.		
Decision:37	The Team reached consensus to continue annual water level measurements at 49 monitoring wells shown on slide 33 to include: NPSH-MW0027, NPSH-MW0036, MW0064, MW0074, MW0091, MW0095, MW0152, MW0154, MW0156, MW0087, MW0089, MW0096, MW0106, MW0109, MW0116, MW0125, MW0129, MW0142, MW0149, MW0150, MW0151, MW0153, NPSH-MW0010, NPSH-MW0017, NPSH-MW0019, NPSH-MW0020, NPSH-MW0022, MW0062, MW0065, MW0080, MW0088, MW0090, MW0097, MW0111, MW0140, MW0143, MW0146, MW0155, NPSH-MW0039, MW0046D, MW0068, MW0118, MW0141, MW0144, MW0145, MW0147, MW0148, MW0078, MW0130.		
Decision:38	The Team reached consensus to conduct the next sampling event in the Nov/Dec 2020 timeframe, prior to the air sparge IM construction.		

Revision 0 Meeting Minutes for April 28th & 29th, 2021

2104-M08 Jennifer Joyal/AECOM

Wilson Corners (SWMU 001) Long-Term Monitoring (LTM) Results, April 2021

Goal: The purpose of this document is to provide a brief background for the site and a summary of work performed in December 2020.

Discussion: A brief site background was provided. NASA clarified on Slide 17 that MW0052DD was abandoned when it was realized that it was screened across multiple lithologies, complicating data evaluation.

The 2020 monitoring program included measurement of water levels from 49 monitoring wells in December 2020 to determine groundwater flow direction, and the collection of groundwater samples from 43 monitoring wells in December 2020 via low flow pumping. The samples were analyzed for select volatile organic compounds (VOCs): tetrachloroethene, trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), vinyl chloride (VC), 1,1-dichloroethene and Freon 113.

Groundwater flow directions at the site in December 2020 generally agree with historical evaluations. From 2 to 15 feet below land surface (ft bls), groundwater flows west-southwest. From 15 to 34 ft bls, groundwater flow is west with northerly component on the west side and southerly component on the east side. From 34 to 48 ft bls, groundwater flows west-southwest.

Analytical results indicate one or more of the key site constituents of concern (TCE, cDCE and VC) were above Groundwater Cleanup Target Levels (GCTL) in 29 of the 43 monitoring wells sampled, and above Natural Attenuation Default Concentrations (NADC) in two monitoring wells. Mann-Kendall trend analysis for recent data (2015 through 2020) from select monitoring wells indicated stable to decreasing concentrations in 16 wells, and no trend in 12 wells. Freon was not detected above the GCTL in any samples.

On Slide 36, NASA pointed out on the west side we had a GCTL exceedance in MW96 (result was 27.6 vinyl chloride). MW96 is intended to be a downgradient edge well. Further west is MW126.

We will clear vegetation in order to add MW126 to the sampling program to confirm the edge of the low concentration plume.

NASA stated that direct push technology (DPT) groundwater sampling is being conducted in the Hot Spot 2 (HS2) area and is focused on the NADC exceedances. We are refining that area to support the installation of an air sparge (AS) system that is under contract. We are not redefining the whole plume area at this time. In these recent DPT sampling, we observed orders of magnitude decrease in contaminant levels at some locations. The Team will be briefed on findings and there will be further discussion on the interim measure for HS2.

The Wilson Corners groundwater monitoring program is evaluated annually. As noted, one or more downgradient wells are needed. There may be a need for a vertical extent well in the HS3 area. Recommendation for the 2021 sampling and analysis program will be made following completion of the ongoing DPT sampling.

The Team reached consensus to modify the sampling plan based on the findings from the October 2020 and April 2021 DPT drilling events. **(2104-D31).**

The Team reached consensus on the installation of new monitoring wells, if needed. **(2104-D32).**

The Team reached consensus to present recommendations from the ongoing DPT sampling findings to the KSC Remediation Team in late summer/early fall 2021 **(2104-D33).**

The Team reached consensus for the next site-wide monitoring well sampling event to be conducted in December 2021 **(2104-D34).**

Result: Decision items 2104-D31 through D34

AECOM
150 North Orange Avenue, Suite 200
Orlando, Florida 32801
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August 13, 2020

Mr. Ryan O'Meara
Remediation Project Manager
National Aeronautics and Space Administration
Mail Code SI-E2
Building K6-1547 (Logistics Facility)
John F. Kennedy Space Center
Kennedy Space Center, FL 32899-0001

Subject: **Wilson Corners**
Solid Waste Management Unit (SWMU 001)
Annual Long Term Groundwater Monitoring Results
August 2020 KSCRT Meeting Advanced Data Package (ADP)

Reference: **Indefinite Delivery Indefinite Quantity (IDIQ) Contract 80KSC019D0010**

Dear Mr. O'Meara:

AECOM Technical Services, Inc. (AECOM) is pleased to provide Kennedy Space Center (KSC), National Aeronautics and Space Administration (NASA), with the ADP for the referenced site. This ADP provides a brief background for the site and a summary of work performed in December 2019, March 2020 and May 2020.

The summary of work includes:

- Measurement of water levels from 38 monitoring wells (MWs) in December 2019 to determine groundwater flow direction. Eleven wells could not be accessed due to dense vegetation.
- Collection of groundwater samples from 36 MWs in December 2019 using passive diffusion bags (PDBs). The samples were analyzed for volatile organic compounds (VOCs) using US Environmental Protection Agency (USEPA) Method 8260B. Seven wells could not be accessed due to dense vegetation.
- Marking of paths in March 2020 to prepare for an environmental survey and path clearing by a NASA contractor to provide access to MWs that were not able to be sampled in December 2019.
- Collection of groundwater samples from seven MWs in May 2020 using PDBs. The samples were analyzed for VOCs using USEPA Method 8260B.

Groundwater flow at the site in December 2019 for the shallow zones (2 to 15 feet [ft] below land surface [bls] and 15 to 30 ft bls) was to the southwest. Groundwater flow in the intermediate zone (23 to 35 ft bls) was to the west and was to the northwest in the deep interval (34 to 55 feet bls). These flow directions generally agree with historical evaluations.

Analytical results indicate that site constituents of concern were above groundwater cleanup target levels in 27 MWs and natural attenuation default concentrations in 4 MWs. Mann-Kendall trend analysis indicated generally stable to decreasing concentrations, with no trend identified in 16 wells, and increasing trends in 2 wells.

The following consensus statements will be presented to the KSC Remediation Team (KSCRT):

- Sample MW0129 and MW0156 using PDBs and low-flow sampling during December 2020 sampling event.
- Continue annual sampling of 43 monitoring wells.

- Continue annual water level measurements at 49 monitoring wells.
- The next sampling event will be Nov/Dec 2020 prior to IM construction.

If you need additional information, please contact Mike McCoy at michael.mccoy@aecom.com or via phone at 407.813.5232.

Sincerely,

AECOM Technical Services, Inc.

Michael McCoy, PG
Task Order Manager

Krista Sommerfeldt, PE
Program Manager

Enclosures:

Wilson Corners ADP

Cc: FDEP
Richard Smith, HGL
Mark Speranza, Tetra Tech
AECOM Project File 60614327

Wilson Corners (WILC)
Solid Waste Management Unit (SWMU) 001

2019 Annual Long Term Monitoring

August 2020

Outline

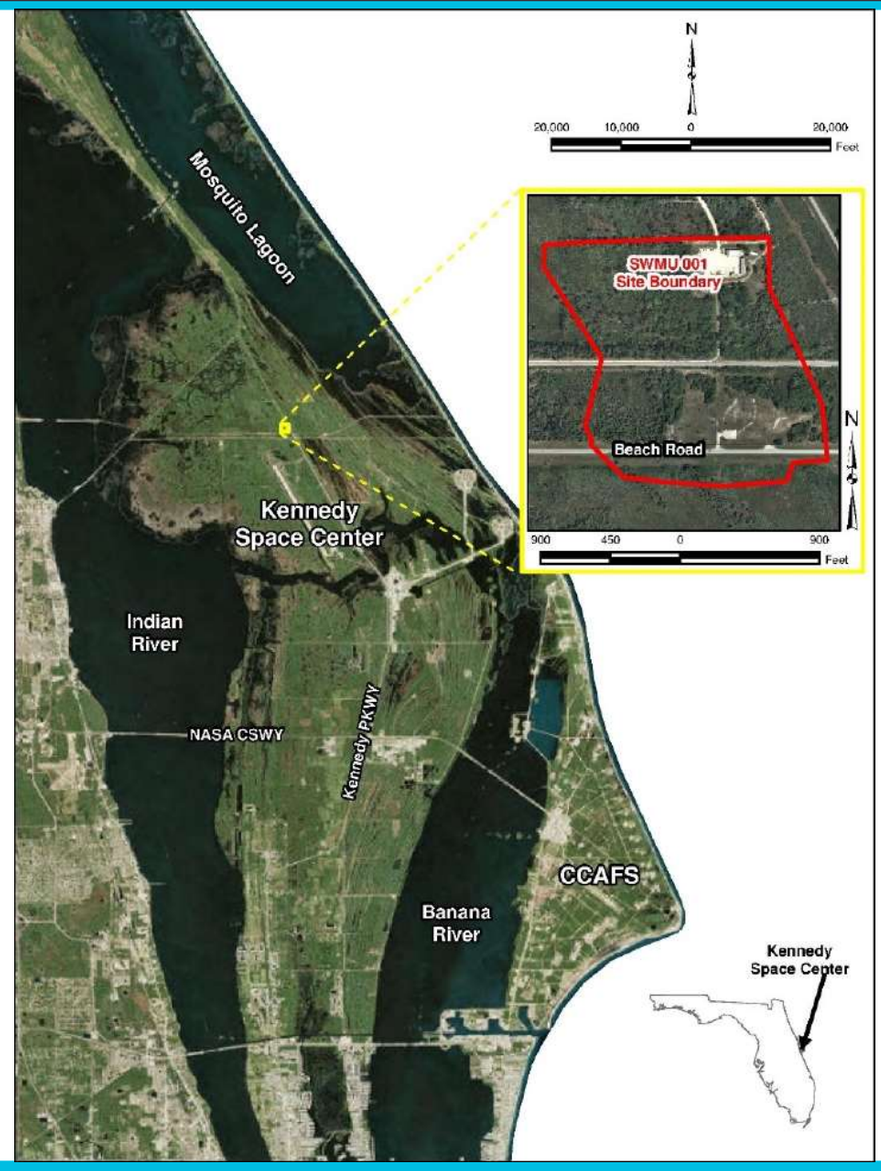
1. Brief Site Background and Overview
2. 2019 Annual Long Term Monitoring

Brief Site Background and Overview

Brief Site Background and Overview

General Wilson Corners Background

- Facility located on Beach Road (State Road 402) northwest of the intersection of Kennedy Parkway (State Road 3) and Beach Road (State Road 402)
- 1963 to 1974: Facility operated as a Propellant Systems Components Laboratory. Trichloroethene (TCE) was stored in an aboveground storage tank (AST), and used in the laboratory and as a cleaning solvent. TCE was released to the surface via drain fields, direct spillage, and spraying.
- 1976 to the mid-1980s: National Park Service (NPS) and the Fish and Wildlife Service used the site for a visitor's center and office space, which also served as Headquarters for the Canaveral National Seashore. Site was vacated in the mid-1980s after TCE groundwater impacts were confirmed, and has remained vacant since.
- Current Site Conditions
  - Southern portion of the Site, south of the NASA Railroad (runs east-west)
    - Historical location of Propellant Systems Cleaning Laboratory
    - Consists of mostly dense vegetation (wooded and grassed areas) with a few concrete footings and paved parking areas
    - Some debris from old structures remains in piles on the surface; however, the buildings have been removed
    - Site is located within a security fence, always locked with a keyed government padlock
  - Northern portion of the Site, north of the NASA Railroad
    - NPS Maintenance Facility is located in the eastern portion of this area
    - The area outside of the NPS Maintenance Facility consists mostly of dense vegetation (wooded and wetland areas)
    - Access is through the gated NPS Maintenance Facility Roads
  - This ADP focuses on 2019 (including May 2020) Annual Long Term Monitoring (LTM) activities and results.



Source: Wilson Corners SWMU 001 – 2018 Annual Long Term Monitoring Results ADP (Geosyntec Consultants, Dec 2018)

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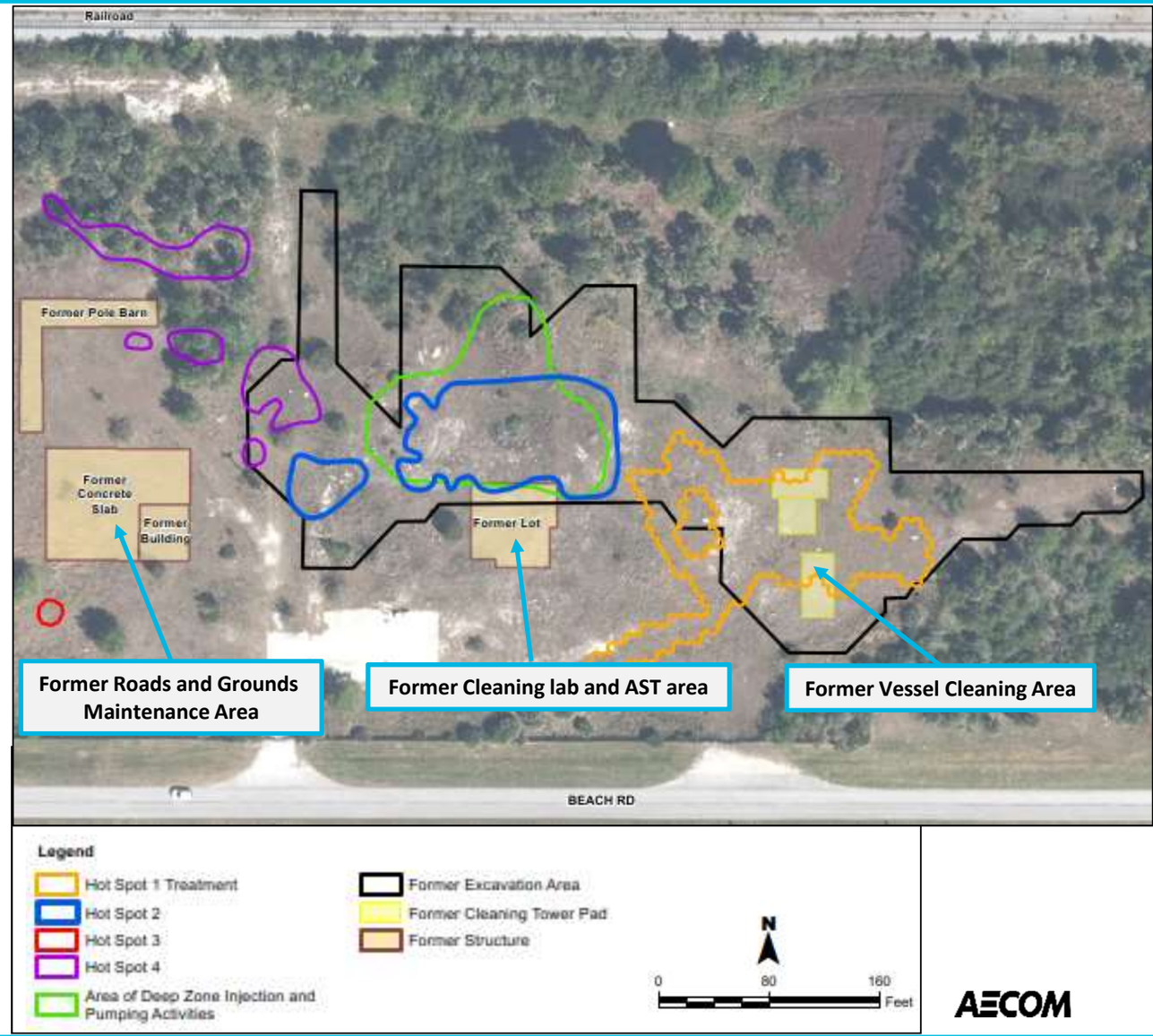
Brief Site Background and Overview

1983 to 2004 Historical Remediation

- 1983 to 1988: Several investigations, including a Preliminary Assessment Study under CERCLA, led to the design and construction of a groundwater remedial system:
  - Groundwater extraction
  - Treatment by air-stripping on-site
  - Treated effluent disposed on-site
- 1989 to 1999: Remedial pump and treat system operation for plume containment
- 2003 to 2004: Excavation and source removal of over 16,000 tons of soil to a maximum depth of 14 feet (ft) below land surface (bls)
  - Soils were treated on-site by low temperature thermal desorption (LTTD) and then returned to the on-site excavation as backfill
  - Groundwater from dewatering was treated on-site by air-stripping and then the effluent was returned to the surface on-site



Data Source: Wilson Corners SWMU 001 Historical Documents from RIS

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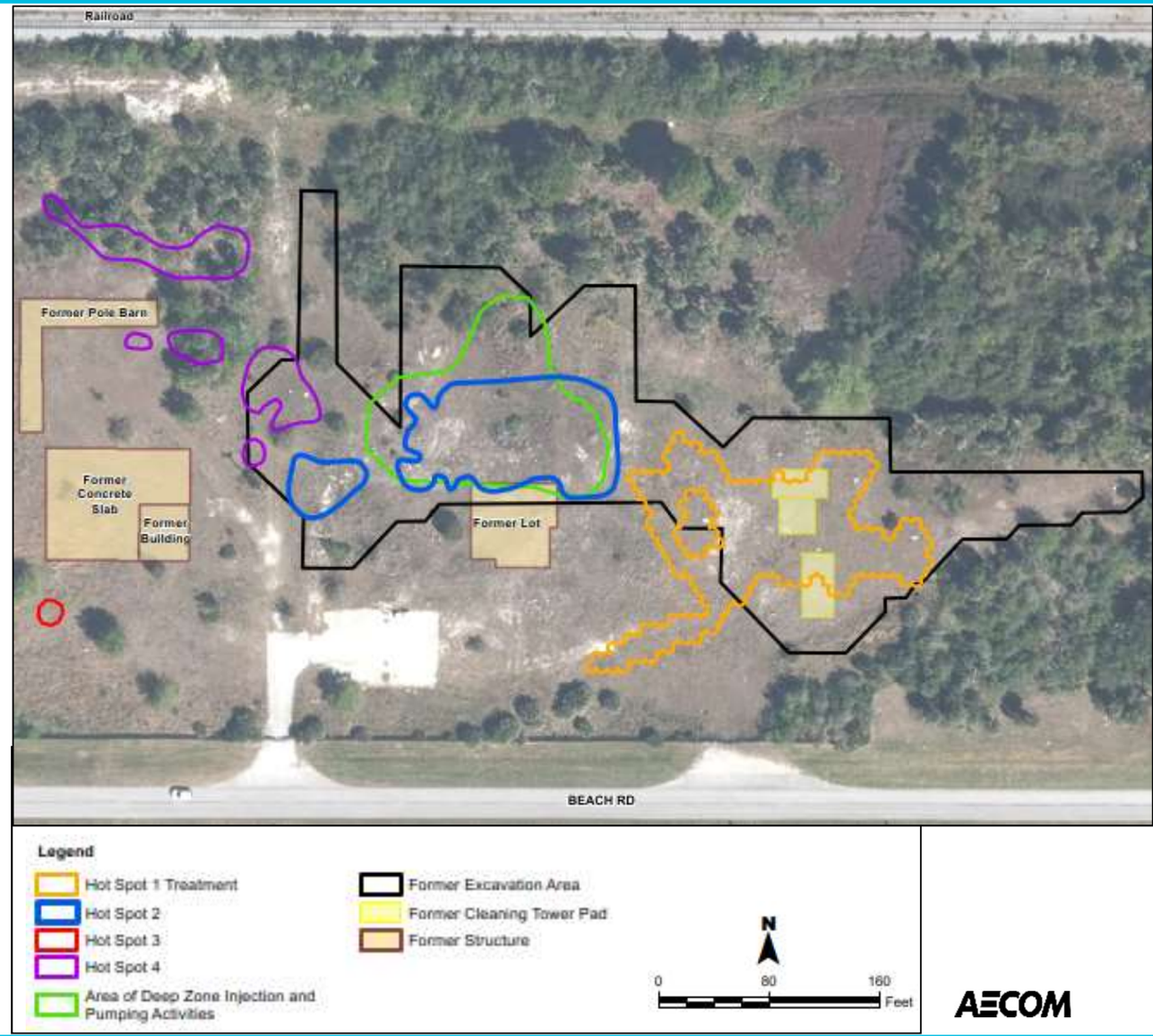
Brief Site Background and Overview

2004 to 2015 Historical Remediation

- 2004 to 2007: Limited groundwater treatment in central source area, Hot Spot 2 (Former Laboratory and ASTs)
  - Chemical oxidation in 2004 – Sodium Permanganate ($NaMnO_4$) solution injected into six wells (three screened 39 to 49 ft bls and three screened 42 to 52 ft bls)
  - Biostimulation in 2004 – Ethyl Lactate solution injected into 38 wells (eight screened 15 to 25 ft bls and 30 screened 38 to 48 ft bls)
  - Limited deep zone pump and treat 2006 through 2007 – Approximately 3.5 million gallons were removed and treated using a NASA mobile air stripper system
- 2014 to 2015: Hot Spot 1 (Former Cleaning Tower Area) Treatment - Large Diameter Auger (LDA) treatment with steam and zero valent iron (ZVI) injections
- Approximately 25,000 pounds of trichloroethene (TCE) mass removed as of 2017



Data Source: Wilson Corners SWMU 001 Historical Documents from RIS

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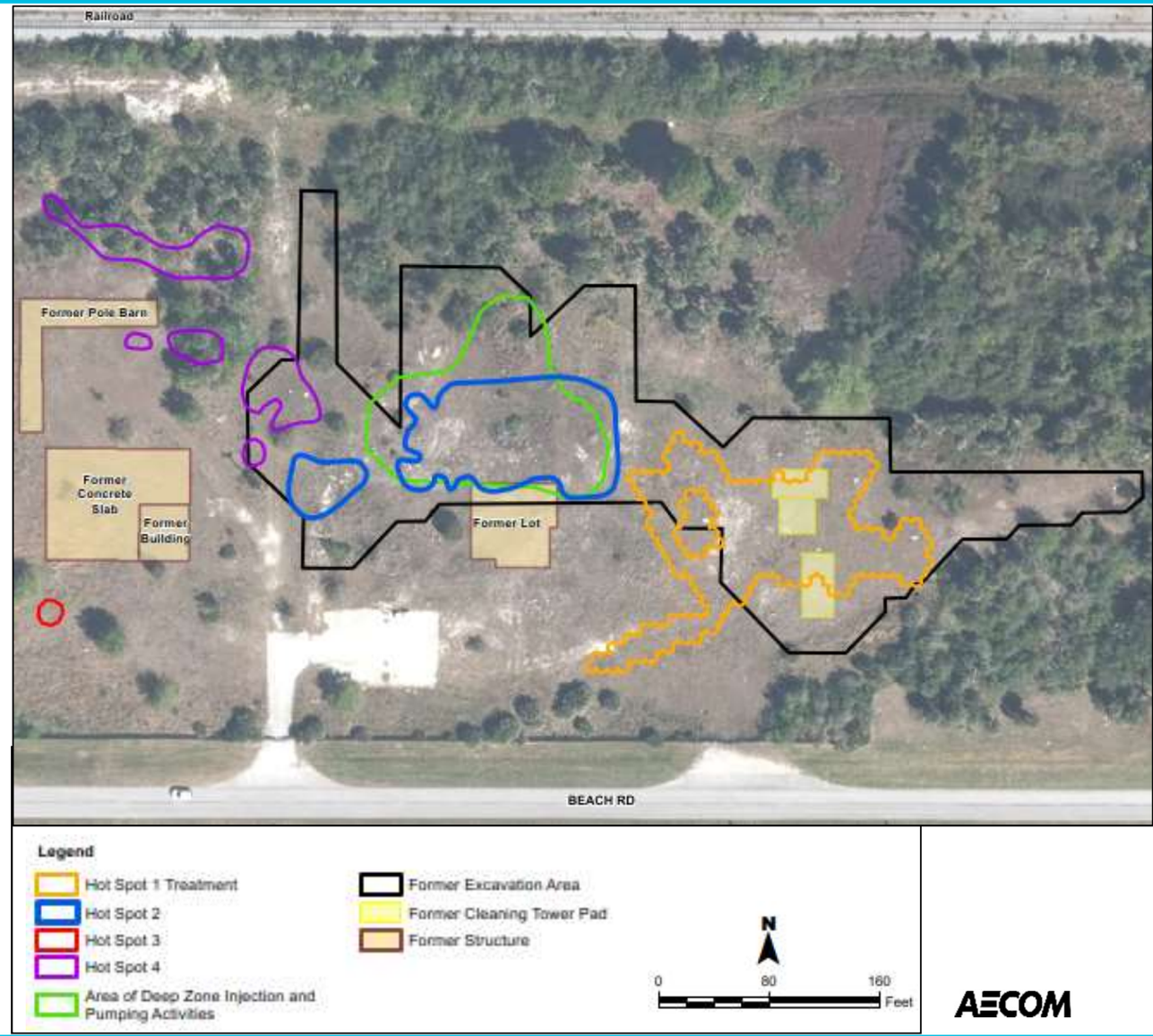
Brief Site Background and Overview

2015 to Present Activities

- 2015 to 2017: Hot Spot 3 (Former Spray Field Area) Direct Push Technology (DPT) Assessment
- 2017: Hot Spot 2 IM Work Plan
  - DPT Assessment
  - LDA treatment with Steam and ZVI injection postponed
- 2017: Hot Spot 4 (Former Paint and Oil Locker)
  - DPT Assessment
  - Air Sparge Pilot Test
- 2018 to 2019: Interim Measure Work Plan for air sparge approved
- 2010 to Present: Annual Groundwater LTM and Reporting
  - Site Constituents of Concern (COCs)
    - Trichloroethene (TCE)
    - Cis-1,2-dichloroethene (cDCE)
    - Vinyl chloride (VC)
    - Non-target compound Freon 113



2019 Annual Long Term Monitoring

2019 Annual Long Term Monitoring

Objectives of the 2019 LTM

- Objectives from the 2018 Annual Long Term Monitoring Report (Geosyntec Consultants, May 2019) for the 2019 LTM
  - Evaluate groundwater flow direction by collecting water level measurements from LTM monitoring wells
  - Continue monitoring the downgradient peripheral COC trends in the northern and western portions of the Site
  - Continue monitoring selected downgradient internal plume wells

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2019 Annual Long Term Monitoring
Field Activities

- NPS Maintenance Area manager notifications
- Long Term Monitoring (LTM) Plan includes 49 monitoring wells
- Groundwater elevation measurements – 49 wells
  - Unable to access 11 monitoring wells due to dense vegetation
  - Collected groundwater elevation measurements from 38 monitoring wells in Dec 2019
- Groundwater sampling – 43 wells
  - During passive diffusion bag (PDB) deployment in Dec 2019, field staff were unable to access 7 monitoring wells due to dense vegetation
  - Groundwater samples collected from 36 monitoring wells in Dec 2019
    - 36 wells sampled using PDBs
    - Four of the 36 wells were also sampled using the low-flow method to test PDB effectiveness when sampling for Freon 113
  - Path Clearing
    - Marked paths to wells in dense vegetation with flagging tape in Mar 2020
    - Coordinated with a NASA Wildlife Ecologist for the environmental survey, which was completed in Mar 2020
    - Paths were then cleared by a NASA subcontractor
  - Groundwater samples collected via PDBs from 7 monitoring wells in May 2020

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2019 Annual Long Term Monitoring

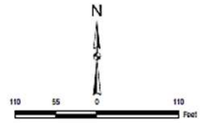
Site Layout Map

Legend

- 2 to 15 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 15 to 25 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 28 to 38 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 38 to 55 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- > 55 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- Abandoned or Destroyed Monitoring Well

Notes:
1. ft BLS indicates feet below land surface.

Figure Source: Wilson Corners SWMU 001 2018 Annual Long Term Monitoring Report (Geosyntec Consultants, May 2019)



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2019 Annual Long Term Monitoring

2019 Groundwater Sampling Plan

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Water Levels	Sampled for VOCs and Freon 113		Notes
				PDBs	Low Flow	
2 to 15	NPSH-MW0027	10 to 15	X	X		
	NPSH-MW0036	3 to 10	X			Unable to access in Dec 2019 due to dense vegetation
	MW0064	2 to 12	X	X		
	MW0074	2 to 12	X	X		
	MW0091	2 to 12	X	X		
	MW0095	2 to 12	X	X		
	MW0152	5 to 15	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
	MW0154	10 to 15	X	X		
	MW0156	5 to 15	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
15 to 30	MW0087	15 to 25	X			Unable to access in Dec 2019 due to dense vegetation
	MW0089	15 to 25	X	X		
	MW0096	15 to 25	X	X		
	MW0106	15 to 25	X			
	MW0109	15 to 25	X	X		
	MW0116	15 to 25	X	X		
	MW0125	15 to 25	X	X		
	MW0129	15 to 25	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
	MW0142	8 to 18	X	X	X	
	MW0149	20 to 30	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
	MW0150	20 to 30	X			Unable to access in Dec 2019 due to dense vegetation
	MW0151	20 to 30	X			Unable to access in Dec 2019 due to dense vegetation
	MW0153	20 to 30	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
23 to 35	NPSH-MW0010	29 to 34	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
	NPSH-MW0017	29 to 34	X	X		
	NPSH-MW0019	29 to 34	X	X		

ft bls – Feet below land surface; MW – Monitoring well; NPSH – National Park Service Headquarters
PDBs – Passive diffusion bags; VOCs – Volatile organic compounds

Table continued on the following slide

AECOM

2019 Annual Long Term Monitoring

2019 Groundwater Sampling Plan

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Water Levels	Sampled for VOCs and Freon 113		Notes
				PDBs	Low Flow	
23 to 35	NPSH-MW0020	29 to 34	X	X		
	NPSH-MW0022	29 to 34	X	X		
	MW0062	29 to 34	X	X		
	MW0065	29 to 34	X	X		
	MW0080	29 to 34	X	X		
	MW0088	29 to 34	X	X		Unable to access in Dec 2019 due to dense vegetation; Sample collected via PDB in May 2020
	MW0090	29 to 34	X	X		
	MW0097	29 to 34	X	X		
	MW0111	29 to 34	X	X		
	MW0140	23 to 33	X	X		
	MW0143	23 to 33	X	X	X	
	MW0146	23 to 33	X	X		
	MW0155	29 to 34	X	X		
34 to 55	NPSH-MW0039	40 to 45	X	X		
	MW0046D	40 to 45	X	X		
	MW0068	40 to 45	X	X		
	MW0118	40 to 45	X	X		
	MW0141	34 to 44	X	X		
	MW0144	40 to 50	X	X	X	
	MW0145	38 to 48	X	X	X	
	MW0147	38 to 48	X	X		
	MW0148	38 to 48	X			
> 55	MW0078	65 to 70	X	X		
	MW0130	56 to 66	X	X		

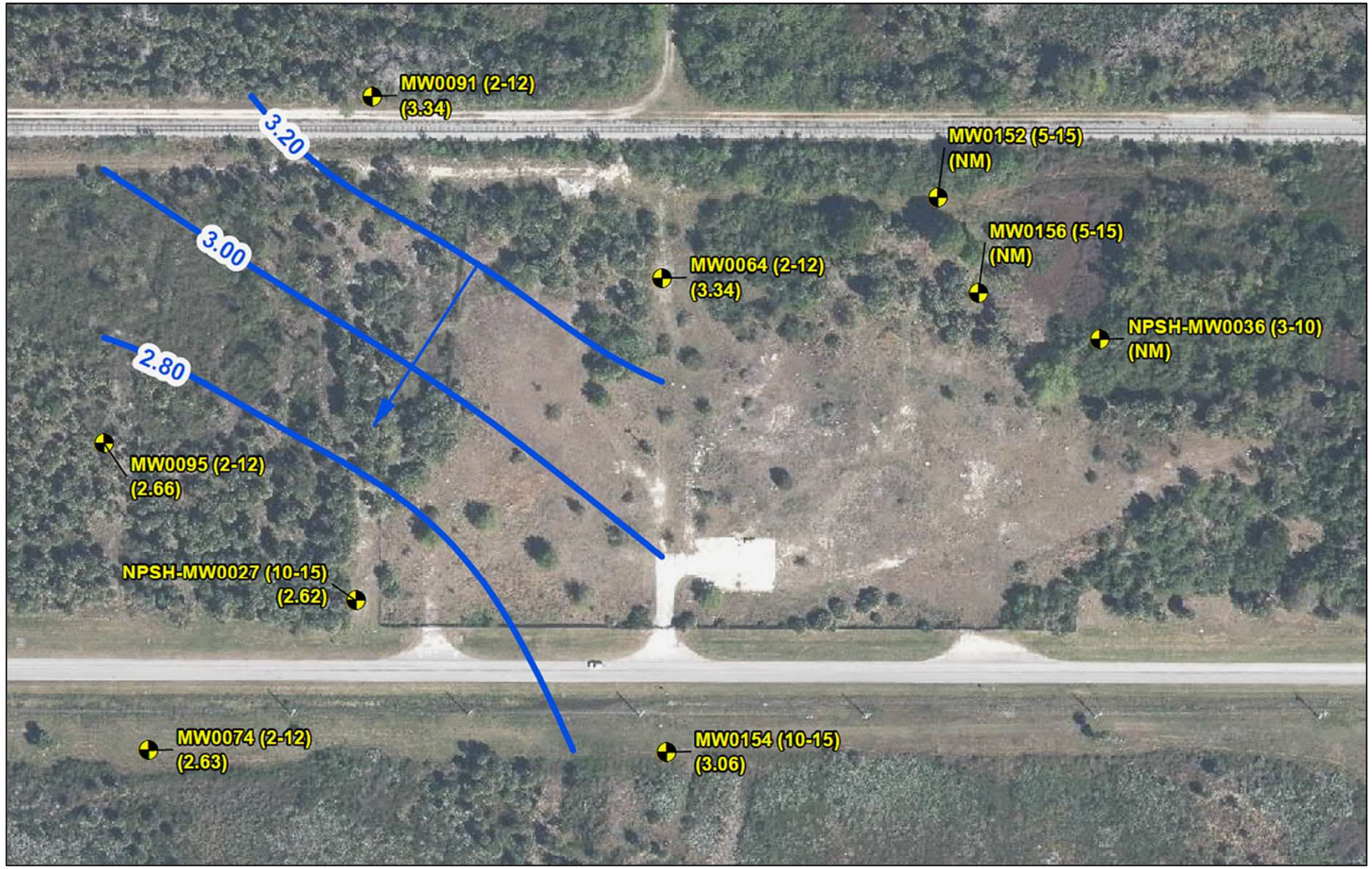
ft bls – Feet below land surface; MW – Monitoring well; NPSH – National Park Service Headquarters
PDBs – Passive diffusion bags; VOCs – Volatile organic compounds

AECOM

2019 Annual Long Term Monitoring

December 2019 Groundwater Contour - 2 to 15 ft bls

- Groundwater flow direction: southwest
- Previous groundwater flow:
  - Dec 2016: southwest
  - Dec 2017: west
  - Sept 2018: west-southwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 2 to 15 ft bls
- Groundwater Contour (ft NAVD)
- Approximate Direction of Groundwater Flow
- 2.82 Groundwater Elevation (NAVD88 ft.)

N

0 180 360 Feet

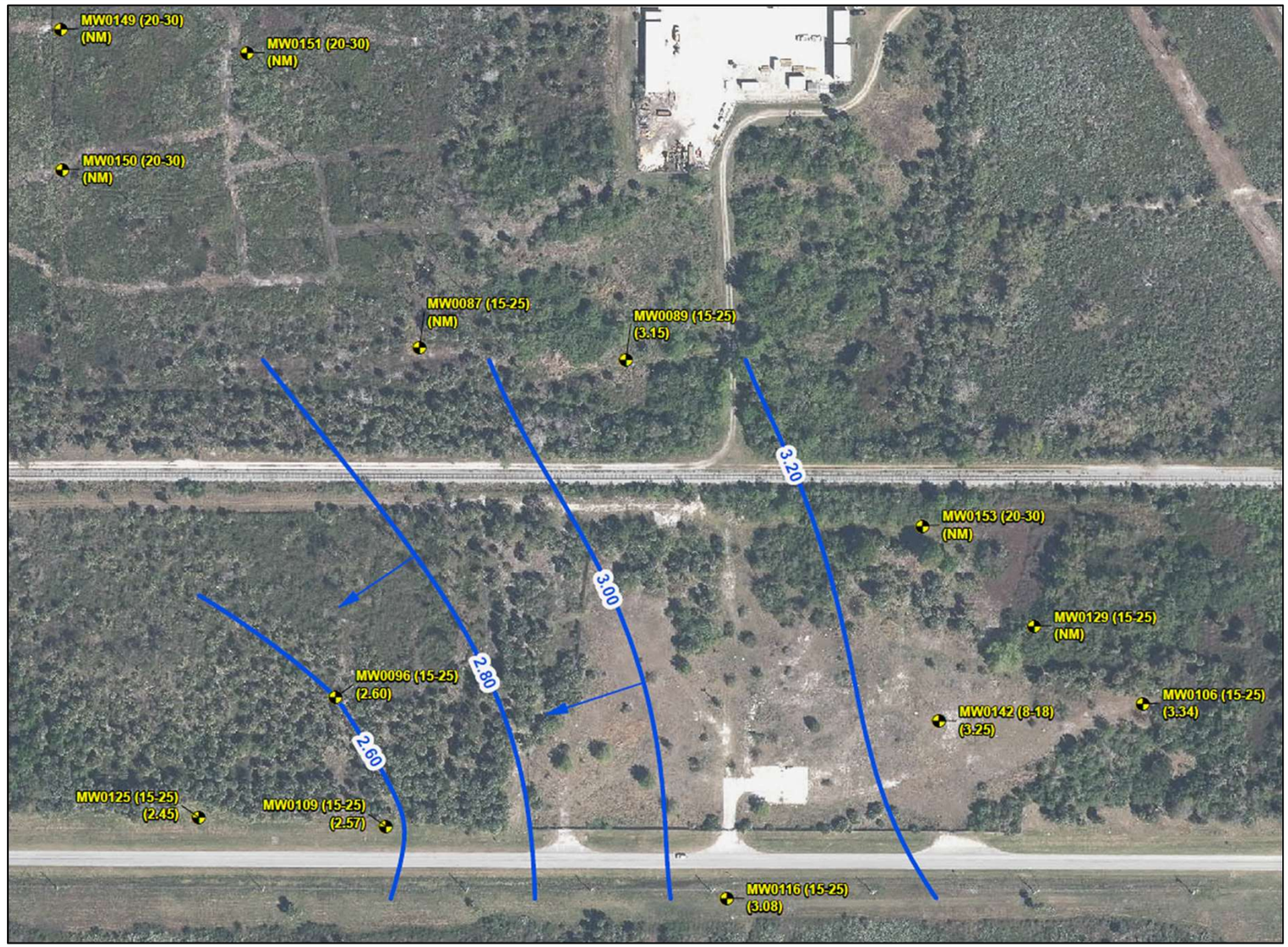
Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- NM = Not Measured
- ft bls = feet below land surface

AECOM

2019 Annual Long Term Monitoring

December 2019 Groundwater Contour - 15 to 30 ft bls

- Groundwater flow direction: southwest
- Previous groundwater flow:
  - Dec 2016: west
  - Dec 2017: west
  - Sept 2018: northwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 15 to 30 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 0.32 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- NM = Not Measured
- ft bls = feet below land surface

N

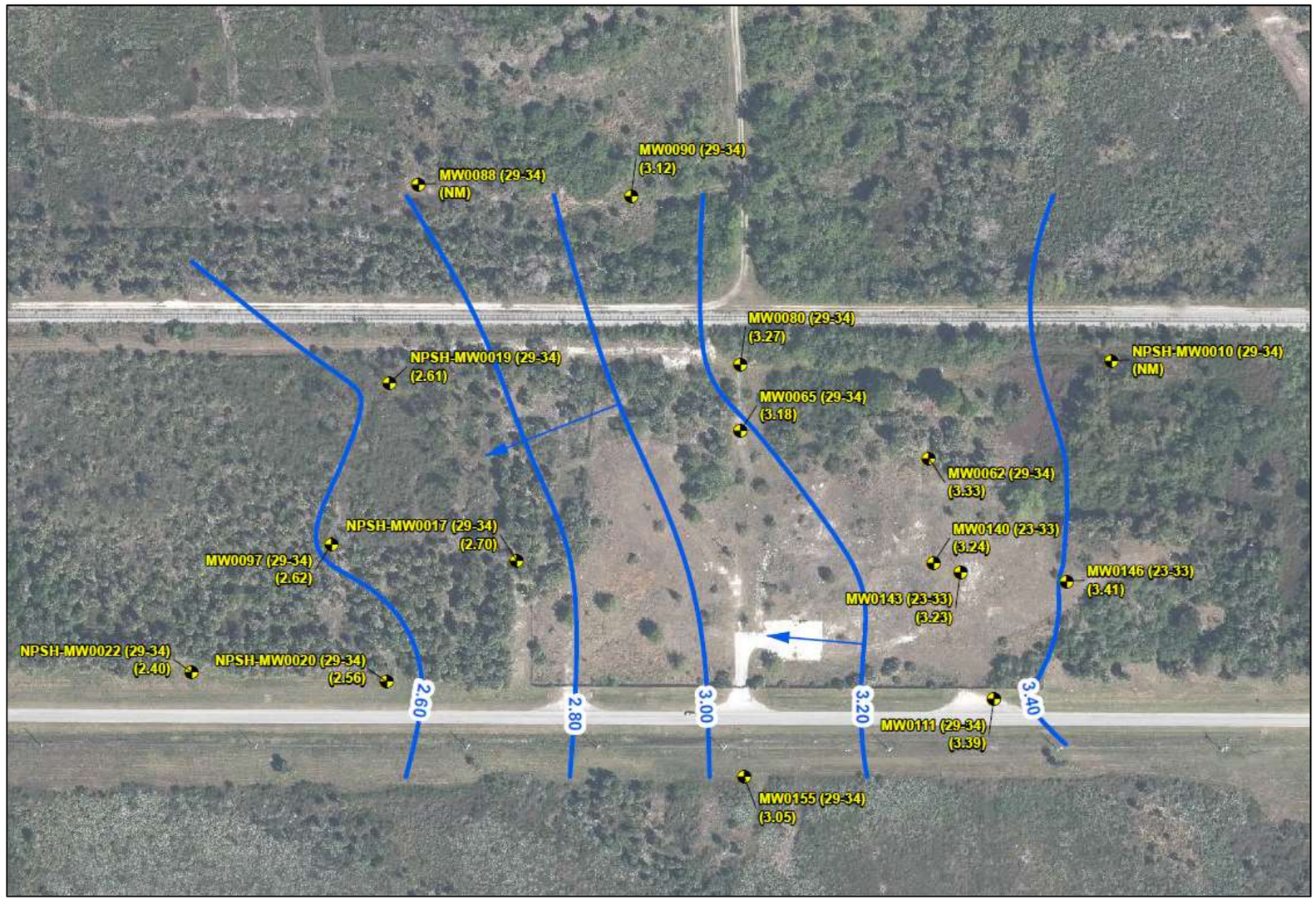
0 180 360 Feet

AECOM

2019 Annual Long Term Monitoring

December 2019 Groundwater Contour - 23 to 35 ft bls

- Groundwater flow direction: west
- Previous groundwater flow:
  - Dec 2016: west-southwest
  - Dec 2017: west
  - Sept 2018: west-northwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 23 to 35 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 0.32 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- NM = Not Measured
- ft bls = feet below land surface

N

0 180 360 Feet

AECOM

2019 Annual Long Term Monitoring

December 2019 Groundwater Contour - 34 to 55 ft bls

- Groundwater flow direction: northwest
- Previous groundwater flow:
  - Dec 2016: west-southwest
  - Dec 2017: west-southwest
  - Sept 2018: west-northwest
- Flow direction generally agrees with historical evaluations

Legend

- Monitoring Well - 34 to 55 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 0.32 Groundwater Elevation (NAVD88 ft.)

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Groundwater Contour Interval = 0.20 Ft.
- Aerial Source: FDOT 2018
- * = Not used in contouring
- ft bls = feet below land surface

N

0 180 360 Feet

AECOM

2019 Annual Long Term Monitoring

December 2019 Groundwater Contour – Greater than 55 ft bls

- Water levels measured in two monitoring wells
- Historical groundwater flow direction was northwest

Legend

Monitoring Well - Greater than 55 ft bls

0.32 Groundwater Elevation (NAVD88 ft.)

N

0 180 360 Feet

Notes:
- Vertical Datum is NAVD88 (ft)
- Monitoring Wells Were Gauged on December 18, 2019
- Aerial Source: FDOT 2018
- ft bls = feet below land surface

AECOM

2019 Annual Long Term Monitoring
Groundwater Sampling Results – Freon 113

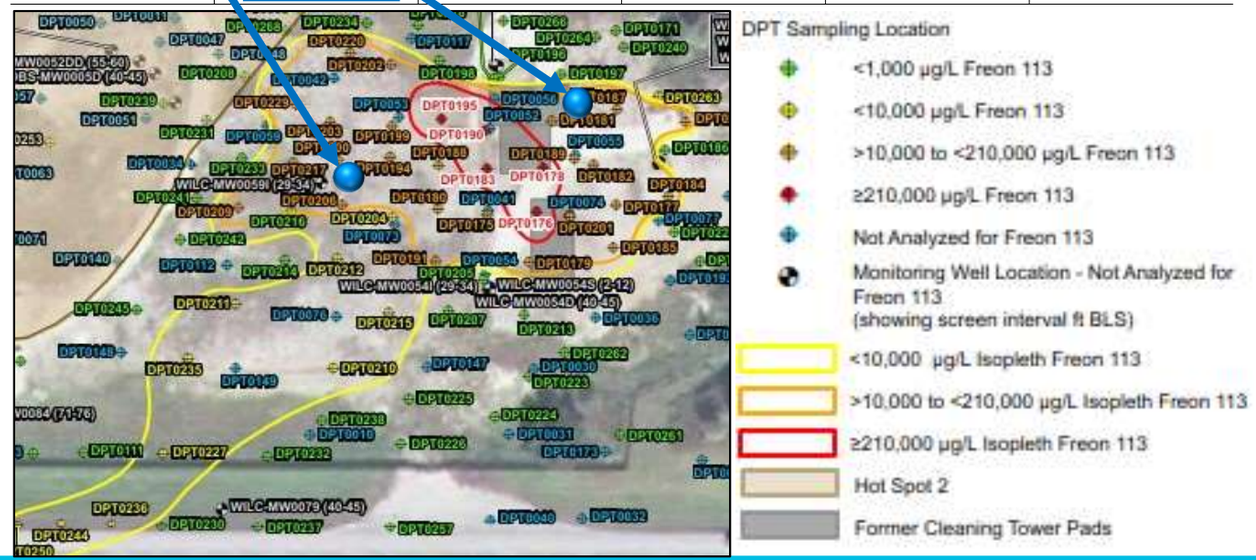
- Freon 113 concentrations were historically highest in the Hot Spot 1 area of the Site
- 2019 Freon 113 Groundwater Analytical Results
  - 39 monitoring wells sampled via PDBs only
  - 4 monitoring wells sampled via low-flow techniques and PDBs
  - Three monitoring wells had detections of Freon 113
    - One low-flow sample
    - Two PDB samples
    - Highest detection: MW0129 at 615 micrograms per liter (µg/L)
  - Freon 113 concentrations were below the GCTL

TEST CONSENSUS

- Sample MW0129 and MW0156 using PDBs and low-flow sampling during December 2020 sampling event

Freon 113 Concentrations in Groundwater
GCTL = 210,000 µg/L

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Sample Date	LF	PDB
2 to 15	MW0156	5 to 15	12/18/2019	NS	**79.6**
15 to 30	MW0129	15 to 25	12/18/2019	NS	**615**
	MW0142	8 to 18	12/18/2019	0.48 U	0.48 U
23 to 35	MW0143	23 to 33	12/18/2019	0.48 U	0.48 U
	MW0144	40 to 50	12/18/2019	2.4 U	2.4 U
34 to 55	MW0145	38 to 48	12/18/2019	**3.5**	0.48 U



Source: Wilson Corners SWMU 001 – Corrective Measures Implementation Progress Report (Geosyntec Consultants, Sept 2018)

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2019 Annual Long Term Monitoring
Groundwater Sampling Results

GIS Mann-Kendall Toolkit Trend Analysis

- The following criteria had to be met for analysis:
  - Minimum of four data points
  - Minimum of 50% detection frequency
  - Concentrations historically greater than GCTLs
- Wells in the table to the right met the criteria above and Mann-Kendall analysis was used
- For other wells monitored in Dec 2019, a visual interpretation of the data for trends was used

Summary of Mann-Kendall Analysis

Zone (ft bls)	Well ID	TCE Equivalent
2 to 15	MW0027	Probably Decreasing
	MW0064	No Trend
2 to 15 and 15 to 30	MW0142	Decreasing
15 to 30	MW0096	Stable
	MW0109	Decreasing
	MW0116	Decreasing
	MW0129	Increasing
23 to 35	MW0017	No Trend
	MW0020	No Trend
	MW0062	Probably Increasing
	MW0065	No Trend
	MW0080	No Trend
	MW0088	No Trend
	MW0090	No Trend
	MW0097	No Trend
	MW0140	Stable
	MW0143	Decreasing
34 to 55	MW0118	Decreasing
	MW0141	No Trend
	MW0144	No Trend
	MW0145	Stable
>55	MW0078	Increasing
	MW0130	Stable

AECOM

2019 Annual Long Term Monitoring

Groundwater Sampling Results – 2 to 15 ft bls

Legend

- Annual LTM Sampling Location
- Not Sampled as Part of LTM
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 140 280 Feet

		GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

WILC-MW0095 (2 to 12)

Sample Date	TCE	cDCE	VC
12/18/2014	0.36 U	0.36 U	0.36 U
12/15/2015	0.36 U	1.1 V	1.7
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U

WILC-NPSH-MW0027 (10 to 15)

Sample Date	TCE	cDCE	VC
12/18/2014	7.2 U	880	3000
12/15/2015	3.6 U	62	810
12/21/2016	0.29 U	38	240
12/26/2017	0.87 U	20	120 J
10/9/2018	0.87 U	38	150
12/19/2019	1.7 U	351	696 Q

WILC-MW0091 (2 to 12)

Sample Date	TCE	cDCE	VC
12/18/2014	0.36 U	0.36 U	0.36 U
12/15/2015	0.36 U	0.81 IV	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U

WILC-MW0064 (2 to 12)

Sample Date	TCE	cDCE	VC
12/19/2014	4.5	26	23
12/15/2015	0.96 I	64	37
10/27/2016	0.29 U	13	17
12/21/2016	0.29 U	17	18
3/20/2017	12	39	5.1
5/11/2017	7.7	24	23
12/26/2017	1.6	31	8.2
10/8/2018	2.5	31	45
12/19/2019	0.35 U	0.93 I	1.6

WILC-MW0152 (5 to 15)

Sample Date	TCE	cDCE	VC
12/27/2017	530	500	23
10/8/2018	2.6	0.48 U	0.4 U
5/8/2020	3.3	16.9	0.41 U

WILC-MW0156 (5 to 15)

Sample Date	TCE	cDCE	VC
5/8/2020	85.3	73.3	9.8

WILC-NPSH-MW0036 (3 to 10)

Sample Date	TCE	cDCE	VC
10/8/2018	0.29 U	0.24 U	0.2 U

WILC-MW0142 (8 to 18)

Sample Date	TCE	cDCE	VC
12/29/2016	81	430	3.6 U
12/27/2017	20	340	9.2
10/8/2018	15	240	24
12/18/2019 LF	5.3	79.4	43.7
12/18/2019	6.9	78.1 Q	25.0

WILC-MW0074 (2 to 12)

Sample Date	TCE	cDCE	VC
12/18/2014	0.36 U	0.36 U	0.36 U
12/16/2015	0.36 U	0.97 IV	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U

MW0154 (10 to 15)

Sample Date	TCE	cDCE	VC
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.83 I

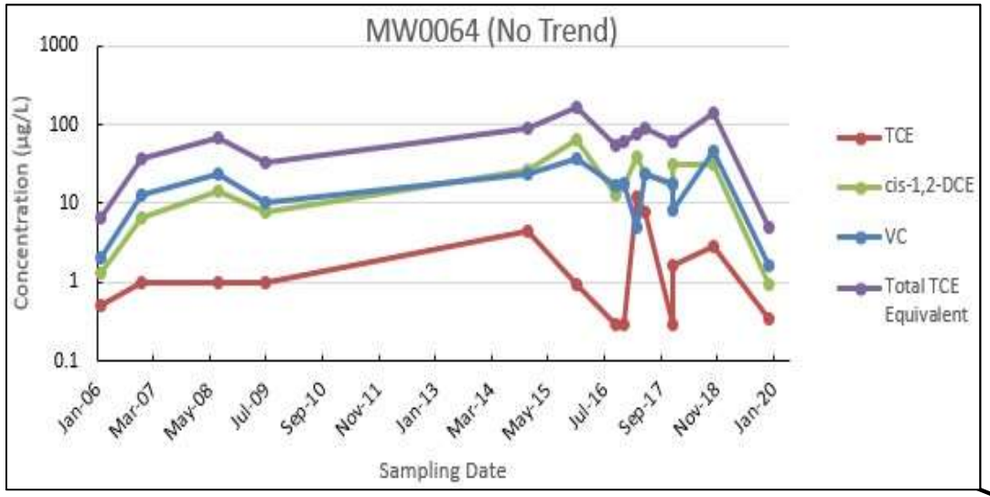
MW0066, MW0092, MW0061S, MW0049S, MW0050S, MW0052S, MW0053S, MW0057S, MW0055S, MW0056S, MW0101, MW0048S, NPSH-MW0007, MW0054S, MW0108, MW0047S, MW0060S, NPSH-MW0031, MW0046S, MW0076, MW0113, MW0075, MW0073, MW0123

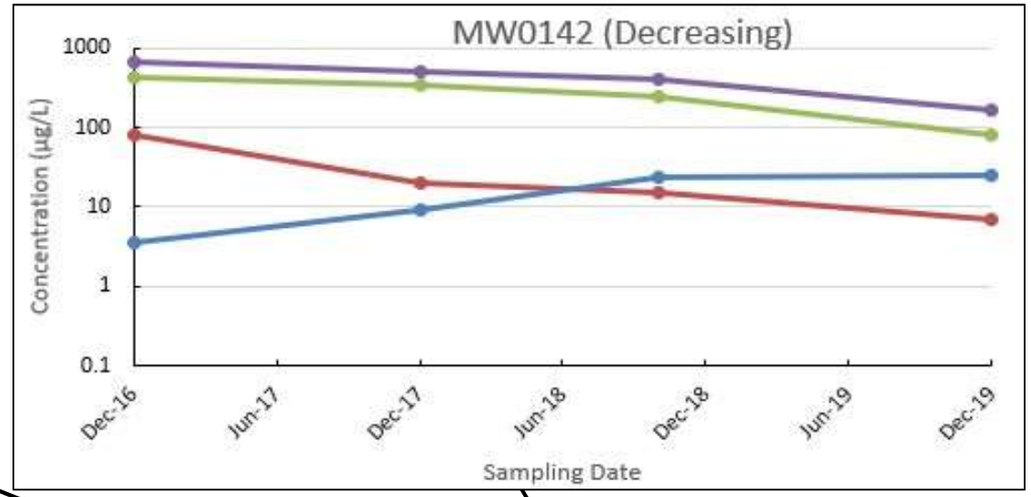
Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.

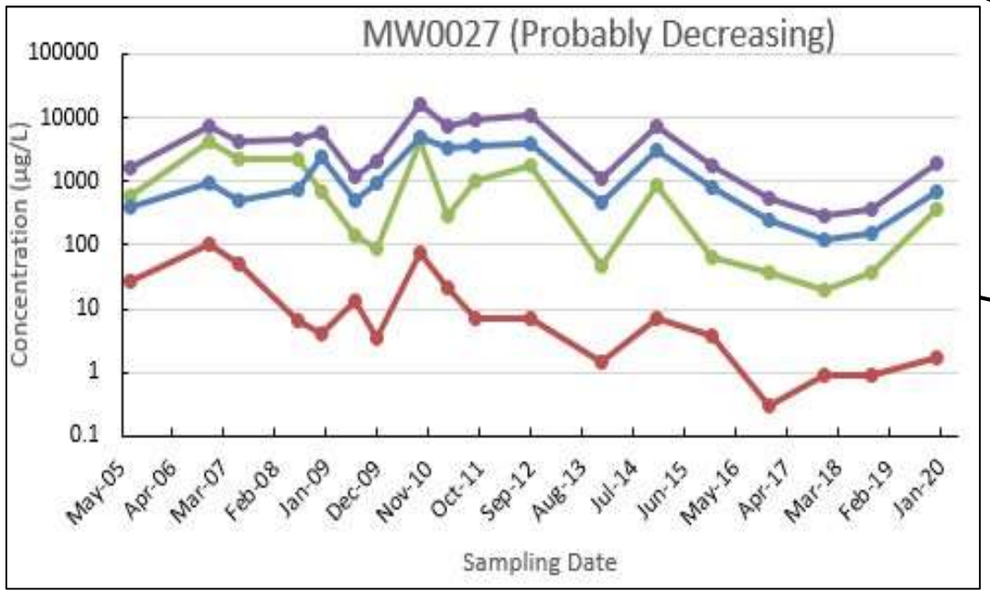
AECOM

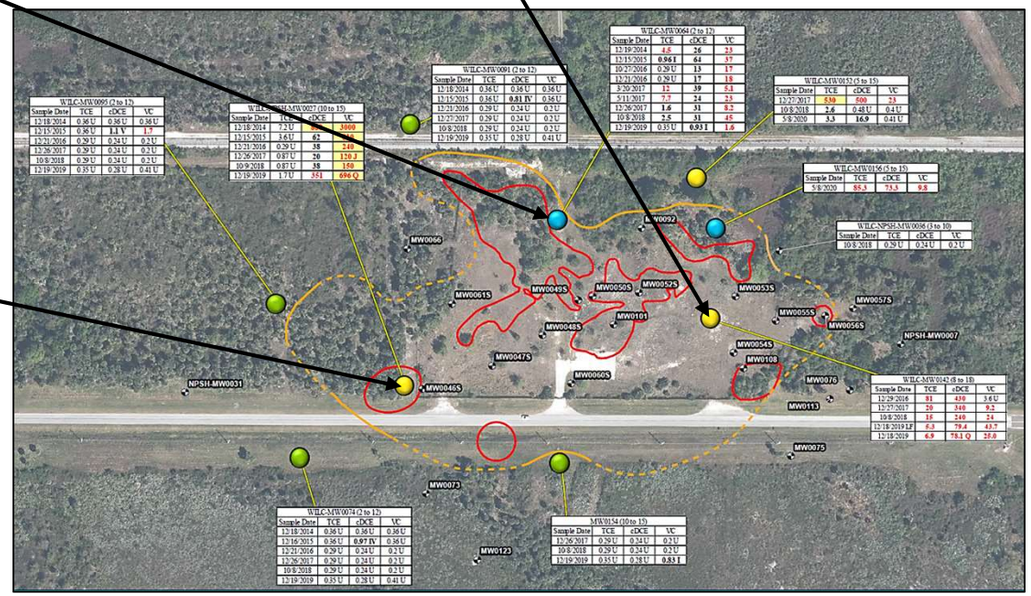
2019 Annual Long Term Monitoring

Groundwater Sampling Results – 2 to 15 ft bls









- Stable
- Decreasing
- Increasing
- No Trend

AECOM

2019 Annual Long Term Monitoring

Groundwater Sampling Results – 15 to 30 ft bls

Legend

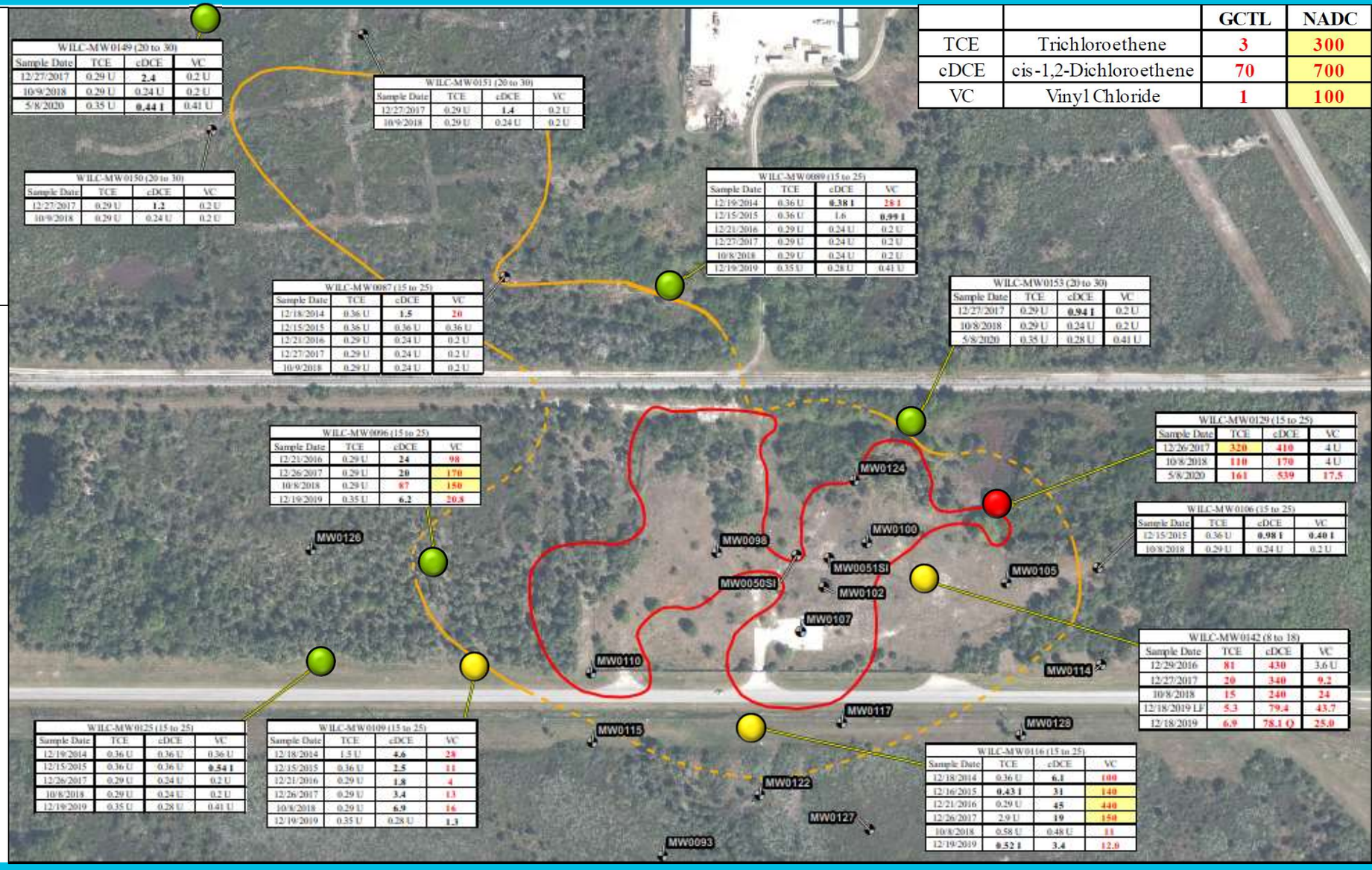
- Annual LTM Sampling Location
- Not Sampled as Part of LTM
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 180 360 Feet

Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.

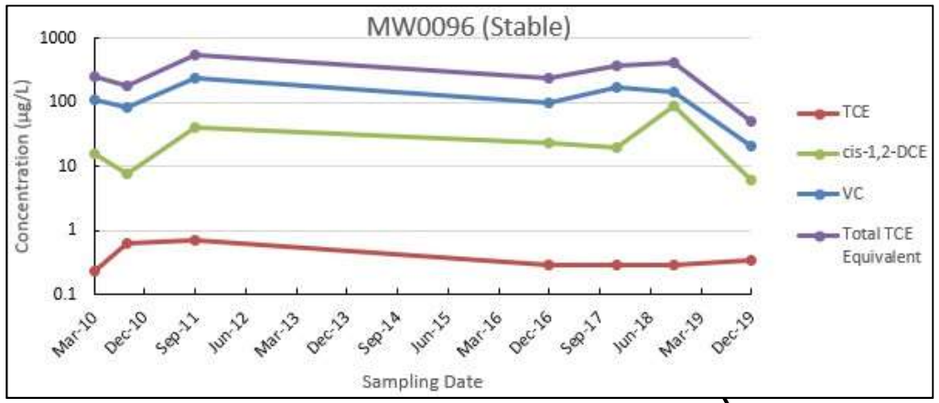


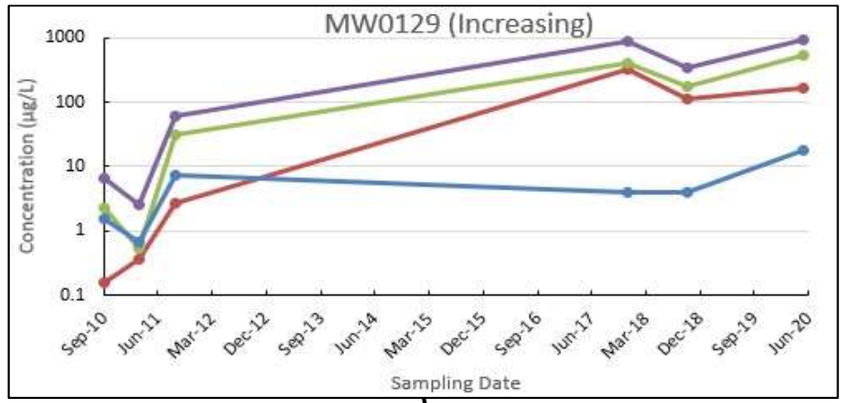
		GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

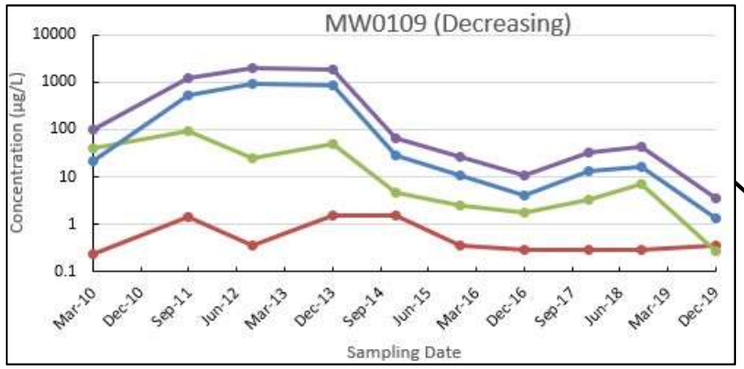
AECOM

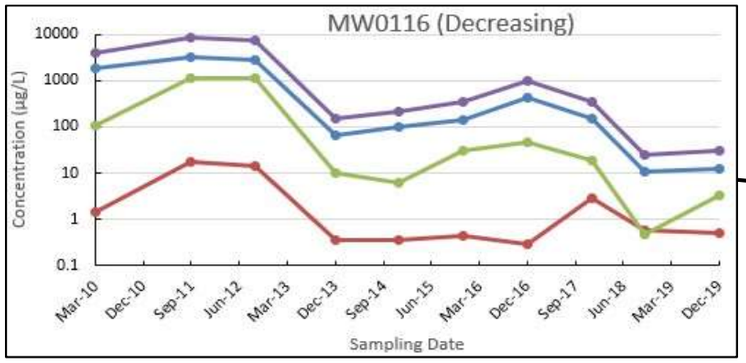
2019 Annual Long Term Monitoring

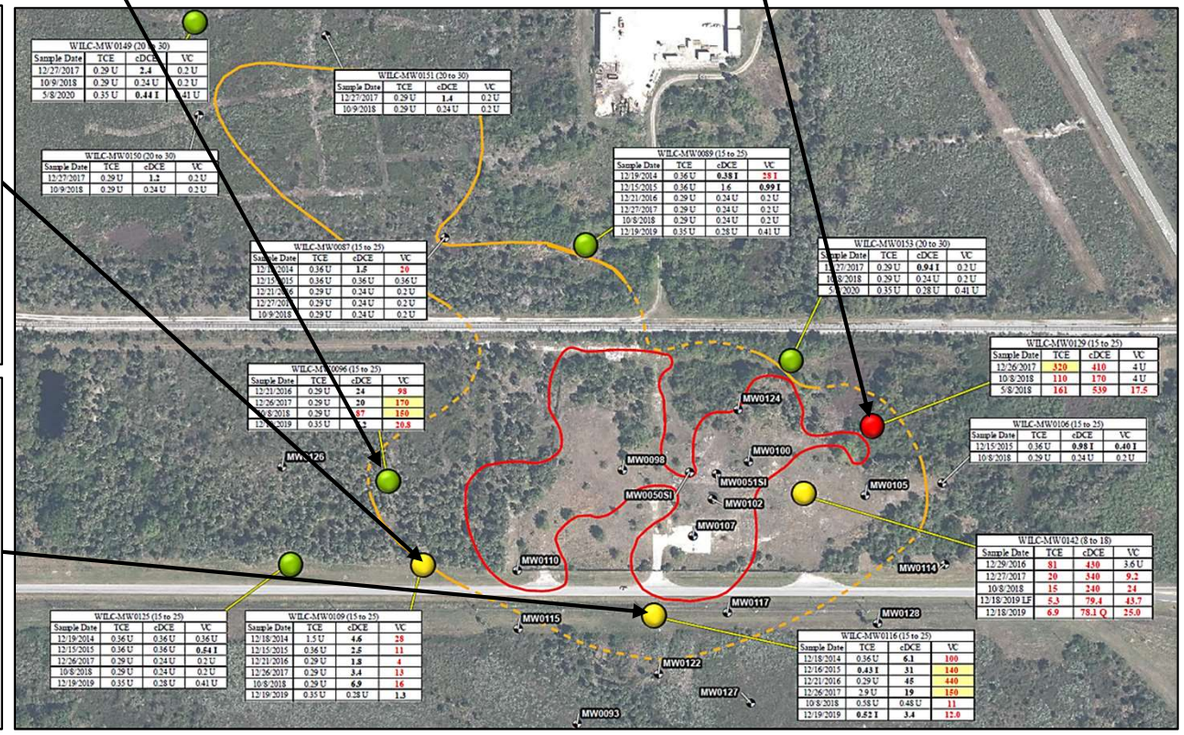
Groundwater Sampling Results – 15 to 30 ft bls











- Stable
- Decreasing
- Increasing
- No Trend

AECOM

2019 Annual Long Term Monitoring

Groundwater Sampling Results – 23 to 35 ft bls

Legend

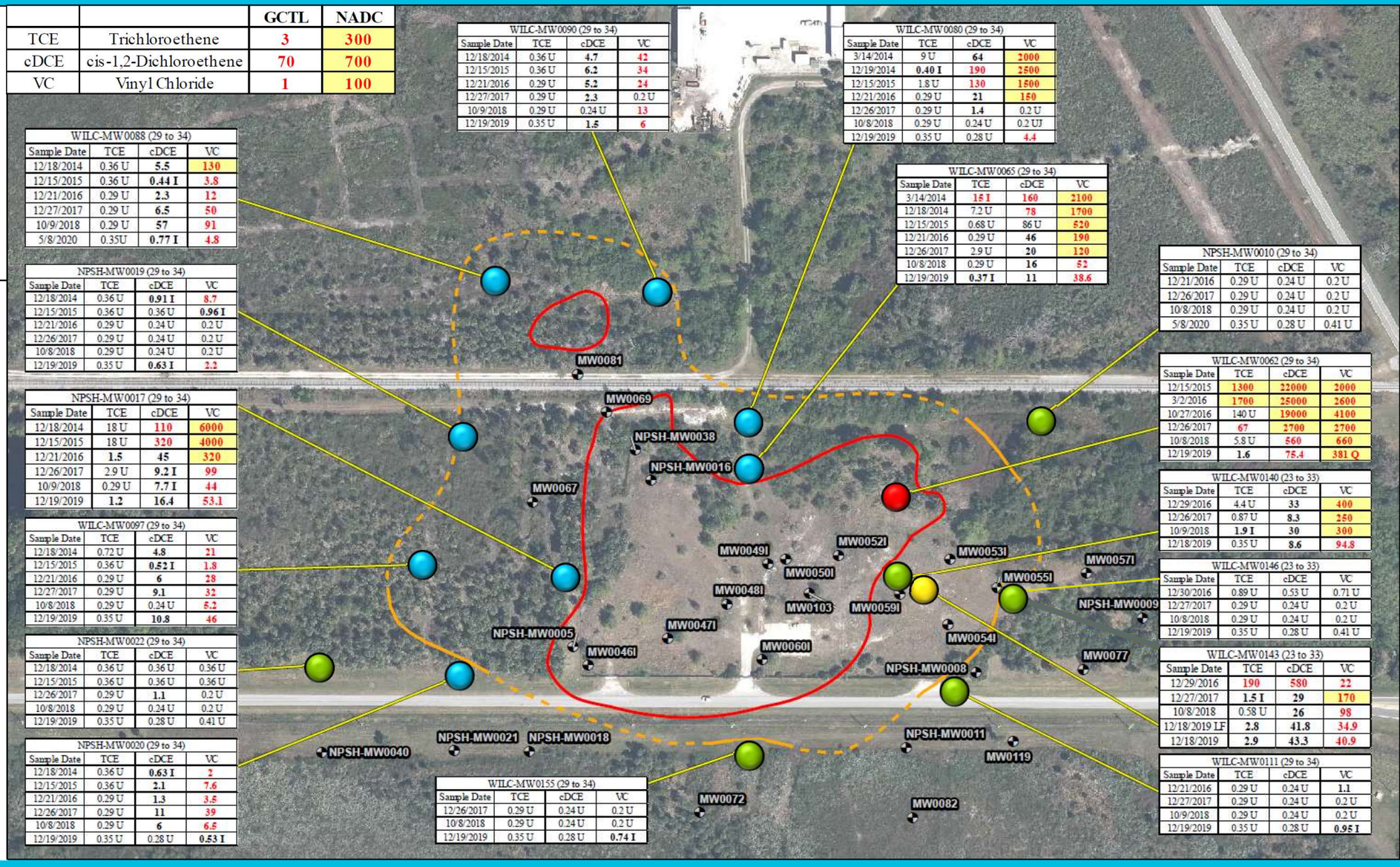
- Annual LTM Sampling Location
- Not Sampled as Part of LTM
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 180 360 Feet

		GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

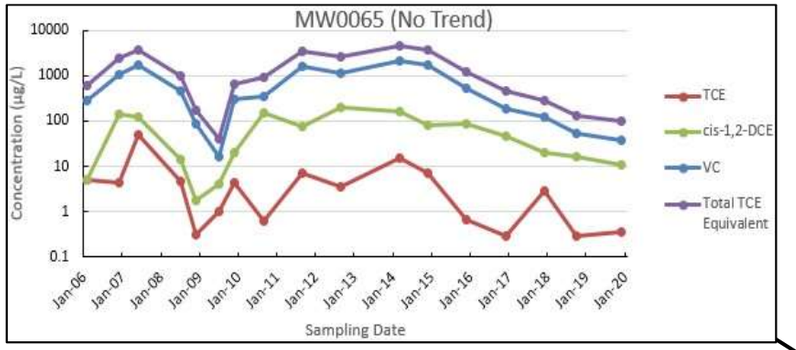


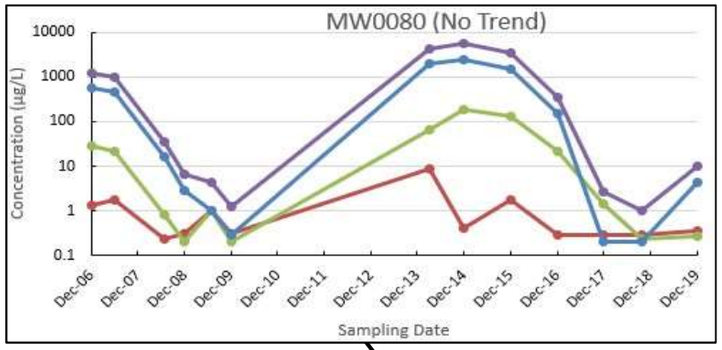
Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.

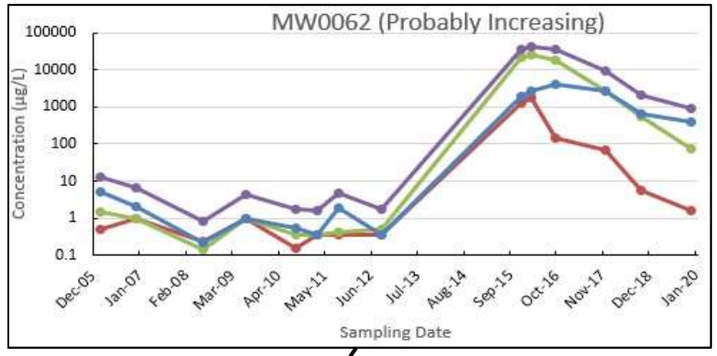
AECOM

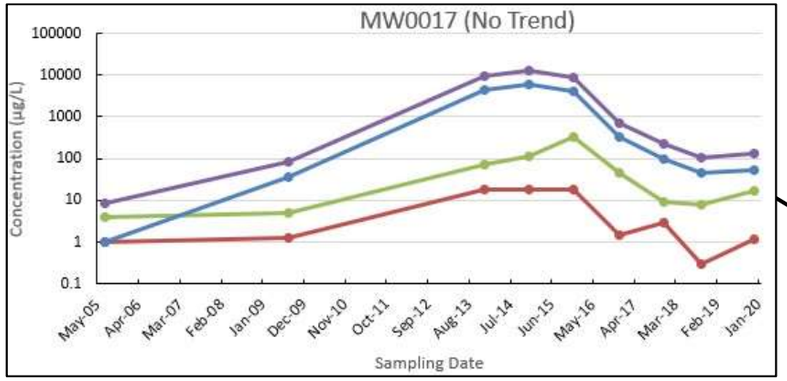
2019 Annual Long Term Monitoring

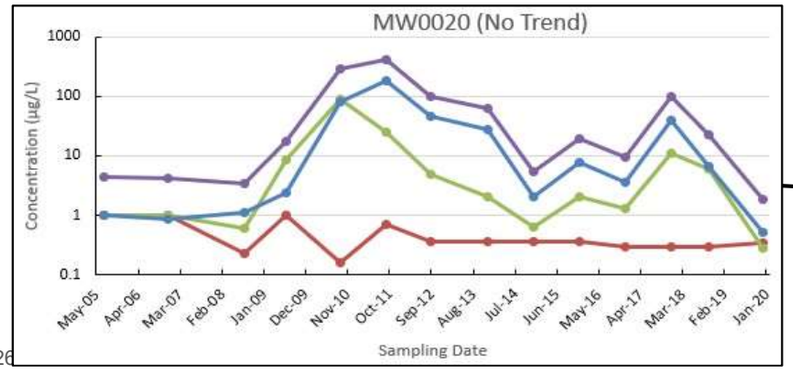
Groundwater Sampling Results – 23 to 35 ft bls

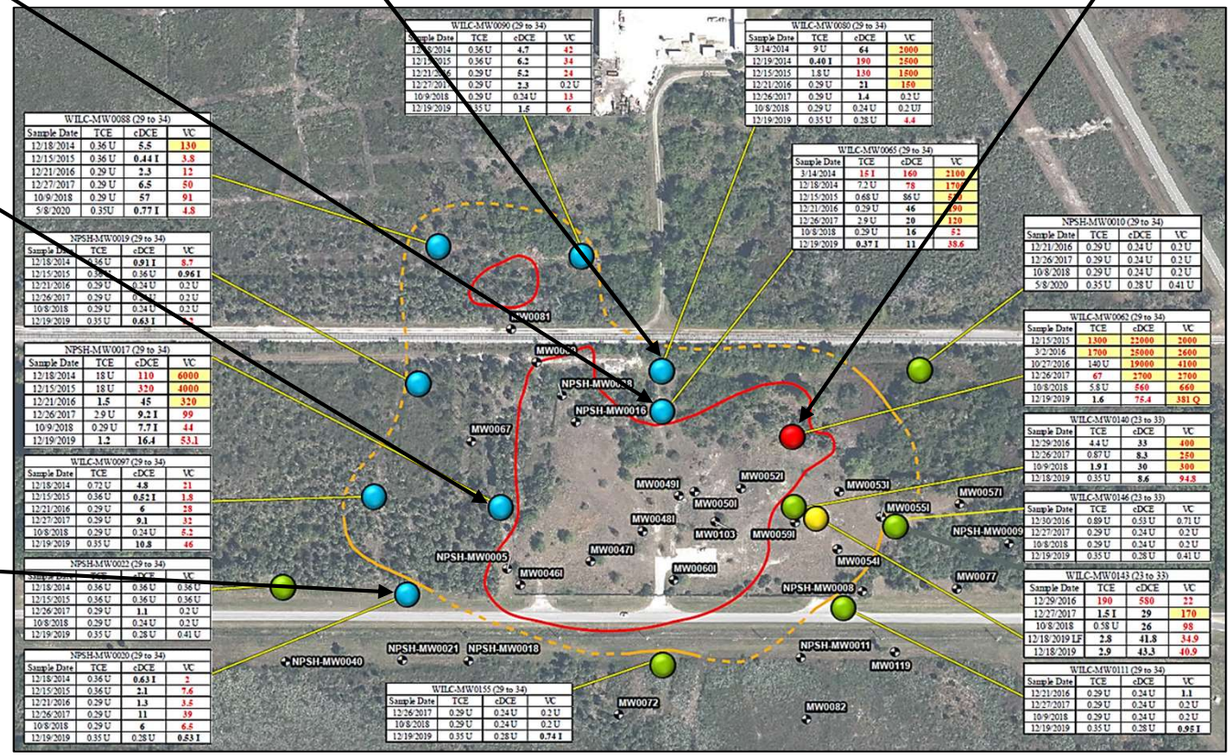










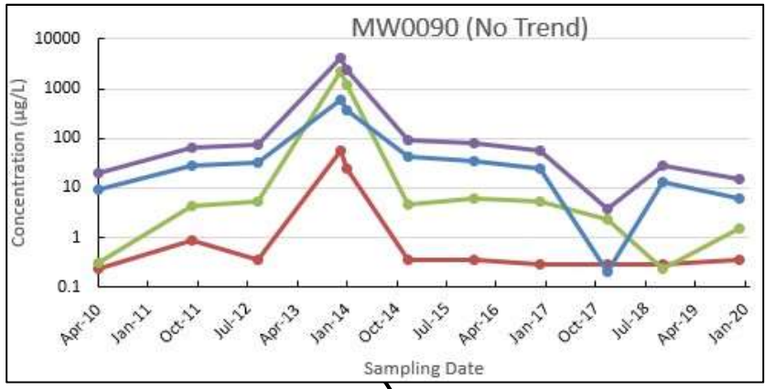


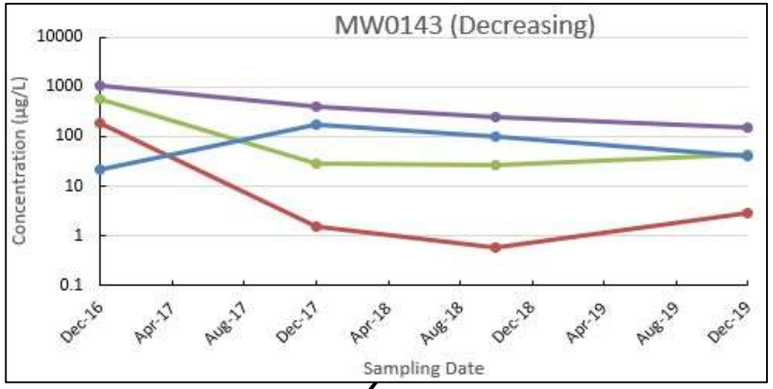
- Stable
- Decreasing
- Increasing
- No Trend

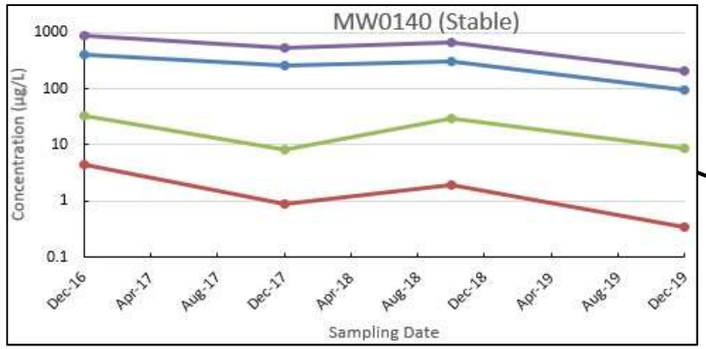
AECOM

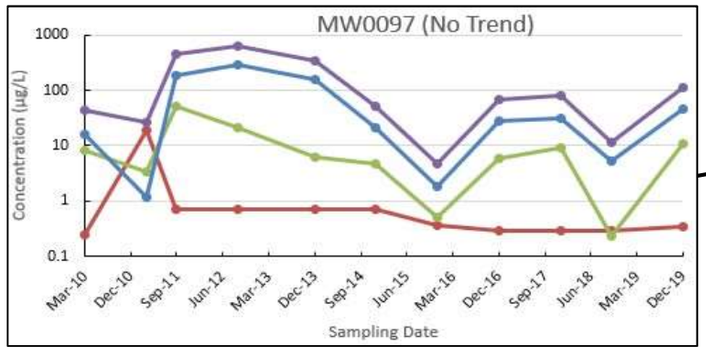
2019 Annual Long Term Monitoring

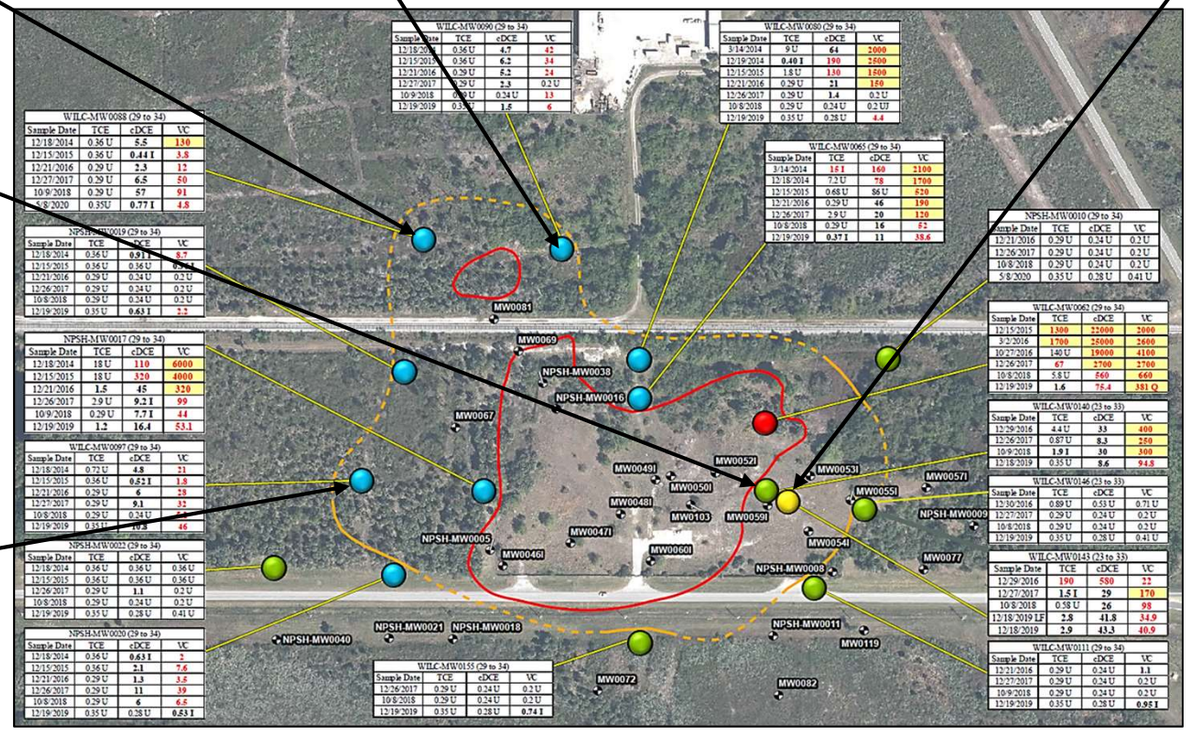
Groundwater Sampling Results – 23 to 35 ft bls











Stable

Decreasing

Increasing

No Trend

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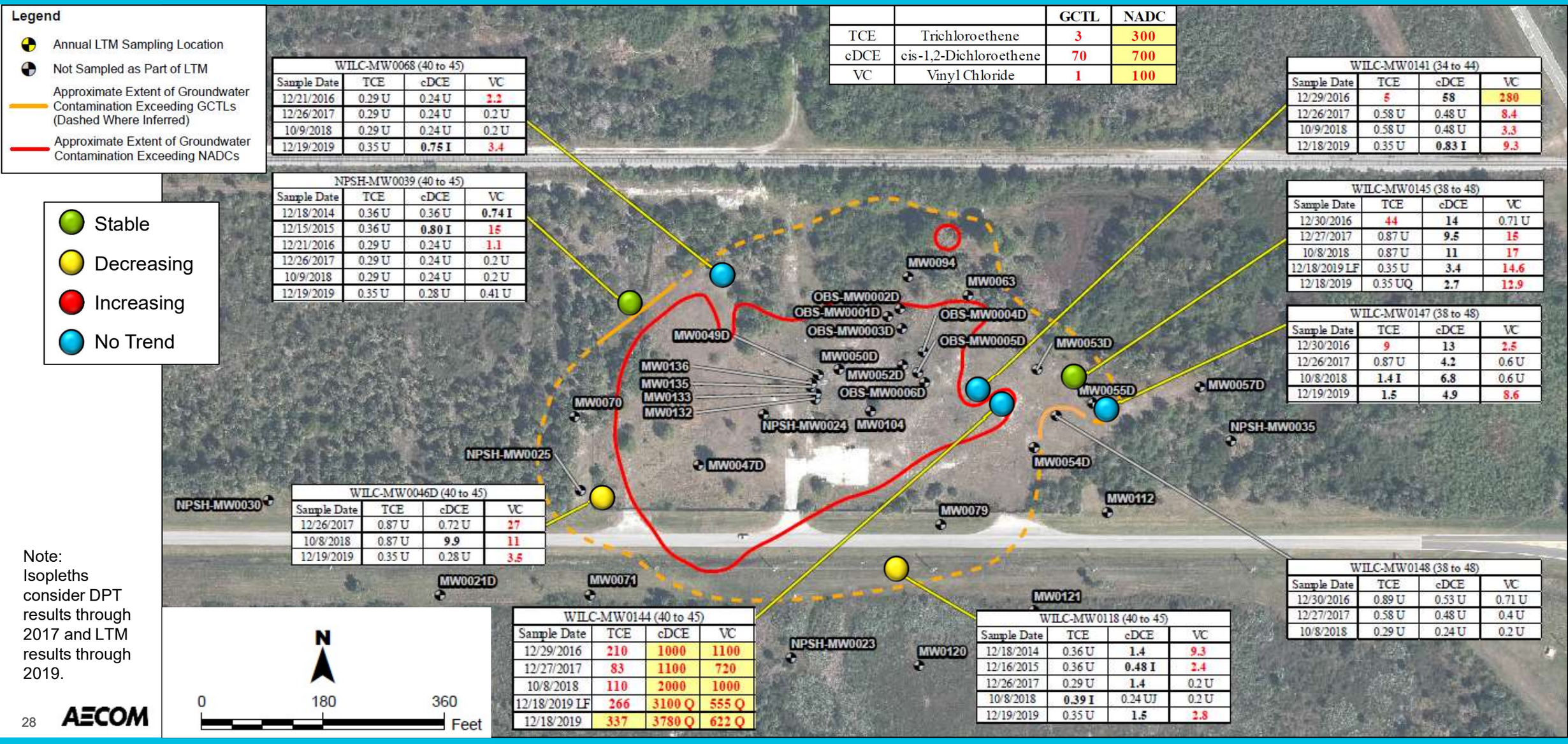
2019 Annual Long Term Monitoring

Groundwater Sampling Results – 34 to 55 ft bls



		GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

WILC-MW0068 (40 to 45)

Sample Date	TCE	cDCE	VC
12/21/2016	0.29 U	0.24 U	2.2
12/26/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.75 I	3.4

NPSH-MW0039 (40 to 45)

Sample Date	TCE	cDCE	VC
12/18/2014	0.36 U	0.36 U	0.74 I
12/15/2015	0.36 U	0.80 I	15
12/21/2016	0.29 U	0.24 U	1.1
12/26/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U

WILC-MW0046D (40 to 45)

Sample Date	TCE	cDCE	VC
12/26/2017	0.87 U	0.72 U	27
10/8/2018	0.87 U	9.9	11
12/19/2019	0.35 U	0.28 U	3.5

WILC-MW0144 (40 to 45)

Sample Date	TCE	cDCE	VC
12/29/2016	210	1000	1100
12/27/2017	83	1100	720
10/8/2018	110	2000	1000
12/18/2019 LF	266	3100 Q	555 Q
12/18/2019	337	3780 Q	622 Q

WILC-MW0118 (40 to 45)

Sample Date	TCE	cDCE	VC
12/18/2014	0.36 U	1.4	9.3
12/16/2015	0.36 U	0.48 I	2.4
12/26/2017	0.29 U	1.4	0.2 U
10/8/2018	0.39 I	0.24 UJ	0.2 U
12/19/2019	0.35 U	1.5	2.8

WILC-MW0141 (34 to 44)

Sample Date	TCE	cDCE	VC
12/29/2016	5	58	280
12/26/2017	0.58 U	0.48 U	8.4
10/9/2018	0.58 U	0.48 U	3.3
12/18/2019	0.35 U	0.83 I	9.3

WILC-MW0145 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	44	14	0.71 U
12/27/2017	0.87 U	9.5	15
10/8/2018	0.87 U	11	17
12/18/2019 LF	0.35 U	3.4	14.6
12/18/2019	0.35 UQ	2.7	12.9

WILC-MW0147 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	9	13	2.5
12/26/2017	0.87 U	4.2	0.6 U
10/8/2018	1.4 I	6.8	0.6 U
12/19/2019	1.5	4.9	8.6

WILC-MW0148 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	0.89 U	0.53 U	0.71 U
12/27/2017	0.58 U	0.48 U	0.4 U
10/8/2018	0.29 U	0.24 U	0.2 U

Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.

