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FINAL TECHNICAL MEMORANDUM VAPOR INTRUSION MONITORING INSTALLATION
RESTORATION PROGRAM MCB CAMP LEJEUNE NC
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CH2M HILL

Vapor Intrusion Monitoring, Installation Restoration Program Marine Corps Installations East—Marine Corps Base Camp Lejeune, North Carolina

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This vapor intrusion (VI) monitoring technical memorandum (TM) summarizes field activities, results, and conclusions for the VI monitoring conducted for Installation Restoration Program (IRP) sites at Marine Corps Installations East – Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ), North Carolina (**Figure 1**). The VI monitoring was conducted at buildings located within the IRP Sites 35, 73, 78, 88, 89, 93, and 96 based on recommendations from the previous Base-wide VI Evaluation and to evaluate new buildings based on changes in shallow groundwater volatile organic compound (VOC) plumes since the last screening event in 2007 and 2008.

This VI monitoring TM is divided into the following sections:

1. Background
2. Investigation Methods
3. Data Evaluation
4. Summary of Conclusions and Recommendations
5. References

1 Background

In 2007, MCIEAST-MCB CAMLEJ initiated a Base-wide VI Evaluation to:

- Identify buildings located within 100 feet of existing monitoring wells with groundwater VOC concentrations exceeding generic VI screening values or North Carolina Groundwater Quality Standards.
- Determine whether a potentially complete and/or significant VI exposure pathway was present.
- Assess whether significant VI impacts are occurring inside the buildings at levels that could adversely affect building occupants.
- Provide recommendations to further investigate or to mitigate the potential VI pathway.

The investigation areas identified were Mainside, Hadnot Point, Marine Corps Air Station New River, Tarawa Terrace, Courthouse Bay, and Camp Geiger. The evaluation was conducted in a phased approach; Phases I and II are presented in the *Vapor Intrusion Evaluation Report* (CH2M HILL, 2009), followed by the *Phase III Vapor Intrusion Evaluation Report* (CH2M HILL, 2011).

Seven sites within the IRP were identified for collection of additional VI samples based on the conclusions and recommendations presented during the Phase III VI Investigation (CH2M HILL, 2011) and/or were identified for inclusion in the 2013 VI monitoring event based on the results of groundwater screening¹ conducted as part of

¹ Surficial aquifer VOC groundwater data collected from October 2007 to May 2012 were screened against the generic industrial and/or residential groundwater screening levels calculated from the United States Environmental Protection Agency (USEPA) VI Calculator (July 2012), based on a 1×10^{-6} cancer risk and a non-cancer hazard quotient of 0.1. The North Carolina vapor intrusion screening levels (VISLs) were not published until October 2013. Because the USEPA values are more conservative than the North Carolina VISLs, additional screening was not conducted.

the *Tier II Sampling and Analysis Plan, Vapor Intrusion Monitoring* (CH2M HILL, 2013a). These sites and the 11 associated buildings of interest identified for sampling are as follows:

- IR Site 35 – Building G533
- IR Site 73 – Building A47
- IR Site 78 – Buildings 901, 1601, and 1606
- IR Site 88 – Buildings 37A and HP-57
- IR Site 89 – Building TC864
- IR Site 93 – Building TC942
- IR Site 96 – Buildings 1827 and 1828

Additional details regarding site history are presented in the site-specific documents included in the Administrative Record.

The following objectives were identified for the VI monitoring during development of the Sampling and Analysis Plan (SAP) (CH2M HILL, 2013a):

1. Evaluate whether VOC groundwater concentrations are increasing over time in the adjacent monitoring well to evaluate potential impacts to Building 901 in the future.
2. Assess temporal and/or spatial variability and confirm that a Base-specific subslab to indoor air attenuation factor (AF) of 0.001 remains appropriate at Buildings A47, HP-57, G533, TC864, 1601, 1606, 1827, and 1828.
3. Evaluate the potential for a complete VI pathway to be present at Building 37A and Building TC942 based on groundwater screening level exceedances in samples collected within 100 feet of these buildings.

2 Investigation Methods

The investigation methods used during the VI monitoring are consistent with the SAP (CH2M HILL, 2013a), which is consistent with Department of Defense (DoD) (2009), Interstate Technology and Regulatory Council (ITRC) (2007), United States Environmental Protection Agency (USEPA) (2002), and North Carolina Department of Environment and Natural Resources (NCDENR) (2014) VI guidance documents. The following subsections present the field activities conducted and the quality assurance/quality control (QA/QC) procedures.

VI monitoring field activities were conducted April 8 through 17, 2013, and included interior sampling (indoor air/crawlspace and subslab soil gas sampling) within 10 buildings and exterior sampling (groundwater grab sampling from the top of the water table) adjacent to one building for analysis of VOCs and radon (at select locations). **Table 1** lists the samples that were proposed in the SAP (CH2M HILL, 2013a) and the deviations that occurred during the VI monitoring. The field notes associated with the samples collected are provided in **Attachment A**. The chain-of-custody records are provided in **Attachment B**.

2.1 Utility Clearance

ECLS, Inc., of Jacksonville, North Carolina, performed utility clearance at each subslab soil probe location from April 8 to April 10, 2013. A summary report prepared by ECLS, Inc., is presented in **Attachment C**.

2.2 HAPSITE Survey

A HAPSITE gas chromatograph/mass spectrometer unit was used to conduct indoor air surveys of background sources and to screen for common VOC target analytes at buildings where indoor air sampling was performed (Building HP-57, 1828, 1601, and 1606). The HAPSITE was also used at Building G533 to perform instantaneous readings of the indoor air where chloroform concentrations in subslab soil gas samples collected during Phase III exceeded Base-specific soil gas screening levels (SGSLs). When feasible, the HAPSITE unit was used to select SUMMA canister sampling locations and to identify background sources for removal before sampling. The HAPSITE data were used in conjunction with the other lines of evidence (such as concurrent subslab soil gas, indoor and outdoor air SUMMA VOC results, radon data, building characteristics, building survey results, and

chemical use history) for assessing the occurrence and significance of VI. The HAPSITE data tables are presented in **Attachment D**.

2.3 Groundwater Sampling

One permanent groundwater monitoring well, IR78-MWVI01, located at the northeast corner of Building 901 in Hadnot Point, was sampled to evaluate whether VOC concentrations had increased over time, indicating downgradient plume migration toward Building 901.

A peristaltic pump and disposable Teflon tubing were used for low-flow sampling. Field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and dissolved oxygen) were measured with a water quality meter (Horiba U-22 equipped with a flow-through cell) and recorded. A groundwater sample was collected once the parameters stabilized. The groundwater samples were submitted to ChemTech in Mountainside, New Jersey, following USEPA Method SW-8260 for Target Compound List VOCs.

2.4 Subslab Soil Gas Sampling

Subslab soil gas samples were collected in nine buildings to:

- Assess temporal variability and to collect additional data for the calculation of empirical subslab soil gas-to-indoor-air AFs (second round at Buildings A47², HP-57, G533, TC864, 1601, and 1827 and third round at Buildings 1606 and 1828).
- Assess spatial variability (Building 1827).
- Assess the VI pathway at a building that has not been previously investigated (Building TC942).

New subslab probes were installed in Buildings HP-57, TC942, and 1827. Cox-Colvin subslab probes were installed by drilling through the building foundation with a rotary hammer drill and inserting the vapor pin so that it was flush with the foundation. The subslab probes consist of brass vapor pins (a barb fitting with a silicone sleeve) and a secure stainless steel cap that can be accessed with a tool supplied by Cox-Colvin.

A leak check was performed prior to sampling all probes (new and existing) to confirm that the new probes were installed correctly and the existing probes had not been damaged since they were last sampled. Swagelok-constructed probes were leak checked with helium while vapor pins were leak checked with water. The probes were purged with a sampling manifold (consisting of stainless steel Swagelok gas-tight valves and fittings and Teflon tubing) and an air pump. Two liters (L) of subslab soil gas were purged at 200 milliliters per minute (mL/min) into a Tedlar bag. Subslab soil gas samples were collected in SUMMA canisters equipped with flow controllers. The flow controllers regulated the sample collection rate to 200 mL/min, resulting in a sample collection period of 5 minutes. The subslab soil gas samples were submitted to ChemTech for VOC analysis by USEPA Method TO-15.

Immediately prior to the collection of subslab soil gas sample canisters for VOC analysis, a sample was collected for radon analysis in a 1-L Tedlar bag using a lung box set at a flow rate of 200 mL/min at Buildings 1601, 1606, and 1828 (**Table 1**). The Tedlar bags were submitted to the University of Southern California (USC) for radon analysis. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF.

2.5 Indoor Air/Crawlspace Sampling

Indoor air samples or crawlspace samples were collected in seven buildings to:

- Assess temporal variability and to collect additional data for the calculation of empirical subslab soil gas-to-indoor-air AFs (second round at Buildings TC864, 1601, 1606, and 1827 and third round at Building HP-57).
- Assess the VI pathway at buildings that have not been previously investigated (Buildings 37A and G533).

² Building A47 has also been monitored under the Site 73 long-term monitoring (LTM) program (CH2M HILL, 2013b), which involved several rounds of subslab soil gas sampling.

With the exception of the sample collected from the crawlspace at Building 37A (a construction trailer without a slab), indoor air sample locations were on the first floor of the buildings away from exterior walls. Indoor air sample locations were slightly adjusted to target occupied areas and to keep the canisters out of the way of building occupants. The indoor air sample locations were also co-located with nearby subslab soil gas probes if appropriate. The SUMMA canisters were placed on tables or chairs to achieve a sample height approximately 3 to 5 feet above the ground (roughly breathing zone height).

Indoor air samples were collected over a 24-hour period in SUMMA canisters equipped with flow controllers. The SUMMA canisters were placed at the sampling location, turned on, and left undisturbed for 24 hours. The SUMMA canisters were checked after 20 hours to confirm that the canister pressure did not reach zero. The indoor air samples were submitted to ChemTech for VOC analysis by USEPA Method TO-15.

Immediately prior to the collection of indoor and crawlspace air sample canisters for VOCs, a sample was collected for radon analysis in a 1-L Tedlar bag using a lung box set at a flow rate of 200 mL/min at Buildings 1601, 1606, and 1828 (**Table 1**). The Tedlar bags were submitted to USC for radon analysis. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF.

2.6 Outdoor Air Sampling

An outdoor air sample was collected at each IRP site to assess ambient conditions. The outdoor air sample data were used to determine whether constituent concentrations detected in indoor air may be due to outdoor sources and therefore not related to VI.

The outdoor air sample canisters were placed in secure locations and were secured to a fence or other structure with a chain and padlock. Outdoor air samples were collected over a 24-hour period in SUMMA canisters equipped with flow controllers. The SUMMA canisters were placed at the sampling location, turned on, and left undisturbed for 24 hours. The SUMMA canisters were checked after 20 hours to confirm that the canister pressure did not reach zero. The outdoor air samples were submitted to ChemTech for VOC analysis following USEPA Method TO-15.

Immediately prior to the collection of outdoor air sample canisters for VOCs, a sample was collected for radon analysis in a 1-L Tedlar bag using a lung box set at a flow rate of 200 mL/min at Sites 78 and 96 (**Table 1**). The Tedlar bags were submitted to USC for radon analysis. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF.

2.7 Investigation-derived Waste Management

Investigation-derived waste generated from the field activities consisted of purge groundwater, disposable equipment, and personal protective equipment (PPE). Water generated during the purging of the groundwater well at Site 78 was disposed of at the Mainside Water Treatment Plant at Lot 203, Piney Green Road, in accordance with the Waste Management Plan (CH2M HILL, 2013c).

Disposable equipment, including PPE, Teflon tubing, and paper towels, was disposed of in black contractor bags as solid waste.

2.8 Quality Assurance/Quality Control

During the field activities, the following QA/QC samples were collected:

- Equipment rinsate blanks (groundwater) – one per day for reusable equipment
- Trip blanks (groundwater) – one per cooler shipped to laboratory
- Field duplicates (groundwater, indoor air, subslab soil gas, outdoor air) – one per 10 samples per sample type
- Matrix spike/matrix spike duplicates (groundwater) – one per 20 samples

The data evaluation and validation is a multi-tiered process. The process begins with an internal laboratory review, continues with an independent review by a third-party validator, and ends with an overall review by the project chemistry team. Details of the data quality evaluation are presented in **Attachment E**. All data collected at

Sites 35, 73, 78, 88, 89, 93, and 96 were found to be of acceptable quality. No data were rejected due to QA/QC deficiencies and all data are available for use by the project team.

3 Data Evaluation

This section presents the screening levels used for evaluation and a summary of the results and recommendations for each of the buildings monitored, organized by the associated IRP site. The screening levels utilized in this evaluation are discussed as follows and presented in **Attachment F**. The empirical AF evaluation is presented in **Attachment G**. The data with detections and exceedances of screening criteria are presented in **Attachment H**. The raw analytical data are compiled in **Attachment I**. A summary of the buildings within the land use control (LUC) boundary for each site, as of December 2013, is presented in **Attachment J**.

The VI pathway has been evaluated at each of the 11 buildings by updating and/or evaluating the conceptual site models (CSMs) with respect to the concentrations of VOCs in groundwater samples (Building 901 only), crawlspace air samples (Building 37A only), and subslab soil gas, indoor air, and outdoor air samples at the remaining nine buildings. The CSMs, incorporating the multiple-lines-of-evidence (MLE) methods published by DoD (2009), ITRC (2007), and NCDENR (2014), were developed for each of the buildings of interest during the Phase III report (CH2M HILL, 2011) and refined to include data collected during the 2013 VI monitoring. The VI CSMs address the following three components: (1) the VOC source (soil or groundwater contamination); (2) contaminant migration from the subsurface through the slab; and (3) potential receptors (building occupants).

The data presented in **Tables 2** through **10** are constituents of concern (COCs) that had one or more exceedances of screening values in effect during current or previous sampling events. The analytes shown in the tables present the investigative history of each building as related to that compound. Only VOCs that exceed the current North Carolina vapor intrusion screening levels (VISLs) are discussed in this section. With the exception of the data collected from the VI monitoring well at Building 901, groundwater data collected in previous phases of investigation is not presented in the tables. These data are presented in the Phase I/II report (CH2M HILL, 2009).

The effects of temporal variability on VOC concentrations were assessed as part of this evaluation. The typical range of temporal variability of indoor air concentrations observed during the Base-wide VI evaluation (CH2M HILL, 2011) and in other studies (Folkes et al., 2009) is up to two to three times. The typical range of temporal variability in subslab soil gas observed during the Base-wide VI evaluation (CH2M HILL, 2011) and in other studies (Folkes et al., 2009; McHugh, 2007) is up to one to two orders of magnitude.

3.1 Screening Levels

VOC results from the April 2013 and previous monitoring events were compared to the following screening levels (**Attachment F**):

- **North Carolina VISLs³ (June 2014)** – Subslab soil gas, groundwater, and indoor/crawlspace air data were compared to the North Carolina VISLs based on a target cancer risk (TCR) of 1×10^{-5} or a target hazard quotient (THQ) of 0.2. All of the buildings monitored, with the exception of Buildings HP-57 and G533, are industrial (non-residential), so the screening levels were based on the North Carolina Non-Residential VISLs. The North Carolina VISL for non-residential soil gas is also based on an AF of 0.01. Buildings HP-57 (separate dorm-room style spaces with one to two occupants per room) and G533 (open space with bunk beds and cubbies) are used as barracks; therefore, the screening levels were based on the North Carolina Residential VISLs with the understanding that this is a particularly conservative approach because the exposure duration for a barrack resident is much shorter than the 70 years assumed for calculating the North Carolina Residential VISLs. The North Carolina VISL for residential soil gas is based on an AF of 0.03.

³ Historically at MCI-EAST-MCB CAMLEJ, data have been screened against the USEPA VISLs based on a TCR of 1×10^{-6} or a THQ of 0.1 since North Carolina VISLs were not available. However, use of the North Carolina VISLs (more conservative screening levels) as compared to the USEPA VISLs is unlikely to change the conclusions of the VI evaluation. Therefore, the North Carolina VISLs were used for screening the April 2013 groundwater, soil gas, and indoor/crawl space air data.

- **Base-specific SGSLs (2011 and updated 2014)** – Soil gas data collected from industrial (non-residential) buildings were compared to the Base-specific SGSLs. Empirical (that is, Base-specific) AFs were calculated using paired concurrent subslab and indoor air (VOCs analyzed by TO-15) data collected during the Base-wide VI Evaluation (CH2M HILL, 2011). The same approach was taken again using the VI monitoring data (VOCs analyzed by TO-15 and radon) to evaluate whether the Base-specific AF from the previous phases of investigation (0.001) remains appropriate. The details of how the empirical AFs were calculated and the resulting Base-specific SGSLs for industrial (non-residential) scenarios are presented in **Attachment G**. Similar to the North Carolina VISLs, the Base-specific SGSLs are based on a TCR of 1×10^{-5} or a THQ of 0.2. Base-specific SGSLs are applicable to non-residential buildings only.
- **USEPA Region 9 Accelerated Response Action Level** – The indoor air concentrations of trichloroethene (TCE) were also compared to the USEPA Region 9 Accelerated Response Action Level for residential and commercial/industrial (non-residential – 8-hour work day) exposures, as applicable, which are based on a THQ equal to 1. These action levels are presented in the USEPA TM released July 9, 2014 (USEPA, 2014), and are only applicable to cases where VI is the source of the indoor air concentration.

3.2 Site 35

Site 35, formerly the Camp Geiger Area Fuel Farm, is located within Camp Geiger in the northwest portion of the Base. During the active life of the fuel farm from 1945 through 1995, several releases of fuel occurred. Previous investigations identified fuel-related and solvent-related groundwater contamination. The remedy for the site includes a horizontal air sparge well that operated from August 2010 until February 2013, monitored natural attenuation (MNA), and LUCs. Building G533 (**Figures 2 and 3**) was identified for VI monitoring during this evaluation.

3.2.1 Building G533

Building G533 was investigated during Phases I (June 2008), II (September 2008), and III (February 2010) of the Base-wide VI Evaluation (CH2M HILL, 2011). Groundwater samples were collected from the top of the water table at two temporary well point and exterior soil gas samples were collected in the vadose zone from two shallow soil gas points during June 2008 (CH2M HILL, 2009). Two subslab soil gas samples were collected during September 2008 and again during February 2010. Benzene, chloroform, tetrachloroethene (PCE), 1,4-dichlorobenzene (DCB), bromodichloromethane, and m-&p-xylene were identified as COCs and an additional round of subslab soil gas sampling and concurrent indoor air sampling was recommended to further characterize temporal variability. Benzene, PCE, 1,4-DCB, bromodichloromethane, and m-&p-xylene exceeded screening criteria in effect during previous phases but do not exceed North Carolina Residential VISLs for subslab soil gas (**Table 2**).

Building G533 is used as barracks and is classified as a large residential building for this evaluation. It is a three-story brick building that is approximately 100 feet long by 50 feet wide. The building is approximately 35 feet high; the ceilings on each floor are approximately 10 feet high. One-third of each floor contains an office, restrooms, and laundry rooms. The remainder of each floor contains barracks.

Floor drains are present in the laundry rooms and restrooms. Vinyl tile covers the slab in the hallways, ceramic tile covers the slab in the restrooms, and the slab is bare in the laundry rooms and barracks. The bare concrete contains expansion joints that are sealed. The list of VOC-containing items observed during the Phase III building survey was updated in the VI monitoring field notes (**Attachment A**) and included general cleaning products (such as Windex, Clorox, Febreze, and GoJo). A more detailed list of building characteristics is presented in the Phase III building survey sheets (CH2M HILL, 2011). No changes from the information collected during the Phase III investigation were observed.

One subslab soil gas sample and two indoor air samples were collected at Building G533 during the 2013 VI monitoring event (**Figure 2 and Table 2**). Three HAPSITE indoor air samples were also collected to assist in the indoor air survey where chloroform concentrations in subslab soil gas collected during Phase III exceeded SGSLs (**Figure 3**). The following lines of evidence suggest that the VI pathway is not currently significant at Building G533 and is not expected to become significant in the future:

- There were no constituents detected in subslab soil gas above the North Carolina Residential VISLs in 2013. Additionally, the chloroform concentration detected in the subslab soil gas sample collected from IR35-SG13 in 2013 is approximately an order of magnitude below the concentration detected in 2010.
- Chloroform was not detected above the North Carolina Residential VISL in indoor air samples analyzed by the HAPSITE or from the SUMMA canisters in 2013. Chloroform is a ubiquitous compound and is often found in municipal water supplies as a disinfection by-product. Given the building's use as a barracks, multiple uses of municipal water would be expected.
- TCE was detected in indoor air at concentrations exceeding the North Carolina Residential VISL in 2013. However, the detected TCE concentrations in indoor air did not exceed the USEPA Region 9 Accelerated Response Action Level for residential exposure (USEPA, 2014) (**Table 2**). TCE was not detected in subslab soil gas at concentrations above the North Carolina Residential VISL in the samples collected over three sampling events (2008, 2010, and 2013). The TCE concentration detected in indoor air is likely related to an outdoor source. The TCE concentration detected in indoor air was similar to the concentration detected in subslab soil gas and TCE was detected in the outdoor air at a concentration higher than the concentrations observed in indoor air, indicating the TCE concentrations detected indoors were likely related to an outdoor source. TCE was not detected in the indoor air samples collected by HAPSITE in 2013.
- Building G533 is a multi-story building with a large indoor air volume that likely results in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

No further investigation of the VI pathway is recommended for Building G533.

3.3 Site 73

Site 73, the Amphibious Vehicle Maintenance Facility, is located within the Courthouse Bay area in the southeastern portion of the Base. Maintenance activities conducted between 1946 and 1977 reportedly included discharging used motor oil and battery acid directly to the ground surface and it is likely that other hazardous substances including chlorinated solvents, were also disposed of in this area. Previous investigations identified fuel-related and solvent-related groundwater contamination and an area of petroleum-hydrocarbon-impacted soils. The remedy for the site includes a horizontal air sparge well that operated between 2009 and 2012, downgradient enhanced reductive dechlorination injections, MNA, and LUCs. Building A47 (**Figure 4**) was identified for VI monitoring during this evaluation. The south plume presented on this figure is related to Site 73, while the plume presented on the north end of the figure is related to an underground storage tank (UST) site.

3.3.1 Building A47

Building A47 was investigated during Phase I (June 2008) of the Base-wide VI Evaluation (CH2M HILL, 2011) and again as part of air sparging operations in 2011 and 2012. TCE was identified as the COC in subslab soil gas. During operation of the air sparge system, subslab soil gas concentrations of TCE increased and additional sampling was recommended to be performed during the 2013 VI monitoring event to confirm that the subslab soil gas concentrations have returned to baseline levels since the air sparge system was shut down.

Building A47, which is used as a vehicle maintenance area, contains a welding room, several workshops, and office spaces/classrooms, and is classified as a large industrial building. There are between 50 and 100 people occupying the building during normal working hours. Building A47 is a one-story concrete block building approximately 400 feet long by 200 feet wide by 25 feet high. The building likely has perimeter wall footings with additional footings underneath the pillars observed within the building. The concrete slab is level with the exterior ground surface and is approximately 6 inches thick. The entire floor surface is bare concrete with expansion joints that appear to be in good condition.

The northwest side of the building contains two levels of offices with ceilings approximately 8 feet high. There are approximately 10 windows and several doors along the northwest side of the building. The southeast side of the building contains the amphibious vehicle maintenance area; the ceiling is approximately 25 feet high. There are eight large bay doors along the southeast wall, which typically remain open during normal working hours. There is

a welding shop at the northeast corner of the building; it is a large room with several large mobile ventilation fans. Building A47 has a multi-zone heating and cooling system.