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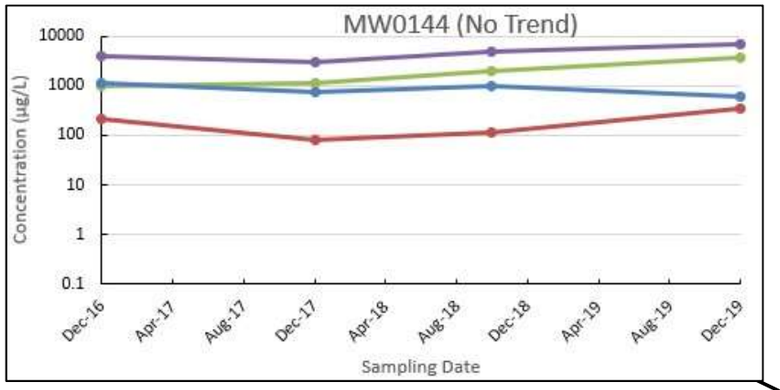
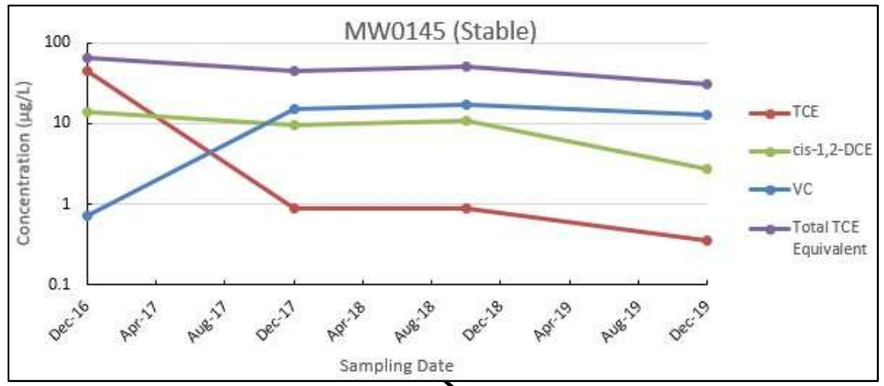
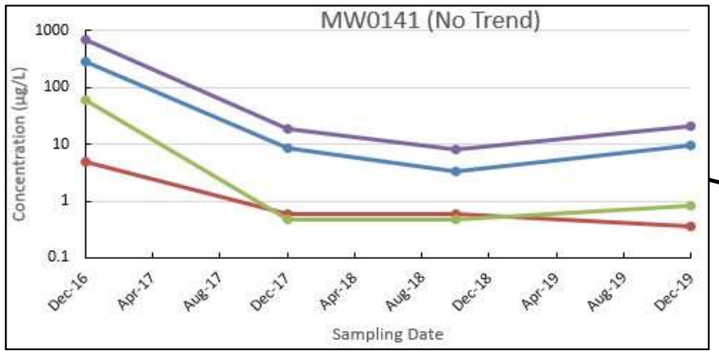
2019 Annual Long Term Monitoring

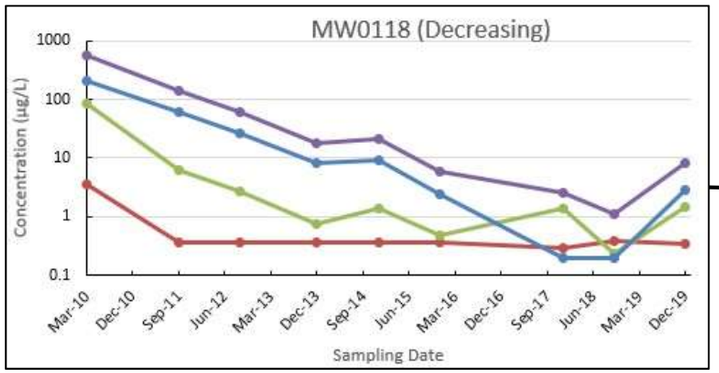
Groundwater Sampling Results – 34 to 55 ft bls

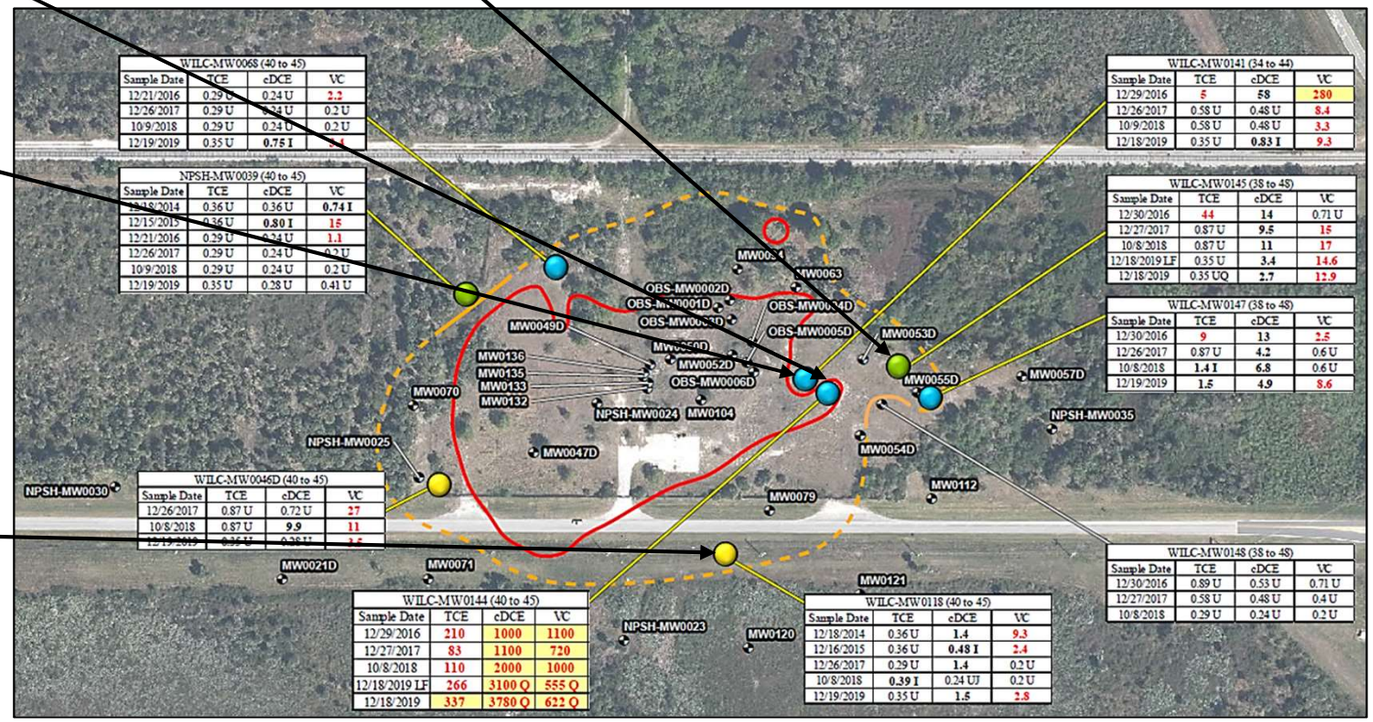




- Stable
- Decreasing
- Increasing
- No Trend







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2019 Annual Long Term Monitoring

Groundwater Sampling Results – Greater than 55 ft bls

Legend

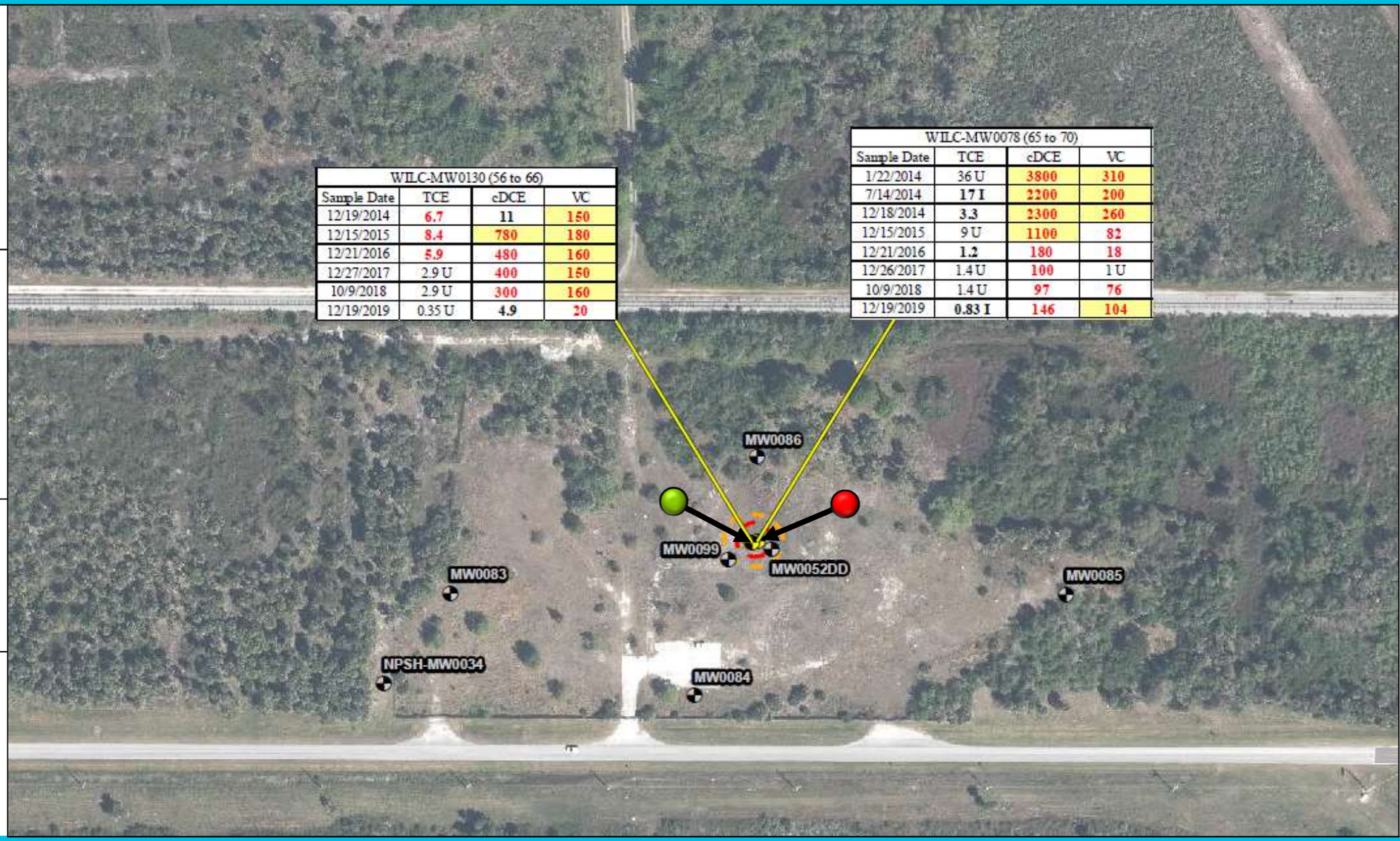
- Annual LTM Sampling Location
- Not Sampled as Part of LTM
- Approximate Extent of Groundwater Contamination (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 180 360 Feet

Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.



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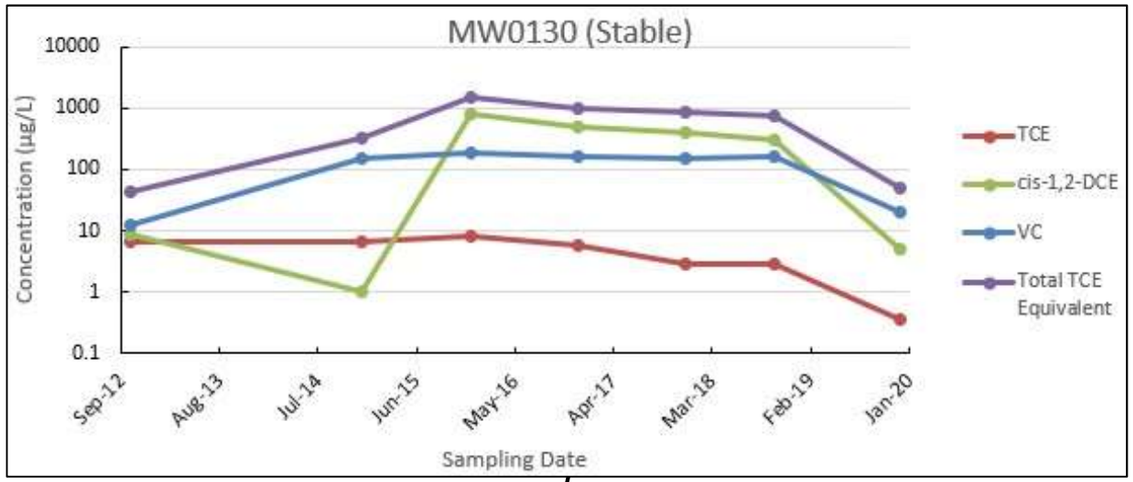
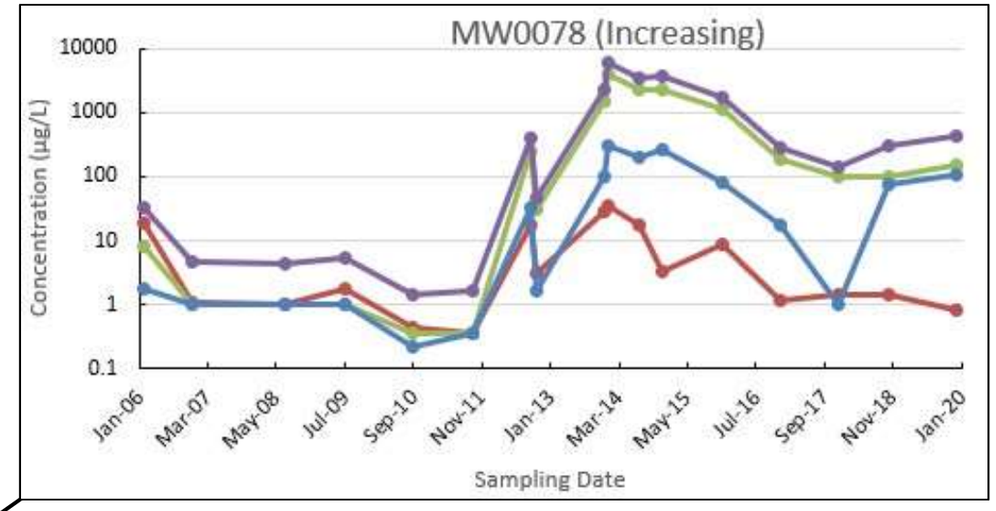
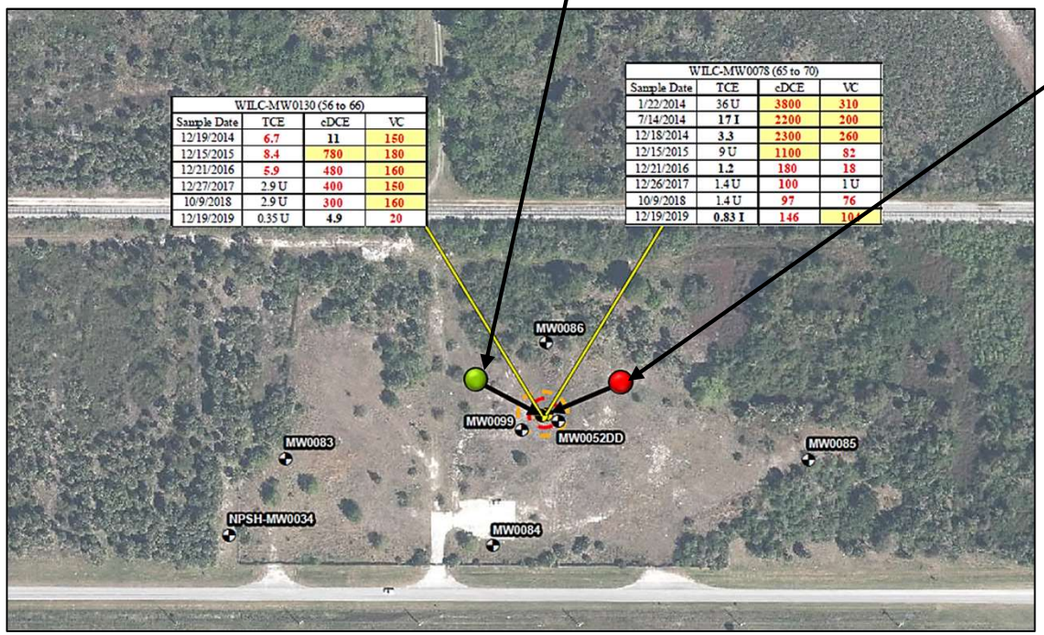
2019 Annual Long Term Monitoring

Groundwater Sampling Results – Greater than 55 ft bls







- Stable
- Decreasing
- Increasing
- No Trend

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2019 Annual Long Term Monitoring

Test Consensus

- Continue annual sampling of 43 monitoring wells
- Continue annual water level measurements at 49 monitoring wells
- The next sampling event will be Nov/Dec 2020 prior to IM construction

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2019 Annual Long Term Monitoring

Test Consensus – Proposed Gauging and Sampling Table

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Water Levels	VOCs/Freon 113 via PDBs
2 to 15	NPSH-MW0027	10 to 15	X	X
	NPSH-MW0036	3 to 10	X	
	MW0064	2 to 12	X	X
	MW0074	2 to 12	X	X
	MW0091	2 to 12	X	X
	MW0095	2 to 12	X	X
	MW0152	5 to 15	X	X
	MW0154	10 to 15	X	X
	MW0156	5 to 15	X	X (and LF)
15 to 30	MW0087	15 to 25	X	
	MW0089	15 to 25	X	X
	MW0096	15 to 25	X	X
	MW0106	15 to 25	X	
	MW0109	15 to 25	X	X
	MW0116	15 to 25	X	X
	MW0125	15 to 25	X	X
	MW0129	15 to 25	X	X (and LF)
	MW0142	8 to 18	X	X
	MW0149	20 to 30	X	X
	MW0150	20 to 30	X	
	MW0151	20 to 30	X	
	MW0153	20 to 30	X	X
23 to 35	NPSH-MW0010	29 to 34	X	X
	NPSH-MW0017	29 to 34	X	X
	NPSH-MW0019	29 to 34	X	X
23 to 35	NPSH-MW0020	29 to 34	X	X
	NPSH-MW0022	29 to 34	X	X
	MW0062	29 to 34	X	X
	MW0065	29 to 34	X	X
	MW0080	29 to 34	X	X
	MW0088	29 to 34	X	X
	MW0090	29 to 34	X	X
	MW0097	29 to 34	X	X
	MW0111	29 to 34	X	X
	MW0140	23 to 33	X	X
	MW0143	23 to 33	X	X
	MW0146	23 to 33	X	X
	MW0155	29 to 34	X	X
34 to 55	NPSH-MW0039	40 to 45	X	X
	MW0046D	40 to 45	X	X
	MW0068	40 to 45	X	X
	MW0118	40 to 45	X	X
	MW0141	34 to 44	X	X
	MW0144	40 to 50	X	X
	MW0145	38 to 48	X	X
	MW0147	38 to 48	X	X
	MW0148	38 to 48	X	
> 55	MW0078	65 to 70	X	X
	MW0130	56 to 66	X	X

ft bls – Feet below land surface; MW – Monitoring well; NPSH – National Park Service Headquarters
PDBs – Passive diffusion bags; VOCs – Volatile organic compounds
LF – Low flow (sampling)

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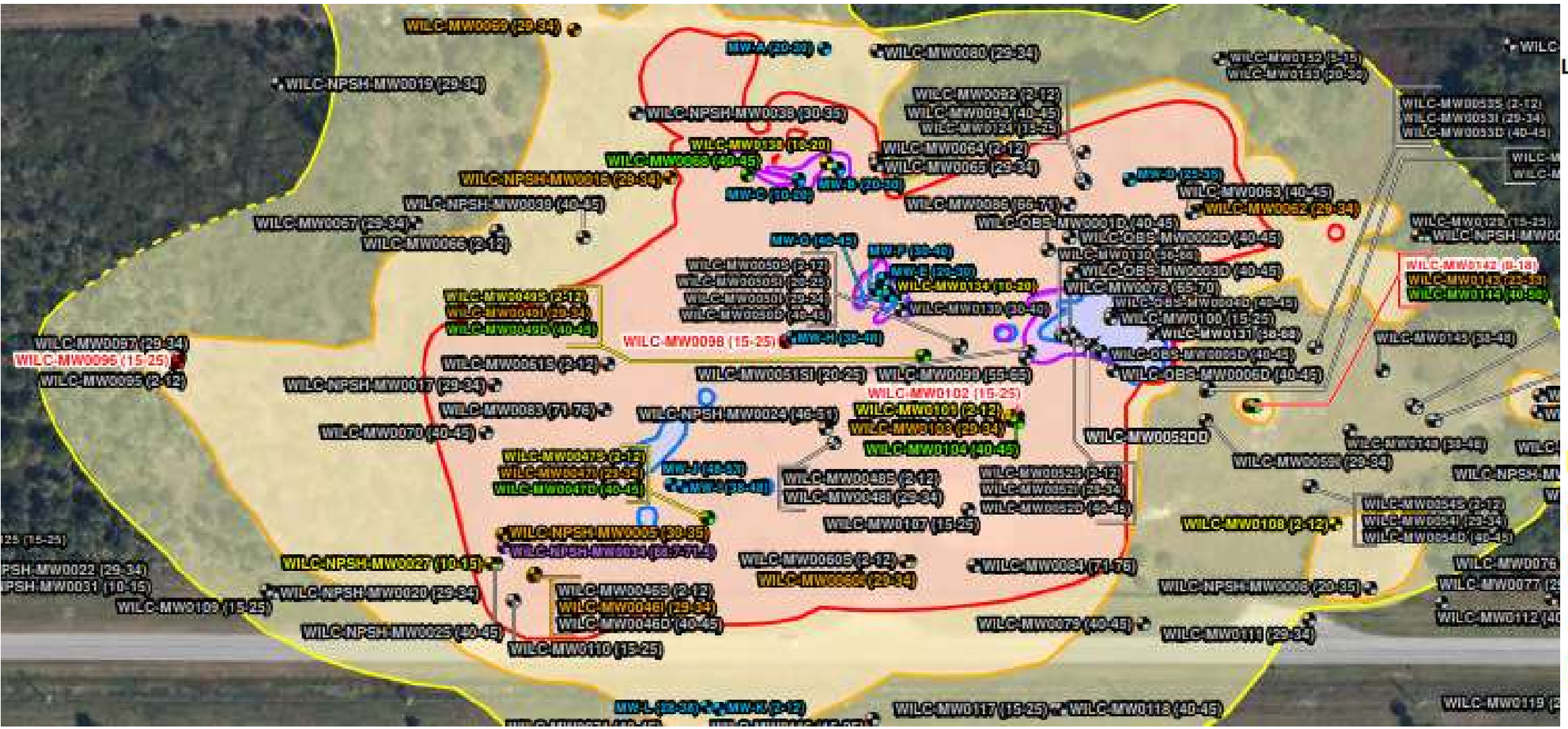
Additional Information

Proposed MW Installations During IM Implementation



Source: Wilson Corners SWMU 001 – Air Sparge Interim Measures Work Plan (Geosyntec Consultants, June 2019)

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April 28, 2021

Anne Chrest
Remediation Project Manager
National Aeronautics and Space Administration
Mail Code SI-E2
Building K6-1547 (Logistics Facility)
John F. Kennedy Space Center
Kennedy Space Center, FL 32899-0001

Subject: **Wilson Corners**
Solid Waste Management Unit (SWMU 001)
2020 Annual Long-Term Monitoring
April 2021 KSCRT Meeting Advanced Data Package (ADP)

Reference: **Indefinite Delivery Indefinite Quantity (IDIQ) Contract 80KSC019D0010**

Dear Ms. Chrest:

AECOM Technical Services, Inc. (AECOM) is pleased to provide Kennedy Space Center (KSC), National Aeronautics and Space Administration (NASA), with the ADP for the referenced site. This ADP provides a brief background for the site and a summary of work performed in December 2020.

The summary of work includes:

- Measurement of water levels from 49 monitoring wells in December 2020 to determine groundwater flow direction.
- Collection of groundwater samples from 43 monitoring wells in December 2020 via low flow pumping. The samples were analyzed for volatile organic compounds (VOCs) using US Environmental Protection Agency (USEPA) Method 8260B.

Groundwater flow directions at the site in December 2020 for each zone are listed below. The flow directions generally agree with historical evaluations.

- 2 to 15 feet below land surface (ft bls) – west-southwest
- 15 to 34 ft bls – west with northerly component on the west side and southerly component on the east side
- 34 to 55 ft bls – west-southwest

Analytical results indicate site constituents of concern were above Groundwater Cleanup Target Levels in 26 monitoring wells and Natural Attenuation Default Concentrations in two monitoring wells. Mann-Kendall trend analysis for recent data (2015 through 2020) in select monitoring wells, indicated stable to decreasing concentrations in 16 wells, and no trend in 12 wells.

The following consensus statements will be presented to the KSC Remediation Team (KSCRT):

- Modify the sampling plan based on the findings from the October 2020 and April 2021 direct push technology (DPT) drilling events;
- Recommend the installation of new monitoring wells, if needed;
- Present recommendations to the KSC Remediation Team in late summer/early fall 2021; and
- The next sampling event will be in December 2021.

If you need additional information, please contact Chad Lee at chad.lee@aecom.com or via phone at 864.650.4338.

Sincerely,

AECOM Technical Services, Inc.

Chadwick Lee, PG
Task Order Manager

Jennifer Joyal, PE
Program Manager

Enclosures:

Wilson Corners ADP

Cc: FDEP
Richard Smith, HGL
Mark Speranza, Tetra Tech
AECOM Project File 60614327

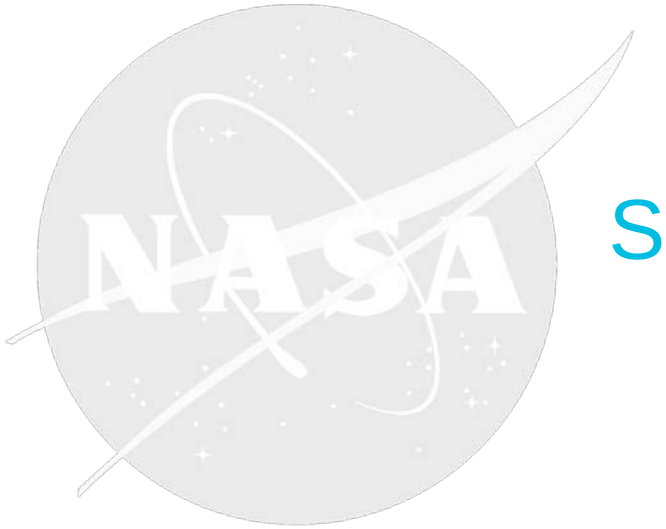
Wilson Corners (WILC)
Solid Waste Management Unit (SWMU) 001

2020 Annual Long-Term Monitoring (LTM)

August 2020

Outline

1. Site Overview
2. 2020 Annual LTM

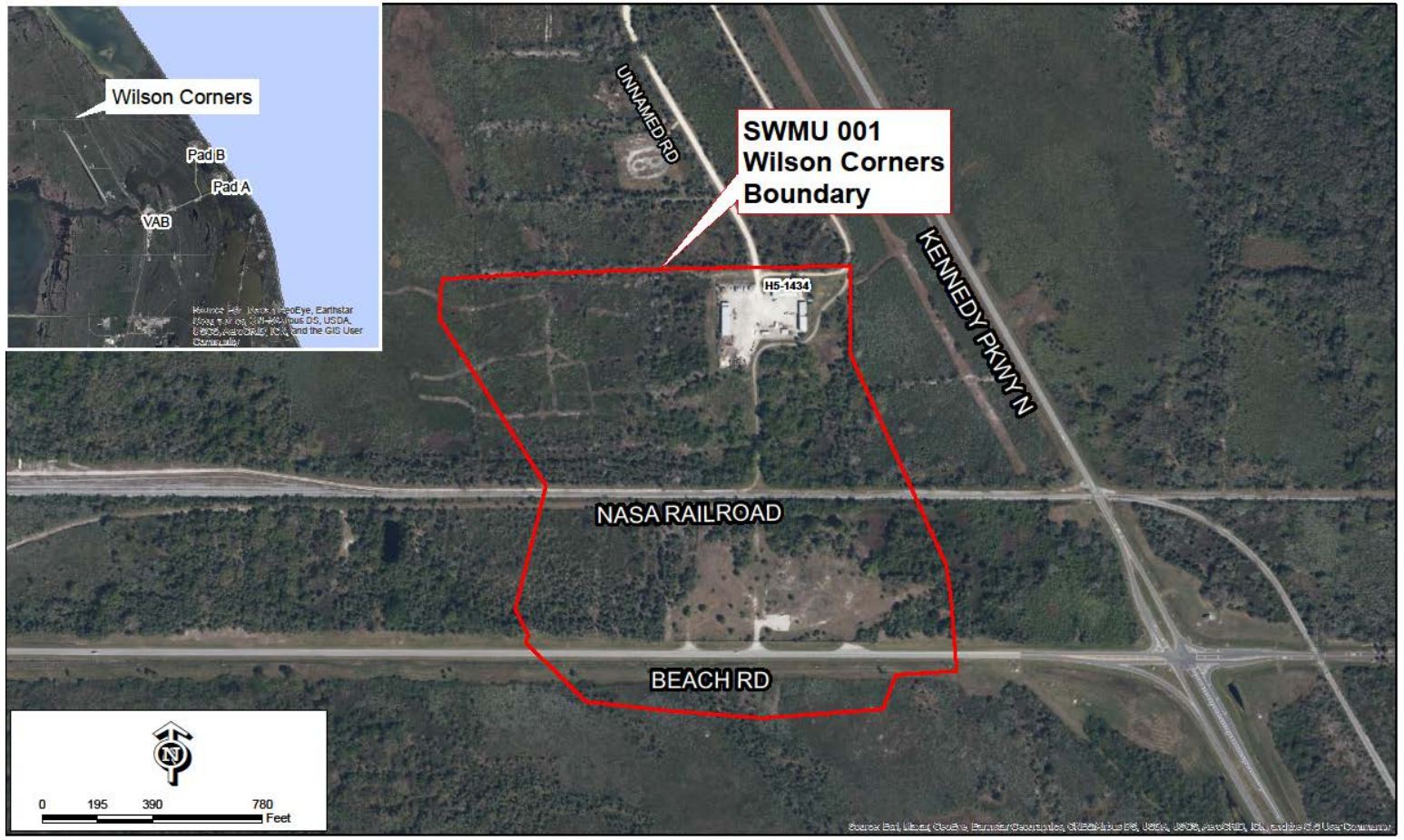


Site Overview

Site Overview

Site Location

- Wilson Corners, Solid Waste Management Unit #001, is located on Beach Road (State Road 402) northwest of the intersection of Kennedy Parkway (State Road 3) and Beach Road (State Road 402).



Source: KSC Remediation Program

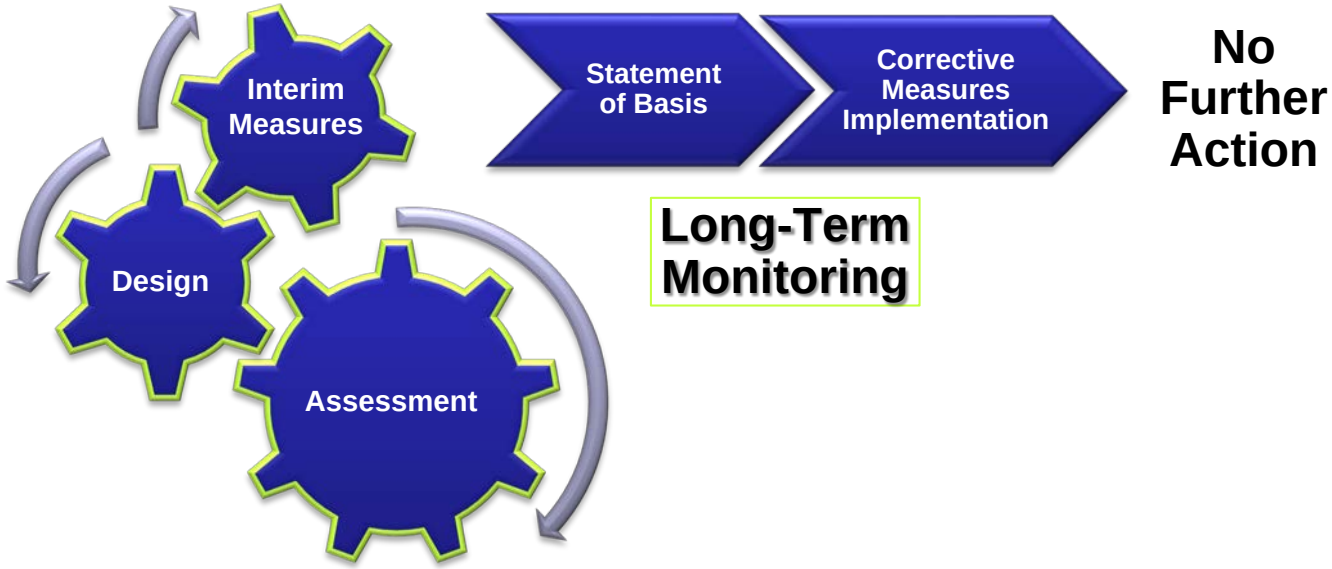
Site Overview

Where we are in the RCRA Process

- Site is in Corrective Measures Implementation from a traditional RCRA stand-point
- Adaptive site management is being utilized through ongoing assessment, design, and interim measures
- This approach also meets the requirements of Chapter 62-780 Florida Administrative Code (FAC)

Traditional Linear Approach to RCRA Corrective Actions

KSC Approach to RCRA Corrective Actions

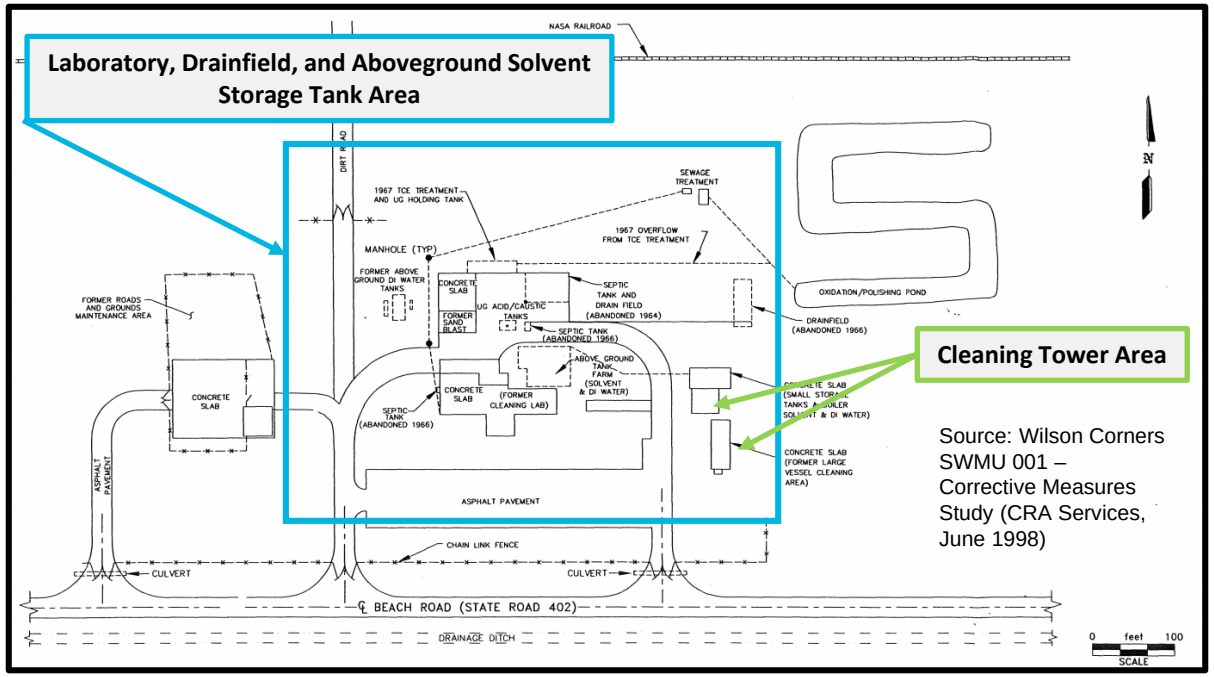


Source: KSC Remediation Program

Site Background and Overview

Site Use

- Historical site use (abbreviated):
  - General store prior to NASA acquisition in early 1960s
  - Operated as a Propellant Systems Components Laboratory from 1963 to 1974
    - o Trichloroethene (TCE) was stored in aboveground storage tanks and used in the laboratory and in an outside cleaning facility.
    - o TCE was the primary solvent for cleaning components.
    - o TCE was discharged to the ground via drainfields and direct spillage.
    - o TCE use was phased out and replaced with Freon 113.
    - o Facility razed and abandoned in 1974
- Current site use:
  - Unoccupied



Source: Wilson Corners SWMU 001 – Corrective Measures Study (CRA Services, June 1998)

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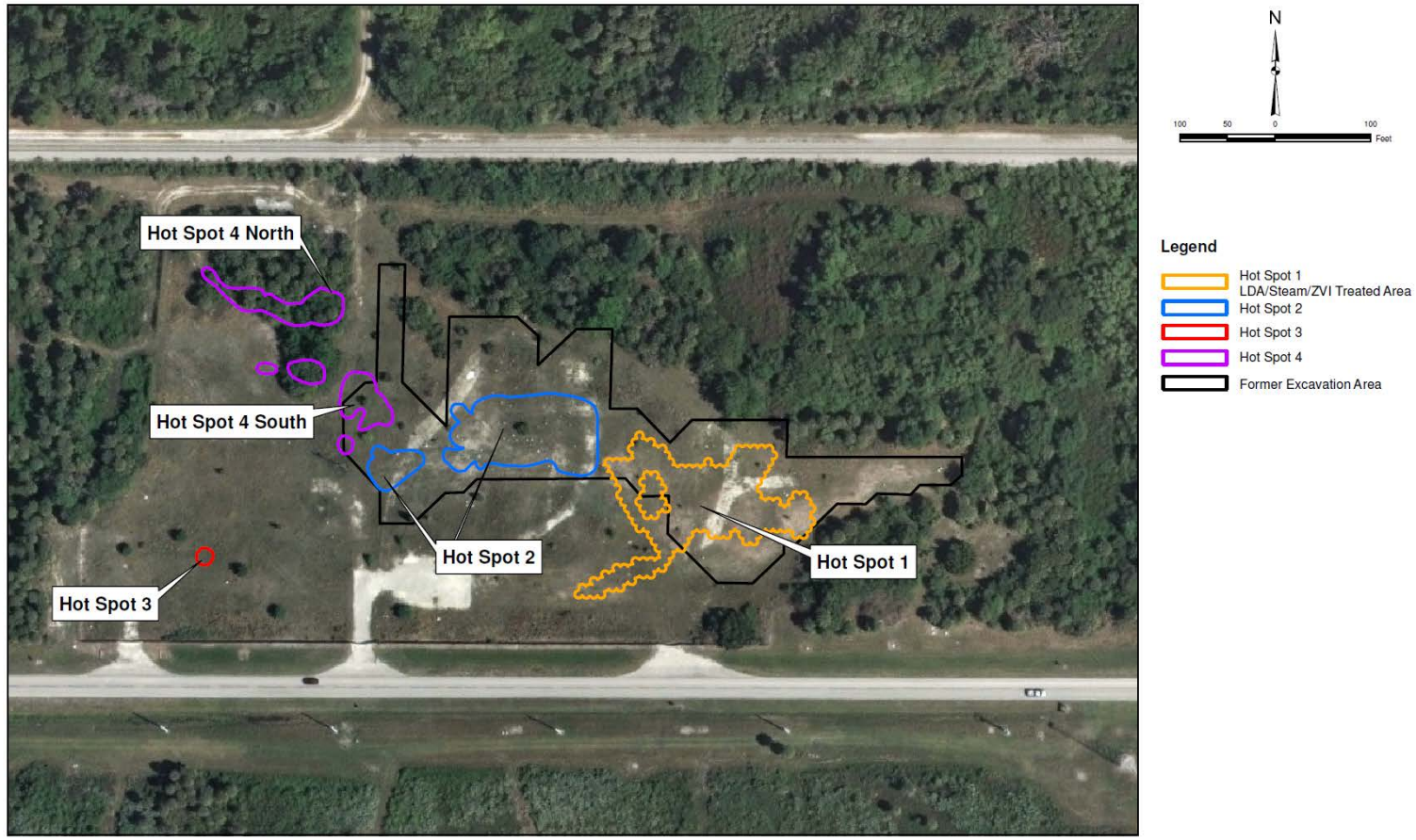
Site Overview

Site Assessment

- Assessments/investigations began in mid-1980s
- Supplemental assessment activities to delineate the overall dissolved plume were conducted from May 2005 through July 2010
  - 600 groundwater samples using direct push technology (DPT) drilling
  - 66 monitoring wells installed
  - 14 membrane interface probe borings with cone penetrometer testing (CPT) at 3 of these locations
  - 5 soil cores to evaluate site lithology
- High resolution site characterization activities were conducted between April 2011 and December 2017 (15 DPT groundwater sampling events) to delineate areas with higher concentrations of contaminants of concern (COCs) within the dissolved plume
  - 4,175 groundwater samples were collected from 551 locations
  - Sampling was generally performed at 4-ft depth intervals at various depths from 6 to 80 ft bls
- 7 additional soil borings were advanced to further understand the subsurface composition and locate low permeability zones

Site Overview
Site History

- Four hot spots were delineated
  - A hot spot is an area where concentrations of contaminants of concern (COCs) are 10 times the Florida Department of Environmental Protection (FDEP) Natural Attenuation Default Concentrations (NADCs)
- Groundwater re-assessment is ongoing
  - 15 days of groundwater sampling using DPT performed in October 2020
  - 25 days of additional groundwater sampling using DPT planned for April 2021



Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)

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Site Overview

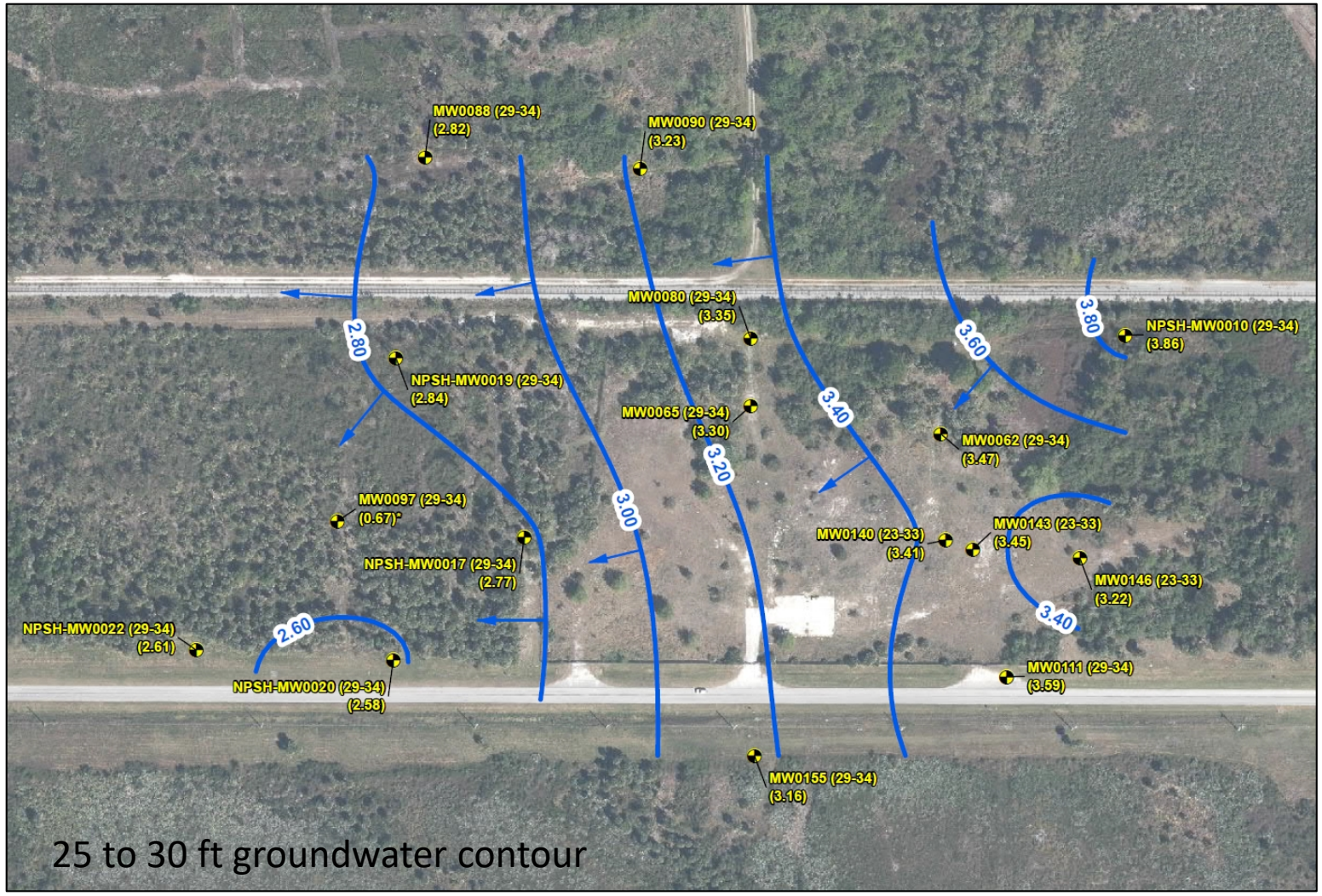
Current Site Conditions

- Soil or sediment impacts: None
- Groundwater COCs:
  - Chlorinated Volatile Organic Compounds (primarily trichloroethene, cis-1,2 dichloroethane, vinyl chloride, and Freon 113)
- Horizontal and vertical extent of contaminations (as of 2018):
  - ~25-acre Groundwater Cleanup Target Level (GCTL) plume
    - Additional assessment needed to refine our understanding
  - Vertical extent of GCTL plume is >70 feet below land surface (bls)
    - Vertical migration is limited by the fine-grained unit at ~50 ft bls.
    - GCTL exceedances are observed in the two deep LTM monitoring wells, within the Hot Spot 2 area, screened 56 to 66 and 65 to 70 ft bls.
    - The Remediation Team has agreed to delay doing deeper DPT investigation in this area to prevent the creation of additional pathways for vertical migration. An increase in TCE breakdown products was observed in monitoring wells following a deep DPT investigation within the Hot Spot 2 area in 2012. Following the Hot Spot 2 interim measure, a deeper DPT investigation will be conducted.

Site Overview

Current Site Conditions

- Lithology:
  - Sands and organic hardpan (shallow), sand and shell fragments (intermediate), and sandy silts/clays (deep)
  - Lithologic cross sections are provided on pages 16 to 18
- Hydrology:
  - Depth to groundwater ranges between 3 to 5 ft bls
  - Groundwater flow direction is generally to the west, with northwest and southwest flow components.



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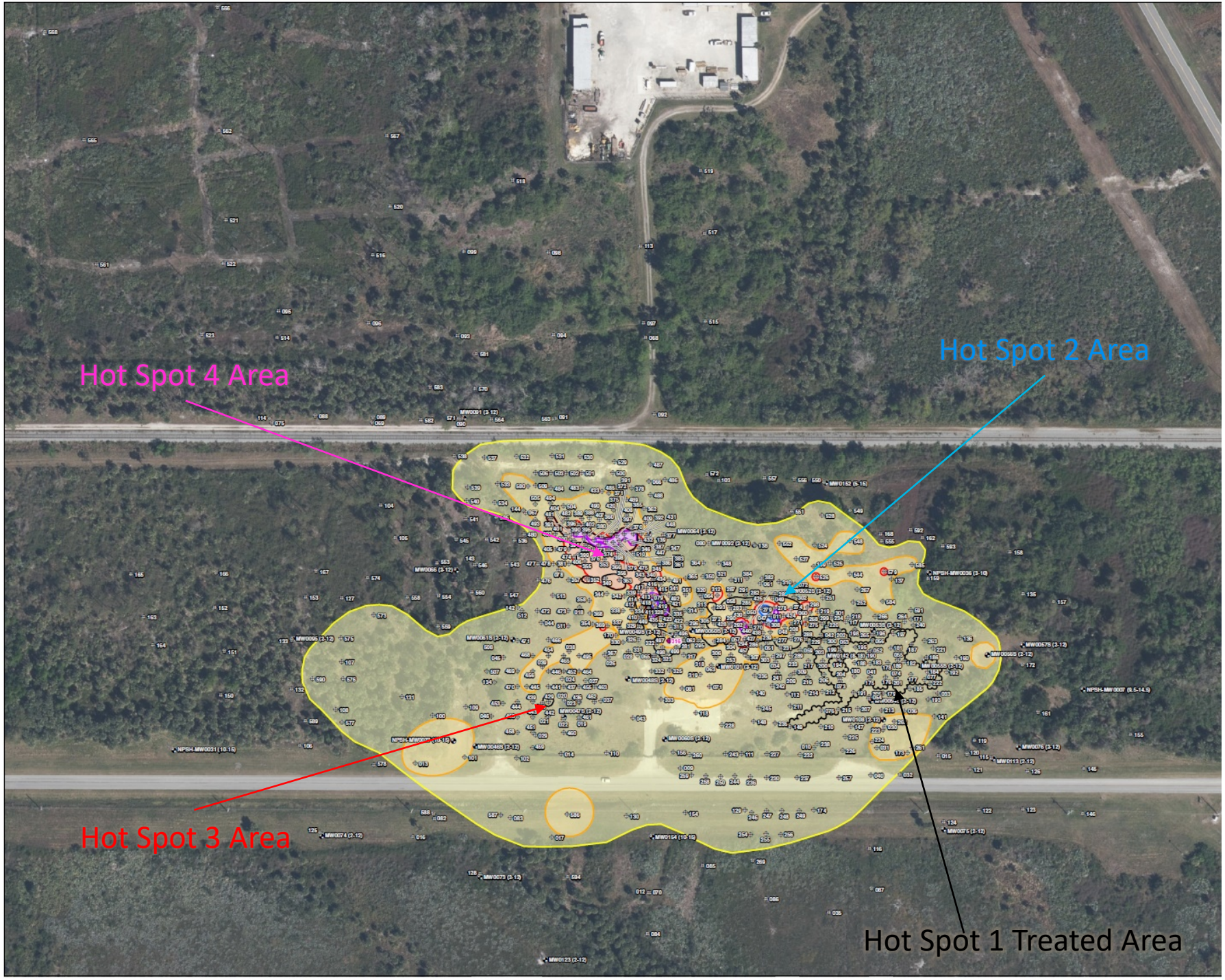


Groundwater Sampling Results

2 to 15 ft bls

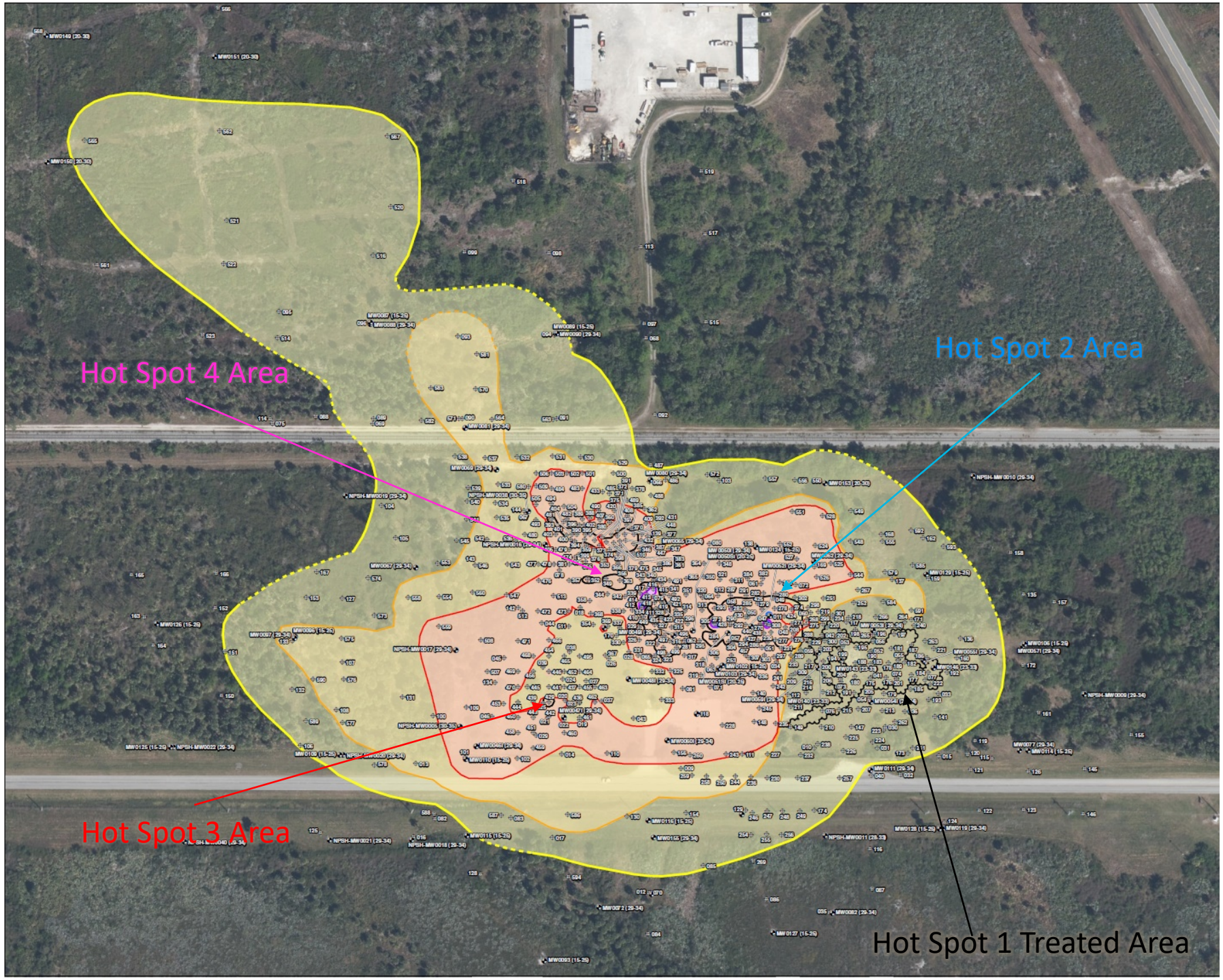
Isopleths consider DPT results through 2017 and 2018 LTM results

Legend

- DPT Sample Location
- DPT Sample location with Freon 113 greater than GCTL (210,000 µg/L)
- 2 to 15 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- Hot Spot Areas
- Overall Extent of CVOC GCTL Isopleth - dashed where inferred (Area: 11.0 Acres/478,777 ft^2)
- Overall Extent of CVOC NADC Isopleth - dashed where inferred (Area: 2.2 Acres/96,338 ft^2)
- Overall Extent of CVOC 10xNADC Isopleth (Area: 0.38 Acres/16,476 ft^2)
- Overall Extent of CVOC 100xNADC Isopleth (Area: 0.02 Acres/933 ft^2)
- TCE Source Area (11,000 µg/L) (Area: 0.06 Acres/2,408 ft^2)

Air sparging of the overall extent of the NADC isopleth will be implemented in 2021

Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)



Groundwater Sampling Results

15 to 35 ft bls

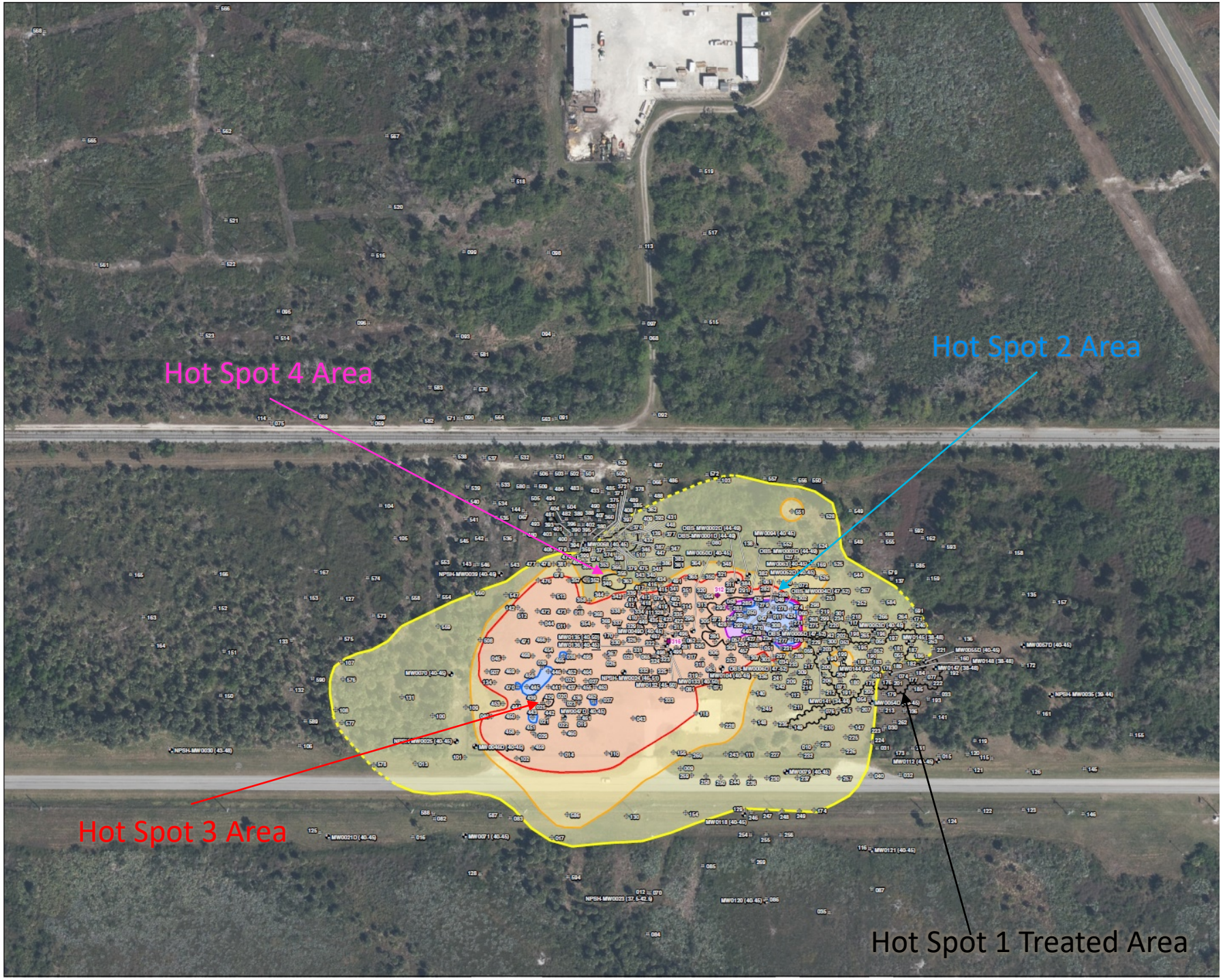
Isopleths consider DPT results through 2017 and 2018 LTM results

Legend

- DPT Sample Location
- 15 to 35 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- Hot Spot Areas
- Overall Extent of CVOC GCTL Isopleth - dashed where inferred (Area: 21.3 Acres/926,738 ft^2)
- Overall Extent of CVOC NADC Isopleth - dashed where inferred (Area: 8.8 Acres/383,951 ft^2)
- Overall Extent of CVOC 10xNADC Isopleth (Area: 4.3 Acres/185,148 ft^2)
- Overall Extent of CVOC 100xNADC Isopleth (Area: 0.01 Acres/328 ft^2)
- TCE Source Area (11,000 µg/L) (Area: 0.02 Acres/786 ft^2)

Air sparging of the overall extent of the NADC isopleth will be implemented in 2021

Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)



Groundwater Sampling Results

35 to 55 ft bls

Isopleths consider DPT results through 2017 and 2018 LTM results

Legend

- DPT Sample Location
- DPT Sample location with Freon 113 greater than GCTL (210,000 µg/L)
- 35 to 55 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- Hot Spot Areas
- Overall Extent of CVOC GCTL Isopleth - dashed where inferred (Area: 8.7 Acres/377,370 ft^2)
- Overall Extent of CVOC NADC Isopleth - dashed where inferred (Area: 3.7 Acres/161,407 ft^2)
- Overall Extent of CVOC 10xNADC Isopleth (Area: 2.6 Acres/113,279 ft^2)
- Overall Extent of CVOC 100xNADC Isopleth (Area: 0.16 Acres/6,950 ft^2)
- TCE Source Area (11,000 µg/L) (Area: 0.17 Acres/7,473 ft^2)

Air sparging of the overall extent of the NADC isopleth will be implemented in 2021

Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)

Groundwater Plume

Below ~50 ft bls

DPT sample locations not shown

Legend

Overall Extent of NADC Isopleth
Total Area = 4,369 ft²; 0.1 acres

Overall Extent of GCTL Isopleth
Total Area = 48,116 ft²; 1.1 acres

Interbedded layers of fine sandy clay and clayey sands at ~50 ft bls

Soil mixing with steam and iron planned for Hot Spot 2 due to mass sorbed into the fine-grained unit
(Hot Spot 2 Large Diameter Auger with Steam and Zero Valent Iron Interim Measures Work Plan, approved June 15, 2017)

Source: KSC Remediation Program
Unfunded Environmental Liability
Figure - 2018

Site Overview

Groundwater Plume – Isopleths consider DPT results through 2017 and 2018 LTM results

High concentration plume is area with concentrations of COCs greater than NADCs

Low concentration plume is area with concentrations of COCs greater than Groundwater Cleanup Target Levels

Source: KSC Remediation Program Unfunded Environmental Liability Figure - 2018

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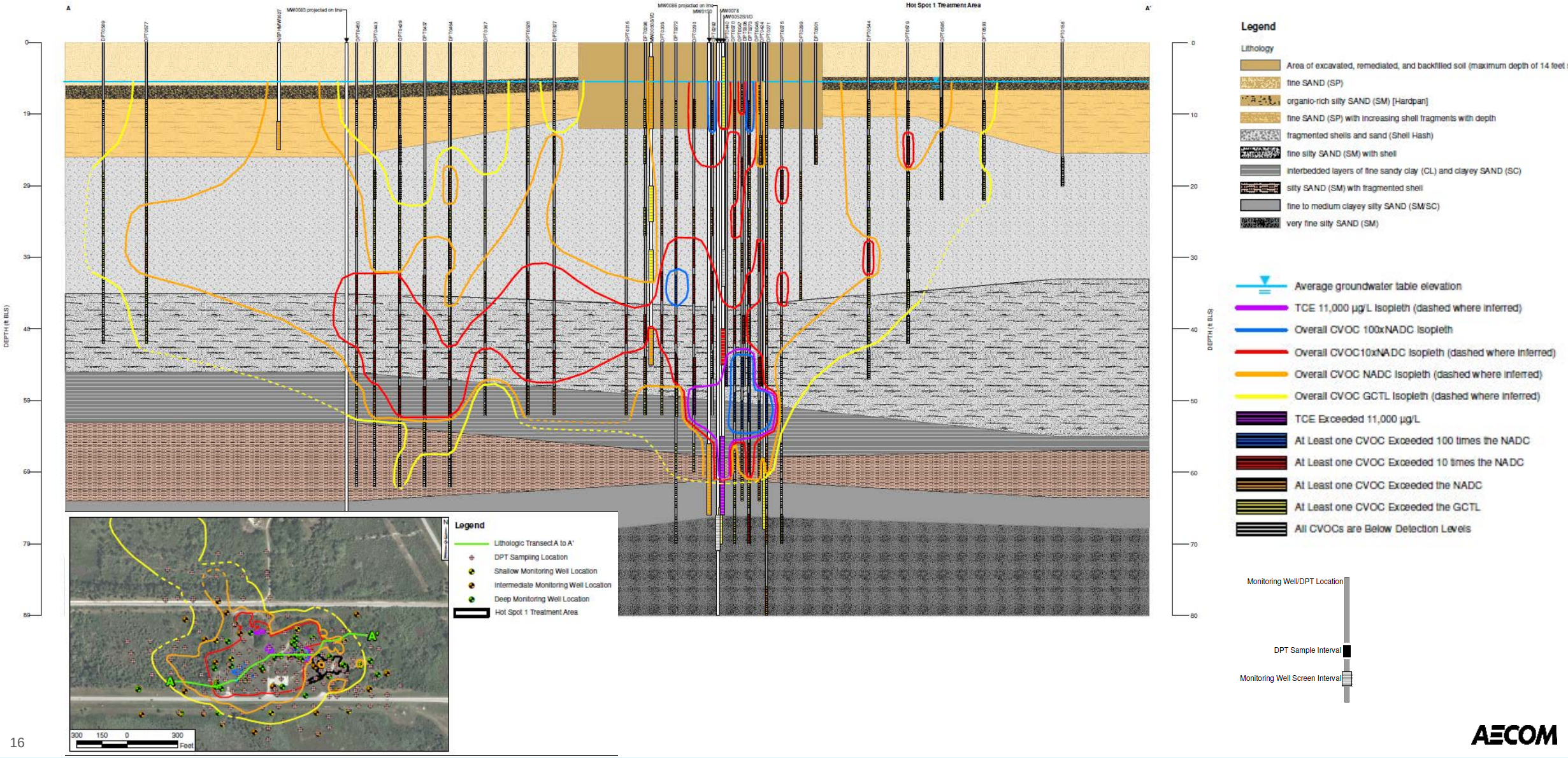
Site Overview

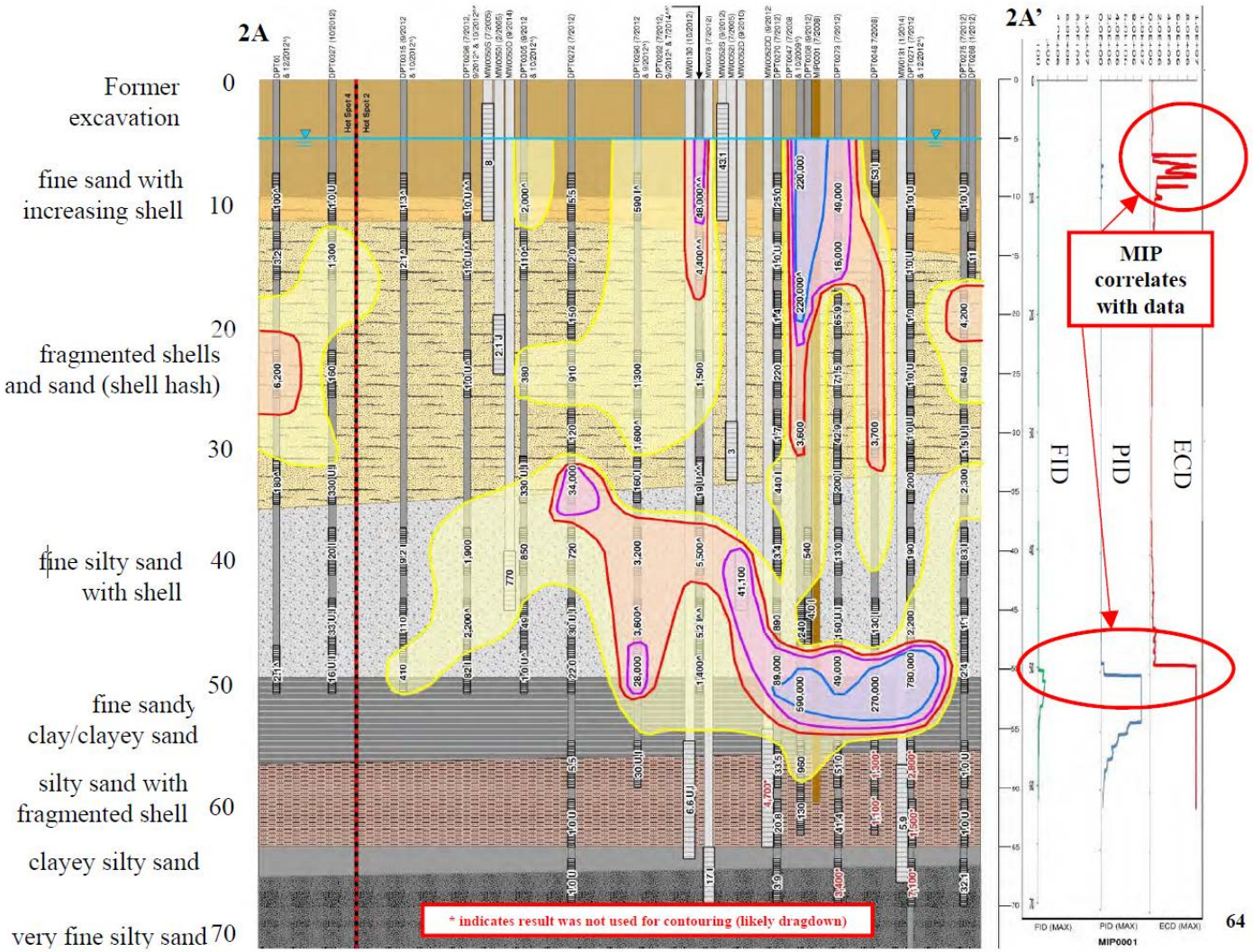
Site-Wide Cross Section – West to East

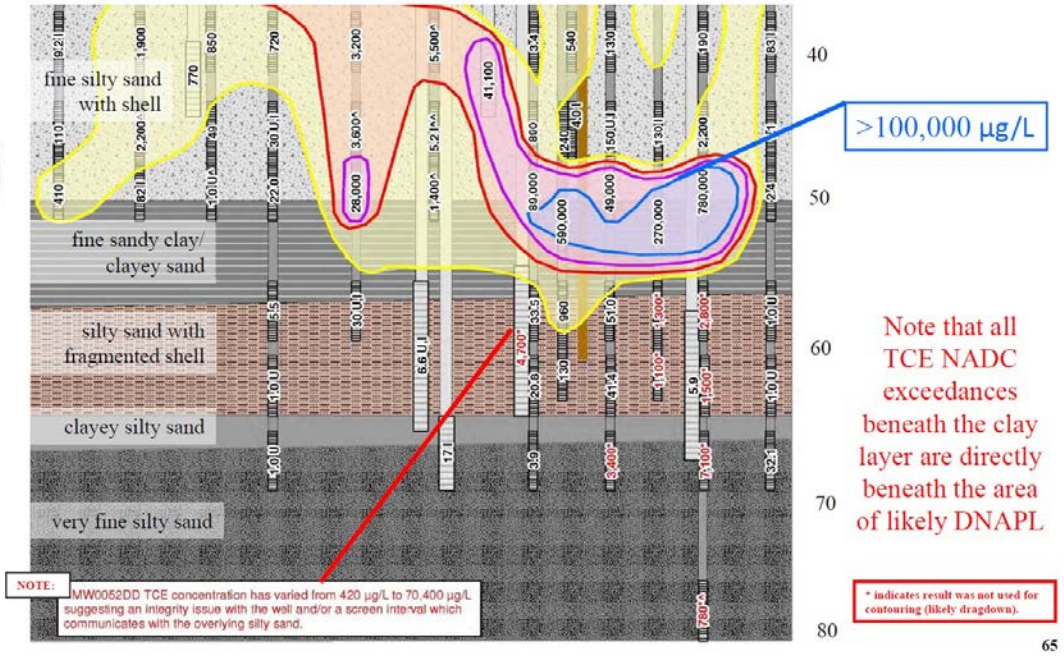
Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)

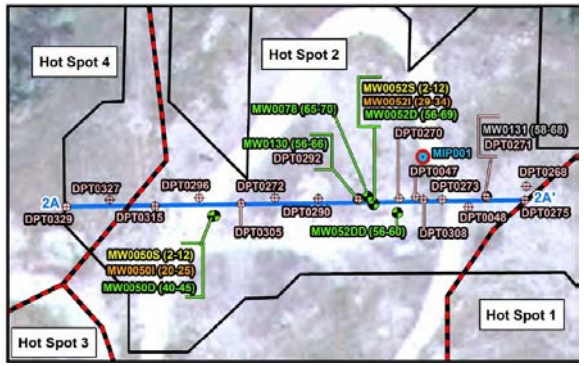


Site Overview

Hot Spot 2 Area – Site Characterization Advance Data Package November 2014







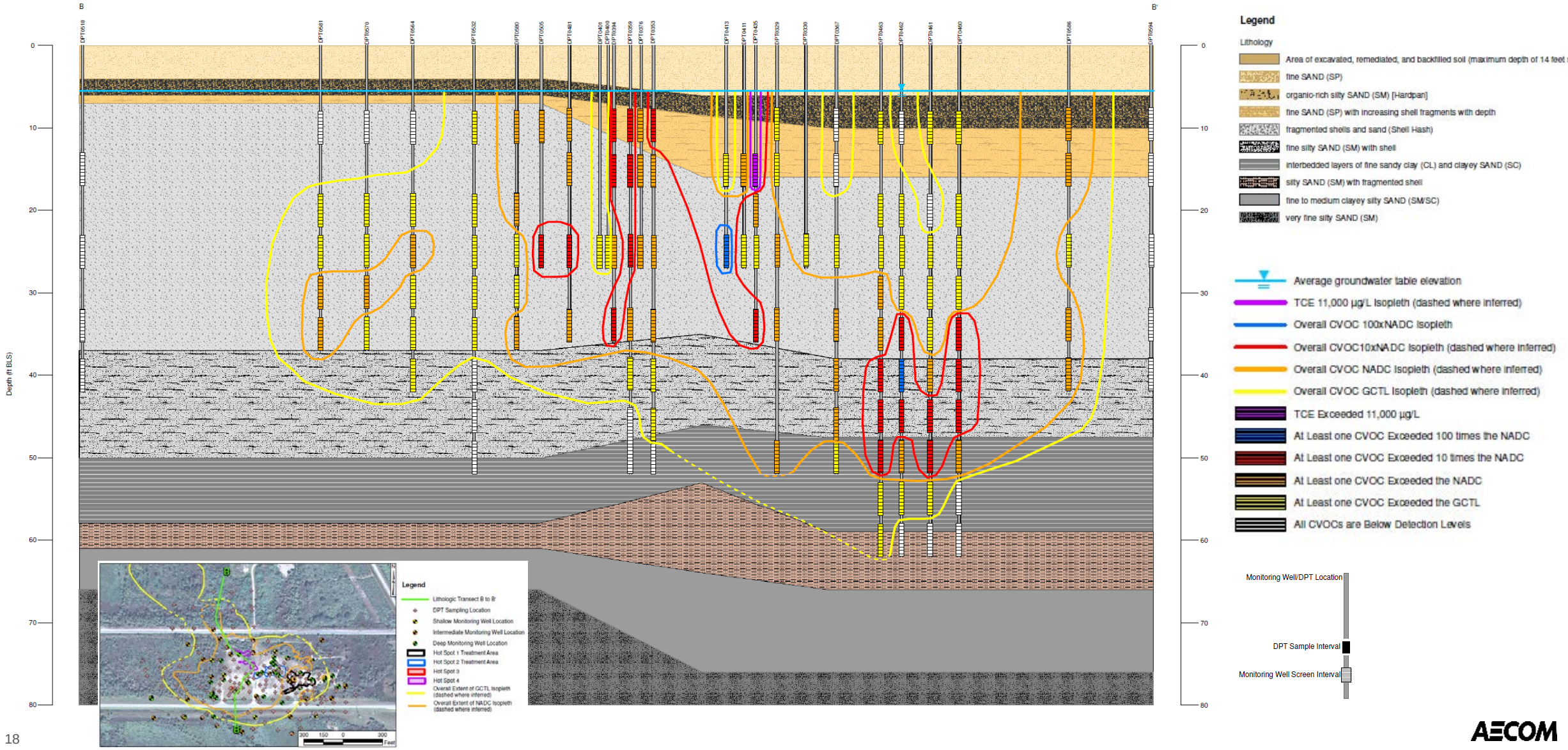
MW0052DD was abandoned in 2015

AECOM

Site Overview

Site-Wide Cross Section – North to South

Source: Wilson Corners SWMU 001 – High Concentration Plume Air Sparge Interim Measure Work Plan (Geosyntec Consultants, June 2019)



Site Overview
Remedial Actions

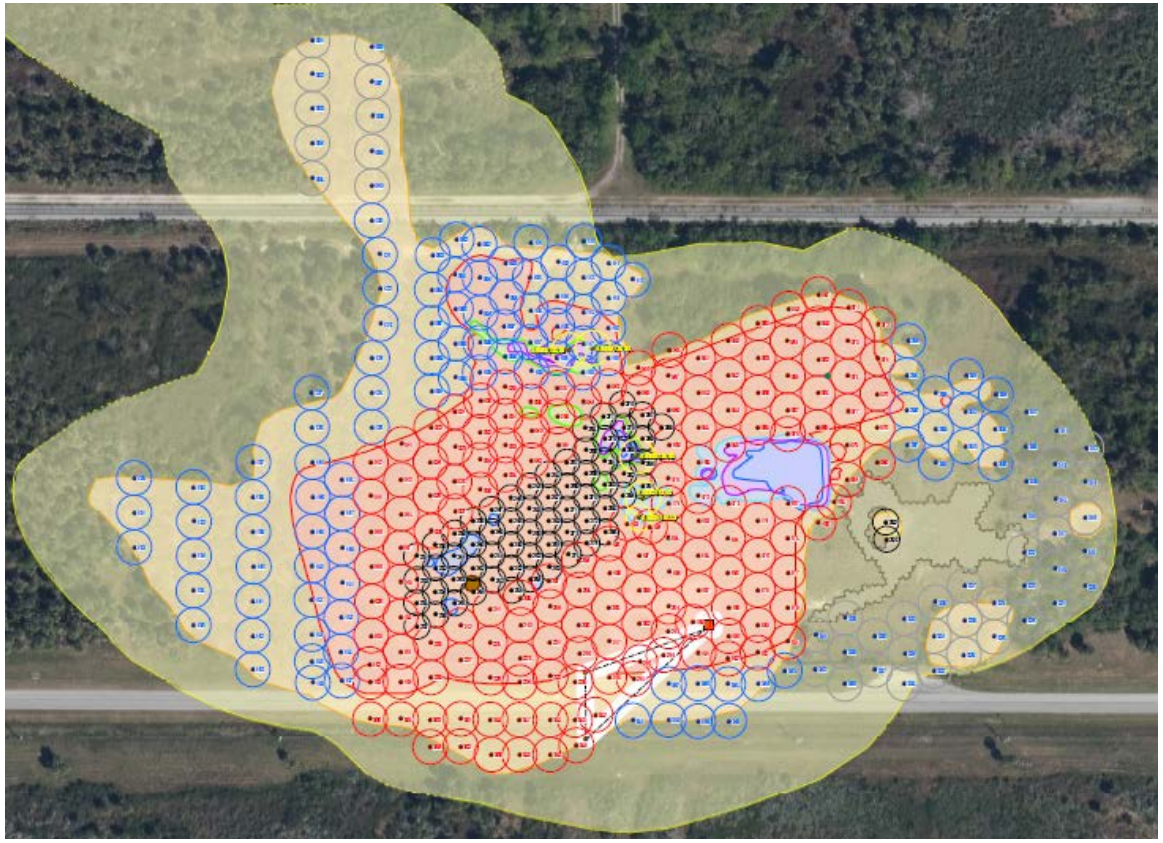
- Remedial actions have removed or treated ~22,000 pounds of TCE mass
  - 1989-1999: Pump & Treat system for plume containment
  - 2003-2004: Excavated shallow organic hardpan and treated with low temperature thermal desorption
  - 2004-2007: Focused treatment of central source area via chemical oxidation, biostimulation, and pumping
  - 2014-2015: Soil mixing with steam and zero valent iron at Hot Spot 1 treatment area

Site Overview
Remedial Actions

- An air sparge pilot test was conducted in 2017 to test different lithologies and determined air sparging is suitable to 50 feet (ft) below land surface (bls)
  - Lithologies tested:
    - Organic hard pan: 10-15 feet bls
    - Anastasia formation: ~22-32 feet bls
    - Low permeability silty sand: ~35 – 50 feet bls
  - Air Sparge Pilot Test Report received FDEP approval in March 2018

Site Overview
Remedial Actions

- Air Sparging Interim Measure (IM) Work Plan to remediate the entire NADC plume above 50 ft received FDEP approval on August 1, 2018
  - Includes installation of up to 366 AS wells
  - Work Plan recommended DPT sampling prior to installation of system
- DPT investigation completed in October 2020 indicated changes in the plume boundaries
  - Observed NADC plume expansion on the west
  - Observed degradation on the east
- Additional DPT investigation planned in April 2021
- Findings to be documented in a future ADP
  - Will seek FDEP and Remediation Team concurrence on updated understanding of the horizontal and vertical extent of the NADC plume
  - Will seek FDEP and Remediation Team concurrence on the revised treatment area



Source: Wilson Corners SWMU 001 Air Sparge Pilot Interim Measures Work Plan (Geosyntec Consultants, July 2019)

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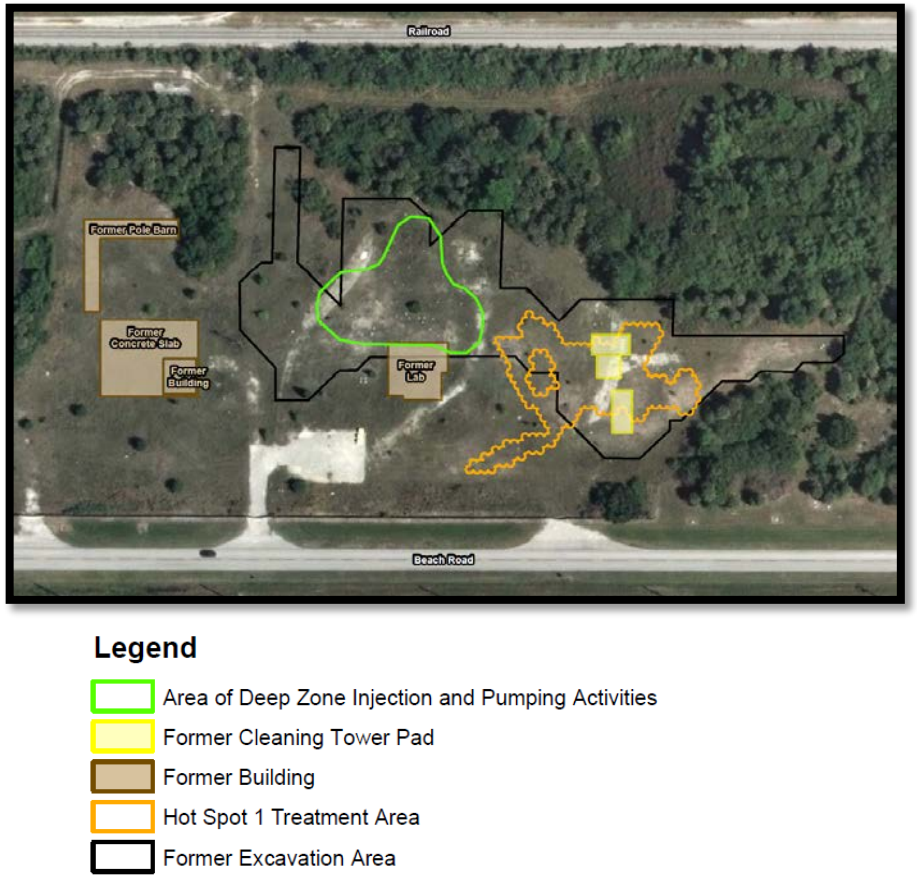
Site Overview

Long-Term Groundwater Monitoring

- Long-Term Monitoring
  - Semi-annual groundwater LTM was initiated in February 2005
  - The goal of the LTM program is to:
    - o Annually evaluate groundwater flow direction and gradient.
    - o Monitor vertical and downgradient monitoring wells with limited sampling of wells internal to the dissolved plume.
    - o Every 5 years, upgradient and sidegradient monitoring wells are also sampled to verify delineation in those areas. 2015 was the last 5-year sampling event. 2020 sampling event was replaced with direct push technology as part of evaluation of the high concentration plume prior to installation of the air sparge system.
  - Most recent LTM report submitted to FDEP was the 2018 Annual LTM Report
  - 2019 and 2020 sampling results will be submitted together (May 31, 2021 CAMP date)



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Site Overview

Long-Term Groundwater Monitoring

- Annual evaluation of monitoring program
  - Monitoring wells are no longer meeting the objective of the monitoring program
  - Downgradient monitoring wells are needed
  - Monitoring wells to monitor vertical extent of contamination may be needed in Hot Spot 3 area
  - Monitoring program will be evaluated following the 2021 DPT sampling event (25-day field effort) and a modified sampling plan will be prepared

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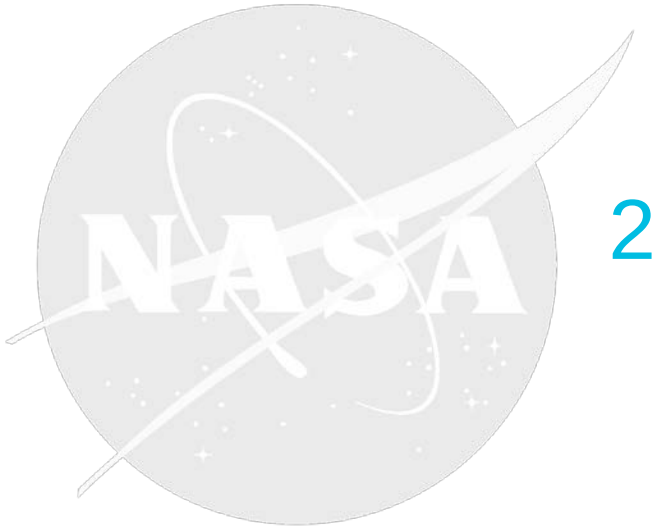

2020 Annual LTM

2020 Annual LTM
Monitoring Well Site Layout Map

Legend

- 2 to 15 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 15 to 25 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 28 to 38 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- 38 to 48 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- > 48 ft BLS Monitoring Well Location showing screen interval (ft BLS)
- Abandoned or Destroyed Monitoring Well

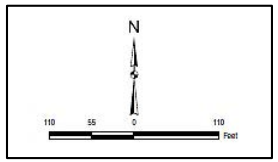

Figure Source: Wilson Corners SWMU 001 2018 Annual Long-Term Monitoring Report (Geosyntec Consultants, May 2019)

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2020 Annual LTM

Current LTM Site Layout

2020 Annual LTM
Field Activities

- LTM Plan includes 49 monitoring wells
- Groundwater elevation measurements – 49 wells
  - Some wells are deep into forested wetland areas and are difficult to access
  - Clearing from early 2020 was still prevalent and access to the wells in the program was achieved
- Groundwater sampling via low flow sampling – 43 wells for selected volatile organic compounds (VOCs) including Freon 113
  - Selected VOCs: 1,1-dichloroethane (1,1-DCE), cis-1,2-dichloroethane (c-DCE), trans-1,2-dichloroethane (t-DCE), Freon 113, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC)
  - In the past, sampling was conducted using passive diffusion bags
  - 10 wells had samples that were discarded due to headspace in the sample bottles upon arrival to the laboratory
  - Monitoring wells with discarded samples were resampled approximately one week later using unpreserved sample bottles to prevent gaseous chemical reactions with the preservative

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2020 Annual Long-Term Monitoring

Groundwater Sampling Plan

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Water Levels	Selected VOCs
2 to 15	NPSH-MW0027	10 to 15	X	X
	NPSH-MW0036	3 to 10	X	
	MW0064	2 to 12	X	X
	MW0074	2 to 12	X	X
	MW0091	2 to 12	X	X
	MW0095	2 to 12	X	X
	MW0152	5 to 15	X	X
	MW0154	10 to 15	X	X
	MW0156	5 to 15	X	X
15 to 34	MW0087	15 to 25	X	
	MW0089	15 to 25	X	X
	MW0096	15 to 25	X	X
	MW0106	15 to 25	X	
	MW0109	15 to 25	X	X
	MW0116	15 to 25	X	X
	MW0125	15 to 25	X	X
	MW0129	15 to 25	X	X
	MW0142	8 to 18	X	X
	MW0149	20 to 30	X	X
	MW0150	20 to 30	X	
	MW0151	20 to 30	X	
	MW0153	20 to 30	X	X
	NPSH-MW0010	29 to 34	X	X
	NPSH-MW0017	29 to 34	X	X
	NPSH-MW0019	29 to 34	X	X
15 to 34 (cont.)	NPSH-MW0020	29 to 34	X	X
	NPSH-MW0022	29 to 34	X	X
	MW0062	29 to 34	X	X
	MW0065	29 to 34	X	X
	MW0080	29 to 34	X	X
	MW0088	29 to 34	X	X
	MW0090	29 to 34	X	X
	MW0097	29 to 34	X	X
	MW0111	29 to 34	X	X
	MW0140	23 to 33	X	X
	MW0143	23 to 33	X	X
	MW0146	23 to 33	X	X
	MW0155	29 to 34	X	X
34 to 48	NPSH-MW0039	40 to 45	X	X
	MW0046D	40 to 45	X	X
	MW0068	40 to 45	X	X
	MW0118	40 to 45	X	X
	MW0141	34 to 44	X	X
	MW0144	40 to 50	X	X
	MW0145	38 to 48	X	X
	MW0147	38 to 48	X	X
	MW0148	38 to 48	X	
> 48	MW0078	65 to 70	X	X
	MW0130	56 to 66	X	X

Notes:
ft bls – Feet below land surface
MW – Monitoring well
NPSH – National Park Service Headquarters
Selected VOCs – 1,1-DCE, c-DCE, t-DCE, PCE, TCE, VC, and Freon 113

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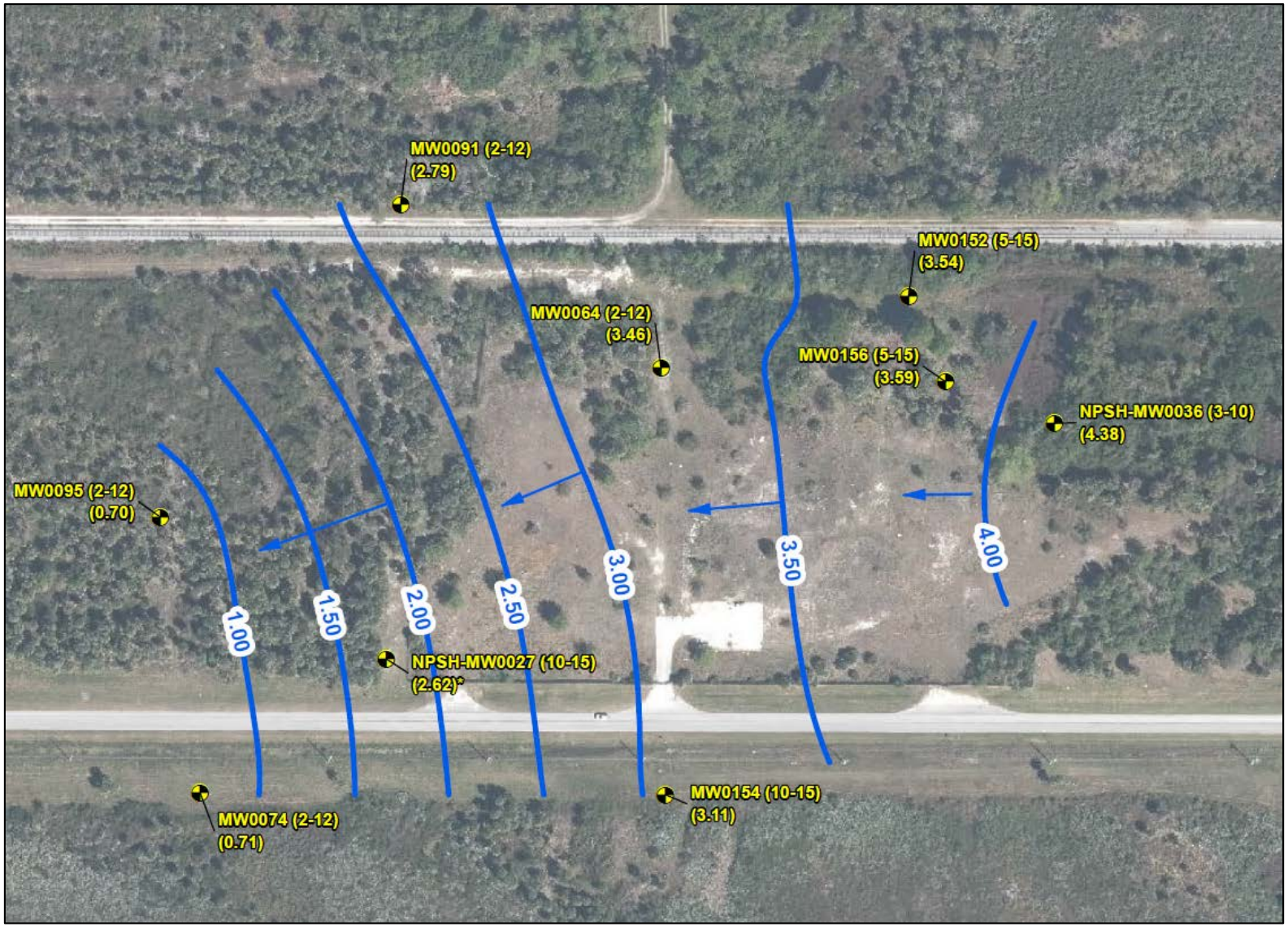
2020 Annual Long-Term Monitoring

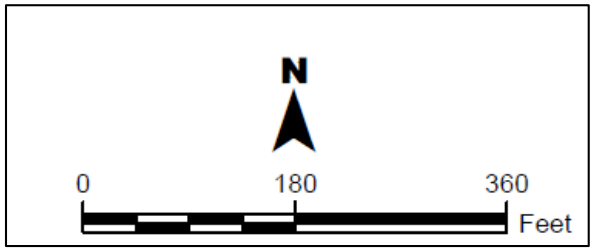
December 2020 Groundwater Contour – 2 to 15 ft bls

- Groundwater flow direction: west-southwest
- Previous groundwater flow:
  - Dec 2016: southwest
  - Dec 2017: west
  - Sept 2018: west-southwest
  - Dec 2019: southwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 2 to 15 ft bls
- Groundwater Contour (ft NAVD)
- Approximate Direction of Groundwater Flow
- 2.82 Groundwater Elevation (NAVD88 ft.)



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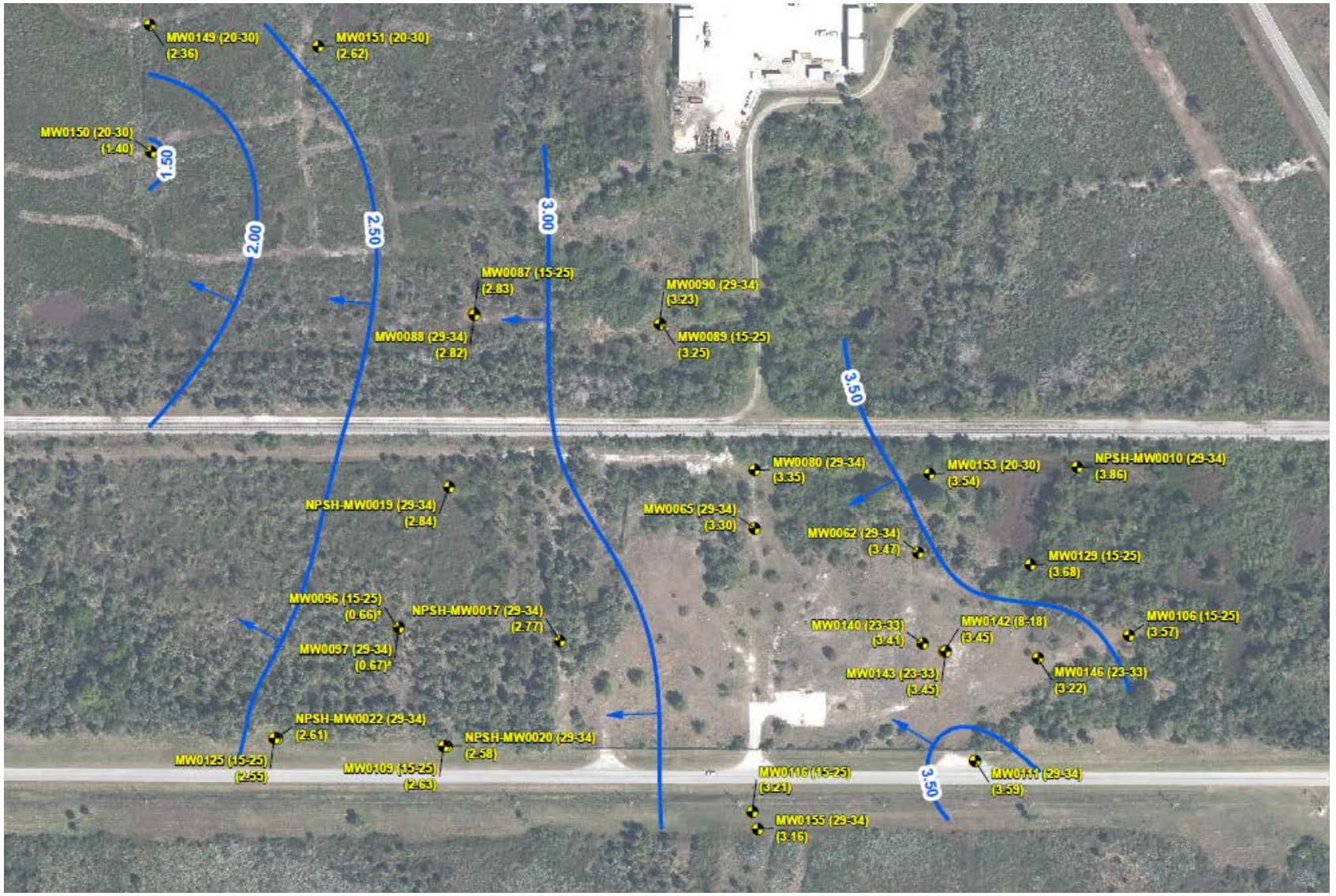
2020 Annual Long-Term Monitoring

December 2020 Groundwater Contour – 15 to 34 ft bls

- Groundwater flow direction: west with northerly component on the west side and southerly component on the east side
- Previous groundwater flow:
  - Dec 2016: west-southwest
  - Dec 2017: west-southwest
  - Sept 2018: west-northwest
  - Dec 2019: west-southwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 15 to 34 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 0.32 Groundwater Elevation (NAVD88 ft.)

N

0 180 360 Feet

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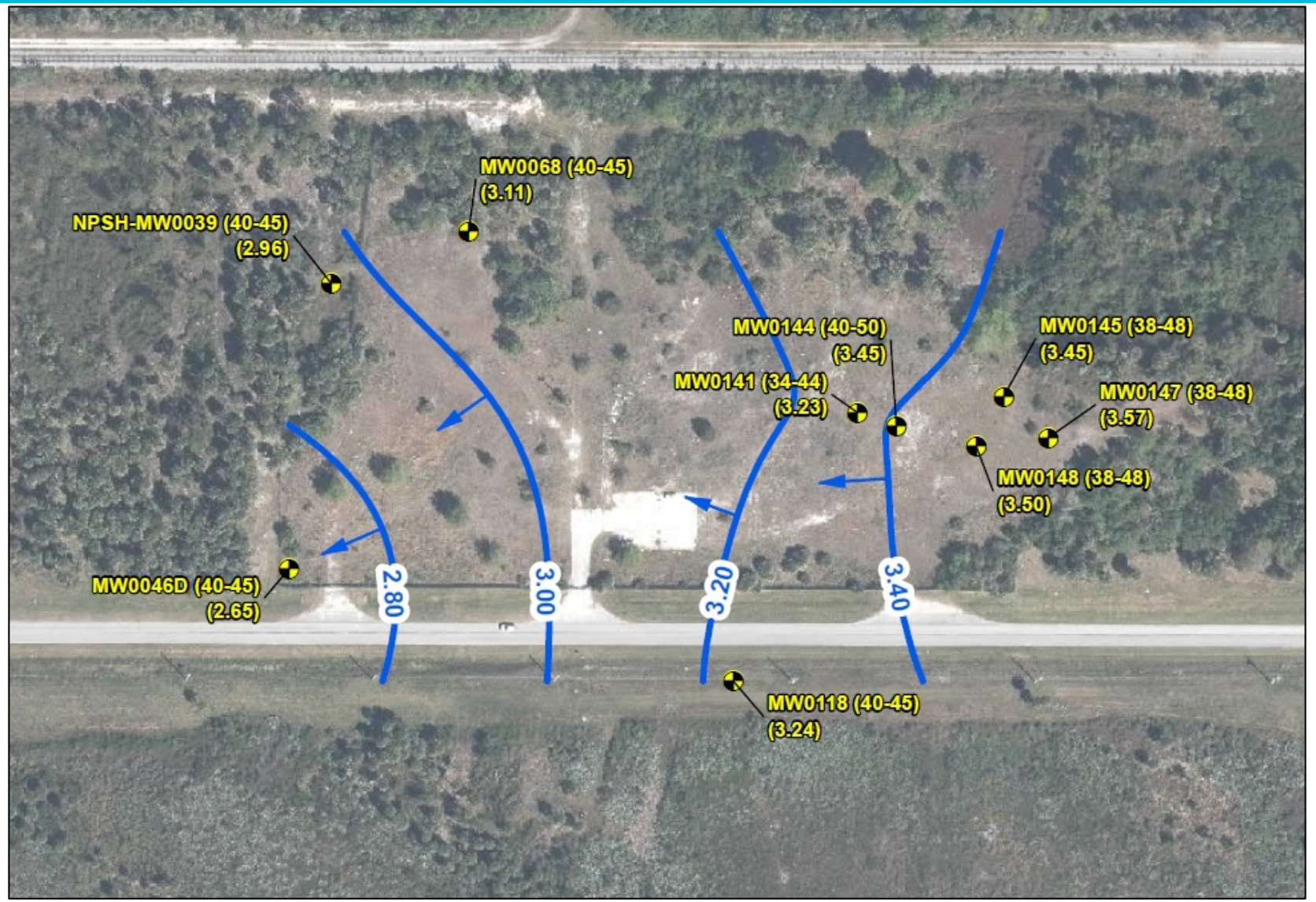
2020 Annual Long-Term Monitoring

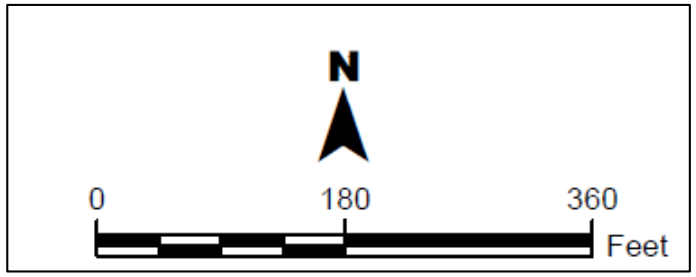
December 2020 Groundwater Contour – 34 to 48 ft bls

- Groundwater flow direction: west-southwest
- Previous groundwater flow:
  - Dec 2016: west-southwest
  - Dec 2017: west-southwest
  - Sept 2018: west-northwest
  - Dec 2019: northwest
- Flow direction generally agrees with historical evaluations



Legend

- Monitoring Well - 34 to 48 ft bls
- Groundwater Contour (ft NAVD88)
- Approximate Direction of Groundwater Flow
- 0.32 Groundwater Elevation (NAVD88 ft.)



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2020 Annual Long-Term Monitoring

December 2020 Groundwater Contour – Greater than 48 ft bls

- Water levels measured in two monitoring wells
- Historical groundwater flow direction was northwest

Legend

Monitoring Well - Greater than 48 ft bls

0.32 Groundwater Elevation (NAVD88 ft.)

N

0 180 360 Feet

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2020 Annual Long-Term Monitoring

Groundwater Sampling Results – Freon 113

- Freon 113 is also known as 1,1,2-trichlorotrifluoroethane
- Freon 113 concentrations were historically highest in the Former Hot Spot 1 Area of the Site
- 2020 Freon 113 Groundwater Analytical Results
  - 43 monitoring wells sampled via low-flow techniques
  - Four wells had detections of Freon 113
  - Highest detection: MW0129, located north of the Hot Spot 1 area, at 200 micrograms per liter (µg/L)
  - Freon 113 concentrations were below the GCTL of 210,000 µg/L

Freon 113 Concentrations in Groundwater

GCTL = 210,000 µg/L

Zone (ft bls)	Well ID	Screen Interval (ft bls)	Sample Date	Freon 113
2 to 15	MW0156	5 to 15	5/8/2020	**79.6**
			12/8/2020	**46.9**
15 to 34	MW0129	15 to 25	12/26/2017	**1700**
			10/8/2018	**410**
			5/8/2020	**615 J**
			12/7/2020	**200**
34 to 48	MW0144	40 to 50	12/29/2016	15 U
			12/27/2017	22 U
			10/8/2018	22 U
			12/18/2019	2.4 U
			12/3/2020	**16.5**
	MW0145	38 to 48	12/30/2016	**260**
			12/27/2017	6.4 U
			10/8/2018	6.4 U
			12/18/2019	**3.5**
			12/10/2020	**7.2**

December 2020 Freon 113 Sampling Locations

- Freon 113 Not Detected
- Freon 113 Detected, but below the GCTL

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2020 Annual Long-Term Monitoring
Groundwater Sampling Results

GIS Mann-Kendall Toolkit Trend Analysis

- The following criteria had to be met for analysis:
  - Minimum of four data points
  - Minimum of 50% detection frequency
  - Concentrations historically greater than GCTLs
- Wells in the table to the right met the criteria above, and Mann-Kendall analysis was used
- For other wells monitored in Dec 2020, a visual interpretation of the data for trends was used

Summary of Mann-Kendall Analysis

Zone (ft bls)	Well ID	TCE Equivalent 2015 - 2020
2 to 15	MW0027	No Trend
	MW0064	Stable
	MW0152	No Trend
8 to 18	MW0142	Decreasing
15 to 34	MW0096	Stable
	MW0109	Stable
	MW0116	Probably Decreasing
	MW0129	Stable
	MW0017	Decreasing
	MW0019	No Trend
	MW0020	No Trend
	MW0062	Decreasing
	MW0065	Decreasing
	MW0080	No Trend
	MW0088	No Trend
	MW0090	Stable
	MW0097	No Trend
	MW0111	No Trend
	MW0140	Decreasing
	MW0143	Decreasing
34 to 48	MW0068	No Trend
	MW0118	Stable
	MW0141	No Trend
	MW0144	No Trend
	MW0145	Decreasing
	MW0147	Stable
>48	MW0078	No Trend
	MW0130	Decreasing

AECOM

2020 Annual Long-Term Monitoring

Groundwater Sampling Results – 2 to 15 ft bls

Legend

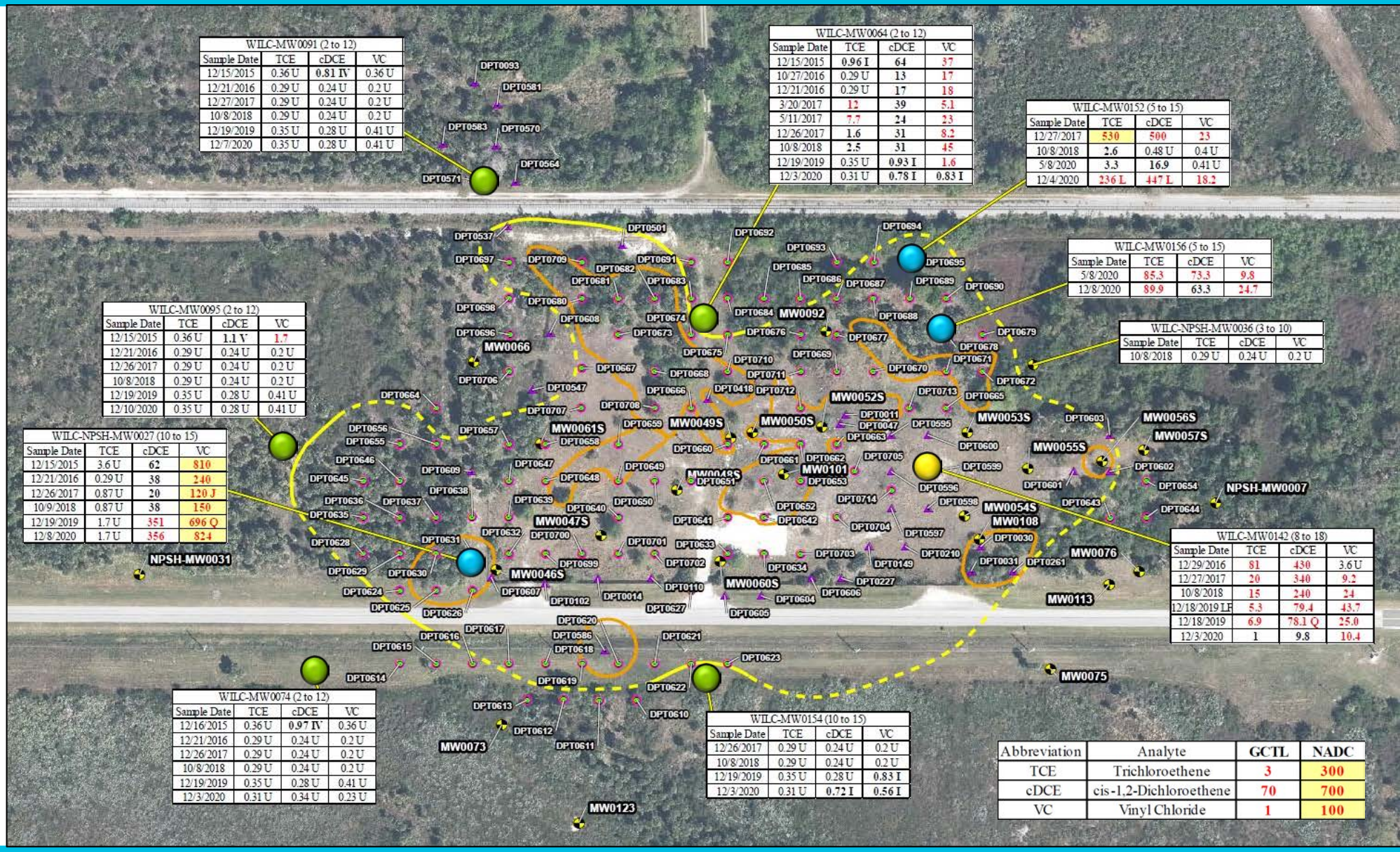
- Monitoring Well
- Proposed DPT Location
- 2020 DPT Location
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 140 280 Feet

Note:
Isopleths consider DPT results through 2017 and LTM results through 2020.



WILC-MW0091 (2 to 12)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.81 IV	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/27/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/7/2020	0.35 U	0.28 U	0.41 U

WILC-MW0064 (2 to 12)

Sample Date	TCE	cDCE	VC
12/15/2015	0.96 I	64	37
10/27/2016	0.29 U	13	17
12/21/2016	0.29 U	17	18
3/20/2017	12	39	5.1
5/11/2017	7.7	24	23
12/26/2017	1.6	31	8.2
10/8/2018	2.5	31	45
12/19/2019	0.35 U	0.93 I	1.6
12/3/2020	0.31 U	0.78 I	0.83 I

WILC-MW0152 (5 to 15)

Sample Date	TCE	cDCE	VC
12/27/2017	530	500	23
10/8/2018	2.6	0.48 U	0.4 U
5/8/2020	3.3	16.9	0.41 U
12/4/2020	236 L	447 L	18.2

WILC-MW0156 (5 to 15)

Sample Date	TCE	cDCE	VC
5/8/2020	85.3	73.3	9.8
12/8/2020	89.9	63.3	24.7

WILC-NPSH-MW0036 (3 to 10)

Sample Date	TCE	cDCE	VC
10/8/2018	0.29 U	0.24 U	0.2 U

WILC-MW0095 (2 to 12)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	1.1 V	1.7
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/10/2020	0.35 U	0.28 U	0.41 U

WILC-NPSH-MW0027 (10 to 15)

Sample Date	TCE	cDCE	VC
12/15/2015	3.6 U	62	810
12/21/2016	0.29 U	38	240
12/26/2017	0.87 U	20	120 J
10/9/2018	0.87 U	38	150
12/19/2019	1.7 U	351	696 Q
12/8/2020	1.7 U	356	824

WILC-MW0142 (8 to 18)

Sample Date	TCE	cDCE	VC
12/29/2016	81	430	3.6 U
12/27/2017	20	340	9.2
10/8/2018	15	240	24
12/18/2019 LF	5.3	79.4	43.7
12/18/2019	6.9	78.1 Q	25.0
12/3/2020	1	9.8	10.4

WILC-MW0074 (2 to 12)

Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.97 IV	0.36 U
12/21/2016	0.29 U	0.24 U	0.2 U
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/3/2020	0.31 U	0.34 U	0.23 U

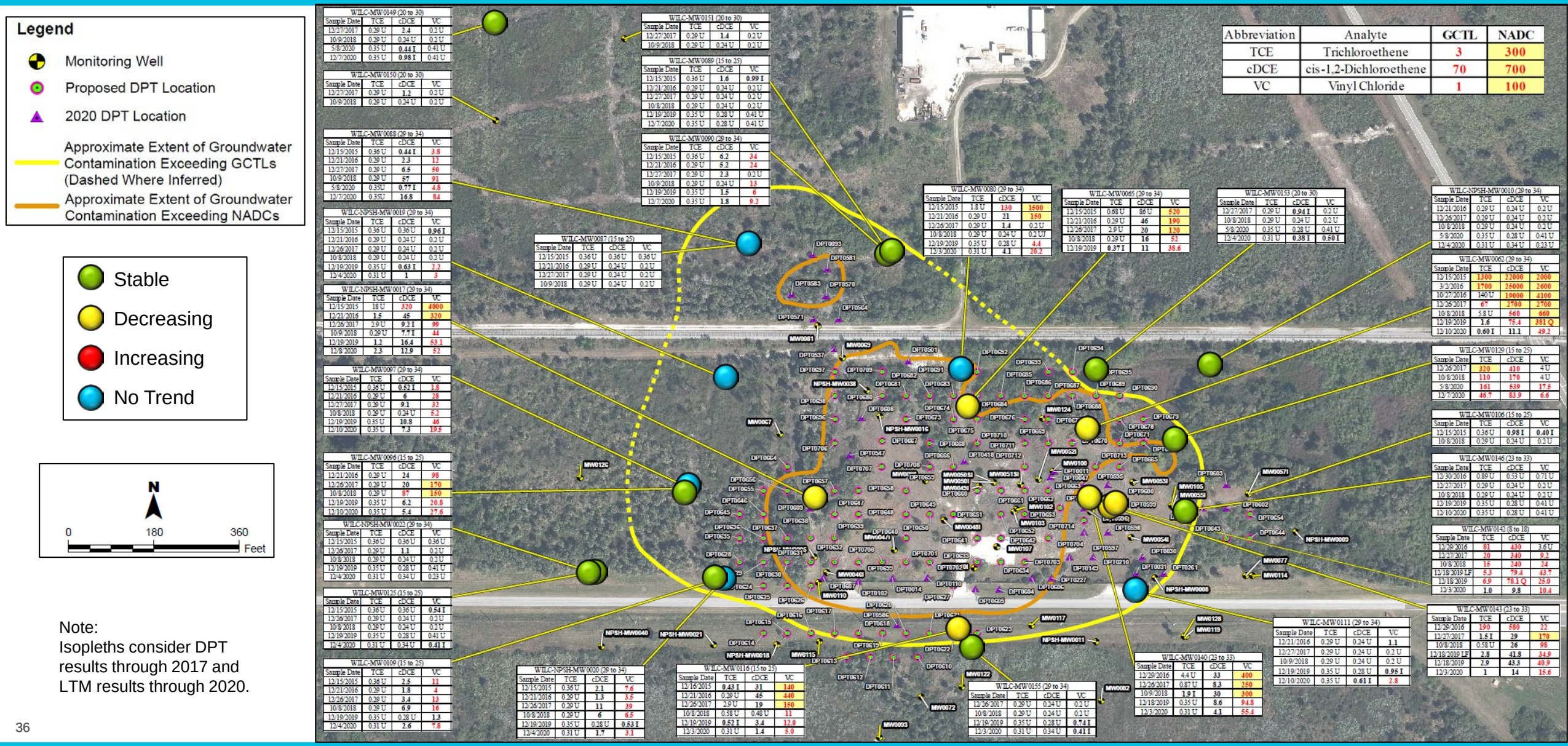
WILC-MW0154 (10 to 15)

Sample Date	TCE	cDCE	VC
12/26/2017	0.29 U	0.24 U	0.2 U
10/8/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.83 I
12/3/2020	0.31 U	0.72 I	0.56 I

Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

2020 Annual Long-Term Monitoring

Groundwater Sampling Results – 15 to 34 ft bls



2020 Annual Long-Term Monitoring

Groundwater Sampling Results – 34 to 48 ft bls

Legend

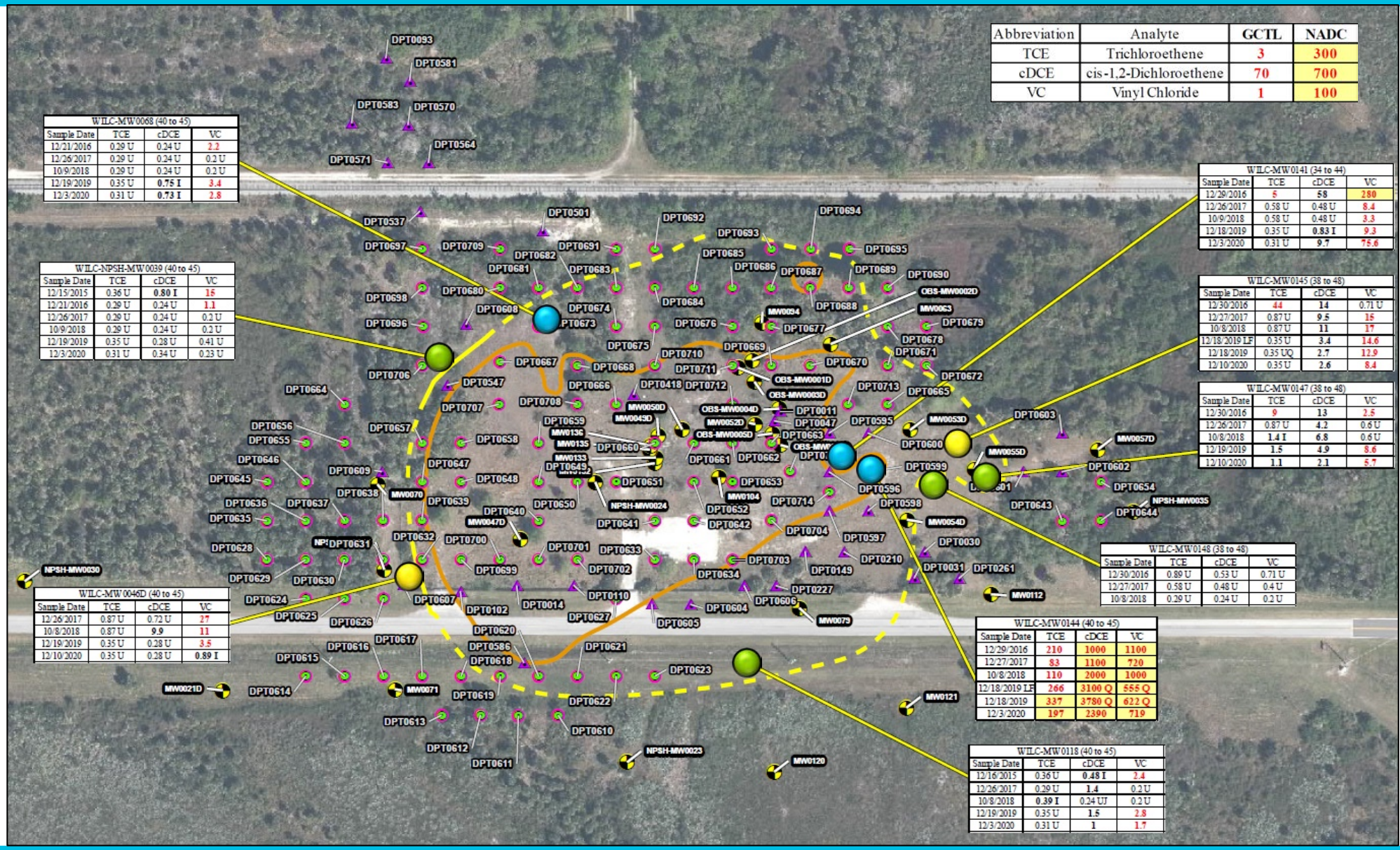
- Monitoring Well
- Proposed DPT Location
- 2020 DPT Location
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)
- Approximate Extent of Groundwater Contamination Exceeding NADCs

- Stable
- Decreasing
- Increasing
- No Trend

N

0 180 360 Feet

Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.



Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

WILC-MW0068 (40 to 45)

Sample Date	TCE	cDCE	VC
12/21/2016	0.29 U	0.24 U	2.2
12/26/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.75 I	3.4
12/3/2020	0.31 U	0.73 I	2.8

WILC-NPSH-MW0039 (40 to 45)

Sample Date	TCE	cDCE	VC
12/15/2015	0.36 U	0.80 I	15
12/21/2016	0.29 U	0.24 U	1.1
12/26/2017	0.29 U	0.24 U	0.2 U
10/9/2018	0.29 U	0.24 U	0.2 U
12/19/2019	0.35 U	0.28 U	0.41 U
12/3/2020	0.31 U	0.34 U	0.23 U

WILC-MW0046D (40 to 45)

Sample Date	TCE	cDCE	VC
12/26/2017	0.87 U	0.72 U	27
10/8/2018	0.87 U	9.9	11
12/19/2019	0.35 U	0.28 U	3.5
12/10/2020	0.35 U	0.28 U	0.89 I

WILC-MW0141 (34 to 44)

Sample Date	TCE	cDCE	VC
12/29/2016	5	58	280
12/26/2017	0.58 U	0.48 U	8.4
10/9/2018	0.58 U	0.48 U	3.3
12/18/2019	0.35 U	0.83 I	9.3
12/3/2020	0.31 U	9.7	75.6

WILC-MW0145 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	44	14	0.71 U
12/27/2017	0.87 U	9.5	15
10/8/2018	0.87 U	11	17
12/18/2019 LF	0.35 U	3.4	14.6
12/18/2019	0.35 UQ	2.7	12.9
12/10/2020	0.35 U	2.6	8.4

WILC-MW0147 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	9	13	2.5
12/26/2017	0.87 U	4.2	0.6 U
10/8/2018	1.4 I	6.8	0.6 U
12/19/2019	1.5	4.9	8.6
12/10/2020	1.1	2.1	5.7

WILC-MW0148 (38 to 48)

Sample Date	TCE	cDCE	VC
12/30/2016	0.89 U	0.53 U	0.71 U
12/27/2017	0.58 U	0.48 U	0.4 U
10/8/2018	0.29 U	0.24 U	0.2 U

WILC-MW0144 (40 to 45)

Sample Date	TCE	cDCE	VC
12/29/2016	210	1000	1100
12/27/2017	83	1100	720
10/8/2018	110	2000	1000
12/18/2019 LF	266	3100 Q	555 Q
12/18/2019	337	3780 Q	622 Q
12/3/2020	197	2390	719

WILC-MW0118 (40 to 45)

Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.48 I	2.4
12/26/2017	0.29 U	1.4	0.2 U
10/8/2018	0.39 I	0.24 UJ	0.2 U
12/19/2019	0.35 U	1.5	2.8
12/3/2020	0.31 U	1	1.7

2020 Annual Long-Term Monitoring

Groundwater Sampling Results – Greater than 48 ft bls

Legend

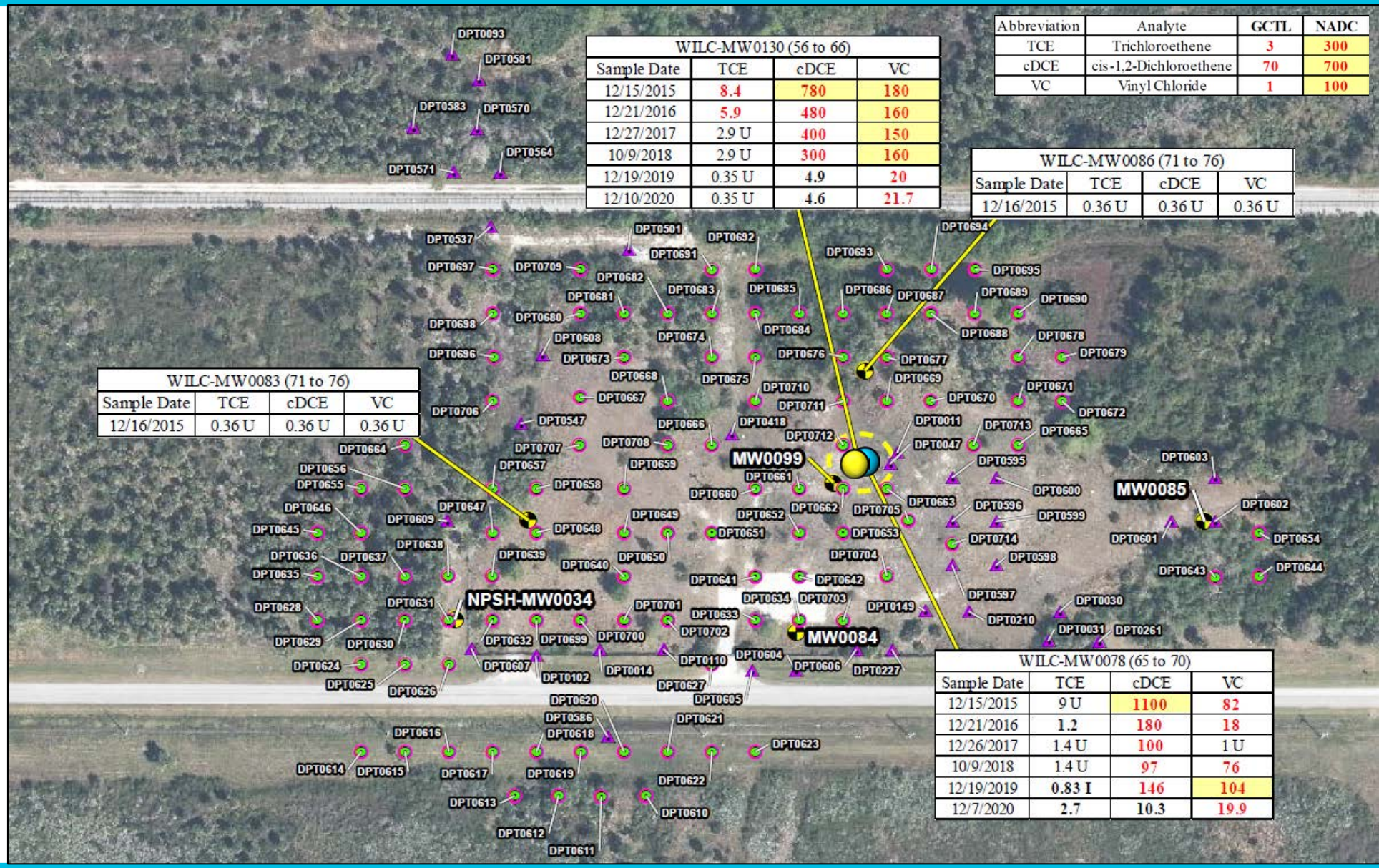
- Monitoring Well
- Proposed DPT Location
- 2020 DPT Location
- Approximate Extent of Groundwater Contamination Exceeding GCTLs (Dashed Where Inferred)

- Stable
- Decreasing
- Increasing
- No Trend

N

0 180 360 Feet

Note:
Isopleths consider DPT results through 2017 and LTM results through 2019.



WILC-MW0130 (56 to 66)			
Sample Date	TCE	cDCE	VC
12/15/2015	8.4	780	180
12/21/2016	5.9	480	160
12/27/2017	2.9 U	400	150
10/9/2018	2.9 U	300	160
12/19/2019	0.35 U	4.9	20
12/10/2020	0.35 U	4.6	21.7

Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

WILC-MW0086 (71 to 76)			
Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.36 U	0.36 U

WILC-MW0083 (71 to 76)			
Sample Date	TCE	cDCE	VC
12/16/2015	0.36 U	0.36 U	0.36 U

WILC-MW0078 (65 to 70)			
Sample Date	TCE	cDCE	VC
12/15/2015	9 U	1100	82
12/21/2016	1.2	180	18
12/26/2017	1.4 U	100	1 U
10/9/2018	1.4 U	97	76
12/19/2019	0.83 I	146	104
12/7/2020	2.7	10.3	19.9

2020 Annual Long-Term Monitoring

Test Consensus

- Modify the sampling plan based on the findings from the October 2020 and April 2021 DPT drilling events
- Recommend the installation of new monitoring wells, if needed
- Present recommendations to the KSC Remediation Team in late summer/early fall 2021
- The next sampling event will be in December 2021

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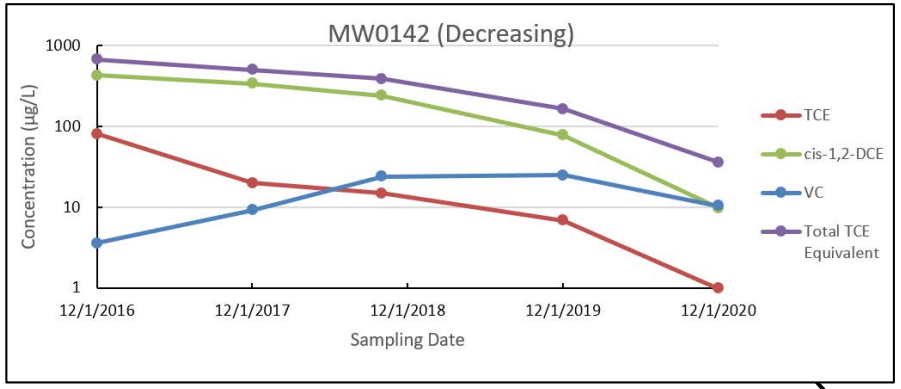
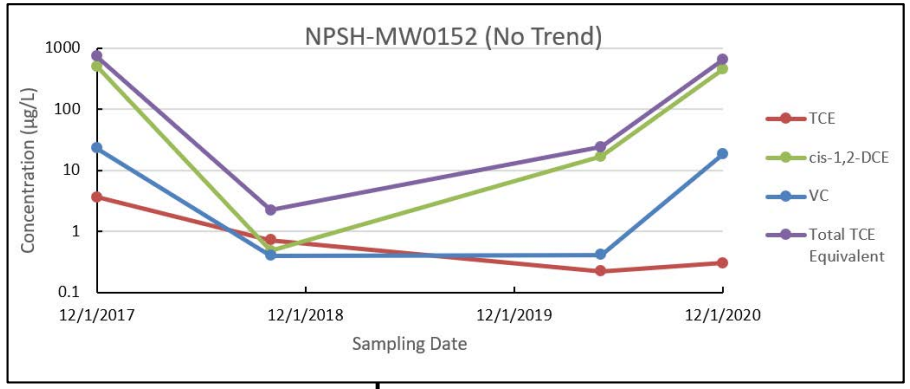
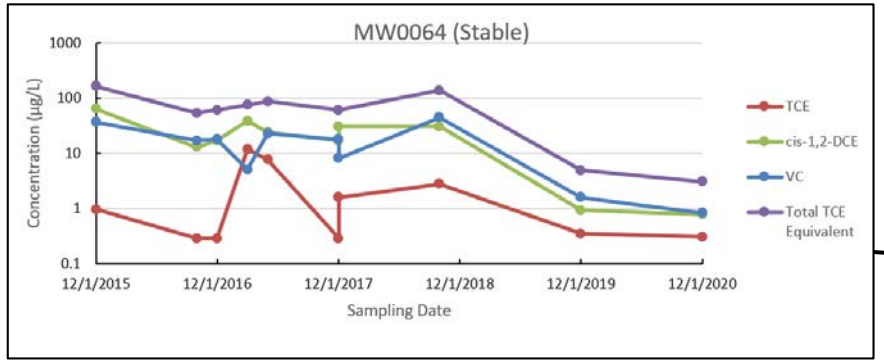
Orlando, Florida 32801
407.843.6552
www.aecom.com

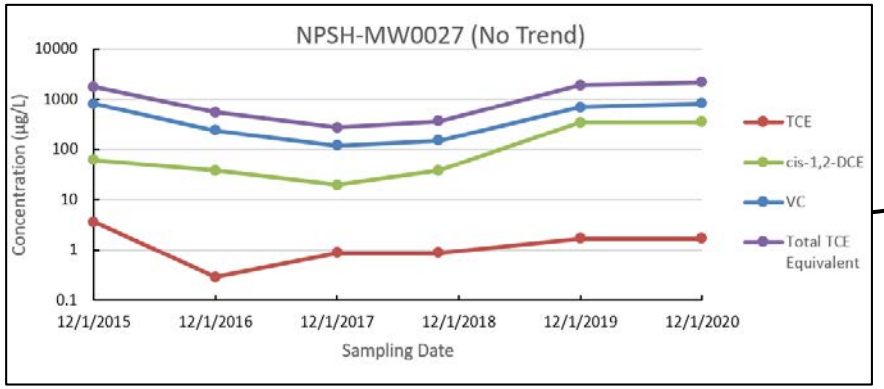
2020 Annual Long-Term Monitoring

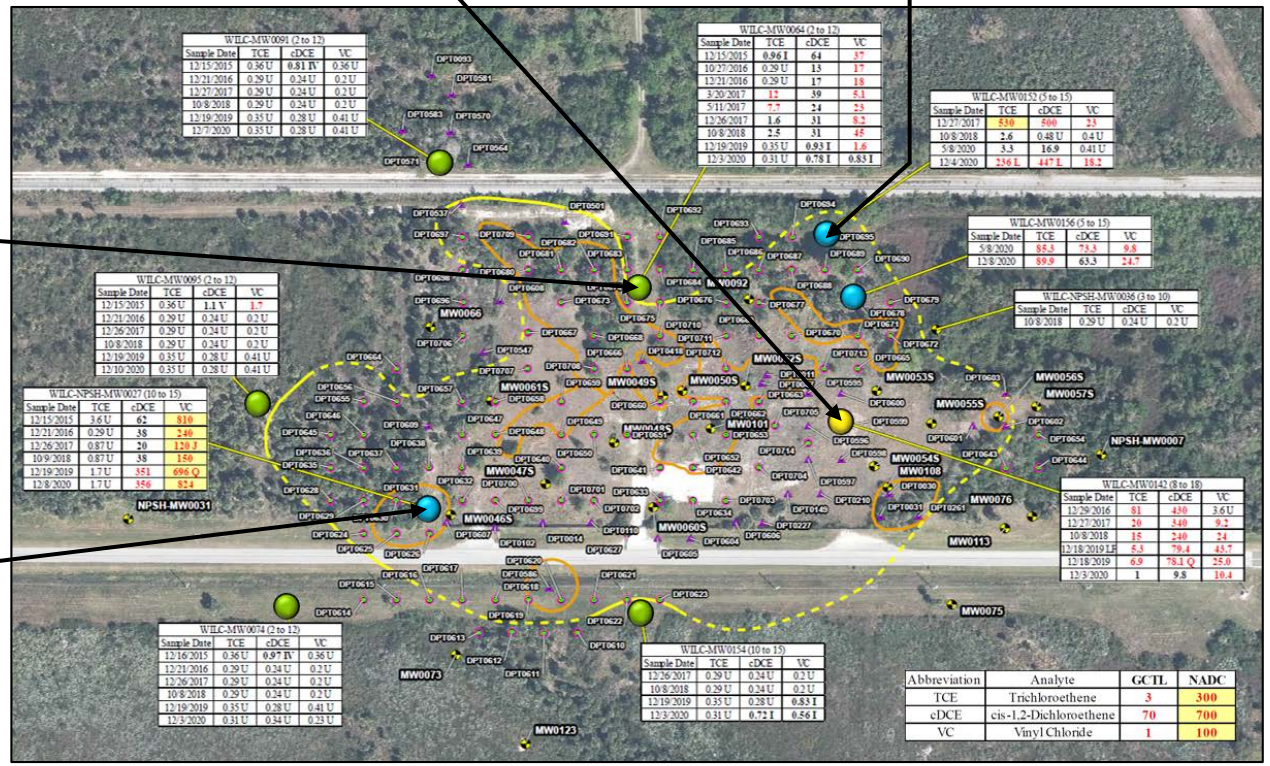
Groundwater Sampling Results – 2 to 15 ft bls – Trend Graphs (Page 1 of 1)











- Stable
- Decreasing
- Increasing
- No Trend

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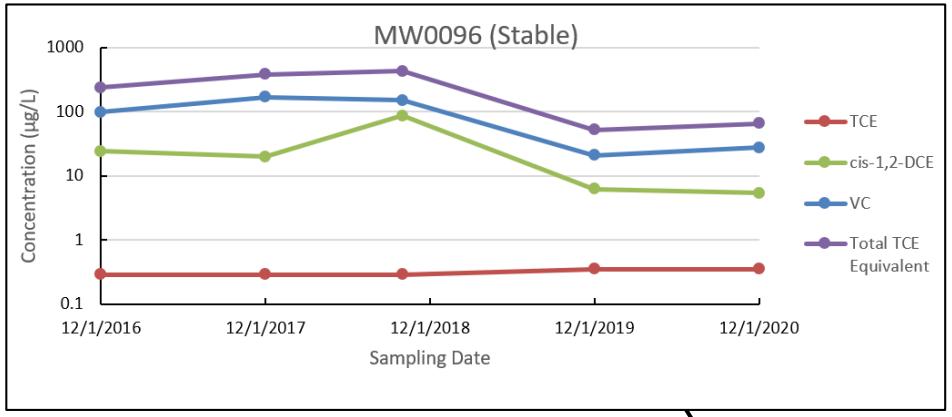
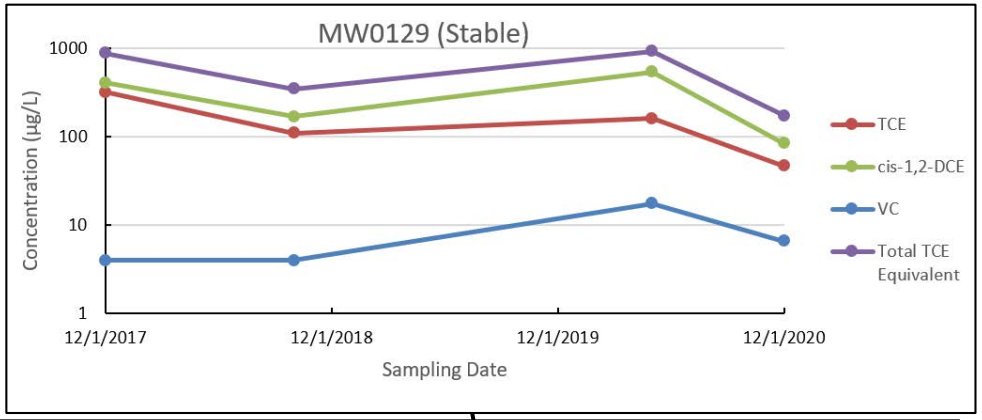
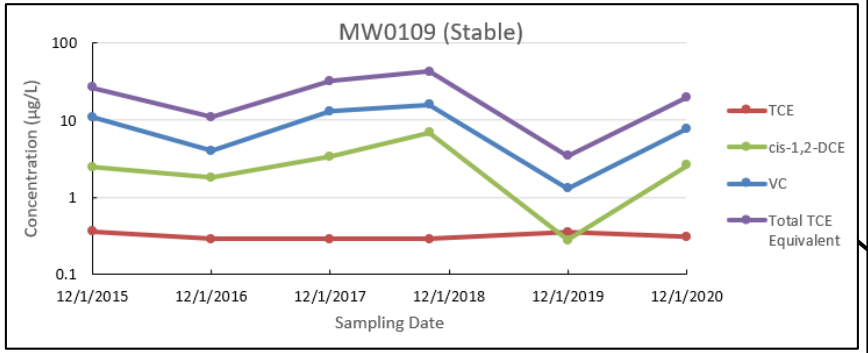
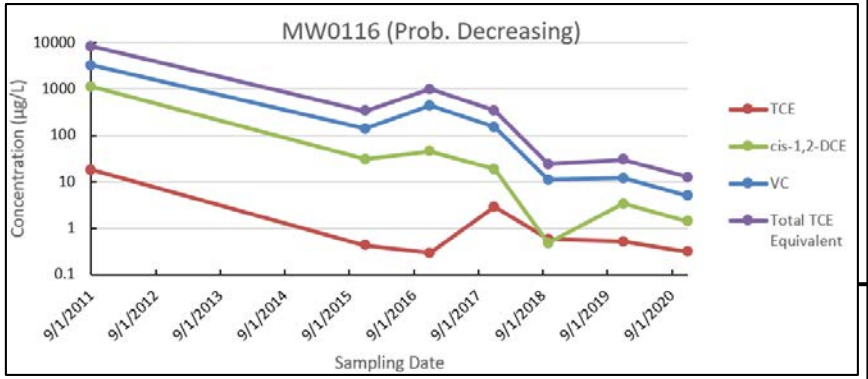
2020 Annual Long-Term Monitoring

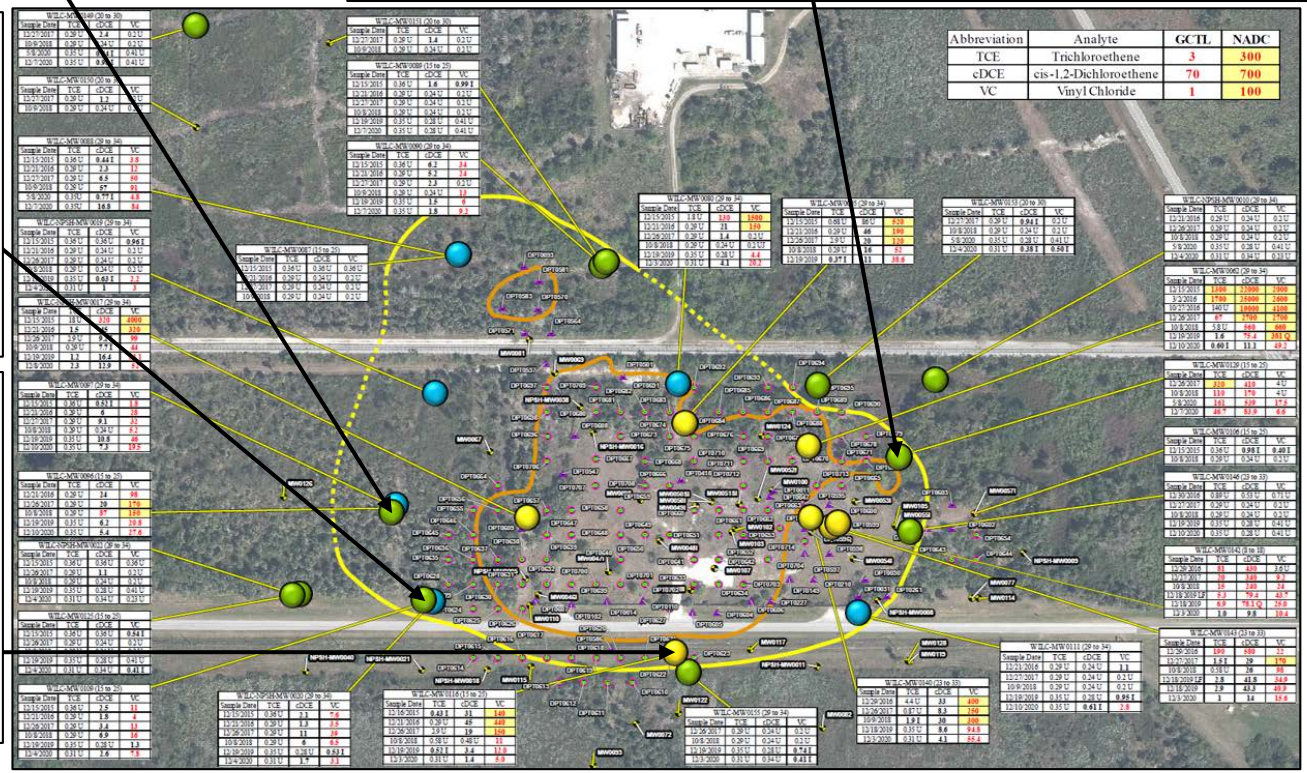
Groundwater Sampling Results – 15 to 34 ft bls – Trend Graphs (Page 1 of 4)











Stable
Decreasing
Increasing
No Trend

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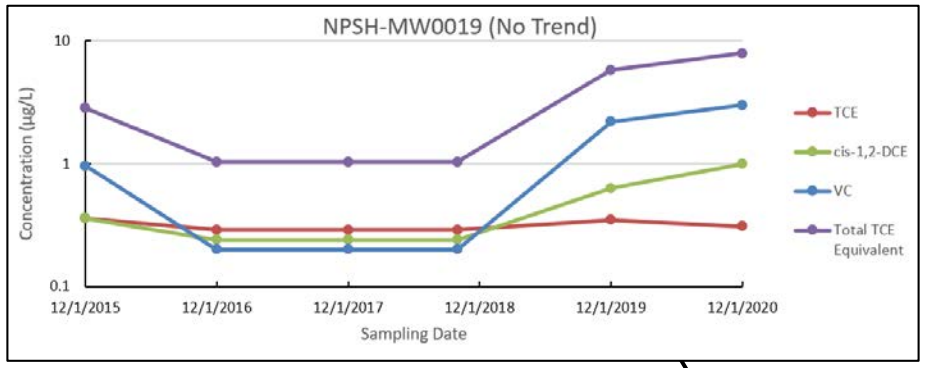
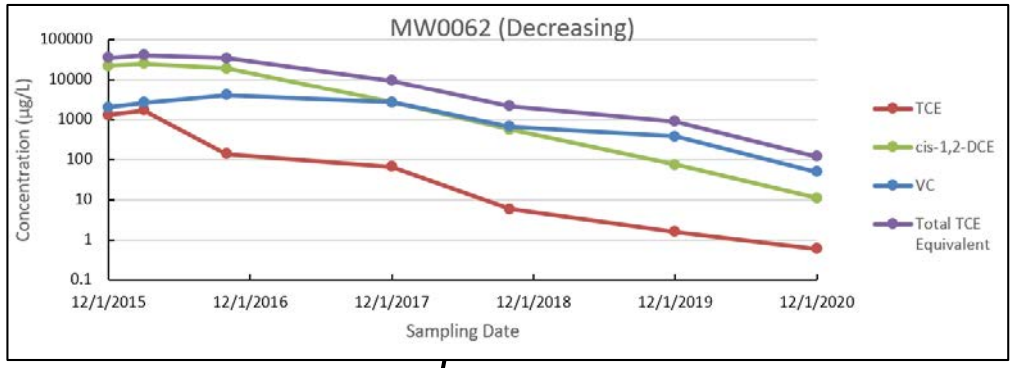
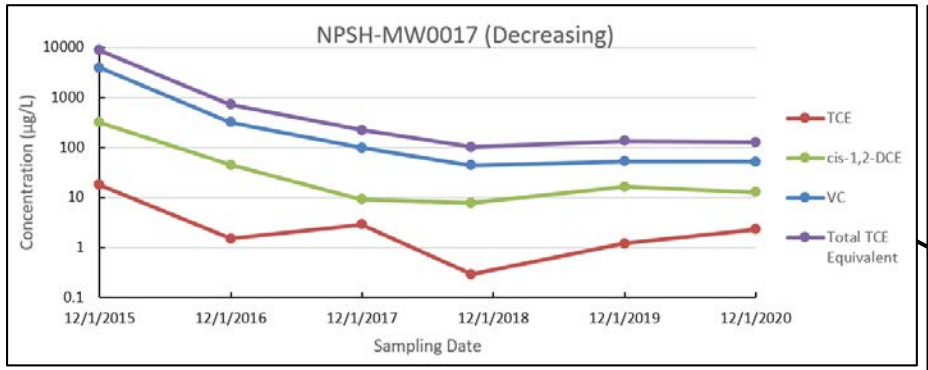
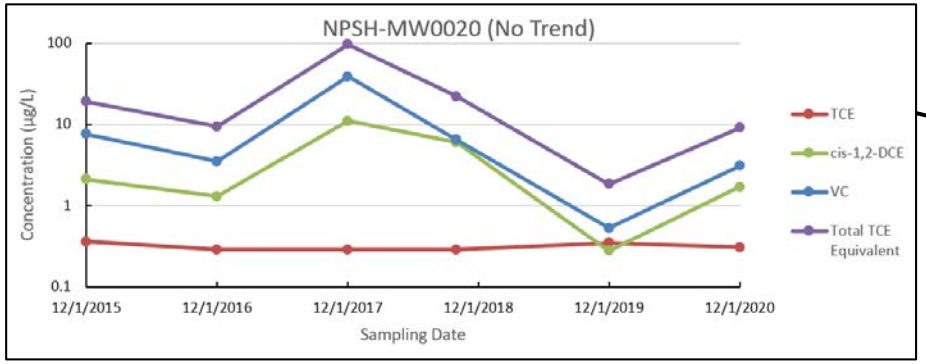
2020 Annual Long-Term Monitoring

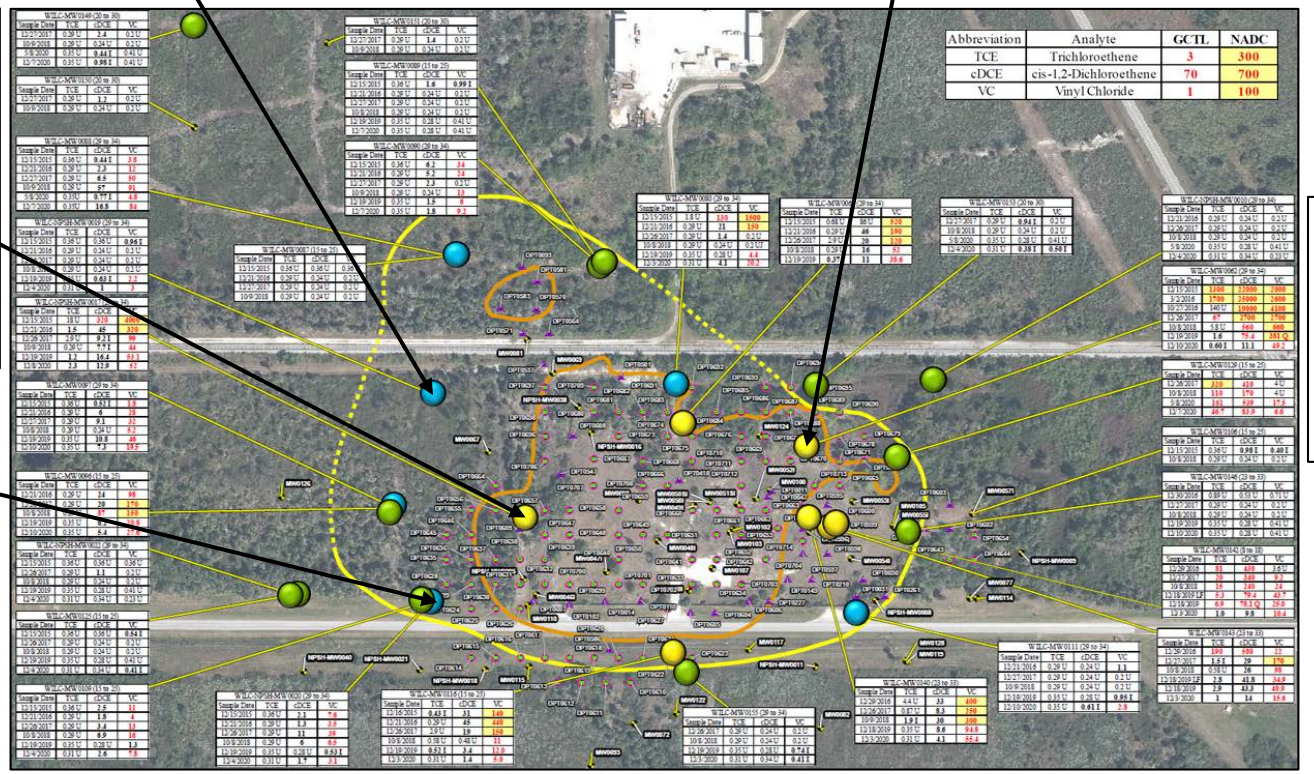
Groundwater Sampling Results – 15 to 34 ft bls – Trend Graphs (Page 2 of 4)











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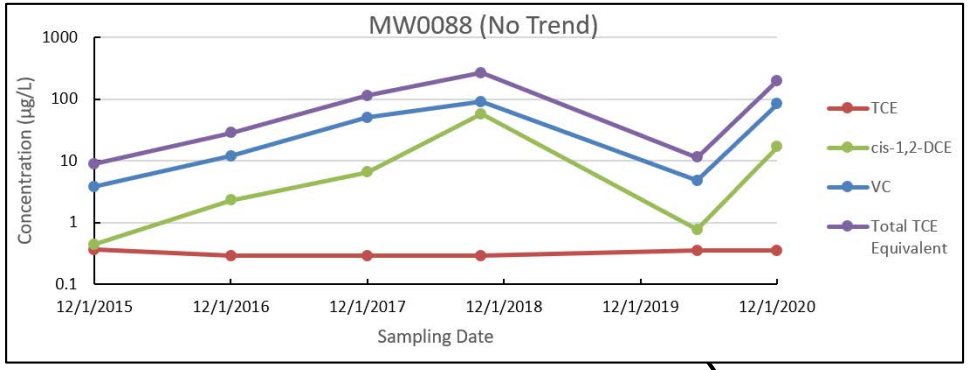
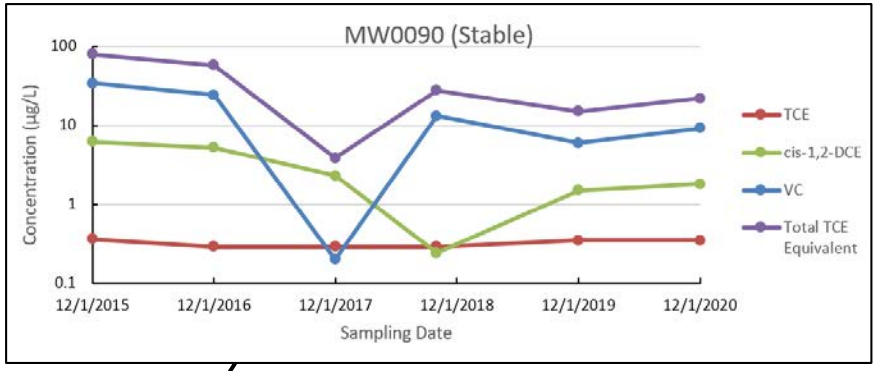
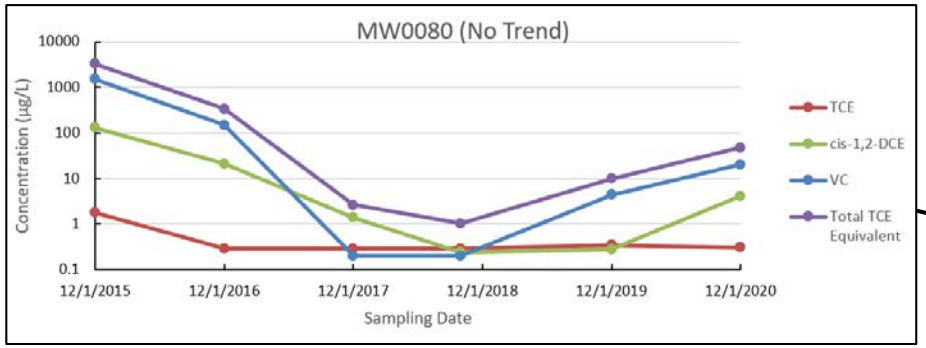
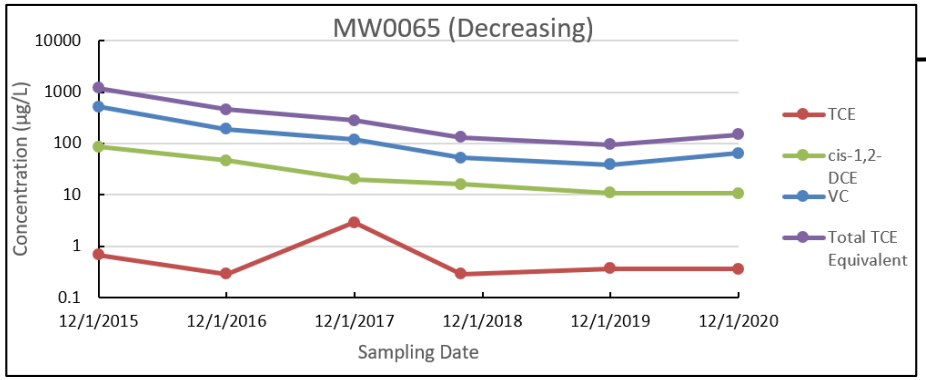
2020 Annual Long-Term Monitoring

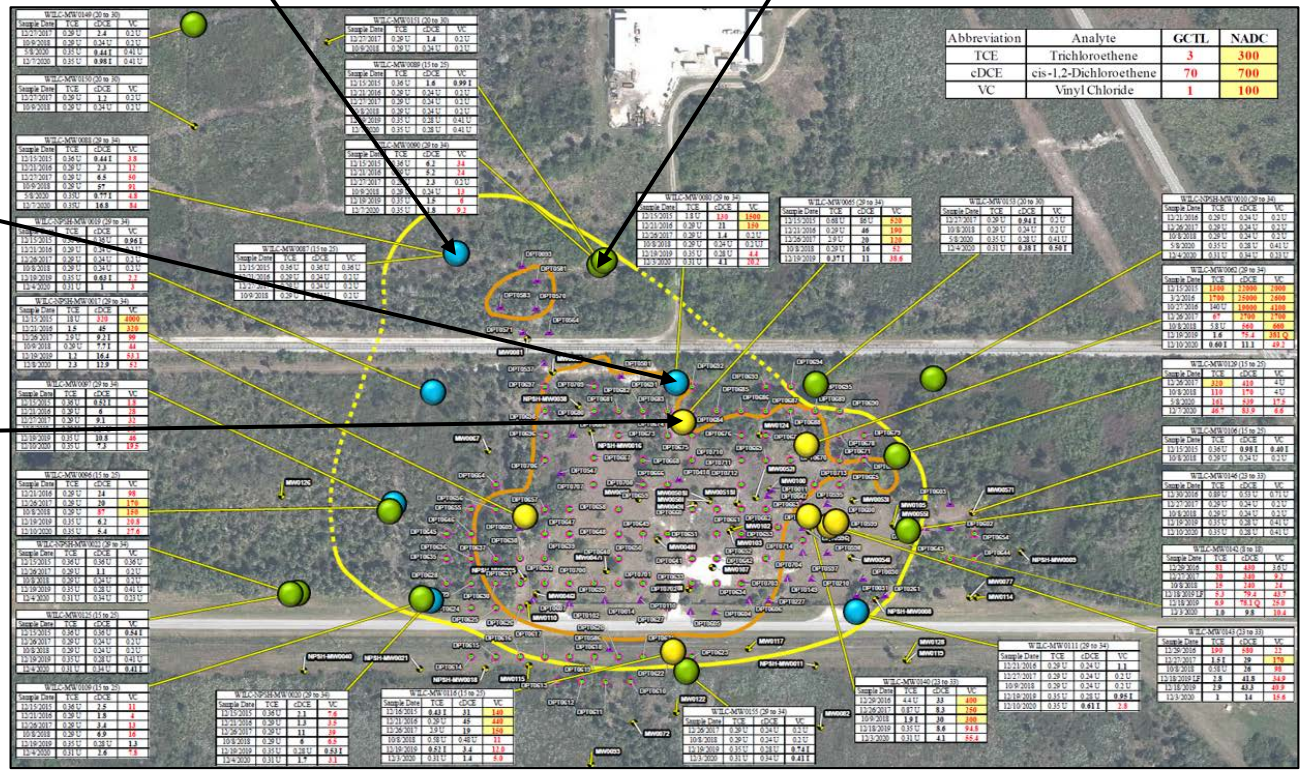
Groundwater Sampling Results – 15 to 34 ft bls – Trend Graphs (Page 3 of 4)











Stable

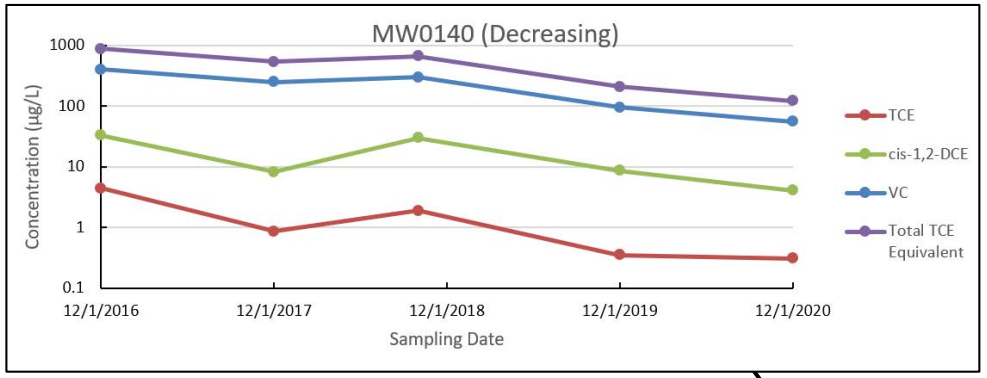
Decreasing

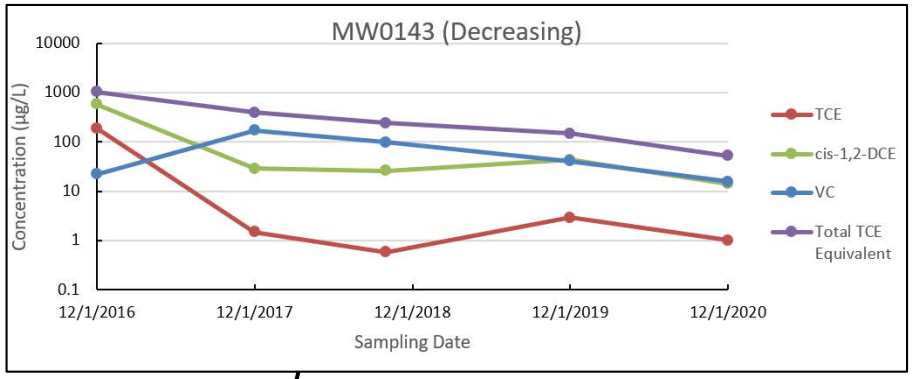
Increasing

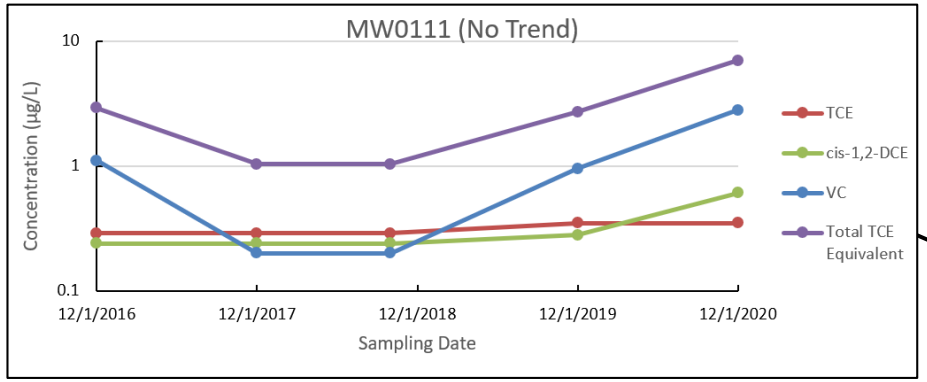
No Trend

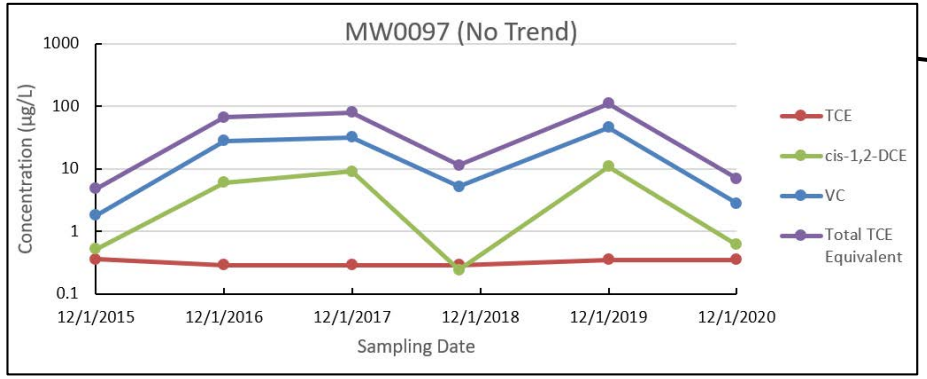
2020 Annual Long-Term Monitoring

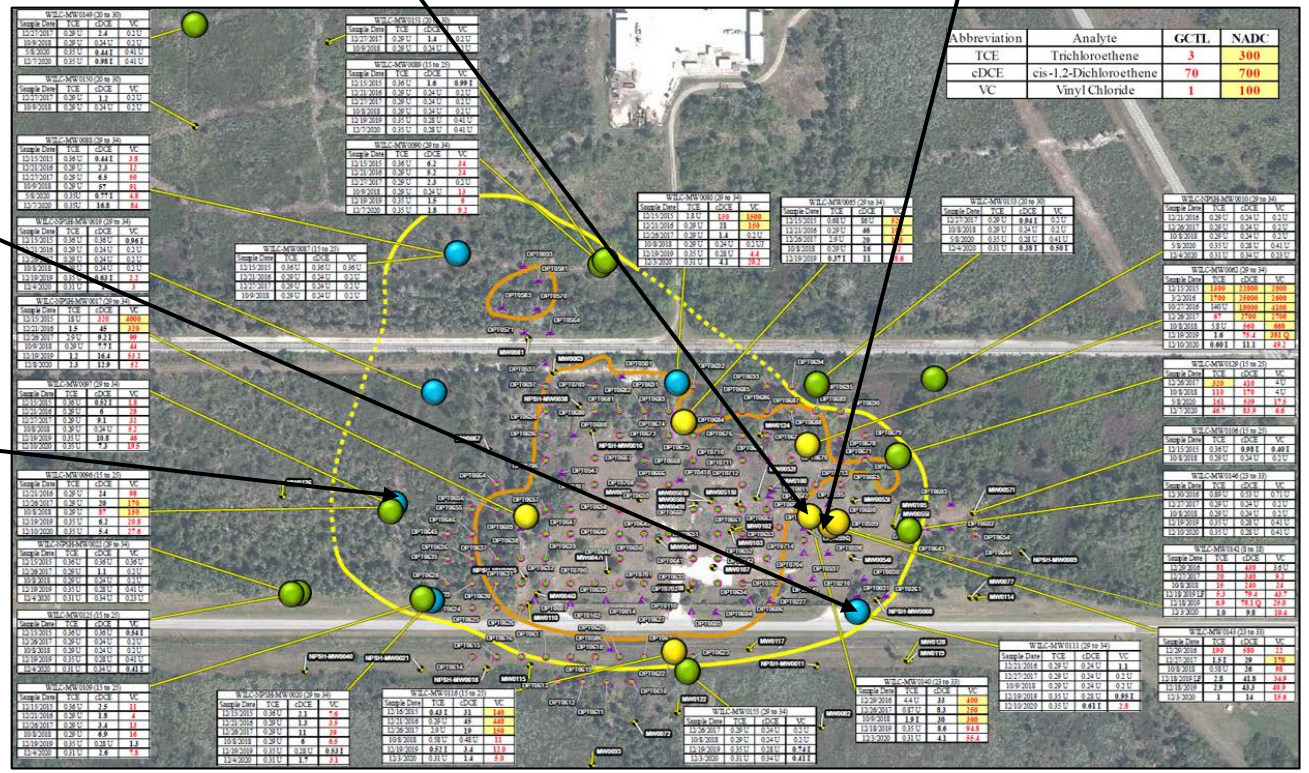
Groundwater Sampling Results – 15 to 34 ft bls – Trend Graphs (Page 4 of 4)











Abbreviation	Analyte	GCTL	NADC
TCE	Trichloroethene	3	300
cDCE	cis-1,2-Dichloroethene	70	700
VC	Vinyl Chloride	1	100