Potential indoor sources of VOCs observed during the Phase I sampling event include degreasers, cleaning supplies, and spray paint. A more detailed list of building characteristics is presented in the Phase I building survey sheets (CH2M HILL, 2009). No changes from the information collected during the Phase I investigation were observed.

Four subslab soil gas samples were collected at Building A47 during the 2013 VI monitoring event (**Figure 4**). Historical subslab soil gas data are presented in **Table 3** to demonstrate the decrease in TCE concentrations after shutdown of the air sparge well.

The following lines of evidence suggest that the VI pathway is not currently complete and is not expected to become complete and significant in the future:

- Historical data indicate that operation of the air sparge system contributed significantly to the concentrations of TCE, increasing the concentrations by one to three orders of magnitude. The air sparge system is now shut down.
- There were no constituents detected in subslab soil gas samples at concentrations above the North Carolina Non-Residential VISLs in samples collected in 2013, approximately 1 year after permanent shutdown of the air sparge system.
- TCE has decreased in subslab soil gas to concentrations approaching the baseline condition observed in 2008.

No further investigation of the VI pathway is recommended for Building A47 unless the air sparge system is turned back on.

3.4 Site 78

Site 78, the Hadnot Point Industrial Area (HPIA), is located in the Mainside area of the Base. Historically, the area included maintenance, painting, printing, and auto body shops; warehouses; and other small industrial facilities. Due to the industrial nature of the site, many spills and leaks consisting of petroleum-related products and solvents have occurred over the years. Site 78 consists of groundwater VOC plumes in two distinct areas: the northern area in the vicinity of Buildings 901, 902, and 903 (Site 78 North) and the southern area in the vicinity of Buildings 1601 and 1603 (Site 78 South), shown on **Figures 5 and 6**, respectively. The remedy for the site includes a groundwater extraction and treatment system, long-term monitoring (LTM), excavation and offsite disposal of pesticides and polychlorinated-biphenyl-contaminated soil to achieve industrial cleanup levels, and LUCs. Buildings 901 (**Figure 5**), 1601, and 1606 (**Figure 6**) were identified for VI monitoring during this evaluation.

3.4.1 Building 901

One groundwater sample was collected near Building 901 during Phase III (February 2010). Vinyl chloride was identified as the COC in groundwater. The Phase III report recommended monitoring of VOC groundwater concentrations in IR78-MWVI01, located just upgradient of Building 901, to evaluate whether concentrations of vinyl chloride in groundwater are increasing over time. Vinyl chloride was detected in the sample collected from IR78-MWVI01 during February 2010 above the groundwater screening level in effect at the time.

This building, which is used as a vehicle maintenance and teaching facility, is classified as a large industrial building for this evaluation. Building 901 is a corrugated steel and fiberglass building, approximately 200 feet long by 100 feet wide. The building is divided into two sections. The larger one-story west section is approximately 200 feet long, 60 feet wide, and 50 feet high (vehicle maintenance garage). The smaller two-story east section is approximately 200 feet long, 40 feet wide, and 35 feet high (classroom area). Windows and bay doors are left open seasonally during normal working hours, and floor drains are present in the restrooms throughout the building.

One groundwater sample was collected from IR78-MWVI01 during the 2013 VI monitoring event to evaluate whether concentrations of VOCs in groundwater are increasing over time (**Figure 5 and Table 4**). Vinyl chloride is

the only VOC historically detected above the North Carolina Non-Residential VISL (24.5 micrograms per liter). The vinyl chloride concentration has remained relatively stable from 2010 to 2013 and remains below the North Carolina Non-Residential VISL since 2010 (**Table 4**).

Therefore, the potential for groundwater contaminants to migrate toward Building 901 at concentrations above North Carolina Non-Residential VISLs appears to be low.

No further investigation of the VI pathway is recommended for Building 901.

3.4.2 Building 1601

Building 1601 was investigated during Phases I (June 2008), II (September 2008), and III (February 2010) of the Base-wide VI Evaluation. Groundwater samples were collected from the top of the water table at four temporary well points and exterior soil gas samples were collected in the vadose zone from two shallow soil gas points and one deep soil gas point during June 2008 (CH2M HILL, 2009). Four subslab soil gas samples were collected during September 2008 and six subslab soil gas samples, three indoor air, and one outdoor air sample were collected February 2010. PCE, TCE, chloroform, and ethylbenzene were identified as COCs in subslab soil gas. Previous results indicated TCE was the only compound detected above the Base-specific screening levels in effect at the time. The Phase III VI Evaluation Report (CH2M HILL, 2011) recommended that an additional round of subslab and concurrent indoor air samples be collected to further characterize temporal variability. PCE, chloroform, and ethylbenzene exceeded screening criteria in effect during previous phases but no longer exceed based on North Carolina VISLs for subslab soil gas (**Table 5**).

Building 1601 is a warehouse and is classified as a large industrial building for this evaluation. Building 1601 is a one-story concrete block and mortar building, approximately 350 feet long by 160 feet wide. The building is divided into three sections. The largest section is approximately 350 feet long, 100 feet wide, and 30 feet high. The two smaller sections, which are on either side of the larger section, are each approximately 350 feet long, 25 feet wide, and 20 feet high. The exterior of the building is primarily windows, including multiple large (approximately 15- by 10-foot) windows around the perimeter.

The potential indoor VOC sources observed inside Building 1601 during the Phase III sampling event include paint, industrial adhesives, mechanical lubricants, and jet fuel. A more detailed list of building characteristics is presented in the Phases I/II building survey sheets (CH2M HILL, 2009). No changes from the information collected during the Phase III investigation were observed.

Six subslab soil gas, three indoor air, and one outdoor air sample were collected during the 2013 VI monitoring event (**Figure 6 and Table 5**). Two HAPSITE indoor air samples were also collected to assist in the indoor air survey by screening for common VOC target analytes and investigating possible background sources (**Attachment D, Figures 6 and 7**). A subset of the indoor air samples collected with SUMMA canisters were analyzed for radon at Building 1601 because subslab TCE concentrations exceed the Base-specific SGSLs in effect during the Base-wide VI Evaluation. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF (**Attachment G**).

Based on the Base-specific SGSL exceedances, the potential for a complete VI pathway at Building 1601 cannot be ruled out. However, the following lines of evidence indicate that the VI pathway is not currently significant:

- TCE was not detected in the indoor air at concentrations above the North Carolina Non-Residential VISL or the USEPA Region 9 Accelerated Response Action Level for commercial/industrial exposure (USEPA, 2014) during the two rounds of data collection in 2010 and 2013. Additionally, there were no constituents detected in either HAPSITE sample above the reporting limits. The TCE concentration detected in indoor air is likely related to an outdoor source. The TCE concentrations detected in indoor air were lower than the concentrations detected in outdoor.
- TCE was detected in soil gas at concentrations above the North Carolina Non-Residential VISL and/or Base-specific SGSLs in samples collected during 2010 and 2013. These results were within the one to two orders of magnitude temporal variability typically observed during the Base-wide VI evaluation and in other studies (Folkes et al., 2009; McHugh, 2007).

- Chloroform was detected in one subslab soil gas sample collected during September 2008 at a concentration slightly exceeding the North Carolina Non-Residential VISL but has not exceeded in subsequent phases of the investigation.
- 1,2,4-trimethylbenzene (TMB) and naphthalene were detected in indoor air at concentrations slightly above the North Carolina Non-Residential VISLs; however, they are likely related to an indoor source because these constituents were not detected above the North Carolina Non-Residential VISL in soil gas.
- The evaluation presented in **Attachment G** concludes that AFs estimated using radon were similar to those calculated using VOCs and that the Base-specific AF (1×10^{-3}) calculated during the Phases I/II/III Base-wide VI Evaluation (CH2M HILL, 2009; CH2M HILL, 2011) remains appropriate. The AF calculated using the radon data from Building 1601 was 3.9×10^{-4} .
- Building 1601 is a warehouse building with a large indoor air volume that likely results in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

However, there is uncertainty as to whether the VI pathway could become significant in the future at Building 1601 due to the presence of TCE concentrations in subslab soil gas exceeding the Base-specific SGSLs. Therefore, the following additional actions are recommended:

- Continue to monitor the VI pathway through periodic concurrent subslab soil gas and indoor air sampling at Building 1601.
- Consider the VI pathway during construction planning due to the repeated TCE exceedances of the Base-specific SGSL in subslab soil gas.

3.4.3 Building 1606

Building 1606 was investigated during Phase III (February 2010) of the Base-wide VI Evaluation (CH2M HILL, 2011) and additional sampling was recommended to evaluate the effects of temporal variability. Three subslab soil gas samples were collected during February 2010 and three subslab soil gas, two indoor air, and one outdoor air sample were collected during May 2010 as a re-sample for confirmation of February 2010 results. Ethylbenzene, PCE, chloroform, and m&p-xylenes were identified as the COCs in subslab soil gas. Previous results indicated PCE concentrations in subslab soil gas exceeded the Base-specific screening levels in effect at the time. The Phase III VI Evaluation Report (CH2M HILL, 2011) recommended that an additional round of subslab and concurrent indoor air samples be collected to further characterize temporal variability. Chloroform, ethylbenzene, m-&p-xylene, and PCE exceeded screening criteria in effect during previous phases but no longer exceed based on North Carolina VISLs for subslab soil gas (**Table 6**).

Building 1606 functions as an office and troop consumables supply store. It is classified as a large industrial building for this evaluation. Building 1606 is a one-story rectangular building approximately 350 feet long by 200 feet wide. The ceiling is approximately 26 feet high. The building contains two main areas: the store area where customers purchase merchandise and the supply area (that is, the warehouse to stock the store). There is a small office area with restrooms in the northwest section of the building. The building has seven bay doors that are used for unloading merchandise.

The building is constructed of brick and concrete with a plaster exterior. The slab is constructed of concrete approximately 3 feet above grade, which accounts for the foundation wall and fill; this building does not have a crawlspace. There are expansion joints present in the floor, and the concrete floor has been sealed and is in good condition. There are floor drains in the restrooms.

Pesticides are typically applied to the exterior of Building 1606 twice per year; however, the last application date is unknown. Potential VOC sources observed in the building during the Phase III building survey include Pine Sol and multiple other items (liquid paper, printer cartridges, cleaning products, and so forth) sold in the store.

There are several window air conditioning units on the eastern side of the building in the office area, and exhaust fans are present in the skylights. The bay doors on the storage side are left open seasonally, allowing for outdoor

air exchange. A more detailed list of building characteristics is presented in the Phase III building survey sheets (CH2M HILL, 2011). No changes from the information collected during the Phase III investigation were observed.

Three subslab soil gas, two indoor air, and one outdoor air sample were collected during the 2013 VI monitoring event (**Figure 6 and Table 6**). Two HAPSITE indoor air samples were also collected to assist in the indoor air survey by screening for common VOC target analytes and investigating possible background sources (**Attachment D, Figures 6 and 8**). A subset of the indoor air samples collected with SUMMA canisters were analyzed for radon at Building 1606 because subslab PCE concentrations exceed the Base-specific SGSLs in effect during the Base-wide VI Evaluation. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF (**Attachment G**).

The following lines of evidence suggest that the VI pathway is not currently complete at Building 1606 and would not be expected to become complete and significant in the future:

- VOC concentrations in subslab soil gas did not exceed the Base-specific screening levels during three rounds of data collection and did not exceed the North Carolina Non-Residential VISLs during the last two rounds of data collection.
- The PCE concentration in subslab soil gas has decreased approximately one to two orders of magnitude since 2010, which is within the typical range of temporal variability of subslab soil gas observed during the Base-wide VI Evaluation and in other studies (Folkes et al., 2009; McHugh, 2007) of up to one to two orders of magnitude. In one location (IR78-SG70), the PCE concentration decreased by four orders of magnitude. However, the highest detected concentration does not exceed the current Base-specific SGSL.
- VOCs were not detected in indoor air at concentrations above the North Carolina Non-Residential VISLs during the last two rounds of data collection (May 2010 and 2013). Additionally, there were no constituents detected in either HAPSITE sample above the reporting limits.
- The evaluation presented in **Attachment G** concludes that AFs estimated using radon were less conservative than the Base-specific AF (1×10^{-3}) calculated during the Phases I/II/III Base-wide VI Evaluation (CH2M HILL, 2009; CH2M HILL, 2011) and that the Base-specific AF remains appropriate. The radon data resulted in an AF for Building 1606 of 5.2×10^{-4} .
- Building 1606 is a warehouse-type retail building with a large indoor air volume that likely results in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

No further investigation of the VI pathway is recommended for Building 1606.

3.5 Site 88

Site 88, formerly the Base Dry Cleaning Facility (Building 25), is located in the HPIA area of the Base. Building 25 operated as a dry cleaning facility from the 1940s until January 2004; using PCE starting in the 1970s. USTs and aboveground storage tanks (ASTs) containing Varsol and PCE were located onsite and spent PCE was disposed of in floor drains. The USTs and AST were removed in November 1995 and Building 25 was demolished to slab in August 2004.

Previous investigations identified solvent-related groundwater contamination that extends south from the source area. A feasibility study is currently underway to evaluate alternatives to address the groundwater contamination. Buildings 37A (**Figure 9**) and HP-57 (**Figure 10**) were identified for VI monitoring during this evaluation.

3.5.1 Building 37A

Building 37A has not been previously sampled and was included as a building of interest to assess the potential for VI impacts based on exceedances of groundwater screening criteria (CH2M HILL, 2013a) resulting from the screening performed during work planning.

Building 37A is approximately 55 feet long and 16 feet wide and is classified as a small industrial building for this evaluation. It is a one-story temporary construction/work annex trailer constructed of wood siding with a seemingly air-tight, sound wooden skirt surrounding its base.

One crawlspace air sample was collected from the skirted portion of the building and one outdoor air sample was collected (**Figure 9**). VOC concentrations detected during this event are presented in **Attachment H**. No VOCs were detected above the North Carolina Non-Residential VISLs for indoor air. The following lines of evidence suggest that the VI pathway is not currently complete at Building 37A:

- Crawlspace air VOC concentrations did not exceed the North Carolina Non-Residential VISLs for indoor air.
- The detected VOC concentrations were one to three orders of magnitude below their respective North Carolina Non-Residential VISLs, indicating that temporal variability would be unlikely to result in significant VI. The typical range of temporal variability of indoor air concentrations observed during the Base-wide VI Evaluation (CH2M HILL, 2011) and in other studies (Folkes et al., 2009) is up to two to three times.
- The VOC concentrations detected in the outdoor air sample were greater than or equal to those in the crawlspace air sample indicating that the VOC concentrations detected in the crawlspace air sample are likely related to an outdoor source.

No further investigation of the VI pathway is recommended for Building 37A.

3.5.2 Building HP-57

Building HP-57 was investigated during Phase III (2010) of the Base-wide VI Evaluation (CH2M HILL, 2011) as part of a preferential pathway analysis. Two subslab soil gas samples were collected during February 2010 and two subslab soil gas, two indoor air, and one outdoor air sample were collected during May 2010 as a re-sample for confirmation of February 2010 results. PCE and TCE were identified as COCs in subslab soil gas. Results indicated subslab soil gas concentrations of PCE and TCE in exceedance of the generic residential SGSLS in effect at the time and an additional round of subslab soil gas sampling and concurrent indoor air sampling was recommended to further characterize temporal variability. PCE exceeded screening criteria in effect during previous phases but no longer exceeds based on North Carolina Residential VISLs for subslab soil gas (**Table 7**).

Building HP-57 is approximately 250 feet long and 60 feet wide and is classified as a large residential building, as it is currently used as a barracks. It is a three-story building constructed of brick and mortar with a concrete slab on grade. The interior is constructed of cinderblock. The floor is covered with vinyl tile in the lounge and hallways, and carpeting in the office space. Floor drains are located in the restrooms and laundry rooms. One large air-handling unit is located on the south side of Building HP-57 in the parking lot. Water was observed pooling on the north lawn after a heavy rain, suggesting that tight clayey soils are likely present north of the building as noted in the Site 88 Remedial Investigation (CH2M HILL, 2007). These soil types impede vapor transport. Each of the dorm rooms has an exterior door. Dorm windows and doors are typically left open on warm days. General cleaning supplies (washing machine detergent, glass cleaner, and so forth) were observed on the ground floor in a locked supply closet. There are approximately 90 dorm rooms in Building HP-57. A more detailed list of building characteristics is presented in the Phase III building survey sheets (CH2M HILL, 2011). No changes from the information collected during the Phase III investigation were observed.

Two subslab soil gas probes, originally installed during February 2010 but found to have epoxy placed over them, were re-installed and sampled during the 2013 VI monitoring event. Concurrent subslab soil gas and indoor air samples were collected at these locations and an outdoor air sample was collected (**Figure 10 and Table 7**). Three HAPSITE indoor air samples were also collected to assist in the indoor air survey by screening for common VOC target analytes and investigating possible background sources (**Figure 11**).

The following lines of evidence suggest that the VI pathway is not currently significant at Building HP-57:

- There are indications of temporal variability of three orders of magnitude for TCE concentrations in subslab soil gas based on the differences in concentrations over time. In February 2010, TCE concentrations in subslab soil gas exceeded the North Carolina Residential VISL. TCE was also detected in subslab soil gas during both the May 2010 and April 2013 events, but the concentrations were below the North Carolina Residential VISL.

- The TCE concentration detected in indoor air in April 2013 is likely related to a background source and not VI based on the similarity with the TCE concentration detected in subslab soil gas. Based on the nature of vapor attenuation, the concentration in indoor air would be expected to be less than in subslab soil gas, unless a direct conduit between the subslab and building interior is present.
- Although the maximum TCE concentration detected in indoor air correlates to an estimated risk slightly above the target risk range, the use of the North Carolina Residential VISL is conservative. TCE concentrations were also screened against the USEPA Region 9 Accelerated Response Action Level for residential exposure (USEPA, 2014). The sample collected at IR88-IA15 exceeded the action level (**Table 7**); however, this action level is only applicable for cases where VI is the source of the indoor air concentration (which not the case here).
- The detected indoor air concentrations of chloroform above the North Carolina Residential VISL in May 2010 were likely unrelated to VI since they were not detected in subslab soil gas above the North Carolina Residential VISL during any investigation period. Additionally, chloroform was not detected in indoor air above the North Carolina Residential VISL in April 2013. Chloroform was also not detected in the HAPSITE samples collected above the reporting limit.

There is uncertainty as to whether the VI pathway could become significant in the future based on the proximity of the building to the source area, the potential for preferential transport of vapors through underground utility lines (CH2M HILL, 2011), and the temporal variability of TCE concentrations. Therefore, it is recommended to continue to monitor the VI pathway through concurrent subslab soil gas and indoor air sampling every 5 years. If the TCE concentration in subslab soil gas remains below the North Carolina Residential VISL during the next 5-year monitoring event (i.e., 3 consecutive rounds of data indicating subslab soil gas concentrations are below the North Carolina Residential VISL for subslab soil gas), the building may be recommended for no further investigation of the VI pathway. Additionally, the VI pathway should be considered during construction planning in the vicinity of Building HP-57 due to the previous concentrations of TCE in subslab soil gas.

3.6 Site 89

Site 89, the former Defense Reutilization and Marketing Office (DRMO), is located within Camp Geiger in the northwest portion of the Base. The Base Motor Pool operated on the site until approximately 1988 and reportedly used solvents such as acetone, TCE, and methyl ethyl ketone for cleaning parts and equipment. The DRMO was operated by the Defense Logistics Agency on the site until 2000. During this period, the site was used as a storage yard for items such as scrap and surplus metal, electronic equipment, vehicles, rubber tires, and fuel bladders. Previous investigations identified solvent-related groundwater contamination in the source and downgradient areas and surface water. The remedy for the site includes horizontal and vertical air sparging, two permeable reactive barriers, in-creek aerators, MNA, LTM, and LUCs. Buildings TC864 (**Figure 12**) was identified for VI monitoring during this evaluation.

3.6.1 Building TC864

Building TC864 was investigated during Phases I (June 2008) and III (February 2010) of the Base-wide VI Evaluation (CH2M HILL, 2011). Two subslab soil gas samples, two indoor air samples, and one outdoor air sample were collected during June 2008. Two subslab soil gas samples, two indoor air samples, and one outdoor air sample were collected during February 2010. PCE, TCE, chloroform, and ethylbenzene were identified as COCs in subslab soil gas. Results indicated concentrations of these compounds exceeded generic screening levels in effect during previous investigation phases for indoor air and subslab soil gas at Building TC864. The Phase III VI Evaluation Report (CH2M HILL, 2011) recommended that an additional round of subslab soil gas and indoor air data be collected to further characterize temporal variability. PCE, chloroform, and ethylbenzene exceeded screening criteria in effect during previous phases but no longer exceed based on North Carolina Non-Residential VISLs for subslab soil gas (**Table 8**).

Building TC864 is used as a storage area and is classified as a large industrial building for this evaluation. It is a one-story steel building approximately 150 feet long by 50 feet wide. The ceiling is approximately 15 feet high. The interior space is one large room that is being used to store student equipment. The building likely has a

perimeter wall footing system. The concrete slab is level with the exterior ground surface and is approximately 6 inches thick. The entire floor is bare concrete. The overall condition of the concrete is good; there are sealed expansion joints present and there are no floor drains. Building TC864 does not have a heating, ventilation, and air conditioning (HVAC) system. The building has 11 windows, three double doors, one single door, and four bay doors that typically remain closed. The building is typically unoccupied but is accessed frequently. A more detailed list of building characteristics is presented in the Phase I building survey sheets (CH2M HILL, 2009). No changes from the information collected during the Phase III investigation were observed.

Two indoor air samples were collected during the 2013 VI monitoring event (**Figure 12** and **Table 8**). Subslab soil gas samples were planned but not collected because the warehouse space had been filled floor to ceiling and wall to wall with large wooden storage crates, covering the subslab probes. Operation of an air sparge system at Site 89 began in September 2013 and subslab soil gas samples were collected as part of performance monitoring in December 2013 and March 2014. These preliminary data are presented in **Table 8**. Due to uncertainty regarding how the air sparge system will effect subslab soil gas concentrations long-term, it is not possible to rule out a complete VI pathway at Building TC864. However, the following lines of evidence suggest that the VI pathway is not currently significant:

- There were no constituents detected in indoor air above the North Carolina Non-Residential VISLs during the last three rounds (2008, 2010, and 2013) of sample collection. In addition, TCE concentrations did not exceed the USEPA Region 9 Accelerated Response Action Level for commercial/industrial exposure (USEPA, 2014) (**Table 8**).
- The detected indoor air concentrations of TCE are likely related to an outdoor source rather than VI. The concentrations of TCE detected in indoor air were lower than concentrations detected in outdoor air.
- Subslab concentrations of TCE have varied approximately one to two orders of magnitude since 2008, which is within the typical range of temporal variability of subslab soil gas observed during the Base-wide VI Evaluation and in other studies (Folkes et al., 2009; McHugh, 2007) of up to one to two orders of magnitude.
- Building TC864 is a warehouse with a large indoor air volume that likely results in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

Due to the uncertainty about how operation of the air sparge system will affect the subslab concentrations long-term, the following is recommended:

- Continue to monitor subslab soil gas concentrations as part of performance monitoring for the air sparge system.
- Consider the VI pathway during construction planning due to the TCE exceedance of the North Carolina Non-Residential VISL in subslab soil gas during the 2010 sampling event and due to the uncertainty regarding long-term effects of the air sparge system.

3.7 Site 93

Site 93, Building TC942, is located within Camp Geiger in the northwest portion of the Base. The buildings in this portion of Camp Geiger were constructed during the Korean War and currently function as classrooms, barracks, and supply rooms. In 1983, a 550-gallon UST, identified as UST-TC942, was installed near the southwest corner of Building TC942 and was used to store waste oil until its closure in December 1993 (CH2M HILL, 2011). Previous investigations identified solvent-related groundwater contamination. The remedy for this site included In-Situ Chemical Oxidation injections that were completed in 2008, MNA, and LUCs (CH2M HILL, 2013d). Building TC942 (**Figure 13**) was identified for VI monitoring during this evaluation.

3.7.1 Building TC942

Building TC942 was screened during Phase I (June 2008) of the Base-wide VI Evaluation (CH2M HILL, 2011) but was not included for sample collection because the building was unoccupied at the time. However, the building was confirmed to be occupied during the desktop screening activities.

Building TC942 is used as the School of Infantry supply warehouse and is classified as a large industrial building for this evaluation. It is a one-story wood building approximately 160 feet long by 60 feet wide. The ceiling is approximately 15 feet high. The interior space is composed of a warehouse (two-thirds) and an office space (one-third) with several cubicles and a restroom. The concrete slab is elevated approximately 2.5 feet above ground surface, which accounts for the foundation wall and fill; this building does not have a crawlspace. The concrete slab is approximately 6 inches thick. The entire floor in the warehouse is bare concrete. The overall condition of the concrete is good; however, there are sealed expansion joints present that were observed to be in need of repair. The floor in the office space is vinyl tile and carpet. There are floor drains in the restroom. The warehouse portion of Building TC864 does not have an HVAC system. The office space has three wall HVAC systems. There are four bay doors each on the west and east sides that typically remain closed and one bay door on the south side that opens during deliveries. These observations are summarized on the building survey form completed for Building TC942 (**Attachment A**).

Two subslab soil gas probes were installed (IR93-SG01 [north] and IR93-SG02 [south]) and sampled during the 2013 VI monitoring event (**Figure 13**). VOC concentrations detected during this event are presented in **Attachment H**. There were no constituents detected in subslab soil gas at concentrations above the North Carolina Non-Residential VISLs for subslab soil gas. The lack of VOC concentrations in subslab soil gas above the North Carolina Non-Residential VISLs indicated that the VI pathway is not currently complete. However, there is uncertainty regarding whether the VI pathway could become complete in the future due to the lack of temporal variability data and the location of the plume, which extends almost entirely beneath the building footprint. Therefore, the following action is recommended:

- Collect an additional round of subslab soil gas data to evaluate temporal variability at Building TC942.

3.8 Site 96 (Former Solid Waste Management Unit 360 and Underground Storage Tank 1817)

Site 96, previously Solid Waste Management Unit 360, is located in the HPIA area of the Base. Site 96 is the site of a former 300-gallon waste oil UST positioned near Building 1817. The former UST was located in the eastern portion of the site, which is being used as a temporary staging area for batteries, refrigeration units, and other used equipment before disposal and/or reutilization. The waste oil UST was removed in July 1997. Previous investigations identified solvent-related groundwater contamination. Site 96 was transferred to the IRP and additional delineation is planned in fiscal year 2015. Buildings 1827 and 1828 (**Figure 13**) were identified for VI monitoring during this evaluation.

3.8.1 Building 1827

Building 1827 was investigated during Phase I (June 2008) and Phase III (February 2010) of the Base-wide VI Evaluation (CH2M HILL, 2011). Groundwater samples were collected from the top of the water table at three temporary well points and exterior soil gas samples were collected in the vadose zone from three deep soil gas points near Building 1827 during June 2008 (CH2M HILL, 2009). Two subslab soil gas samples were collected during February 2010. PCE was identified as the COC for subslab soil gas. Building 1827 was recommended for additional sampling at the conclusion of Phase III because PCE concentrations in subslab soil gas at the south end of Building 1827 had not yet been delineated and PCE concentrations in subslab soil gas exceeded generic SGSLs (in effect during previous phases) in the north end of the building. The Phase III VI Evaluation Report (CH2M HILL, 2011) recommended that further investigation of the VI pathway be conducted, to include installation and sampling of subslab soil gas probes in the south end of Building 1827 to evaluate temporal and spatial variability.

Building 1827 is used for storage, is approximately 300 feet long and 60 feet wide and is classified as a large industrial building for this evaluation. It is a one-story building constructed of polycarbonate material walls and ceiling. One brick wall divides the building into one-fifth (west) and four-fifths (east). The ceiling is approximately 30 feet high. The concrete slab is on grade and contains numerous expansion joints that are sealed but are in poor condition. No restrooms, floor drains, or sumps were observed in the building. Exhaust fans are located on either end of the building and are installed in the walls near the eaves. There are six bay doors and one small pedestrian door on the south side of the building, which are typically kept open when Marines are present. Some of the

stored items include tents and mosquito netting, both of which may contain VOCs (Hansen et al., 2004). A more detailed list of building characteristics is presented in the Phase III Report (CH2M HILL, 2011). No changes from the information collected during the Phase III investigation were observed.

Two subslab soil gas probes (IR96-SG01 and –SG02) were installed in the south side of the building and sampled during the 2013 VI monitoring event (**Figures 14 and 15 and Table 9**).

The following lines of evidence suggest that the VI pathway is not currently complete at Building 1827:

- There were no constituents detected in subslab soil gas above North Carolina Non-Residential VISLs during 2010 or 2013 events. Spatial variability was within one order of magnitude for the detected constituents between sample locations.
- Temporal variability would be unlikely to result in significant VI at Building 1827. Subslab soil gas concentrations of PCE in 2013 were within two times the concentrations detected in 2010. In addition, the PCE concentrations from both the 2010 and the 2013 VI monitoring events were one order of magnitude below the North Carolina Non-Residential VISL and two orders of magnitude below the Base-specific SGSL. The typical range of temporal variability observed during the Base-wide VI Evaluation and in other studies (Folkes et al., 2009; McHugh, 2007) is up to one to two orders of magnitude.
- Building 1827 is a warehouse with a large air volume and open bay doors that likely result in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

No further investigation of the VI pathway is recommended for Building 1827.

3.8.2 Building 1828

Building 1828 was investigated during Phases I (June 2008), II (September 2008), and III (February 2010) of the Base-wide VI Evaluation (CH2M HILL, 2011). Groundwater samples were collected from the top of the water table at three temporary well points and exterior soil gas samples were collected in the vadose zone from three deep soil gas points near Building 1828 during June 2008 (CH2M HILL, 2009). Two subslab soil gas samples were collected during September 2008. Three subslab soil gas samples were collected during February 2010. One subslab soil gas sample, two indoor air, and one outdoor air sample were collected during May 2010 as a re-sample for confirmation of February 2010 results. PCE and TCE were identified as the primary COCs in subslab soil gas. Chloroform, 1,2,4-TMB, and benzene were also carried forward as potential COCs due to their presence above screening levels in indoor air and elevated detection limits in subslab soil gas. Building 1828 was recommended for additional sampling at the conclusion of Phase III because PCE concentrations in subslab soil gas exceeded Base-specific screening level in the south end of Building 1828 during February 2010 and May 2010. The Phase III VI Evaluation Report (CH2M HILL, 2011) recommended that an additional round of subslab soil gas and indoor air sample data be collected at Building 1828 to further characterize the subslab soil gas and confirm the lack of impacts to indoor air above screening levels. Benzene exceeded screening criteria in effect during previous phases but no longer exceeds based on updated North Carolina VISLs (**Table 10**).

Building 1828 is used for office space and storage and is classified as a large industrial building for this evaluation. Building 1828 is a one-story corrugated steel building that is approximately 300 feet long by 60 feet wide by 30 feet high. The majority of the building is a large storage space divided by chain-link fence. There is office space in the north and south ends of the building, and a classroom area is located in the south side. The office spaces have 8-foot drop ceilings and window air conditioning units; the restrooms have floor drains. Potential indoor sources of VOCs observed during the Phase III building survey included paint, JP-08 spent fuel containers, and gas and diesel fuel containers. A more detailed list of building characteristics is presented in the Phase III building survey sheets (CH2M HILL, 2011). No changes from the information collected during Phase III investigation were observed.

Two subslab soil gas, two indoor air samples, and one outdoor air sample were collected during the 2013 VI monitoring event (**Figures 14 and 15; Table 10**). Two HAPSITE indoor air samples were collected during the VI monitoring event to assist in the indoor air survey by screening for common VOC target analytes and investigating possible background sources (**Attachment D**). A subset of the indoor air samples collected with SUMMA canisters

were analyzed for radon at Building 1828 because subslab VOC concentrations exceeded the Base-specific SGSLs in effect during the Base-wide VI Evaluation. The data were used to further evaluate attenuation across the slab in support of the Base-specific AF (**Attachment G**).

Based on Base-specific SGSL exceedances, the potential for a complete VI pathway at Building 1828 cannot be ruled out. However, the following lines of evidence indicate that the VI pathway is not currently significant:

- The VI pathway currently appears to be complete but not significant. PCE concentrations in subslab soil gas remain greater than the Base-specific SGSL. Additionally, PCE was detected at low concentrations in indoor air and were higher than those detected in the outdoor air sample. However, the PCE concentrations did not exceed the North Carolina Non-Residential VISL for indoor air. PCE was detected in the indoor air sample collected by the HAPSITE in 2013 at a concentration similar to the TO-15 result.
- TCE was detected in subslab soil gas samples collected during May 2010 at concentrations above the North Carolina Non-Residential VISL for subslab soil gas, but did not exceed the North Carolina Non-Residential VISL in the samples collected during this event.
- Temporal variability of subslab soil gas VOC concentrations between monitoring events were within one order of magnitude. The typical range of temporal variability observed during the Base-wide VI Evaluation and in other studies (Folkes et al., 2009; McHugh, 2007) is up to one to two orders of magnitude.
- Chloroform, TCE, and 1,2,4-TMB were detected in indoor air samples collected during May 2010 at concentrations above the North Carolina Non-Residential VISLs but do not exceed VISLs in the samples collected during this event. TCE concentrations were also screened against the USEPA Region 9 Accelerated Response Action Level for commercial/industrial exposure (USEPA, 2014) and did not exceed (**Table 10**).
- The indoor air concentrations of chloroform and 1,2,4-TMB decreased by approximately one to two orders of magnitude. The typical range of temporal variability of indoor air concentrations observed during the Base-wide VI evaluation (CH2M HILL, 2011) and in other studies (Folkes et al., 2009) is up to two to three times. The temporal variability observed for these compounds suggests an indoor source may have been present during the May 2010 sampling event.
- The evaluation presented in **Attachment G** concludes that AFs estimated using radon were similar to or less conservative than those calculated using VOCs and that the Base-specific AF (1×10^{-3}) calculated during the Phases I/II/III Base-wide VI Evaluation (CH2M HILL, 2009; CH2M HILL, 2011) remains appropriate. The AF calculated using the radon data from Building 1828 was 4.0×10^{-5} .
- Building 1828 is a warehouse with a large air volume and open bay doors that likely result in significant indoor-to-outdoor air exchange, mixing, and attenuation of indoor air concentrations.

There is uncertainty as to whether the VI pathway could become significant in the future at Building 1828 based on PCE exceedances of the Base-specific SGSL in subslab soil gas during the last three rounds of data collection. In addition, the VI pathway appears to be complete based on the detection of PCE in the indoor air samples. Therefore, the following actions are recommended:

- Continue to monitor the VI pathway through periodic concurrent subslab soil gas and indoor air sampling at Building 1828.
- Consider the VI pathway during construction planning due to the repeated PCE exceedance of the Base-specific SGSL in subslab soil gas.

4 Summary of Conclusions and Recommendations

The results of the VI investigations along with the MLE suggest that VI is not currently a significant pathway of concern for the buildings evaluated as part of this VI monitoring event. There is, however, a potential for the VI pathway to become significant in the future at Building 1601 at Site 78, Building HP-57 at Site 88, and

Building 1828 at Site 96 and during air sparging operation at Building TC864 at Site 89. Additionally, the radon and VOC data indicate that the Base-specific AF of 0.001 remains conservative and appropriate.

Recommendations stemming from the VI evaluation performed at each building are summarized in **Table 11**.

TABLE 11
 Summary of VI Monitoring Recommendations
VI Monitoring IRP
MCIEAST-MCB CAMLEJ
North Carolina

| Site Name | Building # | Collect Additional VI Data during LTM or Every 5 Years | Collect Second Round of Subslab Soil Gas Data | Collect Additional VI Data as part of Air Sparge Performance Monitoring | Consider VI Pathway During Construction Planning | No Further Investigation of the VI Pathway |
|-----------|------------|--|---|---|--|--|
| IR 35 | G533 | | | | | X |
| IR 73 | A47 | | | | | X |
| | 901 | | | | | X |
| IR 78 | 1601 | X | | | X | |
| | 1606 | | | | | X |
| | 37A | | | | | X |
| IR 88 | HP-57 | X | | | X | |
| IR 89 | TC864 | | | X | X | |
| IR 93 | TC942 | | X | | | |
| | 1827 | | | | | X |
| IR 96 | 1828 | X | | | X | |

5 References

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Tables

TABLE 1
 Summary of VI Monitoring
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

| Site | Building | Sample Type | Sample ID | Sample Collected (Y/N) | Notes |
|-------|----------|---------------|----------------------|--|--|
| IR 35 | G533 | SG | IR35-SG12 | N | Probe cap corroded in place; project team decided sample was not needed from this probe after HAPSITE did not detect any VOCs in indoor air; subsurface pathway closed and probe noted for re-install if sample needed in future phases of investigation |
| | | SG | IR35-SG13 | Y | |
| | | IA | IR35-IA01 | Y | |
| | | IA | IR35-IA02 | Y | Duplicate collected |
| | | OA | IR35-OA01 | Y | |
| IR 73 | A-47 | SG | IR73-SG01 | Y | |
| | | SG | IR73-SG02 | Y | |
| | | SG | IR73-SG03 | Y | |
| | | SG | IR73-SG04 | Y | Duplicate collected |
| IR 78 | 901 | GW | IR78-MWVI01-GW01-13B | Y | Duplicate, MS/MSD collected |
| | 1601 | SG | IR78-SG25 | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | SG | IR78-SG26 | Y | Duplicate collected |
| | | SG | IR78-SG27 | Y | |
| | | SG | IR78-SG28 | Y | |
| | | SG | IR78-SG66 | Y | |
| | | SG | IR78-SG67 | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | IA | IR78-IA25 | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample |
| | | IA | IR78-IA26 | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample |
| | | IA | IR78-IA27 | Y | |
| | OA | IR78-OA01-13B | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample | |
| | 1606 | SG | IR78-SG70-13B | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | SG | IR78-SG71-13B | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | SG | IR78-SG72-13B | Y | |
| | | IA | IR78-IA28-13B | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample |
| IA | | IR78-IA29-13B | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample | |

TABLE 1
 Summary of VI Monitoring
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

| Site | Building | Sample Type | Sample ID | Sample Collected (Y/N) | Notes |
|-------|----------|---------------|------------------|--|--|
| IR 88 | HP-57 | SG | IR88-SG19-13B | Y | Vapor pin installed to replace epoxy-covered probe |
| | | SG | IR88-SG20 | Y | Vapor pin installed to replace epoxy-covered probe; Duplicate collected |
| | | IA | IR88-IA15 | Y | |
| | | IA | IR88-IA16 | Y | |
| | | OA | IR88-OA01 | Y | |
| | 37A | CS | IR88-CS01 | Y | Duplicate collected; OA sample (IR88-OA02) collected concurrently with IR88-CS01 but wasn't proposed in SAP |
| IR 89 | TC864 | SG | IR89-SG03 | N | Probe covered by large storage crates |
| | | SG | IR89-SG04 | N | Probe covered by large storage crates |
| | | IA | IR89-IA03 | Y | Duplicate collected |
| | | IA | IR89-IA04 | Y | |
| | | OA | IR89-OA01 | Y | |
| IR 93 | TC942 | SG | IR93-SG01 | Y | Vapor pin installed |
| | | SG | IR93-SG02 | Y | Vapor pin installed |
| IR 96 | 1827 | SG | SWMU360-SG21-13B | Y | |
| | | SG | SWMU360-SG22-13B | Y | |
| | | SG | IR96-SG01-13B | Y | Vapor pin installed |
| | | SG | IR96-SG02-13B | Y | Vapor pin installed |
| | 1828 | SG | SWMU360-SG11-13B | N | Probe cap was missing and dirt was impacted in the probe; field team was unable to remove dirt so replaced cap to close potential VI pathway; project team decided sample was not needed from this probe as VOCs were not detected at this location above screening criteria in Phase III and the HAPSITE did not detect any VOCs in indoor air; subsurface pathway closed and probe noted for re-install if sample needed in future phases of investigation |
| | | SG | SWMU360-SG12-13B | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | SG | SWMU360-SG20-13B | Y | Radon sample collected in addition to TO-15 Scan sample |
| | | IA | SWMU360-IA21-13B | Y | Duplicate TO-15 LOW LEVEL sample collected; Radon sample collected in addition to TO-15 LOW LEVEL sample |
| | | IA | SWMU360-IA22-13B | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample |
| | OA | IR96-OA01-13B | Y | Radon sample collected in addition to TO-15 LOW LEVEL sample | |

Notes: GW – groundwater; SG – subslab soil gas; IA – indoor air; OA – outdoor air; CS – crawlspace air

TABLE 2
 Summary of Building G533 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Residential VISL for Soil Gas | IR35-SG12 | | | IR35-SG13 | | |
|--------------------------|----------------------------------|----------------|---------------|------------|----------------|---------------|------------|
| | | September 2008 | February 2010 | April 2013 | September 2008 | February 2010 | April 2013 |
| Benzene | 37.6 | 2 U | 0.17 J | NC | 2 U | 0.22 J | 0.1 J |
| Chloroform | 8.33 | 3.7 | 2.2 | NC | 0.83 J | 23 | 0.74 |
| PCE | 41.0 | 3.2 | 1.3 | NC | 2 U | 0.71 | 0.37 J |
| 1,4-DCB | 14.2 | 2 U | 0.48 | NC | 2 U | 0.39 | 0.25 U |
| Bromodichloromethane | 3.78 | 2 U | 0.34 U | NC | 2 U | 0.12 J | 0.25 U |
| m-&p-Xylene | 160 | 2 U | 28 | NC | 2 U | 15 | 0.38 J |
| TCE | 2.59 | 2 U | 0.43 U | NC | 2 U | 0.43 U | 0.11 J |

Indoor Air Exceedances

| VOCs (ppb _v) | NC Residential VISL for Indoor Air | USEPA Region 9 Accelerated Response Action Level - Residential* | IR35-OA01 | IR35-IA01 | IR35-IA02 |
|--------------------------|------------------------------------|---|--------------------------------------|------------|-----------|
| | | | April 2013 Outdoor Air Concentration | April 2013 | |
| Benzene | 1.13 | - | 0.221 J | 0.198 J | 0.24 J |
| Chloroform | 0.250 | - | 0.25 U | 0.25 U | 0.09 J |
| PCE | 1.23 | - | 0.099 J | 0.101 J | 0.10 J |
| 1,4-DCB | 0.424 | - | 0.25 U | 0.25 U | 0.25 U |
| Bromodichloromethane | 0.113 | - | 0.25 U | 0.25 U | 0.25 U |
| m-&p-Xylene | 4.82 | - | 1.3 | 0.445 J | 1 |
| TCE | 0.0776 | 0.37 | 0.239 J | 0.10 J | 0.14 J |

Notes:

The VOCs shown are those that had one or more exceedances of screening values in effect during current or previous sampling events.

All data is screened using North Carolina Residential Vapor Intrusion Screening Levels (NC Residential VISLs) released in June 2014.

* USEPA Region 9 TCE Accelerated Response Action Level for Residential exposure (2 µg/m³) is based on HQ=1; EPA Technical Memorandum released July 9, 2014

Shaded cells indicate an exceedance of the NC Residential VISLs for soil gas or indoor air, as applicable.

ppb_v = parts per billion by volume

J = estimated

U = undetected

NC = not collected

EB = ethylbenzene

TCE = trichloroethene

PCE = tetrachloroethane

DCB = dichlorobenzene

TABLE 3
 Summary of Building A47 Exceedances
VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR73-SG01 | | | | | | | |
|-----------------------------------|--------------------------------------|--------------------|-----------|--------------|----------------|--------------|--------------|--------------|------------|------------|
| | | | June 2008 | July 2011 | September 2011 | October 2011 | October 2011 | January 2012 | April 2012 | April 2013 |
| <i>Air Sparge Well Operating?</i> | | | No | <i>No</i> | <i>Yes</i> | <i>No</i> | <i>Yes</i> | <i>Yes</i> | <i>No</i> | <i>No</i> |
| TCE | 32.6 | 326 | 0.5 J | 3,820 | 1,042 | 409 | 223 | 1,824 | 380 | 5.8 |

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR73-SG02 | | IR73-SG03 | | IR73-SG04 | |
|-----------------------------------|--------------------------------------|--------------------|-----------|------------|-----------|------------|-----------|------------|
| | | | June 2008 | April 2013 | June 2008 | April 2013 | June 2008 | April 2013 |
| <i>Air Sparge Well Operating?</i> | | | No | <i>No</i> | No | <i>No</i> | No | <i>No</i> |
| TCE | 32.6 | 326 | 2 U | 0.14 J | 2 U | 0.34 J | 0.76 J | 0.22 J |

Notes:

The VOCs shown are those that had one or more exceedances in current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) for soil gas released in June 2014. Base-Specific SGSLs are based on the NC VISL for non-residential soil gas with an attenuation factor of 0.001 applied.

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for Soil Gas

BOLD cells indicate an exceedance of the Base-Specific SGSLs

ppb_v = parts per billion by volume

SGSL = subslab soil gas screening level

TCE = trichloroethene

J = estimated

U = undetected

TABLE 4
 Summary of Building 901 Exceedances
VI Monitoring IRP
MCIEAST-MCB CAMLEJ
North Carolina

Groundwater Exceedances

| | | IR78-IS06-GW-10-12-08B | IR78-IS08-GW-6-8-08B | IR78-MWVI01 | |
|-----------------------------|--|------------------------|----------------------|-------------|------------|
| VOCs ($\mu\text{g/L}$) | NC Non-Residential VISL for Groundwater | June 2008 | June 2008 | Feb 2010 | April 2013 |
| VC | 24.5 | 13 | 26 | 21 | 12.5 |

Notes:

The VOCs shown are those that had one or more exceedances of screening values in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) for groundwater released in June 2014.