Stable
Decreasing
Increasing
No Trend

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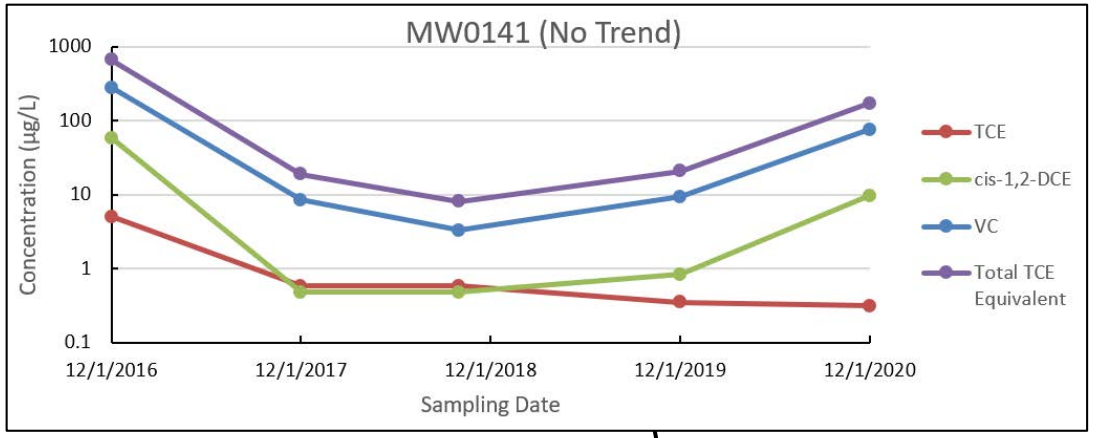
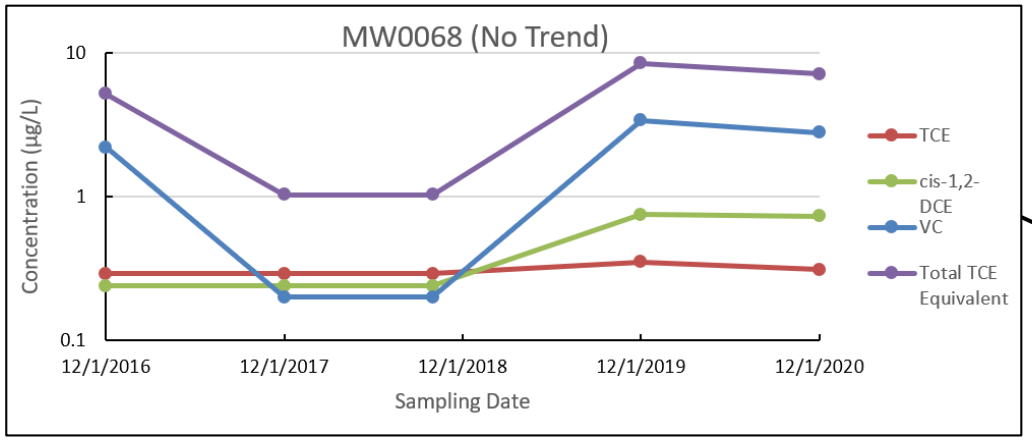
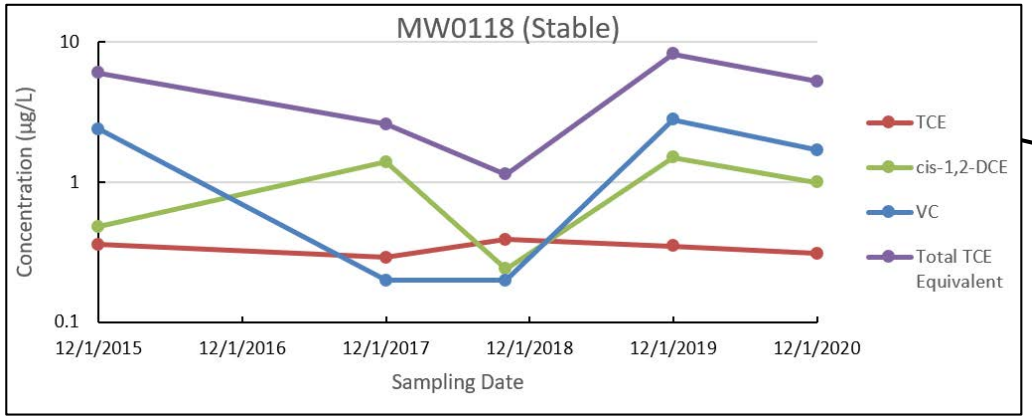
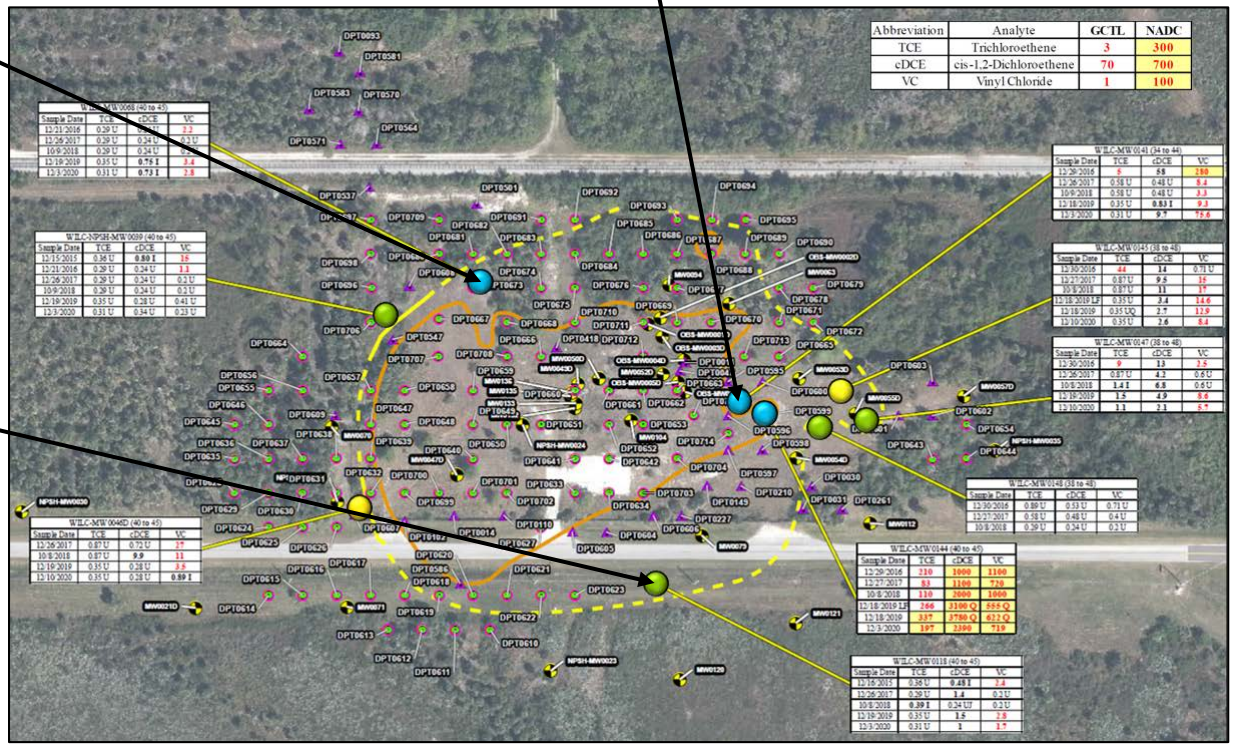
2020 Annual Long-Term Monitoring

Groundwater Sampling Results – 34 to 48 ft bls – Trend Graphs (Page 1 of 2)



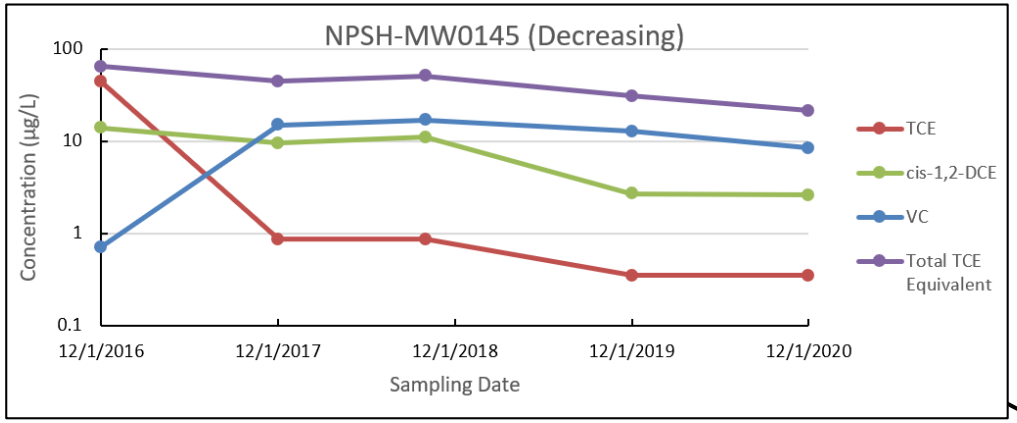


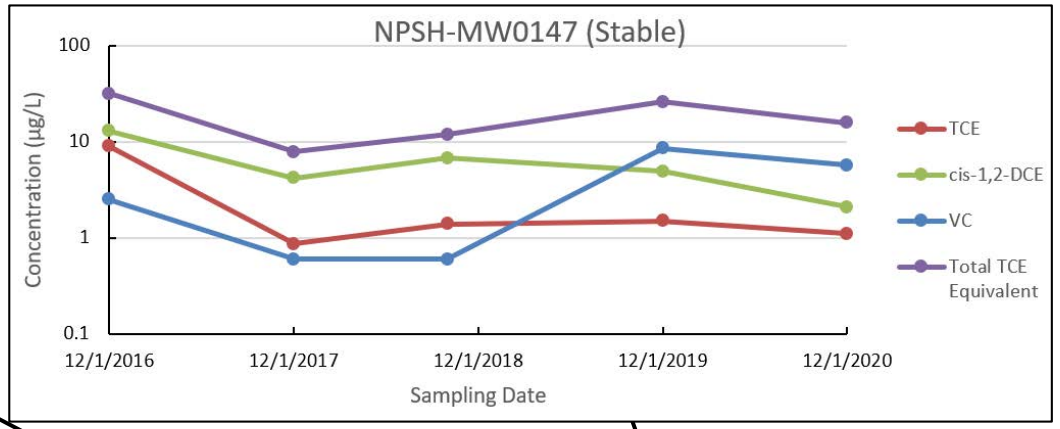


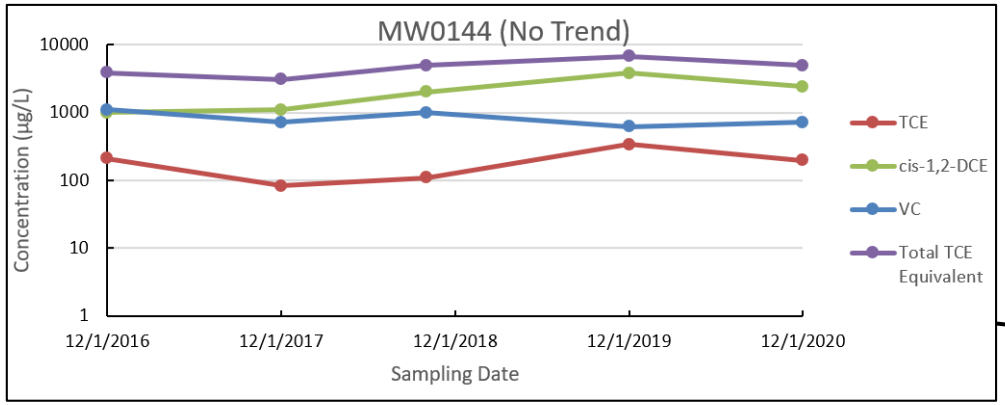


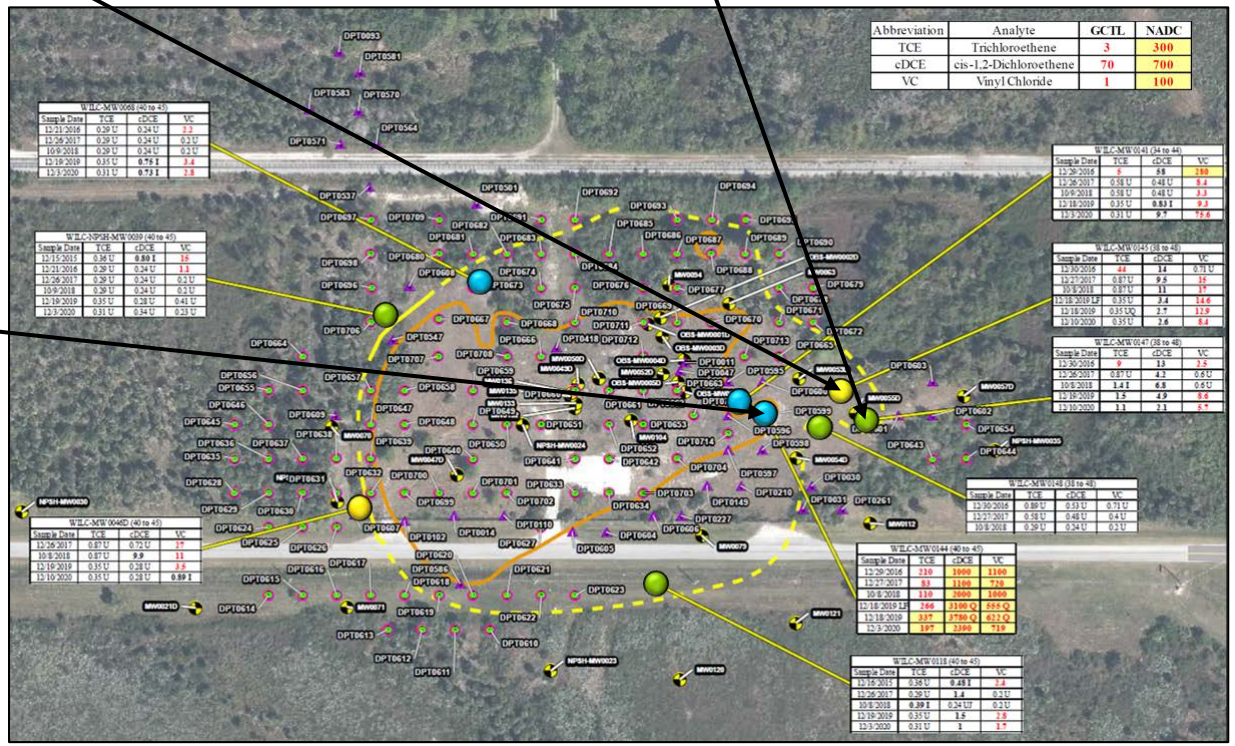
2020 Annual Long-Term Monitoring

Groundwater Sampling Results – 34 to 48 ft bls – Trend Graphs (Page 2 of 2)



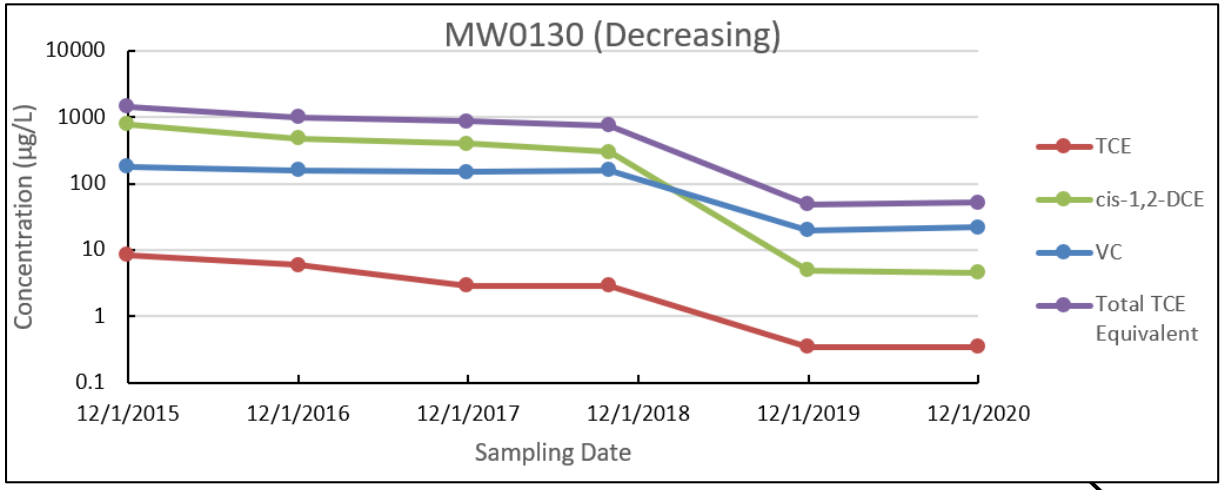


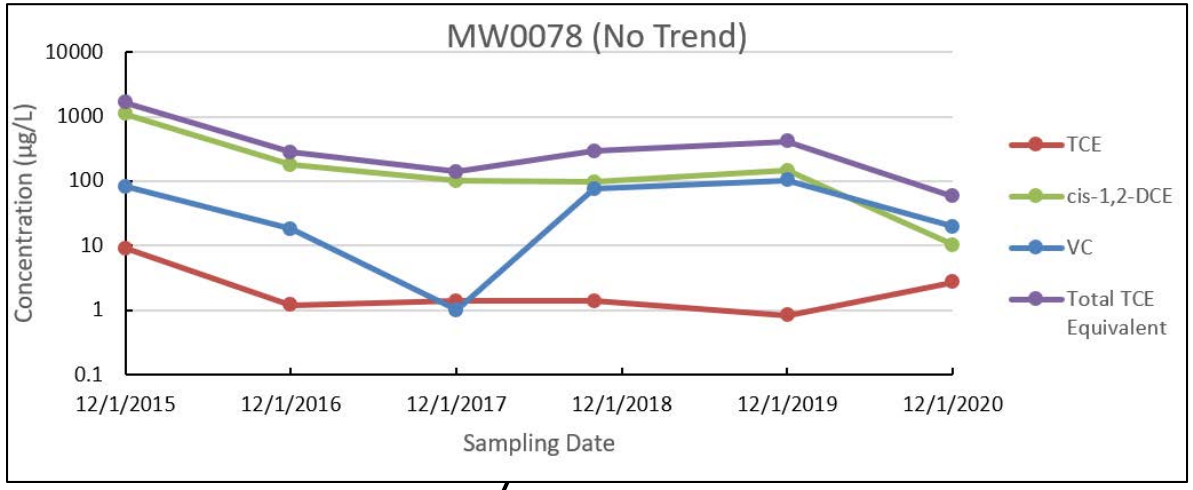


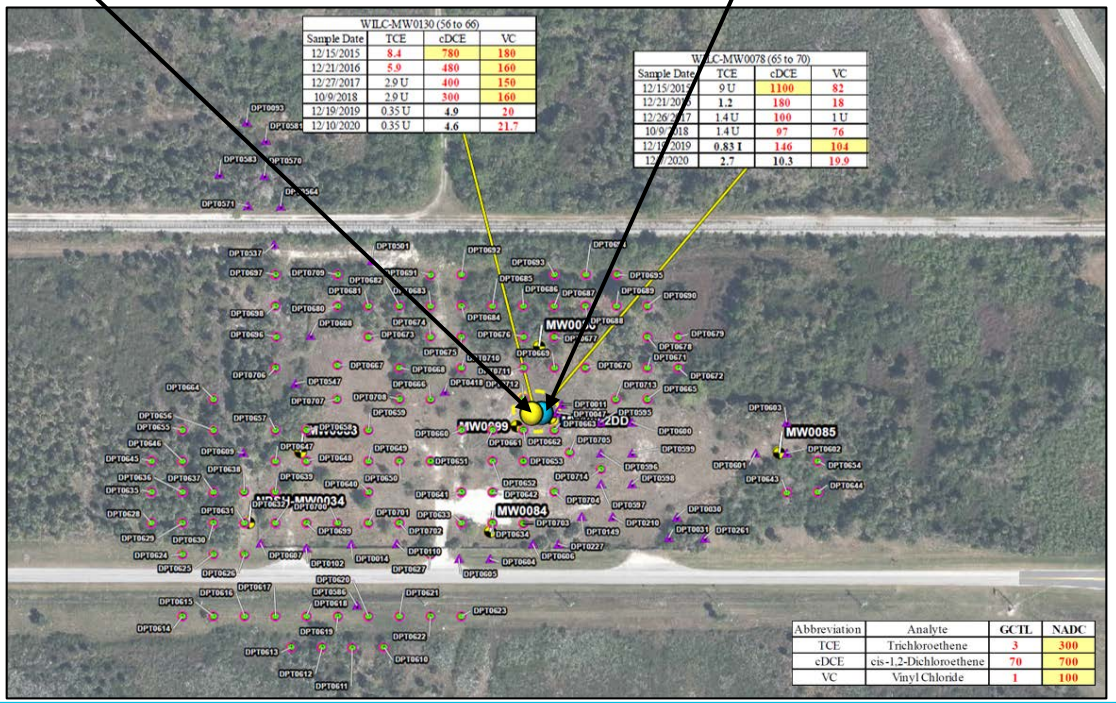


2020 Annual Long-Term Monitoring

Groundwater Sampling Results – Greater than 48 ft bls – Trend Graphs (Page 1 of 1)







- Stable
- Decreasing
- Increasing
- No Trend

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APPENDIX B

FIELD NOTES AND FIELD LOGS

(PROVIDED IN THE ELECTRONIC COPY ONLY)

12/03/19 NASA-KSC-WILSON CORNERS PDB Deployment p.1 of 2 CL/DS/GK

08:10 Chad Lee (CL) - AECOM onsite, CL opens PDBs & inventories everything.

08:40-09:10 Mike McCoy - AECOM PM, Anne Chrest - NASA RPM, Dustin Slater (DS) and Greg Kusel (GK) - AECOM, and Phil Falk - NASA Safety (to fill in for Sean Nichols) onsite.

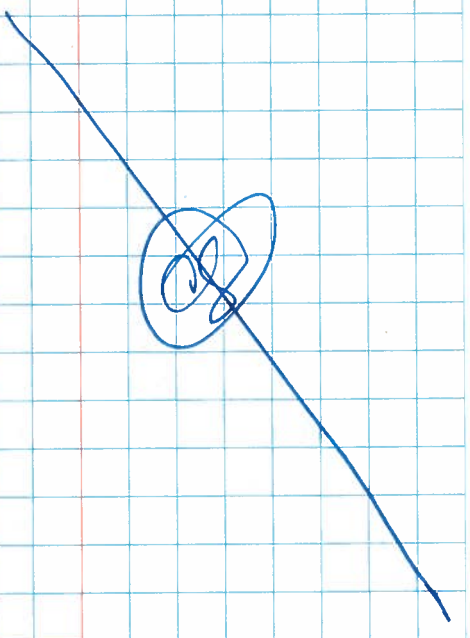
09:15 Nuts & Bolts Meeting.

09:35 Mike, Anne, and Phil offsite. CL/DS/GK to begin PDB (Passive Diffusion Bag) Deployment. All wells that get PDBs have a 0.75"x42" bag installed across the middle of the screened interval.

~~WELL NAME~~	~~TIME WELL~~	WELL	TIME	WELL	TIME
NPSH-MW0027	13:18	MW0106	WL ONLY	NASA-MW0019	11:15
NPSH-MW0036	WL ONLY/ Cannot Access	MW0109	13:32	NASA-MW0020	13:30
MW0064	10:42	MW0116	12:40	NPSH-MW0022	13:54
MW0074	13:06	MW0125	13:50	MW0062	10:32
MW0091	14:05	MW0129	Cannot Access	MW0065	10:44
MW0095	13:41	MW0142	10:05	MW0080	10:48
MW0152	Cannot Access	MW0149	Cannot Access	MW0088	Cannot Access
MW0154	12:58	MW0150	WL ONLY Cannot Access	MW0090	14:20
MW0156	Cannot Access	MW0151	WL ONLY Cannot Access	MW0097	13:45
MW0087	WL ONLY Cannot Access	MW0153	Cannot Access	MW0111	13:12
MW0089	14:18	NPSH-MW0010	Cannot Access	MW0140	09:58
MW0096	13:43	NPSH-MW0017	13:22	MW0143	10:08

12/03/19 NASA-KSC-WILC PDB Deployment p.2 of 2 CL/DS/GK

WELL	TIME
MW0146	10:20
MW0155	13:00
NPSH-MW0039	11:45
MW0046D	12:00
MW0068	11:37
MW0118	12:35
MW0141	10:00
MW0144	10:10
MW0145	10:15
MW0147	10:25
MW0148	WL ONLY
MW0078	09:43
MW0130	09:48



NOTE: Well that we could not access were inaccessable due to very dense vegitation. Paths will be cleared and the wells will be sampled in the Spring of 2020.

14:35 = CL/DS/GK review the well list and pack up.

15:05 = Crew offsite to mobe to Orlando, gate is locked & site is Secure.

12/18/19 NASA-KSC-WILSON CORNERS (WILC) CL/DS/GK
Groundwater Sampling p.1 of

11:00 CL|DS|GK onsite. H&S meeting. Crew to open wells for gauging.

11:50 Crew to collect water levels. A Solinst Model 101 Water Level Meter is used.

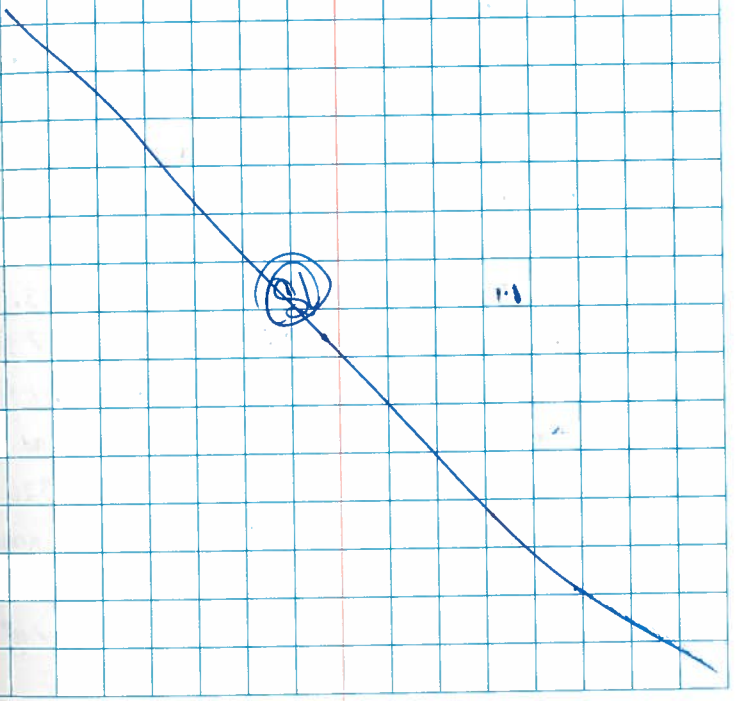
TIME	WELL	DTW	TIME	WELL	DTW
12:07	NPSH-MW0027	2.31	12:37	MW0080	1.59
12:38	MW0064	3.70	12:25	MW0090	4.89
12:01	MW0074	3.85	12:14	MW0097	3.71
12:22	MW0091	3.75	12:05	MW0111	2.28
12:12	MW0095	3.56	12:54	MW0140	6.03
12:00	MW0154	1.52	12:52	MW0143	6.21
12:24	MW0089	5.11	13:04	MW0146	5.83
12:13	MW0096	3.72	11:59	MW0155	1.52
13:05	MW0106	5.45	12:44	NPSH-MW0039	2.85
12:11	MW0109	4.55	12:46	MW0046D	4.44
11:58	MW116	4.65	12:41	MW0068	3.29
12:16	MW125	4.61	11:56	MW0118	5.17
12:51	MW0142	6.31	12:55	MW0141	6.13
12:08	NPSH-MW0017	2.48	12:53	MW0144	6.23
12:33	NPSH-MW0019	3.20	13:02	MW0145	5.67
12:10	NPSH-MW0020	4.32	13:03	MW0147	5.84
12:16	NPSH-MW0022	2.89	13:07	MW0148	5.73
13:12	MW0062	3.71	13:09	MW0078	5.40
12:39	MW0065	4.21	13:10	MW0130	4.58

NASA-KSC-WILC
12/18/19 GW Sampling p.2 of CL/DS/GK

13:00 - DS to begin sampling.

13:15 - CL|GK joins DS. GW samples are collected for 8260 + Freon 113 and placed on ice. Collect MW0140, MW0141, MW0142, MW0143, MW0144, & MW0145 from PDBs. MWs MW0142, MW0143, MW0144, & MW0145 are also sampled via low-flow techniques to allow collection of Geochemical parameters & for Freon 113 comparison.

15:20 - Crew offsite to Orlando.



NASA - KSC - Wilson Corner — GK DS

12/19/19 PDB Sampling

0800 Greg Kusel + Dustin Slater onsite. H+S meeting and go over SOW.

0820 GK + DS begin to collect/sample PDBs.

Time	Well	Depth	Time	Well	Depth
0940	NPSH MW0027	12.5	1125	MW0062	31.5
1040	MW0064	7.0	1043	MW0065	31.5
0825	MW0074	7.0	1035	MW0080	31.5
0900	MW0091	7.0	0910	MW0090	31.5
0958	MW0095	7.0	1005	MW0097	31.5
0836	MW0154	12.5	0850	MW0111	31.5
0905	MW0089	20.0	1115	MW0146	28.0
1002	MW0096	20.0	0840	MW0155	31.5
0955	MW0109	20.0	1054	NPSH MW0039	42.5
0832	MW0116	20.0	1100	MW0046D	42.5
1014	MW0125	20.0	1050	MW0064	42.5
0945	NPSH MW0017	31.5	0844	MW0118	42.5
1027	NPSH MW0019	31.5	1120	MW0147	43.0
0950	NPSH MW0020	31.5	1105	MW0078	67.5
1018	NPSH MW0028	31.5	1110	MW0130	61.0

1140 GK + DS drive to CCF to stage and sample IDW drum. Drum #220326

1200 GK + DS at logistics building to grab ice and fill out COCs.

1300 GK + DS at CCF to collect IDW sample

1315 IDW Sample collected. pH = 7.60

1345 GK + DS leave KSC.

GK MP DS

3/17/20 NASA - KSC - Wilson Corner
Well locations + PDB deployment

0800 Greg Kusel + Dustin Slater + Madan Parsotan onsite.
H+S meeting and go over SOW
0820 - Begin to locate and flag select monitor wells.
- located All wells to sample.
- unable to locate NPSH 36.
0945 Begin to Deploy PDBs in select monitor wells.
1230 All PDBs deployed in select wells.
1300 GK, DS, MP offsite.

GK

5/6/20 NASA KSC - Wilson's Corner BF GK

0900 Greg Kusel and Brittany Follett onsite. go over SOW and H+S.

0930 GK + BF begin to gauge select wells and sample PDB's.

Well ID	time gauged	DTW (Ft)	time sampled	Sample Depth (Ft)	
MW0085	0958	8.50	1000	31.5	
MW0129	1110	10.46	1111	20	
MW0149	1004	5.09	1010	25	
MW0152	1133	3.67	1136	10	
MW0153	1137	3.68	1138	25	
MW0156	1114	4.61	1115	10	
NPSH MW0010	1128	7.98	1130	31.5	

1215 GK + BF OFFSITE To add IDW to drum at the CCF.

1235 pour IDW into drum 220326

1245 GK + BF leaving KSC.

GK

GK MP DS

3/17/20 NASA - KSC - Wilson Corner
Well locations + PDB deployment

0800 Greg Kusel + Dustin Slater + Madan Parsotan onsite.
H+S meeting and go over SOW

0820 - Begin to locate and flag select monitor wells.
- located All wells to sample.
- unable to locate NPSH 36.

0945 Begin to Deploy PDBs in select monitor wells.

1230 All PDBs deployed in select wells.

1300 GK, DS, MP offsite.

GK

5/8/20 NASA KSC - Wilson's Corner BF GK

0900 Greg Kusel and Brittany Follett onsite. go over SOW and H+S.

0930 GK + BF begin to gauge select wells and sample PDB's.

Well ID	time gauged	DTW (Ft)	time sampled	Sample Depth (Ft)
MW0088	0958	8.50	1000	31.5
MW0129	1110	10.46	1111	20
MW0149	1009	5.09	1010	25
MW0152	1133	3.67	1136	10
MW0153	1137	3.68	1138	25
MW0156	1114	4.61	1115	10
NPSH MW0010	1128	7.98	1130	31.5

1215 GK + BF offsite to add IDW to drum at the CCF.

1235 pour IDW into drum 220326

1245 GK + BF leaving KSC.

GK

12/2/20 NASA - KSC - Wilson's Corner DS/MP/CL/PB

0915- Dustin Slater, Madan Parsotan, Chad Lee, & Raven Bulan onsite.

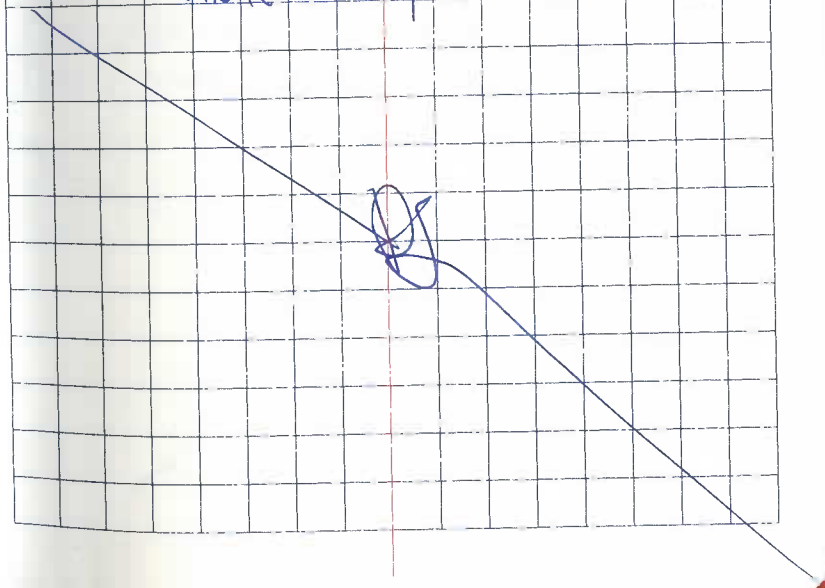
Weather: Sunny, cold, 43°F.

- H&S meeting.
- Locate & open wells for water level collection.

1330- Finished collecting water levels on wells.

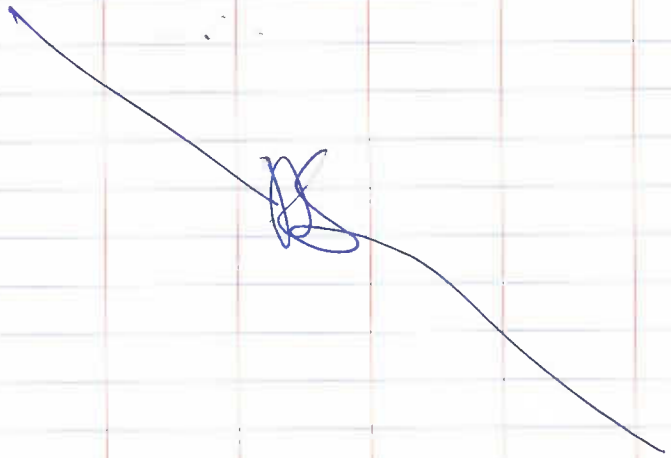
- Head to CCF to drop off IDW drums and show Raven where they are located.

1415 - Drums toned and labeled. Offsite for day.



0800 – Dustin Slater, David Team, & Raven Bulan onsite.
Weather: Sunny, some clouds, 60°F.
- H&S meeting.
- Discuss which wells to be sampled & split up bottles.
- Raven begins with MW0140
- Dustin begins with wells across street - MW0074
- Dave begins with well MW0080

1450 – finished sampling for the day.
1500 – offsite.

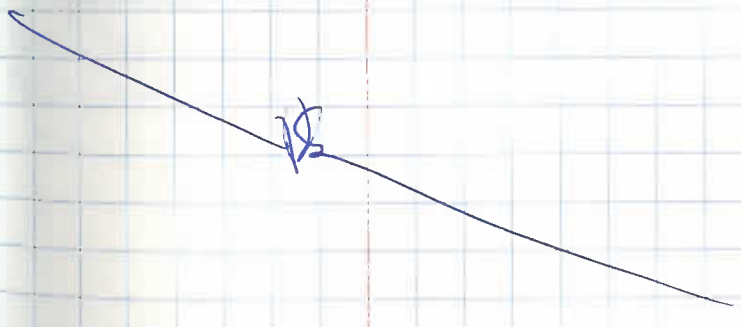


0745 – Dustin Slater, David Team, & Raven Bulan onsite at CCF to dump purge water from yesterday.
0820 – Arrive at site.
Weather: Sunny, cool, 60°F.
- Continue sampling wells

1145 – Sampling complete for day.
- Take purge water to CCF to place in IDW drum.

1210 – Offsite.
- Take cooler to SGS in Orlando to drop off.

1325 – Arrive at SGS.
1340 – Work complete for week.



12/7/20 NASA-KSC-Wilson's Corner OS/RB

p. 4 of 5

0130 - Austin Slater at depot in Orlando to pickup sample coolers for GSRy site and more tubing-

0145 - Leave for site.

0900 - Arrive onsite.
Raven Bulan onsite
H&S meeting.
Weather: Sunny, cold, 52°F.
- Raven begins at well MW009G
- Austin heads to maintenance yard to start at well MW014G.

1415 - Finished sampling for the day.

1430 - Offsite.
* We will leave purge water onsite until tomorrow, then dump it all out at once.

12/8/20 NASA-KSC-Wilson's Corner OS/RB

p. 5 of 5

0800 - Austin Slater & Raven Bulan onsite.
Weather: Sunny, cold, 45°F.
H&S meeting.
- Raven will sample wells MW009S thru MW009Z.
- Austin starts at well MW015G

1115 - Finished sampling wells.
Head to CCF to dump purge water & collect IDW sample.

1150 - Collect IDW-20201208-01 for 8260 & PFAS.
* pH in IDW = 7.70

1230 - Offsite.
Head to depot to pack coolers & fill out chain of custody.

1530 - Arrive at SGS to drop samples off.

1545 - Work complete.

WILSON CORNERS - SWMU 001

Water Level Field Form

December 2, 2020

Personnel: Dustin Slater, Chad Lee, Greg Kusel, and Raven Bulan

Depth Zone	Well ID	Screen Interval (ft bls)	9/21/2018	12/15/2019		12/2/2020		
			Water Level (ft BTOC)	Time (24 hr)	Water Level (ft BTOC)	Time (24 hr)	Water Level (ft BTOC)	Notes
2 to 15 ft BLS	NPSH-MW0027	10 to 15	3.66	12:07	2.31	10:12	2.31	
	NPSH-MW0036	3 to 10	5.51	-	-	12:05	3.10	Due to recent clearing in the area the well was located under dirt and vegetation debris
	MW0064	2 to 12	5.43	12:38	3.70	10:55	3.58	
	MW0074	2 to 12	5.21	12:01	3.85	10:07	5.77	
	MW0091	2 to 12	5.78	12:22	3.75	10:05	4.30	
	MW0095	2 to 12	5.03	12:12	3.56	10:21	5.52	
	MW0152	5 to 15	2.46	-	-	12:11	0.33	
	MW0154	10 to 15	3.10	12:00	1.52	10:05	1.47	
	MW0156	5 to 15	-	-	-	12:11	1.59	
15 to 30 ft BLS	MW0087	15 to 25	7.12	-	-	10:13	5.41	
	MW0089	15 to 25	6.91	12:24	5.11	11:02	5.01	
	MW0096	15 to 25	5.14	12:13	3.72	10:23	5.66	
	MW0106	15 to 25	7.12	13:05	5.45	11:40	5.22	
	MW0109	15 to 25	5.85	12:11	4.55	10:19	4.49	
	MW0116	15 to 25	6.22	11:58	4.65	10:02	4.52	
	MW0125	15 to 25	5.93	12:16	4.61	10:29	4.51	
	MW0129	15 to 25	9.20	-	-	11:43	7.22	
	MW0142	8 to 18	7.87	12:51	6.31	11:24	6.11	
	MW0149	20 to 30	3.61	-	-	10:32	2.00	Had to traverse wetlands and water for access
	MW0150	20 to 30	3.35	-	-	10:46	2.78	Had to traverse wetlands and water for access
	MW0151	20 to 30	3.35	-	-	10:40	1.88	Had to traverse wetlands and water for access
	MW0153	20 to 30	2.46	-	-	12:10	0.34	
23 to 35 ft BLS	NPSH-MW0010	29 to 34	6.74	-	-	12:07	4.53	
	NPSH-MW0017	29 to 34	3.92	12:08	2.48	10:15	2.41	
	NPSH-MW0019	29 to 34	4.57	12:33	3.20	11:05	2.97	
	NPSH-MW0020	29 to 34	5.62	12:10	4.32	10:17	4.30	
	NPSH-MW0022	29 to 34	4.20	12:16	2.89	10:28	2.68	
	MW0062	29 to 34	5.51	13:12	3.71	11:48	3.57	
	MW0065	29 to 34	5.95	12:39	4.21	10:53	4.09	
	MW0080	29 to 34	3.43	12:37	1.59	11:45	1.51	
	MW0088	29 to 34	7.18	-	-	10:12	5.47	
	MW0090	29 to 34	6.69	12:25	4.89	11:06	4.78	
	MW0097	29 to 34	5.14	12:14	3.71	10:24	5.66	
	MW0111	29 to 34	3.91	12:05	2.28	9:53	2.08	
	MW0140	23 to 33	7.69	12:54	6.03	11:17	5.86	
	MW0143	23 to 33	7.75	12:52	6.21	11:25	5.99	
	MW0146	23 to 33	7.55	13:04	5.83	11:37	6.02	
	MW0155	29 to 34	3.09	11:59	1.52	10:04	1.41	
34 to 55 ft BLS	NPSH-MW0039	40 to 45	3.43	12:44	2.85	10:39	1.81	
	MW0046D	40 to 45	5.82	12:46	4.44	10:35	4.50	
	MW0068	40 to 45	5.97	12:41	3.29	10:42	4.27	
	MW0118	40 to 45	6.84	11:56	5.17	9:59	5.19	
	MW0141	34 to 44	7.83	12:55	6.13	11:18	6.20	
	MW0144	40 to 45	7.81	12:53	6.23	11:27	6.04	
	MW0145	38 to 48	7.33	13:02	5.67	11:33	5.59	
	MW0147	38 to 48	7.55	13:03	5.84	11:38	5.65	
	MW0148	38 to 48	7.29	13:07	5.73	11:30	5.51	
Greater than 55 ft BLS	MW0078	65 to 70	6.75	13:09	5.40	11:13	5.06	
	MW0130	56 to 66	5.98	13:10	4.58	11:11	4.35	

Well ID	Well Diameter (inches)	Screen Interval (ft BTOC)	PDB Deployment				PDB Sampling			Notes
			Date	Time	Depth (ft BTOC)	PDB Size (inches)	Date	Time	Analysis	
NPSH-MW0027	2	10 to 15	12/3/2019	13:18	10.75 to 14.25	0.75 x 42	12/19/2018	9:40	VOCs	
MW0064	2	2 to 12	12/3/2019	10:42	6.25 to 9.75	0.75 x 42	12/19/2018	10:40	VOCs	
MW0074	2	2 to 12	12/3/2019	13:06	6.25 to 9.75	0.75 x 42	12/19/2018	8:25	VOCs	
MW0091	1	2 to 12	12/3/2019	14:05	6.25 to 9.75	0.75 x 42	12/19/2018	9:00	VOCs	
MW0095	1	2 to 12	12/3/2019	13:41	6.25 to 9.75	0.75 x 42	12/19/2018	9:58	VOCs	
MW0152	1	5 to 15								Could not access due to dense vegitation
MW0154	1	10 to 15	12/3/2019	12:58	10.75 to 14.25	0.75 x 42	12/19/2018	8:36	VOCs	
MW0156	2	5 to 15								Could not access due to dense vegitation
MW0089	1	15 to 25	12/3/2019	14:18	18.25 to 21.75	0.75 x 42	12/19/2018	9:05	VOCs	
MW0096	1	15 to 25	12/3/2019	13:43	18.25 to 21.75	0.75 x 42	12/19/2018	10:02	VOCs	
MW0109	1	15 to 25	12/3/2019	13:32	18.25 to 21.75	0.75 x 42	12/19/2018	9:55	VOCs	
MW0116	1	15 to 25	12/3/2019	12:40	18.25 to 21.75	0.75 x 42	12/19/2018	8:32	VOCs	
MW0125	1	15 to 25	12/3/2019	13:50	18.25 to 21.75	0.75 x 42	12/19/2018	10:14	VOCs	
MW0129	1	15 to 25								Could not access due to dense vegitation
MW0142	1	8 to 18	12/3/2019	10:05	11.25 to 14.75	0.75 x 42	12/18/2019	13:25	VOCs	
MW0149	1	20 to 30								Could not access due to dense vegitation
MW0153	1	20 to 30								Could not access due to dense vegitation
NPSH-MW0010	4	29 to 34								Could not access due to dense vegitation
NPSH-MW0017	4	29 to 34	12/3/2019	13:22	29.75 to 33.25	0.75 x 42	12/19/2019	9:45	VOCs	
NPSH-MW0019	4	29 to 34	12/3/2019	11:15	29.75 to 33.25	0.75 x 42	12/19/2019	10:27	VOCs	
NPSH-MW0020	4	29 to 34	12/3/2019	13:30	29.75 to 33.25	0.75 x 42	12/19/2019	9:50	VOCs	
NPSH-MW0022	4	29 to 34	12/3/2019	13:54	29.75 to 33.25	0.75 x 42	12/19/2019	10:18	VOCs	
MW0062	2	29 to 34	12/3/2019	10:32	29.75 to 33.25	0.75 x 42	12/19/2019	11:25	VOCs	
MW0065	2	29 to 34	12/3/2019	10:44	29.75 to 33.25	0.75 x 42	12/19/2019	10:43	VOCs	
MW0080	1	29 to 34	12/3/2019	10:48	29.75 to 33.25	0.75 x 42	12/19/2019	10:35	VOCs	
MW0088	1	29 to 34								Could not access due to dense vegitation
MW0090	1	29 to 34	12/3/2019	14:20	29.75 to 33.25	0.75 x 42	12/19/2019	9:10	VOCs	
MW0097	1	29 to 34	12/3/2019	13:45	29.75 to 33.25	0.75 x 42	12/19/2019	10:05	VOCs	
MW0111	1	29 to 34	12/3/2019	13:12	29.75 to 33.25	0.75 x 42	12/19/2019	8:50	VOCs	
MW0140	1	23 to 33	12/3/2019	9:58	26.25 to 29.75	0.75 x 42	12/18/2019	13:05	VOCs	
MW0143	1	23 to 33	12/3/2019	10:08	26.25 to 29.75	0.75 x 42	12/18/2019	13:35	VOCs	
MW0146	1	23 to 33	12/3/2019	10:20	26.25 to 29.75	0.75 x 42	12/19/2019	11:15	VOCs	
MW0155	1	29 to 34	12/3/2019	13:00	29.75 to 33.25	0.75 x 42	12/19/2019	8:40	VOCs	
NPSH-MW0039	2	40 to 45	12/3/2019	11:45	40.75 to 44.25	0.75 x 42	12/19/2019	10:54	VOCs	
MW0046D	1	40 to 45	12/3/2019	12:00	40.75 to 44.25	0.75 x 42	12/19/2019	11:00	VOCs	
MW0068	2	40 to 45	12/3/2019	11:37	40.75 to 44.25	0.75 x 42	12/19/2019	10:50	VOCs	
MW0118	1	40 to 45	12/3/2019	12:35	40.75 to 44.25	0.75 x 42	12/19/2019	8:44	VOCs	
MW0141	1	34 to 44	12/3/2019	10:00	37.25 to 40.75	0.75 x 42	12/18/2019	13:15	VOCs	
MW0144	1	40 to 45	12/3/2019	10:10	43.25 to 46.75	0.75 x 42	12/18/2019	13:40	VOCs	
MW0145	1	38 to 48	12/3/2019	10:15	41.25 to 44.75	0.75 x 42	12/18/2019	13:45	VOCs	
MW0147	1	38 to 48	12/3/2019	10:25	41.25 to 44.75	0.75 x 42	12/19/2019	11:20	VOCs	
MW0078	2	65 to 70	12/3/2019	9:43	65.75 to 69.25	0.75 x 42	12/19/2019	11:05	VOCs	
MW0130	2	56 to 66	12/3/2019	9:48	59.25 to 62.75	0.75 x 42	12/19/2018	11:10	VOCs	

Notes:
btoc = below top of casing
ft = feet
MW = monitoring well
NS = not sampled
PDB = passive diffusion bag
SWMU = Solid Waste Management Unit
TOC = top of casing

Well ID	Well Diameter (inches)	Screen Interval (ft BTOC)	PDB Deployment				PDB Sampling			Notes
			Date	Time	Depth (ft BTOC - Middle of PDB)	PDB Size (inches)	Date	Time	Analysis	
NPSH-MW0027	2	10 to 15	12/3/2019	13:18	12.5	0.75 x 42	12/19/2018	9:40	VOCs	
MW0064	2	2 to 12	12/3/2019	10:42	8.0	0.75 x 42	12/19/2018	10:40	VOCs	
MW0074	2	2 to 12	12/3/2019	13:06	8.0	0.75 x 42	12/19/2018	8:25	VOCs	
MW0091	1	2 to 12	12/3/2019	14:05	8.0	0.75 x 42	12/19/2018	9:00	VOCs	
MW0095	1	2 to 12	12/3/2019	13:41	8.0	0.75 x 42	12/19/2018	9:58	VOCs	
MW0152	1	5 to 15	3/17/2020	10:15	10.0	0.75 x 42	5/8/2020	11:36	VOCs	Sampled after land clearing was completed
MW0154	1	10 to 15	12/3/2019	12:58	12.5	0.75 x 42	12/19/2018	8:36	VOCs	
MW0156	2	5 to 15	3/17/2020	9:50	10.0	0.75 x 42	5/8/2020	11:15	VOCs	Sampled after land clearing was completed
MW0089	1	15 to 25	12/3/2019	14:18	20.0	0.75 x 42	12/19/2018	9:05	VOCs	
MW0096	1	15 to 25	12/3/2019	13:43	20.0	0.75 x 42	12/19/2018	10:02	VOCs	
MW0109	1	15 to 25	12/3/2019	13:32	20.0	0.75 x 42	12/19/2018	9:55	VOCs	
MW0116	1	15 to 25	12/3/2019	12:40	20.0	0.75 x 42	12/19/2018	8:32	VOCs	
MW0125	1	15 to 25	12/3/2019	13:50	20.0	0.75 x 42	12/19/2018	10:14	VOCs	
MW0129	1	15 to 25	3/17/2020	9:45	20.0	0.75 x 42	5/8/2020	11:11	VOCs	Sampled after land clearing was completed
MW0142	1	8 to 18	12/3/2019	10:05	13.0	0.75 x 42	12/18/2019	13:25	VOCs	
MW0149	1	20 to 30	3/17/2020	11:55	25.0	0.75 x 42	5/8/2020	10:10	VOCs	Sampled after land clearing was completed
MW0153	1	20 to 30	3/17/2020	10:17	25.0	0.75 x 42	5/8/2020	11:38	VOCs	Sampled after land clearing was completed
NPSH-MW0010	4	29 to 34	3/17/2020	10:10	31.5	0.75 x 42	5/8/2020	11:30	VOCs	Sampled after land clearing was completed
NPSH-MW0017	4	29 to 34	12/3/2019	13:22	31.5	0.75 x 42	12/19/2019	9:45	VOCs	
NPSH-MW0019	4	29 to 34	12/3/2019	11:15	31.5	0.75 x 42	12/19/2019	10:27	VOCs	
NPSH-MW0020	4	29 to 34	12/3/2019	13:30	31.5	0.75 x 42	12/19/2019	9:50	VOCs	
NPSH-MW0022	4	29 to 34	12/3/2019	13:54	31.5	0.75 x 42	12/19/2019	10:18	VOCs	
MW0062	2	29 to 34	12/3/2019	10:32	31.5	0.75 x 42	12/19/2019	11:25	VOCs	
MW0065	2	29 to 34	12/3/2019	10:44	31.5	0.75 x 42	12/19/2019	10:43	VOCs	
MW0080	1	29 to 34	12/3/2019	10:48	31.5	0.75 x 42	12/19/2019	10:35	VOCs	
MW0088	1	29 to 34	3/17/2020	12:05	31.5	0.75 x 42	5/8/2020	10:00	VOCs	Sampled after land clearing was completed
MW0090	1	29 to 34	12/3/2019	14:20	31.5	0.75 x 42	12/19/2019	9:10	VOCs	
MW0097	1	29 to 34	12/3/2019	13:45	31.5	0.75 x 42	12/19/2019	10:05	VOCs	
MW0111	1	29 to 34	12/3/2019	13:12	31.5	0.75 x 42	12/19/2019	8:50	VOCs	
MW0140	1	23 to 33	12/3/2019	9:58	28.0	0.75 x 42	12/18/2019	13:05	VOCs	
MW0143	1	23 to 33	12/3/2019	10:08	28.0	0.75 x 42	12/18/2019	13:35	VOCs	
MW0146	1	23 to 33	12/3/2019	10:20	28.0	0.75 x 42	12/19/2019	11:15	VOCs	
MW0155	1	29 to 34	12/3/2019	13:00	31.5	0.75 x 42	12/19/2019	8:40	VOCs	
NPSH-MW0039	2	40 to 45	12/3/2019	11:45	42.5	0.75 x 42	12/19/2019	10:54	VOCs	
MW0046D	1	40 to 45	12/3/2019	12:00	42.5	0.75 x 42	12/19/2019	11:00	VOCs	
MW0068	2	40 to 45	12/3/2019	11:37	42.5	0.75 x 42	12/19/2019	10:50	VOCs	
MW0118	1	40 to 45	12/3/2019	12:35	42.5	0.75 x 42	12/19/2019	8:44	VOCs	
MW0141	1	34 to 44	12/3/2019	10:00	39.0	0.75 x 42	12/18/2019	13:15	VOCs	
MW0144	1	40 to 45	12/3/2019	10:10	45.0	0.75 x 42	12/18/2019	13:40	VOCs	
MW0145	1	38 to 48	12/3/2019	10:15	43.0	0.75 x 42	12/18/2019	13:45	VOCs	
MW0147	1	38 to 48	12/3/2019	10:25	43.0	0.75 x 42	12/19/2019	11:20	VOCs	
MW0078	2	65 to 70	12/3/2019	9:43	67.5	0.75 x 42	12/19/2019	11:05	VOCs	
MW0130	2	56 to 66	12/3/2019	9:48	61.0	0.75 x 42	12/19/2018	11:10	VOCs	

Notes:
btoc = below top of casing
ft = feet
MW = monitoring well
NS = not sampled
PDB = passive diffusion bag
SWMU = Solid Waste Management Unit
TOC = top of casing

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: WILC-MW0142-013.0-20191218 Sampler: Dustin Slater

Well ID: WILC-MW0142 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.29
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	18		

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
12/18/2019	13:51				6.29									
12/18/2019	14:11	0.05	1.00	1.00	6.38	6.45	880	0.22	17.1	24.0	-54.8	0.44	Yellow	None
12/18/2019	14:13	0.05	0.10	1.10	6.38	6.45	882	0.19	14.0	24.0	-55.5	0.44	Yellow	None
12/18/2019	14:15	0.05	0.10	1.20	6.38	6.45	885	0.23	13.1	24.0	-56.8	0.44	Yellow	None
12/18/2019	14:17	0.05	0.10	1.30	6.38	6.45	885	0.24	12.8	24.0	-57.0	0.44	Yellow	None

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)
13:51	14:17	26	1.30	6.45	885	0.24	12.8	24.0	-57.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: WILC-MW0143-028.0-20191218 Sampler: Dustin Slater

Well ID: WILC-MW0143 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.18
Top of Screen (ft-BTOR):	23	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	33	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	33		

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
12/18/2019	14:23				6.18									
12/18/2019	14:33	0.05	0.50	0.50	6.19	7.28	1634	0.13	8.21	24.9	-131.1	0.82	Yellow	None
12/18/2019	14:35	0.05	0.10	0.60	6.19	7.30	1688	0.10	7.75	24.9	-134.5	0.85	Yellow	None
12/18/2019	14:37	0.05	0.10	0.70	6.19	7.32	1719	0.09	5.56	25.0	-136.0	0.87	Yellow	None
12/18/2019	14:39	0.05	0.10	0.80	6.19	7.32	1728	0.09	5.02	25.1	-134.7	0.87	Yellow	None

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)
14:23	14:39	16	0.80	7.32	1728	0.09	5.02	25.1	-134.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: WILC-MW0144-042.5-20191218 Sampler: Dustin Slater

Well ID: WILC-MW0144 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.23
Top of Screen (ft-BTOR):	40	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	45	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	50		

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
12/18/2019	14:43				6.23									
12/18/2019	14:53	0.05	0.50	0.50	6.50	7.29	2085	0.21	8.45	25.3	-141.2	1.05	Yellow	None
12/18/2019	14:55	0.05	0.10	0.60	6.50	7.21	2178	0.16	17.4	25.5	-138.9	1.10	Yellow	None
12/18/2019	14:57	0.05	0.10	0.70	6.50	7.09	2305	0.15	17.4	25.4	-122.2	1.17	Yellow	None
12/18/2019	14:59	0.05	0.10	0.80	6.50	7.06	2348	0.12	16.3	25.3	-114.3	1.18	Yellow	None
12/18/2019	15:01	0.05	0.10	0.90	6.50	7.00	2370	0.11	14.8	25.2	-108.9	1.21	Yellow	None

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)
14:43	15:01	18	0.90	7.00	2370	0.11	14.8	25.2	-108.9

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center GSRY

Site Name: GSA Reclamation Yard

Project No: 60614327

Sample ID: WILC-MW0145-043.0-20191218 Sampler: Greg Kusel

Well ID: WILC-MW0145 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.67
Top of Screen (ft-BTOR):	38	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	48	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	48		

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
12/18/2019	14:13				5.67									
12/18/2019	14:23	0.05	0.5	0.5	6.60	7.23	2683	0.22	18.9	24.5	-117.6	1.40	None	None
12/18/2019	14:25	0.05	0.1	0.6	6.60	7.21	2692	0.19	18.4	24.5	-120.2	1.41	None	None
12/18/2019	14:27	0.05	0,1	0.7	6.60	7.20	2690	0.18	17.5	24.4	-120.5	1.41	None	None
12/18/2019	14:29	0.05	0.1	0.8	6.60	7.20	2699	0.16	16.1	24.5	-122.0	1.41	None	None

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)
14:13	14:29	16	0.8	7.20	2699	0.16	16.1	24.5	-122.0

DEP-SOP-001/01: Form FD 9000-8 (June 20, 2001)

Field Instrument Calibration Records

INSTRUMENT HACH 2100P # 4 Serial # C029619

PARAMETER: *Turbidity*

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A GELEX 0-10 NTU (+/- 10%)

Standard B GELEX 10-100 NTU (+/- 6.5%)

Standard C GELEX 100-1000 NTU (+/- 5%)

DATE (mm/dd/yy)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
12/16/19	1259	A	5.85	5.81		NO	INITIAL	DS
"	"	B	57.8	57.6		"	"	"
"	"	C	610	608		"	"	"
12/16/19	1525	A	5.85	5.79		NO	ICV	DS
"	"	B	57.8	57.5		"	"	"
"	"	C	610	606		"	"	"
12/17/19	0902	A	5.85	5.80		NO	CCV	DS
↓	↓	B	57.8	57.3		"	↓	↓
		C	610	603		"		
12/17/19	1300	A	5.85	5.84		NO	CCV	DS
↓	↓	B	57.8	57.7		"	↓	↓
		C	610	607		"		
12/18/19	0750	A	5.85	5.82		NO	CCV	DS
↓	↓	B	57.8	57.7		"	↓	↓
		C	610	605		"		
12/18/19	1512	A	5.85	5.81		NO	CCV	DS
↓	↓	B	57.8	57.3		"	↓	↓
		C	610	602		"		

Boldly "X" this box if there is qualified data on this page.

Form FD9000-8 **CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)** 11-10-05

Project/Site: KSC GSR4 + Wilson's Corner Date: 12/17/19 + 12/18/19 Meter # Rental (10E100130)

Temperature (Quarterly) *For Date of Last Temperature Verification see* ____ *in log book*

Dissolved Oxygen	**DEP SOP FT 1500**	Initials	Date	Time	Probe Charge	Probe Gain	mg/L	Temp °c	% DO	Saturation mg/L (from chart)	Pass or Fail
										Acceptance Criteria:+/-0.3mg/l	
CAL ICV CCV		DS	12/17/19	1503			7.81	27.3°	100%	7.92	P F
CAL ICV CCV		DS	12/18/19	0753			9.23	18.8°	100%	9.31	P F
CAL ICV CCV		DS	12/18/19	1515			9.46	17.9°	100%	9.48	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

Specific Conductance	**DEP SOP FT 1200**	Initials	Date	Time	Standard µmhos/cm	Exp. Date	Lot #	Bottle #	Cell Constant	Reading µmhos/cm	Pass or Fail
										Acceptance Criteria: +/- 5%	
CAL ICV CCV		DS	12/17/19	1503	1413	6/20	96F392			1406	P F
CAL ICV CCV		DS	12/18/19	0753	1413	↓	↓			1409	P F
CAL ICV CCV		DS	12/18/19	1515	1413	↓	↓			1396	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

pH	**DEP SOP FT 1100**	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
										Acceptance Criteria: +/- 0.2 SU	
CAL ICV CCV		DS	12/17/19	1503	7.00	6/21	96F357			7.04	P F
CAL ICV CCV		↓	↓	↓	4.00	6/21	96F132			4.05	P F
CAL ICV CCV		↓	↓	↓	10.00	1/21	99A585			10.08	P F
CAL ICV CCV		DS	12/18/19	0753	7.00	↓	↓			7.03	P F
CAL ICV CCV		↓	↓	↓	4.01	↓	↓			4.02	P F
CAL ICV CCV		↓	↓	↓	10.00	↓	↓			10.08	P F
CAL ICV CCV		DS	12/18/19	1515	7.00	↓	↓			7.09	P F
CAL ICV CCV		↓	↓	↓	4.01	↓	↓			4.08	P F
CAL ICV CCV		↓	↓	↓	10.00	↓	↓			10.11	P F

Maintenance: Weekly pH Slope: ____ Specific Conductance Probe Cleaned? Yes No Dissolved Oxygen Membrane Changed: Yes No

Notes:

ORP

CCV	DS	12/17/19	1503	238	3/20	96F544	226	P
CCV	↓	12/18/19	0753	238	↓	↓	229	P
CCV	DS	12/18/19	1515	238	↓	↓	226	P

Perform only in Calibrate Mode: **CAL** - Calibrate -
Perform only in Run Mode: **ICV** - Initial Calibration Verification
Perform only in Run Mode: **CCV** - Continuing Calibration Verification

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0010-031.5-20201204 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0010 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	4.56
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/4/2020	10:48				4.56									
12/4/2020	11:08	0.05	1.00	1.00	4.70	7.00	1201	0.13	6.26	23.11	-194.4	0.62	None	None
12/4/2020	11:10	0.05	.10	1.10	4.70	7.00	1204	0.12	5.98	23.09	-196.5	0.62	None	None
12/4/2020	11:12	0.05	.10	1.20	4.70	7.00	1205	0.12	5.23	23.08	-197.2	0.62	None	None
12/4/2020	11:14	0.05	.10	1.30	4.70	7.00	1205	0.12	4.77	23.04	-197.7	0.62	None	None

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)
10:48	11:14	26	1.30	7.00	1205	0.12	4.77	23.04	-197.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0017-031.5-20201208 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0017 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	2.5
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/8/2020	9:48				2.50									
12/8/2020	10:08	0.05	1.00	1.00	2.52	7.17	1114	0.41	0.59	16.80	-114.1	0.66	None	None
12/8/2020	10:10	0.05	.10	1.10	2.52	7.18	1117	0.29	0.54	16.86	-123.0	0.66	None	None
12/8/2020	10:12	0.05	.10	1.20	2.52	7.18	1118	0.28	0.61	16.90	-124.2	0.66	None	None
12/8/2020	10:14	0.05	.10	1.30	2.52	7.18	1121	0.28	0.57	16.92	-124.8	0.66	None	None

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)
9:48	10:14	26	1.30	7.18	1121	0.28	0.57	16.92	-124.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0019-031.5-20201204 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0019 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	3.01
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/4/2020	8:50				3.01									
12/4/2020	9:10	0.05	1.00	1.00	3.02	7.05	1676	0.38	1.23	21.70	-122.6	0.91	None	None
12/4/2020	9:12	0.05	.10	1.10	3.02	7.05	1675	0.34	1.15	21.79	-120.4	0.91	None	None
12/4/2020	9:14	0.05	.10	1.20	3.02	7.05	1674	0.33	1.03	21.80	-119.6	0.91	None	None
12/4/2020	9:16	0.05	.10	1.30	3.02	7.05	1671	0.33	0.98	21.83	-119.5	0.91	None	None

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)
8:50	9:16	26	1.30	7.05	1671	0.33	0.98	21.83	-119.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0020-031.5-20201204 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0020 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	4.31
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/4/2020	9:50				4.31									
12/4/2020	10:10	0.05	1.00	1.00	4.35	6.89	3400	0.29		22.0	-60	1.91	None	None
12/4/2020	10:15	0.05	.25	1.25	4.35	6.87	3412	0.27		22.0	-62	1.92	None	None
12/4/2020	10:20	0.05	.25	1.50	4.35	6.89	3421	0.29		22.1	-69	1.92	None	None

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)
9:50	10:20	30	1.50	6.89	3421	0.29		22.1	-69

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0022-031.5-20201204 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0022 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	3.82
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/4/2020	11:35				3.82									
12/4/2020	11:55	0.05	1.00	1.00	3.85	7.03	7650	0.41	11.2	23.4	-58	4.38	None	None
12/4/2020	12:00	0.05	.25	1.25	3.85	7.02	7659	0.39	9.75	23.5	-59	4.39	None	None
12/4/2020	12:05	0.05	.25	1.50	3.85	7.02	7664	0.37	8.16	23.5	-56	4.44	None	None

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	12:05	30	1.50	7.02	7664	0.37	8.16	23.5	-56

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0027-012.5-20201208 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0027 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	2.31
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/8/2020	10:36				2.31									
12/8/2020	10:56	0.05	1.00	1.00	2.34	6.96	1042	0.22	2.21	23.63	-108.3	0.53	None	None
12/8/2020	10:58	0.05	.10	1.10	2.34	6.96	1042	0.21	1.97	23.65	-107.7	0.53	None	None
12/8/2020	11:00	0.05	.10	1.20	2.34	6.96	1042	0.21	1.75	23.66	-107.3	0.53	None	None
12/8/2020	11:02	0.05	.10	1.30	2.34	6.96	1042	0.21	1.22	23.70	-106.8	0.53	None	None

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)
10:36	11:02	26	1.30	6.96	1042	0.21	1.22	23.70	-106.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-NPSH-MW0039-042.5-20201203 Sampler: Dustin Slater

Well ID: WILC-NPSH-MW0039 Well Type: Monitoring Well

Remark:

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	1.78
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/3/2020	14:10				1.78									
12/3/2020	14:30	0.05	1.00	1.00	1.82	7.04	3984	0.18	11.2	24.0	-60	2.17	None	None
12/3/2020	14:35	0.05	.25	1.25	1.82	7.01	3992	0.18	9.24	24.0	-57	2.18	None	None
12/3/2020	14:40	0.05	.25	1.50	1.82	7.02	4005	0.17	7.36	24.1	-50	2.18	None	None

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)
14:10	14:40	30	1.50	7.02	4005	0.17	7.36	24.1	-50

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0046D-042.5-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0046D Well Type: Monitoring Well

Remark: WILC-MW0046D-042.5-20201210

Well Information

Well Diameter (in.):		Static Water Level (ft-BTOR):	4.52
Top of Screen (ft-BTOR):	Unknown	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	Unknown	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):			

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
12/10/2020	16:09				4.52									
12/10/2020	16:29	0.05	1.00	1.00	4.60	6.82	3872	0.26	16.0	21.30	-136.7	2.22	None	None
12/10/2020	16:31	0.05	.10	1.10	4.60	6.81	3873	0.25	14.8	21.31	-135.3	2.22	None	None
12/10/2020	16:33	0.05	.10	1.20	4.60	6.81	3873	0.25	12.7	21.31	-133.1	2.22	None	None
12/10/2020	16:35	0.05	.10	1.30	4.60	6.81	3875	0.25	9.85	21.32	-132.0	2.22	None	None

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)
16:09	16:35	26	1.30	6.81	3875	0.25	9.85	21.32	-132.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0062-031.5-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0062 Well Type: Monitoring Well

Remark: WILC-MW0062-031.5-20201210

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.8
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/10/2020	15:30				3.80									
12/10/2020	15:50	0.05	1.00	1.00	3.82	6.51	1428	0.17	0.60	22.23	-181.5	0.76	None	None
12/10/2020	15:52	0.05	.10	1.10	3.82	6.51	1423	0.19	0.55	22.22	-190.2	0.76	None	None
12/10/2020	15:54	0.05	.10	1.20	3.82	6.51	1419	0.20	0.53	22.19	-192.1	0.76	None	None
12/10/2020	15:56	0.05	.10	1.30	3.82	6.51	1417	0.20	0.62	22.18	-193.5	0.76	None	None

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)
15:30	15:56	26	1.30	6.51	1417	0.20	0.62	22.18	-193.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0064-004.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0064 Well Type: Monitoring Well

Remark: WILC-MW0064-004.5-20201203

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.68
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs
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
12/3/2020	11:30				3.68									
12/3/2020	11:50	0.05	1.00	1.00	3.82	6.52	901	0.13	3.27	23.5	-73	0.46	None	None
12/3/2020	11:55	0.05	.25	1.25	3.82	6.51	910	0.13	2.43	23.6	-80	0.47	None	None
12/3/2020	12:00	0.05	.25	1.50	3.82	6.51	915	0.14	1.70	23.6	-84	0.47	None	None

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)
11:30	12:00	30	1.50	6.51	915	0.14	1.70	23.6	-84

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0065-031.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0065 Well Type: Monitoring Well

Remark: WILC-MW0065-031.5-20201203

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	4.14
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/3/2020	10:40				4.14									
12/3/2020	11:00	0.05	1.00	1.00	4.16	6.67	2535	0.27	3.41	23.8	-138	1.35	None	None
12/3/2020	11:05	0.05	.25	1.25	4.16	6.65	2534	0.25	2.03	23.9	-140	1.37	None	None
12/3/2020	11:10	0.05	.25	1.50	4.16	6.63	2560	0.20	1.22	23.9	-143	1.41	None	None

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)
10:40	11:10	30	1.50	6.63	2560	0.20	1.22	23.9	-143

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0068-042.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0068 Well Type: Monitoring Well

Remark: WILC-MW0068-042.5-20201203

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	4.25
Top of Screen (ft-BTOR):	40	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	45	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	45		

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
12/3/2020	13:10				4.25									
12/3/2020	13:30	0.05	1.00	1.00	4.31	6.96	9880	0.26	4.82	23.9	-88	5.69	None	None
12/3/2020	13:35	0.05	.25	1.25	4.31	6.96	9876	0.20	2.41	23.9	-85	5.65	None	None
12/3/2020	13:40	0.05	.25	1.50	4.31	6.97	9869	0.18	1.09	24.0	-80	5.65	None	None

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)
13:10	13:40	30	1.50	6.97	9869	0.18	1.09	24.0	-80

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0074-004.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0074 Well Type: Monitoring Well

Remark: WILC-MW0074-004.5-20201203

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	3.8
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs
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
12/3/2020	8:59				3.80									
12/3/2020	9:29	0.05	1.50	1.50	3.82	7.19	575	0.40	5.25	22.53	-71.2	0.29	None	None
12/3/2020	9:31	0.05	.10	1.60	3.82	7.19	579	0.34	5.23	22.82	-78.2	0.29	None	None
12/3/2020	9:33	0.05	.10	1.70	3.82	7.19	579	0.33	3.85	22.85	-81.1	0.29	None	None
12/3/2020	9:35	0.05	.10	1.80	3.82	7.19	580	0.31	3.27	22.89	-82.3	0.29	None	None

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)
8:59	9:35	36	1.80	7.19	580	0.31	3.27	22.89	-82.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0078-063.0-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0078 Well Type: Monitoring Well

Remark: WILC-MW0078-063.0-20201207

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	5.12
Top of Screen (ft-BTOR):	65	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	70	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	70		

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
12/7/2020	12:45				5.12									
12/7/2020	12:53	.0625	.50	.50	5.41	7.41	2330	0.30	15.7	21.00	-164.7	1.32	Clear	None
12/7/2020	12:56	.0625	.1875	.6875	5.41	7.47	2468	0.24	12.8	21.20	-186.4	1.38	Clear	None
12/7/2020	12:59	.0625	.1875	.875	5.41	7.49	2547	0.22	10.9	21.50	-197.6	1.43	Clear	None
12/7/2020	13:02	.0625	.1875	1.06	5.41	7.50	2573	0.21	7.10	21.20	-201.7	1.44	Clear	None

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)
12:45	13:02	17	1.06	7.50	2573	0.21	7.10	21.20	-201.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0080-031.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0080 Well Type: Monitoring Well

Remark: WILC-MW0080-031.5-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.54
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/3/2020	9:35				1.54									
12/3/2020	9:55	0.05	1.00	1.00	1.57	6.57	2897	0.75	4.29	23.1	-107	1.68	None	None
12/3/2020	10:00	0.05	.25	1.25	1.57	6.59	2901	0.67	3.76	23.2	-112	1.61	None	None
12/3/2020	10:05	0.05	.25	1.50	1.57	6.57	2905	0.62	2.10	23.2	-121	1.50	None	None

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)
9:35	10:05	30	1.50	6.57	2905	0.62	2.10	23.2	-121

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0088-031.5-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0088 Well Type: Monitoring Well

Remark: WILC-MW0088-031.5-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.41
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/7/2020	10:37				5.41									
12/7/2020	10:57	0.05	1.00	1.00	5.48	7.52	1353	0.77	4.21	21.48	-50.8	0.30	None	None
12/7/2020	10:59	0.05	.10	1.10	5.48	7.52	1349	0.65	3.82	21.44	-51.2	0.30	None	None
12/7/2020	11:01	0.05	.10	1.20	5.48	7.52	1347	0.63	3.80	21.43	-51.9	0.30	None	None
12/7/2020	11:03	0.05	.10	1.30	5.48	7.52	1343	0.60	3.79	21.46	-54.1	0.30	None	None

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)
10:37	11:03	26	1.30	7.52	1343	0.60	3.79	21.46	-54.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0089-020.0-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0089 Well Type: Monitoring Well

Remark: WILC-MW0089-020.0-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	4.97
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/7/2020	11:43				4.97									
12/7/2020	12:03	0.05	1.00	1.00	5.03	7.22	667	0.41	4.37	18.50	-185.6	0.20	None	None
12/7/2020	12:05	0.05	.10	1.10	5.03	7.22	663	0.39	4.14	18.39	-186.2	0.20	None	None
12/7/2020	12:07	0.05	.10	1.20	5.03	7.22	661	0.39	3.89	18.35	-186.7	0.20	None	None
12/7/2020	12:09	0.05	.10	1.30	5.03	7.22	660	0.39	3.62	18.32	-187.0	0.20	None	None

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)
11:43	12:09	26	1.30	7.22	660	0.39	3.62	18.32	-187.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0090-031.5-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0090 Well Type: Monitoring Well

Remark: WILC-MW0090-031.5-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	4.7
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/7/2020	12:39				4.70									
12/7/2020	12:59	0.05	1.00	1.00	4.73	7.14	983	0.28	12.9	17.10	-91.8	0.31	None	None
12/7/2020	13:01	0.05	.10	1.10	4.73	7.14	983	0.28	10.2	17.11	-94.4	0.31	None	None
12/7/2020	13:03	0.05	.10	1.20	4.73	7.13	983	0.28	9.74	17.13	-95.7	0.31	None	None
12/7/2020	13:05	0.05	.10	1.30	4.73	7.13	983	0.28	9.21	17.14	-97.2	0.31	None	None

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)
12:39	13:05	26	1.30	7.13	983	0.28	9.21	17.14	-97.2

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0091-004.5-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0091 Well Type: Monitoring Well

Remark: WILC-MW0091-004.5-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	3.75
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs
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
12/7/2020	13:29				3.75									
12/7/2020	13:49	0.05	1.00	1.00	3.83	6.05	135	0.29	4.63	21.16	-97.7	0.51	None	None
12/7/2020	13:51	0.05	.10	1.10	3.83	6.05	135	0.28	4.49	21.12	-97.1	0.51	None	None
12/7/2020	13:53	0.05	.10	1.20	3.83	6.05	135	0.28	4.02	21.09	-97.0	0.51	None	None
12/7/2020	13:55	0.05	.10	1.30	3.83	6.05	134	0.27	3.34	21.11	-96.7	0.51	None	None

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)
13:29	13:55	26	1.30	6.05	134	0.27	3.34	21.11	-96.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0095-006.5-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0095 Well Type: Monitoring Well

Remark: WILC-MW0095-006.5-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	3.75
Top of Screen (ft-BTOR):	2	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	12	Sample Analysis:	Select VOCs
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
12/10/2020	15:22				3.75									
12/10/2020	15:42	0.05	1.00	1.00	3.89	5.14	214	0.42	1.48	19.07	89.5	0.12	None	None
12/10/2020	15:44	0.05	.10	1.10	3.89	5.14	215	0.40	1.37	19.07	88.2	0.12	None	None
12/10/2020	15:46	0.05	.10	1.20	3.89	5.15	216	0.38	1.26	19.08	87.4	0.12	None	None
12/10/2020	15:48	0.05	.10	1.30	3.89	5.15	218	0.35	1.13	19.08	85.4	0.12	None	None

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)
15:22	15:48	26	1.30	5.15	218	0.35	1.13	19.08	85.4

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0096-020.0-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0096 Well Type: Monitoring Well

Remark: WILC-MW0096-020.0-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	3.88
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/10/2020	16:02				3.88									
12/10/2020	16:22	0.05	1.00	1.00	3.94	6.68	990	0.31	1.28	18.57	-27.6	0.56	None	None
12/10/2020	16:24	0.05	.10	1.10	3.94	6.68	990	0.28	1.19	18.57	-28.2	0.56	None	None
12/10/2020	16:26	0.05	.10	1.20	3.94	6.68	990	0.27	1.11	18.58	-28.4	0.56	None	None
12/10/2020	16:28	0.05	.10	1.30	3.94	6.68	991	0.25	1.05	18.56	-28.7	0.56	None	None

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)
16:02	16:28	26	1.30	6.68	991	0.25	1.05	18.56	-28.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0097-031.5-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0097 Well Type: Monitoring Well

Remark: WILC-MW0097-031.5-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	3.86
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/10/2020	16:40				3.86									
12/10/2020	17:00	0.05	1.00	1.00	3.92	6.68	2170	0.39	1.22	18.04	-31.4	1.30	None	None
12/10/2020	17:02	0.05	.10	1.10	3.92	6.68	2170	0.37	1.17	18.04	-31.7	1.30	None	None
12/10/2020	17:04	0.05	.10	1.20	3.92	6.68	2171	0.35	1.09	18.03	-32.2	1.30	None	None
12/10/2020	17:06	0.05	.10	1.30	3.92	6.68	2171	0.32	1.02	18.02	-32.6	1.30	None	None

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)
16:40	17:06	26	1.30	6.68	2171	0.32	1.02	18.02	-32.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0109-020.0-20201204 Sampler: Dustin Slater

Well ID: WILC-MW0109 Well Type: Monitoring Well

Remark: WILC-MW0109-020.0-20201204

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	4.53
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/4/2020	9:00				4.53									
12/4/2020	9:20	0.05	1.00	1.00	4.55	7.02	1606	0.55	18.6	22.8	-58	0.85	None	None
12/4/2020	9:25	0.05	.25	1.25	4.55	7.00	1601	0.60	16.3	22.9	-62	0.84	None	None
12/4/2020	9:30	0.05	.25	1.50	4.55	7.01	1593	0.66	13.7	22.9	-66	0.84	None	None

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)
9:00	9:30	30	1.50	7.01	1593	0.66	13.7	22.9	-66

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0111-031.5-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0111 Well Type: Monitoring Well

Remark: WILC-MW0111-031.5-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.35
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/10/2020	16:49				2.35									
12/10/2020	17:09	0.05	1.00	1.00	2.39	6.64	1128	0.29	7.03	24.43	-176.9	0.56	None	None
12/10/2020	17:11	0.05	.10	1.10	2.39	6.63	1125	0.30	6.29	24.25	-178.5	0.57	None	None
12/10/2020	17:13	0.05	.10	1.20	2.39	6.63	1124	0.31	6.87	24.24	-181.1	0.57	None	None
12/10/2020	17:15	0.05	.10	1.30	2.39	6.63	1122	0.31	6.13	24.22	-182.3	0.57	None	None

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)
16:49	17:15	26	1.30	6.63	1122	0.31	6.13	24.22	-182.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0116-020.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0116 Well Type: Monitoring Well

Remark: WILC-MW0116-020.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	4.58
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/3/2020	11:31				4.58									
12/3/2020	11:51	0.05	1.00	1.00	4.66	6.92	1151	0.28	5.10	23.76	-157.6	0.59	None	Sulfur
12/3/2020	11:53	0.05	.10	1.10	4.66	6.92	1155	0.27	4.74	23.91	-159.6	0.59	None	Sulfur
12/3/2020	11:55	0.05	.10	1.20	4.66	6.92	1156	0.27	4.11	23.99	-160.2	0.59	None	Sulfur
12/3/2020	11:57	0.05	.10	1.30	4.66	6.92	1156	0.28	3.83	24.03	-161.0	0.59	None	Sulfur

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)
11:31	11:57	26	1.30	6.92	1156	0.28	3.83	24.03	-161.0

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0118-042.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0118 Well Type: Monitoring Well

Remark: WILC-MW0118-042.5-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.2
Top of Screen (ft-BTOR):	40	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	45	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	45		

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
12/3/2020	12:13				5.20									
12/3/2020	12:33	0.05	1.00	1.00	5.22	7.08	2027	0.30	14.7	23.65	-92.1	1.06	None	None
12/3/2020	12:35	0.05	.10	1.10	5.22	7.07	2013	0.31	11.6	23.53	-104.5	1.06	None	None
12/3/2020	12:37	0.05	.10	1.20	5.22	7.08	2023	0.29	10.3	23.54	-106.5	1.06	None	None
12/3/2020	12:39	0.05	.10	1.30	5.22	7.08	2029	0.28	10.1	23.56	-105.3	1.06	None	None

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)
12:13	12:39	26	1.30	7.08	2029	0.28	10.1	23.56	-105.3

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0125-020.0-20201204 Sampler: Dustin Slater

Well ID: WILC-MW0125 Well Type: Monitoring Well

Remark: WILC-MW0125-020.0-20201204

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	4.55
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/4/2020	10:50				4.55									
12/4/2020	11:00	0.05	.50	.50	4.59	7.16	1840	0.25	19.6	23.1	-29	0.97	None	None
12/4/2020	11:05	0.05	.25	.75	4.59	7.15	1841	0.22	17.8	23.2	-28	0.97	None	None
12/4/2020	11:10	0.05	.25	1.00	4.59	7.16	1843	0.21	15.3	23.1	-26	0.97	None	None

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)
10:50	11:10	20	1.00	7.16	1843	0.21	15.3	23.1	-26

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0129-020.0-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0129 Well Type: Monitoring Well

Remark: WILC-MW0129-020.0-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	7.23
Top of Screen (ft-BTOR):	15	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	25	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	25		

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
12/7/2020	10:03				7.23									
12/7/2020	10:11	.0625	.50	.50	7.24	6.90	972	0.33	29.1	20.60	-79.1	0.53	Cloudy	None
12/7/2020	10:14	.0625	.1875	.6875	7.24	6.82	992	0.31	15.1	20.60	-86.5	0.54	Clear	None
12/7/2020	10:17	.0625	.1875	.875	7.24	6.78	993	0.25	10.4	20.60	-92.5	0.54	Clear	None
12/7/2020	10:20	.0625	.1875	1.06	7.24	6.76	997	0.25	7.60	20.60	-93.9	0.54	Clear	None

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)
10:03	10:20	17	1.06	6.76	997	0.25	7.60	20.60	-93.9

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0130-061.0-20201210 Sampler: Dustin Slater

Well ID: WILC-MW0130 Well Type: Monitoring Well

Remark: WILC-MW0130-061.0-20201210

Well Information

Well Diameter (in.):	2	Static Water Level (ft-BTOR):	4.43
Top of Screen (ft-BTOR):	56	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	66	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	66		

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
12/10/2020	14:56				4.43									
12/10/2020	15:16	0.05	1.00	1.00	4.98	7.04	6100	0.18	0.34	23.94	-237.4	3.39	None	None
12/10/2020	15:18	0.05	.10	1.10	4.98	7.04	6125	0.17	0.47	23.99	-239.7	3.40	None	None
12/10/2020	15:20	0.05	.10	1.20	4.98	7.04	6131	0.16	0.44	23.99	-240.2	3.41	None	None
12/10/2020	15:22	0.05	.10	1.30	4.98	7.04	6140	0.16	0.39	24.01	-241.6	3.41	None	None

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)
14:56	15:22	26	1.30	7.04	6140	0.16	0.39	24.01	-241.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0140-028.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0140 Well Type: Monitoring Well

Remark: WILC-MW0140-028.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.9
Top of Screen (ft-BTOR):	23	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	33	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	33		

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
12/3/2020	8:44				5.90									
12/3/2020	8:52	.0625	.50	.50	5.94	6.78	1120	0.39	18.1	25.70	-35.0	0.54	Yellow	None
12/3/2020	8:55	.0625	.1875	.6875	5.94	6.76	1119	0.43	9.10	25.70	-41.9	0.54	Yellow	None
12/3/2020	8:58	.0625	.1875	.875	5.94	6.76	1124	0.53	6.40	26.00	-47.8	0.54	Yellow	None
12/3/2020	9:01	.0625	.1875	1.06	5.94	6.76	1127	0.68	4.20	26.10	-52.7	0.54	Yellow	None

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)
8:44	9:01	17	1.06	6.76	1127	0.68	4.20	26.10	-52.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0141-039.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0141 Well Type: Monitoring Well

Remark: WILC-MW0141-039.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.06
Top of Screen (ft-BTOR):	34	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	44	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	44		

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
12/3/2020	9:30				6.06									
12/3/2020	9:38	.0625	.50	.50	7.84	7.12	1597	0.20	11.1	24.9	-119.7	0.81	Clear	None
12/3/2020	9:41	.0625	.1875	.6875	7.84	7.03	1543	0.20	7.40	24.9	-116.5	0.77	Clear	None
12/3/2020	9:44	.0625	.1875	.875	7.84	7.01	1540	0.21	5.00	25.3	-113.5	0.77	Clear	None
12/3/2020	9:47	.0625	.1875	1.06	7.84	7.00	1537	0.41	3.70	24.9	-113.1	0.76	Clear	None

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)
9:30	9:47	17	1.06	7.00	1537	0.41	3.70	24.9	-113.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0142-013.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0142 Well Type: Monitoring Well

Remark: WILC-MW0142-013.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.12
Top of Screen (ft-BTOR):	8	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	18	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	18		

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
12/3/2020	10:20				6.12									
12/3/2020	10:28	.0625	.50	.50	6.20	6.28	767	0.32	11.2	26.1	-9.4	0.37	Yellow	None
12/3/2020	10:31	.0625	.1875	.6875	6.20	6.20	778	0.32	6.4	26.1	-13.9	0.37	Yellow	None
12/3/2020	10:34	.0625	.1875	.875	6.20	6.18	780	0.32	3.7	26.1	-16.6	0.37	Yellow	None
12/3/2020	10:37	.0625	.1875	1.06	6.20	6.16	784	0.32	1.8	26.2	-20.2	0.37	Yellow	None

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)
10:20	10:37	17	1.06	6.16	784	0.32	1.8	26.2	-20.2

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0143-028.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0143 Well Type: Monitoring Well

Remark: WILC-MW0143-028.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.98
Top of Screen (ft-BTOR):	23	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	33	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	33		

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
12/3/2020	11:09				5.98									
12/3/2020	11:17	.0625	.50	.50	5.99	7.02	1256	0.20	11.8	26.40	-102.7	0.61	Yellow	None
12/3/2020	11:20	.0625	.1875	.6875	5.99	7.03	1256	0.33	7.90	26.60	-106.9	0.61	Yellow	None
12/3/2020	11:23	.0625	.1875	.875	5.99	7.04	1260	0.38	5.50	26.40	-112.4	0.61	Yellow	None
12/3/2020	11:26	.0625	.1875	1.06	5.99	7.04	1265	0.34	3.10	26.60	-115.1	0.61	Yellow	None

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)
11:09	11:26	17	1.06	7.04	1265	0.34	3.10	26.60	-115.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0144-045.0-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0144 Well Type: Monitoring Well

Remark: WILC-MW0144-045.0-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	6.05
Top of Screen (ft-BTOR):	40	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	50	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	50		

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
12/3/2020	11:46				6.05									
12/3/2020	11:54	.0625	.50	.50	6.35	6.70	2124	0.76	10.3	26.60	-67.2	1.05	Clear	None
12/3/2020	11:57	.0625	.1875	.6875	6.40	6.67	2178	0.46	8.90	26.60	-66.5	1.07	Clear	None
12/3/2020	12:00	.0625	.1875	.875	6.45	6.67	2180	0.38	5.10	26.60	-66.3	1.07	Clear	None
12/3/2020	12:03	.0625	.1875	1.06	6.50	6.67	2183	0.28	4.70	26.60	-68.1	1.10	Clear	None

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)
11:46	12:03	17	1.06	6.67	2183	0.28	4.70	26.60	-68.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0145-043.0-20201210 Sampler: Greg Kusel

Well ID: WILC-MW0145 Well Type: Monitoring Well

Remark: WILC-MW0145-043.0-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.63
Top of Screen (ft-BTOR):	38	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	48	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	48		

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
12/10/2020	14:58				5.63									
12/10/2020	15:08	0.05	.50	.50	6.14	7.05	2730	0.44	6.33	24.55	-281.5	1.42	None	Burnt Plastic
12/10/2020	15:10	0.05	.10	.60	6.14	7.04	2729	0.44	4.94	24.51	-282.8	1.42	None	Burnt Plastic
12/10/2020	15:12	0.05	.10	.70	6.14	7.05	2737	0.43	4.85	24.59	-286.7	1.42	None	Burnt Plastic
12/10/2020	15:14	0.05	.10	.80	6.14	7.06	2738	0.43	4.59	24.61	-284.9	1.42	None	Burnt Plastic

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)
14:58	15:14	16	.80	7.06	2738	0.43	4.59	24.61	-284.9

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0146-028.0-20201210 Sampler: Greg Kusel

Well ID: WILC-MW0146 Well Type: Monitoring Well

Remark: WILC-MW0146-028.0-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.84
Top of Screen (ft-BTOR):	23	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	33	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	33		

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
12/10/2020	16:32				5.84									
12/10/2020	16:42	0.05	.50	.50	5.96	8.42	1741	0.16	8.79	24.20	-301.2	0.90	Yellow	Burnt Plastic
12/10/2020	16:44	0.05	.10	.60	5.96	8.44	1751	0.15	8.54	24.22	-313.5	0.90	Yellow	Burnt Plastic
12/10/2020	16:46	0.05	.10	.70	5.96	8.45	1754	0.14	10.5	24.23	-312.2	0.90	Yellow	Burnt Plastic
12/10/2020	16:48	0.05	.10	.80	5.96	8.45	1760	0.15	10.2	24.23	-316.7	0.90	Yellow	Burnt Plastic

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)
16:32	16:48	16	.80	8.45	1760	0.15	10.2	24.23	-316.7

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0147-043.0-20201210 Sampler: Greg Kusel

Well ID: WILC-MW0147 Well Type: Monitoring Well

Remark: WILC-MW0147-043.0-20201210

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	5.9
Top of Screen (ft-BTOR):	38	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	48	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	48		

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
12/10/2020	16:10				5.90									
12/10/2020	16:20	0.05	.50	.50	6.13	7.03	3632	0.39	5.71	23.69	-288.1	1.96	None	Burnt Plastic
12/10/2020	16:22	0.05	.10	.60	6.13	7.03	3642	0.38	7.85	23.74	-288.1	1.96	None	Burnt Plastic
12/10/2020	16:24	0.05	.10	.70	6.13	7.01	3651	0.38	7.54	23.76	-291.7	1.96	None	Burnt Plastic
12/10/2020	16:26	0.05	.10	.80	6.13	7.00	3655	0.39	5.75	23.79	-285.6	1.96	None	Burnt Plastic

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)
16:10	16:26	16	.80	7.00	3655	0.39	5.75	23.79	-285.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0149-025.0-20201207 Sampler: Dustin Slater

Well ID: WILC-MW0149 Well Type: Monitoring Well

Remark: WILC-MW0149-025.0-20201207

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	2.64
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs
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
12/7/2020	9:22				2.64									
12/7/2020	9:42	0.05	1.00	1.00	2.71	7.59	703	0.64	10.1	20.15	14.0	0.60	None	None
12/7/2020	9:44	0.05	.10	1.10	2.71	7.59	705	0.63	9.73	20.19	13.9	0.60	None	None
12/7/2020	9:46	0.05	.10	1.20	2.71	7.59	708	0.61	8.89	20.24	12.7	0.60	None	None
12/7/2020	9:48	0.05	.10	1.30	2.71	7.59	713	0.57	8.36	20.27	12.1	0.60	None	None

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)
9:22	9:48	26	1.30	7.59	713	0.57	8.36	20.27	12.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0152-001.5-20201204 Sampler: Dustin Slater

Well ID: WILC-MW0152 Well Type: Monitoring Well

Remark: WILC-MW0152-001.5-20201204

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	0.57
Top of Screen (ft-BTOR):	5	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	15	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	15		

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
12/4/2020	9:40				0.57									
12/4/2020	9:55	0.05	.75	.75	0.68	6.69	718	0.21	1.82	23.26	-162.3	0.36	None	None
12/4/2020	9:58	0.05	.15	.90	0.68	6.68	714	0.20	1.66	23.22	-157.7	0.36	None	None
12/4/2020	10:01	0.05	.15	1.05	0.68	6.68	713	0.20	1.22	23.20	-156.2	0.36	None	None
12/4/2020	10:04	0.05	.15	1.20	0.68	6.68	713	0.19	1.03	23.20	-155.8	0.36	None	None

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)
9:40	10:04	24	1.20	6.68	713	0.19	1.03	23.20	-155.8

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0153-025.0-20201204 Sampler: Dustin Slater

Well ID: WILC-MW0153 Well Type: Monitoring Well

Remark: WILC-MW0153-025.0-20201204

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	0.54
Top of Screen (ft-BTOR):	20	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	30	Sample Analysis:	Select VOCs
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
12/4/2020	10:12				0.54									
12/4/2020	10:32	0.05	1.00	1.00	0.62	7.21	974	0.24	19.7	22.96	-184.3	0.50	None	None
12/4/2020	10:34	0.05	.10	1.10	0.62	7.21	974	0.19	18.8	22.98	-190.0	0.50	None	None
12/4/2020	10:36	0.05	.10	1.20	0.62	7.21	974	0.17	18.1	22.99	-191.2	0.50	None	None
12/4/2020	10:38	0.05	.10	1.30	0.62	7.20	975	0.16	17.2	23.02	-191.5	0.50	None	None

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)
10:12	10:38	26	1.30	7.20	975	0.16	17.2	23.02	-191.5

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0154-012.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0154 Well Type: Monitoring Well

Remark: WILC-MW0154-012.5-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.48
Top of Screen (ft-BTOR):	5	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	15	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	15		

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
12/3/2020	9:50				1.48									
12/3/2020	10:10	0.05	1.00	1.00	1.49	6.87	715	0.30	13.2	23.49	-138.3	0.36	None	None
12/3/2020	10:12	0.05	.10	1.10	1.49	6.87	713	0.29	10.0	23.61	-140.2	0.36	None	None
12/3/2020	10:14	0.05	.10	1.20	1.49	6.87	713	0.29	8.55	23.65	-140.6	0.36	None	None
12/3/2020	10:16	0.05	.10	1.30	1.49	6.87	713	0.29	7.36	23.67	-141.1	0.36	None	None

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)
9:50	10:16	26	1.30	6.87	713	0.29	7.36	23.67	-141.1

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0155-031.5-20201203 Sampler: Dustin Slater

Well ID: WILC-MW0155 Well Type: Monitoring Well

Remark: WILC-MW0155-031.5-20201203

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.48
Top of Screen (ft-BTOR):	29	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	34	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	34		

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
12/3/2020	10:45				1.48									
12/3/2020	11:05	0.05	1.00	1.00	1.51	7.03	1205	0.35	10.5	23.57	-97.6	0.62	None	None
12/3/2020	11:07	0.05	.10	1.10	1.51	7.02	1208	0.29	8.91	23.69	-86.6	0.62	None	None
12/3/2020	11:09	0.05	.10	1.20	1.51	7.02	1209	0.28	8.33	23.74	-85.2	0.62	None	None
12/3/2020	11:11	0.05	.10	1.30	1.51	7.02	1211	0.28	7.98	23.77	-84.6	0.62	None	None

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)
10:45	11:11	26	1.30	7.02	1211	0.28	7.98	23.77	-84.6

GROUNDWATER SAMPLE LOG SHEET

AECOM

Event: Kennedy Space Center WILC

Site Name: Wilson Corners (SWMU 001)

Project No: 60610905

Sample ID: WILC-MW0156-002.5-20201208 Sampler: Dustin Slater

Well ID: WILC-MW0156 Well Type: Monitoring Well

Remark: WILC-MW0156-002.5-20201208

Well Information

Well Diameter (in.):	1	Static Water Level (ft-BTOR):	1.73
Top of Screen (ft-BTOR):	5	Purge/Sample Method:	Low flow - peristalic
Bottom of Screen (ft-BTOR):	15	Sample Analysis:	Select VOCs
Total Depth of Well (ft-BTOR):	15		

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
12/8/2020	8:49				1.73									
12/8/2020	9:09	0.05	1.00	1.00	1.80	6.53	789	0.47	3.71	14.33	-140.3	0.49	None	None
12/8/2020	9:12	0.05	.10	1.10	1.80	6.53	787	0.50	2.92	14.23	-130.3	0.49	None	None
12/8/2020	9:15	0.05	.10	1.20	1.80	6.53	787	0.49	2.41	14.17	-127.2	0.49	None	None
12/8/2020	9:18	0.05	.10	1.30	1.80	6.53	787	0.49	2.06	14.15	-126.9	0.49	None	None

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)
8:49	9:18	29	1.30	6.53	787	0.49	2.06	14.15	-126.9

DEP-SOP-001/01: Form FD 9000-8 (June 20, 2001)

Field Instrument Calibration Records

INSTRUMENT **HACH 2100P #**Rental **Serial #** 13100 C028809

PARAMETER: ***Turbidity***

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A GELEX 0-10 NTU (+/- 10%)

Standard B GELEX 10-100 NTU (+/- 6.5%)

Standard C GELEX 100-1000 NTU (+/- 5%)

DATE (mm/dd/yy)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
12/3/20	0835	A	20	19.89		NO	INITIAL	DS
"	"	B	100	99.7		"	"	"
"	"	C	800	796		"	"	"
12/4/20	0830	A	20	19.92		NO	ICV	DS
"	"	B	100	98.9		"	"	"
"	"	C	800	793		"	"	"
12/7/20	0850	A	20	19.92		NO	CCV	DS
↓	↓	B	100	97.9		"	↓	↓
		C	800	795		"		
12/8/20	0815	A	20	19.88		NO	CCV	DS
↓	↓	B	100	98.3		"	↓	↓
		C	800	796		"		
12/8/20	1200	A	20	19.91		NO	CCV	DS
↓	↓	B	100	98.6		"	↓	↓
		C	800	793		"		
		A				NO		
		B				"		
		C				"		

Boldly "X" this box if there is qualified data on this page.

Form FD9000-8 **CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)** *11-10-05*

Project/Site: KSC Wilson's Corner Date: 12/3/20 - 12/4/20 Meter # Rental 07H100371

Temperature (Quarterly) *For Date of Last Temperature Verification see* *in log book*

Dissolved Oxygen	**DEP SOP FT 1500**	Initials	Date	Time	Probe Charge	Probe Gain	mg/L	Temp °C	% DO	Saturation mg/L (from chart)	Pass or Fail
									Acceptance Criteria:	*+/-0.3mg/l*	
(CAL) ICV CCV		BS	12/3/20	0838			10.80	11.9°	100	10.802	P F
CAL (ICV) CCV		DS	12/4/20	0832			8.30	16.6°	100.2	8.746	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

Specific Conductance	**DEP SOP FT 1200**	Initials	Date	Time	Standard µmhos/cm	Exp. Date	Lot #	Bottle #	Cell Constant	Reading µmhos/cm	Pass or Fail
										Acceptance Criteria:	*+/- 5%*
(CAL) ICV CCV		DS	12/3/20	0838	1413	9/21	#G 11054			1413	P F
CAL (ICV) CCV		BS	12/4/20	0832	1413	"	"			1410	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

pH	**DEP SOP FT 1100**	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
										Acceptance Criteria:	*+/- 0.2 SU*
(CAL) ICV CCV		BS	12/3/20	0838	7.00	4/22	#GFS92			6.99	P F
(CAL) ICV CCV		↓	↓	↓	4.00	6/22	#GF965			4.00	P F
(CAL) ICV CCV		↓	↓	↓	10.00	5/22	#GE641			10.00	P F
CAL (ICV) CCV		DS	12/4/20	0832	7.00	↓	↓			7.02	P F
CAL (ICV) CCV		↓	↓	↓	4.00					4.03	P F
CAL (ICV) CCV		↓	↓	↓	10.00	↓	↓			10.06	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

Maintenance: Weekly pH Slope: _____ Specific Conductance Probe Cleaned? Yes No Dissolved Oxygen Membrane Changed: Yes No

Notes:

DEP (W) (C)

DS	12/3/20	0838	238	7/24	#GJ200	238	P
BS	12/4/20	0832	238	↓	↓	229	P

Perform only in Calibrate Mode: **CAL** - Calibrate -
Perform only in Run Mode: **ICV** - Initial Calibration Verification
Perform only in Run Mode: **CCV** - Continuing Calibration Verification

Boldly "X" this box if there is qualified data on this page.

Form FD9000-8 **CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)** 11-10-05

Project/Site: KSC - WILC Date: 12/7/20 & 12/8/20 Meter # Same

Temperature (Quarterly) *For Date of Last Temperature Verification see* _____ *in log book*

Dissolved Oxygen	**DEP SOP FT 1500**	Initials	Date	Time	Probe Charge	Probe Gain	mg/L	Temp °C	% DO	Saturation mg/L (from chart)	Pass or Fail
										Acceptance Criteria: +/- 0.3mg/l	
CAL ICV CCV		DS	12/7/20	0853			9.78	15.9°	100%	9.89	P F
CAL ICV CCV		↓	12/8/20	0817			12.55	6.10	99%	12.416	P F
CAL ICV CCV		↓	↓	1202			9.58	17.2°	100%	9.625	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

Specific Conductance	**DEP SOP FT 1200**	Initials	Date	Time	Standard µmhos/cm	Exp. Date	Lot #	Bottle #	Cell Constant	Reading µmhos/cm	Pass or Fail
										Acceptance Criteria: +/- 5%	
~~CAL~~ ICV CCV		DS	12/7/20	0853	1413	Same as first page	↓			1411	P F
CAL ICV CCV		↓	12/8/20	0817	1413	↓				1407	P F
CAL ICV CCV		↓	↓	1202	1413	↓				1402	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

pH	**DEP SOP FT 1100**	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
										Acceptance Criteria: +/- 0.2 SU	
CAL ICV CCV		DS	12/7/20	0853	7.00	Same as first page				6.93	P F
CAL ICV CCV		↓	↓	↓	4.00	↓				4.02	P F
CAL ICV CCV		↓	↓	↓	10.00	↓				10.03	P F
CAL ICV CCV		DS	12/8/20	0817	7.00	↓				6.97	P F
CAL ICV CCV		↓	↓	↓	4.00	↓				4.05	P F
CAL ICV CCV		↓	↓	↓	10.00	↓				10.07	P F
CAL ICV CCV		↓	↓	1202	7.00	↓				7.06	P F
CAL ICV CCV		↓	↓	↓	4.00	↓				4.05	P F
CAL ICV CCV		↓	↓	↓	10.00	↓				10.11	P F

Maintenance: Weekly pH Slope: _____ Specific Conductance Probe Cleaned? Yes No Dissolved Oxygen Membrane Changed: Yes No

Notes:

0849 CCV		DS	12/7/20	0853	238	Same as first page				235	P F
↓		↓	12/8/20	0817	238	↓				233	P F
↓		↓	↓	1202	238	↓				229	P F

Perform only in Calibrate Mode: **CAL** - Calibrate -
Perform only in Run Mode: **ICV** - Initial Calibration Verification
Perform only in Run Mode: **CCV** - Continuing Calibration Verification

NOTE: THIS LOG DOES NOT SUBSTITUTE FIELD BOOK LOG ENTRIES

AECOM

EQUIPMENT CALIBRATION / VERIFICATION LOG

DATE: 12-03-20 (MM/DD) PERSONNEL: Raven Bulan (Name and Title) [signature] (Signature)

PROJECT NAME: Wilson Corners PROJECT #: _____ Task: _____

OVA/FID/PID/LEL EQUIPMENT (Specify): _____ Serial Number: _____

(e.g. PortaFID, PhotoVAC FID, QRAE, etc.)

	Methane (use for PortaFID or DP-4)	Isobutylene (use for PhotoVAC 2020)	LEL Meter Bump	LEL Meter Calibrated Y/N
STANDARDS (if blank, specify):	100 ppm	100 ppm	2.5% Methane (50% LEL)	Multiple Concentrations
INITIAL READING				
FINAL READING				
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	

DATE/TIME COMPLETE (Pre-screening): 12-03-20 (MM/DD/YY HH:MM)

DATE/TIME COMPLETE (Post screening): 12-03-20 (MM/DD/YY HH:MM)

GROUNDWATER PRE-SAMPLING EVENT EQUIPMENT

Meter 1 Mode: YSI Serial Number: 19E102848

Meter 2 Mode: Lamotte Serial Number: HI98703

Meter 3 Mode: _____ Serial Number: _____

PRE-SAMPLING RESULTS Time:	pH (std units)			DO* (%)	Conductivity (umho/cm)	Turbidity (NTUs minimum of two standards)			
STANDARDS (if blank, specify):	4.00	7.00	10.00	100% in air	1409.00	10.0	1.0		
INITIAL READING	4.23	7.19	10.38	105	1420	13.70	3.10		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	21.73	21.41	22.11	23.62	22.76	—	—		
STANDARD LOT#	J025-22	J038-17	7905101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

POST-SAMPLING RESULTS Time:	pH (std units)			DO* (%)	Conductivity (umho/cm)	Turbidity (NTUs minimum of two standards)			
STANDARDS (if blank, specify):	4.00	7.00	10.00	100% in air	1409.00	10.0	1.0		
INITIAL READING	4.01	7.00	10.00	100	1409	10.0	1.0		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	23.04	22.87	23.39	24.20	23.67	—	—		
STANDARD LOT#	J025-22	J038-17	7905101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

* [illegible]

Verification Acceptance Criteria: pH = [illegible]
Conductivity = [illegible]
[illegible]
[illegible]

[illegible]

NOTE: THIS LOG DOES NOT SUBSTITUTE FIELD BOOK LOG ENTRIES

AECOM

EQUIPMENT CALIBRATION / VERIFICATION LOG

DATE: 12-04-20 (MM/DD/YY) PERSONNEL: Raven Bulan (NAME/PRINT) [signature] (SIGNATURE)

PROJECT NAME: Wilson Corners PROJECT #: _____ Task: _____

OVA/FID/PID/LEL EQUIPMENT (Specify): _____ Serial Number: _____

(e.g. PortaFID, Photovac 2020, RAE, etc.)

	Methane (use for PortaFID or DP-4)	Isobutylene (use for PhotoVAC 2020)	LEL Meter Bump	LEL Meter Calibrated Y/N
STANDARDS (If blank, specify):	100 ppm	100 ppm	2.5% Methane (50% LEL)	Multiple Concentrations
INITIAL READING				
FINAL READING				
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	

DATE/TIME COMPLETE (Pre-screening): 12-04-20 (MM/DD/YY-HH:MM) DATE/TIME COMPLETE (Post-screening): 12-04-20 (MM/DD/YY-HH:MM)

GROUNDWATER PRE-SAMPLING EVENT EQUIPMENT

Meter 1 Mode: YSI Serial Number: 19E102848

Meter 2 Mode: Lamotte Serial Number: HI98703

Meter 3 Mode: _____ Serial Number: _____

PRE-SAMPLING RESULTS Time:	pH (std units)			D.O.* (%)	Conductivity (umho/cm)	Turbidity (NTUs, minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% in air	1409.00	10.0	1.0		
INITIAL READING	4.04	7.04	10.10	102	1413	10.10	1.00		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	19.62	19.11	19.54	21.00	20.35	—	—		
STANDARD LOT#	J025-22	J038-17	7905101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

POST-SAMPLING RESULTS Time:	pH (std units)			D.O.* (%)	Conductivity (umho/cm)	Turbidity (NTUs, minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% in air	1409.00	10.0	1.0		
INITIAL READING	3.99	7.01	10.00	100	1409	10.0	1.0		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	22.70	23.10	22.64	24.17	22.22	—	—		
STANDARD LOT#	J025-22	J038-17	7905101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

* Amongst [illegible]

Verification Acceptance Criteria: pH = [illegible] Conductivity = [illegible] [illegible]

[illegible]

NOTE: THIS LOG DOES NOT SUBSTITUTE FIELD BOOK LOG ENTRIES

AECOM

EQUIPMENT CALIBRATION / VERIFICATION LOG

DATE: 12.07 PERSONNEL: Raven Bulan

PROJECT NAME: Wilson Corners PROJECT #: Task:

OVA/FID/PID/LEL EQUIPMENT (Specify): Serial Number:

	Methane (use for PortaFID or OP-4)	Isobutylene (use for PhotoVAC 2020)	LEL Meter	
			Bump	Calibrated Y / N
STANDARDS (If blank, specify):	100 ppm	100 ppm	2.5% Methane /50% LEL	Multiple Concentrations
INITIAL READING				
FINAL READING				
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	

DATE/TIME COMPLETE Pre-screening: 12-07-20 9:30 (MM-DD-YY HH:MM)

DATE/TIME COMPLETE Post-screening: 12-07-20 14:30 (MM-DD-YY HH:MM)

GROUNDWATER PRE-SAMPLING EVENT EQUIPMENT

Meter 1 Model: YSI Serial Number: 19G102848

Meter 2 Model: LaMotte Serial Number: HE98703

Meter 3 Model: Serial Number:

PRE-SAMPLING RESULTS	pH			D.O.*	Conductivity	Turbidity			
Time:	std units			%	(umhos/cm)	NTUs (minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% mark	1409.00	10.0	1.0		
INITIAL READING	4.12	7.08	10.13	109	1423	12.50	3.70		
FINAL READING	4.00	7.00	10.00	100	1401	10	1.0		
TEMPERATURE	16.70	15.97	16.22	17.42	16.53	—	—		
STANDARD LOT#	J025-22	J038-17	200101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

POST-SAMPLING RESULTS	pH			D.O.*	Conductivity	Turbidity			
Time:	std units			%	(umhos/cm)	NTUs (minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% mark	1409.00	10.0	1.0		
INITIAL READING	4.01	7.00	10.03	100	1404	10.0	1.0		
FINAL READING	4.00	7.00	10.00	100	1406	10.0	1.0		
TEMPERATURE	21.62	21.11	21.49	22.84	21.45	—	—		
STANDARD LOT#	J025-22	J038-17	200101	—	J058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

* [illegible]

Verification acceptance criteria: pH [illegible]
Conductivity [illegible]
[illegible]
Turbidity [illegible]

[illegible]

NOTE: THIS LOG DOES NOT SUBSTITUTE FIELD BOOK LOG ENTRIES

AECOM

EQUIPMENT CALIBRATION / VERIFICATION LOG

DATE: 12-08-20 PERSONNEL: Raven Bolan

PROJECT NAME: Wilson Corners PROJECT #: _____ Task: _____

OVA/FID/PID/LEL EQUIPMENT (Specify): _____ Serial Number: _____

	Methane (use for PortaFID or DP4)	Isobutylene (use for PhotoVAC 2020)	LEL Meter	
			Bump	Calibrated Y / N
STANDARDS (If blank, specify):	100 ppm	100 ppm	2.5% Methane / 50% LEL	Multiple Concentrations
INITIAL READING				
FINAL READING				
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	

DATE/TIME COMPLETE *Pre screening*: 12-08-20 9:10

DATE/TIME COMPLETE *Post screening*: 12-08-20 13:00

GROUNDWATER PRE-SAMPLING EVENT EQUIPMENT

Meter 1 Mode: YSI Serial Number: 19E102848

Meter 2 Mode: LaMotte Serial Number: HE98703

Meter 3 Mode: _____ Serial Number: _____

PRE-SAMPLING RESULTS Time:	pH (std units)			D.O.* (%)	Conductivity (umhos/cm)	Turbidity (NTUs minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% mark	1409.00	10.0	1.0		
INITIAL READING	3.99	7.02	10.05	100	1410	10.0	1.0		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	11.37	11.41	11.63	13.60	12.19	—	—		
STANDARD LOT#	3025-22	3038-17	20K101	—	3058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

POST-SAMPLING RESULTS Time:	pH (std units)			D.O.* (%)	Conductivity (umhos/cm)	Turbidity (NTUs minimum of two standards)			
STANDARDS (If blank, specify):	4.00	7.00	10.00	100% mark	1409.00	10.0	1.0		
INITIAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
FINAL READING	4.00	7.00	10.00	100	1409	10.0	1.0		
TEMPERATURE	18.76	18.39	18.41	19.24	18.92	—	—		
STANDARD LOT#	3025-22	3038-17	20K101	—	3058-20	—	—		
STANDAR EXP. DATE (MM/YY)	2-21	2-21	5-21	—	1-21	—	—		
CALIBRATED / VERIFIED	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER	CAL / VER

* [illegible]

Verification acceptance criteria: [illegible]

Field Instrument Calibration Records

Site - Event: NASA KSC - WILC

Standard	Manufacturer	Lot	Expires
pH 7	YS ENVIRONMENTAL	OGF592	JUN 22
pH 4	↓	OGF965	JUN 22
pH 10		OGE647	MAY 22
COND 1413		OGI1054	SEP 21
ORP	↓	OGJ200	JUL 21

Meter	S/N
YSI 556MPS	08K100597
HACH 2100Q	15040C040469

DATE (mm/dd/yy)	TIME (hr:mm)	STD	STD VALUE VALUE	INSTRUMENT RESPONSE	PASS/FAIL (Circle)	CALIBRATED (YES, NO)	SAMPLER INITIALS
12/03/20	0845	pH	7	7.02	(P) F	Y ↓	DT
		pH	4	4.03	(P) F		
		pH	10	9.97	(P) F		
		COND	1413	1415	(P) F		
		ORP	238	240	(P) F		
		TURB	10	10.8	(P) F	NO	
		TURB	100	101	(P) F		
		TURB	800	809	(P) F		
12/04/20	0830	pH	7	6.98	(P) F	Y ↓	DT
		pH	4	4.01	(P) F		
		pH	10	10.02	(P) F		
		COND	1413	1413	(P) F		
		ORP	238	239	(P) F		
		TURB	10	10.2	(P) F	NO	
		TURB	100	99	(P) F		
		TURB	800	805	(P) F		
		pH	7		P F		
		pH	4		P F		
		pH	10		P F		
		COND	1413		P F		
		ORP			P F		
		TURB			P F	NO	
		TURB			P F		
		TURB			P F		
		pH	7		P F		
		pH	4		P F		
		pH	10		P F		
		COND	1413		P F		
		ORP			P F		
		TURB			P F	NO	
		TURB			P F		
		TURB			P F		
		pH	7		P F		
		pH	4		P F		
		pH	10		P F		
		COND	1413		P F		
		ORP			P F		
		TURB			P F	NO	
		TURB			P F		
		TURB			P F		
		pH	7		P F		
		pH	4		P F		
		pH	10		P F		
		COND	1413		P F		
		ORP			P F		
		TURB			P F	NO	
		TURB			P F		
		TURB			P F		

US Environmental Rental Corporation

(888) 550-8100 www.usenvironmental.com

166 Riverview Ave, Waltham, MA 02453 (781) 899-1560
91 Prestige Park Circle, Suite 5, East Hartford, CT 06108 (860) 289-8700
5C South Gold Dr, Hamilton, NJ 08691 (609) 570-8555
1202 Tech Blvd., Suite 108, Tampa, FL 33619 (813) 628-4200
781 Industrial Dr, Elmhurst, IL 60126 (630) 501-1847

Order No.: 53784
Date: 12/1/2020
Technician: AV

Company: Aecom
Contact: Greg Kusel
Phone #: #N/A

Packing List

Item	Serial Number	Tech	QC
556	0	✓	
Handheld Display	08K100597	✓	

Item	Tech	QC	Item	Tech	QC
Cable 4M	✓		AC Adaptor		
Flow Cell	✓		Stand		
Barb Kit	✓		D.O Kit	✓	
Storage / Cal Cup	✓		Calibration Kit	✓	
Sensor Guard	✓				
Manual					
Sonde Cap	✓				
Software					
Extra Batteries	✓				
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

556			0	
Parameter	**Accuracy**	**Before**	**After**	**Lot #**
Conductivy 1413 µs/cm	(+/-.5%)	1341	1413	190618D
pH 7 Buffer	(+/- .2)	7.15	7.00	190618B
pH mV for 7 Buffer	(0 +/- 50)		**-8.7**	
pH 4 Buffer	(+/- .2)	4.14	4.00	190618C
pH mV for 4 Buffer	(180 +/- 50)		**158.9**	
pH 10 Buffer	(+/- .2)	10.19	10.00	200407C
pH mV for 10 Buffer	(-180 +/- 50)		**-187.2**	
ORP mV, 237.5	(+/- 20 mV)	227.6	238.00	9GB139
DO 100% Sat	(+/- 2%)	100.6%	100.8%	
0% DO Check	(+/- 2%)		2.00	
Turbidity 0 NTU	(+/- 5%)			
Turbidity 126 NTU	(+/- 5%)			
Lab Conditions during calibration				

All calibration standards are NIST traceable. Calibration must be performed according to manufacturer's specifications.

This document certifies that US Environmental Rental Corporation has provided this rental equipment and all accessories in good working order. It is the renter's responsibility to: a) review all included items upon receipt, b) verify that all items are in acceptable condition and function properly, and c) contact a US Environmental associate immediately if any item is missing, damaged, and/or not functioning properly. Any delay in notifying US Environmental will be considered as the Renter taking responsibility for such missing, damaged, and/or malfunctioning item.

Missing, damaged, and/or malfunctioning equipment and accessories will result in additional fees.

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1202 Tech Blvd., Suite 108, Tampa, FL 33619 (813) 628-4200
781 Industrial Dr, Elmhurst, IL 60126 (630) 501-1847

Order No.: 53784
Date: 12/1/2020
Technician: AV

YSI

Company: Aecom
Contact: Greg Kusel
Phone #: #N/A

Packing List

Item	Serial Number	Tech	QC
556	0	✓	
Handheld Display	15D101638	✓	

Item	Tech	QC	Item	Tech	QC
Cable 4M	✓		AC Adaptor		
Flow Cell	✓		Stand		
Barb Kit	✓		D.O Kit	✓	
Storage / Cal Cup	✓		Calibration Kit	✓	
Sensor Guard	✓				
Manual					
Sonde Cap	✓				
Software					
Extra Batteries	✓				
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

556			0	
Parameter	**Accuracy**	**Before**	**After**	**Lot #**
Conductivy 1413 µs/cm	(+/-.5%)	1339	1413	190618D
pH 7 Buffer	(+/- .2)	7.39	7.00	190618B
pH mV for 7 Buffer	(0 +/- 50)		**-23.0**	
pH 4 Buffer	(+/- .2)	4.29	4.00	190618C
pH mV for 4 Buffer	(180 +/- 50)		**130.9**	
pH 10 Buffer	(+/- .2)	9.88	10.00	200407C
pH mV for 10 Buffer	(-180 +/- 50)		**-171.6**	
ORP mV, 237.5	(+/- 20 mV)	203.8	238.00	9GB139
DO 100% Sat	(+/- 2%)	94.8%	101.2%	
0% DO Check	(+/- 2%)		0.60	
Turbidity 0 NTU	(+/- 5%)			
Turbidity 126 NTU	(+/- 5%)			
Lab Conditions during calibration				

All calibration standards are NIST traceable. Calibration must be performed according to manufacturer's specifications.

This document certifies that US Environmental Rental Corporation has provided this rental equipment and all accessories in good working order. It is the renter's responsibility to: a) review all included items upon receipt, b) verify that all items are in acceptable condition and function properly, and c) contact a US Environmental associate immediately if any item is missing, damaged, and/or not functioning properly. Any delay in notifying US Environmental will be considered as the Renter taking responsibility for such missing, damaged, and/or malfunctioning item.

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781 Industrial Dr, Elmhurst, IL 60126 (630) 501-1847

Order No.: 53784
Date: 12/1/2020
Technician: AV

YSI

Company: Aecom
Contact: Greg Kusel
Phone #: #N/A

Packing List

Item	Serial Number	Tech	QC
556	0	✓	
Handheld Display	07H100371	✓	

Item	Tech	QC	Item	Tech	QC
Cable 4M	✓		AC Adaptor		
Flow Cell	✓		Stand		
Barb Kit	✓		D.O Kit	✓	
Storage / Cal Cup	✓		Calibration Kit	✓	
Sensor Guard	✓				
Manual					
Sonde Cap	✓				
Software					
Extra Batteries	✓				
Display Comm. Cable					
Sonde Comm. Cable					

Calibration Report

556			0	
Parameter	**Accuracy**	**Before**	**After**	**Lot #**
Conductivy 1413 µs/cm	(+/-.5%)	1368	1413	190618D
pH 7 Buffer	(+/- .2)	7.06	7.00	190618B
pH mV for 7 Buffer	(0 +/- 50)		**-3.6**	
pH 4 Buffer	(+/- .2)	4.06	4.00	190618C
pH mV for 4 Buffer	(180 +/- 50)		**168.7**	
pH 10 Buffer	(+/- .2)	9.89	10.00	200407C
pH mV for 10 Buffer	(-180 +/- 50)		**-169.9**	
ORP mV, 237.5	(+/- 20 mV)	223.6	238.00	9GB139
DO 100% Sat	(+/- 2%)	100.8%	101.6%	
0% DO Check	(+/- 2%)		2.00	
Turbidity 0 NTU	(+/- 5%)			
Turbidity 126 NTU	(+/- 5%)			
Lab Conditions during calibration				

All calibration standards are NIST traceable. Calibration must be performed according to manufacturer's specifications.

This document certifies that US Environmental Rental Corporation has provided this rental equipment and all accessories in good working order. It is the renter's responsibility to: a) review all included items upon receipt, b) verify that all items are in acceptable condition and function properly, and c) contact a US Environmental associate immediately if any item is missing, damaged, and/or not functioning properly. Any delay in notifying US Environmental will be considered as the Renter taking responsibility for such missing, damaged, and/or malfunctioning item.

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U.S. Environmental

Rental Corporation

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1202 Tech Blvd. Suite 108 Tampa, FL 813-628-4200
www.usenvironmentalrental.com

12/1/20

HACH 2100Q

Date [redacted]

Res #	53784	***Company***	Aecom
Tech	VL	***Contact***	Greg Kusel
2100QS/N#	13100C028809	***Phone #***	407-483-6552

Calibration:

After Reading ***10NTU*** 8.16 ***20NTU*** 22.60 ***100NTU*** 86.10 ***800NTU*** 803.00

Packing List

2100Q Meter	XXX	*cloth rag*	XXX
AC Power Cord		*silicone*	
<10 NTU	XXX	*gelex standards*	
20NTU	XXX		
100NTU	XXX		
800NTU	XXX		
AA Batteries	XXX		
Manual	XXX		
(2) Sample Vials	XXX		

Please be sure to verify receipt of all accessories. Missing accessories will be billed at list price plus shipping
If unit has any problems customer must notify U.S. Environmental with in 24 Hours of receipt of unit.
Please call our technical support department at 813-628-4200 ** many problems can be solved in the field

Additional Comments:

U.S. Environmental

Rental Corporation

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1202 Tech Blvd. Suite 108 Tampa, FL 813-628-4200
www.usenvironmentalrental.com

HACH 2100Q

Date 12/1/20 [redacted]

Res #	53784	***Company***	Aecom
Tech	VL	***Contact***	Greg Kusel
2100QS/N#	15040C040469	***Phone #***	407-483-6552

Calibration:

After Reading	***10NTU***	10.10	***20NTU***	19.70	***100NTU***	108.00	***800NTU***	803.00

Packing List

2100Q Meter	XXX	*cloth rag*	XXX
AC Power Cord		*silicone*	
<10 NTU	XXX	*gelex standards*	
20NTU	XXX		
100NTU	XXX		
800NTU	XXX		
AA Batteries	XXX		
Manual	XXX		
(2) Sample Vials	XXX		

Please be sure to verify receipt of all accessories. Missing accessories will be billed at list price plus shipping
If unit has any problems customer must notify U.S. Environmental with in 24 Hours of receipt of unit.
Please call our technical support department at 813-628-4200 ** many problems can be solved in the field

Additional Comments:

U.S. Environmental
Rental Corporation

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1202 Tech Blvd. Suite 108 Tampa, FL 813-628-4200
www.usenvironmentalrental.com

GeoTech Turbidity Meter

Date 12/1/20 [redacted]

Res#	53704	***Company***	Aecom
Tech	VL	***Contact***	Greg kusel
2100QS/N#	17091446	***Phone #***	407.483.6552

Calibration:

After Reading	***0.02NTU***	0.02	***20NTU***	19.30	***100NTU***	100.00	***800NTU***	808.00

Packing List

Turb. Meter	XXX	*Microfiber Cloth*	XXX
AC Power Cord	N/A	*Data Cable*	
<0.1 NTU	XXX	*gelex standards*	N/A
20NTU	XXX		
100NTU	XXX		
800NTU	XXX		
AA Batteries	XXX		
Manual	XXX		
(2) Sample Vials	XXX		

Please be sure to verify receipt of all accessories. Missing accessories will be billed at list price plus shipping
If unit has any problems customer must notify U.S. Environmental with in 24 Hours of receipt of unit.
Please call our technical support department at 813-628-4200 ** many problems can be solved in the field

Additional Comments:

APPENDIX C

LABORATORY ANALYTICAL REPORTS
(PROVIDED IN THE ELECTRONIC COPY ONLY)

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, INC.

NASA KSC, Wilson Corners

60613955

SGS Job Number: FA71077

Sampling Dates: 12/18/19 - 12/19/19

Report to:

AECOM
150 N Orange Ave Suite 200
Orlando, FL 32801
linnea.king@aecom.com; megan.garcia@aecom.com;
jennifer.chastain@aecom.com; jim.refermat@aecom.com
ATTN: Krista Sommerfeldt

Total number of pages in report: **89**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

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SGS North America Inc.

Sample Summary

AECOM, INC.

Job No: FA71077

NASA KSC, Wilson Corners
Project No: 60613955

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA71077-1	12/19/19	09:40	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0027-012.5-20191219
FA71077-2	12/19/19	10:40	KSL	12/19/19	AQ	Ground Water	WILC-MW0064-007.0-20191219
FA71077-3	12/19/19	08:25	KSL	12/19/19	AQ	Ground Water	WILC-MW0074-007.0-20191219
FA71077-4	12/19/19	09:00	KSL	12/19/19	AQ	Ground Water	WILC-MW0091-007.0-20191219
FA71077-5	12/19/19	09:58	KSL	12/19/19	AQ	Ground Water	WILC-MW0095-007.0-20191219
FA71077-6	12/19/19	08:36	KSL	12/19/19	AQ	Ground Water	WILC-MW0154-012.5-20191219
FA71077-7	12/19/19	09:05	KSL	12/19/19	AQ	Ground Water	WILC-MW0089-020.0-20191219
FA71077-8	12/19/19	10:02	KSL	12/19/19	AQ	Ground Water	WILC-MW0096-020.0-20191219
FA71077-9	12/19/19	09:55	KSL	12/19/19	AQ	Ground Water	WILC-MW0109-020.0-20191219
FA71077-10	12/19/19	08:32	KSL	12/19/19	AQ	Ground Water	WILC-MW0116-020.0-20191219
FA71077-11	12/19/19	10:14	KSL	12/19/19	AQ	Ground Water	WILC-MW0125-020.0-20191219
FA71077-12	12/18/19	13:25	KSL	12/19/19	AQ	Ground Water	WILC-MW0142-013.0-20191218
FA71077-13	12/19/19	09:45	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0017-031.5-20191219

Sample Summary
(continued)

AECOM, INC.

Job No: FA71077

NASA KSC, Wilson Corners
Project No: 60613955

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA71077-14	12/19/19	10:27	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0019-031.5-20191219
FA71077-15	12/19/19	09:50	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0020-031.5-20191219
FA71077-16	12/19/19	10:18	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0022-031.5-20191219
FA71077-17	12/19/19	11:25	KSL	12/19/19	AQ	Ground Water	WILC-MW0062-031.5-20191219
FA71077-18	12/19/19	10:43	KSL	12/19/19	AQ	Ground Water	WILC-MW0065-031.5-20191219
FA71077-19	12/19/19	10:35	KSL	12/19/19	AQ	Ground Water	WILC-MW0080-031.5-20191219
FA71077-20	12/19/19	09:10	KSL	12/19/19	AQ	Ground Water	WILC-MW0090-031.5-20191219
FA71077-21	12/19/19	10:05	KSL	12/19/19	AQ	Ground Water	WILC-MW0097-031.5-20191219
FA71077-22	12/19/19	08:50	KSL	12/19/19	AQ	Ground Water	WILC-MW0111-031.5-20191219
FA71077-23	12/18/19	13:05	KSL	12/19/19	AQ	Ground Water	WILC-MW0140-028.0-20191218
FA71077-24	12/18/19	13:35	KSL	12/19/19	AQ	Ground Water	WILC-MW0143-028.0-20191218
FA71077-25	12/19/19	11:15	KSL	12/19/19	AQ	Ground Water	WILC-MW0146-028.0-20191219
FA71077-26	12/19/19	08:40	KSL	12/19/19	AQ	Ground Water	WILC-MW0155-031.5-20191219

Sample Summary
(continued)

AECOM, INC.

Job No: FA71077

NASA KSC, Wilson Corners
Project No: 60613955

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA71077-27	12/19/19	10:54	KSL	12/19/19	AQ	Ground Water	WILCNPSH-MW0039-042.5-20191219
FA71077-28	12/19/19	11:00	KSL	12/19/19	AQ	Ground Water	WILC-MW0046D-042.5-20191219
FA71077-29	12/19/19	10:50	KSL	12/19/19	AQ	Ground Water	WILC-MW0068-042.5-20191219
FA71077-30	12/19/19	08:44	KSL	12/19/19	AQ	Ground Water	WILC-MW0118-042.5-20191219
FA71077-31	12/18/19	13:15	KSL	12/19/19	AQ	Ground Water	WILC-MW0141-039.0-20191218
FA71077-32	12/18/19	13:40	KSL	12/19/19	AQ	Ground Water	WILC-MW0144-042.5-20191218
FA71077-33	12/18/19	13:45	KSL	12/19/19	AQ	Ground Water	WILC-MW0145-043.0-20191218
FA71077-34	12/19/19	11:20	KSL	12/19/19	AQ	Ground Water	WILC-MW0147-043.0-20191219
FA71077-35	12/19/19	11:05	KSL	12/19/19	AQ	Ground Water	WILC-MW0078-067.5-20191219
FA71077-36	12/19/19	11:10	KSL	12/19/19	AQ	Ground Water	WILC-MW0130-061.0-20191219
FA71077-37	12/18/19	14:18	KSL	12/19/19	AQ	Ground Water	WILC-MW0142-013.0-20191218-LF
FA71077-38	12/18/19	14:40	KSL	12/19/19	AQ	Ground Water	WILC-MW0143-028.0-20191218-LF
FA71077-39	12/18/19	15:02	KSL	12/19/19	AQ	Ground Water	WILC-MW0144-042.5-20191218-LF

Sample Summary
(continued)

AECOM, INC.

Job No: FA71077

NASA KSC, Wilson Corners
Project No: 60613955

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
FA71077-40	12/18/19	14:30	KSL	12/19/19	AQ	Ground Water	WILC-MW0145-043.0-20191218-LF
FA71077-41	12/19/19	00:00	KSL	12/19/19	AQ	Trip Blank Water	WILC-TB-20191219-01
FA71077-42	12/19/19	13:15	KSL	12/19/19	AQ	Water	WILC-IDW-20191219-01

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FA71077

Site: NASA KSC, Wilson Corners **Report Date** 1/8/2020 11:00:56

41 Samples, 1 Trip Blank were collected between 12/18/2019 and 12/19/2019 and were received at SGS North America Inc - Orlando on 12/19/2019 properly preserved, at 1.5 Deg. C and intact. These Samples received an SGS Orlando job number of FA71077. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** V5E909

All samples were analyzed within the recommended method holding time.

Sample(s) FA71077-32MS, FA71077-32MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Freon 113, cis-1,2-Dichloroethylene, Vinyl Chloride are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for cis-1,2-Dichloroethylene, Vinyl Chloride are outside control limits. Probable cause is due to matrix interference.

FA71077-37: Sample was treated with an anti-foaming agent.

FA71077-38: Sample was treated with an anti-foaming agent.

Matrix: AQ **Batch ID:** V5E913

Sample(s) FA71099-11MS, FA71099-11MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

The following samples were rerun outside of holding time for method SW846 8260B: FA71077-33, FA71077-40.

FA71077-33: Sample re-analyzed beyond hold time; reported results are considered minimum values.

FA71077-40: Sample re-analyzed beyond hold time; reported results are considered minimum values. Confirmation run.

Matrix: AQ **Batch ID:** V5E915

All method blanks for this batch meet method specific criteria.

Sample(s) FA71218-4MS, FA71218-4MSD were used as the QC samples indicated.

The following samples were rerun outside of holding time for method SW846 8260B: FA71077-32, FA71077-39.

FA71077-32: Sample re-analyzed beyond hold time; reported results are considered minimum values.

FA71077-39: Sample re-analyzed beyond hold time; reported results are considered minimum values.

Matrix: AQ **Batch ID:** VP2638

All samples were analyzed within the recommended method holding time.

Sample(s) FA71077-1MS, FA71077-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Duplicate Recovery(s) for cis-1,2-Dichloroethylene, Vinyl Chloride are outside control limits.

Probable cause is due to matrix interference.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** VY1948

All method blanks for this batch meet method specific criteria.

Sample(s) FA71320-1MS, FA71320-1MSD were used as the QC samples indicated.

The following samples were rerun outside of holding time for method SW846 8260B: FA71077-1, FA71077-12, FA71077-17, FA71077-42.

FA71077-1: Sample re-analyzed beyond hold time; reported results are considered minimum values.

FA71077-12: Sample re-analyzed beyond hold time; reported results are considered minimum values.
FA71077-17 Sample re-analyzed beyond hold time; reported results are considered minimum values.

FA71077-17: Sample re-analyzed beyond hold time; reported results are considered minimum values.

FA71077-42: Sample re-analyzed beyond hold time; reported results are considered minimum values. Confirmation run.

MS Semi-volatiles By Method EPA 537M BY ID

Matrix: AQ **Batch ID:** OP78352

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA71058-2MS, FA71062-2DUP were used as the QC samples indicated.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services *(Signature on file)*

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA71077-1	**WILCNPSH-MW0027-012.5-20191219**					
cis-1,2-Dichloroethylene		351	5.0	1.4	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.2 I	5.0	1.1	ug/l	SW846 8260B
Vinyl Chloride [a]		696 Q	10	4.1	ug/l	SW846 8260B
FA71077-2	**WILC-MW0064-007.0-20191219**					
cis-1,2-Dichloroethylene		0.93 I	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.76 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		1.6	1.0	0.41	ug/l	SW846 8260B
FA71077-3	**WILC-MW0074-007.0-20191219**					
No hits reported in this sample.						
FA71077-4	**WILC-MW0091-007.0-20191219**					
No hits reported in this sample.						
FA71077-5	**WILC-MW0095-007.0-20191219**					
No hits reported in this sample.						
FA71077-6	**WILC-MW0154-012.5-20191219**					
Vinyl Chloride		0.83 I	1.0	0.41	ug/l	SW846 8260B
FA71077-7	**WILC-MW0089-020.0-20191219**					
No hits reported in this sample.						
FA71077-8	**WILC-MW0096-020.0-20191219**					
cis-1,2-Dichloroethylene		6.2	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		1.7	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		20.8	1.0	0.41	ug/l	SW846 8260B
FA71077-9	**WILC-MW0109-020.0-20191219**					
trans-1,2-Dichloroethylene		0.39 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		1.3	1.0	0.41	ug/l	SW846 8260B

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA71077-10	**WILC-MW0116-020.0-20191219**					
cis-1,2-Dichloroethylene		3.4	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		4.2	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		0.52 I	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		12.0	1.0	0.41	ug/l	SW846 8260B
FA71077-11	**WILC-MW0125-020.0-20191219**					
No hits reported in this sample.						
FA71077-12	**WILC-MW0142-013.0-20191218**					
cis-1,2-Dichloroethylene [a]		78.1 Q	2.0	0.55	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.5	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		6.9	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		25.0	1.0	0.41	ug/l	SW846 8260B
FA71077-13	**WILCNPSH-MW0017-031.5-20191219**					
cis-1,2-Dichloroethylene		16.4	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		6.9	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		1.2	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		53.1	1.0	0.41	ug/l	SW846 8260B
FA71077-14	**WILCNPSH-MW0019-031.5-20191219**					
cis-1,2-Dichloroethylene		0.63 I	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		1.5	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		2.2	1.0	0.41	ug/l	SW846 8260B
FA71077-15	**WILCNPSH-MW0020-031.5-20191219**					
trans-1,2-Dichloroethylene		0.29 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		0.53 I	1.0	0.41	ug/l	SW846 8260B
FA71077-16	**WILCNPSH-MW0022-031.5-20191219**					
No hits reported in this sample.						
FA71077-17	**WILC-MW0062-031.5-20191219**					
cis-1,2-Dichloroethylene		75.4	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.7	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		1.6	1.0	0.35	ug/l	SW846 8260B

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
Vinyl Chloride [a]		381 Q	10	4.1	ug/l	SW846 8260B
FA71077-18	**WILC-MW0065-031.5-20191219**					
cis-1,2-Dichloroethylene		11.0	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		10.0	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		0.37 I	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		38.6	1.0	0.41	ug/l	SW846 8260B
FA71077-19	**WILC-MW0080-031.5-20191219**					
trans-1,2-Dichloroethylene		4.0	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		4.4	1.0	0.41	ug/l	SW846 8260B
FA71077-20	**WILC-MW0090-031.5-20191219**					
cis-1,2-Dichloroethylene		1.5	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		2.1	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		6.0	1.0	0.41	ug/l	SW846 8260B
FA71077-21	**WILC-MW0097-031.5-20191219**					
cis-1,2-Dichloroethylene		10.8	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		5.7	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		46.0	1.0	0.41	ug/l	SW846 8260B
FA71077-22	**WILC-MW0111-031.5-20191219**					
trans-1,2-Dichloroethylene		0.82 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		0.95 I	1.0	0.41	ug/l	SW846 8260B
FA71077-23	**WILC-MW0140-028.0-20191218**					
cis-1,2-Dichloroethylene		8.6	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.78 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		94.8	1.0	0.41	ug/l	SW846 8260B
FA71077-24	**WILC-MW0143-028.0-20191218**					
cis-1,2-Dichloroethylene		43.3	1.0	0.28	ug/l	SW846 8260B
Trichloroethylene		2.9	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		40.9	1.0	0.41	ug/l	SW846 8260B

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA71077-25	**WILC-MW0146-028.0-20191219**					
No hits reported in this sample.						
FA71077-26	**WILC-MW0155-031.5-20191219**					
trans-1,2-Dichloroethylene		0.74 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		0.74 I	1.0	0.41	ug/l	SW846 8260B
FA71077-27	**WILCNPSH-MW0039-042.5-20191219**					
No hits reported in this sample.						
FA71077-28	**WILC-MW0046D-042.5-20191219**					
Vinyl Chloride		3.5	1.0	0.41	ug/l	SW846 8260B
FA71077-29	**WILC-MW0068-042.5-20191219**					
cis-1,2-Dichloroethylene		0.75 I	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride		3.4	1.0	0.41	ug/l	SW846 8260B
FA71077-30	**WILC-MW0118-042.5-20191219**					
cis-1,2-Dichloroethylene		1.5	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride		2.8	1.0	0.41	ug/l	SW846 8260B
FA71077-31	**WILC-MW0141-039.0-20191218**					
cis-1,2-Dichloroethylene		0.83 I	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride		9.3	1.0	0.41	ug/l	SW846 8260B
FA71077-32	**WILC-MW0144-042.5-20191218**					
cis-1,2-Dichloroethylene [a]		3780 Q	50	14	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.6 I	5.0	1.1	ug/l	SW846 8260B
Trichloroethylene		337	5.0	1.7	ug/l	SW846 8260B
Vinyl Chloride [a]		622 Q	50	20	ug/l	SW846 8260B
FA71077-33	**WILC-MW0145-043.0-20191218**					
cis-1,2-Dichloroethylene		2.7	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride		12.9	1.0	0.41	ug/l	SW846 8260B

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA71077-34	**WILC-MW0147-043.0-20191219**					
cis-1,2-Dichloroethylene		4.9	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.41 I	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		1.5	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		8.6	1.0	0.41	ug/l	SW846 8260B
FA71077-35	**WILC-MW0078-067.5-20191219**					
cis-1,2-Dichloroethylene		146	2.0	0.55	ug/l	SW846 8260B
Trichloroethylene		0.83 I	2.0	0.69	ug/l	SW846 8260B
Vinyl Chloride		104	2.0	0.82	ug/l	SW846 8260B
FA71077-36	**WILC-MW0130-061.0-20191219**					
cis-1,2-Dichloroethylene		4.9	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride		20.0	1.0	0.41	ug/l	SW846 8260B
FA71077-37	**WILC-MW0142-013.0-20191218-LF**					
cis-1,2-Dichloroethylene [b]		79.4	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [b]		3.2	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene [b]		5.3	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride [b]		43.7	1.0	0.41	ug/l	SW846 8260B
FA71077-38	**WILC-MW0143-028.0-20191218-LF**					
cis-1,2-Dichloroethylene [b]		41.8	1.0	0.28	ug/l	SW846 8260B
Trichloroethylene [b]		2.8	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride [b]		34.9	1.0	0.41	ug/l	SW846 8260B
FA71077-39	**WILC-MW0144-042.5-20191218-LF**					
cis-1,2-Dichloroethylene [a]		3100 Q	50	14	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		7.4	5.0	1.1	ug/l	SW846 8260B
Trichloroethylene		266	5.0	1.7	ug/l	SW846 8260B
Vinyl Chloride [a]		555 Q	50	20	ug/l	SW846 8260B
FA71077-40	**WILC-MW0145-043.0-20191218-LF**					
cis-1,2-Dichloroethylene		3.4	1.0	0.28	ug/l	SW846 8260B
Freon 113		3.5	1.0	0.48	ug/l	SW846 8260B
Vinyl Chloride		14.6	1.0	0.41	ug/l	SW846 8260B

Summary of Hits

Job Number: FA71077
Account: AECOM, INC.
Project: NASA KSC, Wilson Corners
Collected: 12/18/19 thru 12/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA71077-41	**WILC-TB-20191219-01**					
No hits reported in this sample.						
FA71077-42	**WILC-IDW-20191219-01**					
cis-1,2-Dichloroethylene		182	5.0	1.4	ug/l	SW846 8260B
Trichloroethylene		10.3	5.0	1.7	ug/l	SW846 8260B
Vinyl Chloride		15.9	5.0	2.0	ug/l	SW846 8260B
Perfluorooctanoic acid		0.00259 I	0.0077	0.0019	ug/l	EPA 537M BY ID
Perfluorooctanesulfonic acid		0.00389 I	0.0077	0.0029	ug/l	EPA 537M BY ID

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Sample was treated with an anti-foaming agent.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WILCNPSH-MW0027-012.5-20191219		
Lab Sample ID:	FA71077-1	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68476.D	5	12/31/19 21:48	SP	n/a	n/a	VP2638
Run #2 [a]	Y47665.D	10	01/07/20 18:47	CV	n/a	n/a	VY1948

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.6 U	5.0	1.6	ug/l	
156-59-2	cis-1,2-Dichloroethylene	351	5.0	1.4	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.2	5.0	1.1	ug/l	I
76-13-1	Freon 113	2.4 U	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	1.1 U	5.0	1.1	ug/l	
79-01-6	Trichloroethylene	1.7 U	5.0	1.7	ug/l	
75-01-4	Vinyl Chloride	696 [b]	10	4.1	ug/l	Q

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	95%	110%	79-125%
2037-26-5	Toluene-D8	96%	96%	85-112%
460-00-4	4-Bromofluorobenzene	97%	97%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0064-007.0-20191219		
Lab Sample ID:	FA71077-2	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68477.D	1	12/31/19 22:13	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.93	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.76	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	1.6	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	95%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0074-007.0-20191219		
Lab Sample ID:	FA71077-3	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68478.D	1	12/31/19 22:38	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		83-118%
17060-07-0	1,2-Dichloroethane-D4	94%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0091-007.0-20191219		
Lab Sample ID:	FA71077-4	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68479.D	1	12/31/19 23:03	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	97%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0095-007.0-20191219		
Lab Sample ID:	FA71077-5	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68480.D	1	12/31/19 23:28	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	95%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0154-012.5-20191219		
Lab Sample ID:	FA71077-6	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68481.D	1	12/31/19 23:52	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.83	1.0	0.41	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0089-020.0-20191219		
Lab Sample ID:	FA71077-7	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68482.D	1	01/01/20 00:17	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	93%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0096-020.0-20191219		
Lab Sample ID:	FA71077-8	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68483.D	1	01/01/20 00:42	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	6.2	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.7	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	20.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0109-020.0-20191219		
Lab Sample ID:	FA71077-9	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68484.D	1	01/01/20 01:07	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.39	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	1.3	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0116-020.0-20191219		
Lab Sample ID:	FA71077-10	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68485.D	1	01/01/20 01:32	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	4.2	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.52	1.0	0.35	ug/l	I
75-01-4	Vinyl Chloride	12.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	95%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0125-020.0-20191219		
Lab Sample ID:	FA71077-11	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68486.D	1	01/01/20 01:56	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0142-013.0-20191218		
Lab Sample ID:	FA71077-12	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68487.D	1	01/01/20 02:21	SP	n/a	n/a	VP2638
Run #2 [a]	Y47666.D	2	01/07/20 19:15	CV	n/a	n/a	VY1948

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	78.1 [b]	2.0	0.55	ug/l	Q
156-60-5	trans-1,2-Dichloroethylene	3.5	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	6.9	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	25.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	95%	83-118%
17060-07-0	1,2-Dichloroethane-D4	95%	111%	79-125%
2037-26-5	Toluene-D8	95%	99%	85-112%
460-00-4	4-Bromofluorobenzene	99%	98%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0017-031.5-20191219		
Lab Sample ID:	FA71077-13	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68488.D	1	01/01/20 02:46	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	16.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	6.9	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	1.2	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	53.1	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	95%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0019-031.5-20191219		
Lab Sample ID:	FA71077-14	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68489.D	1	01/01/20 03:11	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.63	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	1.5	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	2.2	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	95%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0020-031.5-20191219		
Lab Sample ID:	FA71077-15	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68490.D	1	01/01/20 03:36	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.29	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.53	1.0	0.41	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0022-031.5-20191219		
Lab Sample ID:	FA71077-16	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68491.D	1	01/01/20 04:01	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	97%		79-125%
2037-26-5	Toluene-D8	95%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0062-031.5-20191219		
Lab Sample ID:	FA71077-17	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68492.D	1	01/01/20 04:26	SP	n/a	n/a	VP2638
Run #2 [a]	Y47667.D	10	01/07/20 19:42	CV	n/a	n/a	VY1948

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	75.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.7	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	1.6	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	381 [b]	10	4.1	ug/l	Q

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%	96%	83-118%
17060-07-0	1,2-Dichloroethane-D4	96%	110%	79-125%
2037-26-5	Toluene-D8	95%	98%	85-112%
460-00-4	4-Bromofluorobenzene	98%	95%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0065-031.5-20191219		
Lab Sample ID:	FA71077-18	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68493.D	1	01/01/20 04:51	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	11.0	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10.0	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.37	1.0	0.35	ug/l	I
75-01-4	Vinyl Chloride	38.6	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	97%		79-125%
2037-26-5	Toluene-D8	94%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0080-031.5-20191219		
Lab Sample ID:	FA71077-19	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68494.D	1	01/01/20 05:15	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	4.0	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	4.4	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	94%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0090-031.5-20191219		
Lab Sample ID:	FA71077-20	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68495.D	1	01/01/20 05:40	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.5	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.1	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	6.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	94%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0097-031.5-20191219		
Lab Sample ID:	FA71077-21	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20007.D	1	12/31/19 19:57	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10.8	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.7	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	46.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	109%		85-112%
460-00-4	4-Bromofluorobenzene	110%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0111-031.5-20191219		
Lab Sample ID:	FA71077-22	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20008.D	1	12/31/19 20:20	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.82	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.95	1.0	0.41	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	111%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0140-028.0-20191218		
Lab Sample ID:	FA71077-23	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20009.D	1	12/31/19 20:43	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	8.6	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.78	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	94.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	108%		85-112%
460-00-4	4-Bromofluorobenzene	111%		83-118%

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0143-028.0-20191218		
Lab Sample ID:	FA71077-24	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20010.D	1	12/31/19 21:06	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	43.3	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	2.9	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	40.9	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	109%		85-112%
460-00-4	4-Bromofluorobenzene	110%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0146-028.0-20191219		
Lab Sample ID:	FA71077-25	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20011.D	1	12/31/19 21:29	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	108%		85-112%
460-00-4	4-Bromofluorobenzene	110%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0155-031.5-20191219		
Lab Sample ID:	FA71077-26	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20012.D	1	12/31/19 21:52	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.74	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.74	1.0	0.41	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	111%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0039-042.5-20191219		
Lab Sample ID:	FA71077-27	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20013.D	1	12/31/19 22:15	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	110%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0046D-042.5-20191219		
Lab Sample ID:	FA71077-28	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20014.D	1	12/31/19 22:37	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	3.5	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	109%		85-112%
460-00-4	4-Bromofluorobenzene	113%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0068-042.5-20191219		
Lab Sample ID:	FA71077-29	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20015.D	1	12/31/19 23:00	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.75	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	3.4	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	109%		85-112%
460-00-4	4-Bromofluorobenzene	112%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0118-042.5-20191219		
Lab Sample ID:	FA71077-30	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20016.D	1	12/31/19 23:23	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.5	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	2.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	111%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0141-039.0-20191218		
Lab Sample ID:	FA71077-31	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20017.D	1	12/31/19 23:46	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.83	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	9.3	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	103%		79-125%
2037-26-5	Toluene-D8	109%		85-112%
460-00-4	4-Bromofluorobenzene	110%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0144-042.5-20191218		
Lab Sample ID:	FA71077-32	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20018.D	5	01/01/20 00:09	SP	n/a	n/a	V5E909
Run #2 [a]	5E20131.D	50	01/06/20 12:14	SO	n/a	n/a	V5E915

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.6 U	5.0	1.6	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3780 [b]	50	14	ug/l	Q
156-60-5	trans-1,2-Dichloroethylene	3.6	5.0	1.1	ug/l	I
76-13-1	Freon 113	2.4 U	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	1.1 U	5.0	1.1	ug/l	
79-01-6	Trichloroethylene	337	5.0	1.7	ug/l	
75-01-4	Vinyl Chloride	622 [b]	50	20	ug/l	Q

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	108%	79-125%
2037-26-5	Toluene-D8	110%	110%	85-112%
460-00-4	4-Bromofluorobenzene	110%	113%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0145-043.0-20191218		
Lab Sample ID:	FA71077-33	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20019.D	1	01/01/20 00:32	SP	n/a	n/a	V5E909
Run #2 [a]	5E20099.D	1	01/03/20 11:29	SO	n/a	n/a	V5E913

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.7	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 UQ [b]	1.0	0.35	ug/l	Q
75-01-4	Vinyl Chloride	12.9	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	101%	79-125%
2037-26-5	Toluene-D8	110%	109%	85-112%
460-00-4	4-Bromofluorobenzene	110%	113%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0147-043.0-20191219		
Lab Sample ID:	FA71077-34	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20020.D	1	01/01/20 00:56	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.9	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.41	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	1.5	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	8.6	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	105%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	109%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0078-067.5-20191219		
Lab Sample ID:	FA71077-35	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20021.D	2	01/01/20 01:18	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.64 U	2.0	0.64	ug/l	
156-59-2	cis-1,2-Dichloroethylene	146	2.0	0.55	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.44 U	2.0	0.44	ug/l	
76-13-1	Freon 113	0.96 U	2.0	0.96	ug/l	
127-18-4	Tetrachloroethylene	0.43 U	2.0	0.43	ug/l	
79-01-6	Trichloroethylene	0.83	2.0	0.69	ug/l	I
75-01-4	Vinyl Chloride	104	2.0	0.82	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	109%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0130-061.0-20191219		
Lab Sample ID:	FA71077-36	**Date Sampled:**	12/19/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20022.D	1	01/01/20 01:41	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.9	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	20.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	109%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0142-013.0-20191218-LF		
Lab Sample ID:	FA71077-37	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E20023.D	1	01/01/20 02:04	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	79.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.2	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	5.3	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	43.7	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	117%		83-118%

(a) Sample was treated with an anti-foaming agent.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0143-028.0-20191218-LF		
Lab Sample ID:	FA71077-38	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E20024.D	1	01/01/20 02:27	SP	n/a	n/a	V5E909
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	41.8	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	2.8	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	34.9	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		83-118%
17060-07-0	1,2-Dichloroethane-D4	101%		79-125%
2037-26-5	Toluene-D8	110%		85-112%
460-00-4	4-Bromofluorobenzene	116%		83-118%

(a) Sample was treated with an anti-foaming agent.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0144-042.5-20191218-LF		
Lab Sample ID:	FA71077-39	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20025.D	5	01/01/20 02:49	SP	n/a	n/a	V5E909
Run #2 [a]	5E20132.D	50	01/06/20 12:36	SO	n/a	n/a	V5E915

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.6 U	5.0	1.6	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3100 [b]	50	14	ug/l	Q
156-60-5	trans-1,2-Dichloroethylene	7.4	5.0	1.1	ug/l	
76-13-1	Freon 113	2.4 U	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	1.1 U	5.0	1.1	ug/l	
79-01-6	Trichloroethylene	266	5.0	1.7	ug/l	
75-01-4	Vinyl Chloride	555 [b]	50	20	ug/l	Q

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	108%	79-125%
2037-26-5	Toluene-D8	110%	110%	85-112%
460-00-4	4-Bromofluorobenzene	112%	111%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0145-043.0-20191218-LF		
Lab Sample ID:	FA71077-40	**Date Sampled:**	12/18/19
Matrix:	AQ - Ground Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5E20026.D	1	01/01/20 03:12	SP	n/a	n/a	V5E909
Run #2 [a]	5E20100.D	1	01/03/20 11:52	SO	n/a	n/a	V5E913

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	3.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	3.5	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	14.6	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	102%	79-125%
2037-26-5	Toluene-D8	109%	109%	85-112%
460-00-4	4-Bromofluorobenzene	112%	112%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values. Confirmation run.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-TB-20191219-01		
Lab Sample ID:	FA71077-41	**Date Sampled:**	12/19/19
Matrix:	AQ - Trip Blank Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P68496.D	1	01/01/20 06:05	SP	n/a	n/a	VP2638
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		83-118%
17060-07-0	1,2-Dichloroethane-D4	96%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-IDW-20191219-01		
Lab Sample ID:	FA71077-42	**Date Sampled:**	12/19/19
Matrix:	AQ - Water	**Date Received:**	12/19/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	Y47668.D	2	01/07/20 20:09	CV	n/a	n/a	VY1948
Run #2	P68497.D	5	01/01/20 06:30	SP	n/a	n/a	VP2638

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.6 U [b]	5.0	1.6	ug/l	
156-59-2	cis-1,2-Dichloroethylene	182 [b]	5.0	1.4	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.1 U [b]	5.0	1.1	ug/l	
76-13-1	Freon 113	2.4 U [b]	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	1.1 U [b]	5.0	1.1	ug/l	
79-01-6	Trichloroethylene	10.3 [b]	5.0	1.7	ug/l	
75-01-4	Vinyl Chloride	15.9 [b]	5.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	95%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	96%	79-125%
2037-26-5	Toluene-D8	99%	96%	85-112%
460-00-4	4-Bromofluorobenzene	96%	97%	83-118%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values. Confirmation run.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-IDW-20191219-01		
Lab Sample ID:	FA71077-42	**Date Sampled:**	12/19/19
Matrix:	AQ - Water	**Date Received:**	12/19/19
Method:	EPA 537M BY ID EPA 537 MOD	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q41649.D	1	01/01/20 15:46	NAF	12/29/19 11:35	OP78352	S2Q634
Run #2							

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	PQL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
307-24-4	Perfluorohexanoic acid	0.0019 U	0.0077	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0019 U	0.0077	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.00259	0.0077	0.0019	ug/l	I
375-95-1	Perfluorononanoic acid	0.0019 U	0.0077	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0019 U	0.0077	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0019 U	0.0077	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0029 U	0.0077	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0019 U	0.0077	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0019 U	0.0077	0.0019	ug/l	
PERFLUOROALKYLSULFONATES						
375-73-5	Perfluorobutanesulfonic acid	0.0019 U	0.0077	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0019 U	0.0077	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.00389	0.0077	0.0029	ug/l	I
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	0.0077 U	0.038	0.0077	ug/l	
2991-50-6	EtFOSAA	0.0077 U	0.038	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	65%		50-150%
	13C4-PFHpA	75%		50-150%
	13C8-PFOA	91%		50-150%
	13C9-PFNA	96%		50-150%
	13C6-PFDA	96%		50-150%
	13C7-PFUnDA	94%		50-150%
	13C2-PFDoDA	86%		50-150%
	13C2-PFTeDA	87%		40-150%
	13C3-PFBS	69%		50-150%
	13C3-PFHxS	80%		50-150%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-IDW-20191219-01		
Lab Sample ID:	FA71077-42	**Date Sampled:**	12/19/19
Matrix:	AQ - Water	**Date Received:**	12/19/19
Method:	EPA 537M BY ID EPA 537 MOD	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	88%		50-150%
	d3-MeFOSAA	107%		50-150%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
EtFOSAA	2991-50-6	**EPA 537M BY ID**	AQ	Certified by SOP MS014
MeFOSAA	2355-31-9	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	**EPA 537M BY ID**	AQ	Certified by SOP MS014

FA71077

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 1 of 4

AECOM

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Megan Garcia

TO No.: 80KSC019F0082 | AECOM Project Manager: **Krista Sommerfeldt** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Megan Garcia

Sampler/Phone # | Greg Kusel / (772) 631-7426 | Dustin Slater / (407) 766-0747 | Chad Lee / (864) 650-4338 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP:

Lab Name: SGS | 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 Select PFAS by 537									Comments
1	WILCNPSH-MW0027-012.5-20191219	WILCNPSH-MW0027	201912 19	0440	WG	N	G	3	3										
2	WILC-MW0064-007.0-20191219	WILC-MW0064	201912 19	1040	WG	N	G	3	3										
3	WILC-MW0074-007.0-20191219	WILC-MW0074	201912 19	0825	WG	N	G	3	3										
4	WILC-MW0091-007.0-20191219	WILC-MW0091	201912 19	0900	WG	N	G	3	3										
5	WILC-MW0095-007.0-20191219	WILC-MW0095	201912 19	0958	WG	N	G	3	3										
6	WILC-MW0154-012.5-20191219	WILC-MW0154	201912 19	0836	WG	N	G	3	3										
7	WILC-MW0089-020.0-20191219	WILC-MW0089	201912 19	0905	WG	N	G	3	3										
8	WILC-MW0096-020.0-20191219	WILC-MW0096	201912 19	1002	WG	N	G	3	3										
9	WILC-MW0109-020.0-20191219	WILC-MW0109	201912 19	0955	WG	N	G	3	3										
10	WILC-MW0116-020.0-20191219	WILC-MW0116	201912 19	0832	WG	N	G	3	3										
11	WILC-MW0125-020.0-20191219	WILC-MW0125	201912 19	1014	WG	N	G	3	3										
12	WILC-MW0142-013.0-20191218	WILC-MW0142	201912 18	1325	WG	N	G	3	3										

Field **Comments:**

Report only per QAPP WS #15

Lab **Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1 Greg Kusel	12/19/19	1430	1	12/19/19	1435
2			2		
3			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**

1.3|1.2| 1.5

FA71077

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 2 of 4

AECOM

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Megan Garcia

TO No.: 80KSC019F0082 | AECOM Project Manager: **Krista Sommerfeldt** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Megan Garcia

Sampler/Phone # | Greg Kusel / (772) 631-7426 | Dustin Slater / (407) 766-0747 | Chad Lee / (864) 650-4338 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP:

Lab Name: SGS | 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 Select PFAS by 537									Comments
13	WILCNPSH-MW0017-031.5-20191219	WILCNPSH-MW0017	201912/9	0945	WG	N	G	3	3										
14	WILCNPSH-MW0019-031.5-20191219	WILCNPSH-MW0019	201912/9	1027	WG	N	G	3	3										
15	WILCNPSH-MW0020-031.5-20191219	WILCNPSH-MW0020	201912/9	0950	WG	N	G	3	3										
16	WILCNPSH-MW0022-031.5-20191219	WILCNPSH-MW0022	201912/9	1018	WG	N	G	3	3										
17	WILC-MW0062-031.5-20191219	WILC-MW0062	201912/9	1125	WG	N	G	3	3										
18	WILC-MW0065-031.5-20191219	WILC-MW0065	201912/9	1043	WG	N	G	3	3										
19	WILC-MW0080-031.5-20191219	WILC-MW0080	201912/9	1035	WG	N	G	3	3										
20	WILC-MW0090-031.5-20191219	WILC-MW0090	201912/9	0910	WG	N	G	3	3										
21	WILC-MW0097-031.5-20191219	WILC-MW0097	201912/9	1005	WG	N	G	3	3										
22	WILC-MW0111-031.5-20191219	WILC-MW0111	201912/9	0850	WG	N	G	3	3										
23	WILC-MW0140-028.0-20191218	WILC-MW0140	201912/8	1305	WG	N	G	3	3										
24	WILC-MW0143-028.0-20191218	WILC-MW0143	201912/8	1335	WG	N	G	3	3										

Field **Comments:**

Report only per QAPP WS #15

Lab **Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1 Greg Kusel	12/19/19	1430	1	12/19/19	1435
2			2		
3			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**

FA71077

AECOM

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 3 of 4

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 195-24548-GV03 | EDD to: Jennifer Chastain Cc: Megan Garcia

TO No.: 80KSC019F00B2 | AECOM Project Manager: **Krista Sommerfeldt** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Megan Garcia

Sampler/Phone # | Greg Kusel / (772) 631-7426 | Dustin Slater / (407) 766-0747 | Chad Lee / (864) 650-4338 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP:

Lab Name: SGS | 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 Select PFAS by 537										Comments
25	WILC-MW0146-028.0-20191219	WILC-MW0146	20191219	1115	WG	N	G	3	3											
26	WILC-MW0155-031.5-20191219	WILC-MW0155	20191219	0840	WG	N	G	3	3											
27	WILCNPSH-MW0039-042.5-20191219	WILCNPSH-MW0039	20191219	1054	WG	N	G	3	3											
28	WILC-MW0046D-042.5-20191219	WILC-MW0046D	20191219	1100	WG	N	G	3	3											
29	WILC-MW0068-042.5-20191219	WILC-MW0068	20191219	1030	WG	N	G	3	3											
30	WILC-MW0118-042.5-20191219	WILC-MW0118	20191219	0844	WG	N	G	3	3											
31	WILC-MW0141-034.0-20191218	WILC-MW0141	20191218	1315	WG	N	G	3	3											
32	WILC-MW0144-042.5-20191218	WILC-MW0144	20191218	1340	WG	N	G	3	3											
33	WILC-MW0145-043.0-20191218	WILC-MW0145	20191218	1345	WG	N	G	3	3											
34	WILC-MW0147-043.0-20191219	WILC-MW0147	20191219	1120	WG	N	G	3	3											
35	WILC-MW0078-067.5-20191219	WILC-MW0078	20191219	1105	WG	N	G	3	3											
36	WILC-MW0130-061.0-20191219	WILC-MW0130	20191219	1110	WG	N	G	3	3											

Field **Comments:**

Report only per QAPP WS #15

Lab **Comments:**

Sample Shipment and Delivery Details

Number of coolers in shipment:

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1 Greg Kusel	12/19/19	1430	1	12/19/19	1435
2			2		
3			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 **ND preservative** added leave blank **Rev 8/19**

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FA71077

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners			COC No.	Page: 4 of 4	
Site Location: Wilson Corners			PO No.	Project No. 60613955	Phase:
TO No.: 80KSC019F0082	AECOM Project Manager:	**Krista Sommerfeldt**	Send Invoice To: Instructions in MSA # 195-24548-GV03		EDD to: Jennifer Chastain Cc: Megan Garcia
Sampler/Phone #	Greg Kusel / (772) 631-7426	Dustin Slater / (407) 766-0747 Chad Lee / (864) 650-4338	Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando		Report to Jennifer Chastain Cc: Megan Garcia
Lab Name: SGS		Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando		Site-Spicific WS#15 from QAPP:

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 Select PFAS by 537	Comments
37	WILC-MW0142-013.0-20191218-LF	WILC-MW0142	201912 18	1418	WG	N	G	3	3		
38	WILC-MW0143-028.0-20191218-LF	WILC-MW0143	201912 18	1440	WG	N	G	3	3		
39	WILC-MW0144-042.5-20191218-LF	WILC-MW0144	201912 18	1502	WG	N	G	3	3		
40	WILC-MW0145-043.0-20191218-LF	WILC-MW0145	201912 18	1430	WG	N	G	3	3		
41	WILC-TB-20191219-01	WILC-TB	201912 19		WQ	TB	G	2	2		
42	WILC-IDW-20191219-01	WILC-IDW	201912 19	1315	IDW	IDW	G	5	3	2	

Field **Comments:**
Report only per QAPP WS #15

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	Greg Kusel	12/19/19	1430		12/19/19	1435
2						
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**

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FA71077: Chain of Custody
Page 4 of 5

SGS Sample Receipt Summary

Job Number: FA71077 **Client:** AECOM **Project:** NASA KSC-WILSON

Date / Time Received: 12/19/2019 2:35:00 PM **Delivery Method:** FX **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** -0.8; **# of Coolers:** 3

Cooler Temps (Raw Measured) °C: Cooler 1: (2.1); Cooler 2: (2.0); Cooler 3: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (1.3); Cooler 2: (1.2); Cooler 3: (1.5);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☑		☐	☐
2. Trip Blank listed on COC	☑		☐	☐

	W	or	S	N/A
3. Type Of TB Received	☑		☐	☐

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☑	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: PETERH Date: 12/19/2019 2:35:00 P Reviewer: _____ Date: _____

MS Volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E909-MB	5E20006.D	1	12/31/19	SP	n/a	n/a	V5E909

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-21, FA71077-22, FA71077-23, FA71077-24, FA71077-25, FA71077-26, FA71077-27, FA71077-28, FA71077-29, FA71077-30, FA71077-31, FA71077-32, FA71077-33, FA71077-34, FA71077-35, FA71077-36, FA71077-37, FA71077-38, FA71077-39, FA71077-40

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	104%	79-125%
2037-26-5	Toluene-D8	108%	85-112%
460-00-4	4-Bromofluorobenzene	110%	83-118%

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VP2638-MB	P68474.D	1	12/31/19	SP	n/a	n/a	VP2638

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-2, FA71077-3, FA71077-4, FA71077-5, FA71077-6, FA71077-7, FA71077-8, FA71077-9, FA71077-10, FA71077-11, FA71077-12, FA71077-13, FA71077-14, FA71077-15, FA71077-16, FA71077-17, FA71077-18, FA71077-19, FA71077-20, FA71077-41, FA71077-42

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	83-118%
17060-07-0	1,2-Dichloroethane-D4	94%	79-125%
2037-26-5	Toluene-D8	97%	85-112%
460-00-4	4-Bromofluorobenzene	97%	83-118%

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E913-MB	5E20096.D	1	01/03/20	SO	n/a	n/a	V5E913

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-33

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	110%	85-112%
460-00-4	4-Bromofluorobenzene	116%	83-118%

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E915-MB	5E20125.D	1	01/06/20	SO	n/a	n/a	V5E915

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-32, FA71077-39

CAS No.	Compound	Result	RL	MDL	Units	Q
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	109%	85-112%
460-00-4	4-Bromofluorobenzene	112%	83-118%

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY1948-MB	Y47651.D	1	01/07/20	CV	n/a	n/a	VY1948

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-12, FA71077-17

CAS No.	Compound	Result	RL	MDL	Units	Q
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	97%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E909-BS	5E20004.D	1	12/31/19	SP	n/a	n/a	V5E909

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-21, FA71077-22, FA71077-23, FA71077-24, FA71077-25, FA71077-26, FA71077-27, FA71077-28, FA71077-29, FA71077-30, FA71077-31, FA71077-32, FA71077-33, FA71077-34, FA71077-35, FA71077-36, FA71077-37, FA71077-38, FA71077-39, FA71077-40

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	27.6	110	78-137
156-59-2	cis-1,2-Dichloroethylene	25	26.9	108	78-120
156-60-5	trans-1,2-Dichloroethylene	25	27.3	109	76-127
76-13-1	Freon 113	25	21.7	87	72-134
127-18-4	Tetrachloroethylene	25	27.0	108	76-135
79-01-6	Trichloroethylene	25	26.9	108	81-126
75-01-4	Vinyl Chloride	25	27.7	111	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	100%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VP2638-BS	P68473.D	1	12/31/19	SP	n/a	n/a	VP2638

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-2, FA71077-3, FA71077-4, FA71077-5, FA71077-6, FA71077-7, FA71077-8, FA71077-9, FA71077-10, FA71077-11, FA71077-12, FA71077-13, FA71077-14, FA71077-15, FA71077-16, FA71077-17, FA71077-18, FA71077-19, FA71077-20, FA71077-41, FA71077-42

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	25.3	101	78-137
156-59-2	cis-1,2-Dichloroethylene	25	24.0	96	78-120
156-60-5	trans-1,2-Dichloroethylene	25	24.8	99	76-127
76-13-1	Freon 113	25	23.1	92	72-134
127-18-4	Tetrachloroethylene	25	24.2	97	76-135
79-01-6	Trichloroethylene	25	23.4	94	81-126
75-01-4	Vinyl Chloride	25	22.2	89	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	83-118%
17060-07-0	1,2-Dichloroethane-D4	97%	79-125%
2037-26-5	Toluene-D8	98%	85-112%
460-00-4	4-Bromofluorobenzene	97%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E913-BS	5E20093.D	1	01/03/20	SO	n/a	n/a	V5E913

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-33

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
79-01-6	Trichloroethylene	25	22.8	91	81-126

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	83-118%
17060-07-0	1,2-Dichloroethane-D4	104%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	103%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E915-BS	5E20122.D	1	01/06/20	SO	n/a	n/a	V5E915

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-32, FA71077-39

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
156-59-2	cis-1,2-Dichloroethylene	25	22.7	91	78-120
75-01-4	Vinyl Chloride	25	25.0	100	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	100%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY1948-BS	Y47649.D	1	01/07/20	CV	n/a	n/a	VY1948

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-12, FA71077-17

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
156-59-2	cis-1,2-Dichloroethylene	25	23.6	94	78-120
75-01-4	Vinyl Chloride	25	30.2	121	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	99%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA71077-32MS	5E20027.D	5	01/01/20	SP	n/a	n/a	V5E909
FA71077-32MSD	5E20028.D	5	01/01/20	SP	n/a	n/a	V5E909
FA71077-32	5E20018.D	5	01/01/20	SP	n/a	n/a	V5E909

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-21, FA71077-22, FA71077-23, FA71077-24, FA71077-25, FA71077-26, FA71077-27, FA71077-28, FA71077-29, FA71077-30, FA71077-31, FA71077-32, FA71077-33, FA71077-34, FA71077-35, FA71077-36, FA71077-37, FA71077-38, FA71077-39, FA71077-40

CAS No.	Compound	FA71077-32 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	5.0 U		125	150	120	125	168	134	11	78-137/18
156-59-2	cis-1,2-Dichloroethylene	4660	L	125	4580	-64* [a]	125	4550	-88* [a]	1	78-120/15
156-60-5	trans-1,2-Dichloroethylene	3.6	I	125	125	97	125	144	112	14	76-127/17
76-13-1	Freon 113	5.0 U		125	83.1	66*	125	96.3	77	15	72-134/20
127-18-4	Tetrachloroethylene	5.0 U		125	110	88	125	129	103	16	76-135/16
79-01-6	Trichloroethylene	337		125	462	100	125	478	113	3	81-126/15
75-01-4	Vinyl Chloride	588	L	125	668	64* [a]	125	647	47* [a]	3	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA71077-32	Limits
1868-53-7	Dibromofluoromethane	101%	99%	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	109%	106%	106%	79-125%
2037-26-5	Toluene-D8	99%	99%	110%	85-112%
460-00-4	4-Bromofluorobenzene	100%	100%	110%	83-118%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA71077-1MS	P68498.D	5	01/01/20	SP	n/a	n/a	VP2638
FA71077-1MSD	P68499.D	5	01/01/20	SP	n/a	n/a	VP2638
FA71077-1	P68476.D	5	12/31/19	SP	n/a	n/a	VP2638

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-2, FA71077-3, FA71077-4, FA71077-5, FA71077-6, FA71077-7, FA71077-8, FA71077-9, FA71077-10, FA71077-11, FA71077-12, FA71077-13, FA71077-14, FA71077-15, FA71077-16, FA71077-17, FA71077-18, FA71077-19, FA71077-20, FA71077-41, FA71077-42

CAS No.	Compound	FA71077-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	5.0 U		125	125	100	125	123	98	2	78-137/18
156-59-2	cis-1,2-Dichloroethylene	351		125	470	95	125	431	64* [a]	9	78-120/15
156-60-5	trans-1,2-Dichloroethylene	3.2	I	125	127	99	125	124	97	2	76-127/17
76-13-1	Freon 113	5.0 U		125	117	94	125	112	90	4	72-134/20
127-18-4	Tetrachloroethylene	5.0 U		125	118	94	125	113	90	4	76-135/16
79-01-6	Trichloroethylene	5.0 U		125	119	95	125	116	93	3	81-126/15
75-01-4	Vinyl Chloride	639	L	125	727	70	125	696	46* [a]	4	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA71077-1	Limits
1868-53-7	Dibromofluoromethane	98%	97%	94%	83-118%
17060-07-0	1,2-Dichloroethane-D4	100%	99%	95%	79-125%
2037-26-5	Toluene-D8	97%	97%	96%	85-112%
460-00-4	4-Bromofluorobenzene	96%	96%	97%	83-118%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA71099-11MS	5E20116.D	5	01/03/20	SO	n/a	n/a	V5E913
FA71099-11MSD	5E20117.D	5	01/03/20	SO	n/a	n/a	V5E913
FA71099-11	5E20103.D	5	01/03/20	SO	n/a	n/a	V5E913

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-33

CAS No.	Compound	FA71099-11 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
79-01-6	Trichloroethylene	4.5	J	125	125	96	125	135	104	8	81-126/15

CAS No.	Surrogate Recoveries	MS	MSD	FA71099-11	Limits
1868-53-7	Dibromofluoromethane	100%	100%	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	107%	104%	79-125%
2037-26-5	Toluene-D8	100%	100%	109%	85-112%
460-00-4	4-Bromofluorobenzene	100%	100%	111%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA71218-4MS	5E20145.D	200	01/06/20	SO	n/a	n/a	V5E915
FA71218-4MSD	5E20146.D	200	01/06/20	SO	n/a	n/a	V5E915
FA71218-4	5E20136.D	200	01/06/20	SO	n/a	n/a	V5E915

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-32, FA71077-39

CAS No.	Compound	FA71218-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
156-59-2	cis-1,2-Dichloroethylene	200	U	5000	4820	96	5000	5040	101	4	78-120/15
75-01-4	Vinyl Chloride	200	U	5000	4810	96	5000	5560	111	14	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA71218-4	Limits
1868-53-7	Dibromofluoromethane	99%	100%	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	111%	111%	109%	79-125%
2037-26-5	Toluene-D8	99%	100%	110%	85-112%
460-00-4	4-Bromofluorobenzene	99%	101%	111%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA71320-1MS	Y47671.D	50	01/07/20	CV	n/a	n/a	VY1948
FA71320-1MSD	Y47672.D	50	01/07/20	CV	n/a	n/a	VY1948
FA71320-1	Y47659.D	25	01/07/20	CV	n/a	n/a	VY1948

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA71077-1, FA71077-12, FA71077-17

CAS No.	Compound	FA71320-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
156-59-2	cis-1,2-Dichloroethylene	227		1250	1660	115	1250	1630	112	2	78-120/15
75-01-4	Vinyl Chloride	74.2		1250	1500	114	1250	1500	114	0	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA71320-1	Limits
1868-53-7	Dibromofluoromethane	93%	95%	92%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	104%	106%	79-125%
2037-26-5	Toluene-D8	105%	104%	97%	85-112%
460-00-4	4-Bromofluorobenzene	98%	95%	97%	83-118%

* = Outside of Control Limits.