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for groundwater

$\mu\text{g/L}$ = microgram per liter

IR78-ISXX = temporary groundwater well points; removed after sample collection in June 2008

VC= vinyl chloride

TABLE 5
 Summary of Building 1601 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR78-SG25 | | | IR78-SG26 | | | IR78-SG27 | | | IR78-SG28 | | |
|--------------------------|--------------------------------------|--------------------|-----------|----------|------------|-----------|----------|------------|-----------|----------|------------|-----------|----------|------------|
| | | | Sept 2008 | Feb 2010 | April 2013 | Sept 2008 | Feb 2010 | April 2013 | Sept 2008 | Feb 2010 | April 2013 | Sept 2008 | Feb 2010 | April 2013 |
| PCE | 516 | 5,160 | 150 | 38 | 57.1 | 75 | 48 | 63 | 52 | 48 | 43.6 | 99 | 82 | 78.1 |
| TCE | 32.6 | 326 | 10,000 | 3,600 | 3,100 | 6,100 | 3,500 | 3,900 | 35 | 37 | 19.3 | 2 U | 0.25 J | 1.2 |
| EB | 1,130 | 11,300 | 62 | 26 U | 0.47 J | 14 J | 28 U | 2 | 2 U | 0.53 U | 1.2 | 2 U | 0.07 J | 0.495 J |
| Chloroform | 109 | 1,090 | 160 | 26 | 33.5 | 52 | 47 | 70.2 | 1.2 J | 0.95 | 0.593 | 2 U | 0.46 U | 0.083 J |
| 1,2,4-TMB | 125 | 1,250 | NA | NA | 0.6 | NA | NA | 0.25 U | NA | NA | 0.25 U | NA | NA | 0.25 U |
| Naphthalene | 50.2 | 502 | NA | NA | 0.14 J | NA | NA | 0.13 J | NA | NA | 0.25 U | NA | NA | 0.25 U |

Subslab Soil Gas Exceedances (continued)

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR78-SG66 | | | IR78-SG67 | | |
|--------------------------|--------------------------------------|--------------------|-----------|----------|------------|-----------|----------|------------|
| | | | Sept 2008 | Feb 2010 | April 2013 | Sept 2008 | Feb 2010 | April 2013 |
| PCE | 516 | 5,160 | NI | 5.3 | 6.1 | NI | 18 | 15 |
| TCE | 32.6 | 326 | NI | 0.18 J | 1 | NI | 580 | 220 |
| EB | 1,130 | 11,300 | NI | 0.52 U | 0.25 U | NI | 4.3 U | 0.276 J |
| Chloroform | 109 | 1,090 | NI | 0.46 U | 0.061 J | NI | 7 | 6.2 |
| 1,2,4-TMB | 125 | 1,250 | NI | NA | 0.25 U | NI | NA | 0.25 U |
| Naphthalene | 50.2 | 502 | NI | NA | 0.114 J | NI | NA | 0.108 J |

TABLE 5
 Summary of Building 1601 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Indoor Air Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Indoor Air | USEPA Region 9 Accelerated Response Action Level – Commercial/Industrial – 8 hour workday* | IR78-OA01 | IR78-OA01 | IR78-IA25 | | IR78-IA26 | | IR78-IA27 | |
|--------------------------|--|--|---------------------------------------|---|-----------|-------------|-----------|------------|-----------|------------|
| | | | Feb 2010 Outdoor Air Concentration | April 2013 Outdoor Air Concentration | Feb 2010 | April 2013 | Feb 2010 | April 2013 | Feb 2010 | April 2013 |
| PCE | 5.16 | - | 0.01 J | 0.046 J | 0.03 J | 0.12 J | 0.02 J | 0.07 J | 0.04 J | 0.05 J |
| TCE | 0.326 | 1.49 | 0.16 U | 0.241 J | 0.13 J | 0.14 J | 0.14 | 0.18 J | 0.15 | 0.13 J |
| EB | 11.3 | - | 0.88 U | 0.212 J | 0.21 | 0.77 | 0.17 | 0.44 J | 0.16 J | 0.66 |
| Chloroform | 1.09 | - | 0.079 J | 0.10 J | 0.05 J | 0.25 U | 0.07 J | 0.03 J | 0.05 J | 0.07 J |
| 1,2,4-TMB | 1.25 | - | NA | 0.25 U | NA | 1.8 | NA | 0.43 J | NA | 0.45 J |
| Naphthalene | 0.502 | - | NA | 0.25 U | NA | 0.69 | NA | 0.23 J | NA | 0.13 J |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) released in June 2014. Base-Specific SGSLs are based on the NC VISL with an attenuation factor of 0.001 applied.

* USEPA Region 9 TCE Accelerated Response Action Level for Commercial/Industrial 8 hour workday (8 µg/m³) is based on HQ=1; EPA Technical Memorandum released July 9, 2014

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for soil gas or indoor air, as applicable.

BOLD cells indicate an exceedance of the Base-Specific SGSLs

ppb_v = parts per billion by volume

SGSL = subslab soil gas screening level

J = estimated

NI = not installed

NA = not analyzed

TCA = trichloroethane

TCE = trichloroethene

VC = vinyl chloride

EB = ethylbenzene

TABLE 6
 Summary of Building 1606 Exceedances
VI Monitoring IRP
MCIEAST-MCB CAMLEJ
North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR78-SG70 | | | IR78-SG71 | | | IR78-SG72 | | |
|--------------------------|--------------------------------------|--------------------|---------------|----------|------------|---------------|----------|------------|---------------|----------|------------|
| | | | February 2010 | May 2010 | April 2013 | February 2010 | May 2010 | April 2013 | February 2010 | May 2010 | April 2013 |
| Chloroform | 109 | 1,090 | 11 U | 0.41 J | 0.26 J | 1.3 J | 1.1 J | 0.30 J | 0.37 J | NC | 0.15 J |
| EB | 1,130 | 11,300 | 13 U | 1.2 U | 0.25 U | 2.2 U | 1.2 U | 0.25 U | 100 | NC | 0.22 J |
| m-&p-Xylene | 2,020 | 20,020 | 25 U | 1.2 U | 0.50 U | 4.3 U | 1.2 U | 0.10 J | 370 | NC | 0.81 J |
| PCE | 516 | 5,160 | 3,000 | 27 | 0.30 J | 310 | 15 | 3.1 | 4 | NC | 1.3 |

Indoor Air Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Indoor Air | IR78-OA02 | IR78-OA01 | IR78-IA28 | | IR78-IA29 | |
|--------------------------|--|------------------------------------|--------------------------------------|-----------|------------|-----------|------------|
| | | May 2010 Outdoor Air Concentration | April 2013 Outdoor Air Concentration | May 2010 | April 2013 | May 2010 | April 2013 |
| Chloroform | 1.09 | 0.079 J | 0.1 J | 0.88 U | 0.04 J | 0.96 U | 0.04 J |
| EB | 11.3 | 0.88 U | 0.212 J | 0.16 J | 0.34 J | 0.36 J | 0.11 J |
| m-&p-Xylene | 20.2 | 0.88 U | 0.399 J | 0.38 J | 1.2 | 0.87 J | 0.16 J |
| PCE | 5.16 | 0.18 J | 0.046 J | 0.88 U | 0.05 J | 0.96 U | 0.04 J |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) released in June 2014. Base-Specific SGSLs are based on the NC VISL with an attenuation factor of 0.001 applied.

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for soil gas or indoor air, as applicable.

ppb_v = parts per billion by volume

SGSL = subslab soil gas screening level

NC = not collected

U = undetected

J = estimated

TCB = trichlorobenzene

DB = dichlorobenzene

EB = ethylbenzene

PCE = tetrachloroethene

TABLE 7
 Summary of Building HP-57 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Residential VISL for Soil Gas | IR88-SG19 | | | IR88-SG20 | | |
|-----------------------------|-------------------------------------|-----------|----------|------------|-----------|----------|------------|
| | | Feb 2010 | May 2010 | April 2013 | Feb 2010 | May 2010 | April 2013 |
| Chloroform | 8.33 | 5.7 U | 2 U | 0.08 J | 1.6 U | 2 U | 0.19 J |
| PCE | 41.0 | 1.5 J | 2 U | 0.59 | 0.76 J | 2 U | 0.27 J |
| TCE | 2.59 | 1,000 | 2 U | 0.09 J | 280 | 2 U | 1.4 J |

Indoor Air Exceedances

| VOCs (ppb _v) | NC Residential VISL for Indoor Air | USEPA Region 9 Accelerated Response Action Level – Residential* | IR88-OA06 | IR88-OA01 | IR88-IA15 | | IR88-IA16 | |
|-----------------------------|---|---|---------------------------------------|---|-----------|------------|-----------|------------|
| | | | May 2010 Outdoor Air Concentration | April 2013 Outdoor Air Concentration | May 2010 | April 2013 | May 2010 | April 2013 |
| Chloroform | 0.250 | - | 0.021 J | 0.25 U | 0.42 | 0.19 J | 0.78 | 0.04 J |
| PCE | 1.23 | - | 0.08 U | 0.03 J | 0.15 | 0.13 J | 0.47 | 0.31 J |
| TCE | 0.0776 | 0.37 | 0.04 U | 0.25 U | 0.04 U | 0.81 | 0.022 J | 0.10J |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Residential Vapor Intrusion Screening Levels (NC Residential VISLs) released in June 2014.

* USEPA Region 9 TCE Accelerated Response Action Level for Residential exposure (2 µg/m³) is based on HQ=1; EPA Technical Memorandum released July 9, 2014

Shaded cells indicate an exceedance of the NC Residential VISLs for soil gas and indoor air, as applicable.

ppb_v = parts per billion by volume

DCB = dichlorobenzene

CTC = carbon tetrachloride

PCE = tetrachloroethene

TCE = trichloroethene

J = estimated

U = undetected

TABLE 8
 Summary of Building TC864 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | IR89-SG03 | | | | | IR89-SG04 | | | | |
|--------------------------|--------------------------------------|--------------------|--------------|------------|------------|----------|------------|--------------|-----------|------------|-----------|------------|
| | | | June 2008 | Feb 2010 | April 2013 | Dec 2013 | March 2014 | June 2008 | Feb 2010 | April 2013 | Dec 2013 | March 2014 |
| PCE | 516 | 5,160 | 79 | 5 | NC | 2 J | 1.2 | 110 | 6.2 | NC | 29 | 2.6 |
| TCE | 32.6 | 326 | 2,000 | 120 | NC | 23 | 12 | 1,900 | 75 | NC | 81 | 9.6 |
| Chloroform | 109 | 1,090 | 14 U | 0.08 J | NC | NA | NA | 3.6 | 0.27 J | NC | NA | NA |
| Ethylbenzene | 1,130 | 11,300 | 47 | 0.26 J | NC | NA | NA | 36 | 0.53 U | NC | NA | NA |

Indoor Air Exceedances

| VOCs (ppbv) | NC Non-Residential VISL for Indoor Air | USEPA Region 9 Accelerated Response Action Level – Commercial/Industrial – 8 hour workday* | IR89-OA02 | IR89-OA03 | IR89-OA01 | IR89-IA03 | | | IR89-IA04 | | |
|--------------|--|--|--|--|---|-----------|----------|------------|-----------|----------|------------|
| | | | June 2008 Outdoor Air Concentration | February 2010 Outdoor Air Concentration | April 2013 Outdoor Air Concentration | June 2008 | Feb 2010 | April 2013 | June 2008 | Feb 2010 | April 2013 |
| PCE | 5.16 | - | 0.2 U | 0.11 U | 0.1 J | 0.2 U | 4.7 | 0.064 J | 0.2 U | 0.08 U | 0.037 J |
| TCE | 0.326 | 1.49 | 0.53 | 0.13 U | 0.27 J | 0.12 J | 0.14 U | 0.06 J | 0.11 J | 0.11 U | 0.128 J |
| Chloroform | 1.09 | - | 0.2 U | 0.15 U | 0.25 U | 0.2 U | 0.15 U | 0.25 U | 0.2 U | 0.12 U | 0.25 U |
| Ethylbenzene | 11.3 | - | 0.12 J | 0.16 U | 0.35 J | 0.2 U | 0.02 J | 0.359 J | 0.096 J | 0.13 U | 0.282 J |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) released in June 2014. Base-Specific SGSLs are based on the NC VISL with an attenuation factor of 0.001 applied.

* USEPA Region 9 TCE Accelerated Response Action Level for Commercial/Industrial 8 hour workday (8 µg/m³) is based on HQ=1; EPA Technical Memorandum released July 9, 2014

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for soil gas or indoor air, as applicable.

BOLD cells indicate an exceedance of the Base-specific SGSLs

ppb = parts per billion by volume

SGSL = subslab soil gas screening level

NA = not analyzed

NC = not collected

J = estimated

U = undetected

PCE = tetrachloroethene

TCE = trichloroethene

PCA = tetrachloroethane

VC = vinyl chloride

TABLE 9
 Summary of Building 1827 Exceedances
VI Monitoring IRP
MCIEAST-MCB CAMLEJ
North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppb _v) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | SWMU360-SG21 | | SWMU360-SG22 | | IR96-SG01 | | IR96-SG02 | |
|-----------------------------|--|-----------------------|--------------|---------------|--------------|---------------|-------------|---------------|-------------|---------------|
| | | | Feb 2010 | April 2013 | Feb 2010 | April 2013 | Feb 2010 | April 2013 | Feb 2010 | April 2013 |
| PCE | 516 | 5,160 | 54 | 38.7 | 230 | 140 | NI | 20.7 | NI | 78.2 |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) for soil gas released in June 2014. Base-Specific SGSLs are based on the NC VISL for non-residential soil gas with an attenuation factor of 0.001 applied.

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for Soil Gas

BOLD cells indicate an exceedance of the Base-Specific SGSL

ppb_v = parts per billion by volume

SGSL = subslab soil gas screening level

NI = not installed

PCE = tetrachloroethene

TABLE 10
 Summary of Building 1828 Exceedances
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Subslab Soil Gas Exceedances

| VOCs (ppbv) | NC Non-Residential VISL for Soil Gas | Base-Specific SGSL | SWMU360-SG11 | | | | SWMU360-SG12 | | | | SWMU360-SG20 | | | |
|-------------|--------------------------------------|--------------------|--------------|----------|----------|------------|--------------|----------|----------|------------|--------------|--------------|---------------|---------------|
| | | | Sept 2008 | Feb 2010 | May 2010 | April 2013 | Sept 2008 | Feb 2010 | May 2010 | April 2013 | Sept 2008 | Feb 2010 | May 2010 | April 2013 |
| PCE | 516 | 5,160 | 7.3 | 24 | NC | NC | 57 | 49 | NC | 54.7 | NI | 8,700 | 12,000 | 10,300 |
| Chloroform | 109 | 1,090 | 2 U | 0.47 U | NC | NC | 0.69 J | 0.33 J | NC | 0.464 J | NI | 49 U | 45 U | 1 J |
| TCE | 32.6 | 326 | 2 U | 0.05 J | NC | NC | 2 U | 0.07 J | NC | 0.393 J | NI | 25 J | 43 J | 22.8 |
| Benzene | 491 | 4,910 | 2 U | 0.62 J | NC | NC | 2.3 | 1.2 | NC | 8.1 | NI | 75 U | 45 U | 2.5 U |
| 1,2,4-TMB | 125 | 1,250 | NA | NA | NC | NC | NA | NA | NC | 0.842 | NI | NA | 45 U | 2.5 U |

Indoor Air Exceedances

| VOCs (ppbv) | NC Non-Residential VISL for Indoor Air | SWMU360-OA04 USEPA Region 9 Accelerated Response Action Level - Commercial/Industrial - 8 hour workday* | IR96-OA01 | | SWMU360-IA21 | | SWMU360-IA22 | |
|-------------|--|--|------------------------------------|--------------------------------------|---------------|------------|--------------|------------|
| | | | May 2010 Outdoor Air Concentration | April 2013 Outdoor Air Concentration | May 2010 | April 2013 | May 2010 | April 2013 |
| PCE | 5.16 | - | 0.83 U | 0.06 J | 0.84 U | 2.1 J | 0.96 U | 0.08 J |
| Chloroform | 1.09 | - | 0.83 U | 0.25 U | 0.68 J | 0.104 J | 1.8 | 0.06 J |
| TCE | 0.326 | 1.49 | 0.83 U | 0.23 J | 0.84 U | 0.286 J | 0.96 U | 0.13 J |
| Benzene | 4.91 | - | 0.71 J | 0.13 J | 1.2 | 0.624 J | 1.5 | 0.35 J |
| 1,2,4-TMB | 1.25 | - | 0.16 J | 0.13 J | 3.8 | 0.702 J | 2.2 | 0.49 J |

Notes:

The VOCs shown are those that had one or more exceedances of screening levels in effect during current or previous sampling events. All data is screened using North Carolina Non-Residential Vapor Intrusion Screening Levels (NC Non-Residential VISLs) released in June 2014. Base-Specific SGSLs are based on the NC VISL with an attenuation factor of 0.001 applied.

* USEPA Region 9 TCE Accelerated Response Action Level for Commercial/Industrial 8 hour workday (8 µg/m³) is based on HQ=1; EPA Technical Memorandum released July 9, 2014

Shaded cells indicate an exceedance of the NC Non-Residential VISLs for soil gas or indoor air, as applicable.

BOLD cells indicate an exceedance of the Base-Specific SGSL

ppbv = parts per billion by volume

SGSL = subslab soil gas screening level

J = estimated

U = not detected

NI = not installed

NC = not collected

NA = not analyzed

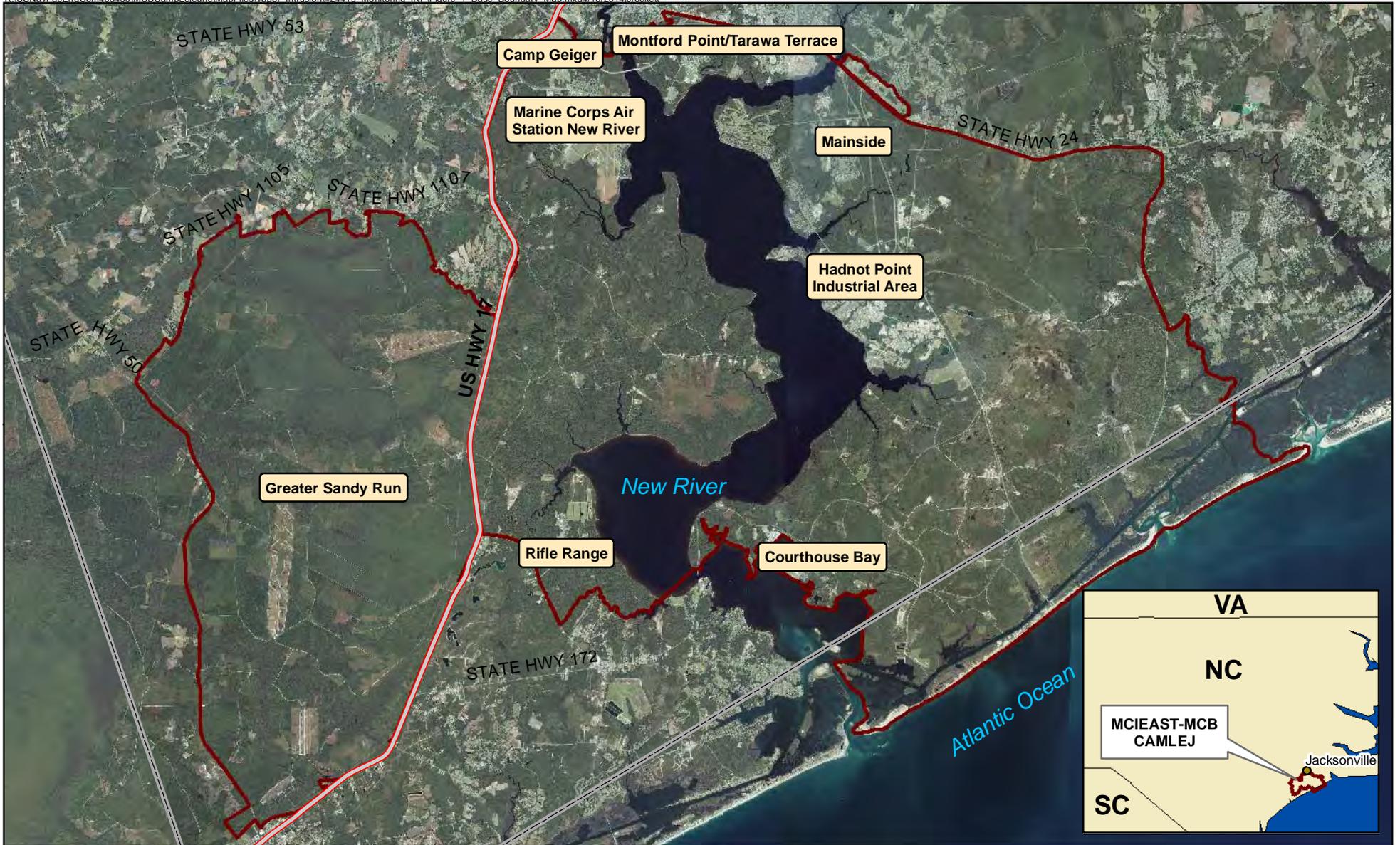
PCE = tetrachloroethene

TCE = trichloroethene

TCB = trichlorobenzene

TMB = trimethylbenzene

Figures



- Legend**
- Highways
 - Onslow County
 - Installation Boundary

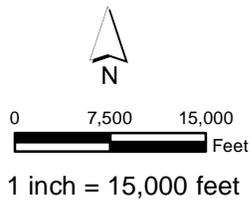
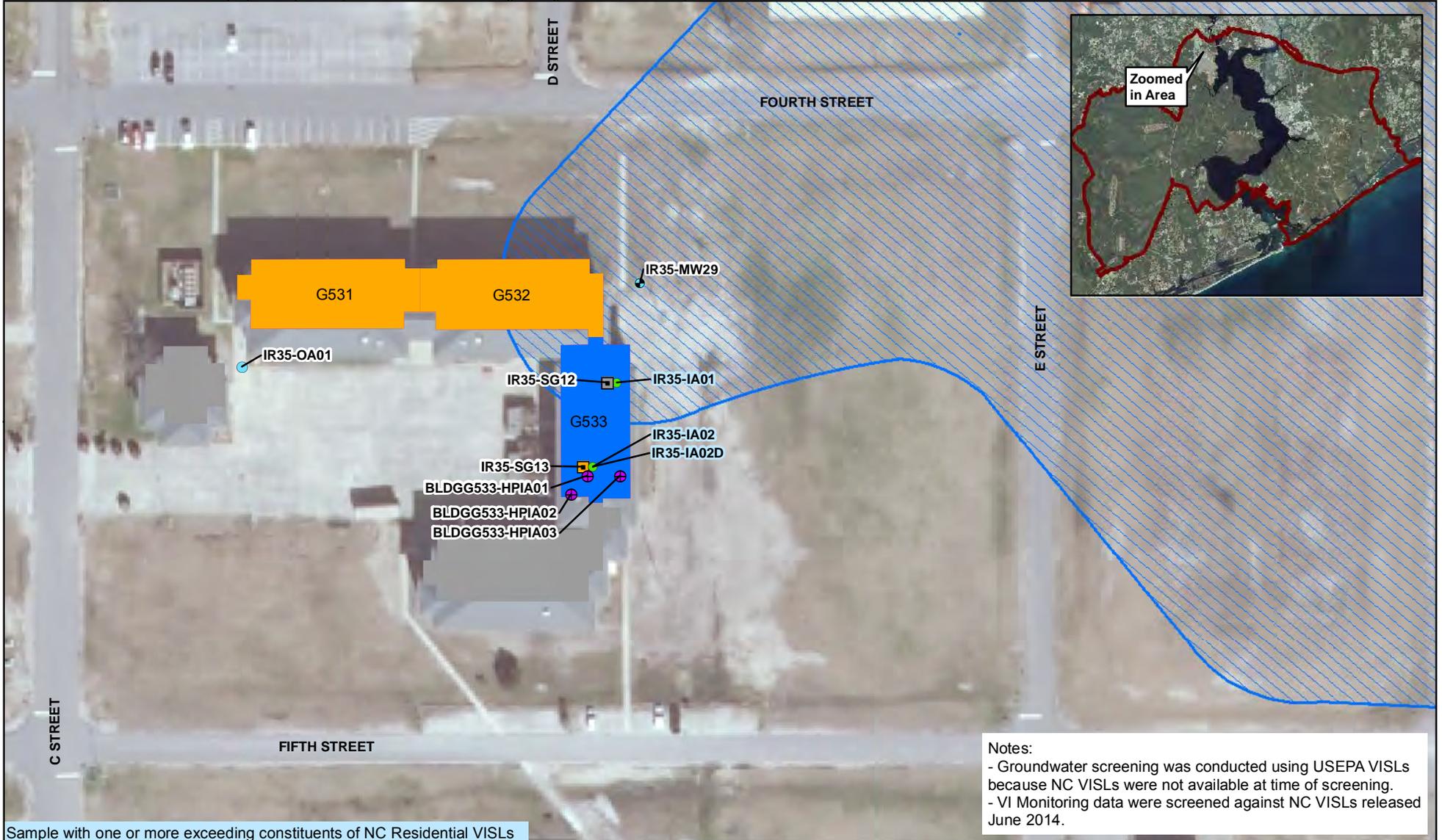


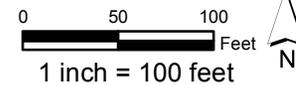
Figure 1
Base Boundary Map
VI Monitoring IRP
MCIEAST-MCB CAMLEJ
North Carolina

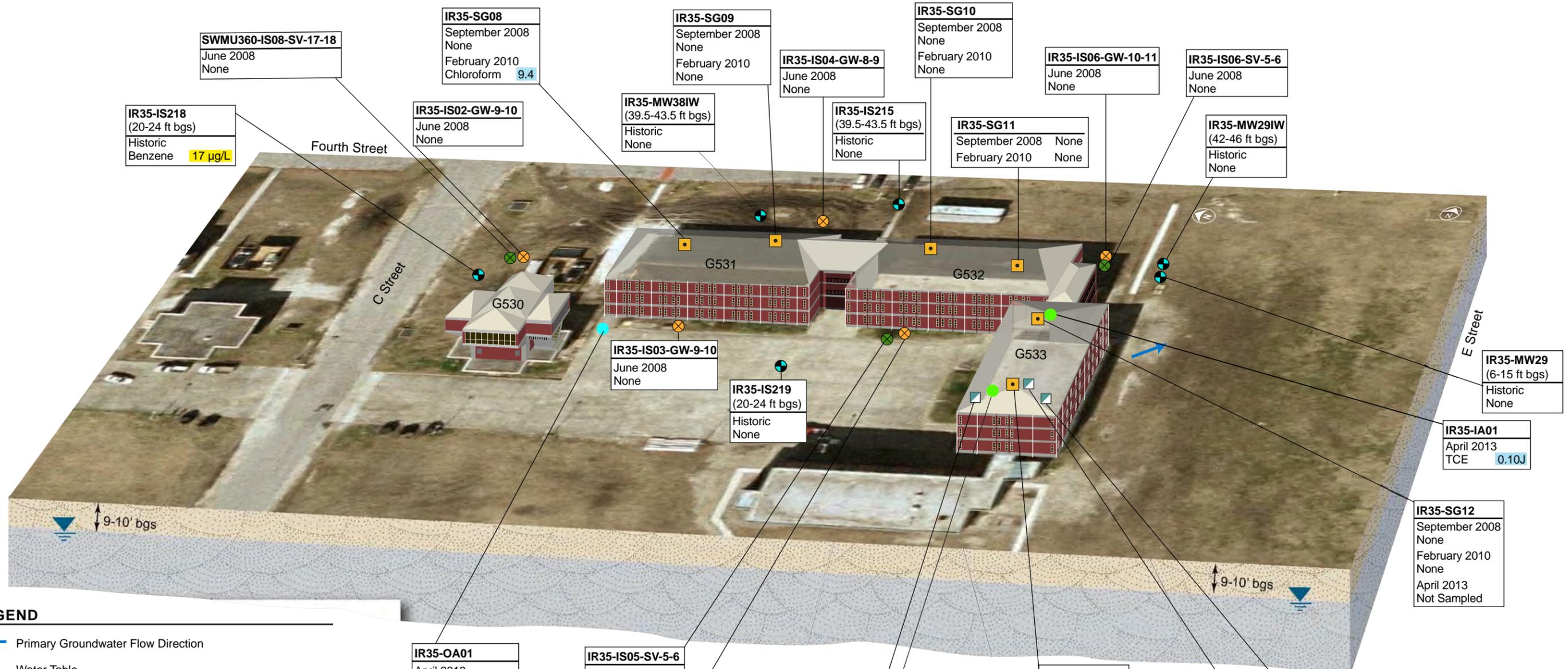


Legend

- ☐ Not Collected
- ⊕ HAPSITE Indoor Air Locations
- Indoor Air Sample Locations
- Outdoor Air Sample Locations
- ⊕ Soil Gas Sample Locations
- ⊕ Groundwater Locations that exceed the Residential Screening Levels
- Building of Interest - Residential
- Buildings within 100 ft of GWSL exceedances; Previously investigated - NFA for VI
- ▭ Installation Boundary
- ▨ Groundwater Pollution Plume

Figure 2
IR Site 35 Sample Locations and Residential Screening Level Exceedances April 2013 VI Monitoring IRP MCIEAST-MCB CAMLEJ North Carolina





LEGEND

- Primary Groundwater Flow Direction
- Water Table
- Mix of sand and sandy clay with areas of clay
- Soil Gas Sample Location
- Groundwater Sample Location
- Soil Vapor Sample Location
- Shallow Monitoring Well (Sampled between 2002 and 2007)
- Outdoor Air Sample Location
- Indoor Air Sample Location
- Sample with one or more exceeding constituents of generic Residential Screening levels
- Sample with one or more exceeding constituents of generic Residential SGSLs
- Sample with one or more exceeding constituents of base specific Residential SGSLs
- HAPSITE Location

SCREENING LEVELS

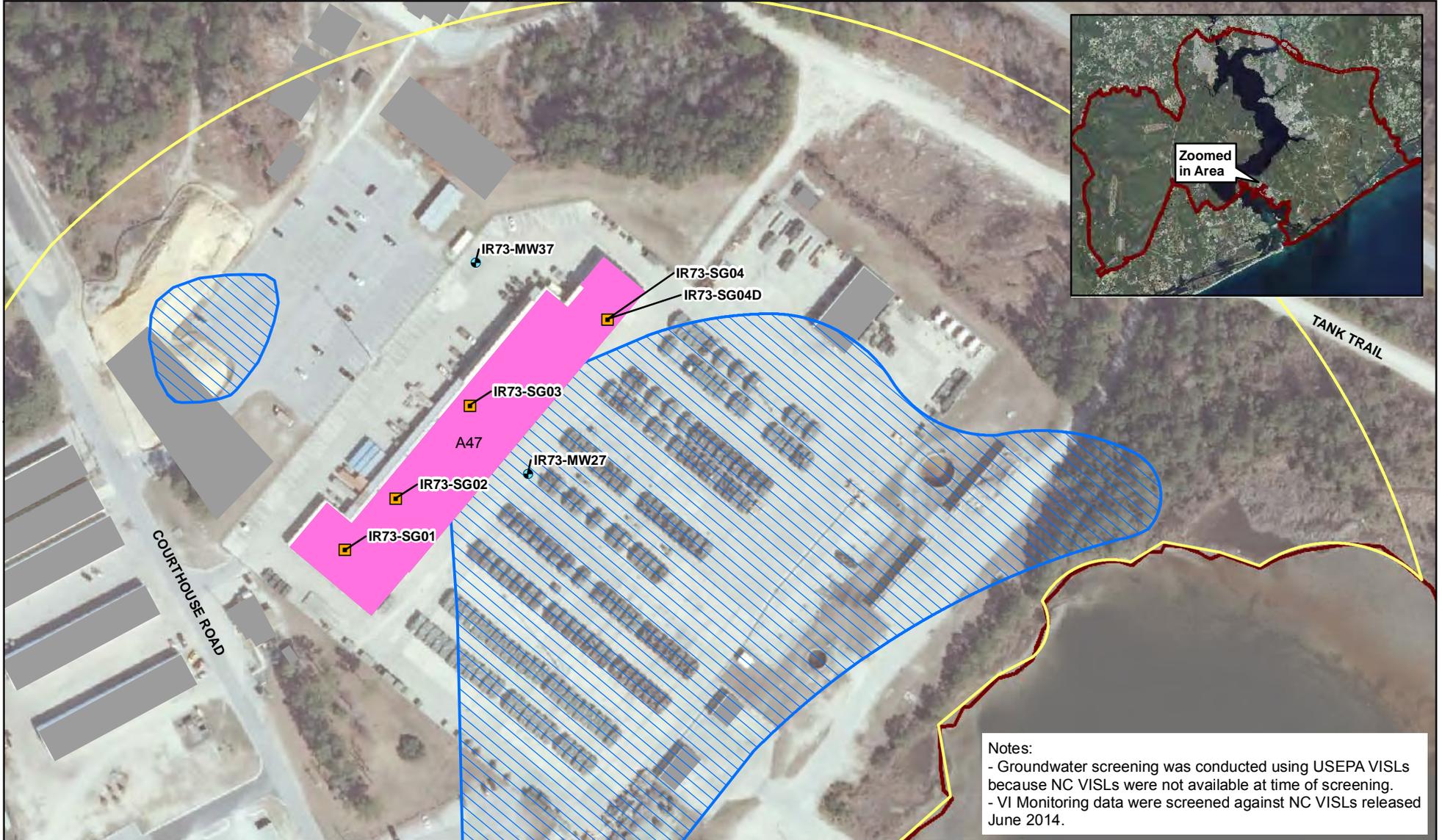
Site-Specific GWSLs (µg/L)
 Benzene - 12.8
 Vinyl Chloride - 2.06
 Subslab Soil Gas - NC Residential VISL (ppbv)
 Chloroform - 8.33
 Indoor Air – NC Residential VISL (ppbv)
 TCE - 0.0776

NOTES

ppbv - Parts per billion volume
 SGSL - soil gas screening level
 AF - attenuation factor
 TCE - trichloroethene
 Historic - October 2007 - May 2012
 All data from this and previous phases of the investigation were screened using North Carolina Vapor Intrusion Screening Levels released in June 2014.
 Air data is reported in parts per billion by volume (ppbv).
 Groundwater data is reported in microgram per liter (µg/L)

| Well Name (ft bgs) | |
|--------------------|----------------|
| Date | Screening Name |
| | Value |

Figure 3
 Building G533
 Vapor Intrusion Conceptual Site Model
 VI Monitoring – IRP
 MCIEAST-MCB CAMLEJ
 North Carolina



Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

- Legend**
- Soil Gas Sample Locations
 - Groundwater Locations that exceed the Industrial Screening Levels
 - Buildings of Interest - Non-Residential
 - Site 73 Boundary
 - Groundwater Pollution Plume
 - Installation Boundary

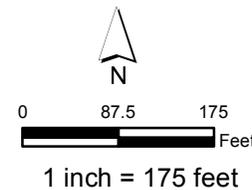
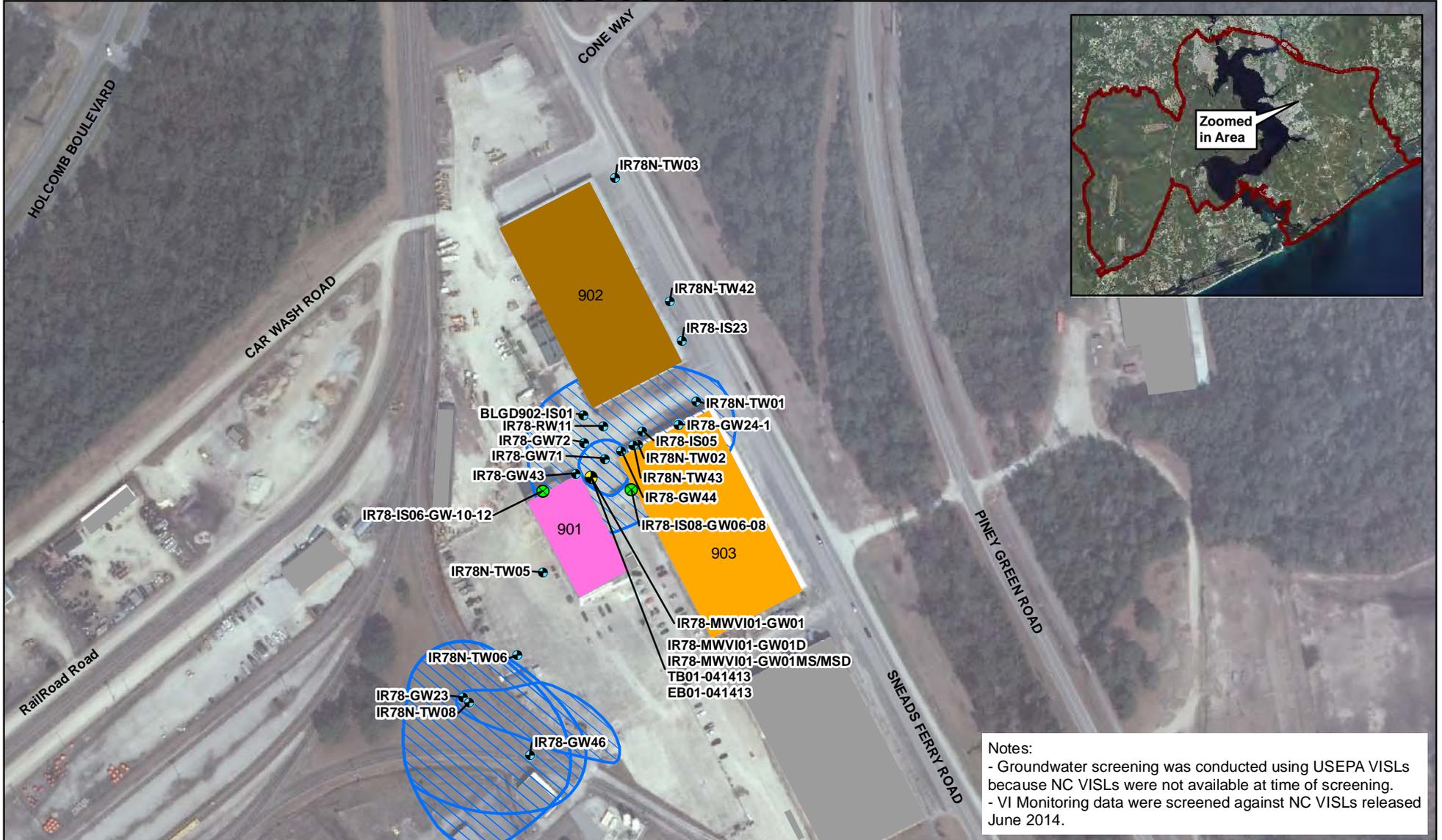


Figure 4
 IR Site 73 Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

Legend

- Phase I [June 2008] Temporary Well
- Groundwater Sample Locations
- Groundwater Locations that exceed the Industrial Screening Levels
- Groundwater Pollution Plume
- Buildings within 100 ft of GWSL exceedances; Previously investigated - NFA for VI
- Buildings of Interest - Non-Residential
- Building with VIMS
- Installation Boundary

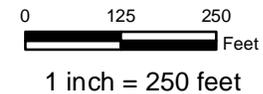
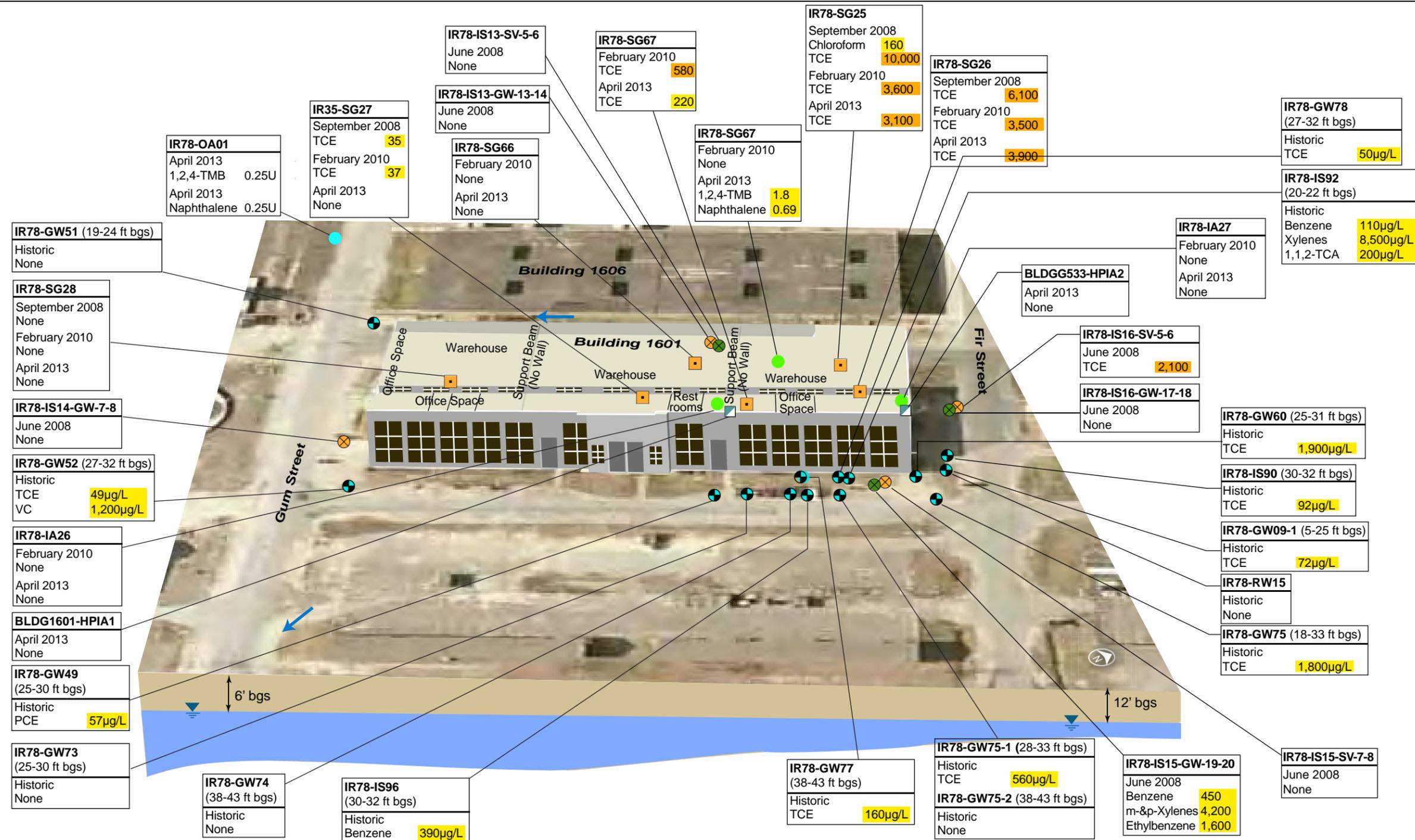


Figure 5
 IR Site 78 North Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





LEGEND

- Primary Groundwater Flow Direction
- Water Table
- Mix of sand and sandy clay with areas of clay
- Sample with one or more exceeding constituent of Non-Residential NC screening levels
- Sample with one or more exceeding constituents of Non-Residential Base-specific (AF=0.001) SGSLs (NC VISLs October 2013)
- Soil Gas Sample Location
- Indoor Air Sample Location
- Outdoor Air Sample Location
- Shallow Monitoring Well (Sampled between 2002 and 2007)
- Groundwater Sample Location
- Soil Vapor Sample Location
- HAPSITE Location

SCREENING LEVELS

| | |
|--|--|
| <u>Site-Specific GWSLs (µg/L)</u> | <u>Base-specific SGSLs [AF=0.001] (ppbv)</u> |
| VC - 2.53 | TCE - 326 |
| TCE - 35.5 | <u>Indoor Air – NC Residential VISL (ppbv)</u> |
| PCE - 7.19 | 1,2,4-TMB - 1.25 |
| 1,1,2-TCA - 50.3 | Naphthalene - 0.502 |
| Benzene - 9.96 | |
| Total Xylenes - 4,860 | |
| <u>Subslab Soil Gas - NC Non-Residential VISL (ppbv)</u> | |
| TCE - 32.6 | |
| Chloroform - 109 | |
| <u>Groundwater - NC Non-Residential VISL (µg/L)</u> | |
| Benzene - 69.3 | |
| m-&p-Xylenes - 414 | |
| Ethylbenzene - 152 | |

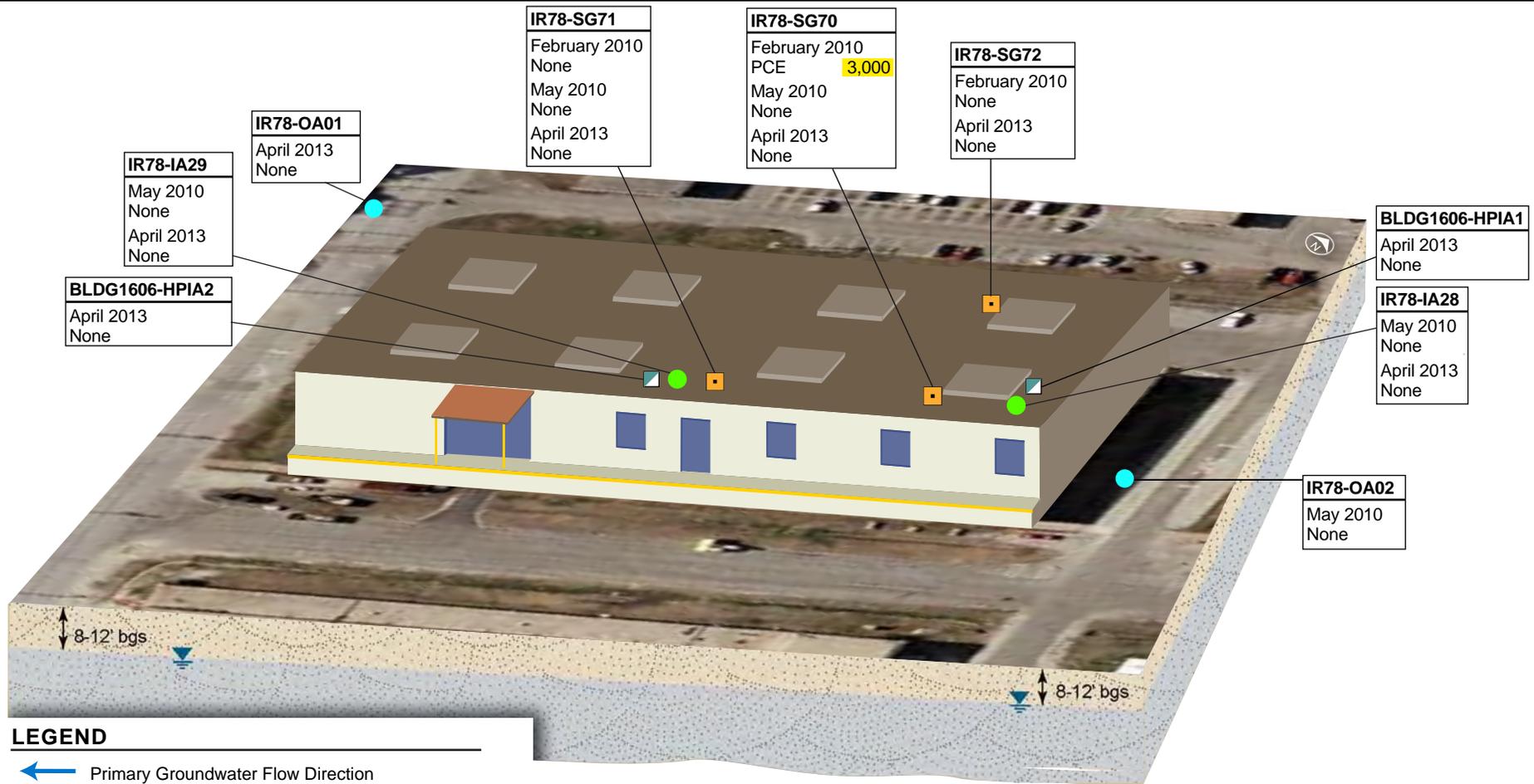
NOTES

ppbv - Parts per billion volume
 µg/L - microgram per liter
 SGSL - soil gas screening level
 GWSL - groundwater screening level
 IASL - indoor air screening level
 AF - attenuation factor
 TCE - trichloroethene
 1,2,4-TMB - 1,2,4-trimethylbenzene
 Historic - October 2007 - May 2012