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78352-MB	2Q41630.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA71077-42

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0015	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	92%	30-140%
	13C5-PFPeA	89%	40-140%
	13C5-PFHxA	87%	50-150%
	13C4-PFHpA	86%	50-150%
	13C8-PFOA	88%	50-150%
	13C9-PFNA	80%	50-150%
	13C6-PFDA	78%	50-150%
	13C7-PFUnDA	77%	50-150%
	13C2-PFDoDA	77%	50-150%
	13C2-PFTeDA	78%	40-150%
	13C3-PFBS	88%	50-150%
	13C3-PFHxS	84%	50-150%
	13C8-PFOS	74%	50-150%
	13C8-FOSA	88%	30-140%
	d3-MeFOSAA	84%	50-150%
	13C2-4:2FTS	85%	50-150%
	13C2-6:2FTS	85%	50-150%
	13C2-8:2FTS	72%	50-150%

Instrument Blank

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q634-IBLK	2Q41553.D	1	12/31/19	NAF	n/a	n/a	S2Q634

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA71077-42

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0015	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	98%	50-150%
	13C5-PFPeA	98%	50-150%
	13C5-PFHxA	96%	50-150%
	13C4-PFHpA	95%	50-150%
	13C8-PFOA	101%	50-150%
	13C9-PFNA	100%	50-150%
	13C6-PFDA	101%	50-150%
	13C7-PFUnDA	101%	50-150%
	13C2-PFDoDA	99%	50-150%
	13C2-PFTeDA	98%	50-150%
	13C3-PFBS	98%	50-150%
	13C3-PFHxS	99%	50-150%
	13C8-PFOS	100%	50-150%
	13C8-FOSA	106%	50-150%
	d3-MeFOSAA	107%	50-150%
	13C2-4:2FTS	92%	50-150%
	13C2-6:2FTS	97%	50-150%
	13C2-8:2FTS	96%	50-150%

Blank Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78352-BS	2Q41629.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA71077-42

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0846	106	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0890	111	71-130
335-67-1	Perfluorooctanoic acid	0.08	0.0867	108	74-130
375-95-1	Perfluorononanoic acid	0.08	0.0858	107	76-130
335-76-2	Perfluorodecanoic acid	0.08	0.0836	105	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0875	109	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0868	109	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0892	112	70-139
376-06-7	Perfluorotetradecanoic acid	0.08	0.0920	115	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0850	106	73-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0856	107	74-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0838	105	70-130
2355-31-9	MeFOSAA	0.08	0.0852	107	70-130
2991-50-6	EtFOSAA	0.08	0.0802	100	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	87%	30-140%
	13C5-PFPeA	85%	40-140%
	13C5-PFHxA	83%	50-150%
	13C4-PFHpA	82%	50-150%
	13C8-PFOA	86%	50-150%
	13C9-PFNA	81%	50-150%
	13C6-PFDA	75%	50-150%
	13C7-PFUnDA	73%	50-150%
	13C2-PFDoDA	72%	50-150%
	13C2-PFTeDA	75%	40-150%
	13C3-PFBS	85%	50-150%
	13C3-PFHxS	83%	50-150%
	13C8-PFOS	74%	50-150%
	13C8-FOSA	85%	30-140%
	d3-MeFOSAA	80%	50-150%
	13C2-4:2FTS	86%	50-150%
	13C2-6:2FTS	89%	50-150%
	13C2-8:2FTS	75%	50-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78352-MS	2Q41634.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634
FA71058-2	2Q41633.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA71077-42

CAS No.	Compound	FA71058-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0118		0.0741	0.0906	106	70-130
375-85-9	Perfluoroheptanoic acid	0.00349		0.0741	0.0877	114	71-130
335-67-1	Perfluorooctanoic acid	0.00898		0.0741	0.0905	110	74-130
375-95-1	Perfluorononanoic acid	0.00134		0.0741	0.0826	110	76-130
335-76-2	Perfluorodecanoic acid	ND		0.0741	0.0794	107	70-130
2058-94-8	Perfluoroundecanoic acid	ND		0.0741	0.0812	110	70-130
307-55-1	Perfluorododecanoic acid	ND		0.0741	0.0799	108	70-130
72629-94-8	Perfluorotridecanoic acid	ND		0.0741	0.102	138	70-139
376-06-7	Perfluorotetradecanoic acid	ND		0.0741	0.0866	117	70-130
375-73-5	Perfluorobutanesulfonic acid	0.110		0.0741	0.196	116	73-130
355-46-4	Perfluorohexanesulfonic acid	0.0257		0.0741	0.107	110	74-130
1763-23-1	Perfluorooctanesulfonic acid	0.0507		0.0741	0.131	108	70-130
2355-31-9	MeFOSAA	ND		0.0741	0.0845	114	70-130
2991-50-6	EtFOSAA	ND		0.0741	0.0802	108	70-130

CAS No.	ID Standard Recoveries	MS	FA71058-2	Limits
	13C4-PFBA	68%	73%	30-140%
	13C5-PFPeA	71%	78%	40-140%
	13C5-PFHxA	72%	78%	50-150%
	13C4-PFHpA	77%	84%	50-150%
	13C8-PFOA	83%	91%	50-150%
	13C9-PFNA	87%	96%	50-150%
	13C6-PFDA	84%	93%	50-150%
	13C7-PFUnDA	61%	65%	50-150%
	13C2-PFDoDA	58%	58%	50-150%
	13C2-PFTeDA	49%	47%	40-150%
	13C3-PFBS	78%	86%	50-150%
	13C3-PFHxS	85%	93%	50-150%
	13C8-PFOS	82%	91%	50-150%
	13C8-FOSA	70%	76%	30-140%
	d3-MeFOSAA	95%	109%	50-150%
	13C2-4:2FTS	92%	96%	50-150%
	13C2-6:2FTS	102%	109%	50-150%
	13C2-8:2FTS	108%	114%	50-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA71077
Account: MEFLOR AECOM, INC.
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78352-DUP	2Q41642.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634
FA71062-2	2Q41641.D	1	01/01/20	NAF	12/29/19	OP78352	S2Q634

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA71077-42

CAS No.	Compound	FA71062-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	ND		ND		nc	30
375-85-9	Perfluoroheptanoic acid	ND		ND		nc	30
335-67-1	Perfluorooctanoic acid	ND		ND		nc	30
375-95-1	Perfluorononanoic acid	ND		ND		nc	30
335-76-2	Perfluorodecanoic acid	ND		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	ND		ND		nc	30
307-55-1	Perfluorododecanoic acid	ND		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	ND		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0147		0.0140		5	30
355-46-4	Perfluorohexanesulfonic acid	ND		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	ND		ND		nc	30
2355-31-9	MeFOSAA	ND		ND		nc	30
2991-50-6	EtFOSAA	ND		ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FA71062-2	Limits
	13C4-PFBA	87%	91%	30-140%
	13C5-PFPeA	86%	91%	40-140%
	13C5-PFHxA	85%	90%	50-150%
	13C4-PFHpA	84%	89%	50-150%
	13C8-PFOA	89%	95%	50-150%
	13C9-PFNA	85%	90%	50-150%
	13C6-PFDA	80%	84%	50-150%
	13C7-PFUnDA	71%	81%	50-150%
	13C2-PFDoDA	66%	79%	50-150%
	13C2-PFTeDA	68%	80%	40-150%
	13C3-PFBS	86%	91%	50-150%
	13C3-PFHxS	85%	91%	50-150%
	13C8-PFOS	79%	82%	50-150%
	13C8-FOSA	92%	97%	30-140%
	d3-MeFOSAA	80%	89%	50-150%
	13C2-4:2FTS	84%	88%	50-150%
	13C2-6:2FTS	86%	92%	50-150%
	13C2-8:2FTS	74%	79%	50-150%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, Inc

NASA KSC, Wilson Corners

60613955

SGS Job Number: FA74872

Sampling Date: 05/08/20

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Total number of pages in report: 25

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

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May 23, 2020

Ms. Krista Sommerfeldt
AECOM
150 N Orange Ave
Suite 200
Orlando, FL 32801

RE: SGS North America Inc. - Orlando job FA74872 Reissue

Dear Ms. Sommerfeldt,

The final report for job number FA74872 has been edited to reflect requested corrections. These edits have been incorporated into the revised report.

The flags for 8260 data have been revised.

SGS North America Inc. - Orlando apologizes for any inconvenience this may have caused. Please feel free to contact us if we can be of further assistance.

Sincerely,

SGS North America, Inc. - Orlando

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SGS North America Inc.

Sample Summary

AECOM, Inc

Job No: FA74872

NASA KSC, Wilson Corners
Project No: 60613955

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA74872-1	05/08/20	11:30	GK	05/08/20	AQ	Ground Water	WILCNPSH-MW0010-031.5-20200508
FA74872-2	05/08/20	10:00	GK	05/08/20	AQ	Ground Water	WILC-MW0088-031.5-20200508
FA74872-3	05/08/20	11:11	GK	05/08/20	AQ	Ground Water	WILC-MW0129-020.0-20200508
FA74872-4	05/08/20	10:10	GK	05/08/20	AQ	Ground Water	WILC-MW0149-025.0-20200508
FA74872-5	05/08/20	11:36	GK	05/08/20	AQ	Ground Water	WILC-MW0152-010.0-20200508
FA74872-6	05/08/20	11:38	GK	05/08/20	AQ	Ground Water	WILC-MW0153-025.0-20200508
FA74872-7	05/08/20	11:15	GK	05/08/20	AQ	Ground Water	WILC-MW0156-010.0-20200508
FA74872-8	05/08/20	00:00	GK	05/08/20	AQ	Trip Blank Water	WILC-TB-20200508-01

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, Inc
Site: NASA KSC, Wilson Corners

Job No: FA74872
Report Date: 5/22/2020 12:56:26 PM
Revision Date: 5/23/2020 3:55:32 PM

7 Samples and 1 Trip Blank were collected on 05/08/2020 and were received at SGS North America Inc - Orlando on 05/08/2020 properly preserved, at 1.1 Deg. C and intact. These Samples received an SGS Orlando job number of FA74872. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** V1A1119

All samples were analyzed within the recommended method holding time.
Sample(s) FA74872-3MS, FA74872-3MSD were used as the QC samples indicated.
All method blanks for this batch meet method specific criteria.
FA74872-1 for Freon 113: Associated ICV outside control limits low.
FA74872-2 for Freon 113: Associated ICV outside control limits low.
FA74872-4 for Freon 113: Associated ICV outside control limits low.
FA74872-5 for Freon 113: Associated ICV outside control limits low.
FA74872-6 for Freon 113: Associated ICV outside control limits low.
FA74872-8 for Freon 113: Associated ICV outside control limits low.

Matrix: AQ **Batch ID:** VC5629

All samples were analyzed within the recommended method holding time.
Sample(s) FA74950-7MS, FA74950-7MSD were used as the QC samples indicated.
All method blanks for this batch meet method specific criteria.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____
Jenna Kravitz, Client Services *(Signature on File)*

Narrative revised by:

_____
Jenna Kravitz, Client Services *(Signature on File)*

Summary of Hits

Job Number: FA74872
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 05/08/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA74872-1	**WILCNPSH-MW0010-031.5-20200508**					
No hits reported in this sample.						
FA74872-2	**WILC-MW0088-031.5-20200508**					
cis-1,2-Dichloroethylene		0.77 I	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.29 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		4.8	1.0	0.41	ug/l	SW846 8260B
FA74872-3	**WILC-MW0129-020.0-20200508**					
cis-1,2-Dichloroethylene		539	10	2.8	ug/l	SW846 8260B
Freon 113 [a]		615 J	10	4.8	ug/l	SW846 8260B
Trichloroethylene		161	10	3.5	ug/l	SW846 8260B
Vinyl Chloride		17.5	10	4.1	ug/l	SW846 8260B
FA74872-4	**WILC-MW0149-025.0-20200508**					
cis-1,2-Dichloroethylene		0.44 I	1.0	0.28	ug/l	SW846 8260B
FA74872-5	**WILC-MW0152-010.0-20200508**					
cis-1,2-Dichloroethylene		16.9	1.0	0.28	ug/l	SW846 8260B
Trichloroethylene		3.3	1.0	0.35	ug/l	SW846 8260B
FA74872-6	**WILC-MW0153-025.0-20200508**					
No hits reported in this sample.						
FA74872-7	**WILC-MW0156-010.0-20200508**					
cis-1,2-Dichloroethylene		73.3	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		8.6	1.0	0.22	ug/l	SW846 8260B
Freon 113		79.6	1.0	0.48	ug/l	SW846 8260B
Trichloroethylene		85.3	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		9.8	1.0	0.41	ug/l	SW846 8260B
FA74872-8	**WILC-TB-20200508-01**					
No hits reported in this sample.						

(a) Associated ICV outside control limits low.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WILCNPSH-MW0010-031.5-20200508		
Lab Sample ID:	FA74872-1	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27408.D	1	05/15/20 02:55	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		83-118%
17060-07-0	1,2-Dichloroethane-D4	108%		79-125%
2037-26-5	Toluene-D8	90%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0088-031.5-20200508		
Lab Sample ID:	FA74872-2	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27409.D	1	05/15/20 03:21	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.77	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.29	1.0	0.22	ug/l	I
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	4.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		83-118%
17060-07-0	1,2-Dichloroethane-D4	108%		79-125%
2037-26-5	Toluene-D8	91%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0129-020.0-20200508		
Lab Sample ID:	FA74872-3	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27410.D	10	05/15/20 03:47	CV	n/a	n/a	V1A1119
Run #2 [a]	C0140763.D	10	05/15/20 14:04	KB	n/a	n/a	VC5629

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	3.2 U	10	3.2	ug/l	
156-59-2	cis-1,2-Dichloroethylene	539	10	2.8	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.2 U	10	2.2	ug/l	
76-13-1	Freon 113 [b]	615	10	4.8	ug/l	J
127-18-4	Tetrachloroethylene	2.2 U	10	2.2	ug/l	
79-01-6	Trichloroethylene	161	10	3.5	ug/l	
75-01-4	Vinyl Chloride	17.5	10	4.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	111%	103%	79-125%
2037-26-5	Toluene-D8	90%	97%	85-112%
460-00-4	4-Bromofluorobenzene	97%	99%	83-118%

(a) Confirmation run.
(b) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0149-025.0-20200508		
Lab Sample ID:	FA74872-4	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27411.D	1	05/15/20 04:13	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.44	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		83-118%
17060-07-0	1,2-Dichloroethane-D4	111%		79-125%
2037-26-5	Toluene-D8	90%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0152-010.0-20200508		
Lab Sample ID:	FA74872-5	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27412.D	1	05/15/20 04:39	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	16.9	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	3.3	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		83-118%
17060-07-0	1,2-Dichloroethane-D4	109%		79-125%
2037-26-5	Toluene-D8	90%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0153-025.0-20200508		
Lab Sample ID:	FA74872-6	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27413.D	1	05/15/20 05:05	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		83-118%
17060-07-0	1,2-Dichloroethane-D4	112%		79-125%
2037-26-5	Toluene-D8	91%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0156-010.0-20200508		
Lab Sample ID:	FA74872-7	**Date Sampled:**	05/08/20
Matrix:	AQ - Ground Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27414.D	1	05/15/20 05:31	CV	n/a	n/a	V1A1119
Run #2	C0140764.D	1	05/15/20 14:32	KB	n/a	n/a	VC5629

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	73.3	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	8.6	1.0	0.22	ug/l	
76-13-1	Freon 113	79.6 [a]	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	85.3	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	9.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	111%	102%	79-125%
2037-26-5	Toluene-D8	91%	99%	85-112%
460-00-4	4-Bromofluorobenzene	97%	101%	83-118%

(a) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-TB-20200508-01		
Lab Sample ID:	FA74872-8	**Date Sampled:**	05/08/20
Matrix:	AQ - Trip Blank Water	**Date Received:**	05/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1A27405.D	1	05/15/20 01:37	CV	n/a	n/a	V1A1119
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113 [a]	0.48 UJ	1.0	0.48	ug/l	J
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	91%		85-112%
460-00-4	4-Bromofluorobenzene	97%		83-118%

(a) Associated ICV outside control limits low.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FA74872

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name:	NASA KSC - Wilson Corners	COC No.	Page: 1 of 1
Site Location:	Wilson Corners	PO No.	Project No. 60613955.4 Phase:
TO No.:	80KSC019F0082	AECOM Project Manager:	Krista Sommerfeldt
Send Invoice To:	Instructions in MSA # 195-24548-GV03	EDD to:	Jennifer Chastain Cc: Megan Garcia
Deliver Sample Kits To:	AECOM Depot, 523 18th Street, Orlando	Report to:	Jennifer Chastain Cc: Megan Garcia
Sampler/Phone #	Greg Kusel / (772) 631-7426 ~~Madan Parsotan / (321) 591-5000~~ Brittany Follett / 419-302-0236	Deliver Samples To:	SGS Orlando Site-Specific WS#15 from QAPP:
Lab Name:	SGS	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 Select PFAS by 537	Comments
1	WILCNPSH-MW0010- 0315 - 20200505	WILCNPSH-MW0010	~~20200331~~ 20200505	1130	WG	N	G=Grab	3	3		
2	WILC-MW0088- 0315 - 20200504	WILC-MW0088	~~20200331~~ 20200504	1000	WG	N	G=Grab	3	3		
3	WILC-MW0129- 0320.5 - 20200504	WILC-MW0129	~~20200331~~ 20200504	1111	WG	N	G=Grab	3	3		
4	WILC-MW0149- 0325.0 - 20200504	WILC-MW0149	~~20200331~~ 20200504	1010	WG	N	G=Grab	3	3		
5	WILC-MW0152- 010.0 - 20200504	WILC-MW0152	~~20200331~~ 20200504	1136	WG	N	G=Grab	3	3		
6	WILC-MW0153- 0325.0 - 20200504	WILC-MW0153	~~20200331~~ 20200504	1138	WG	N	G=Grab	3	3		
7	WILC-MW0156- 010.0 - 20200504	WILC-MW0156	~~20200331~~ 20200504	1115	WG	N	G=Grab	3	3		
~~8~~	~~WILC-IDW-20200331-01~~	~~WILC-IDW01~~	~~20200331~~		~~IDW~~	~~IDW~~	~~G=Grab~~	~~5~~	~~3~~	~~2~~	
8	WILC-TB-~~20200331-01~~ 20200505-01	WILC-TB01	~~20200331~~ 20200504		WQ	TB	G=Grab	2	2		

INITIAL ASSESSMENT SP

LABEL VERIFICATION AB

***Field* Comments:**
Report only per QAPP WS #15

***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			1	05/08/20	0900
2	05/08/20	1340	2		1340
3			3	5/8/20	915

(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, **H2SD4 <2**=Adjust to pH < 2 with sulfuric acid, **H3PO4**=Phosphoric acid, **H3P04 <2**=Adjust to pH <2 with phosphoric acid, **HCl <2**=Adjust to pH < 2 with hydrochloric acid, **HNaD4S**=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**

11 CSP 05/09/2020

5.1 5

FA74872: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: FA74872 **Client:** AECOM **Project:** NASA KSC - WILSON CORNERS

Date / Time Received: 5/8/2020 1:40:00 PM **Delivery Method:** Delivery **Airbill #'s:** N/A

Therm ID: IR 1; **Therm CF:** -0.8; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.9);

Cooler Temps (Corrected) °C: Cooler 1: (1.1);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☑		☐	☐
2. Trip Blank listed on COC	☑		☐	☐

	W	or	S	N/A
3. Type Of TB Received	☑		☐	☐

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☑	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: PETERH Date: 5/8/2020 1:40:00 PM Reviewer: _____ Date: _____

MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1A1119-MB	1A27404.D	1	05/15/20	CV	n/a	n/a	V1A1119

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-1, FA74872-2, FA74872-3, FA74872-4, FA74872-5, FA74872-6, FA74872-7, FA74872-8

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	79-125%
2037-26-5	Toluene-D8	91%	85-112%
460-00-4	4-Bromofluorobenzene	97%	83-118%

Method Blank Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC5629-MB	C0140757.D	1	05/15/20	KB	n/a	n/a	VC5629

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-7

CAS No.	Compound	Result	RL	MDL	Units	Q
76-13-1	Freon 113	ND	1.0	0.48	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	100%	79-125%
2037-26-5	Toluene-D8	99%	85-112%
460-00-4	4-Bromofluorobenzene	99%	83-118%

Blank Spike Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1A1119-BS	1A27402.D	1	05/15/20	CV	n/a	n/a	V1A1119

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-1, FA74872-2, FA74872-3, FA74872-4, FA74872-5, FA74872-6, FA74872-7, FA74872-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	27.1	108	78-137
156-59-2	cis-1,2-Dichloroethylene	25	26.7	107	78-120
156-60-5	trans-1,2-Dichloroethylene	25	26.0	104	76-127
76-13-1	Freon 113	25	20.9	84	72-134
127-18-4	Tetrachloroethylene	25	25.0	100	76-135
79-01-6	Trichloroethylene	25	26.6	106	81-126
75-01-4	Vinyl Chloride	25	25.5	102	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	107%	83-118%
17060-07-0	1,2-Dichloroethane-D4	112%	79-125%
2037-26-5	Toluene-D8	93%	85-112%
460-00-4	4-Bromofluorobenzene	98%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC5629-BS	C0140755.D	1	05/15/20	KB	n/a	n/a	VC5629

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
76-13-1	Freon 113	25	25.7	103	72-134

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	99%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	101%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA74872-3MS	1A27419.D	10	05/15/20	CV	n/a	n/a	V1A1119
FA74872-3MSD	1A27420.D	10	05/15/20	CV	n/a	n/a	V1A1119
FA74872-3	1A27410.D	10	05/15/20	CV	n/a	n/a	V1A1119

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-1, FA74872-2, FA74872-3, FA74872-4, FA74872-5, FA74872-6, FA74872-7, FA74872-8

CAS No.	Compound	FA74872-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	10 U		250	286	114	250	280	112	2	78-137/18
156-59-2	cis-1,2-Dichloroethylene	539		250	791	101	250	783	98	1	78-120/15
156-60-5	trans-1,2-Dichloroethylene	10 U		250	273	109	250	268	107	2	76-127/17
76-13-1	Freon 113	615	J	250	810	78	250	811	78	0	72-134/20
127-18-4	Tetrachloroethylene	10 U		250	241	96	250	231	92	4	76-135/16
79-01-6	Trichloroethylene	161		250	442	112	250	430	108	3	81-126/15
75-01-4	Vinyl Chloride	17.5		250	251	93	250	258	96	3	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA74872-3	Limits
1868-53-7	Dibromofluoromethane	108%	108%	106%	83-118%
17060-07-0	1,2-Dichloroethane-D4	119%	119%	111%	79-125%
2037-26-5	Toluene-D8	89%	89%	90%	85-112%
460-00-4	4-Bromofluorobenzene	97%	98%	97%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA74872
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA74950-7MS	C0140778.D	200	05/15/20	KB	n/a	n/a	VC5629
FA74950-7MSD	C0140779.D	200	05/15/20	KB	n/a	n/a	VC5629
FA74950-7	C0140758.D	100	05/15/20	KB	n/a	n/a	VC5629

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA74872-7

CAS No.	Compound	FA74950-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
76-13-1	Freon 113	100	U	5000	4920	98	5000	4590	92	7	72-134/20

CAS No.	Surrogate Recoveries	MS	MSD	FA74950-7	Limits
1868-53-7	Dibromofluoromethane	102%	102%	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	100%	102%	104%	79-125%
2037-26-5	Toluene-D8	100%	99%	98%	85-112%
460-00-4	4-Bromofluorobenzene	100%	100%	101%	83-118%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, Inc

NASA KSC, Wilson Corners

60613955.4

SGS Job Number: FA81441

Sampling Dates: 12/03/20 - 12/04/20

Report to:

AECOM
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Orlando, FL 32801
jennifer.joyal@aecom.com; teresa.amentt.jennings@aecom.com;
gloria.richie@aecom.com; linnea.king@aecom.com;
ATTN: Jennifer Joyal

Total number of pages in report: 56

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Sample Summary

AECOM, Inc

Job No: FA81441

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81441-1	12/03/20	12:01	DSMP	12/04/20	AQ	Ground Water	WILC-MW0064-004.5-20201203
FA81441-2	12/03/20	09:36	DSMP	12/04/20	AQ	Ground Water	WILC-MW0074-004.5-20201203
FA81441-3	12/04/20	10:05	DSMP	12/04/20	AQ	Ground Water	WILC-MW0152-001.5-20201204
FA81441-4	12/03/20	10:17	DSMP	12/04/20	AQ	Ground Water	WILC-MW0154-012.5-20201203
FA81441-5	12/04/20	09:31	DSMP	12/04/20	AQ	Ground Water	WILC-MW0109-020.0-20201204
FA81441-6	12/03/20	11:58	DSMP	12/04/20	AQ	Ground Water	WILC-MW0116-020.0-20201203
FA81441-7	12/04/20	11:11	DSMP	12/04/20	AQ	Ground Water	WILC-MW0125-020.0-20201204
FA81441-8	12/03/20	10:38	DSMP	12/04/20	AQ	Ground Water	WILC-MW0142-013.0-20201203
FA81441-9	12/04/20	10:39	DSMP	12/04/20	AQ	Ground Water	WILC-MW0153-025.0-20201204
FA81441-10	12/04/20	11:15	DSMP	12/04/20	AQ	Ground Water	WILCNPSH-MW0010-031.5-20201204
FA81441-11	12/04/20	09:17	DSMP	12/04/20	AQ	Ground Water	WILCNPSH-MW0019-031.5-20201204
FA81441-12	12/04/20	10:21	DSMP	12/04/20	AQ	Ground Water	WILCNPSH-MW0020-031.5-20201204
FA81441-13	12/04/20	12:06	DSMP	12/04/20	AQ	Ground Water	WILCNPSH-MW0022-031.5-20201204

Sample Summary
(continued)

AECOM, Inc

Job No: FA81441

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81441-14	12/03/20	11:11	DSMP	12/04/20	AQ	Ground Water	WILC-MW0065-031.5-20201203
FA81441-15	12/03/20	10:06	DSMP	12/04/20	AQ	Ground Water	WILC-MW0080-031.5-20201203
FA81441-16	12/04/20	11:31	DSMP	12/04/20	AQ	Ground Water	WILC-MW0111-031.0-20201204
FA81441-17	12/03/20	09:02	DSMP	12/04/20	AQ	Ground Water	WILC-MW0140-028.0-20201203
FA81441-18	12/03/20	11:27	DSMP	12/04/20	AQ	Ground Water	WILC-MW0143-028.0-20201203
FA81441-19	12/04/20	09:53	DSMP	12/04/20	AQ	Ground Water	WILC-MW0146-028.0-20201204
FA81441-20	12/03/20	11:12	DSMP	12/04/20	AQ	Ground Water	WILC-MW0155-031.5-20201203
FA81441-21	12/03/20	14:41	DSMP	12/04/20	AQ	Ground Water	WILCNPSH-MW0039-042.5-20201203
FA81441-22	12/03/20	13:41	DSMP	12/04/20	AQ	Ground Water	WILC-MW0068-042.5-20201203
FA81441-23	12/03/20	12:40	DSMP	12/04/20	AQ	Ground Water	WILC-MW0118-042.5-20201203
FA81441-24	12/03/20	09:48	DSMP	12/04/20	AQ	Ground Water	WILC-MW0141-039.0-20201203
FA81441-25	12/03/20	12:04	DSMP	12/04/20	AQ	Ground Water	WILC-MW0144-045.0-20201203
FA81441-26	12/04/20	09:06	DSMP	12/04/20	AQ	Ground Water	WILC-MW0145-043.0-20201204

Sample Summary
(continued)

AECOM, Inc

Job No: FA81441

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81441-27	12/04/20	10:35	DSMP	12/04/20	AQ	Ground Water	WILC-MW0147-043.0-20201204
FA81441-28	12/03/20	09:00	DSMP	12/04/20	AQ	Trip Blank Water	WILC-TB01-20201203

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, Inc **Job No:** FA81441

Site: NASA KSC, Wilson Corners **Report Date** 12/14/2020 11:01:00

23 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on between 12/03/2020 and 12/04/2020 and were received at SGS North America Inc - Orlando on 12/04/2020 properly preserved, at 1.8 Deg. C and intact. These Samples received an SGS Orlando job number of FA81441. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** L:V1J3021

FA81441-1: Analysis performed at SGS Scott, LA.
FA81441-2: Analysis performed at SGS Scott, LA.
FA81441-3: Analysis performed at SGS Scott, LA.
FA81441-4: Analysis performed at SGS Scott, LA.
FA81441-5: Analysis performed at SGS Scott, LA.
FA81441-6: Analysis performed at SGS Scott, LA.
FA81441-7: Analysis performed at SGS Scott, LA.
FA81441-8: Analysis performed at SGS Scott, LA.
FA81441-9: Analysis performed at SGS Scott, LA.
FA81441-10: Analysis performed at SGS Scott, LA.
FA81441-11: Analysis performed at SGS Scott, LA.
FA81441-12: Analysis performed at SGS Scott, LA.
FA81441-13: Analysis performed at SGS Scott, LA.
FA81441-14: Analysis performed at SGS Scott, LA.
FA81441-15: Analysis performed at SGS Scott, LA.
FA81441-25: Analysis performed at SGS Scott, LA.
FA81441-28: Analysis performed at SGS Scott, LA.

Matrix: AQ **Batch ID:** L:V2J3021

FA81441-17: Analysis performed at SGS Scott, LA.
FA81441-18: Analysis performed at SGS Scott, LA.
FA81441-20: Analysis performed at SGS Scott, LA.
FA81441-21: Analysis performed at SGS Scott, LA.
FA81441-22: Analysis performed at SGS Scott, LA.
FA81441-23: Analysis performed at SGS Scott, LA.
FA81441-24: Analysis performed at SGS Scott, LA.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services *(Signature on File)*

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	SGS Orlando, FL	**Job No**	FA81441
Site:	MEFLOR: NASA KSC, Wilson Corners	**Report Date**	12/11/2020 12:57:21 P

23 samples, 1 trip blanks and 0 field blanks were collected on between 12/03/2020 and 12/04/2020 and were received intact at SGS North America Inc.-Scott (SGS) on 12/04/2020, properly preserved and cool at 3.3 Deg C. These samples received an SGS job number of FA81441. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** V1J3021

- Sample(s) FA81441-25MS, FA81441-25MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V2J3021

- Sample(s) LA68249-1MS, LA68249-1MSD were used as the QC samples indicated.

SGS North America Inc.-Scott (SGS) certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS and as stated on the COC. SGS certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the SGS Quality Manual except as noted above. This report is to be used in its entirety. SGS is not responsible for any assumptions of data quality if partial data packages are used

Summary of Hits

Job Number: FA81441
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/03/20 thru 12/04/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81441-1	**WILC-MW0064-004.5-20201203**					
cis-1,2-Dichloroethylene [a]		0.78 I	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		1.3	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		0.83 I	1.0	0.23	ug/l	SW846 8260B
FA81441-2	**WILC-MW0074-004.5-20201203**					
No hits reported in this sample.						
FA81441-3	**WILC-MW0152-001.5-20201204**					
1,1-Dichloroethylene [a]		1.5	1.0	0.27	ug/l	SW846 8260B
cis-1,2-Dichloroethylene [a]		447 L	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		10.2	1.0	0.26	ug/l	SW846 8260B
Trichloroethylene [a]		236 L	1.0	0.31	ug/l	SW846 8260B
Vinyl Chloride [a]		18.2	1.0	0.23	ug/l	SW846 8260B
FA81441-4	**WILC-MW0154-012.5-20201203**					
cis-1,2-Dichloroethylene [a]		0.72 I	1.0	0.34	ug/l	SW846 8260B
Vinyl Chloride [a]		0.56 I	1.0	0.23	ug/l	SW846 8260B
FA81441-5	**WILC-MW0109-020.0-20201204**					
cis-1,2-Dichloroethylene [a]		2.6	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		1.1	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		7.8	1.0	0.23	ug/l	SW846 8260B
FA81441-6	**WILC-MW0116-020.0-20201203**					
cis-1,2-Dichloroethylene [a]		1.4	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		3.6	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		5.0	1.0	0.23	ug/l	SW846 8260B
FA81441-7	**WILC-MW0125-020.0-20201204**					
Vinyl Chloride [a]		0.41 I	1.0	0.23	ug/l	SW846 8260B
FA81441-8	**WILC-MW0142-013.0-20201203**					
cis-1,2-Dichloroethylene [a]		9.8	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		6.3	1.0	0.26	ug/l	SW846 8260B
Trichloroethylene [a]		1.0	1.0	0.31	ug/l	SW846 8260B
Vinyl Chloride [a]		10.4	1.0	0.23	ug/l	SW846 8260B

Summary of Hits

Job Number: FA81441
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/03/20 thru 12/04/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81441-9	**WILC-MW0153-025.0-20201204**					
cis-1,2-Dichloroethylene [a]		0.38 I	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		0.38 I	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		0.50 I	1.0	0.23	ug/l	SW846 8260B
FA81441-10	**WILCNPSH-MW0010-031.5-20201204**					
No hits reported in this sample.						
FA81441-11	**WILCNPSH-MW0019-031.5-20201204**					
cis-1,2-Dichloroethylene [a]		1.0	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		1.6	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		3.0	1.0	0.23	ug/l	SW846 8260B
FA81441-12	**WILCNPSH-MW0020-031.5-20201204**					
cis-1,2-Dichloroethylene [a]		1.7	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		1.6	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		3.1	1.0	0.23	ug/l	SW846 8260B
FA81441-13	**WILCNPSH-MW0022-031.5-20201204**					
No hits reported in this sample.						
FA81441-14	**WILC-MW0065-031.5-20201203**					
cis-1,2-Dichloroethylene [a]		10.8	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		9.2	1.0	0.26	ug/l	SW846 8260B
Trichloroethylene [a]		0.36 I	1.0	0.31	ug/l	SW846 8260B
Vinyl Chloride [a]		64.1	1.0	0.23	ug/l	SW846 8260B
FA81441-15	**WILC-MW0080-031.5-20201203**					
cis-1,2-Dichloroethylene [a]		4.1	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		10.2	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		20.2	1.0	0.23	ug/l	SW846 8260B
FA81441-17	**WILC-MW0140-028.0-20201203**					
cis-1,2-Dichloroethylene [a]		4.1	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		0.65 I	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		55.4	1.0	0.23	ug/l	SW846 8260B

Summary of Hits

Job Number: FA81441
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/03/20 thru 12/04/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81441-18	**WILC-MW0143-028.0-20201203**					
cis-1,2-Dichloroethylene [a]		14.0	1.0	0.34	ug/l	SW846 8260B
Trichloroethylene [a]		1.0	1.0	0.31	ug/l	SW846 8260B
Vinyl Chloride [a]		15.6	1.0	0.23	ug/l	SW846 8260B
FA81441-20	**WILC-MW0155-031.5-20201203**					
trans-1,2-Dichloroethylene [a]		0.32 I	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		0.41 I	1.0	0.23	ug/l	SW846 8260B
FA81441-21	**WILCNPSH-MW0039-042.5-20201203**					
No hits reported in this sample.						
FA81441-22	**WILC-MW0068-042.5-20201203**					
cis-1,2-Dichloroethylene [a]		0.73 I	1.0	0.34	ug/l	SW846 8260B
Vinyl Chloride [a]		2.8	1.0	0.23	ug/l	SW846 8260B
FA81441-23	**WILC-MW0118-042.5-20201203**					
cis-1,2-Dichloroethylene [a]		1.0	1.0	0.34	ug/l	SW846 8260B
Vinyl Chloride [a]		1.7	1.0	0.23	ug/l	SW846 8260B
FA81441-24	**WILC-MW0141-039.0-20201203**					
cis-1,2-Dichloroethylene [a]		9.7	1.0	0.34	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		0.42 I	1.0	0.26	ug/l	SW846 8260B
Vinyl Chloride [a]		75.6	1.0	0.23	ug/l	SW846 8260B
FA81441-25	**WILC-MW0144-045.0-20201203**					
1,1-Dichloroethylene [a]		3.3 I	5.0	1.3	ug/l	SW846 8260B
cis-1,2-Dichloroethylene [a]		2390	20	6.7	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		5.2	5.0	1.3	ug/l	SW846 8260B
Freon 113 [a]		16.5	5.0	1.8	ug/l	SW846 8260B
Trichloroethylene [a]		197	5.0	1.6	ug/l	SW846 8260B
Vinyl Chloride [a]		719	5.0	1.2	ug/l	SW846 8260B
FA81441-28	**WILC-TB01-20201203**					
No hits reported in this sample.						

Summary of Hits

Job Number: FA81441
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/03/20 thru 12/04/20

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method

(a) Analysis performed at SGS Scott, LA.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WILC-MW0064-004.5-20201203		
Lab Sample ID:	FA81441-1	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088304.D	1	12/10/20 16:59	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.78	1.0	0.34	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	1.3	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.83	1.0	0.23	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		81-120%
2037-26-5	Toluene-D8	99%		93-105%
460-00-4	4-Bromofluorobenzene	98%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0074-004.5-20201203		
Lab Sample ID:	FA81441-2	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088306.D	1	12/10/20 17:26	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.23 U	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		81-120%
2037-26-5	Toluene-D8	99%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0152-001.5-20201204		
Lab Sample ID:	FA81441-3	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088308.D	1	12/10/20 17:52	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.5	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	447	1.0	0.34	ug/l	L
156-60-5	trans-1,2-Dichloroethylene	10.2	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	236	1.0	0.31	ug/l	L
75-01-4	Vinyl Chloride	18.2	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0154-012.5-20201203		
Lab Sample ID:	FA81441-4	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088310.D	1	12/10/20 18:19	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.72	1.0	0.34	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.56	1.0	0.23	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	107%		81-120%
2037-26-5	Toluene-D8	96%		93-105%
460-00-4	4-Bromofluorobenzene	98%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0109-020.0-20201204		
Lab Sample ID:	FA81441-5	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088312.D	1	12/10/20 18:46	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.6	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.1	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	7.8	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		81-120%
2037-26-5	Toluene-D8	99%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0116-020.0-20201203		
Lab Sample ID:	FA81441-6	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088314.D	1	12/10/20 19:13	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.4	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.6	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	5.0	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	99%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0125-020.0-20201204		
Lab Sample ID:	FA81441-7	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088316.D	1	12/10/20 19:40	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.41	1.0	0.23	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	98%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0142-013.0-20201203		
Lab Sample ID:	FA81441-8	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088318.D	1	12/10/20 20:07	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	9.8	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	6.3	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	1.0	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	10.4	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		81-120%
2037-26-5	Toluene-D8	99%		93-105%
460-00-4	4-Bromofluorobenzene	98%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0153-025.0-20201204		
Lab Sample ID:	FA81441-9	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088320.D	1	12/10/20 20:34	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.38	1.0	0.34	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.38	1.0	0.26	ug/l	I
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.50	1.0	0.23	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0010-031.5-20201204		
Lab Sample ID:	FA81441-10	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088322.D	1	12/10/20 21:01	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.23 U	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	109%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0019-031.5-20201204		
Lab Sample ID:	FA81441-11	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088324.D	1	12/10/20 21:28	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.6	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	3.0	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	107%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0020-031.5-20201204		
Lab Sample ID:	FA81441-12	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088326.D	1	12/10/20 21:55	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.7	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.6	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	3.1	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0022-031.5-20201204		
Lab Sample ID:	FA81441-13	**Date Sampled:**	12/04/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088328.D	1	12/10/20 22:22	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.23 U	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	107%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	95%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0065-031.5-20201203		
Lab Sample ID:	FA81441-14	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088330.D	1	12/10/20 22:49	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10.8	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	9.2	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.36	1.0	0.31	ug/l	I
75-01-4	Vinyl Chloride	64.1	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	94%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0080-031.5-20201203		
Lab Sample ID:	FA81441-15	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088332.D	1	12/10/20 23:16	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.1	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10.2	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	20.2	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		81-120%
2037-26-5	Toluene-D8	96%		93-105%
460-00-4	4-Bromofluorobenzene	99%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0140-028.0-20201203		
Lab Sample ID:	FA81441-17	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088313.D	1	12/10/20 19:00	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.1	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.65	1.0	0.26	ug/l	I
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	55.4	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	96%		93-105%
460-00-4	4-Bromofluorobenzene	93%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0143-028.0-20201203		
Lab Sample ID:	FA81441-18	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088307.D	1	12/10/20 17:39	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	14.0	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	1.0	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	15.6	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0155-031.5-20201203		
Lab Sample ID:	FA81441-20	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088311.D	1	12/10/20 18:33	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.32	1.0	0.26	ug/l	I
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.41	1.0	0.23	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		81-120%
2037-26-5	Toluene-D8	98%		93-105%
460-00-4	4-Bromofluorobenzene	94%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0039-042.5-20201203		
Lab Sample ID:	FA81441-21	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088295.D	1	12/10/20 14:58	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.23 U	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0068-042.5-20201203		
Lab Sample ID:	FA81441-22	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088297.D	1	12/10/20 15:25	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.73	1.0	0.34	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	2.8	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0118-042.5-20201203		
Lab Sample ID:	FA81441-23	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088299.D	1	12/10/20 15:51	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	1.7	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		81-120%
2037-26-5	Toluene-D8	97%		93-105%
460-00-4	4-Bromofluorobenzene	96%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0141-039.0-20201203		
Lab Sample ID:	FA81441-24	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2J0088301.D	1	12/10/20 16:18	ALA	n/a	n/a	L:V2J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	9.7	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.42	1.0	0.26	ug/l	I
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	75.6	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		81-120%
2037-26-5	Toluene-D8	96%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0144-045.0-20201203		
Lab Sample ID:	FA81441-25	**Date Sampled:**	12/03/20
Matrix:	AQ - Ground Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088336.D	5	12/11/20 00:09	ALA	n/a	n/a	L:V1J3021
Run #2 [a]	1J0088296.D	20	12/10/20 15:11	ALA	n/a	n/a	L:V1J3021

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	3.3	5.0	1.3	ug/l	I
156-59-2	cis-1,2-Dichloroethylene	2390 [b]	20	6.7	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.2	5.0	1.3	ug/l	
76-13-1	Freon 113	16.5	5.0	1.8	ug/l	
127-18-4	Tetrachloroethylene	1.5 U	5.0	1.5	ug/l	
79-01-6	Trichloroethylene	197	5.0	1.6	ug/l	
75-01-4	Vinyl Chloride	719	5.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%	101%	81-120%
2037-26-5	Toluene-D8	98%	98%	93-105%
460-00-4	4-Bromofluorobenzene	95%	96%	89-107%

(a) Analysis performed at SGS Scott, LA.
(b) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-TB01-20201203		
Lab Sample ID:	FA81441-28	**Date Sampled:**	12/03/20
Matrix:	AQ - Trip Blank Water	**Date Received:**	12/04/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1J0088294.D	1	12/10/20 14:44	ALA	n/a	n/a	L:V1J3021
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 special list

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.27 U	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.34 U	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.26 U	1.0	0.26	ug/l	
76-13-1	Freon 113	0.35 U	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	0.30 U	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	0.31 U	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	0.23 U	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		81-120%
2037-26-5	Toluene-D8	96%		93-105%
460-00-4	4-Bromofluorobenzene	97%		89-107%

(a) Analysis performed at SGS Scott, LA.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FA81441

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name:	NASA KSC - Wilson Corners		COC No.	Page: 1 of 4	
Site Location:	Wilson Corners		PO No.	Project No. 60613955.4	Phase:
TO No.:	80KSC019F0082	AECOM Project Manager: Michael McCoy cc: Chad Lee	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain	Cc: Teresa Amentt Jennings
Sampler/Phone #	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:	SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10	

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 Select PFAS by 537	Comments
	~~WILCNPSH-MW0027~~	~~WILCNPSH-MW0027~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
1	WILC-MW0064- 004.5- 20201203	WILC-MW0064	202012 03	1201	WG	N	G	3	3		
2	WILC-MW0074- 004.5- 20201203	WILC-MW0074	202012 03	0936	WG	N	G	3	3		
	~~WILC-MW0091-~~	~~WILC-MW0091~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
	~~WILC-MW0095-~~	~~WILC-MW0095~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
3	WILC-MW0152- 001.5- 20201204	WILC-MW0152	202012 04	1005	WG	N	G	3	3		
4	WILC-MW0154- 012.5- 20201203	WILC-MW0154	202012 03	1017	WG	N	G	3	3		
	~~WILC-MW0156-~~	~~WILC-MW0156~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
	~~WILC-MW0089-~~	~~WILC-MW0089~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
	~~WILC-MW0096-~~	~~WILC-MW0096~~	~~202012~~		WG	N	G	~~3~~	~~3~~		
5	WILC-MW0109- 020.0- 20201204	WILC-MW0109	202012 04	0931	WG	N	G	3	3		
6	WILC-MW0116- 020.0- 20201203	WILC-MW0116	202012 03	1158	WG	N	G	3	3		

INITIAL ASSESSMENT COMPLETED BY: BG

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**
Temp 1.9

Sample Shipment and Delivery Details
Number of coolers in shipment:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1	KC	11/20/2020	14:12		12/2/20	0700
2		12/4/20	1325		12/4/20	1325
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**

FA81441: Chain of Custody
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FA81441

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 2 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: **Michael McCoy cc: Chad Lee**	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # 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: SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10

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 Select PFAS by 537	Comments
7	WILC-MW0125-020.0-20201204	WILC-MW0125	20201204	1111	WG	N	G	3	3		
	~~WILC-MW0129-~~ (X)	~~WILC-MW0129~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
8	WILC-MW0142-013.0-20201203	WILC-MW0142	20201203	1038	WG	N	G	3	3		
	~~WILC-MW0149-~~ (X)	~~WILC-MW0149~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
9	WILC-MW0153-025.0-20201204	WILC-MW0153	20201204	1039	WG	N	G	3	3		
10	WILCNPSH-MW0010-031.5-20201204	WILCNPSH-MW0010	20201204	1115	WG	N	G	3	3		
	~~WILCNPSH-MW0017-~~ (X)	~~WILCNPSH-MW0017~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
11	WILCNPSH-MW0019-031.5-20201204	WILCNPSH-MW0019	20201204	0917	WG	N	G	3	3		
12	WILCNPSH-MW0020-031.5-20201204	WILCNPSH-MW0020	20201204	1021	WG	N	G	3	3		
13	WILCNPSH-MW0022-031.5-20201204	WILCNPSH-MW0022	20201204	1206	WG	N	G	3	3		
	~~WILC-MW0062-~~ (X)	~~WILC-MW0062~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
14	WILC-MW0065-031.5-20201203	WILC-MW0065	20201203	1111	WG	N	G	3	3		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1 MC	12/4/2020	14:25	1	12/4/20	0700
2	12/4/20	1325	2	12/4/20	1325
3			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**

FA81441

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 3 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: Michael McCoy cc: Chad Lee	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # 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: SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10

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 Select PFAS by 537	Comments
15	WILC-MW0080-031.5-20201203	WILC-MW0080	20201203	1006	WG	N	G	3	3		
	~~WILC-MW0088-~~	~~WILC-MW0088~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0090-~~	~~WILC-MW0090~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0097-~~	~~WILC-MW0097~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
16	WILC-MW0111-031.0-20201204	WILC-MW0111	20201204	1131	WG	N	G	3	3		
17	WILC-MW0140-028.0-20201203	WILC-MW0140	20201203	0902	WG	N	G	3	3		
18	WILC-MW0143-028.0-20201203	WILC-MW0143	20201203	1127	WG	N	G	3	3		
19	WILC-MW0146-028.0-20201204	WILC-MW0146	20201204	0953	WG	N	G	3	3		
20	WILC-MW0155-031.5-20201203	WILC-MW0155	20201203	1112	WG	N	G	3	3		
21	WILCNPSH-MW0039-042.5-20201203	WILCNPSH-MW0039	20201203	1441	WG	N	G	3	3		
	~~WILC-MW0046D-~~	~~WILC-MW0046D~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
22	WILC-MW0068-042.5-20201203	WILC-MW0068	20201203	1341	WG	N	G	3	3		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1	11/20/2020	14:20	1	12/2/20	0700
2	12/4/20	1325	2	12/4/20	1325
3			3		

Sample Shipment and Delivery Details
Number of coolers in shipment:
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**

FA81441

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 4 of 4

AECOM

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955.4 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0082 | AECOM Project Manager: **Michael McCoy cc: Chad Lee** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # Dustin Slater (407) 766-0747 Madan Parsotan (321) 696-6000 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP: 15-10

Lab Name: SGS | 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) HCl 4 DEG	Total No. of Containers	Select VOCs by SW8260B (Preserved)	Select PFAS by 537	Comments
23	WILC-MW0118-042.5-20201203	WILC-MW0118	20201203	1240	WG	N	G		3	3		
24	WILC-MW0141-039.0-20201203	WILC-MW0141	20201203	0948	WG	N	G		3	3		
25	WILC-MW0144-045.0-20201203	WILC-MW0144	20201203	1204	WG	N	G		3	3		
26	WILC-MW0145-043.0-20201204	WILC-MW0145	20201204	0940	WG	N	G		3	3		
27	WILC-MW0147-043.0-20201204	WILC-MW0147	20201204	1035	WG	N	G		3	3		
	~~WILC-MW0078-~~	~~WILC-MW0078~~	~~202012~~		~~WG~~	~~N~~	~~G~~		~~3~~	~~3~~		
	~~WILC-MW0130-~~	~~WILC-MW0130~~	~~202012~~		~~WG~~	~~N~~	~~G~~		~~3~~	~~3~~		
	~~WILC-IDW01-~~	~~WILC-IDW01~~	~~202012~~		~~IDW~~	~~IDW~~	~~G~~		~~5~~	~~3~~	~~2~~	
28	WILC-TB01-20201203	WILC-TB01	20201203	0900	WQ	TB	G		3	3		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1	11/20/2020	14:20	1	12/2/20	0900
2	12/4/20	1325	2	12/4/20	1325
3			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

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(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**

FA81441: Chain of Custody
Page 4 of 6

SGS Sample Receipt Summary

Job Number: FA81441 **Client:** AECOM **Project:** NASA KSC- WILSON CORNERS

Date / Time Received: 12/4/2020 1:25:00 PM **Delivery Method:** D/O **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.6);

Cooler Temps (Corrected) °C: Cooler 1: (1.8);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☑		☐	☐
2. Trip Blank listed on COC	☑		☐	☐

	W	or	S	N/A
3. Type Of TB Received	☑		☐	☐

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☑		☐	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments SAMPLES:
FA81441-16
FA81441-19
FA81441-26
FA81441-27
FA81441-28 & 29 (Trip blanks)
ALL HAVE HEADSPACE IN THEM

SM001
Rev. Date 05/24/17

Technician: CARLOSD Date: 12/4/2020 1:25:00 PM Reviewer: _____ Date: _____

Job Change Order: FA81441

Requested Date:	12/9/2020	**Received Date:**	12/4/2020
Account Name:	AECOM, Inc	**Due Date:**	12/11/2020
Project Description:	NASA KSC, Wilson Corners	**Deliverable:**	COMMBN
CSR:	AC	**TAT (Days):**	1

==========

Sample #: FA81441-16,19,26,27

Dept:

TAT: 1

Change:
Please cancel VOC analysis due to headspace in the vials.

==========

Above Changes Per: Jennifer Joyal **Date/Time:** 12/9/2020 6:19:38 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Misc. Forms

Custody Documents and Other Forms

(SGS Scott, LA)

Includes the following where applicable:

- Chain of Custody

SGS

CHAIN OF CUSTODY

SGS North America Inc. - Orlando
4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com/ehsusa

FED-EX Tracking #	Bottle Order Control #
SGS Quote #	SGS Job # FA81441

Client / Reporting Information	Project Information	Requested Analysis (see TEST CODE sheet)	Matrix Codes
Company Name: SGS North America Inc.	Project Name: NASA KSC, Wilson Corners		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Sludge SED-Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank EB-Equipment Blank RB- Rinse Blank TB-Trip Blank
Street Address: 4405 Vineland Rd, Suite C-15	Street	Billing Information (if different from Report to)	
City: Orlando State: FL Zip: 32811	City State	Company Name	
Project Contact: andrea.colby@sgs.com E-mail	Project #	Street Address	
Phone #: 407-425-6700 Fax #	Client Purchase Order #	City State Zip	
Sampler(s) Name(s): DSMP Phone	Project Manager	Attention:	

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	V8260SL	LAB USE ONLY
1	WILC-MW0064-004.5-20201203		12/3/20	12:01:00 PM	DSMP	AQ										X	2
2	WILC-MW0074-004.5-20201203		12/3/20	9:36:00 AM	DSMP	AQ										X	2
3	WILC-MW0152-001.5-20201204		12/4/20	10:05:00 AM	DSMP	AQ										X	2
4	WILC-MW0154-012.5-20201203		12/3/20	10:17:00 AM	DSMP	AQ										X	2
5	WILC-MW0109-020.0-20201204		12/4/20	9:31:00 AM	DSMP	AQ										X	2
6	WILC-MW0116-020.0-20201203		12/3/20	11:58:00 AM	DSMP	AQ										X	2
7	WILC-MW0125-020.0-20201204		12/4/20	11:11:00 AM	DSMP	AQ										X	2
8	WILC-MW0142-013.0-20201203		12/3/20	10:38:00 AM	DSMP	AQ										X	2
9	WILC-MW0153-025.0-20201204		12/4/20	10:39:00 AM	DSMP	AQ										X	2
10	WILCNPSH-MW0010-031.5-20201204		12/4/20	11:15:00 AM	DSMP	AQ										X	2
11	WILCNPSH-MW0019-031.5-20201204		12/4/20	9:17:00 AM	DSMP	AQ										X	2
12	WILCNPSH-MW0020-031.5-20201204		12/4/20	10:21:00 AM	DSMP	AQ										X	2

RUSH

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [x] other Due 12/11/2020

Emergency & Rush T/A data available via Lablink Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other
- [ ]
- [x] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

sub VOC to the SGS LA lab

YSM-7 (VW)

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery. 900

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	12/8/20	1 FedEx	2 FedEx	12/9/20	2
3	1700	3 Mark Reed	4		4
5	12/9/20 9:25	5 [signature] 12/9	Custody Seal # CSlee	[ ] Intact [ ] Not intact	Preserved where applicable [ ] Therm. ID: On Ice [x] Cooler Temp. 3.3 DVG 62

FA81441: Chain of Custody
Page 1 of 5
SGS Scott, LA

SGS

CHAIN OF CUSTODY

SGS North America Inc. - Orlando
4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com/ehsusa

FED-EX Tracking #	Bottle Order Control #
SGS Quote #	SGS Job # FA81441

Client / Reporting Information

Company Name: SGS North America Inc.
Street Address: 4405 Vineland Rd, Suite C-15
City: Orlando State: FL Zip: 32811
Project Contact: andrea.colby@sgs.com E-mail:
Phone #: 407-425-6700 Fax #:
Sampler(s) Name(s): DSMP Phone:

Project Information

Project Name: NASA KSC, Wilson Corners
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	V8260SL	LAB USE ONLY
13	WILCNPSH-MW0022-031.5-20201204		12/4/20	12:06:00 PM	DSMP	AQ										X	2
14	WILC-MW0065-031.5-20201203		12/3/20	11:11:00 AM	DSMP	AQ										X	2
15	WILC-MW0080-031.5-20201203		12/3/20	10:06:00 AM	DSMP	AQ										X	2
16	WILC-MW0111-031.0-20201204		12/4/20	11:31:00 AM	DSMP	AQ										X	2
17	WILC-MW0140-028.0-20201203		12/3/20	9:02:00 AM	DSMP	AQ										X	2
18	WILC-MW0143-028.0-20201203		12/3/20	11:27:00 AM	DSMP	AQ										X	2
19	WILC-MW0146-028.0-20201204		12/4/20	9:52:00 AM	DSMP	AQ										X	2
20	WILC-MW0155-031.5-20201203		12/3/20	11:12:00 AM	DSMP	AQ										X	2
21	WILCNPSH-MW0039-042.5-20201203		12/3/20	2:41:00 PM	DSMP	AQ										X	2
22	WILC-MW0068-042.5-20201203		12/3/20	1:41:00 PM	DSMP	AQ										X	2
23	WILC-MW0118-042.5-20201203		12/3/20	12:40:00 PM	DSMP	AQ										X	2
24	WILC-MW0141-039.0-20201203		12/3/20	9:48:00 AM	DSMP	AQ										X	2

RUSH

Turnaround Time (Business days)

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other Due 12/11/2020

Emergency & Rush T/A data available via Lablink Approval needed for RUSH/Emergency TAT

Approved By (SGS PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other
- [ ]
- [X] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

sub VOC to the SGS LA lab

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery. 9:00

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	12/8/20	1 FedEx	2 FedEx	12/9/20	2
3	1700	3 Mark Reel	4		4
5	12/9/20 9:25	5	Custody Seal # CS/OC ☐ Intact ☐ Not intact	Preserved where applicable ☑ Therm. ID:	On Ice ☑ Cooler Temp. 3.3 DV462

6.1

6

FA81441: Chain of Custody
Page 2 of 5

CHAIN OF CUSTODY

SGS North America Inc. - Orlando
4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com/ehsusa

FED-EX Tracking #:
Bottle Order Control #:
SGS Quote #:
SGS Job #: FA81441

Client / Reporting Information

Company Name: SGS North America Inc.
Street Address: 4405 Vineland Rd, Suite C-15
City: Orlando State: FL Zip: 32811
Project Contact: E-mail: andrea.colby@sgs.com
Phone #: 407-425-6700 Fax #:
Sampler(s) Name(s): DSMP Phone:

Project Information

Project Name: NASA KSC, Wilson Corners
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	V8260SL_	LAB USE ONLY
25	WILC-MW0144-045.0-20201203		12/3/20	12:04:00 PM	DSMP	AQ										X	2
26	WILC-MW0145-043.0-20201204		12/4/20	9:06:00 AM	DSMP	AQ										X	2
27	WILC-MW0147-043.0-20201204		12/4/20	10:35:00 AM	DSMP	AQ										X	2
28	WILC-TB01-20201203		12/3/20	9:00:00 AM	DSMP	AQ										X	2

RUSH

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
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- [ ] Commercial "C"
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- [ ] EDD Format
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- [X] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions: sub VOC to the SGS LA lab

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time: 12/8/20	Received By: 1 FedEx	Relinquished By: 2 FedEx	Date Time: 12/9/20 900	Received By: 2		
Relinquished by Sampler: 3	Date Time: 1700	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4		
Relinquished by: 5	Date Time: 12/9/20 9:25	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable	On Ice	Cooler Temp: 3.3

Therm. ID: DV462

2 - 40ml w/ HCl (VSM-7 VW)

28
2
1

Received labeled

2

SGS Sample Receipt Summary

Job Number: FA81441 **Client:** SGS NORTH AMERICA **Project:** NASA KSC,WILSON CORNERS

Date / Time Received: 12/9/2020 9:25:00 AM **Delivery Method:** FedEx **Airbill #'s:** 9231 5382 6335

Cooler Temps (Initial/Adjusted): #1: (3.3/3.3); DV462

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	DV462;		
3. Cooler media:	Ice (direct contact)		
4. No. Coolers:	1		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

FA81441: Chain of Custody
Page 5 of 5

MS Volatiles

QC Data Summaries

(SGS Scott, LA)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1J3021-MB2	1J0088292.D	1	12/10/20	CP	n/a	n/a	V1J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-1, FA81441-2, FA81441-3, FA81441-4, FA81441-5, FA81441-6, FA81441-7, FA81441-8, FA81441-9, FA81441-10, FA81441-11, FA81441-12, FA81441-13, FA81441-14, FA81441-15, FA81441-25, FA81441-28

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.26	ug/l	
76-13-1	Freon 113	ND	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4	92%	81-120%
2037-26-5	Toluene-D8	97%	93-105%
460-00-4	4-Bromofluorobenzene	95%	89-107%

Method Blank Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2J3021-MB2	2J0088293.D	1	12/10/20	CP	n/a	n/a	V2J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-17, FA81441-18, FA81441-20, FA81441-21, FA81441-22, FA81441-23, FA81441-24

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.27	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.34	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.26	ug/l	
76-13-1	Freon 113	ND	1.0	0.35	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.31	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.23	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4	98%	81-120%
2037-26-5	Toluene-D8	97%	93-105%
460-00-4	4-Bromofluorobenzene	94%	89-107%

Blank Spike/Blank Spike Duplicate Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1J3021-BS1	1J0088286.D	1	12/10/20	CP	n/a	n/a	V1J3021
V1J3021-BSD1	1J0088288.D	1	12/10/20	CP	n/a	n/a	V1J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-1, FA81441-2, FA81441-3, FA81441-4, FA81441-5, FA81441-6, FA81441-7, FA81441-8, FA81441-9, FA81441-10, FA81441-11, FA81441-12, FA81441-13, FA81441-14, FA81441-15, FA81441-25, FA81441-28

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	20	19.4	97	18.5	93	5	77-125/14
156-59-2	cis-1,2-Dichloroethylene	20	17.7	89	17.1	86	3	79-121/13
156-60-5	trans-1,2-Dichloroethylene	20	18.0	90	17.1	86	5	77-124/14
76-13-1	Freon 113	20	20.5	103	20.0	100	2	77-128/14
127-18-4	Tetrachloroethylene	20	19.3	97	19.0	95	2	79-121/13
79-01-6	Trichloroethylene	20	18.8	94	18.4	92	2	78-121/12
75-01-4	Vinyl Chloride	20	21.2	106	20.8	104	2	74-125/14

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	90%	81-120%
2037-26-5	Toluene-D8	100%	99%	93-105%
460-00-4	4-Bromofluorobenzene	99%	101%	89-107%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2J3021-BS1	2J0088287.D	1	12/10/20	CP	n/a	n/a	V2J3021
V2J3021-BSD1	2J0088289.D	1	12/10/20	CP	n/a	n/a	V2J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-17, FA81441-18, FA81441-20, FA81441-21, FA81441-22, FA81441-23, FA81441-24

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	20	19.2	96	18.9	95	2	77-125/14
156-59-2	cis-1,2-Dichloroethylene	20	18.0	90	17.9	90	1	79-121/13
156-60-5	trans-1,2-Dichloroethylene	20	18.1	91	18.0	90	1	77-124/14
76-13-1	Freon 113	20	19.3	97	18.8	94	3	77-128/14
127-18-4	Tetrachloroethylene	20	18.4	92	18.4	92	0	79-121/13
79-01-6	Trichloroethylene	20	17.8	89	17.8	89	0	78-121/12
75-01-4	Vinyl Chloride	20	21.8	109	21.1	106	3	74-125/14

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17060-07-0	1,2-Dichloroethane-D4	95%	95%	81-120%
2037-26-5	Toluene-D8	100%	100%	93-105%
460-00-4	4-Bromofluorobenzene	98%	98%	89-107%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81441-25MS	1J0088298.D	50	12/10/20	CP	n/a	n/a	V1J3021
FA81441-25MSD	1J0088300.D	50	12/10/20	CP	n/a	n/a	V1J3021
FA81441-25	1J0088336.D	5	12/11/20	CP	n/a	n/a	V1J3021
FA81441-25	1J0088296.D	20	12/10/20	CP	n/a	n/a	V1J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-1, FA81441-2, FA81441-3, FA81441-4, FA81441-5, FA81441-6, FA81441-7, FA81441-8, FA81441-9, FA81441-10, FA81441-11, FA81441-12, FA81441-13, FA81441-14, FA81441-15, FA81441-25, FA81441-28

CAS No.	Compound	FA81441-25 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	3.3	I	1000	935	94	1000	923	92	1	62-136/20
156-59-2	cis-1,2-Dichloroethylene	2390 [a]		1000	3320	93	1000	3260	87	2	68-129/15
156-60-5	trans-1,2-Dichloroethylene	5.2		1000	971	97	1000	954	95	2	65-132/18
76-13-1	Freon 113	16.5		1000	1050	105	1000	1000	100	5	63-137/19
127-18-4	Tetrachloroethylene	5.0 U		1000	963	96	1000	934	93	3	68-127/19
79-01-6	Trichloroethylene	197		1000	1140	95	1000	1110	92	3	67-124/16
75-01-4	Vinyl Chloride	719		1000	1710	105	1000	1690	103	1	60-133/16

CAS No.	Surrogate Recoveries	MS	MSD	FA81441-25	FA81441-25	Limits
17060-07-0	1,2-Dichloroethane-D4	95%	97%	103%	101%	81-120%
2037-26-5	Toluene-D8	99%	100%	98%	98%	93-105%
460-00-4	4-Bromofluorobenzene	100%	99%	95%	96%	89-107%

(a) Result is from Run #2.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81441
Account: ALSE SGS Orlando, FL
Project: MEFLOR: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
LA68249-1MS	2J0088335.D	5	12/10/20	CP	n/a	n/a	V2J3021
LA68249-1MSD	2J0088337.D	5	12/11/20	CP	n/a	n/a	V2J3021
LA68249-1	2J0088319.D	1	12/10/20	CP	n/a	n/a	V2J3021

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81441-17, FA81441-18, FA81441-20, FA81441-21, FA81441-22, FA81441-23, FA81441-24

CAS No.	Compound	LA68249-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	ND		100	100	100	100	98.8	99	1	62-136/20
156-59-2	cis-1,2-Dichloroethylene	ND		100	96.3	96	100	94.4	94	2	68-129/15
156-60-5	trans-1,2-Dichloroethylene	ND		100	91.4	91	100	92.7	93	1	65-132/18
76-13-1	Freon 113	ND		100	94.9	95	100	89.1	89	6	63-137/19
127-18-4	Tetrachloroethylene	ND		100	88.3	88	100	89.6	90	1	68-127/19
79-01-6	Trichloroethylene	ND		100	92.0	92	100	88.1	88	4	67-124/16
75-01-4	Vinyl Chloride	ND		100	112	112	100	115	115	3	60-133/16

CAS No.	Surrogate Recoveries	MS	MSD	LA68249-1	Limits
17060-07-0	1,2-Dichloroethane-D4	102%	104%	108%	81-120%
2037-26-5	Toluene-D8	99%	99%	96%	93-105%
460-00-4	4-Bromofluorobenzene	100%	100%	93%	89-107%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, Inc

NASA KSC, Wilson Corners

60613955.4

SGS Job Number: FA81513

Sampling Dates: 12/07/20 - 12/08/20

Report to:

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Total number of pages in report: **43**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Sample Summary

AECOM, Inc

Job No: FA81513

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81513-1	12/08/20	11:03	DSMMP	12/08/20	AQ	Ground Water	WILCNPSH-MW0027-012.5-20201208
FA81513-2	12/07/20	13:56	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0091-004.5-20201207
FA81513-3	12/08/20	09:48	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0095-004.63-20201208
FA81513-4	12/08/20	09:19	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0156-002.5-20201208
FA81513-5	12/07/20	12:10	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0089-020.0-20201207
FA81513-6	12/08/20	10:17	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0096-020.0-20201208
FA81513-7	12/07/20	10:21	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0129-020.0-20201207
FA81513-8	12/07/20	09:49	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0149-025.0-20201207
FA81513-9	12/08/20	10:15	DSMMP	12/08/20	AQ	Ground Water	WILCNPSH-MW0017-031.5-20201208
FA81513-10	12/07/20	11:11	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0062-032.0-20201207
FA81513-11	12/07/20	11:04	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0088-031.5-20201207
FA81513-12	12/07/20	13:06	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0090-031.5-20201207
FA81513-13	12/08/20	10:53	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0097-032.0-20201208

Sample Summary
(continued)

AECOM, Inc

Job No: FA81513

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81513-14	12/07/20	12:12	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0046D-043.0-20201207
FA81513-15	12/07/20	13:03	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0078-063.0-20201207
FA81513-16	12/07/20	13:43	DSMMP	12/08/20	AQ	Ground Water	WILC-MW0130-061.0-20201207
FA81513-17	12/08/20	11:50	DSMMP	12/08/20	AQ	Water	WILC-IDW01-20201208
FA81513-17A	12/08/20	11:50	DSMMP	12/08/20	AQ	Water	WILC-IDW01-20201208

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, Inc **Job No:** FA81513

Site: NASA KSC, Wilson Corners **Report Date** 12/22/2020 11:10:17

11 Samples were collected on between 12/07/2020 and 12/08/2020 and received at SGS North America Inc - Orlando on 12/08/2020 properly preserved, at 2 Deg. C and intact. These Samples received an SGS Orlando job number of FA81513. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** VI2175

All samples were analyzed within the recommended method holding time.

Sample(s) FA81415-1MS, FA81415-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

MS and/or MSD Recovery(s) for cis-1,2-Dichloroethylene, Trichloroethylene are outside control limits. Probable cause is due to matrix interference. For method performance in clean matrix refer to Blank Spike.

Matrix: AQ **Batch ID:** VY2272

All samples were analyzed within the recommended method holding time.

Sample(s) FA81453-10MS, FA81453-10MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Duplicate Recovery(s) for Vinyl Chloride are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for Vinyl Chloride are outside control limits for sample FA81453-10MSD. Probable cause is due to sample non-homogeneity.

MS Semi-volatiles By Method EPA 537M BY ID

Matrix: AQ **Batch ID:** OP83351

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA81530-2MS, FA81530-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Sample(s) FA81513-17A have surrogates outside control limits.

FA81513-17A: Dilution required due to matrix interference (ID recovery standard failure).

FA81513-17A for 13C5-PFHxA: Outside control limits.

FA81513-17A for 13C3-PFBS: Outside control limits.

FA81513-17A for 13C4-PFHpA: Outside control limits.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Svetlana Izosimova, QA Officer *(Signature on File)*

Summary of Hits

Job Number: FA81513
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/07/20 thru 12/08/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81513-1	**WILCNPSH-MW0027-012.5-20201208**					
cis-1,2-Dichloroethylene		356	5.0	1.4	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.4 I	5.0	1.1	ug/l	SW846 8260B
Vinyl Chloride		824	10	4.1	ug/l	SW846 8260B
FA81513-2	**WILC-MW0091-004.5-20201207**					
No hits reported in this sample.						
FA81513-4	**WILC-MW0156-002.5-20201208**					
cis-1,2-Dichloroethylene		63.3	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		9.8	1.0	0.22	ug/l	SW846 8260B
Freon 113		46.9	1.0	0.48	ug/l	SW846 8260B
Trichloroethylene		89.9	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		24.7	1.0	0.41	ug/l	SW846 8260B
FA81513-5	**WILC-MW0089-020.0-20201207**					
No hits reported in this sample.						
FA81513-7	**WILC-MW0129-020.0-20201207**					
1,1-Dichloroethylene		0.71 I	1.0	0.32	ug/l	SW846 8260B
cis-1,2-Dichloroethylene		83.9	5.0	1.4	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.6	1.0	0.22	ug/l	SW846 8260B
Freon 113		200	5.0	2.4	ug/l	SW846 8260B
Trichloroethylene		46.7	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		6.6	5.0	2.0	ug/l	SW846 8260B
FA81513-8	**WILC-MW0149-025.0-20201207**					
cis-1,2-Dichloroethylene		0.98 I	1.0	0.28	ug/l	SW846 8260B
FA81513-9	**WILCNPSH-MW0017-031.5-20201208**					
cis-1,2-Dichloroethylene		12.9	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.3	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene		2.3	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		52.0	1.0	0.41	ug/l	SW846 8260B
FA81513-11	**WILC-MW0088-031.5-20201207**					
cis-1,2-Dichloroethylene		16.8	1.0	0.28	ug/l	SW846 8260B

Summary of Hits

Job Number: FA81513
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/07/20 thru 12/08/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
trans-1,2-Dichloroethylene		3.9	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		84.0	1.0	0.41	ug/l	SW846 8260B
FA81513-12	**WILC-MW0090-031.5-20201207**					
cis-1,2-Dichloroethylene		1.8	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		3.3	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride		9.2	1.0	0.41	ug/l	SW846 8260B
FA81513-15	**WILC-MW0078-063.0-20201207**					
cis-1,2-Dichloroethylene		10.3	1.0	0.28	ug/l	SW846 8260B
Trichloroethylene		2.7	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		19.9	1.0	0.41	ug/l	SW846 8260B
FA81513-17	**WILC-IDW01-20201208**					
cis-1,2-Dichloroethylene		62.1	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene		0.65 I	1.0	0.22	ug/l	SW846 8260B
Freon 113		2.2	1.0	0.48	ug/l	SW846 8260B
Trichloroethylene		3.3	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride		24.9	1.0	0.41	ug/l	SW846 8260B
FA81513-17A	**WILC-IDW01-20201208**					
Perfluorooctanoic acid		0.0064	0.0040	0.0020	ug/l	EPA 537M BY ID
Perfluorohexanesulfonic acid		0.0212	0.0040	0.0020	ug/l	EPA 537M BY ID
Perfluorooctanesulfonic acid		0.0083	0.0040	0.0020	ug/l	EPA 537M BY ID

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WILCNPSH-MW0027-012.5-20201208		
Lab Sample ID:	FA81513-1	**Date Sampled:**	12/08/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67869.D	5	12/14/20 17:14	CV	n/a	n/a	VI2175
Run #2	Y54687.D	10	12/15/20 15:04	CV	n/a	n/a	VY2272

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	1.6 U	5.0	1.6	ug/l	
156-59-2	cis-1,2-Dichloroethylene	356	5.0	1.4	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.4	5.0	1.1	ug/l	I
76-13-1	Freon 113	2.4 U	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	1.1 U	5.0	1.1	ug/l	
79-01-6	Trichloroethylene	1.7 U	5.0	1.7	ug/l	
75-01-4	Vinyl Chloride	824 [a]	10	4.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	108%	104%	79-125%
2037-26-5	Toluene-D8	96%	96%	85-112%
460-00-4	4-Bromofluorobenzene	94%	99%	83-118%

(a) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0091-004.5-20201207		
Lab Sample ID:	FA81513-2	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67870.D	1	12/14/20 17:40	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	108%		79-125%
2037-26-5	Toluene-D8	97%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0156-002.5-20201208		
Lab Sample ID:	FA81513-4	**Date Sampled:**	12/08/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67871.D	1	12/14/20 18:06	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	63.3	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	9.8	1.0	0.22	ug/l	
76-13-1	Freon 113	46.9	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	89.9	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	24.7	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	97%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0089-020.0-20201207		
Lab Sample ID:	FA81513-5	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y54688.D	1	12/15/20 15:31	CV	n/a	n/a	VY2272
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0129-020.0-20201207		
Lab Sample ID:	FA81513-7	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67873.D	1	12/14/20 18:58	CV	n/a	n/a	VI2175
Run #2	Y54689.D	5	12/15/20 15:58	CV	n/a	n/a	VY2272

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.71	1.0	0.32	ug/l	I
156-59-2	cis-1,2-Dichloroethylene	83.9 [a]	5.0	1.4	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.6	1.0	0.22	ug/l	
76-13-1	Freon 113	200 [a]	5.0	2.4	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	46.7	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	6.6 [a]	5.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%	103%	83-118%
17060-07-0	1,2-Dichloroethane-D4	108%	107%	79-125%
2037-26-5	Toluene-D8	97%	96%	85-112%
460-00-4	4-Bromofluorobenzene	93%	98%	83-118%

(a) Result is from Run# 2

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0149-025.0-20201207		
Lab Sample ID:	FA81513-8	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y54684.D	1	12/15/20 13:43	CV	n/a	n/a	VY2272
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.98	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILCNPSH-MW0017-031.5-20201208		
Lab Sample ID:	FA81513-9	**Date Sampled:**	12/08/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67878.D	1	12/14/20 21:07	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	12.9	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.3	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	2.3	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	52.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0088-031.5-20201207		
Lab Sample ID:	FA81513-11	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67879.D	1	12/14/20 21:32	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	16.8	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.9	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	84.0	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0090-031.5-20201207		
Lab Sample ID:	FA81513-12	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67880.D	1	12/14/20 21:58	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.8	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	3.3	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	9.2	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	97%		85-112%
460-00-4	4-Bromofluorobenzene	93%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0078-063.0-20201207		
Lab Sample ID:	FA81513-15	**Date Sampled:**	12/07/20
Matrix:	AQ - Ground Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67881.D	1	12/14/20 22:24	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10.3	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	2.7	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	19.9	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	97%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-IDW01-20201208		
Lab Sample ID:	FA81513-17	**Date Sampled:**	12/08/20
Matrix:	AQ - Water	**Date Received:**	12/08/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I67882.D	1	12/14/20 22:50	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	62.1	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.65	1.0	0.22	ug/l	I
76-13-1	Freon 113	2.2	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	3.3	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	24.9	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	106%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	93%		83-118%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WILC-IDW01-20201208
Lab Sample ID: FA81513-17A
Matrix: AQ - Water
Method: EPA 537M BY ID EPA 537 MOD
Project: NASA KSC, Wilson Corners

Date Sampled: 12/08/20
Date Received: 12/08/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q59748.D	1	12/15/20 10:48	NAF	12/11/20 13:00	OP83351	S2Q877
Run #2 [a]	2Q59846.D	5	12/16/20 12:24	NAF	12/11/20 13:00	OP83351	S2Q878

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	PQL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
307-24-4	Perfluorohexanoic acid	0.010 U [b]	0.020	0.010	ug/l	
375-85-9	Perfluoroheptanoic acid	0.010 U [b]	0.020	0.010	ug/l	
335-67-1	Perfluorooctanoic acid	0.0064	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0020 U	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0020 U	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0020 U	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0020 U	0.0040	0.0020	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0020 U	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0020 U	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.010 U [b]	0.020	0.010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0212	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0083	0.0040	0.0020	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	0.0040 U	0.0080	0.0040	ug/l	
2991-50-6	EtFOSAA	0.0040 U	0.0080	0.0040	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	42% [c]	68%	50-150%
	13C4-PFHpA	43% [c]	68%	50-150%
	13C8-PFOA	54%	78%	50-150%
	13C9-PFNA	66%	83%	50-150%
	13C6-PFDA	78%	90%	50-150%
	13C7-PFUnDA	78%	88%	40-140%
	13C2-PFDoDA	78%	84%	40-140%
	13C2-PFTeDA	71%	82%	30-130%
	13C3-PFBS	47% [c]	71%	50-150%
	13C3-PFHxS	51%	70%	50-150%

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-IDW01-20201208		
Lab Sample ID:	FA81513-17A	**Date Sampled:**	12/08/20
Matrix:	AQ - Water	**Date Received:**	12/08/20
Method:	EPA 537M BY ID EPA 537 MOD	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	72%	85%	50-150%
	d3-MeFOSAA	95%	98%	50-150%
	d5-EtFOSAA	90%	96%	50-150%

(a) Dilution required due to matrix interference (ID recovery standard failure).
(b) Result is from Run# 2
(c) Outside control limits.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
EtFOSAA	2991-50-6	**EPA 537M BY ID**	AQ	Certified by SOP MS014
MeFOSAA	2355-31-9	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	**EPA 537M BY ID**	AQ	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	**EPA 537M BY ID**	AQ	Certified by SOP MS014

FA81513

AECOM

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No.: | Page: 1 of 4

Project Name: NASA KSC - Wilson Corners | PO No.: | Project No. 60613955.4 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0082 | AECOM Project Manager: **Michael McCoy cc: Chad Lee** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # Dustin Slater (407) 766-0747 | Madan Parsotan (321) 696-6000 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP: 15-10

Lab Name: SGS | 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 Select PFAS by 537	Comments
1	WILCNPSH-MW0027-012.5-20201208	WILCNPSH-MW0027	20201208	1103	WG	N	G	3	3		
	~~WILC-MW0064~~	~~WILC-MW0064~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0074~~	~~WILC-MW0074~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
2	WILC-MW0091-004.5-20201207	WILC-MW0091	20201207	1356	WG	N	G	3	3		
3	WILC-MW0095-004.5-20201208	WILC-MW0095	20201208	0848	WG	N	G	3	3		
	~~WILC-MW0152~~	~~WILC-MW0152~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0154~~	~~WILC-MW0154~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
4	WILC-MW0156-002.5-20201208	WILC-MW0156	20201208	0919	WG	N	G	3	3		
5	WILC-MW0089-020.0-20201207	WILC-MW0089	20201207	1210	WG	N	G	3	3		
6	WILC-MW0096-020.0-20201208	WILC-MW0096	20201208	1017	WG	N	G	3	3		
	~~WILC-MW0109~~	~~WILC-MW0109~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0118~~	~~WILC-MW0116~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		

INITIAL ASSESSMENT NM

ANNUAL INSPECTION CSM

***Field* Comments:**
Report only per QAPP WS #15

***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			1	12/2/20	0700
2	12/2/20	1535	2	12/8/20	15:35
3			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

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FA81513: Chain of Custody
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CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners			COC No.	Page: 2 of 4	
Site Location: Wilson Corners			PO No.	Project No. 60613955.4	Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: **Michael McCoy cc: Chad Lee**		Send Invoice To: Instructions in MSA # 19S-24548-GV03		EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone #	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: SGS		Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando		Site-Spicific WS#15 from QAPP: 15-10

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 Select PFAS by 537	Comments
	~~WILC-MW0125~~	~~WILC-MW0125~~	~~202012~~		WG	N	G	3	3		
7	WILC-MW0129-020.0-20201207	WILC-MW0129	20201207	1024	WG	N	G	3	3		
	~~WILC-MW0142~~	~~WILC-MW0142~~	~~202012~~		WG	N	G	3	3		
8	WILC-MW0149-025.0-20201207	WILC-MW0149	20201207	0949	WG	N	G	3	3		
	~~WILC-MW0153~~	~~WILC-MW0153~~	~~202012~~		WG	N	G	3	3		
	~~WILCNPSH-MW0010~~	~~WILCNPSH-MW0010~~	~~202012~~		WG	N	G	3	3		
9	WILCNPSH-MW0017-031.5-20201208	WILCNPSH-MW0017	20201208	1015	WG	N	G	3	3		
	~~WILCNPSH-MW0019~~	~~WILCNPSH-MW0019~~	~~202012~~		WG	N	G	3	3		
	~~WILCNPSH-MW0020~~	~~WILCNPSH-MW0020~~	~~202012~~		WG	N	G	3	3		
	~~WILCNPSH-MW0022~~	~~WILCNPSH-MW0022~~	~~202012~~		WG	N	G	3	3		
10	WILC-MW0062-092.0-20201207	WILC-MW0062	20201207	1111	WG	N	G	3	3		
	~~WILC-MW0065~~	~~WILC-MW0065~~	~~202012~~		WG	N	G	3	3		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1		12/8/20	1535		12/8/20	0700
2					12/8/20	1535
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**

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AECOM

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

COC No. | Page: 3 of 4

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955.4 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0082 | AECOM Project Manager: **Michael McCoy cc: Chad Lee** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # Dustin Slater (407) 766-0747 Madan Parsotan (321) 696-6000 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP: 15-10

Lab Name: SGS | 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 Select PFAS by 537	Comments
	~~WILC-MW0080-~~	~~WILC-MW0080~~	202012		WG	N	G	3	3		
11	WILC-MW0088-0315-20201207	WILC-MW0088	20201207	1104	WG	N	G	3	3		
12	WILC-MW0090-0315-20201207	WILC-MW0090	20201207	1306	WG	N	G	3	3		
13	WILC-MW0097-032.0-20201208	WILC-MW0097	20201208	1053	WG	N	G	3	3		
	~~WILC-MW0111-~~	~~WILC-MW0111~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0140-~~	~~WILC-MW0140~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0143-~~	~~WILC-MW0143~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0146-~~	~~WILC-MW0146~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0155-~~	~~WILC-MW0155~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	WILCNPSH-MW0039-	WILCNPSH-MW0039	202012		WG	N	G	3	3		
14	WILC-MW0046D-0413.0-20201207	WILC-MW0046D	20201207	1212	WG	N	G	3	3		
	~~WILC-MW0068-~~	~~WILC-MW0068~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1					12/2/20	0700
2		12/8/20	1535		12/8/20	15:35
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

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FA81513

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 4 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: **Michael McCoy cc: Chad Lee**	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # 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: SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10

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 Select PFAS by 537	Comments
	~~WILC-MW0118-~~	~~WILC-MW0118~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0141-~~	~~WILC-MW0141~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0144-~~	~~WILC-MW0144~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
	~~WILC-MW0145-~~	~~WILC-MW0145~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	3		
	~~WILC-MW0147-~~	~~WILC-MW0147~~	~~202012~~		~~WG~~	~~N~~	~~G~~	~~3~~	~~3~~		
15	WILC-MW0078- 063.0-20201207	WILC-MW0078	20201207	1303	WG	N	G	3	3		
16	WILC-MW0130-061.0-20201207	WILC-MW0130	20201207	1343	WG	N	G	3	3		
17	WILC-IDW01- 20201208	WILC-IDW01	20201208	1150	IDW	IDW	G	5	3	2	
	~~WILC-TB01-~~ (8)	~~WILC-TB01~~	~~202012~~		~~WQ~~	~~TB~~	~~G~~	~~3~~	~~3~~		

***Field* Comments:**
Report only per QAPP WS #15

***Lab* Comments:**

Sample Shipment and Delivery Details
Number of coolers in shipment:

	Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1					12/12/20	0700
2		12/8/20	1535		12/8/20	15.35
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**

FA81513: Chain of Custody
Page 4 of 6

SGS Sample Receipt Summary

Job Number: FA81513 **Client:** AECOM **Project:** NASA KS - WILSON CORNERS

Date / Time Received: 12/8/2020 3:35:00 PM **Delivery Method:** DROP OFF **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.0);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☑	☐
2. Trip Blank listed on COC	☐		☑	☐

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☑		☐	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments SAMPLE NUMBERS "3,6,10,13,14,16" VIALS HAVE HEADSPACE

SM001
Rev. Date 05/24/17

Technician: NATHANS Date: 12/8/2020 3:35:00 PM Reviewer: _____ Date: _____

Job Change Order: FA81513

Requested Date:	12/9/2020	**Received Date:**	12/8/2020
Account Name:	AECOM, Inc	**Due Date:**	12/15/2020
Project Description:	NASA KSC, Wilson Corners	**Deliverable:**	COMMBN
CSR:	AC	**TAT (Days):**	7

==========

Sample #: FA81513-3,6,10,13,14,16

Dept:

TAT: 7

Change:
Please cancel VOC analysis due to headspace in the vials

==========

Above Changes Per: Jennifer Joyal **Date/Time:** 12/9/2020 4:12:45 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI2175-MB	I67865.D	1	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-2, FA81513-4, FA81513-7, FA81513-9, FA81513-11, FA81513-12, FA81513-15, FA81513-17

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	97%	83-118%
17060-07-0	1,2-Dichloroethane-D4	107%	79-125%
2037-26-5	Toluene-D8	96%	85-112%
460-00-4	4-Bromofluorobenzene	95%	83-118%

Method Blank Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY2272-MB	Y54680.D	1	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-5, FA81513-7, FA81513-8

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	83-118%
17060-07-0	1,2-Dichloroethane-D4	103%	79-125%
2037-26-5	Toluene-D8	96%	85-112%
460-00-4	4-Bromofluorobenzene	100%	83-118%

Blank Spike Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI2175-BS	I67863.D	1	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-2, FA81513-4, FA81513-7, FA81513-9, FA81513-11, FA81513-12, FA81513-15, FA81513-17

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	24.8	99	78-137
156-59-2	cis-1,2-Dichloroethylene	25	25.1	100	78-120
156-60-5	trans-1,2-Dichloroethylene	25	25.2	101	76-127
76-13-1	Freon 113	25	22.9	92	72-134
127-18-4	Tetrachloroethylene	25	24.6	98	76-135
79-01-6	Trichloroethylene	25	22.3	89	81-126
75-01-4	Vinyl Chloride	25	25.1	100	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	96%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY2272-BS	Y54678.D	1	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-5, FA81513-7, FA81513-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	25.5	102	78-137
156-59-2	cis-1,2-Dichloroethylene	25	24.8	99	78-120
156-60-5	trans-1,2-Dichloroethylene	25	25.0	100	76-127
76-13-1	Freon 113	25	23.0	92	72-134
127-18-4	Tetrachloroethylene	25	24.3	97	76-135
79-01-6	Trichloroethylene	25	23.5	94	81-126
75-01-4	Vinyl Chloride	25	23.4	94	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	79-125%
2037-26-5	Toluene-D8	99%	85-112%
460-00-4	4-Bromofluorobenzene	99%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81415-1MS	I67887.D	10	12/15/20	CV	n/a	n/a	VI2175
FA81415-1MSD	I67888.D	10	12/15/20	CV	n/a	n/a	VI2175
FA81415-1 [a]	I67867.D	10	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-2, FA81513-4, FA81513-7, FA81513-9, FA81513-11, FA81513-12, FA81513-15, FA81513-17

CAS No.	Compound	FA81415-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	12.6		250	308	118	250	309	119	0	78-137/18
156-59-2	cis-1,2-Dichloroethylene	81.7		250	393	125*	250	390	123*	1	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		250	293	117	250	296	118	1	76-127/17
76-13-1	Freon 113	ND		250	256	102	250	249	100	3	72-134/20
127-18-4	Tetrachloroethylene	6.6		250	278	109	250	284	111	2	76-135/16
79-01-6	Trichloroethylene	430		250	771	136*	250	758	131*	2	81-126/15
75-01-4	Vinyl Chloride	ND		250	300	120	250	302	121	1	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA81415-1	Limits
1868-53-7	Dibromofluoromethane	102%	102%	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	105%	107%	79-125%
2037-26-5	Toluene-D8	99%	99%	97%	85-112%
460-00-4	4-Bromofluorobenzene	96%	97%	95%	83-118%

(a) Sample used for QC purposes only.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81453-10MS	Y54691.D	25	12/15/20	CV	n/a	n/a	VY2272
FA81453-10MSD	Y54692.D	25	12/15/20	CV	n/a	n/a	VY2272
FA81453-10	Y54685.D	25	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81513-1, FA81513-5, FA81513-7, FA81513-8

CAS No.	Compound	FA81453-10 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	59.2		625	671	98	625	677	99	1	78-137/18
156-59-2	cis-1,2-Dichloroethylene	121		625	730	97	625	731	98	0	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		625	594	95	625	592	95	0	76-127/17
76-13-1	Freon 113	ND		625	554	89	625	509	81	8	72-134/20
127-18-4	Tetrachloroethylene	ND		625	569	91	625	573	92	1	76-135/16
79-01-6	Trichloroethylene	ND		625	573	92	625	573	92	0	81-126/15
75-01-4	Vinyl Chloride	89.0		625	666	92	625	1250	186*	61*	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA81453-10	Limits
1868-53-7	Dibromofluoromethane	103%	103%	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	104%	102%	106%	79-125%
2037-26-5	Toluene-D8	96%	97%	95%	85-112%
460-00-4	4-Bromofluorobenzene	96%	96%	99%	83-118%

* = Outside of Control Limits.