All data from this and previous phases of the investigation were screened using North Carolina Vapor Intrusion Screening Levels released in June 2014.
 Air data is reported in parts per billion by volume (ppbv)
 Groundwater data is reported in microgram per liter (µg/L)

| Well Name (ft bgs) | Date | Screening Name | Value |
|--------------------|------|----------------|-------|
|--------------------|------|----------------|-------|

Figure 7
 Building 1601
 Vapor Intrusion Conceptual Site Model
 VI Monitoring – IRP
 MCIEAST-MCB CAMLEJ
 North Carolina



LEGEND

- Primary Groundwater Flow Direction
- Water Table
- Mix of sand and sandy clay with areas of clay
- Sample with one or more exceeding constituents of Non-Residential NC screening levels
- Sample with one or more exceeding constituents of Base-specific SGSLs
- Soil Gas Sample Location
- Indoor Air Sample Location
- Outdoor Air Sample Location
- Shallow Monitoring Well (Sampled between 2002 and 2007)
- Groundwater Sample Location
- Soil Vapor Sample Location
- HAPSITE Location

SCREENING LEVELS

Subslab Soil Gas - NC Non-Residential VISL (ppbv)
PCE - 516

NOTES

ppbv - Parts per billion volume
SGSL - soil gas screening level
AF - attenuation factor
PCE - tetrachloroethene

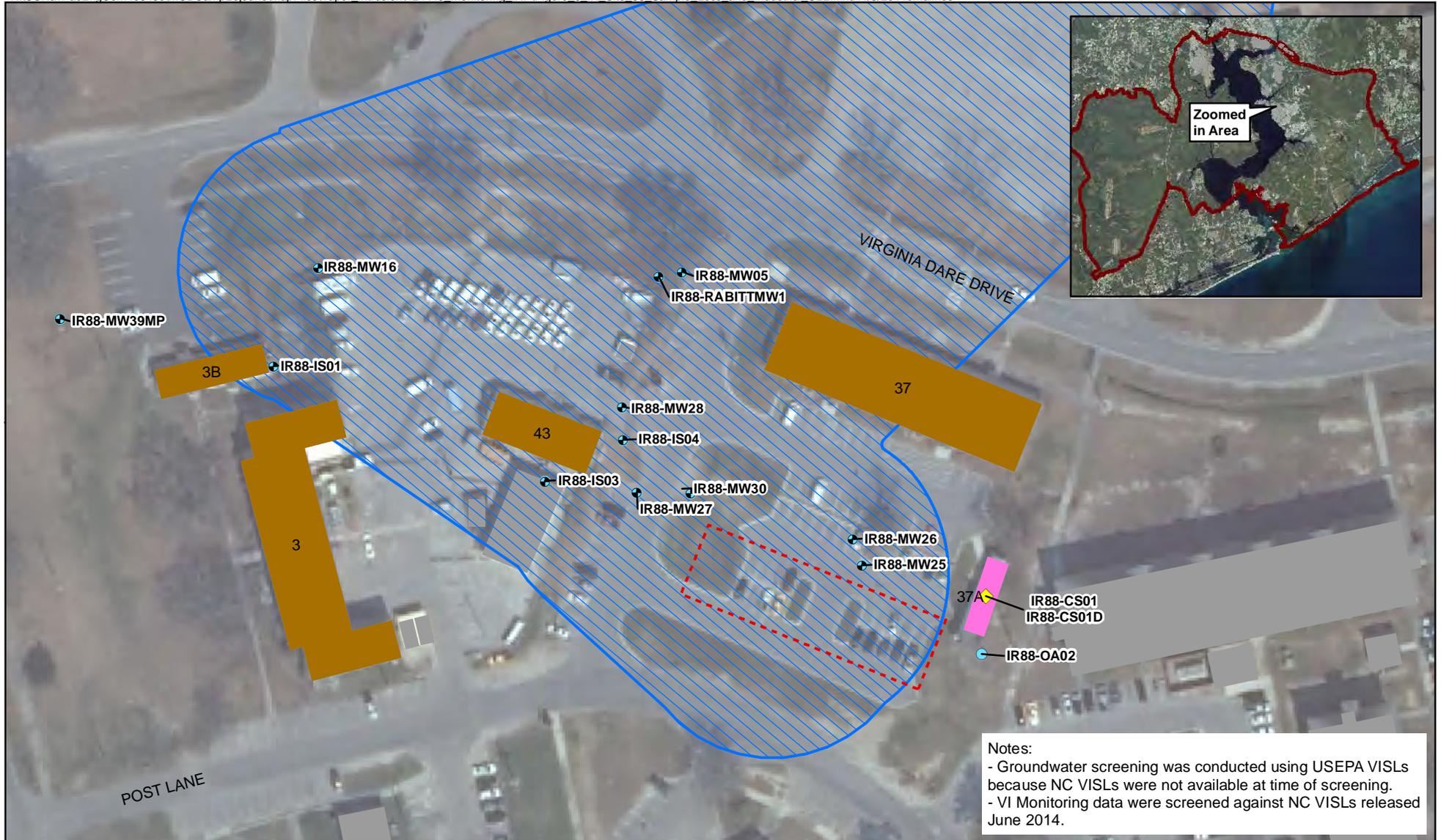
All data from this and previous phases of the investigation were screened using North Carolina Vapor Intrusion Screening Levels released in June 2014.

HAPSITE samples were collected in April 2013

All air data is reported in parts per billion by volume (ppbv)

| Well Name (ft bgs) | |
|--------------------|-------|
| Date | |
| Screening Name | Value |

Figure 8
Building 1606
Vapor Intrusion Conceptual Site Model
VI Monitoring – IRP
MCIEAST-MCB CAMLEJ
North Carolina



Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

Legend

- Outdoor Air Sample Locations
- ◆ Crawl Space Air Sample Locations
- Groundwater Locations that exceed the Industrial Screening Levels
- Building 25 Footprint (demolished)
- Building with VIMS
- Buildings of Interest - Non-Residential

- Groundwater Pollution Plume
- Installation Boundary

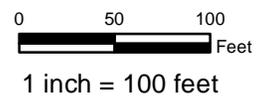


Figure 9
 IR Site 88 Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





Sample with one or more exceeding constituents of NC Residential VISLs

Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

Legend

- HAPSITE Indoor Air Locations
- Indoor Air Sample Locations
- Outdoor Air Sample Locations
- Soil Gas Sample Locations
- Groundwater Locations that exceed the Residential Screening Levels
- Building 25 Footprint (demolished)

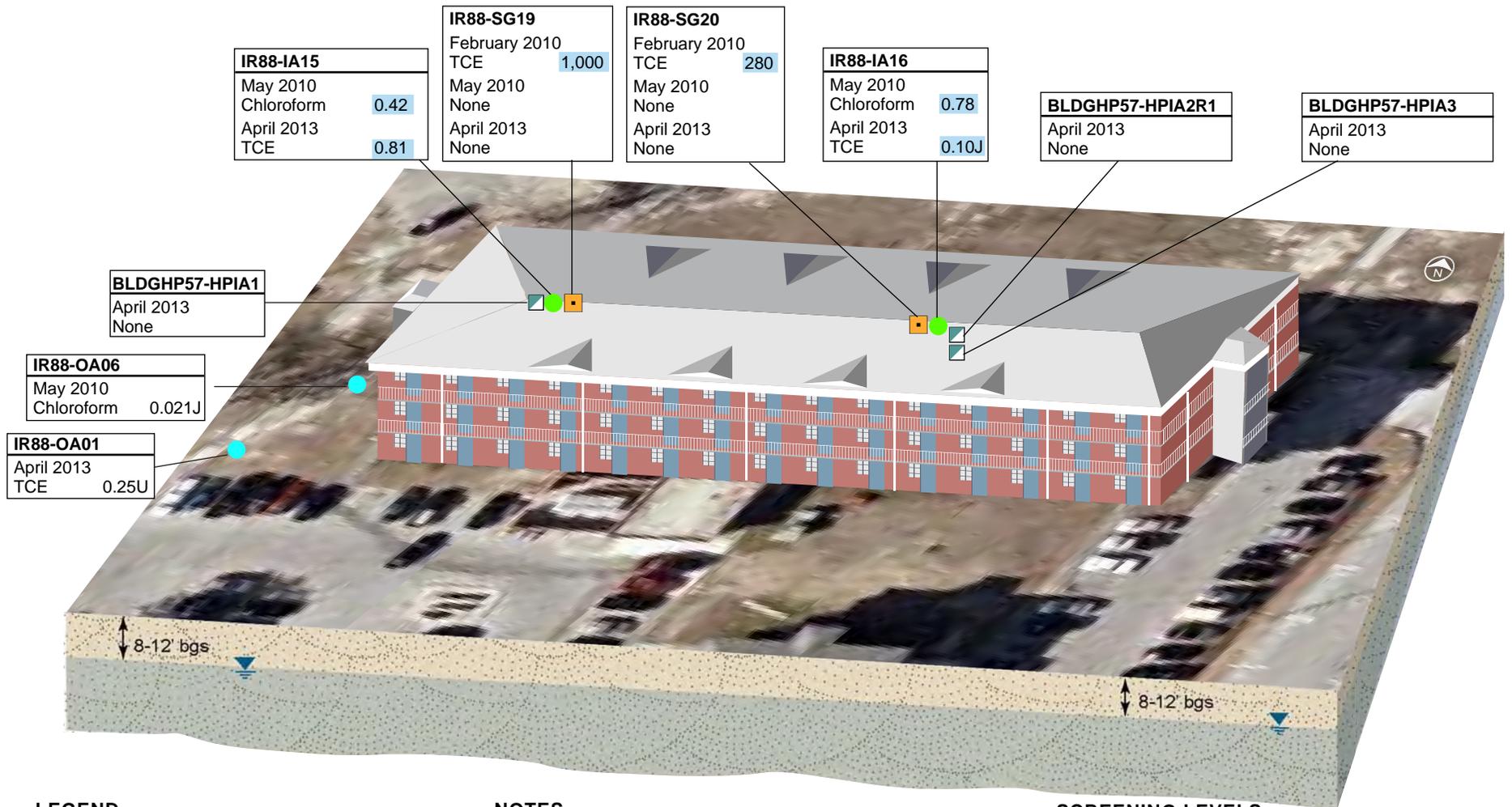
- Building of Interest - Residential
- Groundwater Pollution Plume
- Installation Boundary

0 50 100
 Feet
 1 inch = 100 feet



Figure 10
 IR Site 88 Sample Locations and
 Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





LEGEND

- Primary Groundwater Flow Direction
- Water Table
- Mix of sand and sandy clay with areas of clay
- Sample with one or more exceeding constituents of Residential NC screening levels
- Soil Gas Sample Location
- Outdoor Air Sample Location
- Indoor Air Sample Location
- HAPSITE Location

NOTES

J - Analyte present. Value may or may not be accurate or precise
 ppbv - Parts per billion volume
 SGSL - soil gas screening level
 IASL - indoor air screening level
 AF - attenuation factor
 TCE - trichloroethene

All data from this and previous phases of the investigation were screened using North Carolina Vapor Intrusion Screening Levels released in June 2014.

HAPSITE samples were collected in April 2013

Air data is reported in parts per billion by volume (ppbv)

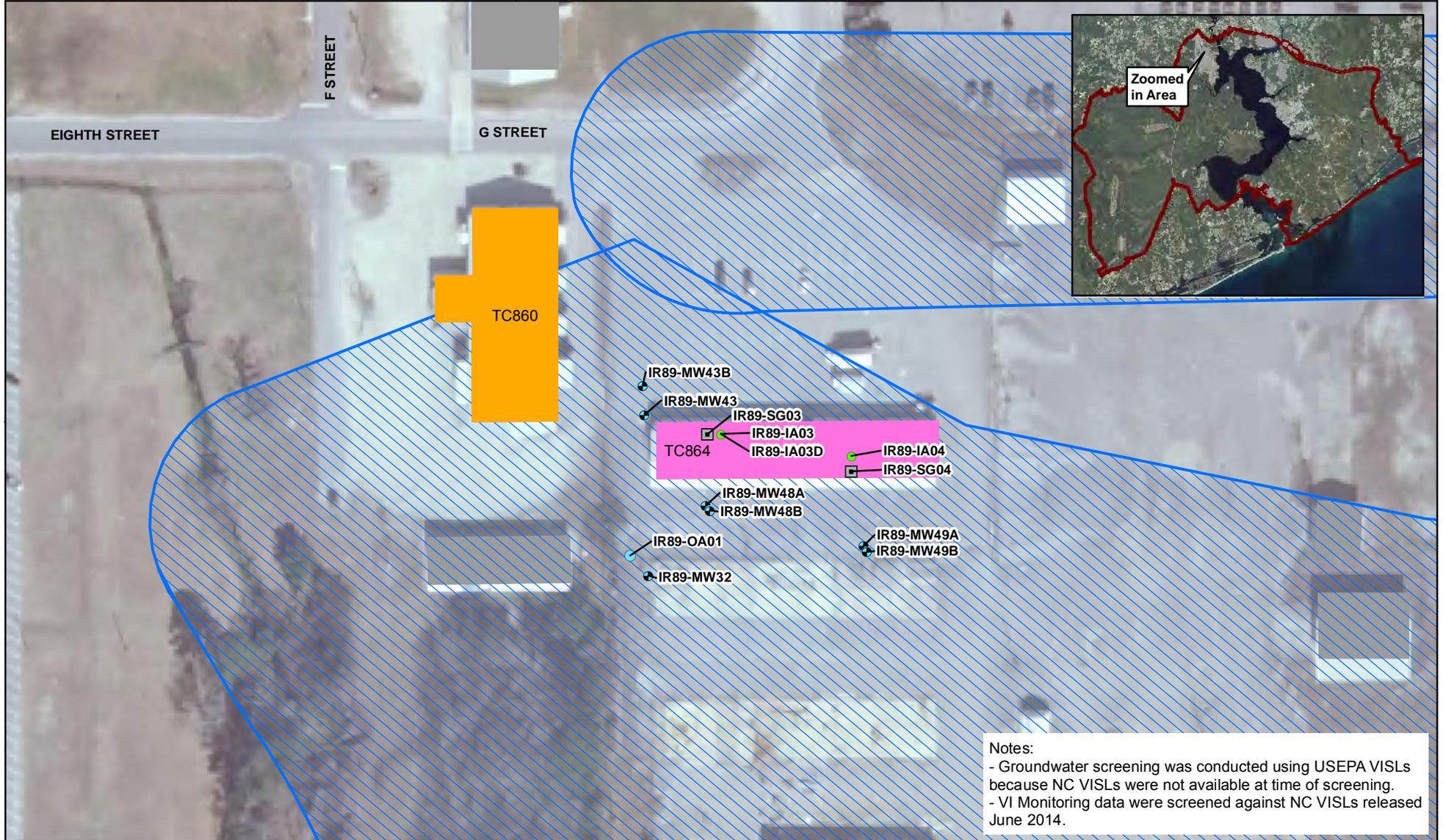
| Well Name (ft bgs) | |
|--------------------|-------|
| Date | Value |
| Screening Name | Value |

SCREENING LEVELS

Subslab Soil Gas - NC Residential VISL (ppbv)
 TCE - 2.59

Indoor Air - NC Non-Residential VISL (ppbv)
 Chloroform - 0.250
 TCE - 0.0776

Figure 11
 Building HP-57
 Vapor Intrusion Conceptual Site Model
 VI Monitoring – IRP
 MCIEAST-MCB CAMLEJ
 North Carolina



Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

Legend

- Indoor Air Sample Locations
- Outdoor Air Sample Locations
- Soil Gas Sample Locations - Not Collected
- Groundwater Locations that exceed the Industrial Screening Levels
- Buildings within 100 ft of GWSL exceedances; Previously investigated - NFA for VI
- Buildings of Interest - Non-Residential

- Installation Boundary
- Groundwater Pollution Plume

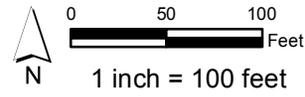
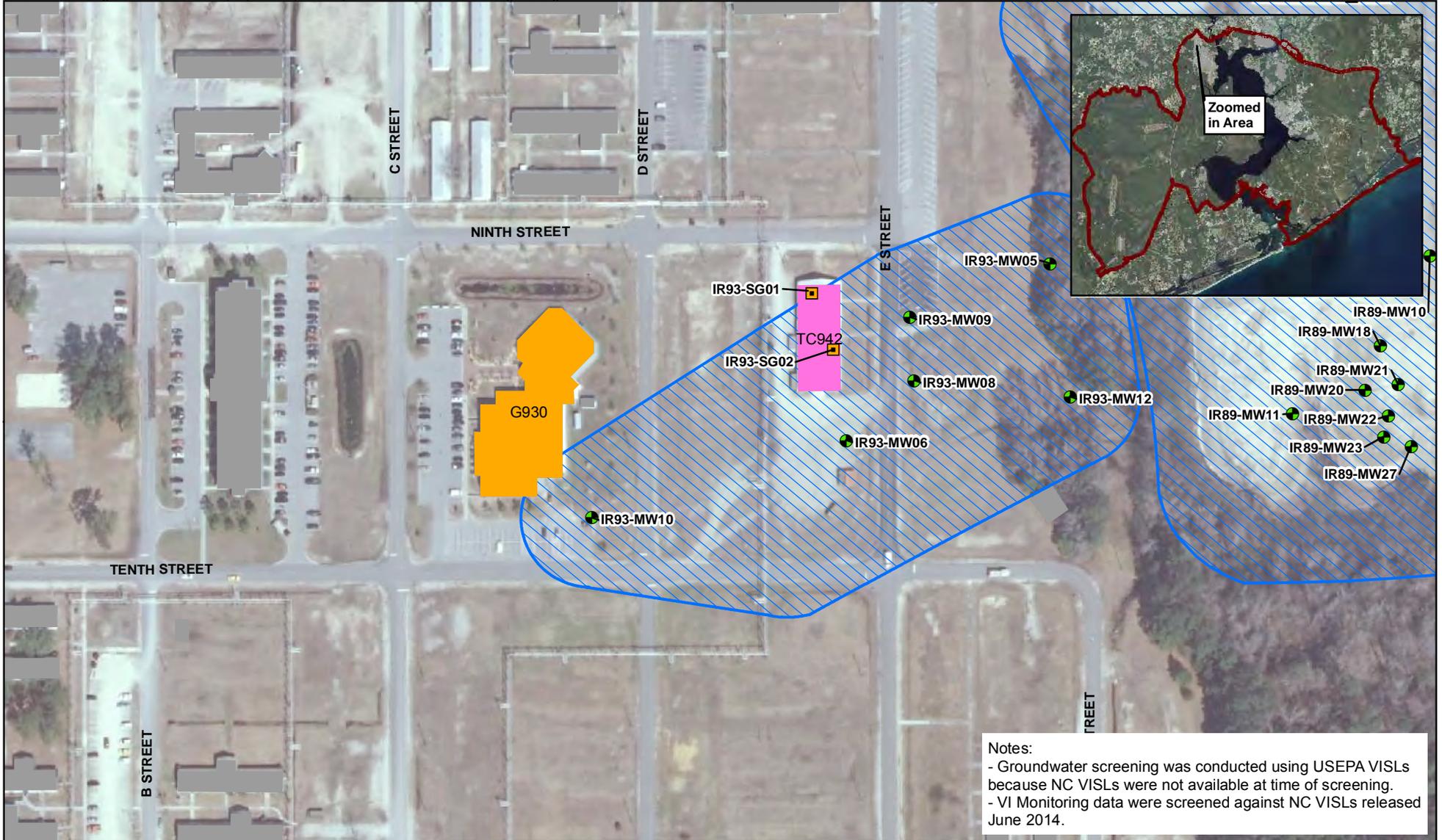


Figure 12
 IR Site 89 Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

- Legend**
- Soil Gas Sample Locations
 - Groundwater Locations that exceed the Industrial Screening Levels
 - Buildings of Interest - Non-Residential
 - Buildings within 100 ft of GWSL exceedances; Previously investigated - NFA for VI
 - Groundwater Pollution Plume
 - Installation Boundary

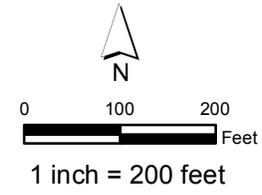
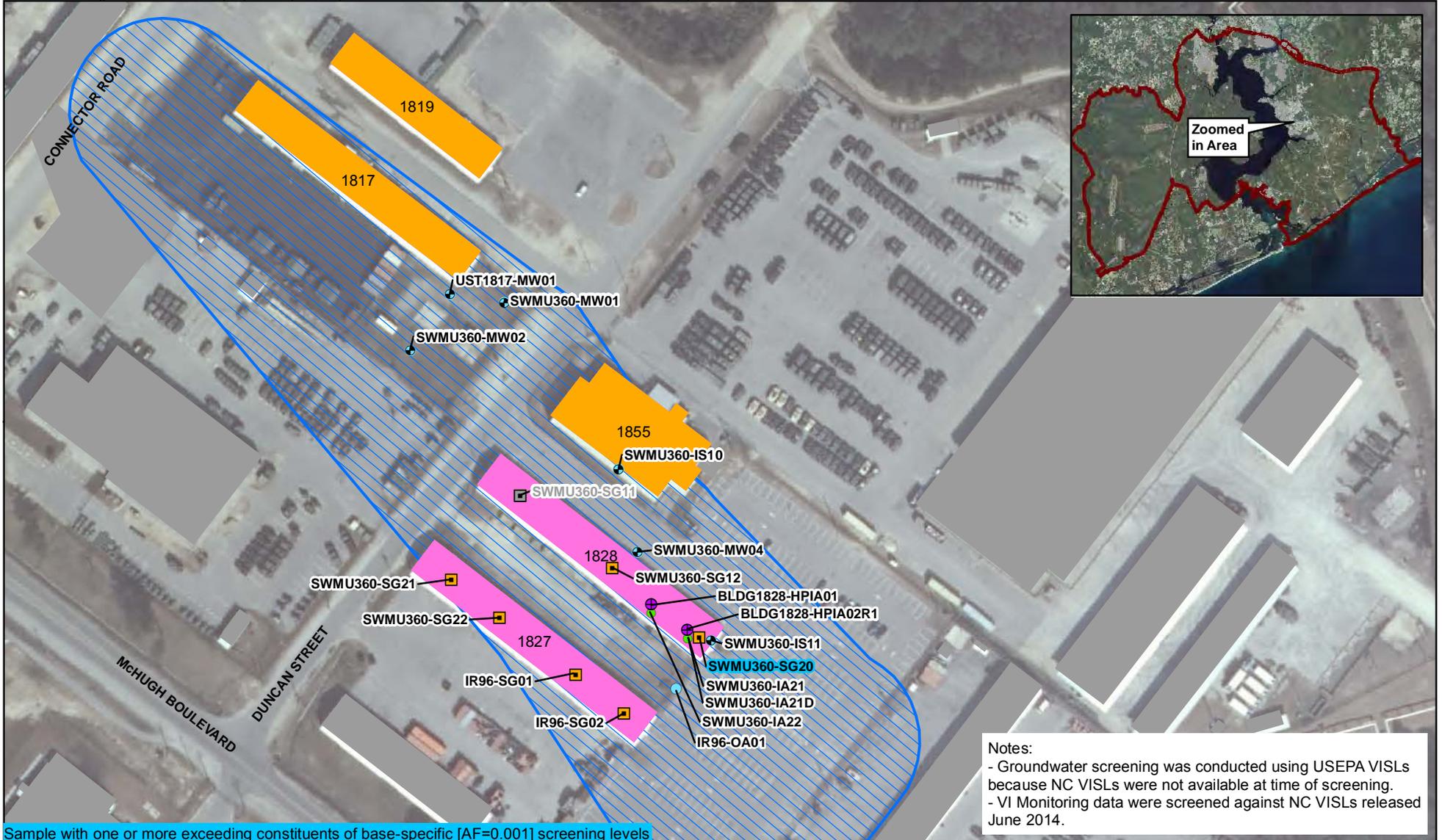


Figure 13
 IR Site 93 Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





Notes:
 - Groundwater screening was conducted using USEPA VISLs because NC VISLs were not available at time of screening.
 - VI Monitoring data were screened against NC VISLs released June 2014.