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP83351-MB	2Q59741.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA81513-17A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0020	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	87%	50-150%
	13C4-PFHpA	87%	50-150%
	13C8-PFOA	90%	50-150%
	13C9-PFNA	87%	50-150%
	13C6-PFDA	92%	50-150%
	13C7-PFUnDA	87%	40-140%
	13C2-PFDoDA	83%	40-140%
	13C2-PFTeDA	85%	30-130%
	13C3-PFBS	88%	50-150%
	13C3-PFHxS	88%	50-150%
	13C8-PFOS	93%	50-150%
	d3-MeFOSAA	84%	50-150%
	d5-EtFOSAA	83%	50-150%

Instrument Blank

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q877-IBLK	2Q59737.D	1	12/15/20	NAF	n/a	n/a	S2Q877

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.3 B-15

FA81513-17A

CAS No.	Compound	Result	RL	MDL	Units	Q
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	101%	50-150%
	13C4-PFHpA	103%	50-150%
	13C8-PFOA	104%	50-150%
	13C9-PFNA	103%	50-150%
	13C6-PFDA	107%	50-150%
	13C7-PFUnDA	106%	50-150%
	13C2-PFDoDA	107%	50-150%
	13C2-PFTeDA	112%	50-150%
	13C3-PFBS	101%	50-150%
	13C3-PFHxS	106%	50-150%
	13C8-PFOS	110%	50-150%
	d3-MeFOSAA	98%	50-150%
	d5-EtFOSAA	96%	50-150%

Instrument Blank

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q878-IBLK	2Q59833.D	1	12/16/20	NAF	n/a	n/a	S2Q878

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.3 B-15

FA81513-17A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	101%	50-150%
	13C4-PFHpA	101%	50-150%
	13C8-PFOA	104%	50-150%
	13C9-PFNA	102%	50-150%
	13C6-PFDA	109%	50-150%
	13C7-PFUnDA	106%	50-150%
	13C2-PFDoDA	107%	50-150%
	13C2-PFTeDA	111%	50-150%
	13C3-PFBS	101%	50-150%
	13C3-PFHxS	99%	50-150%
	13C8-PFOS	108%	50-150%
	d3-MeFOSAA	108%	50-150%
	d5-EtFOSAA	109%	50-150%

Blank Spike Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP83351-BS	2Q59740.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA81513-17A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0756	95	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0783	98	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0757	95	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0749	94	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0741	93	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0767	96	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0775	97	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0752	94	65-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0754	94	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0746	93	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0752	94	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0755	94	70-130
2355-31-9	MeFOSAA	0.08	0.0787	98	70-130
2991-50-6	EtFOSAA	0.08	0.0744	93	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C5-PFHxA	86%	50-150%
	13C4-PFHpA	86%	50-150%
	13C8-PFOA	88%	50-150%
	13C9-PFNA	86%	50-150%
	13C6-PFDA	90%	50-150%
	13C7-PFUnDA	85%	40-140%
	13C2-PFDoDA	84%	40-140%
	13C2-PFTeDA	84%	30-130%
	13C3-PFBS	87%	50-150%
	13C3-PFHxS	87%	50-150%
	13C8-PFOS	92%	50-150%
	d3-MeFOSAA	81%	50-150%
	d5-EtFOSAA	81%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP83351-MS	2Q59754.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877
OP83351-MSD	2Q59755.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877
FA81530-2	2Q59753.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA81513-17A

CAS No.	Compound	FA81530-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
307-24-4	Perfluorohexanoic acid	ND		0.0714	0.0642	90	0.0714	0.0645	90	0	70-130/30
375-85-9	Perfluoroheptanoic acid	ND		0.0714	0.0682	95	0.0714	0.0678	95	1	70-130/30
335-67-1	Perfluorooctanoic acid	ND		0.0714	0.0673	94	0.0714	0.0680	95	1	70-130/30
375-95-1	Perfluorononanoic acid	ND		0.0714	0.0641	90	0.0714	0.0639	89	0	70-130/30
335-76-2	Perfluorodecanoic acid	ND		0.0714	0.0635	89	0.0714	0.0632	88	0	70-130/30
2058-94-8	Perfluoroundecanoic acid	ND		0.0714	0.0663	93	0.0714	0.0668	94	1	70-130/30
307-55-1	Perfluorododecanoic acid	ND		0.0714	0.0665	93	0.0714	0.0678	95	2	70-130/30
72629-94-8	Perfluorotridecanoic acid	ND		0.0714	0.0758	106	0.0714	0.0701	98	8	65-130/30
376-06-7	Perfluorotetradecanoic acid	ND		0.0714	0.0663	93	0.0714	0.0656	92	1	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0026		0.0714	0.0663	89	0.0714	0.0667	90	1	70-130/30
355-46-4	Perfluorohexanesulfonic acid	0.0012	J	0.0714	0.0648	89	0.0714	0.0663	91	2	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0105		0.0714	0.0745	90	0.0714	0.0745	90	0	70-130/30
2355-31-9	MeFOSAA	ND		0.0714	0.0641	90	0.0714	0.0654	92	2	70-130/30
2991-50-6	EtFOSAA	ND		0.0714	0.0645	90	0.0714	0.0659	92	2	70-130/30

CAS No.	ID Standard Recoveries	MS	MSD	FA81530-2	Limits
	13C4-PFBA			70%	35-135%
	13C5-PFPeA			71%	50-150%
	13C5-PFHxA	73%	71%	70%	50-150%
	13C4-PFHpA	71%	71%	69%	50-150%
	13C8-PFOA	78%	77%	76%	50-150%
	13C9-PFNA	81%	82%	79%	50-150%
	13C6-PFDA	86%	86%	85%	50-150%
	13C7-PFUnDA	79%	81%	79%	40-140%
	13C2-PFDoDA	73%	77%	73%	40-140%
	13C2-PFTeDA	57%	69%	61%	30-130%
	13C3-PFBS	76%	75%	74%	50-150%
	13C3-PFHxS	75%	73%	69%	50-150%
	13C8-PFOS	85%	85%	85%	50-150%
	13C8-FOSA			65%	30-130%
	d3-MeFOSAA	84%	86%	84%	50-150%
	d5-EtFOSAA	79%	82%	81%	50-150%
	13C2-4:2FTS			69%	50-150%
	13C2-6:2FTS			79%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81513
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP83351-MS	2Q59754.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877
OP83351-MSD	2Q59755.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877
FA81530-2	2Q59753.D	1	12/15/20	NAF	12/11/20	OP83351	S2Q877

The QC reported here applies to the following samples: **Method:** EPA 537M BY ID

FA81513-17A

CAS No.	ID Standard Recoveries	MS	MSD	FA81530-2	Limits
	13C2-8:2FTS			82%	50-150%
	13C3-HFPO-DA			81%	50-150%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, Inc

NASA KSC, Wilson Corners

60613955.4

SGS Job Number: FA81659

Sampling Date: 12/10/20

Report to:

AECOM
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Total number of pages in report: 34

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Sample Summary

AECOM, Inc

Job No: FA81659

NASA KSC, Wilson Corners
Project No: 60613955.4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA81659-1	12/10/20	15:49	DSMP	12/11/20	AQ	Ground Water	WILC-MW0095-006.5-20201210
FA81659-2	12/10/20	16:29	DSMP	12/11/20	AQ	Ground Water	WILC-MW0096-020.0-20201210
FA81659-3	12/10/20	15:57	DSMP	12/11/20	AQ	Ground Water	WILC-MW0062-031.5-20201210
FA81659-4	12/10/20	17:07	DSMP	12/11/20	AQ	Ground Water	WILC-MW0097-031.5-20201210
FA81659-5	12/10/20	17:16	DSMP	12/11/20	AQ	Ground Water	WILC-MW0111-031.5-20201210
FA81659-6	12/10/20	16:49	DSMP	12/11/20	AQ	Ground Water	WILC-MW0146-028.0-20201210
FA81659-7	12/10/20	16:36	DSMP	12/11/20	AQ	Ground Water	WILC-MW0046D-042.5-20201210
FA81659-8	12/10/20	15:15	DSMP	12/11/20	AQ	Ground Water	WILC-MW0145-043.0-20201210
FA81659-9	12/10/20	16:27	DSMP	12/11/20	AQ	Ground Water	WILC-MW0147-043.0-20201210
FA81659-10	12/10/20	15:23	DSMP	12/11/20	AQ	Ground Water	WILC-MW0130-061.0-20201210
FA81659-11	12/10/20	15:00	DSMP	12/11/20	AQ	Trip Blank Water	WILC-TB01-20201210

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, Inc **Job No:** FA81659

Site: NASA KSC, Wilson Corners **Report Date** 12/22/2020 5:24:35

10 Samples, 1 Trip Blank were collected on 12/10/2020 and received at SGS North America Inc - Orlando on 12/11/2020 properly preserved, at 1.8 Deg. C and intact. These Samples received an SGS Orlando job number of FA81659. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** V5E1203

All samples were analyzed within the recommended method holding time.

Sample(s) FA81454-16MS, FA81454-16MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

FA81659-5, 7, 8, 9, 10, 11: Sample was not preserved to a pH < 2.

FA81659-6: Sample was treated with an anti-foaming agent. Sample was not preserved to a pH < 2.

Matrix: AQ **Batch ID:** VI2175

All samples were analyzed within the recommended method holding time.

Sample(s) FA81415-1MS, FA81415-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

MS/MSD Recovery(s) for cis-1,2-Dichloroethylene, Trichloroethylene are outside control limits. Probable cause is due to matrix interference. For method performance in clean matrix refer to Blank Spike.

FA81659-1, 2, 4: Sample was not preserved to a pH < 2.

Matrix: AQ **Batch ID:** VY2272

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA81453-10MS, FA81453-10MSD were used as the QC samples indicated.

Matrix Spike Duplicate Recovery(s) for Vinyl Chloride are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for Vinyl Chloride are outside control limits for sample FA81453-10MSD. Probable cause is due to sample non-homogeneity.

FA81659-3: Sample was not preserved to a pH < 2.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Svetlana Izosimova, QA Officer *(Signature on File)*

Summary of Hits

Job Number: FA81659
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/10/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81659-1	**WILC-MW0095-006.5-20201210**					
No hits reported in this sample.						
FA81659-2	**WILC-MW0096-020.0-20201210**					
cis-1,2-Dichloroethylene [a]		5.4	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		2.2	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride [a]		27.6	1.0	0.41	ug/l	SW846 8260B
FA81659-3	**WILC-MW0062-031.5-20201210**					
cis-1,2-Dichloroethylene [a]		11.1	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		2.4	1.0	0.22	ug/l	SW846 8260B
Trichloroethylene [a]		0.60 I	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride [a]		49.2	1.0	0.41	ug/l	SW846 8260B
FA81659-4	**WILC-MW0097-031.5-20201210**					
cis-1,2-Dichloroethylene [a]		7.3	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		7.9	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride [a]		19.5	1.0	0.41	ug/l	SW846 8260B
FA81659-5	**WILC-MW0111-031.5-20201210**					
cis-1,2-Dichloroethylene [a]		0.61 I	1.0	0.28	ug/l	SW846 8260B
trans-1,2-Dichloroethylene [a]		0.78 I	1.0	0.22	ug/l	SW846 8260B
Vinyl Chloride [a]		2.8	1.0	0.41	ug/l	SW846 8260B
FA81659-6	**WILC-MW0146-028.0-20201210**					
No hits reported in this sample.						
FA81659-7	**WILC-MW0046D-042.5-20201210**					
Vinyl Chloride [a]		0.89 I	1.0	0.41	ug/l	SW846 8260B
FA81659-8	**WILC-MW0145-043.0-20201210**					
cis-1,2-Dichloroethylene [a]		2.6	1.0	0.28	ug/l	SW846 8260B
Freon 113 [a]		7.2	1.0	0.48	ug/l	SW846 8260B
Vinyl Chloride [a]		8.4	1.0	0.41	ug/l	SW846 8260B

Summary of Hits

Job Number: FA81659
Account: AECOM, Inc
Project: NASA KSC, Wilson Corners
Collected: 12/10/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA81659-9	**WILC-MW0147-043.0-20201210**					
cis-1,2-Dichloroethylene [a]		2.1	1.0	0.28	ug/l	SW846 8260B
Trichloroethylene [a]		1.1	1.0	0.35	ug/l	SW846 8260B
Vinyl Chloride [a]		5.7	1.0	0.41	ug/l	SW846 8260B
FA81659-10	**WILC-MW0130-061.0-20201210**					
cis-1,2-Dichloroethylene [a]		4.6	1.0	0.28	ug/l	SW846 8260B
Vinyl Chloride [a]		21.7	1.0	0.41	ug/l	SW846 8260B
FA81659-11	**WILC-TB01-20201210**					

No hits reported in this sample.

(a) Sample was not preserved to a pH < 2.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WILC-MW0095-006.5-20201210		
Lab Sample ID:	FA81659-1	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I67883.D	1	12/14/20 23:16	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	92%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0096-020.0-20201210		
Lab Sample ID:	FA81659-2	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I67884.D	1	12/14/20 23:41	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.4	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.2	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	27.6	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	97%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0062-031.5-20201210		
Lab Sample ID:	FA81659-3	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	Y54690.D	1	12/15/20 16:25	CV	n/a	n/a	VY2272
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	11.1	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.4	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.60	1.0	0.35	ug/l	I
75-01-4	Vinyl Chloride	49.2	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		83-118%
17060-07-0	1,2-Dichloroethane-D4	105%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	98%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0097-031.5-20201210		
Lab Sample ID:	FA81659-4	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	I67886.D	1	12/15/20 00:33	CV	n/a	n/a	VI2175
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	7.3	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	7.9	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	19.5	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	107%		79-125%
2037-26-5	Toluene-D8	96%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0111-031.5-20201210		
Lab Sample ID:	FA81659-5	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26077.D	1	12/15/20 15:44	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.61	1.0	0.28	ug/l	I
156-60-5	trans-1,2-Dichloroethylene	0.78	1.0	0.22	ug/l	I
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	2.8	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	103%		79-125%
2037-26-5	Toluene-D8	104%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0146-028.0-20201210		
Lab Sample ID:	FA81659-6	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26078.D	1	12/15/20 16:06	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		83-118%
17060-07-0	1,2-Dichloroethane-D4	103%		79-125%
2037-26-5	Toluene-D8	101%		85-112%
460-00-4	4-Bromofluorobenzene	99%		83-118%

(a) Sample was treated with an anti-foaming agent. Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0046D-042.5-20201210		
Lab Sample ID:	FA81659-7	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26079.D	1	12/15/20 16:29	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.89	1.0	0.41	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	104%		85-112%
460-00-4	4-Bromofluorobenzene	101%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0145-043.0-20201210		
Lab Sample ID:	FA81659-8	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26080.D	1	12/15/20 16:52	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.6	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	7.2	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	8.4	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	103%		85-112%
460-00-4	4-Bromofluorobenzene	96%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0147-043.0-20201210		
Lab Sample ID:	FA81659-9	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26081.D	1	12/15/20 17:15	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.1	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	1.1	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	5.7	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	103%		79-125%
2037-26-5	Toluene-D8	104%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-MW0130-061.0-20201210		
Lab Sample ID:	FA81659-10	**Date Sampled:**	12/10/20
Matrix:	AQ - Ground Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26082.D	1	12/15/20 17:39	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	4.6	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	21.7	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		83-118%
17060-07-0	1,2-Dichloroethane-D4	104%		79-125%
2037-26-5	Toluene-D8	105%		85-112%
460-00-4	4-Bromofluorobenzene	94%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WILC-TB01-20201210		
Lab Sample ID:	FA81659-11	**Date Sampled:**	12/10/20
Matrix:	AQ - Trip Blank Water	**Date Received:**	12/11/20
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NASA KSC, Wilson Corners		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5E26064.D	1	12/15/20 10:43	SO	n/a	n/a	V5E1203
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	PQL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	0.32 U	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.28 U	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.22 U	1.0	0.22	ug/l	
76-13-1	Freon 113	0.48 U	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	0.22 U	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	0.35 U	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	0.41 U	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		83-118%
17060-07-0	1,2-Dichloroethane-D4	102%		79-125%
2037-26-5	Toluene-D8	103%		85-112%
460-00-4	4-Bromofluorobenzene	95%		83-118%

(a) Sample was not preserved to a pH < 2.

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FA81659

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 1 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: Michael McCoy cc: Chad Lee	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # 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: SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10

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	Select VOCs by SW8260B (Preserved)	Select PFAS by 537	4 DEG	Comments
	WILCNPSH-MW0027-	WILCNPSH-MW0027	202012		WG	N	G	3	3			
	WILC-MW0064	WILC-MW0064	202012		WG	N	G	3	3			
	WILC-MW0074-	WILC-MW0074	202012		WG	N	G	3	3			
	WILC-MW0091-	WILC-MW0091	202012		WG	N	G	3	3			
1	WILC-MW0095-0068-20201210	WILC-MW0095	202012 10	1549	WG	N	G	3	3			
	WILC-MW0152-	WILC-MW0152	202012		WG	N	G	3	3			
	WILC-MW0154-	WILC-MW0154	202012		WG	N	G	3	3			
	WILC-MW0156-	WILC-MW0156	202012		WG	N	G	3	3			
	WILC-MW0089-	WILC-MW0089	202012		WG	N	G	3	3			
2	WILC-MW0096-020.0-20201210	WILC-MW0096	202012 10	1629	WG	N	G	3	3			
	WILC-MW0109-	WILC-MW0109	202012		WG	N	G	3	3			
	WILC-MW0116-	WILC-MW0116	202012		WG	N	G	3	3			

BG

BG

***Field* Comments:**
Report only per QAPP WS #15

***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			1	12/10/20	1600
2	12/11/20	1555	2	12/11/20	1555
3			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**

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CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

COC No. | Page: 2 of 4

Project Name: NASA KSC - Wilson Corners | PO No. | Project No. 60613955.4 | Phase:

Site Location: Wilson Corners | Send Invoice To: Instructions in MSA # 19S-24548-GV03 | EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings

TO No.: 80KSC019F0082 | AECOM Project Manager: **Michael McCoy cc: Chad Lee** | Deliver Sample Kits To: AECOM Depot, 523 18th Street, Orlando | Report to Jennifer Chastain Cc: Teresa Amentt Jennings

Sampler/Phone # Dustin Slater (407) 766-0747 Madan Parsotan (321) 696-6000 | Deliver Samples To: SGS Orlando | Site-Spicific WS#15 from QAPP: 15-10

Lab Name: SGS | 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 Select PFAS by 537										Comments
	WILC-MW0125-	WILC-MW0125	202012		WG	N	G	3	3											
	WILC-MW0129-	WILC-MW0129	202012		WG	N	G	3	3											
	WILC-MW0142-	WILC-MW0142	202012		WG	N	G	3	3											
	WILC-MW0149-	WILC-MW0149	202012		WG	N	G	3	3											
	WILC-MW0153-	WILC-MW0153	202012		WG	N	G	3	3											
	WILCNPSH-MW0010-	WILCNPSH-MW0010	202012		WG	N	G	3	3											
	WILCNPSH-MW0017-	WILCNPSH-MW0017	202012		WG	N	G	3	3											
	WILCNPSH-MW0019-	WILCNPSH-MW0019	202012		WG	N	G	3	3											
	WILCNPSH-MW0020-	WILCNPSH-MW0020	202012		WG	N	G	3	3											
	WILCNPSH-MW0022-	WILCNPSH-MW0022	202012		WG	N	G	3	3											
3	WILC-MW0062-0315-202012 10	WILC-MW0062	202012 10	1557	WG	N	G	3	3											
	WILC-MW0065-	WILC-MW0065	202012		WG	N	G	3	3											

***Field* Comments:**
Report only per QAPP WS #15

***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			1	12/10/20	1600
2	12/11/20	1555	2	12/11/20	1555
3			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**

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CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 3 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: Michael McCoy cc: Chad Lee	Send Invoice To: Instructions in MSA # 19S-24548-GV03	EDD to: Jennifer Chastain Cc: Teresa Amentt Jennings
Sampler/Phone # 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: SGS	Turnaround Time(specify): Standard 14 day	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10

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) 4 DEG HCl	4 DEG									Comments
								Total No. of Containers	Select VOCs by SW8260B (Preserved)	Select PFAS by 537									
	~~WILC-MW0080-~~	~~WILC-MW0080~~	~~202012~~		WG	N	G	~~3~~	~~3~~									
	~~WILC-MW0088-~~	~~WILC-MW0088~~	~~202012~~		WG	N	G	~~3~~	~~3~~									
	~~WILC-MW0090-~~	~~WILC-MW0090~~	~~202012~~		WG	N	G	~~3~~	~~3~~									
	WILC-MW0097-~~0315-20201210~~	WILC-MW0097	202012~~10~~	1707	WG	N	G	3	3									
4	WILC-MW0111-~~0315-20201210~~	WILC-MW0111	202012~~10~~	1716	WG	N	G	3	3									
5	~~WILC-MW0140-~~	~~WILC-MW0140~~	~~202012~~		WG	N	G	~~3~~	~~3~~									
	~~WILC-MW0143-~~	~~WILC-MW0143~~	202012		WG	N	G	~~3~~	~~3~~									
6	WILC-MW0146-~~0218.0-20201210~~	WILC-MW0146	202012~~10~~	1649	WG	N	G	3	3									
	~~WILC-MW0155-~~	~~WILC-MW0155~~	~~202012~~		WG	N	G	~~3~~	~~3~~									
	~~WILCNPSH-MW0039-~~	WILCNPSH-MW0039	202012		WG	N	G	~~3~~	3									
7	WILC-MW0046D-~~0242.5-20201210~~	WILC-MW0046D	202012~~10~~	1636	WG	N	G	3	3									
	~~WILC-MW0068-~~	~~WILC-MW0068~~	202012		WG	N	G	~~3~~	~~3~~									

***Field* Comments:**
Report only per QAPP WS #15

***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			1	12/10/20	1600
2	12/11/20	1555	2	12/11/20	1555
3			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**

FA81659

CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

AECOM

Project Name: NASA KSC - Wilson Corners		COC No.	Page: 4 of 4
Site Location: Wilson Corners		PO No.	Project No. 60613955.4 Phase:
TO No.: 80KSC019F0082	AECOM Project Manager: **Michael McCoy cc: Chad Lee**	Send Invoice To: Instructions in MSA # 19S-24548-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 # Dustin Slater (407) 766-0747	Madan Parsotan (321) 696-6000	Deliver Samples To: SGS Orlando	Site-Spicific WS#15 from QAPP: 15-10
Lab Name: SGS	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	4DEG Select VOCs by SW8260B (Preserved)	4 DEG Select PFAS by 537	Comments
	~~WILC-MW0118-~~	~~WILC-MW0118~~	202012		WG	N	G	3	3		
	~~WILC-MW0141-~~	~~WILC-MW0141~~	202012		WG	N	G	3	3		
	~~WILC-MW0144-~~	~~WILC-MW0144~~	202012		WG	N	G	3	3		
8	WILC-MW0145-MW3.0-20201210	WILC-MW0145	202012 10	1515	WG	N	G	3	3		
9	WILC-MW0147-MW3.0-20201210	WILC-MW0147	202012 10	1627	WG	N	G	3	3		
	~~WILC-MW0078-~~	~~WILC-MW0078~~	202012		WG	N	G	3	3		
10	WILC-MW0130-MW1.0-20201210	WILC-MW0130	202012 10	1523	WG	N	G	3	3		
	~~WILC-IDW01-~~	~~WILC-IDW01~~	202012		IDW	IDW	G	5	3	2	
11	WILC-TB01-20201210	WILC-TB01	202012 10	1500	WQ	TB	G	3	3		

***Field* Comments:**
Report only per QAPP WS #15

***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			1	12/10/20	1600
2	12/11/20	1555	2	12/11/20	1555
3			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**

SGS Sample Receipt Summary

Job Number: FA81659 **Client:** AECOM **Project:** NASA KSC- WILSON CORNERS

Date / Time Received: 12/11/2020 3:55:00 PM **Delivery Method:** D/O **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.6);

Cooler Temps (Corrected) °C: Cooler 1: (1.8);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☑		☐	☐
2. Trip Blank listed on COC	☑		☐	☐

	W	or	S	N/A
3. Type Of TB Received	☑		☐	☐

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☑	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: CARLOSD Date: 12/11/2020 3:55:00 P Reviewer: _____ Date: _____

5.1
5

FA81659: Chain of Custody
Page 5 of 5

MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI2175-MB	I67865.D	1	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-1, FA81659-2, FA81659-4

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	97%	83-118%
17060-07-0	1,2-Dichloroethane-D4	107%	79-125%
2037-26-5	Toluene-D8	96%	85-112%
460-00-4	4-Bromofluorobenzene	95%	83-118%

Method Blank Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E1203-MB	5E26062.D	1	12/15/20	SO	n/a	n/a	V5E1203

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-5, FA81659-6, FA81659-7, FA81659-8, FA81659-9, FA81659-10, FA81659-11

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	79-125%
2037-26-5	Toluene-D8	102%	85-112%
460-00-4	4-Bromofluorobenzene	96%	83-118%

Method Blank Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY2272-MB	Y54680.D	1	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-3

CAS No.	Compound	Result	RL	MDL	Units	Q
75-35-4	1,1-Dichloroethylene	ND	1.0	0.32	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	1.0	0.48	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.22	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.35	ug/l	
75-01-4	Vinyl Chloride	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	83-118%
17060-07-0	1,2-Dichloroethane-D4	103%	79-125%
2037-26-5	Toluene-D8	96%	85-112%
460-00-4	4-Bromofluorobenzene	100%	83-118%

Blank Spike Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI2175-BS	I67863.D	1	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-1, FA81659-2, FA81659-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	24.8	99	78-137
156-59-2	cis-1,2-Dichloroethylene	25	25.1	100	78-120
156-60-5	trans-1,2-Dichloroethylene	25	25.2	101	76-127
76-13-1	Freon 113	25	22.9	92	72-134
127-18-4	Tetrachloroethylene	25	24.6	98	76-135
79-01-6	Trichloroethylene	25	22.3	89	81-126
75-01-4	Vinyl Chloride	25	25.1	100	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	106%	79-125%
2037-26-5	Toluene-D8	100%	85-112%
460-00-4	4-Bromofluorobenzene	96%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5E1203-BS	5E26060.D	1	12/15/20	SO	n/a	n/a	V5E1203

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-5, FA81659-6, FA81659-7, FA81659-8, FA81659-9, FA81659-10, FA81659-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	25.5	102	78-137
156-59-2	cis-1,2-Dichloroethylene	25	23.5	94	78-120
156-60-5	trans-1,2-Dichloroethylene	25	24.8	99	76-127
76-13-1	Freon 113	25	20.5	82	72-134
127-18-4	Tetrachloroethylene	25	24.2	97	76-135
79-01-6	Trichloroethylene	25	24.1	96	81-126
75-01-4	Vinyl Chloride	25	23.1	92	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	104%	79-125%
2037-26-5	Toluene-D8	97%	85-112%
460-00-4	4-Bromofluorobenzene	90%	83-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY2272-BS	Y54678.D	1	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-35-4	1,1-Dichloroethylene	25	25.5	102	78-137
156-59-2	cis-1,2-Dichloroethylene	25	24.8	99	78-120
156-60-5	trans-1,2-Dichloroethylene	25	25.0	100	76-127
76-13-1	Freon 113	25	23.0	92	72-134
127-18-4	Tetrachloroethylene	25	24.3	97	76-135
79-01-6	Trichloroethylene	25	23.5	94	81-126
75-01-4	Vinyl Chloride	25	23.4	94	69-159

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	79-125%
2037-26-5	Toluene-D8	99%	85-112%
460-00-4	4-Bromofluorobenzene	99%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81415-1MS	I67887.D	10	12/15/20	CV	n/a	n/a	VI2175
FA81415-1MSD	I67888.D	10	12/15/20	CV	n/a	n/a	VI2175
FA81415-1 [a]	I67867.D	10	12/14/20	CV	n/a	n/a	VI2175

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-1, FA81659-2, FA81659-4

CAS No.	Compound	FA81415-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	12.6		250	308	118	250	309	119	0	78-137/18
156-59-2	cis-1,2-Dichloroethylene	81.7		250	393	125*	250	390	123*	1	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		250	293	117	250	296	118	1	76-127/17
76-13-1	Freon 113	ND		250	256	102	250	249	100	3	72-134/20
127-18-4	Tetrachloroethylene	6.6		250	278	109	250	284	111	2	76-135/16
79-01-6	Trichloroethylene	430		250	771	136*	250	758	131*	2	81-126/15
75-01-4	Vinyl Chloride	ND		250	300	120	250	302	121	1	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA81415-1	Limits
1868-53-7	Dibromofluoromethane	102%	102%	98%	83-118%
17060-07-0	1,2-Dichloroethane-D4	102%	105%	107%	79-125%
2037-26-5	Toluene-D8	99%	99%	97%	85-112%
460-00-4	4-Bromofluorobenzene	96%	97%	95%	83-118%

(a) Sample used for QC purposes only.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81453-10MS	Y54691.D	25	12/15/20	CV	n/a	n/a	VY2272
FA81453-10MSD	Y54692.D	25	12/15/20	CV	n/a	n/a	VY2272
FA81453-10	Y54685.D	25	12/15/20	CV	n/a	n/a	VY2272

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-3

CAS No.	Compound	FA81453-10 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	59.2		625	671	98	625	677	99	1	78-137/18
156-59-2	cis-1,2-Dichloroethylene	121		625	730	97	625	731	98	0	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		625	594	95	625	592	95	0	76-127/17
76-13-1	Freon 113	ND		625	554	89	625	509	81	8	72-134/20
127-18-4	Tetrachloroethylene	ND		625	569	91	625	573	92	1	76-135/16
79-01-6	Trichloroethylene	ND		625	573	92	625	573	92	0	81-126/15
75-01-4	Vinyl Chloride	89.0		625	666	92	625	1250	186*	61*	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA81453-10	Limits
1868-53-7	Dibromofluoromethane	103%	103%	102%	83-118%
17060-07-0	1,2-Dichloroethane-D4	104%	102%	106%	79-125%
2037-26-5	Toluene-D8	96%	97%	95%	85-112%
460-00-4	4-Bromofluorobenzene	96%	96%	99%	83-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA81659
Account: MEFLOR AECOM, Inc
Project: NASA KSC, Wilson Corners

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA81454-16MS	5E26084.D	1	12/15/20	SO	n/a	n/a	V5E1203
FA81454-16MSD	5E26085.D	1	12/15/20	SO	n/a	n/a	V5E1203
FA81454-16	5E26065.D	1	12/15/20	SO	n/a	n/a	V5E1203

The QC reported here applies to the following samples: **Method:** SW846 8260B

FA81659-5, FA81659-6, FA81659-7, FA81659-8, FA81659-9, FA81659-10, FA81659-11

CAS No.	Compound	FA81454-16 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-35-4	1,1-Dichloroethylene	ND		25	22.6	90	25	24.4	98	8	78-137/18
156-59-2	cis-1,2-Dichloroethylene	ND		25	22.2	89	25	23.1	92	4	78-120/15
156-60-5	trans-1,2-Dichloroethylene	ND		25	24.1	96	25	24.4	98	1	76-127/17
76-13-1	Freon 113	ND		25	21.1	84	25	21.5	86	2	72-134/20
127-18-4	Tetrachloroethylene	ND		25	23.3	93	25	23.5	94	1	76-135/16
79-01-6	Trichloroethylene	ND		25	24.1	96	25	24.3	97	1	81-126/15
75-01-4	Vinyl Chloride	ND		25	25.0	100	25	25.7	103	3	69-159/18

CAS No.	Surrogate Recoveries	MS	MSD	FA81454-16	Limits
1868-53-7	Dibromofluoromethane	101%	101%	99%	83-118%
17060-07-0	1,2-Dichloroethane-D4	105%	101%	102%	79-125%
2037-26-5	Toluene-D8	94%	95%	104%	85-112%
460-00-4	4-Bromofluorobenzene	85%	85%	95%	83-118%

* = Outside of Control Limits.

APPENDIX D

RIS COMPLETION TICKETS
(PROVIDED IN THE ELECTRONIC COPY ONLY)

Data Checker

Completion Ticket

On 5/20/2021 at 10:52 PM the following files were submitted to Tetra Tech

COMPLETION_AECOM_BLANK_20210520.txt

LITHOLOGY_AECOM_BLANK_20210520.txt

LOCATION_AECOM_WILC_20210520.txt

PROJECT_AECOM_WILC_20210520.txt

RESULT_AECOM_WILC_20210520.txt

SAMPLE_AECOM_WILC_20210520.txt

WATER_AECOM_WILC_20210520.txt

The following comment was provided with this submission:
Hello Tetra Tech - I like the new Data Checker but could not get it work so I ended up using the legacy checker. Please see attached Wilson Corners Dec 2019 data. I had a mixup with my tracking system and thought I had already uploaded this data. Let me know if there are any issues. thanks! Jennifer

If you need to identify this session at a later date you may use the Ticket Key:

inetpubTetraTechExternalClientsProtectedDataRepository2021520_3481790636_kedd_AECOM

You may print this page by clicking on the "Print This Page" button

Thank you for using the Data Checker, to upload more files click the "Upload Files" link in the menu.

Print this Page

Data Checker

Completion Ticket

On 5/20/2021 at 11:09 PM the following files were submitted to Tetra Tech

COMPLETION_AECOM_BLANK_20210521.txt

LITHOLOGY_AECOM_BLANK_20210521.txt

LOCATION_AECOM_WILC_20210521.txt

PROJECT_AECOM_WILC_20210521.txt

RESULT_AECOM_WILC_20210521.txt

SAMPLE_AECOM_WILC_20210521.txt

WATER_AECOM_WILC_20210521.txt

The following comment was provided with this submission:
Hello Tetra Tech - please see attached May 2020 data for Wilson Corners. Again, mixup and I thought I had already submitted this data. If there are any issues let me know. thanks! Jennifer

If you need to identify this session at a later date you may use the Ticket Key:

inetpubTetraTechExternalClientsProtectedDataRepository2021520_1573027815_kedd_AECOM

You may print this page by clicking on the "Print This Page" button

Thank you for using the Data Checker, to upload more files click the "Upload Files" link in the menu.

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Data Checker

Completion Ticket

On 1/11/2021 at 5:34 PM the following files were submitted to Tetra Tech

COMPLETION_AECOM_BLANK_20210111.txt

LITHOLOGY_AECOM_BLANK_20210111.txt

LOCATION_AECOM_WILC_20210111.txt

PROJECT_AECOM_WILC_20210111.txt

RESULT_AECOM_WILC_20210111.txt

SAMPLE_AECOM_WILC_20210111.txt

WATER_AECOM_WILC_20210111.txt

The following comment was provided with this submission:
Hello - uploaded are the KSC Wilson Corners December 2020 groundwater sampling event. If there are any issues please let me know. thanks! Jennifer Chastain

If you need to identify this session at a later date you may use the Ticket Key:

inetpubTetraTechExternalClientsProtectedDataRepository2021111_1104295153_kedd_AECOM

You may print this page by clicking on the "Print This Page" button

Thank you for using the Data Checker, to upload more files click the "Upload Files" link in the menu.

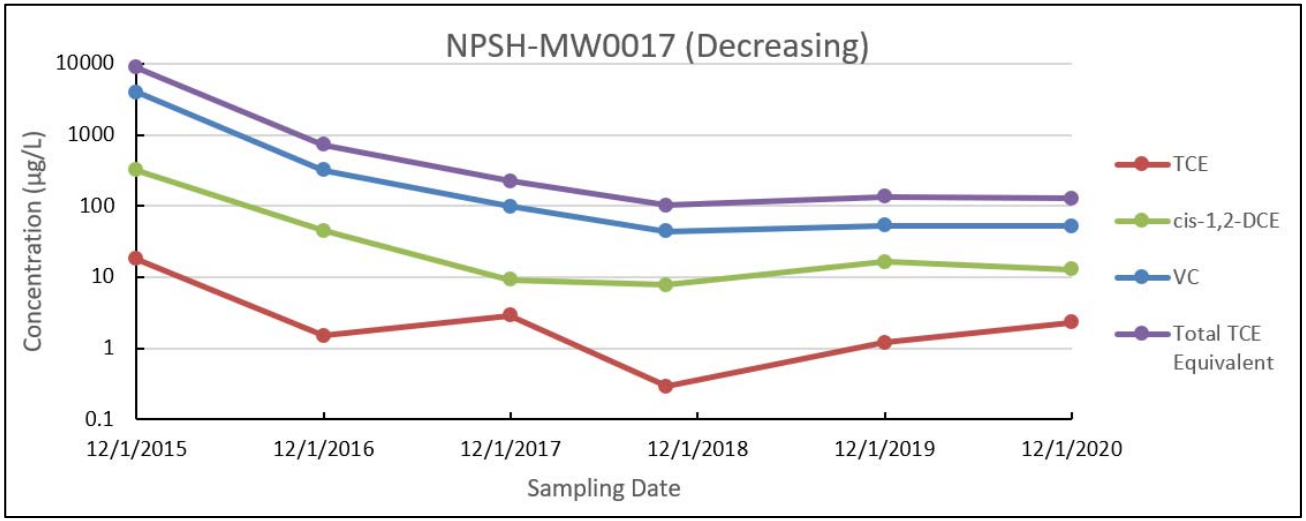
Print this Page

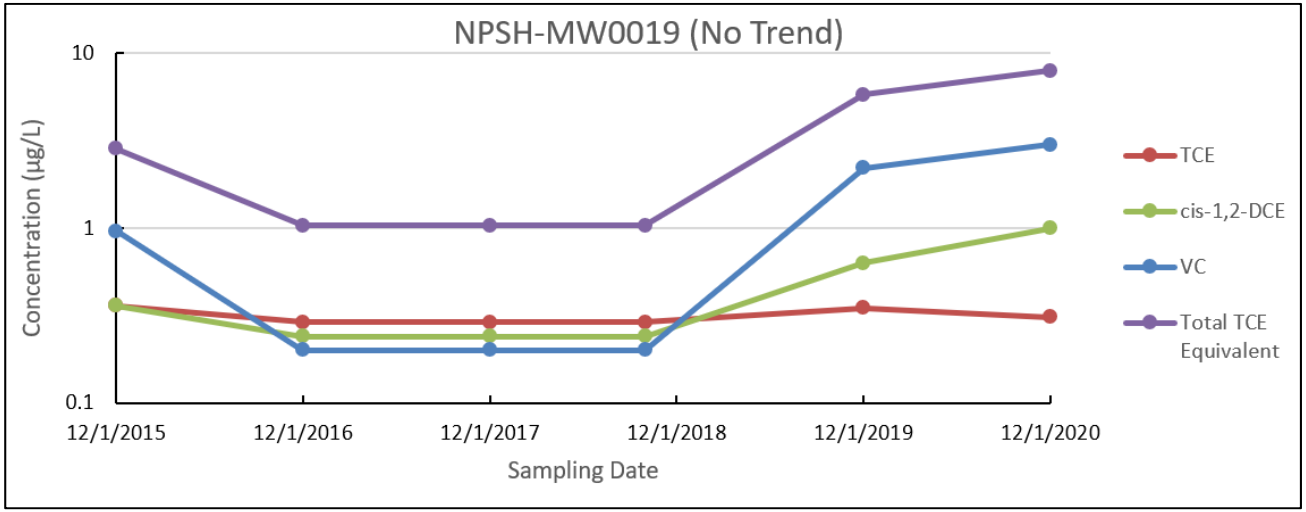
APPENDIX E

TREND CHARTS AND GSI MANN-KENDALL TOOLKIT CALCUATION SHEETS

Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





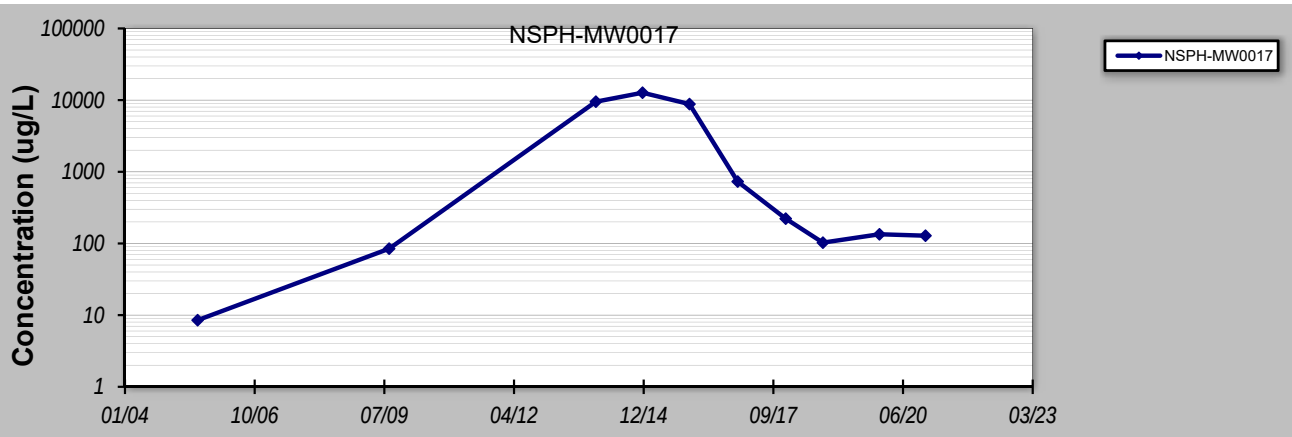
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: NSPH-MW0017

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	7/27/2005	8.5						
2	8/12/2009	84.6						
3	12/23/2013	9507.6						
4	12/18/2014	12689.8						
5	12/15/2015	8800.2	8800.2					
6	12/21/2016	730.4	730.4					
7	12/26/2017	222.0	222.0					
8	10/9/2018	102.6	102.6					
9	12/19/2019	134.3	134.3					
10	12/8/2020	128.3	128.3					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.54	2.07					
Mann-Kendall Statistic (S):		-5	-11					
Confidence Factor:		63.6%	97.2%					
Concentration Trend:		No Trend	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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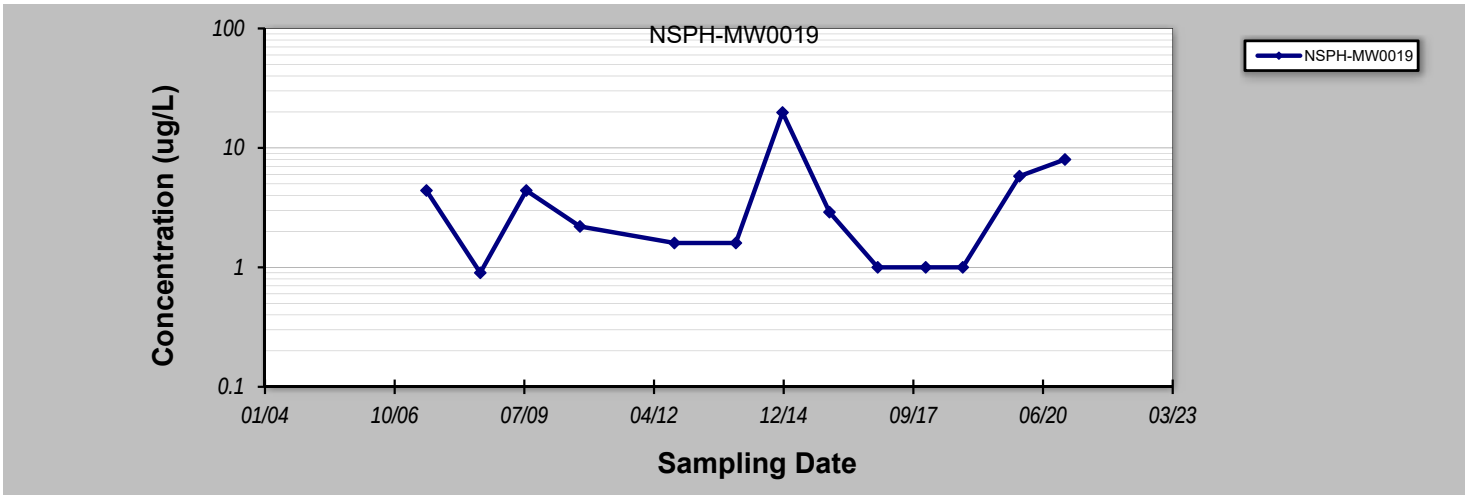
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: NSPH-MW0019

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	6/12/2007	4.4						
2	7/31/2008	0.9						
3	7/21/2009	4.4						
4	9/8/2010	2.2						
5	9/5/2012	1.6						
6	12/23/2013	1.6						
7	12/18/2014	19.8						
8	12/15/2015	2.9	2.9					
9	12/21/2016	1.0	1.0					
10	12/26/2017	1.0	1.0					
11	10/8/2018	1.0	1.0					
12	12/19/2019	5.8	5.8					
13	12/4/2020	8.0	8.0					
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.23	0.91					
Mann-Kendall Statistic (S):		3	6					
Confidence Factor:		54.8%	81.5%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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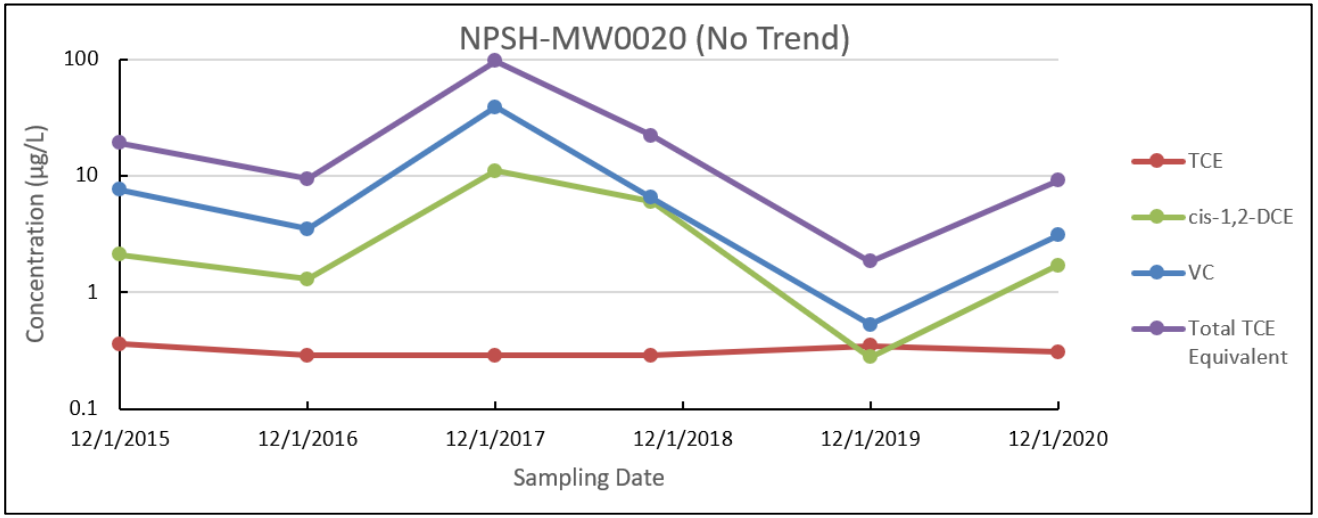
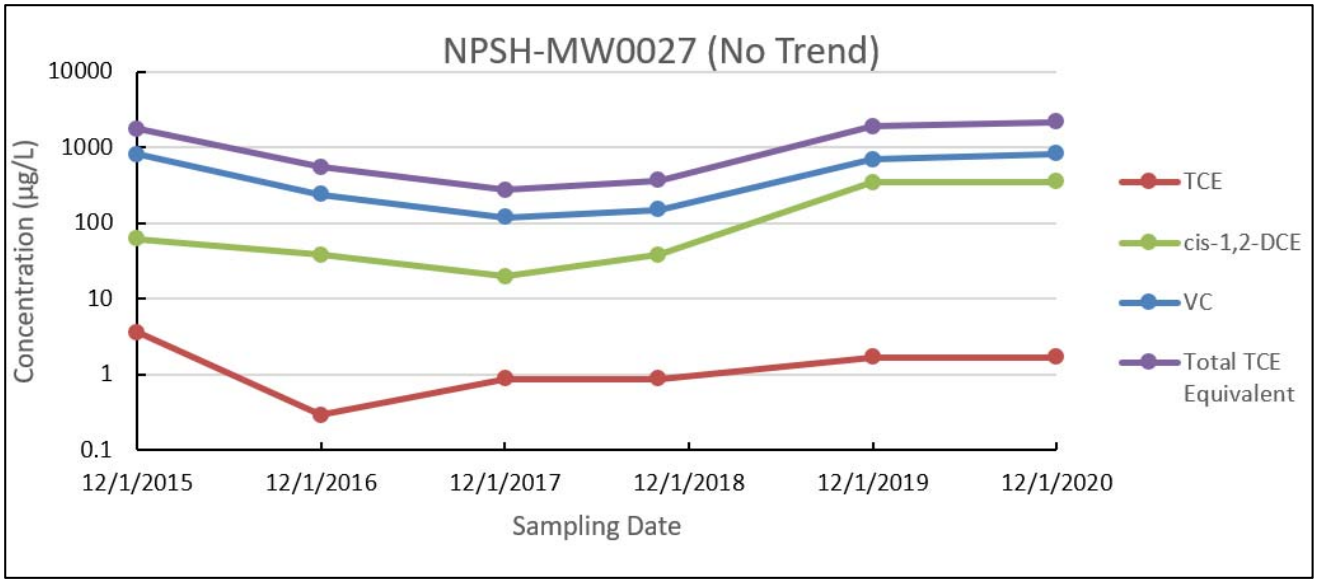
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





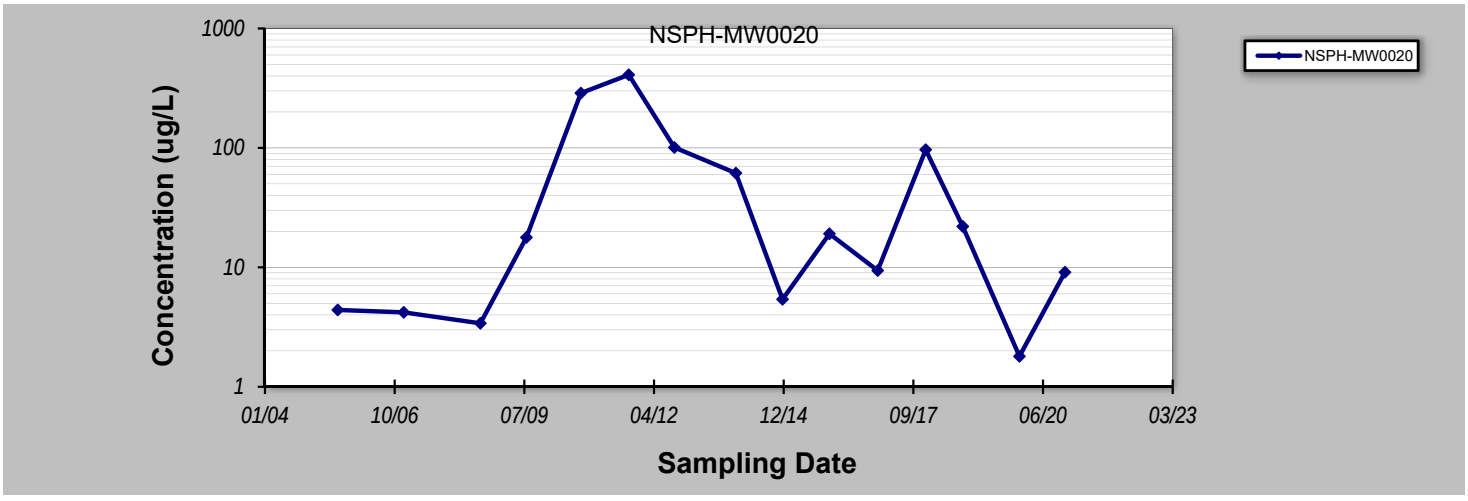
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: NSPH-MW0020

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	7/28/2005	4.4						
2	12/19/2006	4.2						
3	8/1/2008	3.4						
4	7/22/2009	17.8						
5	9/15/2010	287.8						
6	9/19/2011	409.4						
7	9/5/2012	100.8						
8	12/23/2013	61.5						
9	12/18/2014	5.4						
10	12/15/2015	19.1	19.1					
11	12/21/2016	9.4	9.4					
12	12/26/2017	96.6	96.6					
13	10/8/2018	22.0	22.0					
14	12/19/2019	1.8	1.8					
15	12/4/2020	9.1	9.1					
16								
17								
18								
19								
20								
Coefficient of Variation:		1.71	1.34					
Mann-Kendall Statistic (S):		-1	-5					
Confidence Factor:		50.0%	76.5%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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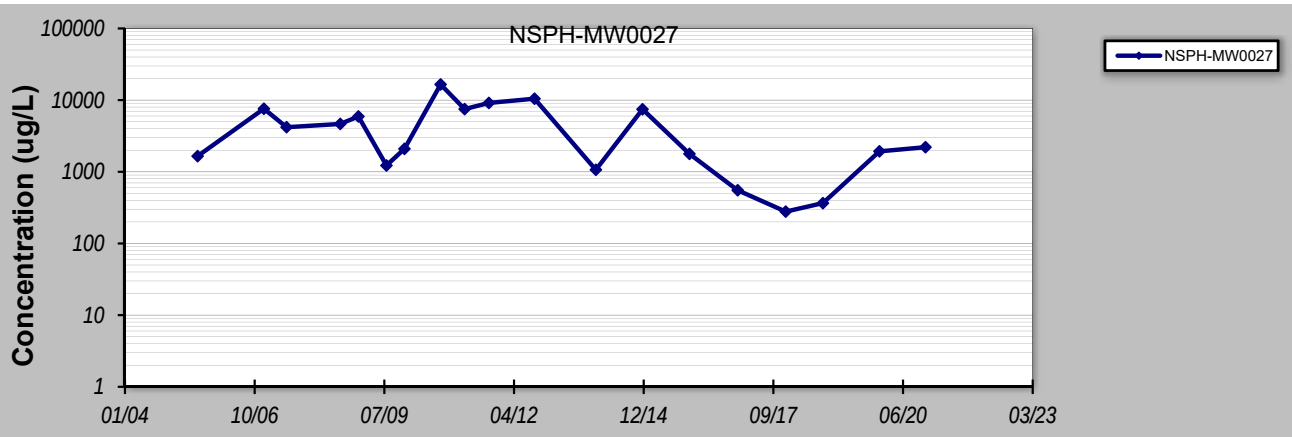
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: NSPH-MW0027

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	7/27/2005	1653.2						
2	12/20/2006	7588.6						
3	6/13/2007	4193.2						
4	7/31/2008	4656.6						
5	12/18/2008	5916.2						
6	7/22/2009	1225.4						
7	12/8/2009	2088.4						
8	9/13/2010	16551.9						
9	3/17/2011	7502.1						
10	9/20/2011	9136.7						
11	9/6/2012	10473.9						
12	12/23/2013	1065.7						
13	12/18/2014	7461.3						
14	12/15/2015	1778.2	1778.2					
15	12/21/2016	552.7	552.7					
16	12/26/2017	278.4	278.4					
17	10/9/2018	365.4	365.4					
18	12/19/2019	1930.1	1930.1					
19	12/8/2020	2204	2204					
20								
Coefficient of Variation:		0.95	0.74					
Mann-Kendall Statistic (S):		-39	5					
Confidence Factor:		90.7%	76.5%					
Concentration Trend:		Prob. Decreasing	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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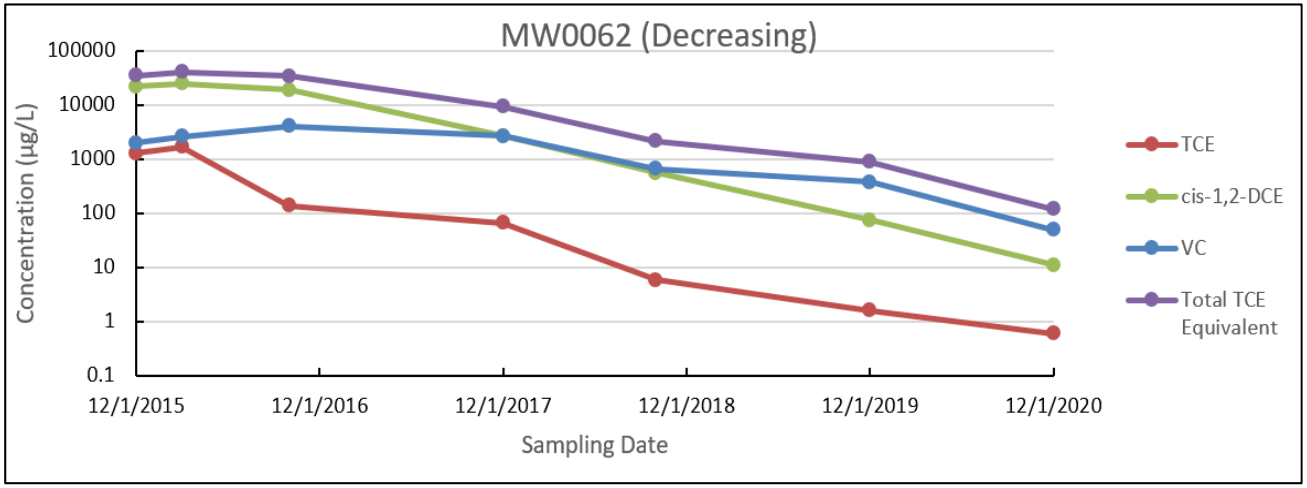
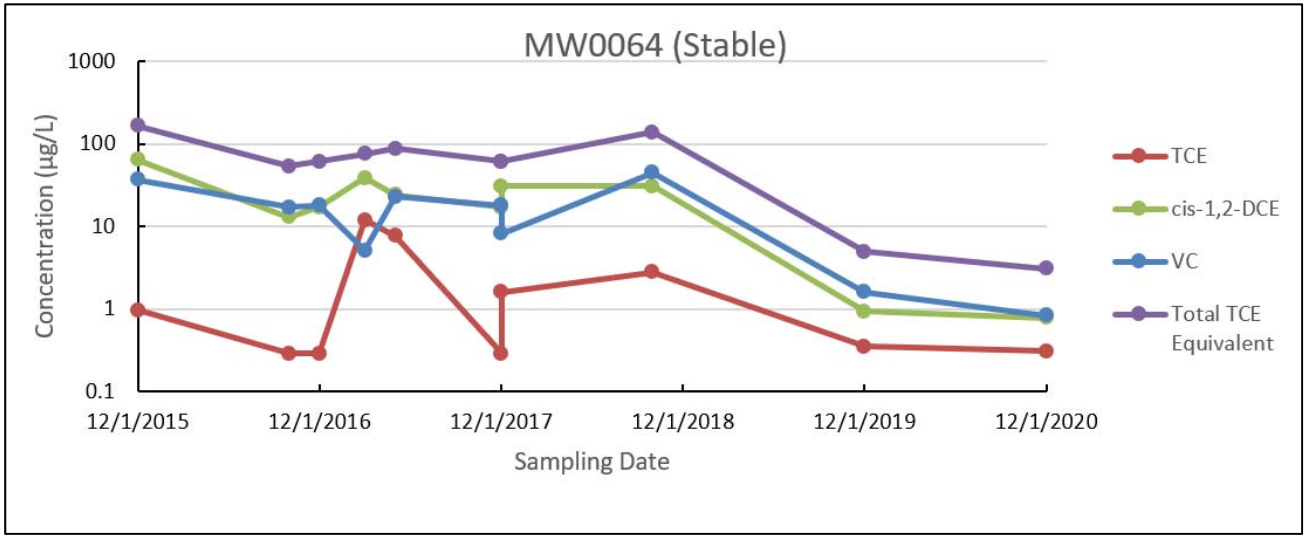
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





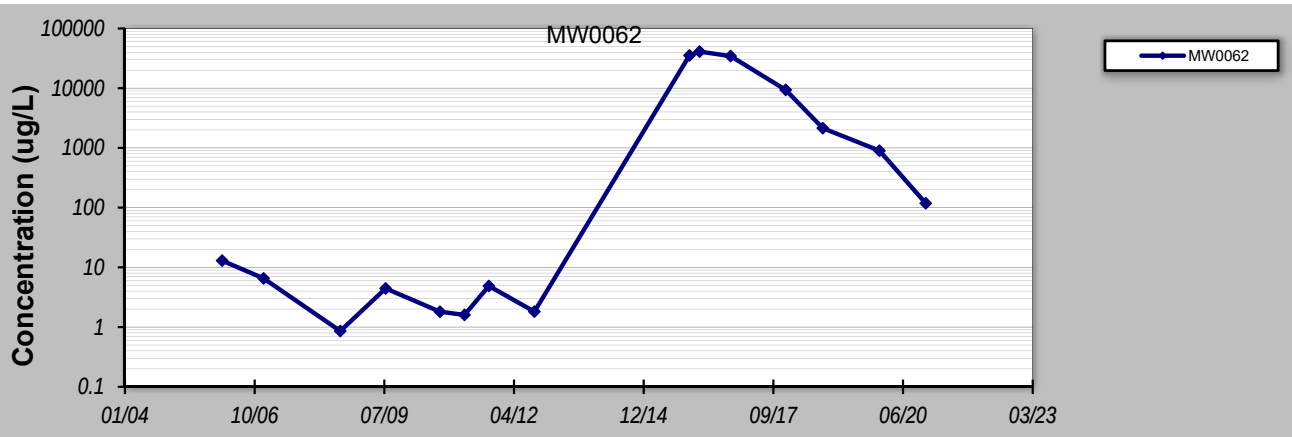
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0062

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	2/1/2006	13.0						
2	12/18/2006	6.5						
3	7/31/2008	0.9						
4	7/16/2009	4.4						
5	9/8/2010	1.8						
6	3/16/2011	1.6						
7	9/20/2011	4.9						
8	9/5/2012	1.8						
9	12/15/2015	35292.2	35292.2					
10	3/2/2016	41010.6	41010.6					
11	10/27/2016	34449.1	34449.1					
12	12/26/2017	9361.7	9361.7					
13	10/8/2018	2142.3	2142.3					
14	12/19/2019	898.9	898.9					
15	12/10/2020	118.3	118.3					
16								
17								
18								
19								
20								
Coefficient of Variation:		1.84	1.05					
Mann-Kendall Statistic (S):		29	-19					
Confidence Factor:		91.6%	99.9%					
Concentration Trend:		Prob. Increasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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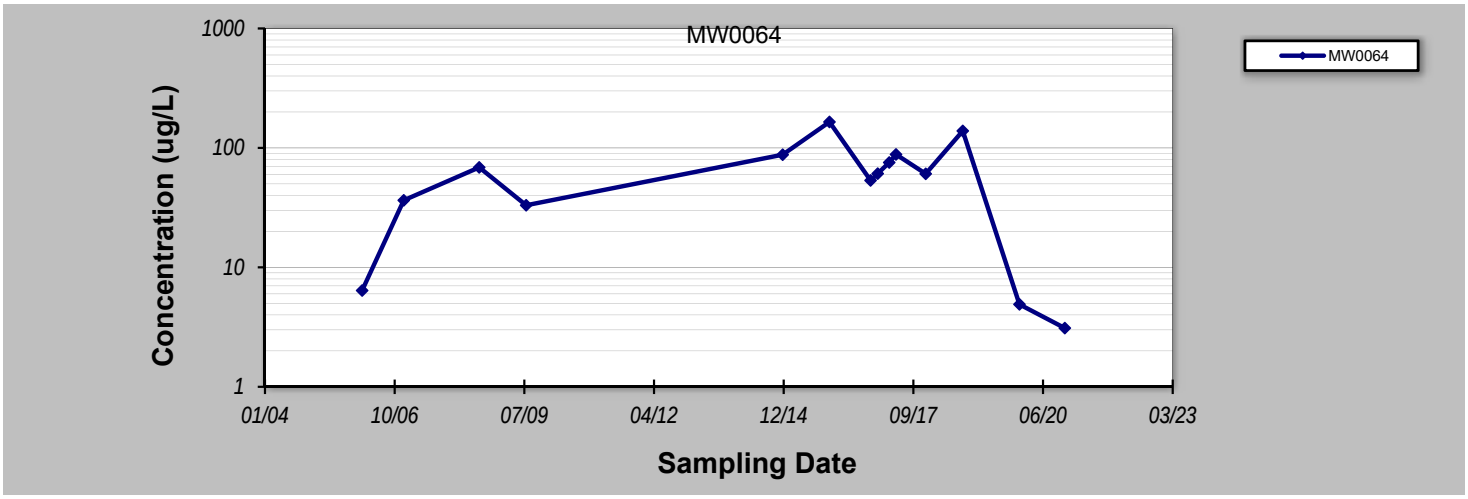
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0064

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	2/1/2006	6.4						
2	12/19/2006	36.4						
3	7/23/2008	68.7						
4	7/20/2009	33.1						
5	12/19/2014	87.7						
6	12/15/2015	164.9	164.9					
7	10/27/2016	53.4	53.4					
8	12/21/2016	60.9	60.9					
9	3/20/2017	75.5	75.5					
10	5/11/2017	88.2	88.2					
11	12/26/2017	60.7	60.7					
12	10/8/2018	138.7	138.7					
13	12/19/2019	4.9	4.9					
14	12/3/2020	3.1	3.1					
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.75	0.75					
Mann-Kendall Statistic (S):		5	-12					
Confidence Factor:		58.5%	87.0%					
Concentration Trend:		No Trend	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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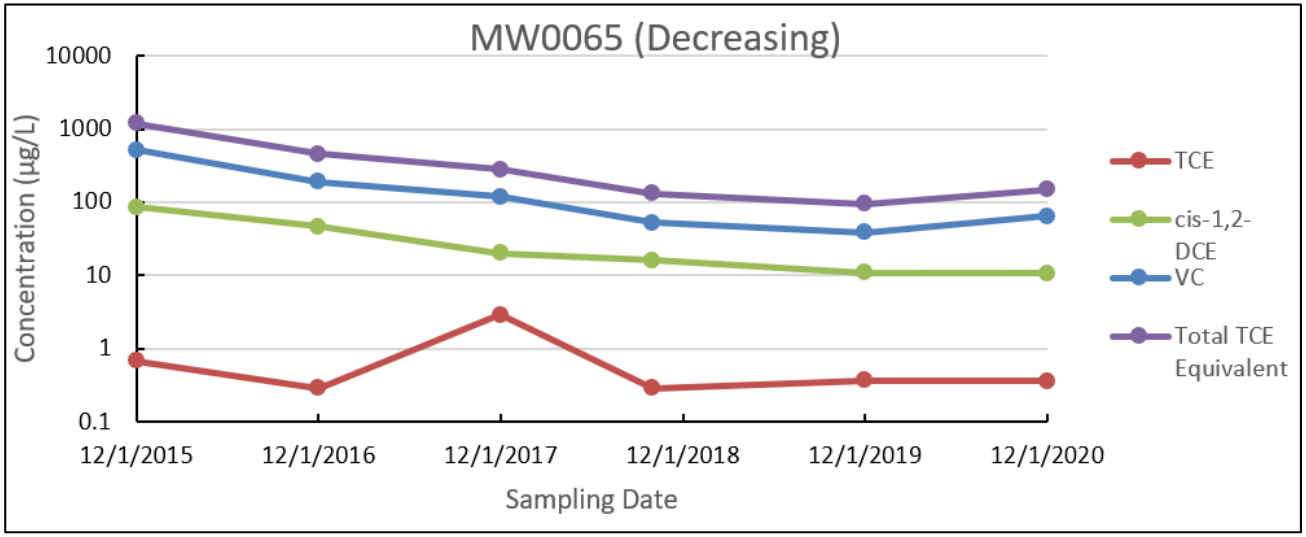
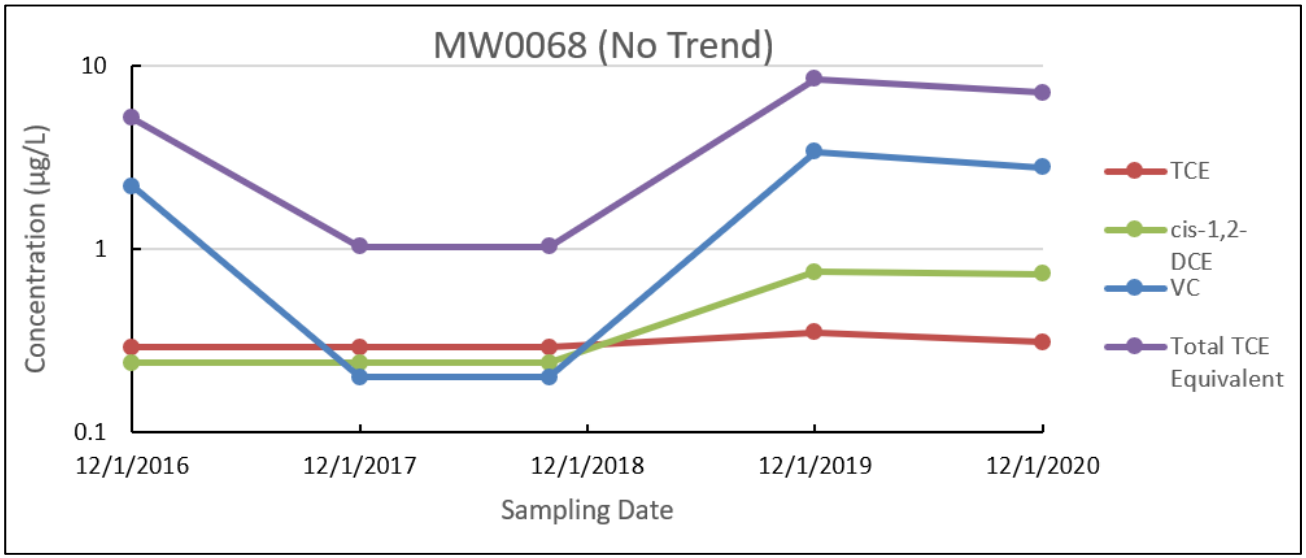
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





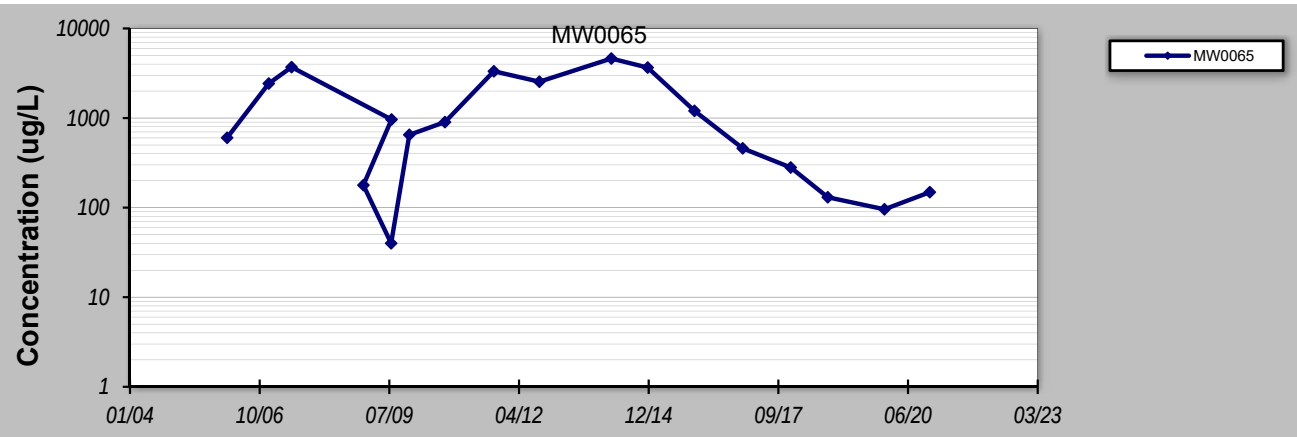
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0065

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	2/1/2006	602.4						
2	12/19/2006	2428.6						
3	6/13/2007	3702.2						
4	7/23/2009	963.2						
5	12/18/2008	178.3						
6	7/20/2009	40.0						
7	12/7/2009	650.1						
8	9/8/2010	901.9						
9	9/20/2011	3326.3						
10	9/5/2012	2544.2						
11	3/14/2014	4614.8						
12	12/19/2014	3661.0						
13	12/15/2015	1202.5	1202.5					
14	12/21/2016	459.2	459.2					
15	12/26/2017	280.5	280.5					
16	10/8/2018	130.5	130.5					
17	12/19/2019	95.8	95.8					
18	12/3/2020	148.8	148.8					
19								
20								
Coefficient of Variation:		1.05	1.09					
Mann-Kendall Statistic (S):		-35	-11					
Confidence Factor:		90.0%	97.2%					
Concentration Trend:		Prob. Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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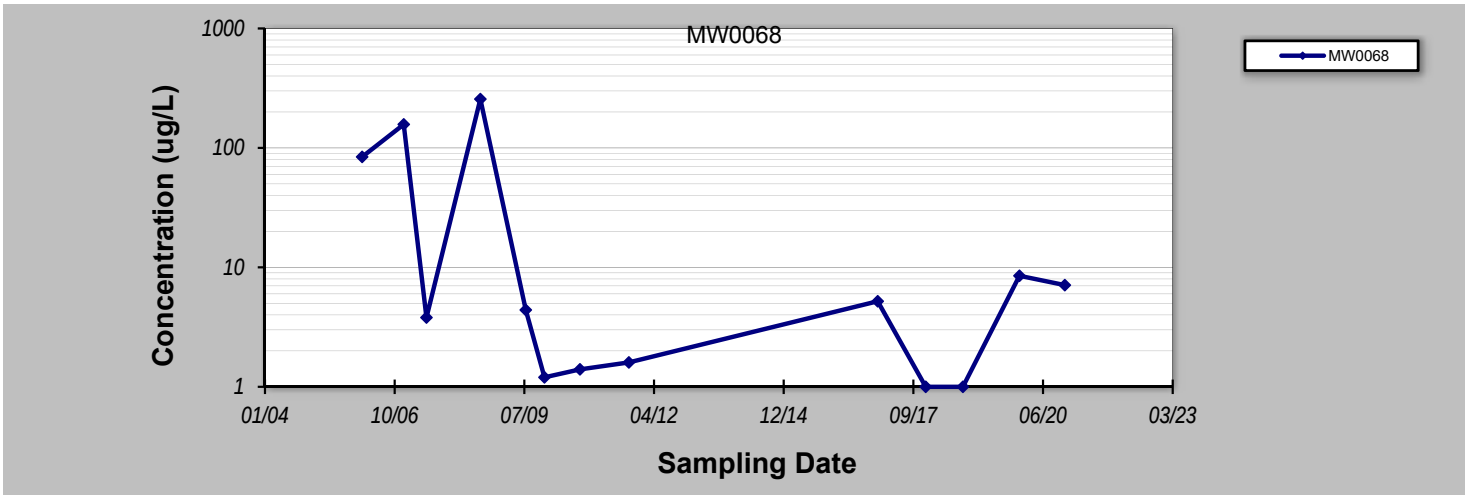
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0068

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	2/1/2006	84.1						
2	12/19/2006	157.3						
3	6/12/2007	3.8						
4	8/1/2008	256.3						
5	7/17/2009	4.4						
6	12/8/2009	1.2						
7	9/8/2010	1.4						
8	9/20/2011	1.6						
9	12/21/2016	5.2	5.2					
10	12/26/2017	1.0	1.0					
11	10/9/2018	1.0	1.0					
12	12/19/2019	8.5	8.5					
13	12/3/2020	7.1	7.1					
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.94	0.76					
Mann-Kendall Statistic (S):		-19	3					
Confidence Factor:		86.1%	67.5%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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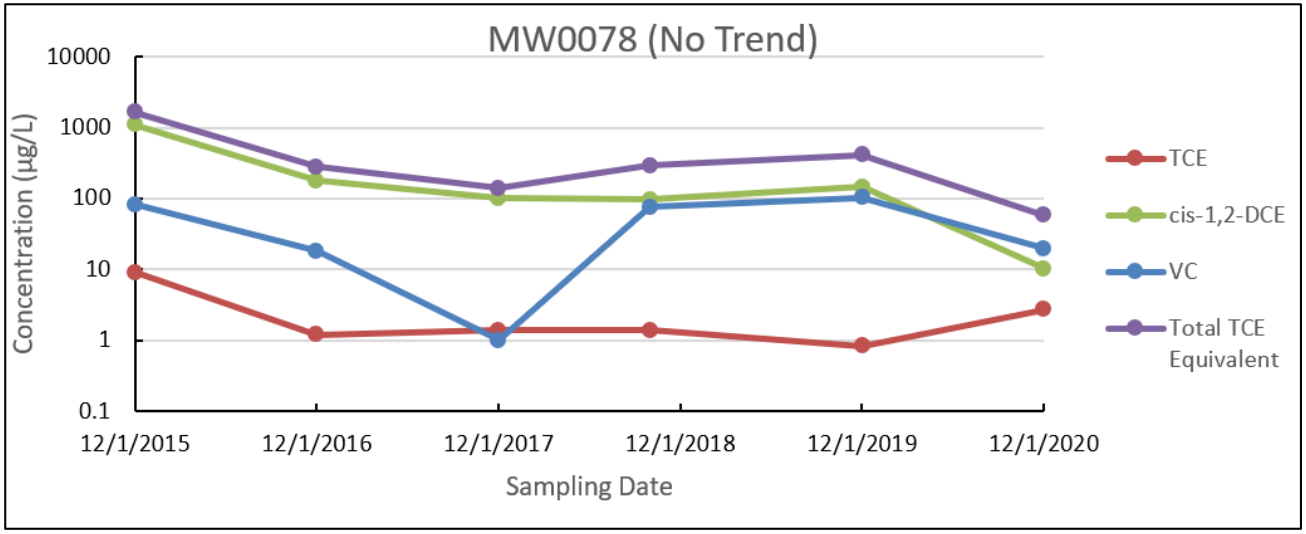
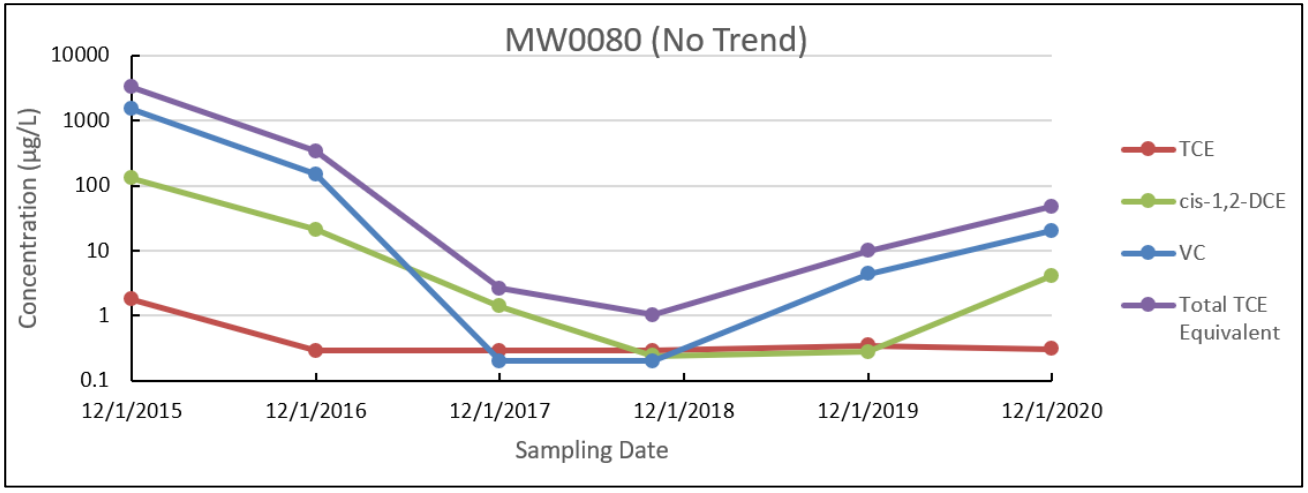
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





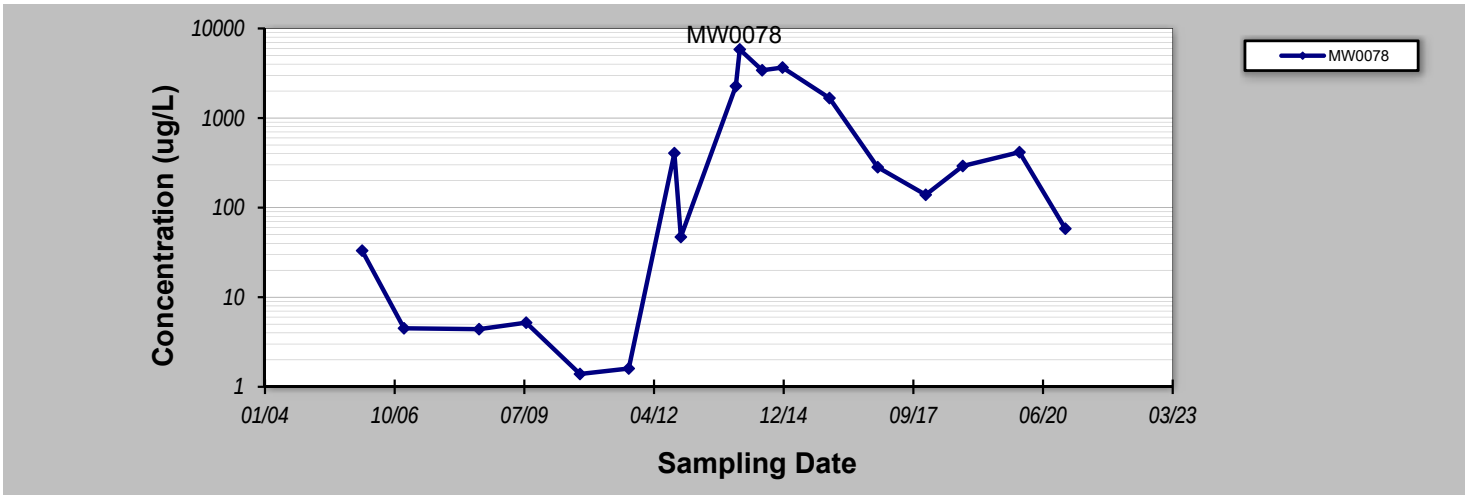
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0078

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	2/1/2006	33.1						
2	12/21/2006	4.5						
3	7/22/2008	4.4						
4	7/20/2009	5.2						
5	9/8/2010	1.4						
6	9/19/2011	1.6						
7	9/5/2012	405.8						
8	10/25/2012	47.0						
9	12/23/2013	2269.8						
10	1/22/2014	5833.4						
11	7/14/2014	3416.2						
12	12/18/2014	3663.3						
13	12/15/2015	1671.0	1671.0					
14	12/21/2016	282.7	282.7					
15	12/26/2017	139.0	139.0					
16	10/8/2018	291.5	291.5					
17	12/19/2019	415.8	415.8					
18	12/7/2020	58.2	58.2					
19								
20								
Coefficient of Variation:		1.64	1.26					
Mann-Kendall Statistic (S):		47	-5					
Confidence Factor:		95.9%	76.5%					
Concentration Trend:		Increasing	No Trend					