Sample with one or more exceeding constituents of base-specific [AF=0.001] screening levels

Legend

- Not Collected
- ⊕ HAPSITE Indoor Air Locations
- Indoor Air Sample Locations
- Outdoor Air Sample Locations
- Soil Gas Sample Locations
- Groundwater Locations that exceed the Industrial Screening Levels
- Buildings within 100 ft of GWSL exceedances; Previously investigated - NFA for VI

- Buildings of Interest - Non-Residential
- ▨ Groundwater Pollution Plume
- Installation Boundary

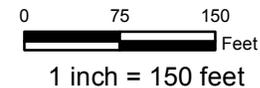
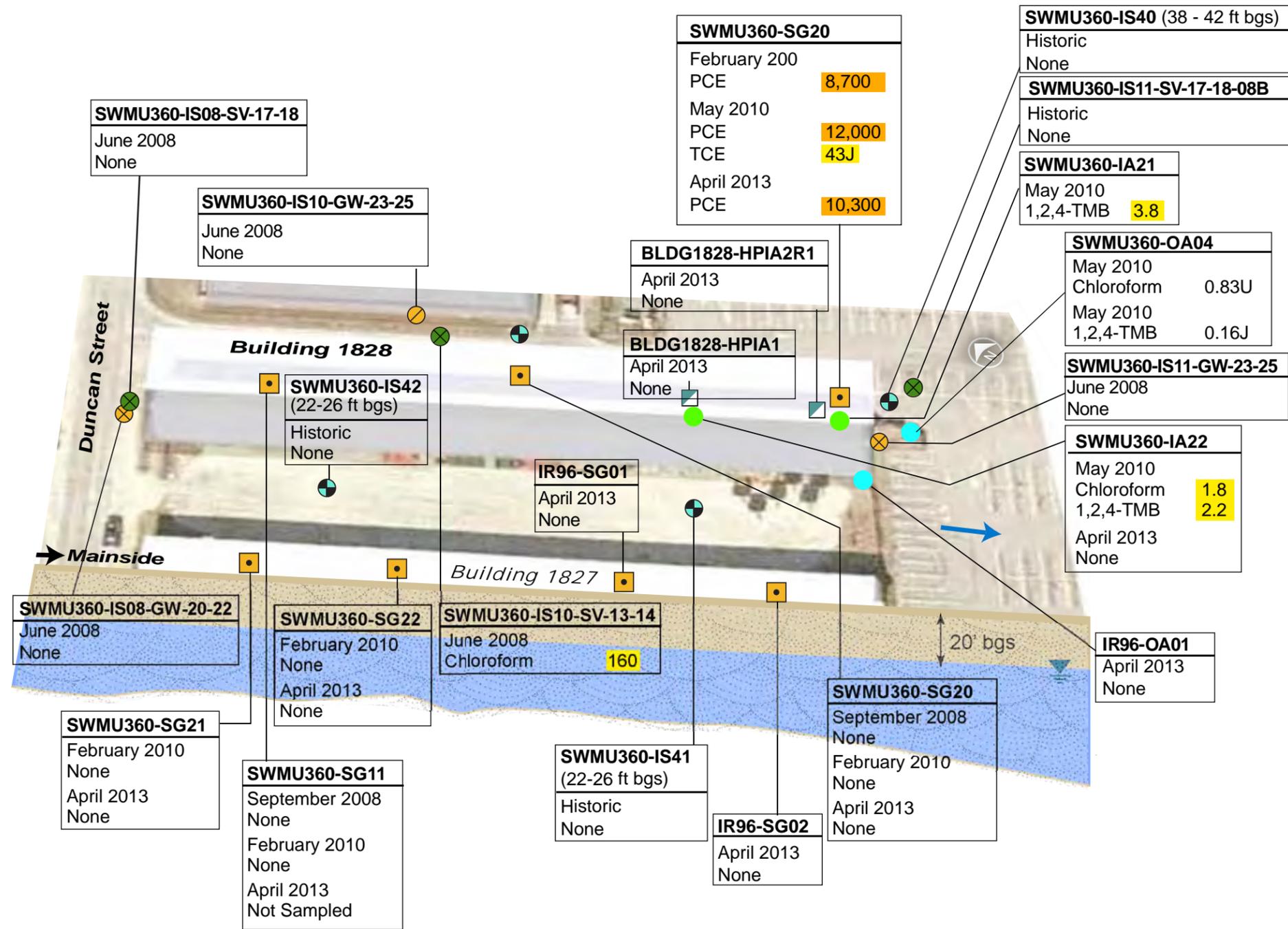


Figure 14
 IR Site 96 Sample Locations and
 Non-Residential Screening Level Exceedances April 2013
 VI Monitoring IRP
 MCIEAST-MCB CAMLEJ
 North Carolina





LEGEND

- Primary Groundwater Flow Direction
- Water Table
- Mix of sand and sandy clay with areas of clay
- Groundwater Sample Location
- Soil Vapor Sample Location
- Soil Gas Sample Location
- Indoor Air Sample Location
- Outdoor Air Sample Location
- Shallow Monitoring Well (Sampled between 2002 and 2007)
- Sample with one or more exceeding constituents of Non-Residential NC screening levels
- Sample with one or more exceeding constituents of Non-Residential Base-specific (AF=0.001) SGSLs (NC VISLs October 2013)
- HAPSITE Location

SCREENING LEVELS

Site-Specific GWSLs (mg/L)
 VC - 2.53
 TCE - 35.5
 PCE - 7.19

Subslab Soil Gas - NC Non-Residential VISL (ppbv)
 PCE - 516
 TCE - 32.6
 Chloroform - 109

Base-specific SGSLs [AF=0.001] (ppbv)
 PCE - 5,160
 TCE - 326

Indoor Air - NC Non-Residential VISL (ppbv)
 Chloroform - 1.09
 1,2,4-TMB - 1.25

NOTES

J - Analyte present. Value may or may not be accurate or precise
 ppbv - Parts per billion volume
 SGSL - soil gas screening level
 IASL - indoor air screening level
 AF - attenuation factor
 PCE - tetrachloroethene
 TCE - trichloroethene
 1,2,4-TMB - 1,2,4- trimethylbenzene
 Historic - October 2007 - May 2012

All data from this and previous phases of the investigation were screened using North Carolina Vapor Intrusion Screening Levels released in June 2014.
 HAPSITE samples were collected in April 2013
 Air data is reported in parts per billion by volume (ppbv)

| Well Name (ft bgs) | |
|--------------------|----------------------|
| Date | Screening Name Value |

Figure 15
 Buildings 1827 and 1828
 Vapor Intrusion Conceptual Site Model
 VI Monitoring – IRP
 MCIEAST-MCB CAMLEJ
 North Carolina

Attachment A
Field Notes

MCB CAMLEJ
VI MONITORING

4/8/13

Personnel: Kim Stokes / DFW
David Seed / RDU
Mark Bos / CVO

ECLS { Mike Thompson
Ben Sox

Objective: Utility scan
at Bldgs TC942 (IR93),
1827 (IR96) and
133 (IR88).

- 0700 M. Bos & K. Stokes mob to
MCAS New River for badging.
- 0745 M Bos mobs to mainside
for badging (w/o background
check.)
- 0830 K Stokes mobs to Camp
Geiger (Bldg TC942) to
perform building survey.
- 0915 ECLS arrives at Bldg TC942
to scan 2 locations.
- 1040 D. Seed arrives w/ drilling
supplies
Attend health & safety meeting.
- 1050 Calibrate Multi-RAE PID
PINE# 19810



4/8/13

CO₂ = PPM 50
CH₄ = 2.5% (50% LEL)
H₂S = 10 ppm
O₂ = 18% vol.
N₂ = balance
VOCs (isobutylene) = 100 ppm

1100 mob to IR93-SG01 to
install vapor pins.

1200 Installed IR93-SG01
and IR93-SG02.

1215 Broke for lunch

1320 Return to mainside;
mob to Bldg 1827.

Could not access building.

Called Clyde Smith

#910-451-7515

Called Supply Officer

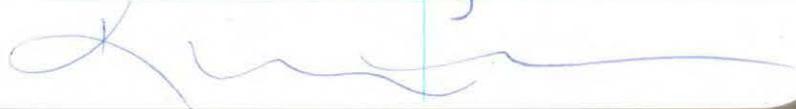
Capt LD Allen / Supply Chief

SSgt Ricardo Thompson

#910-451-9262.

Contacted Maggie Radford to
notify EMB of no access.

1415 mob to Bldg 133 to
walk building.



4/8/13

Spoke w/ Joe materna.
1450 ECLS scanning points for
3 vapor pin installs.

m. Bos collecting background
IA HAPSITE samples in
Bldg 133 while he waits
for SG pins to be installed.

1500 Installed BLDG133-SG05
CH₄ = 0.0% H₂S = 0.0
O₂ = 20 VOC = 0.3 ppmv
CO = 0 Background VOC =
LEL = 0 0.2 ppmv

1530 Installed BLDG133-SG06
O₂ = 19.4 VOCs = 0.5 ppmv
CH₄ = 0.0 H₂S = 0.0
CO = 0
LEL = 0

1600 Installed BLDG133-SG07
O₂ = 19.8% LEL = 0
CO = 0 H₂S = 0
VOC = 0.2 ppmv CH₄ = 0.0
m. Bos began screening
borings w/ HAPSITE.

1615 ECLS off site for the day.

[Signature]

Shallow SG (Industrial) VISLs

generic { PCE ADJUSTED = 26 (non-cancer)
NON-ADJUSTED = 70 (cancer)

Base-specific 2,600 ppbv
7,000 ppbv

IF HAPSITE readings >
Generic VISLs, additional
vapor pins may be warranted.

IF HAPSITE readings >
Base-specific VISLs, indoor
air samples from HAPSITE
may be warranted.

| HAPSITE PCE concs (ppbv) | PID ppmv |
|--------------------------|----------|
| -SG05 73.25 | 0.3 |
| -SG06 204 | 0.5 |
| -SG07 47 | 0.2 |

1700 Offsite for the day.

[Signature]

4/9/13 MCB CAMLEJ

VI MONITORING

Personnel: Kim Stokes / DFW
David Seed / RDU
Mark Bos / CVO

ECLS { Mike Thompson
Ben Sox

Objective • Complete HAPSITE
screening at Bldg ~~1827~~ 133
• meet Osage at Bldg 902 for
VIMS tour.

- HAPSITE screen at
Bldgs HP57, 1601, 1606,
1828, TC864, and G533
- Collect SG sample (SumMA)
at Bldg 133.
- Set out IA/OA cans at
HAPSITE buildings.

0700 meet field team at trailer.
Organize equipment & supplies
Vacuum check each canister.

0815 K. Stokes mobs to Bldg 133
to collect SG sample @
-SG06.

0825 Arrive at Bldg 133

Kim

4/9/13

Bldg 133 - SG06

0849 Begin purge and water
leak check.

Purge 1L @ 200 mL/min

0854 Stop purge; pass leak check

VOCs = 0.3 O₂ = 19.5

CH₄ = 0 CO = 0

LEL = 0 H₂S = 0

CO₂ = 1.5%

0855 BLDG 133 - SG06 - 13B

Can = 10743

FC = 10210

P_i = -30" Hg

0902 P_f = -7" Hg

0902 BLDG 133 - SG06D - 13B

Can = 10793

FC = 10178

P_i = -30" Hg

0909 P_f = -8" Hg

1.4 L cans (7 minute samples)

Collected distance measurements
w/ tape wheel.

0940 Mob to Bldg HP57 to
meet M. Bos & D. Seed.

Kim

4/9/13

Checked in w/ Lt. Cpl. Connolly.
SG 19 has been epoxied over
(photo); SG 20 has been
carpeted over and could
not be located.

OA set up

1012 IR88 - OA01 - 13B

Can = 10443

FC = 10528

Pi = -30" Hg

1032 IR88 - IA16^{KS} - 13B

Police Office
near SG20

Can = 10494

FC = 10708

Pi = -30" Hg

~~1032 IR88 - IA16 - 13B~~

~~Can = 10308~~

~~FC = 10172~~

~~Pi = -30" Hg~~

DO NOT
ANALYZE

1030 IR88 - IA15 - 13B

Lounge

Can = 10158

near SG19

FC = 10222

Pi = -29" Hg

1045 K Stokes mob to Bldg 902
to meet Dylan Elks from

K Stokes

4/9/13

Osage to walk NW corner
of bldg to locate SG63
and VIMS nodes.

1110 mob back to 902.

1130 mob to Bldg 1828 to check
in for PM work.

1145 Break for lunch

1310 mob to Bldg 1828

1346 SWmu360 - IA21 - 13B

Can = 10591

[near SG20]

FC = 10696

Pi = -30" Hg

~~Pi = (KS)~~

1346 SWmu360 - IA21D - 13B

Can = 10268

FC = 10542

Pi = -29" Hg

1343 SWmu360 - IA22 - 13B

Can = 10325

FC = 10771

Pi = -30" Hg

Collect HAPSITE readings in
Food Supply Service break
room of Bldg 1828.

K Stokes

4/9/13

Collect HAPSITE readings
in Company Executive Officer.

D. Seed returns to field
trailer to get bike locks.

mob to 1606

(Bldg 1212 Frank Pain)

451-7571

~~7570~~ ⁹⁴⁸⁵ John Blackburn

7570 Charlie Johnson

HAPSITE measurements in
Supply Office

1607 IR78 - IA 28 - 13B

Can = 10601

FC = 10631

Pi = -29" Hg

1430 IR96 - OA 01 - 13B

Can = ~~10440~~ ¹⁰¹⁵³

FC = ~~10626~~ N/A

Pi = ~~-30" Hg~~ ^{-30" Hg}

1612 IR78 - IA29 - 13B

Can = 10440

FC = 10626

Pi = -30" Hg

Bldg 1601 to take

Done

HAPSITE readings & set up
IA cans

1634 IR78 - IA26 - 13B

managers
office

Can = 10060

FC = 10236

Pi = -30" Hg

1745 IR78 - IA27 - 13B

mask
sanitation
area

Can = 10315

FC = 10101

Pi = -29" Hg

1742 IR78 - IA25 - 13B

inbound
staging
area desk

Can = 10407

FC = 10567

Pi = -30" Hg

Collected HAPSITE readings

in managers office,

Aisle B1 & B2 / mask Sanitation

Area, attempted Mask Disassembly

DRMO Area however computer

froze.

1745m. Bos to hotel to cool

down computer and reboot

Done

4/9/13

18²² IR780A01-13B

Can = 10589

FC = 10713

P_i = -28 "Hg

18²³ Returned to field trailer

18³⁵ Off site for the day



MCI EAST - MCB CAMLEJ 4/10/13

WE-19 IRP VI MONITORING

Personnel: Kim Stokes / DFW
David Seed / RDU
Mark Bos / CVO

Objective:

- Install (2) additional vapor pins in Bldg 133
- Screen w/ HAPSITE -
Bldg 133 soil gas
Bldg G533 - indoor air
- Set out IA/OA cans for Bldg G533, TC864
- Collect IA/OA cans from HP57, 1828, 1606, 1601
- Collect subslab soil gas

0730 meet D. Seed at field trailer.

0740 Attend H & S meeting

0745 mob to HP-57 to check on IA/OA cans.

0801 IR880A01-13B

P_f = 0 "Hg

0806 IR88-IA15-13B

P_f = -5.09 "Hg

Kim

4/10/13

0809 IR88 - IA16~~D~~ - 13B ^(EAS)

Pf = -5.00 "Hg

0820 Called Andy Unsworth,
will write email about
weekend access cc Dave Fusman

0830 mob to Bldg 1828

0840 Set up @ SG12

He enclosure = 63.6 %

0850 Start purge 1L @ 200mL/min

VOCs = 0.1 O₂ = 13.8

CH₄ = 0 CO = 0

CO₂ = 1.0 H₂S = -0

He = 4075 ppmv LEL = 3%

He passed 1% (6360 ppmv)

0900 SWMU360 - SG12 - 13B

Can = 10663

FC = 10166

Pi = -30 "Hg

0908 Pf = -6 "Hg

0910 SWMU360 - SG12 - 13B

for radon

0940 mob to Bldg 133. to
meet w/ ECLS to scan
(2) more vapor pin

Wink

4/10/13

locations.

1015 ECLS on site to scan
4 potential locations.

1100 mob to HP-57 to mark
out (2) vapor pin locations
next to original points
covered over.

• M. Bos received HAPSITE unit
and calibrating

1120 Randy McEl.
called. to notify us that
he is on Base and will
stop by HP57.

1135 mob to Bldg 1828 to
check IA/OA cans

Bldg 1827 open; arranged
w/ ECLS to meet @ 1300.

1140 SWMU360 - IA22 - 13B

Pf = -5.70 "Hg

1144 SWMU360 - IA21 - 13B

Pf = -18 "Hg

SWMU360 - IA21D - 13B

Pf = -0.13 "Hg

Wink

XO
Office

4/10/13

1155 IR96 - OA01 - 13BP_f = -5.60" Hg

1200 Break for lunch

1250 mob to Bldg 1827 to
mark out utilities.Installed -SG08 in
Head (west) and -SG09
in Rm 109 (instructor office)

PCE (ppbv)

-SG08 80

-SG09 36

1455 Return to field trailer after
speaking w/ K. Hallberg (PM)
about results.1500 D. Seed & M. Bos mob
to Bldg G533 to
use HAPSITE.K. Stokes mobs to Bldg
133 to set up IA can.1510 BLDG 133 - IA01 - 13B

Can = 10269

FC = 10766

P_i = 29.60" Hg

Set up in SE corner



4/10/13

break room.

1515 mob to Bldg 1606 to
collect IA/OA cans.1523 IR78 - IA28 - 13BP_f = 6.13" Hg1528 IR78 - IA29 - 13BP_f = 0.16" Hg

1540 mob to Bldg 1601

1543 IR78 - IA27 - 13BP_f = 5.69" Hg1547 IR78 - IA25 - 13BP_f = 5.74" Hg1552 IR78 - IA26 - 13BP_f = 5.50" Hg1604 IR78 - OA01 - 13BP_f = 4.15" Hg

1610 mob to Air Station

1650 Arrive Air Station

Qualitative mode - no Chloroform
spikes.Quantitative mode - no Chloroform
spikes in North office
or near SG13 or HEAD
near sinks.

4/10/13

1715 Packed up equipment

1730 Off site for the day.

(Addendum) 4/10/13

1600 IR35-IA01-13B Barracks

Can = 10606

FC = 10201

Pi = -29" Hg

1615 IR35-IA02-13B Office

Can = 10441

FC = 10545

Pi = -28" Hg

1620 IR35-IA02D-13B

Can = 10257

FC = 10254

Pi = -30" Hg

1635 IR35-0A01-13B

Can = 10266

FC = 10577

Pi = -30" Hg

4/11/13 MCIEAST-MCB CAMLEJ

IRP VI MONITORING

Personnel: David Seed /RDW
Kim Stokes /DFW

Objectives:

- Install vapor pins @ Bldg HP57 & 1827
- Collect IA cans @ Bldg 6533 and 133.
- Collect SG samples @ Bldg 1828.
- Set out IA/OA cans @ Bldg T1864.

0715 Mob to field trailer to obtain supplies for the day.

0920 Arrived at field trailer; gates were shut down due to bomb threat.

0945 D. Seed arrives at field trailer.

1005 Mob to Bldg 1827 to install vapor pins.

1030 Set up at Bldg 1827 for vapor pin installs.

1125 Installed vapor pin @ -SG01 & -SG02.

1200 Mob to Bldg 1828
Set up at -SG20.

1205 He enclosure = 67%.

1208 Purge 1L @ 200 mL/min.

He = 13,000 ppm, CH₄ = 0

VOCs = 12.3 CO = 0

CO₂ = 4.2% O₂ = 12.3%

H₂S = 0 LEL = 0

He = fail > 1% = 6,700 ppmv

1218 He enclosure = 66.5%.

1220 Re-purge 1L @ 200 mL/min.

He = ~~66.5~~ 5,000 ppmv (PASS)

1224 SWMU360-SG20-13B

Can = 10462

FC = 10647

Pi = 29.5" Hg

1231 Pf = 7" Hg

1232 SWMU360-SG20-13B

for radon.

1245 Mob to -SG11 to see if probe is clogged.

Pushed air into probe

4/11/13

w/purge. Tried to evacuate but clogged. Mob to IA sample collection for radon.

1302 SWMU360-IA21-13B
for radon

1305 SWMU360-IA22-13B
for radon

1310 ^{IR96} ~~SWMU360~~ OA01-13B
for radon

1330 mob to Bldg 133 to check IA can.

1334 BLDG133-IA01-13B
 $P_f = -4.80$ "Hg

1350 Broke for lunch

1500 mob to Air Station
Check in @ Bldg TC942
for access to Bldg TC864

1530 IR89-IA03-13B
Can = 10289
FC = 10228
 $P_i = -30$ "Hg

1530 IR89-IA03D-13B
Can = 10312

4/11/13

FC = 10183

$P_i = -29$ "Hg

1533 IR89-IA04-13B

Can = 10445

FC = 10516

$P_i = -29$

1535 IR89-OA01-13B

Can = 10598

FC = 10706

$P_i = -29$ "Hg

1540 IR89-SG03 g¹-SG04

Could not be located or area could not be accessed due to boxes stacked throughout building

1545 mob to Bldg 6533 to check on summa cans.