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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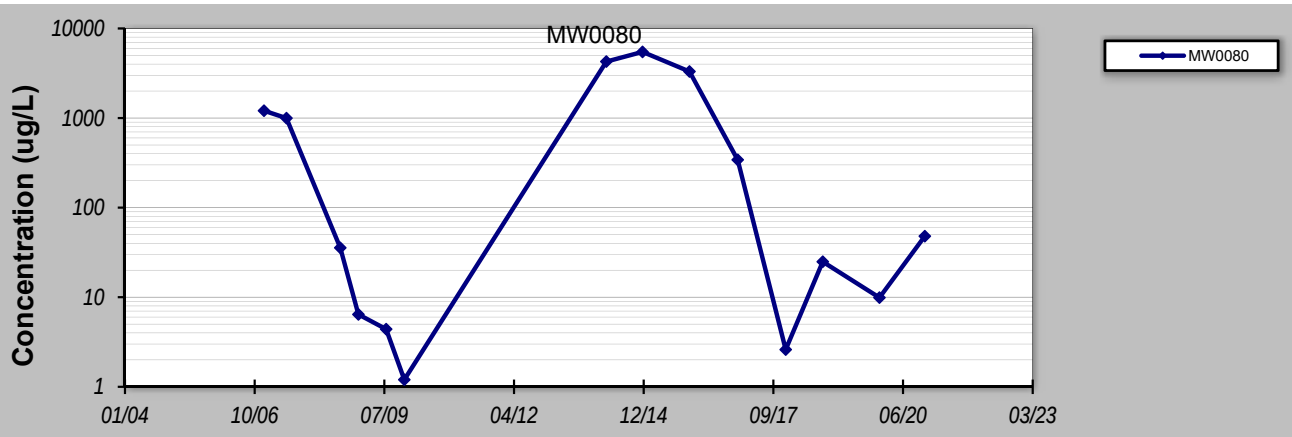
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0080

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	12/21/2006	1207.9						
2	6/12/2007	997.0						
3	7/31/2008	35.6						
4	12/18/2008	6.4						
5	7/20/2009	4.4						
6	12/7/2009	1.2						
7	3/14/2014	4270.0						
8	12/18/2014	5475.7						
9	12/15/2015	3308.7	3308.7					
10	12/21/2016	341.8	341.8					
11	12/26/2017	2.6	2.6					
12	10/8/2018	24.9	24.9					
13	12/19/2019	9.9	9.9					
14	12/3/2020	48.0	48.0					
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.64	2.12					
Mann-Kendall Statistic (S):		-13	-5					
Confidence Factor:		74.1%	76.5%					
Concentration Trend:		No Trend	No Trend					



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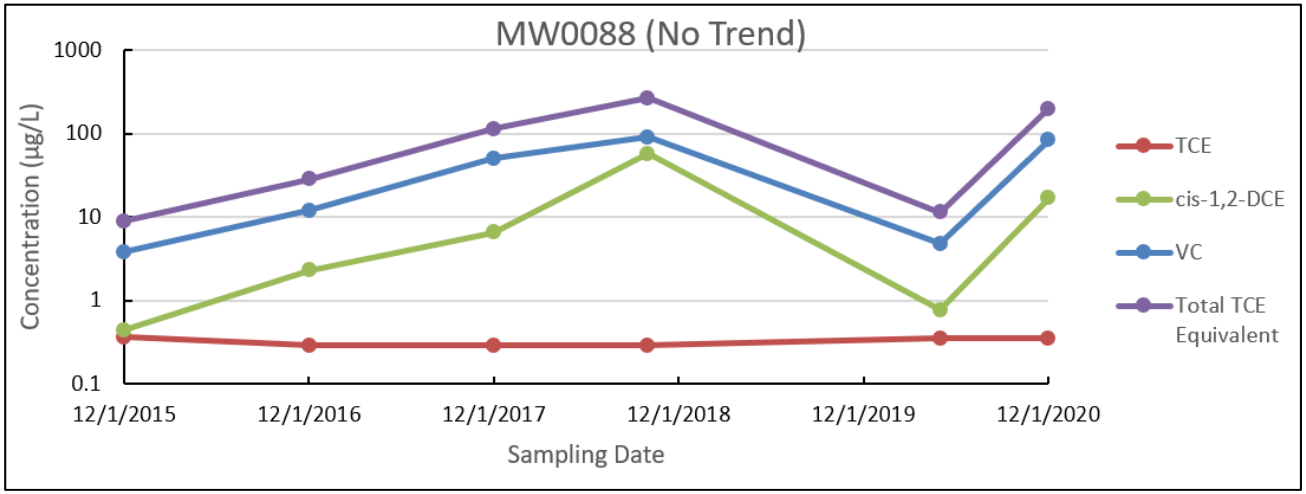
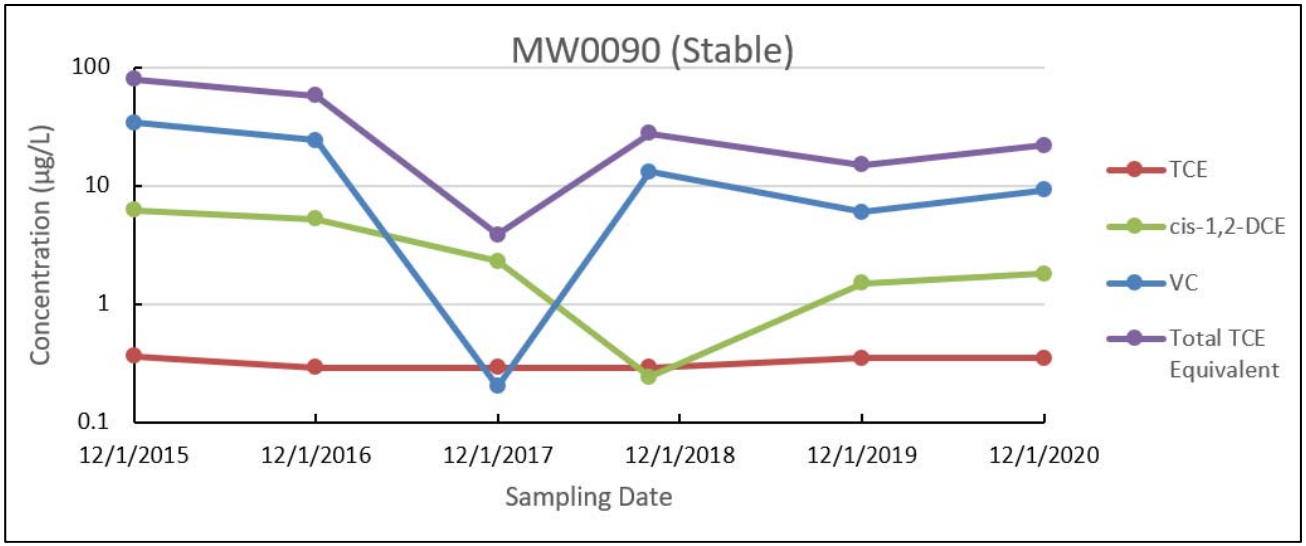
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





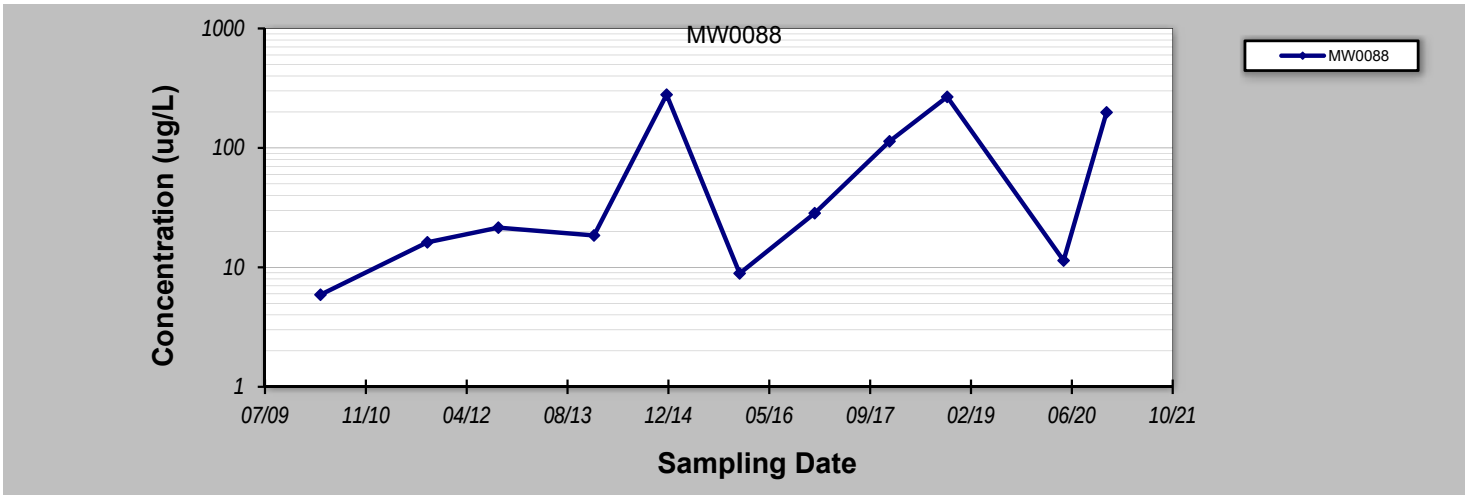
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0088

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	4/7/2010	5.9						
2	9/19/2011	16.2						
3	9/5/2012	21.5						
4	12/23/2013	18.5						
5	12/18/2014	279.0						
6	12/15/2015	8.9	8.9					
7	12/21/2016	28.4	28.4					
8	12/27/2017	113.5	113.5					
9	10/9/2018	267.5	267.5					
10	5/8/2020	11.4	11.4					
11	12/7/2020	198.4	198.4					
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.23	1.04					
Mann-Kendall Statistic (S):		21	7					
Confidence Factor:		94.0%	86.4%					
Concentration Trend:		Prob. Increasing	No Trend					



Notes:

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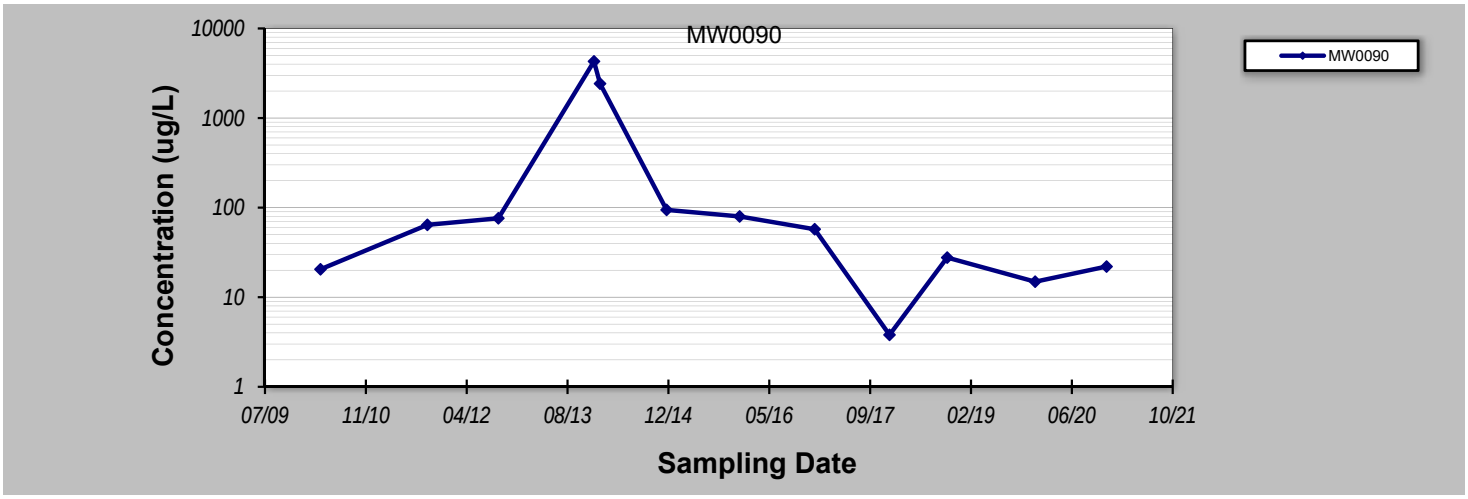
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0090

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	4/7/2010	20.5						
2	9/19/2011	64.2						
3	9/5/2012	76.1						
4	12/23/2013	4291.1						
5	1/22/2014	2422.7						
6	12/18/2014	94.4						
7	12/15/2015	79.7	79.7					
8	12/21/2016	57.4	57.4					
9	12/27/2017	3.8	3.8					
10	10/9/2018	27.7	27.7					
11	12/19/2019	14.9	14.9					
12	12/7/2020	22.0	22.0					
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		2.26	0.84					
Mann-Kendall Statistic (S):		-22	-7					
Confidence Factor:		92.4%	86.4%					
Concentration Trend:		Prob. Decreasing	Stable					



Notes:

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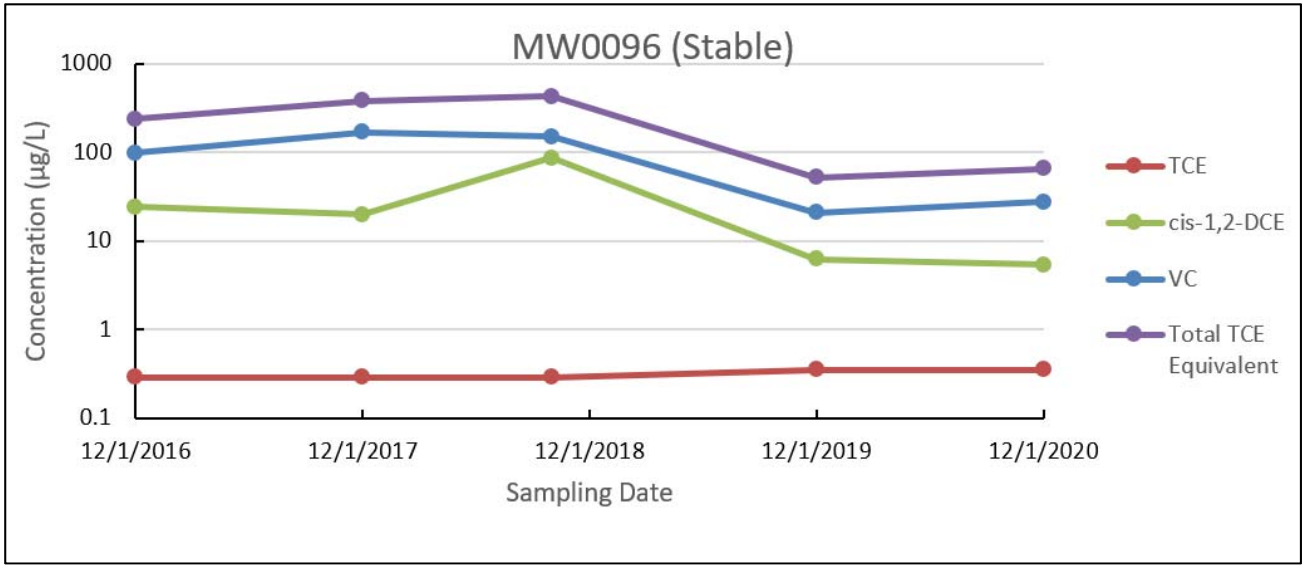
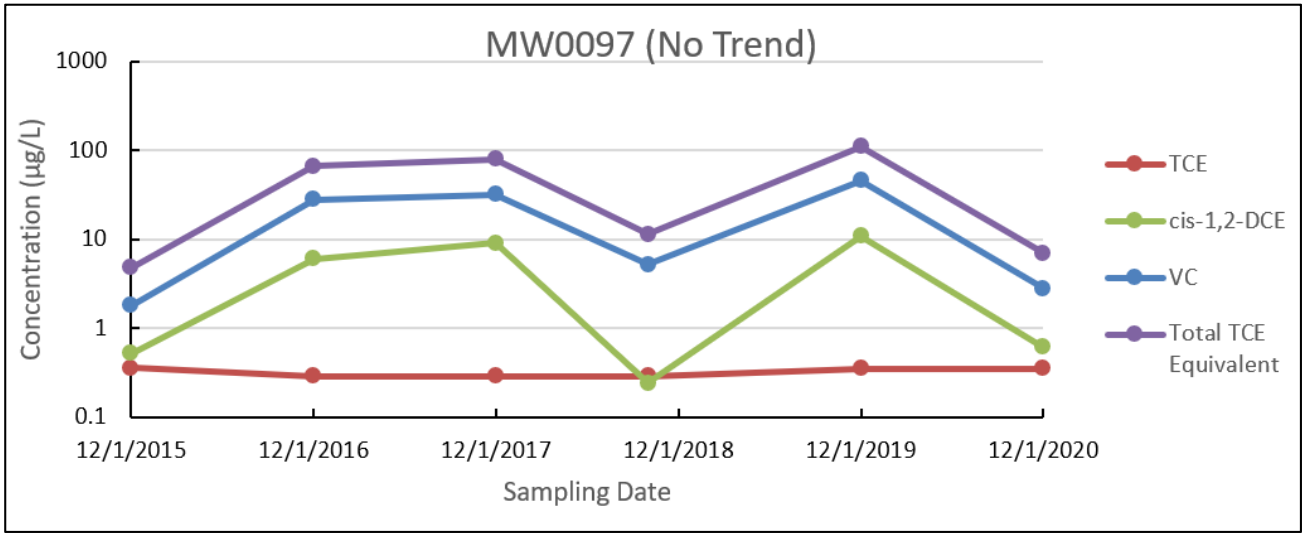
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





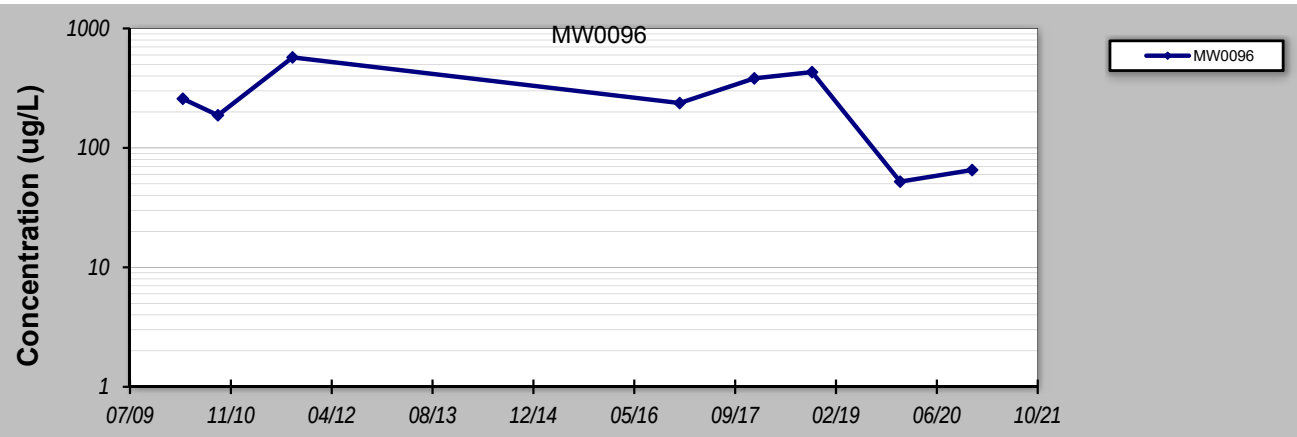
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0096

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/25/2010	257.9						
2	9/15/2010	187.6						
3	9/20/2011	572.6						
4	12/21/2016	237.4	237.4					
5	12/26/2017	382.2	382.2					
6	10/8/2018	431.2	431.2					
7	12/19/2019	52.2	52.2					
8	12/10/2020	65.3	65.3					
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.66	0.75					
Mann-Kendall Statistic (S):		-6	-2					
Confidence Factor:		72.6%	59.2%					
Concentration Trend:		Stable	Stable					



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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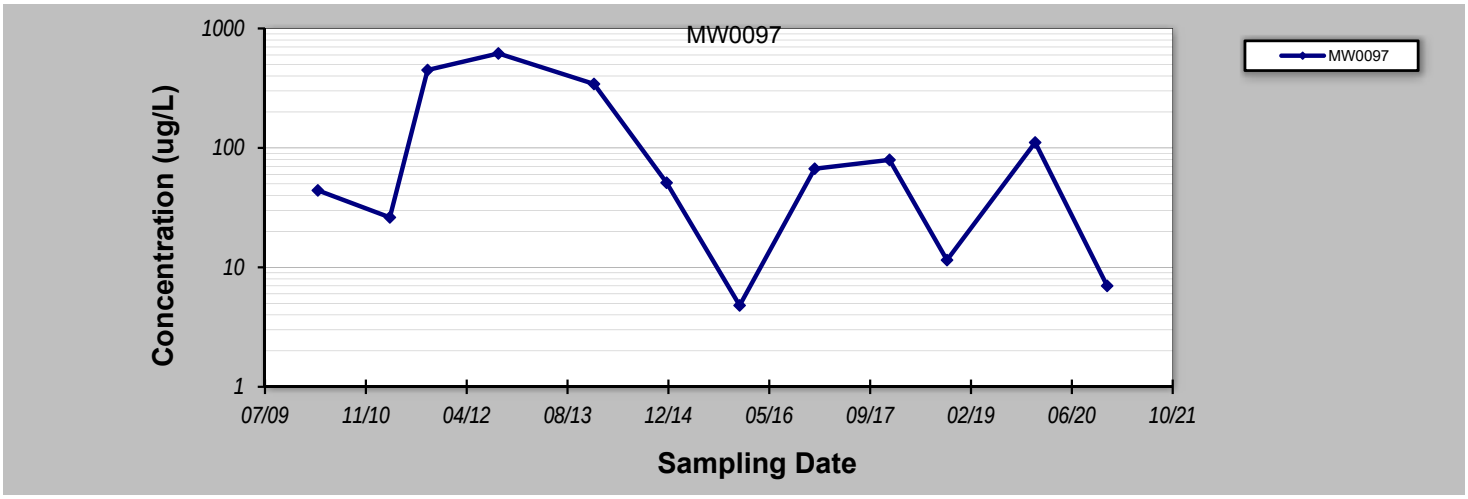
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0097

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/25/2010	44.1						
2	3/17/2011	26.2						
3	9/20/2011	448.7						
4	9/5/2012	617.7						
5	12/23/2013	342.9						
6	12/18/2014	51.1						
7	12/15/2015	4.8	4.8					
8	12/21/2016	66.9	66.9					
9	12/27/2017	79.4	79.4					
10	10/8/2018	11.5	11.5					
11	12/19/2019	111	111					
12	12/10/2020	7.0	7.0					
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.35	0.96					
Mann-Kendall Statistic (S):		-12	3					
Confidence Factor:		77.0%	64.0%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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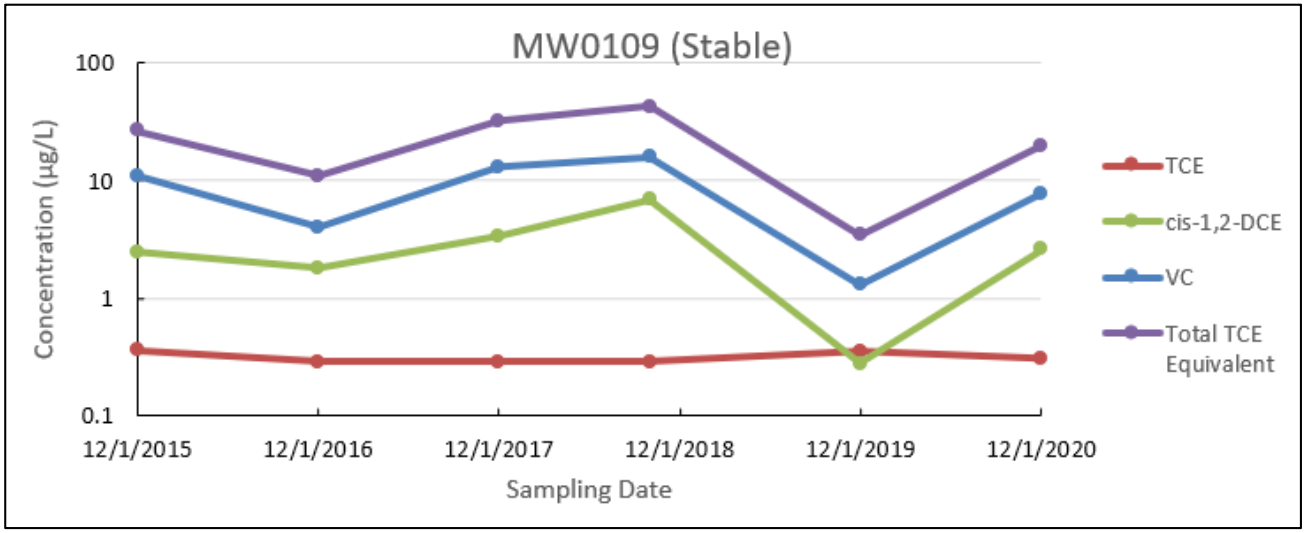
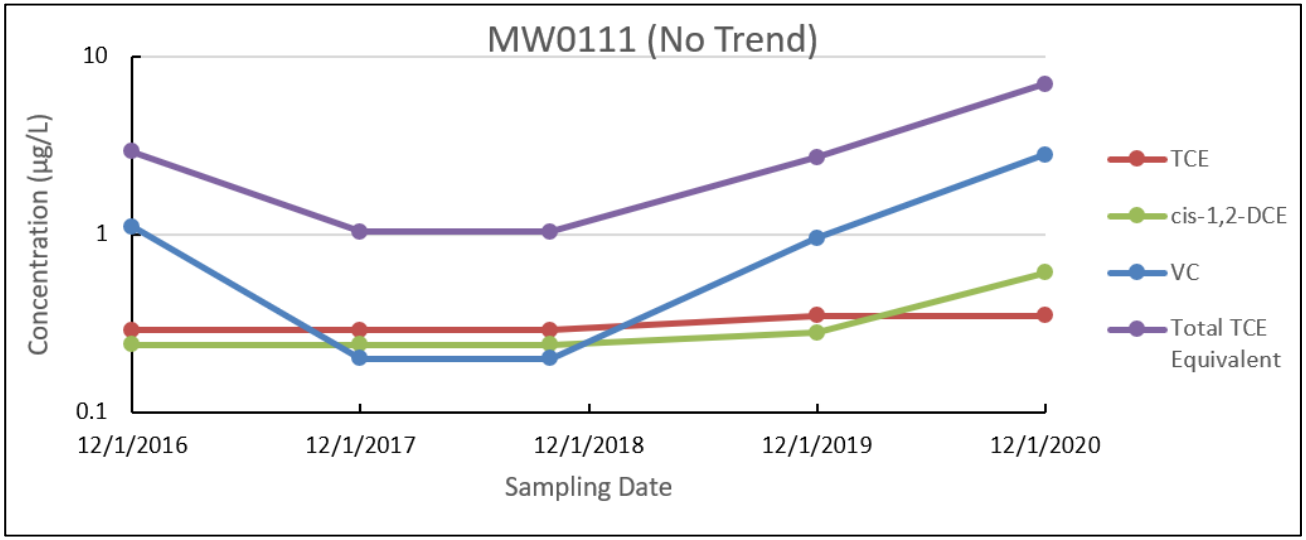
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





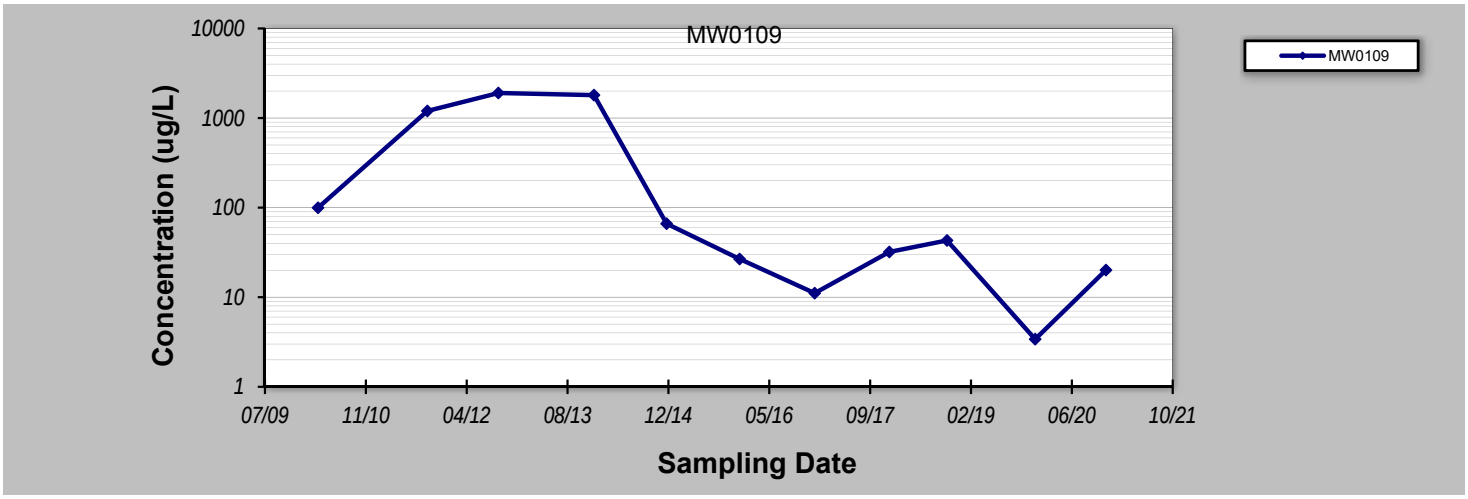
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0109

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/26/2010	99.7						
2	9/19/2011	1200.5						
3	9/5/2012	1902.8						
4	12/23/2013	1802.9						
5	12/18/2014	66.2						
6	12/15/2015	26.7	26.7					
7	12/21/2016	11.1	11.1					
8	12/26/2017	32.0	32.0					
9	10/8/2018	43.0	43.0					
10	12/19/2019	3.4	3.4					
11	12/4/2020	20.1	20.1					
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.62	0.63					
Mann-Kendall Statistic (S):		-31	-1					
Confidence Factor:		99.2%	50.0%					
Concentration Trend:		Decreasing	Stable					



Notes:

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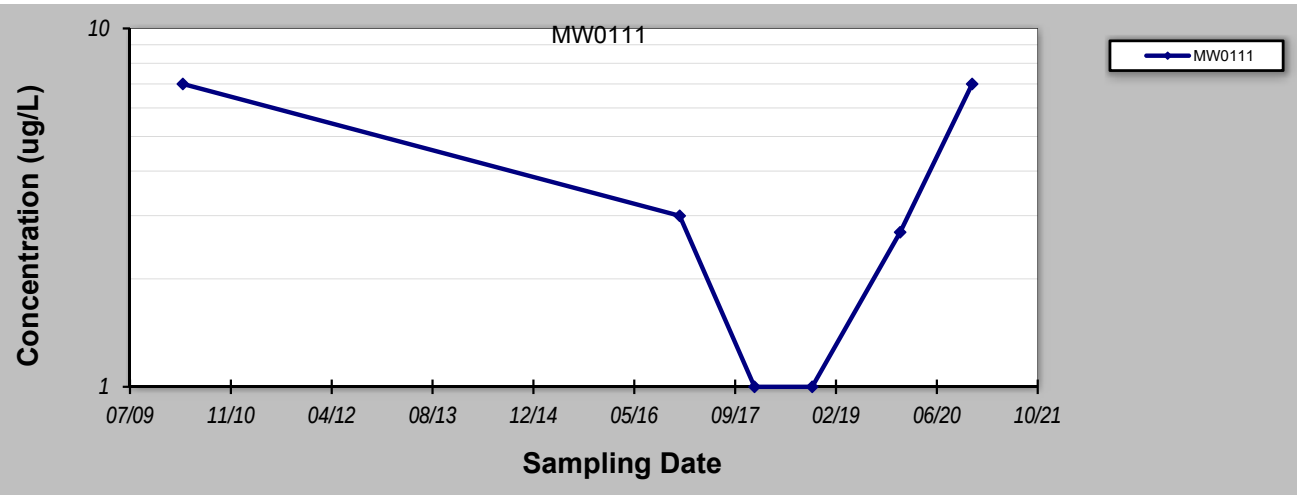
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0111

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/25/2010	7.0						
2	12/21/2016	3.0	3.0					
3	12/27/2017	1.0	1.0					
4	10/9/2018	1.0	1.0					
5	12/19/2019	2.7	2.7					
6	12/10/2020	7.0	7.0					
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.76	0.83					
Mann-Kendall Statistic (S):		-1	3					
Confidence Factor:		50.0%	67.5%					
Concentration Trend:		Stable	No Trend					



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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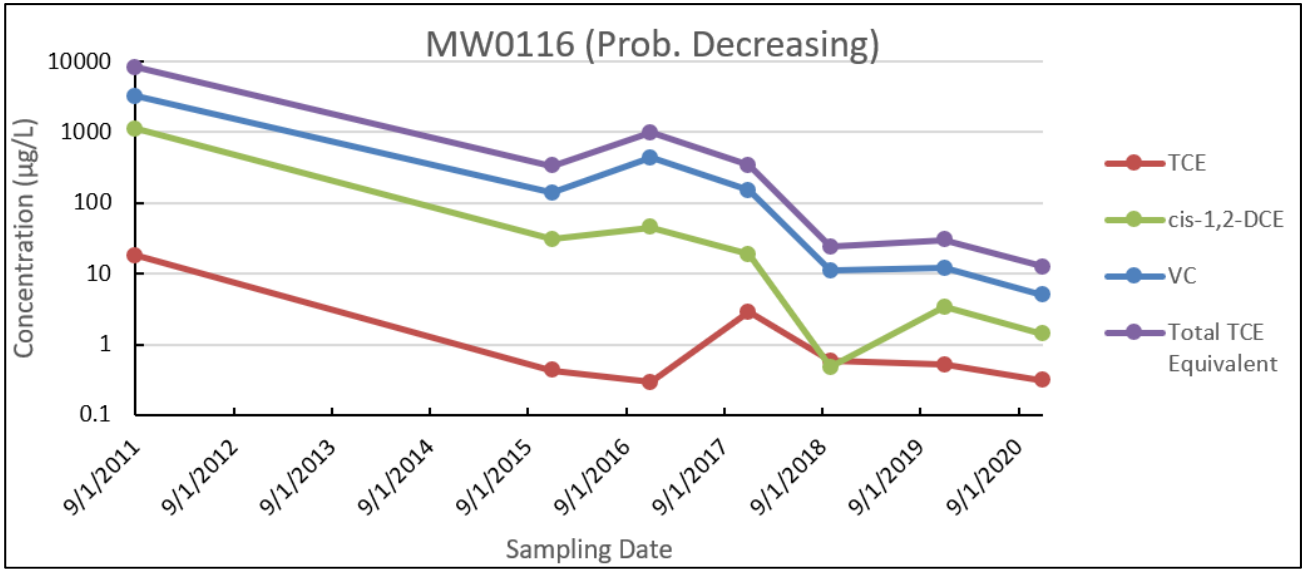
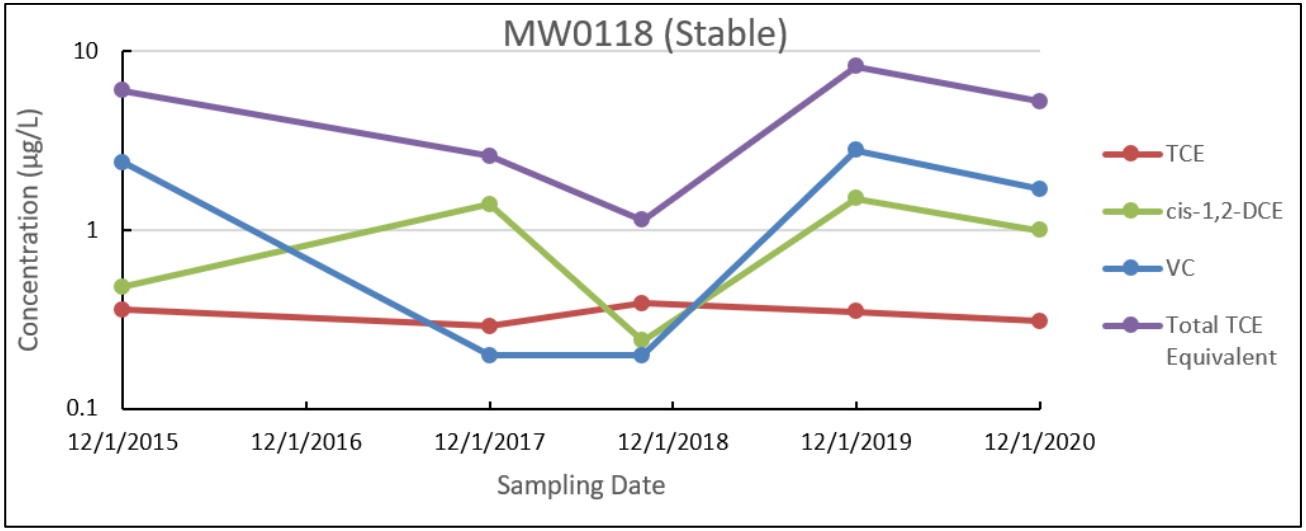
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





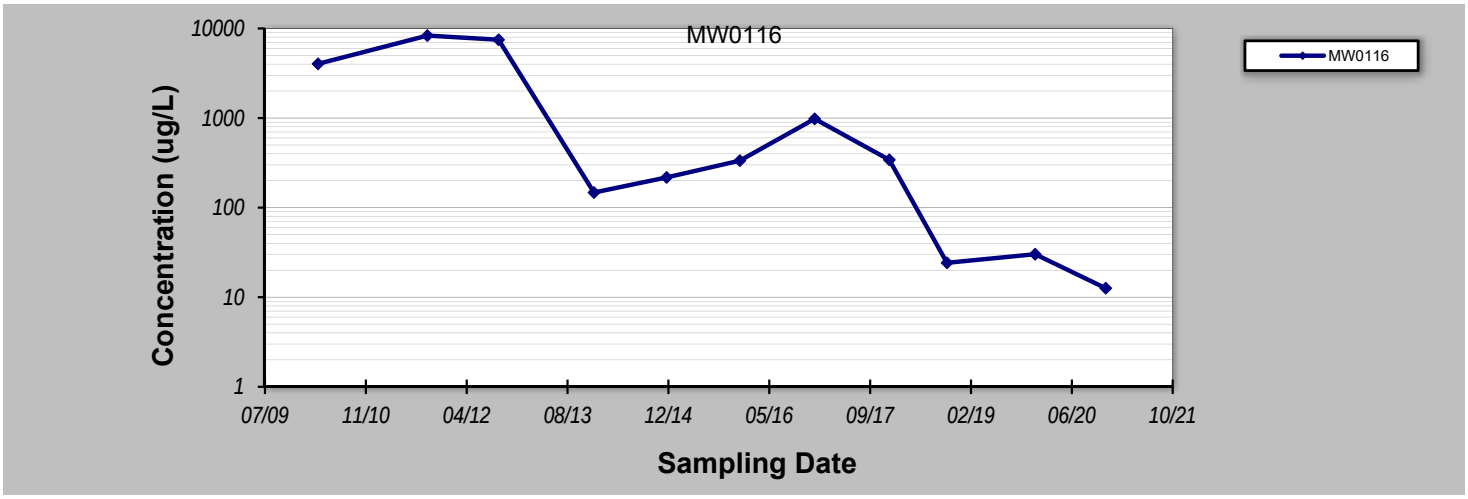
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0116

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/26/2010	4025.8						
2	9/19/2011	8326.5						
3	9/6/2012	7481.8						
4	12/23/2013	147.4						
5	12/18/2014	217.3						
6	12/16/2015	334.6	334.6					
7	12/21/2016	979.6	979.6					
8	12/26/2017	341.7	341.7					
9	10/8/2018	24.2	24.2					
10	12/19/2019	30.2	30.2					
11	12/3/2020	12.6	12.6					
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.58	1.30					
Mann-Kendall Statistic (S):		-31	-9					
Confidence Factor:		99.2%	93.2%					
Concentration Trend:		Decreasing	Prob. Decreasing					



Notes:

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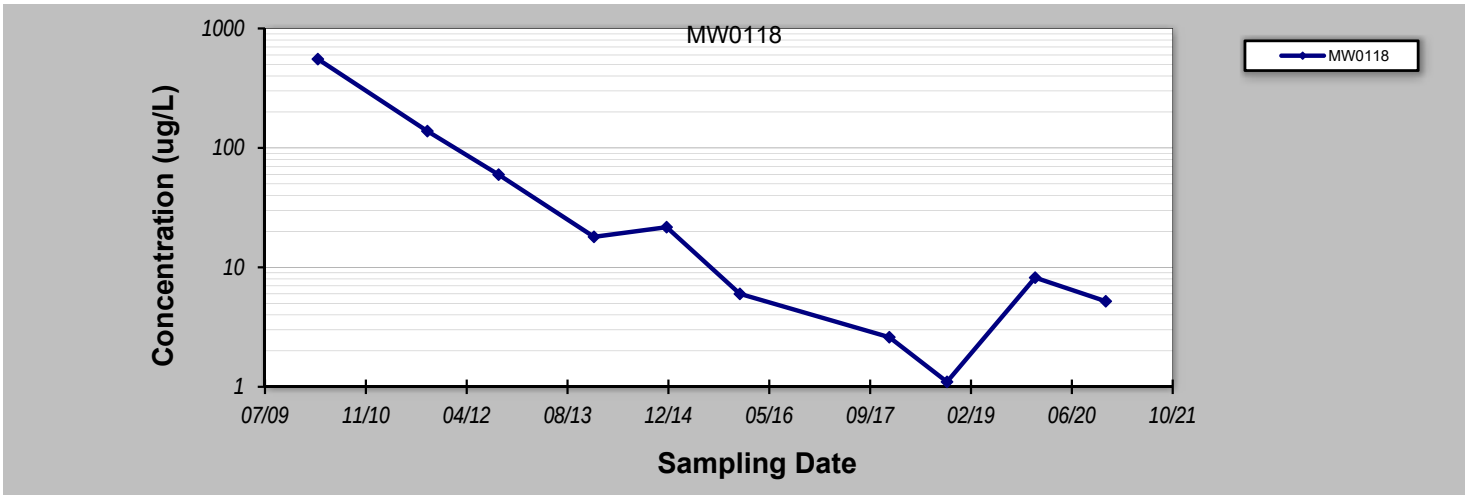
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0118

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	3/25/2010	553.9						
2	9/19/2011	138.2						
3	9/6/2012	59.7						
4	12/23/2013	18.0						
5	12/18/2014	21.7						
6	12/16/2015	6.0	6.0					
7	12/26/2017	2.6	2.6					
8	10/8/2018	1.1	1.1					
9	12/19/2019	8.2	8.2					
10	12/3/2020	5.2	5.2					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		2.10	0.61					
Mann-Kendall Statistic (S):		-33	0					
Confidence Factor:		99.9%	40.8%					
Concentration Trend:		Decreasing	Stable					



Notes:

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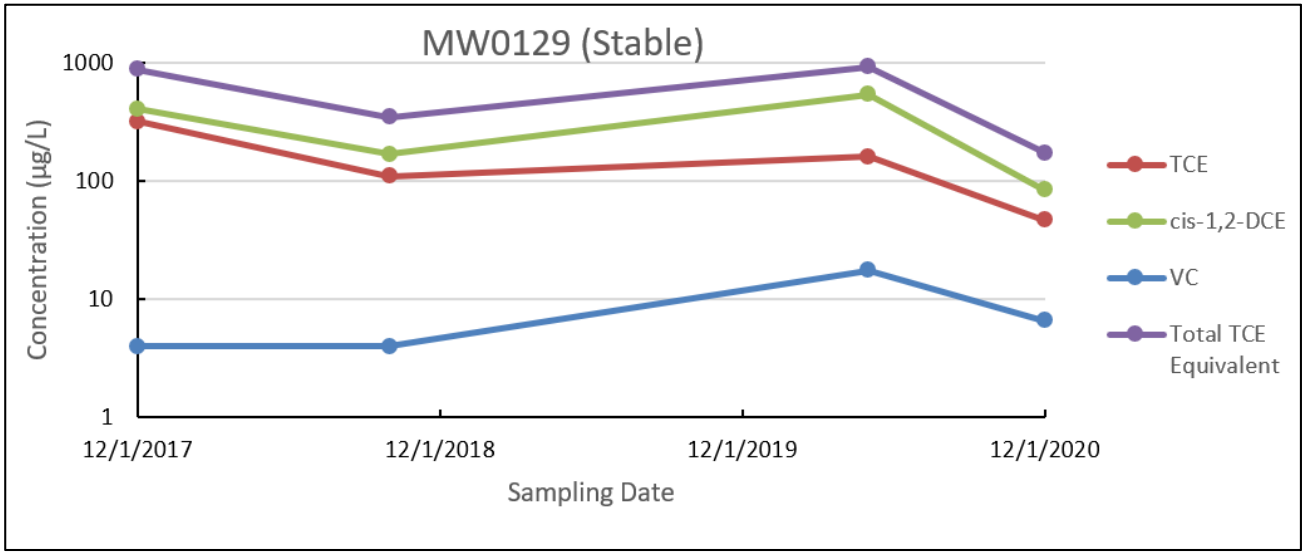
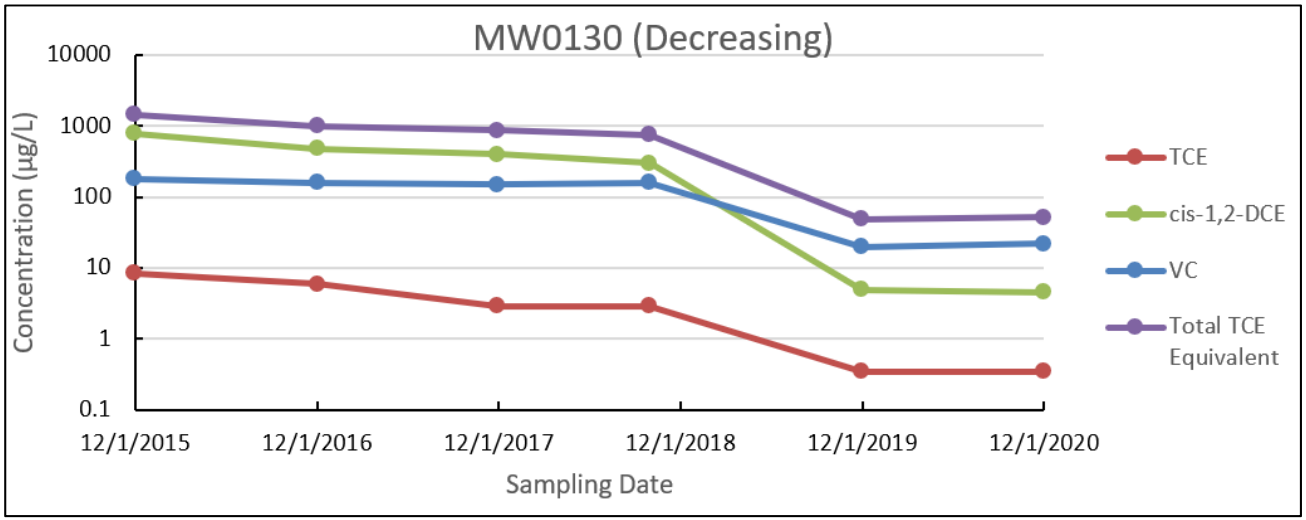
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





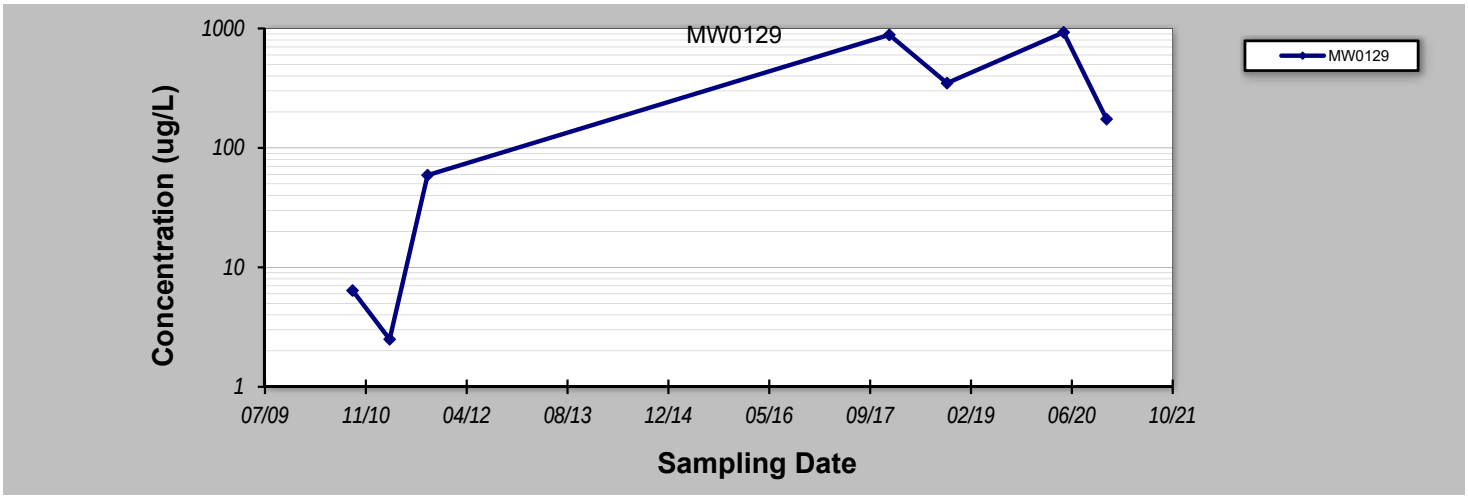
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0129

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	9/13/2010	6.4						
2	3/16/2011	2.5						
3	9/20/2011	59.1						
4	12/26/2017	884.0	884.0					
5	10/8/2018	348.8	348.8					
6	5/8/2020	928.0	928.0					
7	12/7/2020	174.2	174.2					
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.17	0.65					
Mann-Kendall Statistic (S):		11	-2					
Confidence Factor:		93.2%	62.5%					
Concentration Trend:		Prob. Increasing	Stable					



Notes:

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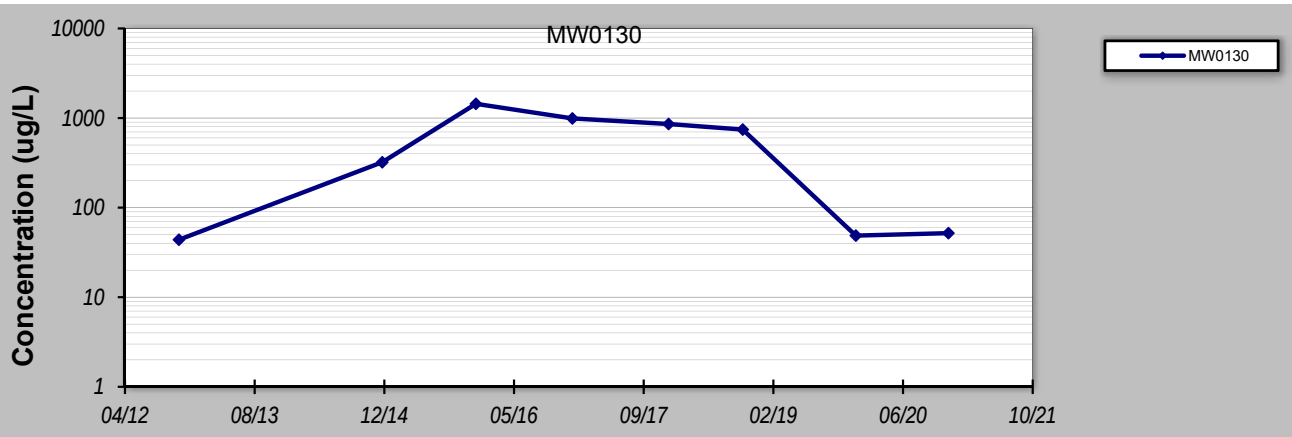
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0130

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	10/26/2012	43.8						
2	12/19/2014	321.1						
3	12/15/2015	1441.3	1441.3					
4	12/21/2016	990.4	990.4					
5	12/27/2017	858.1	858.1					
6	10/9/2018	743.5	743.5					
7	12/19/2019	48.7	48.7					
8	12/10/2020	51.9	51.9					
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.93	0.80					
Mann-Kendall Statistic (S):		-4	-13					
Confidence Factor:		64.0%	99.2%					
Concentration Trend:		Stable	Decreasing					



Notes:

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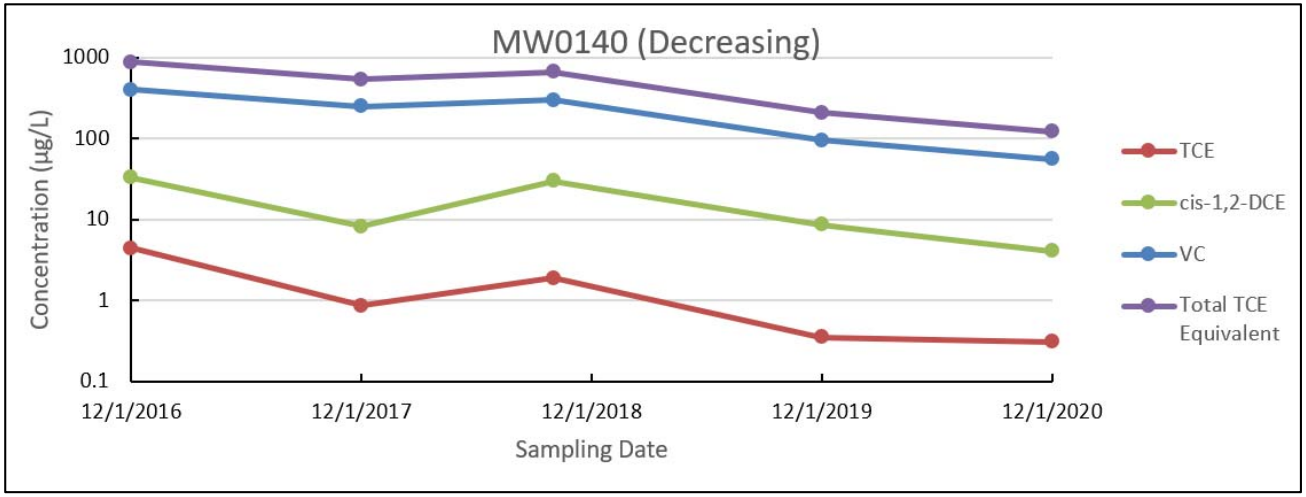
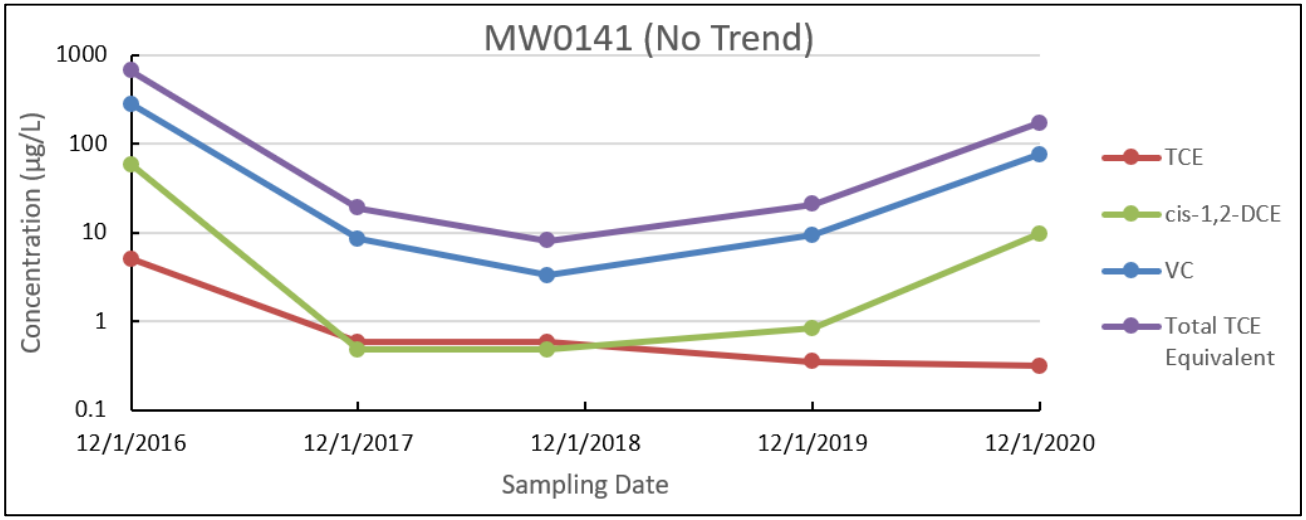
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





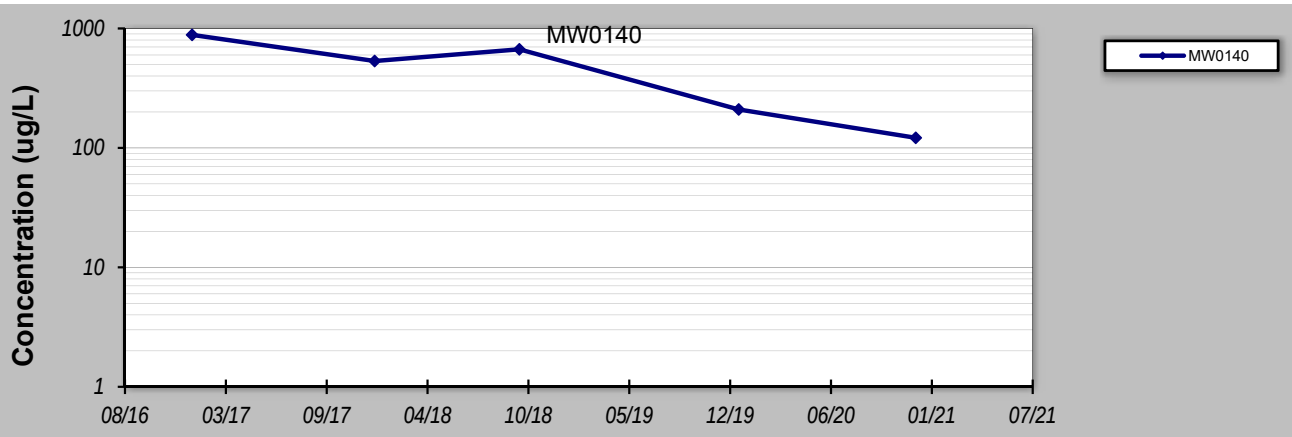
AECOM

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0140

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)
1	12/29/2016	883.9
2	12/26/2017	533.9
3	10/9/2018	668.7
4	12/18/2019	209.9
5	12/3/2020	121.5
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.66
Mann-Kendall Statistic (S):		-8
Confidence Factor:		95.8%
Concentration Trend:		Decreasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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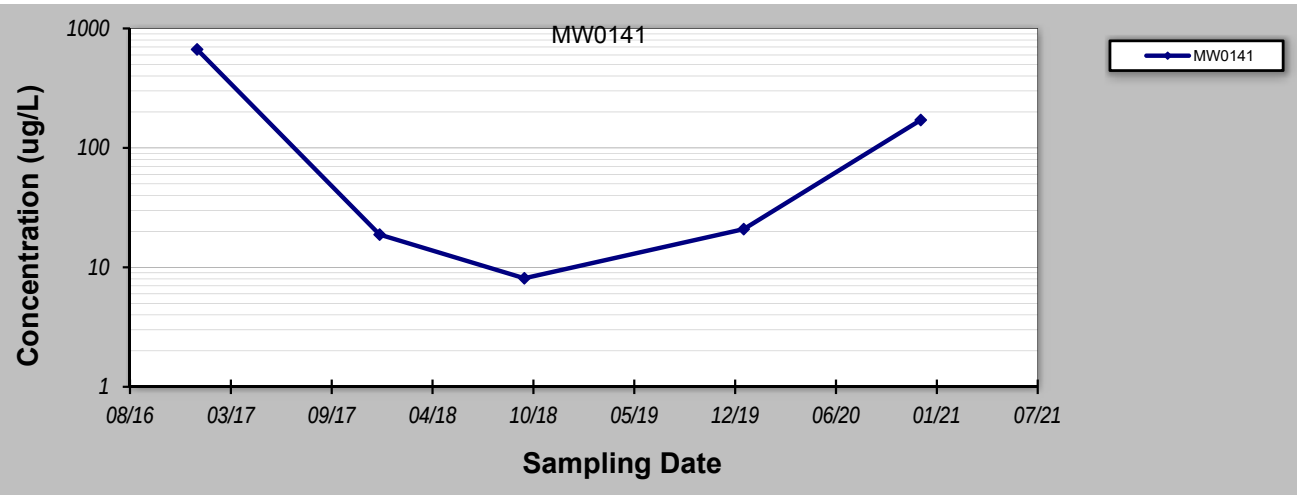
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0141

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)
1	12/29/2016	668.0
2	12/26/2017	18.8
3	10/9/2018	8.1
4	12/18/2019	20.9
5	12/3/2020	171.2
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.59
Mann-Kendall Statistic (S):		0
Confidence Factor:		40.8%
Concentration Trend:		No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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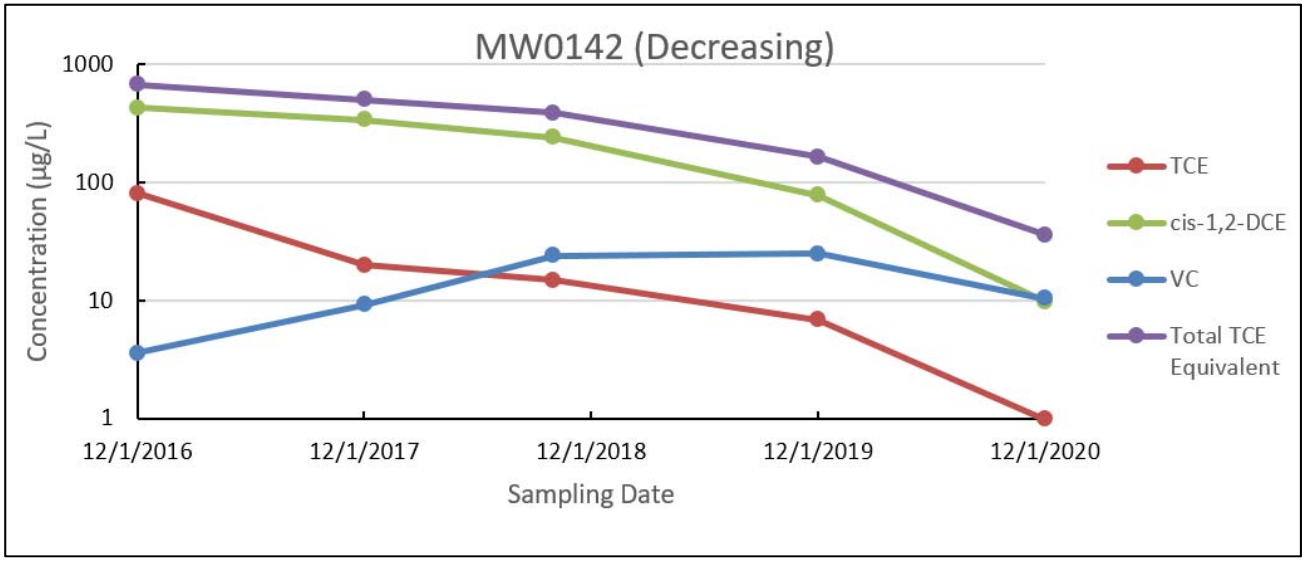
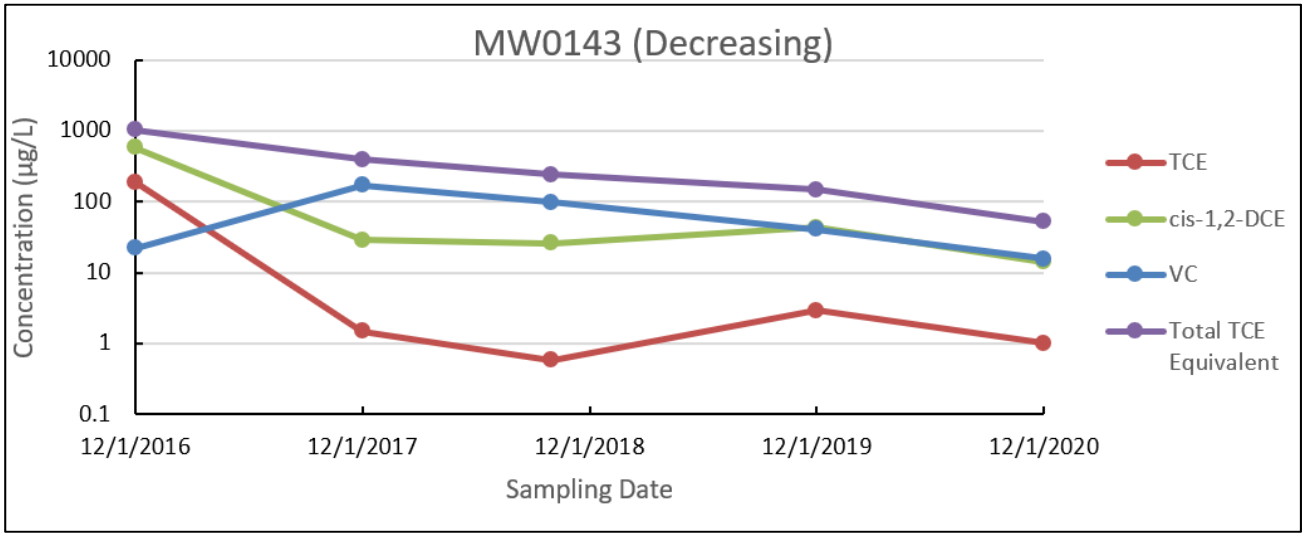
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0142

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)
1	12/29/2016	671.0
2	12/27/2017	500.0
3	10/8/2018	390.4
4	12/18/2019	165.0
5	12/3/2020	36.0
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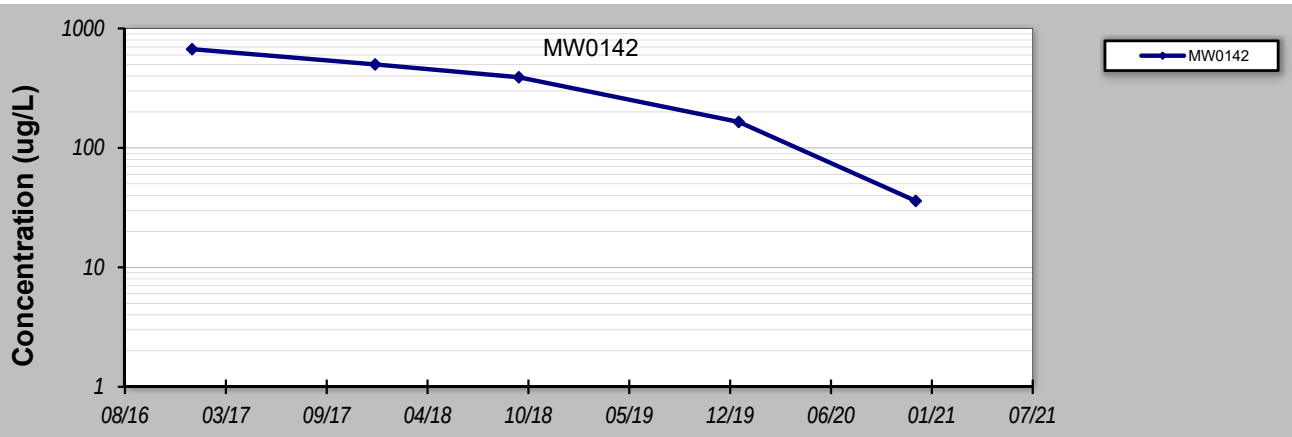
Coefficient of Variation:		0.72
Mann-Kendall Statistic (S):		-10
Confidence Factor:		99.2%
Concentration Trend:		Decreasing



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0143

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)
1	12/29/2016	1022.0
2	12/27/2017	395.6
3	10/8/2018	240.4
4	12/18/2019	147.0
5	12/3/2020	52.5
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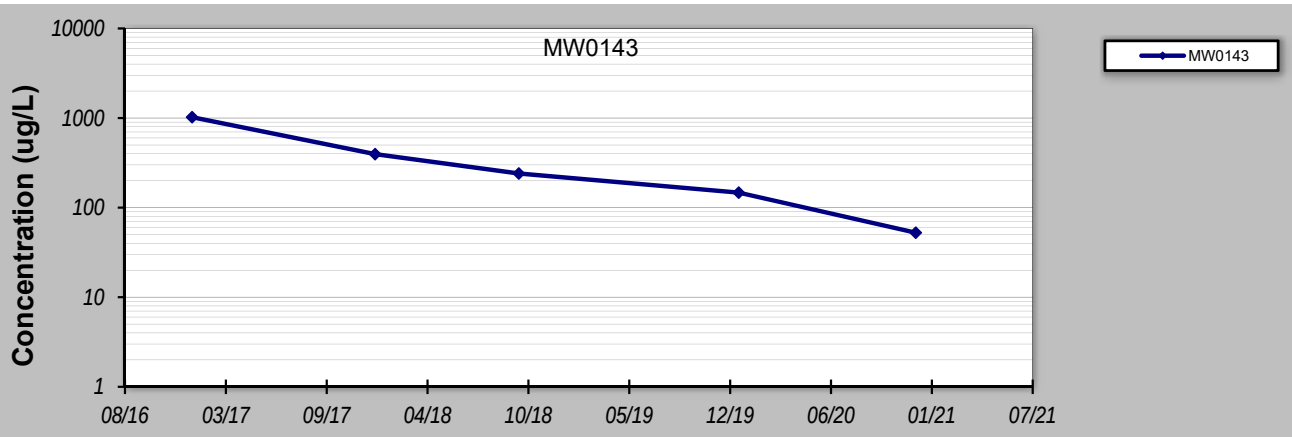
Coefficient of Variation:		1.04
Mann-Kendall Statistic (S):		-10
Confidence Factor:		99.2%
Concentration Trend:		Decreasing



Notes:

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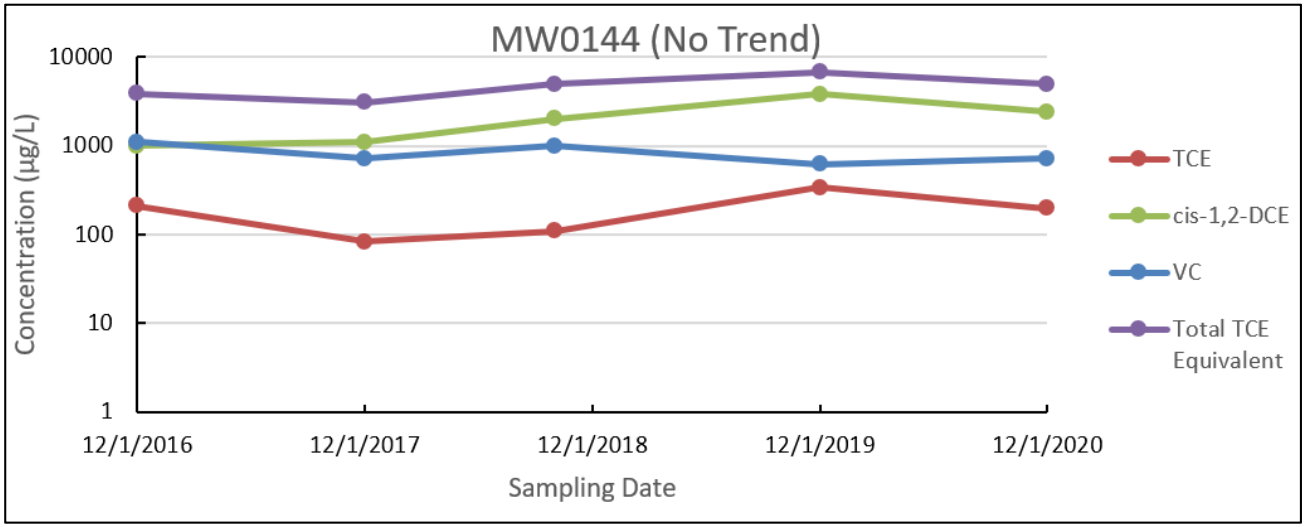
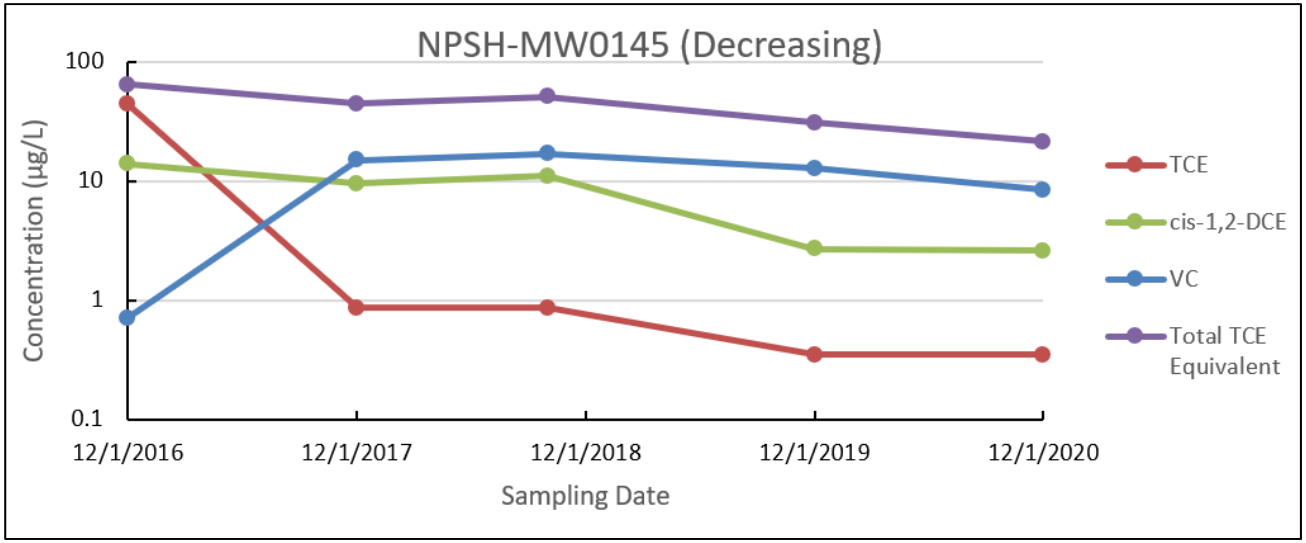
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **16-Jul-20**
Facility Name: **Wilson Corners**
Conducted By: **J. Perdicaris**
Job ID:
Constituent: **Equivalent TCE**
Concentration Units: **ug/L**

Sampling Point ID: **MW0144**

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)
1	12/29/2016	3861.2
2	12/27/2017	3076.6
3	10/8/2018	4907.8
4	12/18/2019	6758.5
5	12/3/2020	4937.0
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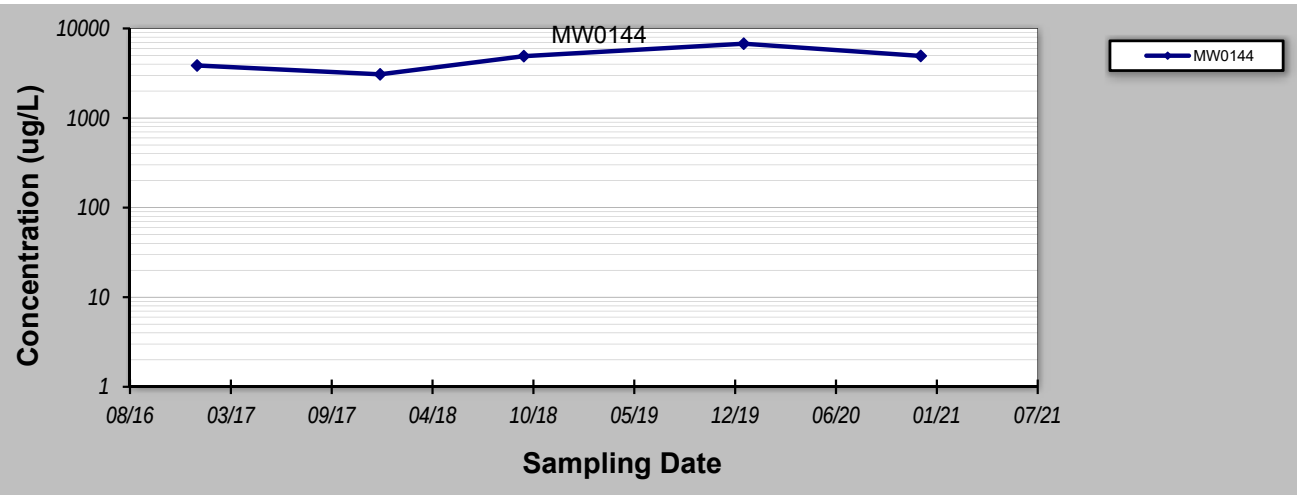
Coefficient of Variation:		0.29
Mann-Kendall Statistic (S):		6
Confidence Factor:		88.3%
Concentration Trend:		No Trend



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **16-Jul-20**
Facility Name: **Wilson Corners**
Conducted By: **J. Perdicaris**
Job ID:
Constituent: **Equivalent TCE**
Concentration Units: **ug/L**

Sampling Point ID: **MW0145**

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	12/29/2016	64.5						
2	12/27/2017	45.1						
3	10/8/2018	51.3						
4	12/18/2019	31.0						
5	12/10/2020	21.4						
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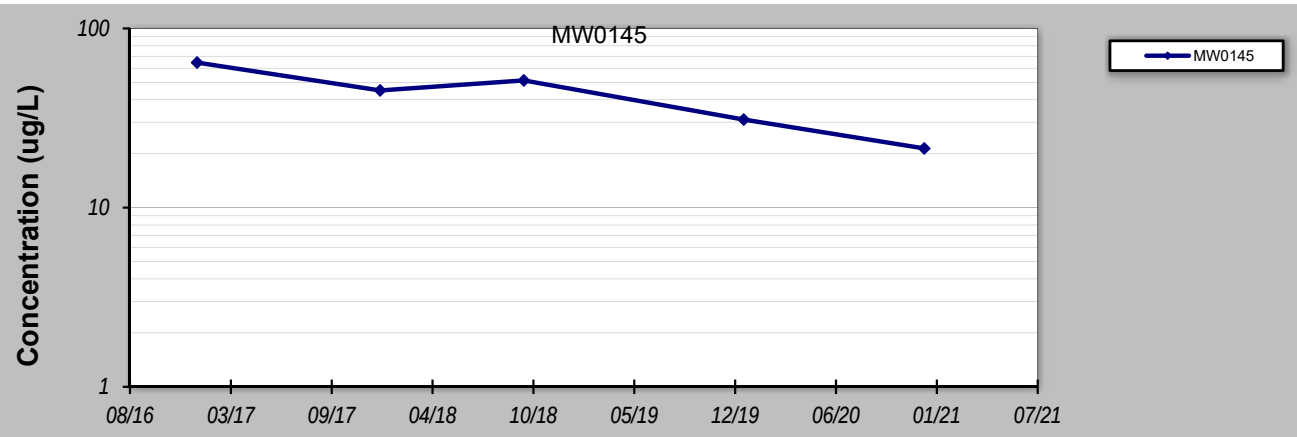
Coefficient of Variation:		0.40						
Mann-Kendall Statistic (S):		-8						
Confidence Factor:		95.8%						
Concentration Trend:		Decreasing						



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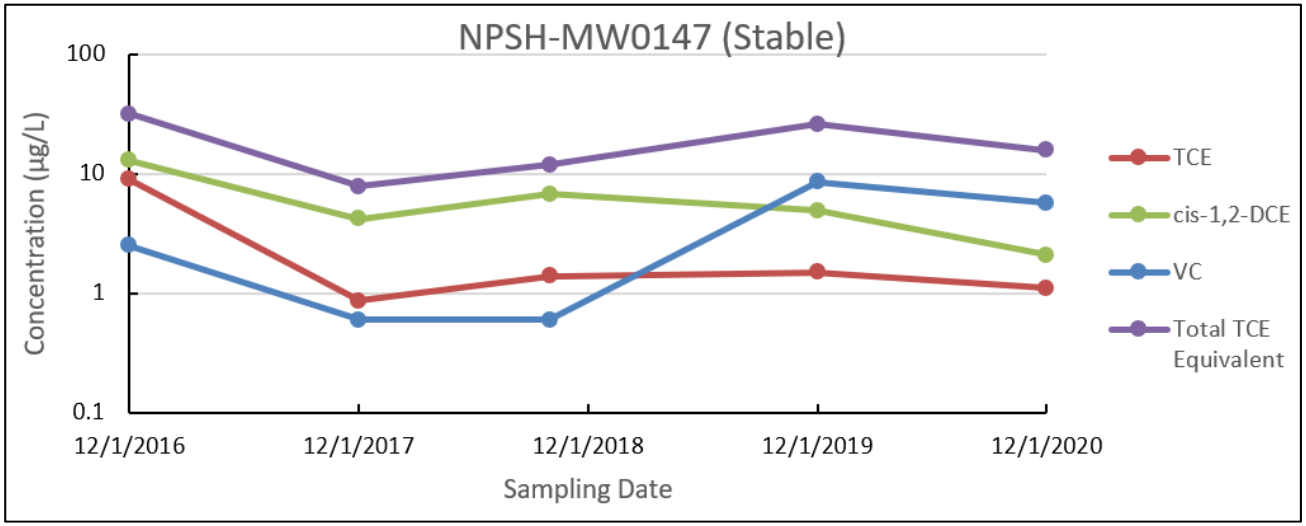
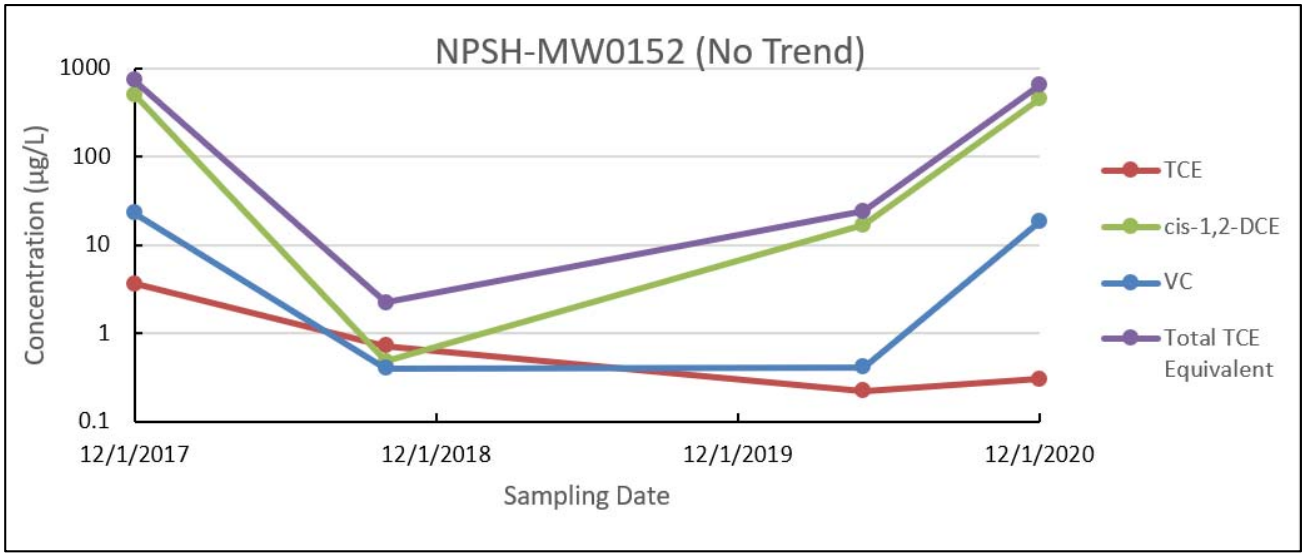
Trend Charts

Wilson Corners SWMU 001
NASA Kennedy Space Center, Florida





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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **16-Jul-20**
Facility Name: **Wilson Corners**
Conducted By: **J. Perdicaris**
Job ID:
Constituent: **Equivalent TCE**
Concentration Units: **ug/L**

Sampling Point ID: **MW0147**

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	12/30/2016	31.8						
2	12/26/2017	7.8						
3	10/8/2018	11.9						
4	12/19/2019	26.1						
5	12/10/2020	15.8						
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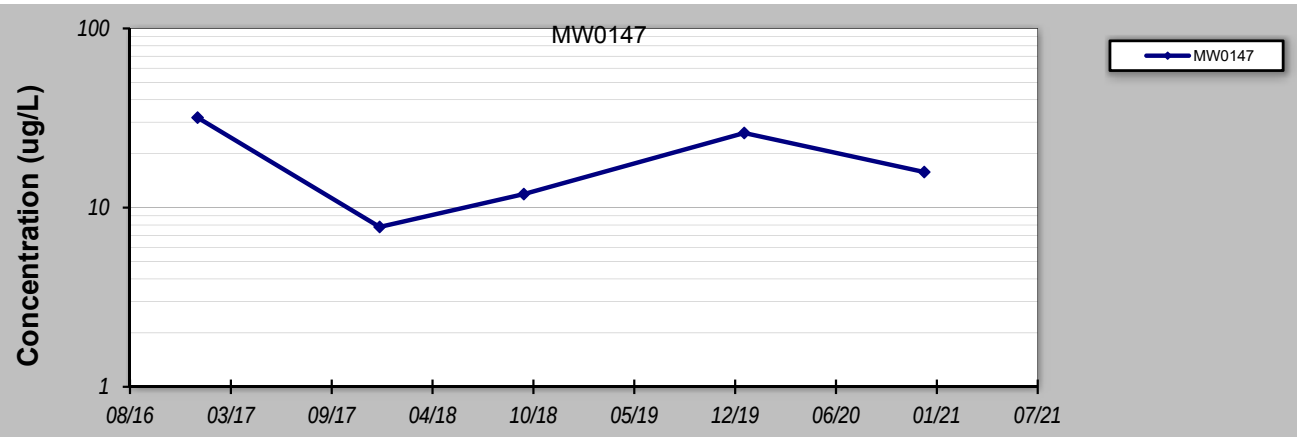
Coefficient of Variation:		0.54						
Mann-Kendall Statistic (S):		0						
Confidence Factor:		40.8%						
Concentration Trend:		Stable						



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Jul-20
Facility Name: Wilson Corners
Conducted By: J. Perdicaris
Job ID:
Constituent: Equivalent TCE
Concentration Units: ug/L

Sampling Point ID: MW0152

Sampling Event	Sampling Date	EQUIVALENT TCE CONCENTRATION (ug/L)						
1	12/27/2017	729.3						
2	10/8/2018	2.2						
3	5/8/2020	24.0						
4	12/4/2020	644.1						
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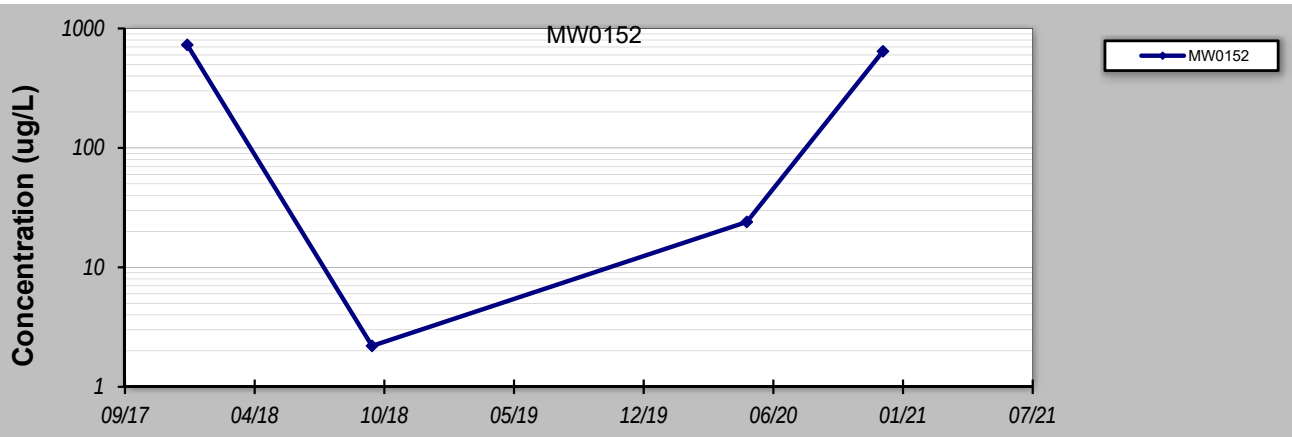
Coefficient of Variation:		1.12						
Mann-Kendall Statistic (S):		0						
Confidence Factor:		37.5%						
Concentration Trend:		No Trend						



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