1550 IR35-IA02-13B

$P_f = -3.92$ "Hg

1550 IR35-IA02D-13B

$P_f = -4.80$ "Hg

1555 IR35-IA01-13B

$P_f = -4.10$ "Hg

4/11/13

1600 IR35-OA01-13B

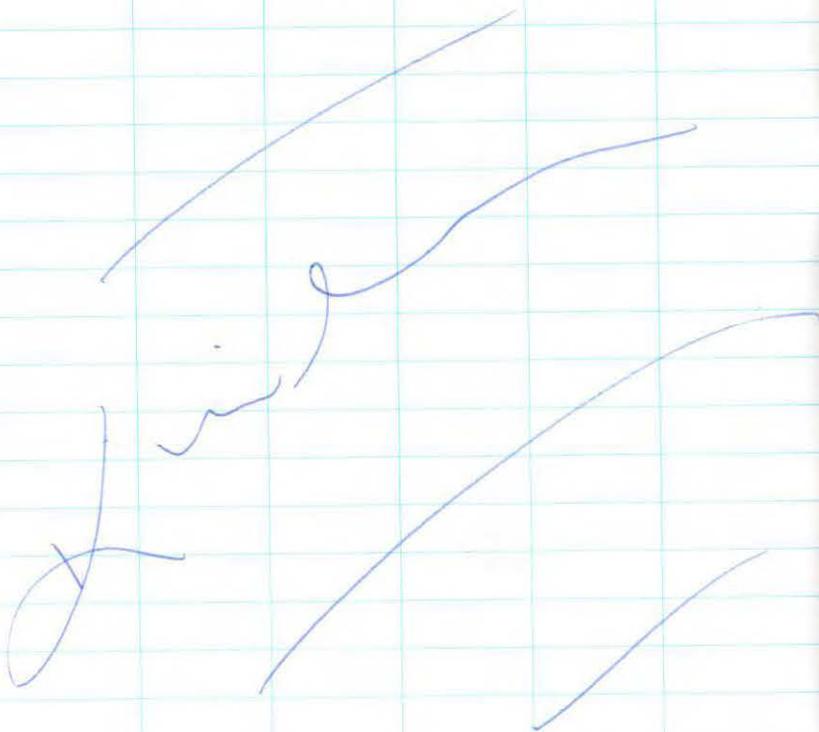
Pf = -1.35" Hg

1610 mob to Postal Annex to
Ship radon samples
Shipped (1) box

Fed Ex No. 8025 4473 8456

1650 Return to Base (field trailer)

1730 Offsite for the day.



MCIEAST- MCB CAMLEJ 4/12/13

IRP VI monitoring (CTO-WE19)

PN: 424419

Personnel: Kim Stokes / DFW
David Seed / RDU

Objectives:

- Install vapor pins at Bldg HP-57
- Sample SG for TO-15 and radon

- Sample IA/OA for radon

0700 Mob to Lowes for concrete patch for Bldg 1827.

0730 Arrive at field trailer.

Attend H&S meeting

0740 Calibrate multi-RAE PID

O₂ = 18 CO = 50

LEL = 48 H₂S = 10.1

pass calibration VOCs = 101

0745 Calibrate GEM landfill meter

Pass calibration

0800 mob to Bldg HP57

0825 Set up @ -SG 19 to install vapor pin.

Outlet tripped and spark



4/12/13

was observed in hole.
Called M. Radford to
discuss. Blew fuse on
outlet (likely); CH2MHILL
will notify the Base.

0845 moved to adjacent area -
successful installation.

0900 mob to Police officer office
(-SG20) to install vapor
pin.

0925 Installed vapor pin through
carpet & vinyl tile (see photo)

0940 mob to Courthouse Bay
(IR73) for Bldg A-47.

1006 Arrive at Courthouse Bay.

1030 Set up at -SG04
He enclosure: 62%.

1040 Purge 1L @ 200 mL/min
He = 0.0 VOCs = 0.1 LEL = 30%
[H₂ = 0.0 CO₂ = 0.1
H₂S = 0.0 CO = 0]

1050 IR73-SG04-13B

Can: 10455

FC: 10480

4/12/13

Pi: -30" Hg

1057 Pf: -7" Hg

1050 IR73-SG04D-13B

Can: 10720

FC: 10638

Pi: -29" Hg

1057 Pf: -7.2" Hg

1115 mob to SG03 (BN MAINT
TOOL ROOM)

1123 He enclosure = 60%.

1125 Purge 1L @ 200 mL/min

He = 1800 ppmv (PASS)

LEL = 2% CH₄ = 0 VOCs = 0

O₂ = 20.9% H₂S = 0

CO = 0 CO₂ = 0

1132 IR73-SG03-13B

Can: 10758

FC: 10215

Pi: -29" Hg

1139 Pf: -6.2

1150 mob to -SG02

He enclosure = 58%.

1204 Purge 1L @ 200 mL/min
@ IR73-SG02.

4/12/13

He = 1500 ppmv LEL = \emptyset
VOCs = \emptyset CH₄ = \emptyset
CO = \emptyset CO₂ = \emptyset
O₂ = 20.9 H₂S = \emptyset

1210 IR73-SG02-13B

Can = 10657

FC = 10554

P_i = -30" Hg

1217 P_f = -7.6" Hg

1220 mob to -SG01.

He enclosure = 62%.

1231 Purge 1L @ 200mL/min

He = 0 ppmv O₂ = 20.9%

VOCs = \emptyset CO = \emptyset

CO₂ = \emptyset CH₄ = \emptyset

LEL = \emptyset H₂S = \emptyset

1237 IR73-SG01-13B

Can = 10682

FC = 10255

P_i = -29" Hg

1244 P_f = -7.72" Hg

1300 Break for lunch.

1410 mob to Air Station

1435 Arrive at Bldg TC942

[Signature]

to get escort to Bldg TC864

1434 IR89-OA01-13B

P_f = -4.69" Hg

1440 IR89-IA03-13B

P_f = 4.12" Hg

1440 IR89-IA03D-13B

P_f = -4.60" Hg

1442 IR89-IA04-13B

P_f = -4.30" Hg

1445 Return to main side

1515 Prepare Bldg 133 samples
for shipment.

Fed EX 8025 4473 8445

1600 D. Seed off Base to
ship samples at Postal Annex
and return drill.

1615 mob to Bldg HP57; Police
office (-SG20) locked.

1630 Set up @ SG19. vapor
pin.

Pass water leak check

1635 Purge 1L @ 200mL/min.

VOCs = 06 ppmv CO = \emptyset

O₂ = 20.9 LEL = \emptyset

[Signature]

H₂S = 0 CH₄ = 0
CO₂ = 0

1642 IR88-SG19-13B

Can = 10147

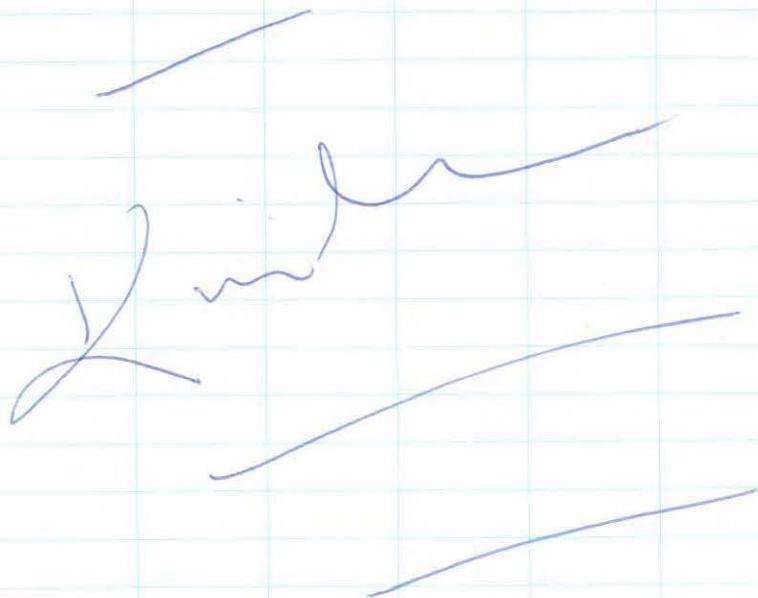
FC = 10192

P_i = -28.50 "Hg

1649 P_f = -2.97 "Hg

1700 Returned to field trailer.
Organized equipment and
supplies.

1800 Off site for the day.



MCIEAST - MCB CAMLEJ 4/13/13

IRP VI MONITORING CTD WE19

Personnel: Kim Stokes /DFW
David Seed /RDU

Objectives:

- Collect SG samples in TC942 & G533
- Collect GW sample @ IR78
- Set out crawlspace air sample at IR88 (Bldg 37A).

0800 meet D. Seed at Air Station
Bldg TC942.

Sergeant Newsome #910-449-217

↳ Sergeant Ellis #207-450-7567

↳ 15 min notice for Bldg G533.

0820 Set up at IR93-SG01.

0833 Purge 1L @ 200 mL/min
Water leak check (PASS).

VOCs = 0 CO = 0

CH₄ = 0 LEL = 4%

O₂ = 19.8% CO₂ = 0.5%

H₂S = 0

0838 IR93-SG01-13B

Can = 10799

FC = 10163



4/13/13

0845 $P_i = -28.50$ "Hg
 $P_f = -1.01$ "Hg
Mob to -SG02.
Set up @ -SG02.
0857 Purge 1L @ 200 mL/min
Water leak check = PASS
VOCs = \emptyset CO = \emptyset LEL = 4%
H₂S = \emptyset CO₂ = 0.9%
~~100~~ O₂ = 19.9% CH₄ = \emptyset

0904 IR93-SG02-13B

Can = 10734

FC = 10177

$P_i = -28.50$ "Hg

0911 $P_f = -6.70$ "Hg
Placed call to POC @ 6533
15 mins before arrival as
per request.

0930 Set up @ -SG13
He enclosure = 62%.

0950 Purge 1L @ 200 mL/min.
He = 0 ppmv (pass)
VOCs = \emptyset CO₂ = 0.5
O₂ = 20.2% H₂S = \emptyset
CO = \emptyset CH₄ = \emptyset

~~100~~ O₂ = 19.9% CH₄ = \emptyset

4/13/13

0957 IR35-SG13-13B

Can = 10652

FC = 10250

$P_i = -29$ "Hg

1004 $P_f = -5.60$ "Hg

1010 Mob to -SG12, could
not get gold nut out of
probe - corroded in place.

1015 Mob to field trailer to
check number of remaining
1L cans and existing vacuums
on those cans.

1050 Arrive at field trailer.
10 (1L) cans below acceptable
vacuum of -28 - -30 "Hg,
many at or near \emptyset "Hg.
Have 12 (1L) cans good
vacuum but need a total
of 15 (1L) cans to
complete sampling. Left
message for Kurt Hummler
(ChemTech).

1200 Broke for lunch.

1310 Mob to hotel for socket

[Signature]

4/13/13

wrench for GW wells.

1315 Return to main side to set
out 6L Summa cans at
Bldg 37A.

1345 Arrive at Bldg 37A

1350 IR88-CS01-13B

Can = 10258

FC = 10457

Pi = -29" Hg

Pf = 4/14/13

1350 IR88-CS01D-13B

Can = 10304

FC = 10537

Pi = -28" Hg

Pf = 4/14/13

1400 IR88-OA02-13B

Can = 10411

FC = 10176

Pi = -29" Hg

Pf = 4/14/13

1410 Return to field trailer

for water sampling supplies.

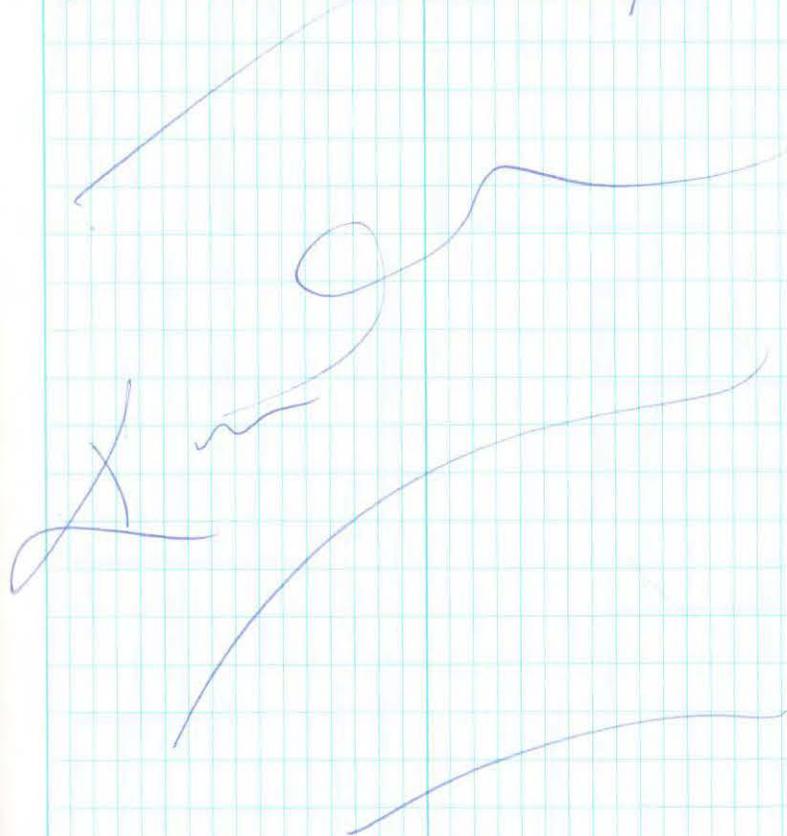
~~mob to IR78-MWVI01~~

1445 Assist David seed on site 6

[Handwritten signature]

4/13/13

PDB bag sampling.
1600 off site for the day.



4/14/13 MCIEAST MCB CAMLEJ

IRP VI MONITORING

WE 19 PN: 424419

Personnel: Kim Stokes / DFW
David Seed / RDU

Objectives: • Collect CS and
OA cans from Bldg 37A (IR88)
• Collect GW samples from
IR78-MWVIO1.

1130 met D. Seed at field trailer

1150 mob to Site IR88.

1200 IR88-CS01-13B

$P_f = 0$ " Hg

1200 IR88-CS01D-13B

$P_f = -3.20$ " Hg

1205 IR88-OA02-13B

$P_f = -4.4$ " Hg

1230 mob to IR78-MWVIO1

DTW = 4.89 ft bTOC

Total depth = 13 ft

water column = $13 - 4.89 = 8.11$ ft

Well volume (gal.) =

$8.11 \text{ ft} \times 0.163 \text{ gal/ft} =$

1.32 gals.

Purge 3 well volumes = 3.97 gals

Kim Stokes

4/14/13

Time Turbidity (NTU) DTW (ft bTOC)

1255 97.6 —

1300 57.2 —

1305 40.0 —

1310 25.7 5.20

1315 22.1 5.23

1320 23.1 5.28

1325 15.4 5.30

1330 17.2 5.31

1335 - Complete purge —

Purge low flow (350 mL/min)
for ~4 gallons (3 well volumes)

1340 IR78-MWVIO1-GW01-13B

1 set of (3) VOA vials for
8260B analysis

1345 IR78-MWVIO1-GW01D-13B

1 set of (3) VOA vials for
8260B analysis

1340 IR78-MWVIO1-GW01MS/MSD-13B

3 sets of (3) VOA vials for
8260B analysis.

1400 mob to Site 6 water treatment
plant to dump purge water.

1415 mob to Site 6 to help

Kim Stokes

4/14/13

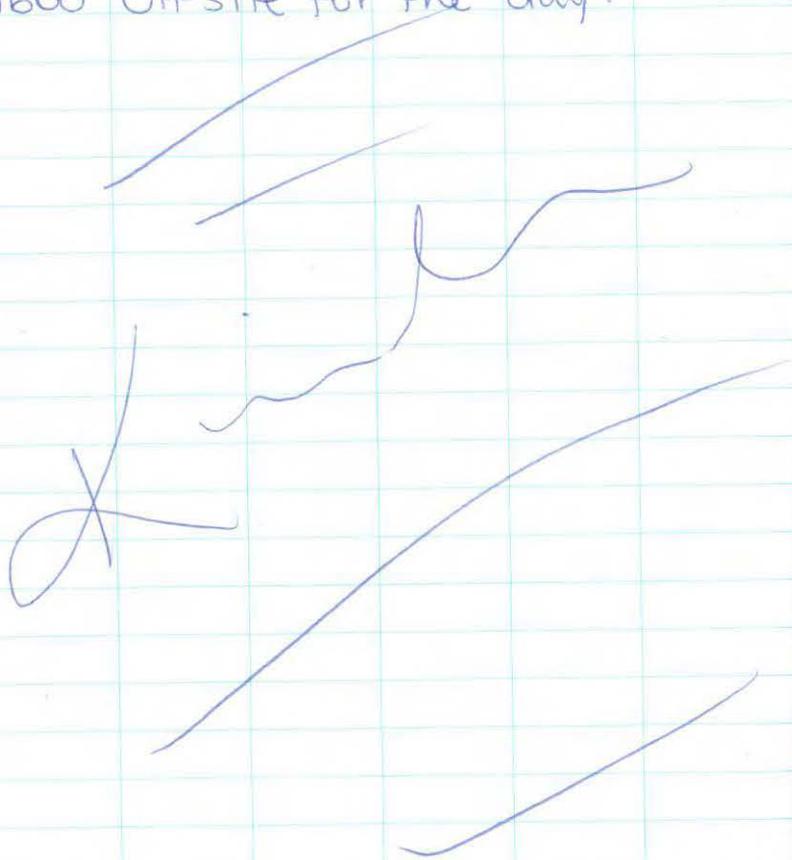
D. Seed w/ sample collection.

1545 Return to field trailer

1550 EBO1 - 041413

for 8260B analysis.

1600 Offsite for the day.



MCIEAST - MCB CAMLEJ 4/15/13

IRP VI Monitoring WE19

Personnel: Kim Stokes /DFW

David Seed /RDU

Objectives:

- Collect SG samples for TO15 and radon
- Collect IA/OA samples for radon

0730 Met at field trailer

0745 Mob to HP57

Attend H&S meeting

0805 Set up @ -SG20 (Police office)

0812 Purge 1L @ 200mL/min

VOCs = 0.1 LEL = 0

CO = 0 CH₄ = 0

H₂S = 0 CO₂ = 0.1

O₂ = 20.9%

Water leak check - PASS

0820 IR88-SG20-13B

Can = 10660

FC = 10221

Pi = -28 "Hg

0827 Pf = -4.7 "Hg

Kim Stokes

4/15/13

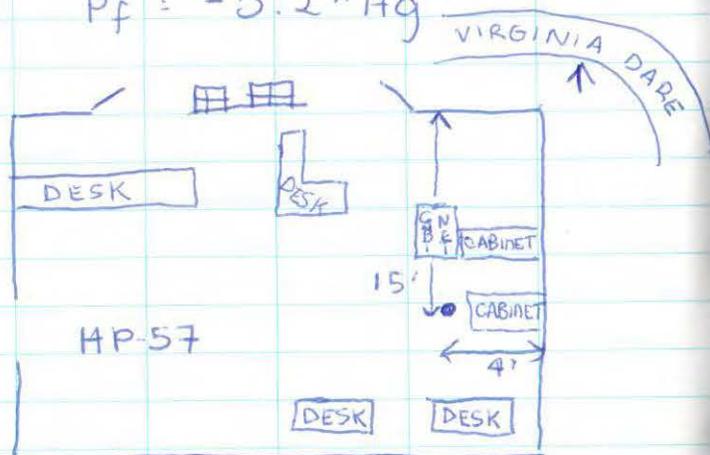
0820 IR88-SG20D-13B

Can = 10726

FC = 10569

Pi = -29" Hg

0827 Pf = -5.2" Hg



0850 Mob to Bldg 1606

0910 Set up at -SG72.

He enclosure = 59 %.

0914 Purge 1L @ 200 mL/min

0919 He = 0 ppmv (PASS)

VOCs = \emptyset CH₄ = \emptyset

H₂S = \emptyset CO₂ = 0.5

O₂ = 20 % CO = \emptyset

LEL = 4 %.

Linder

4/15/13

0921 IR78-SG72-13B

Can = 10729

FC = 10543

Pi = -29" Hg

0928 Pf = -6.5" Hg

IR78-SG72-13B (K2)

for radon (CS)

0940 mob to -SG70

He enclosure = 56 %.

0956 Purge 1L @ 200 mL/min.

He = 325 ppmv O₂ = 19.9 %.

VOCs = \emptyset CO = $\emptyset.5$

LEL = \emptyset H₂S = \emptyset

CH₄ = \emptyset

1005 IR78-SG70-13B

Can = 10656

FC = 10553

Pi = -28" Hg

1012 Pf = \emptyset " Hg

1020 IR78-SG70-13B

for radon

1025 IR78-IA28-13B

for radon

Kunin & De

4/15/13

1035 IR78-0A01-13B

for radon

1050 IR78-IA29-13B

for radon

1105 Set up at -SG71.

He enclosure = 56.7%.

1117 Purge 1L @ 200mL/min.

He = 0ppmv (PASS)

VOCs = \emptyset LEL = 6%

O₂ = 18.1% CO = \emptyset

CO₂ = 2.4% H₂S = \emptyset

CH₄ = 0

1125 IR78-SG71-13B

Can = 10800

FC = 10764

Pi = -29" Hg

1132 Pf = \emptyset " Hg

1140 IR78-SG71-13B

for radon

Probe union @ -SG70 &

-SG71 stuck in probe.

Note: Should install

vapor pin at these locations

next time.

Handwritten signature

4/15/13

1200 Broke for lunch

1230 mob to field trailer to
get charger for PID.

1250 mob to Bldg 1827 to
meet unit @ 1300

1305 Called all POC numbers;
no answer.

Drove to find JIMHG office

1330 Called numbers again;
arranged for someone to
meet us at Bldg 1827.

1350 Set up @ SWMU360-SG21.

He enclosure = 56%.

1402 Purge 1L @ 200mL/min

He = 0ppmv (PASS)

VOCs = \emptyset H₂S = \emptyset

O₂ = 16.1 CO₂ = 3.5%

CO = \emptyset CH₄ = \emptyset

LEL = \emptyset

1409 SWMU360-SG21-13B

Can = 10755

FC = 10539

Pi = -29" Hg

1416 Pf = -0.46" Hg

Handwritten signature

4/15/13

1427 Set up @ Swmu360 - SG22.

He enclosure = 56%.

1430 Purge 1L @ 200 mL/min

He = 0 ppmv (PASS)

VOCs = \emptyset CH₄ = 0%

CO = \emptyset CO₂ = 4.9%

LEL = 8% H₂S = \emptyset

O₂ = 15.5%

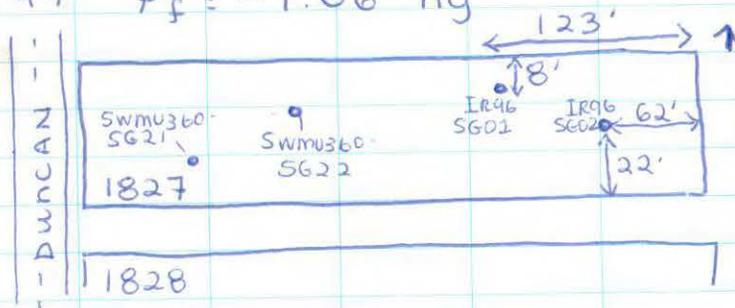
1440 SWMU360 - SG22 - 13B

Can = 10677

FC = 10703

P_i = -28 "Hg

1447 P_f = -1.06 "Hg



1450 Mob to IR96-SG01 (new vapor pin)

1455 Set up at IR96-SG01

[Handwritten signature]

4/15/13

1500 Water leak check - purge 1L

VOCs = \emptyset CO = \emptyset

H₂S = \emptyset CO₂ = 0.9%

O₂ = 19.3% CH₄ = \emptyset %

LEL = 5%

1507 IR96-SG01-13B

Can = 10750

FC = 10774

P_i = -29 "Hg

1514 P_f = -5.27 "Hg

1520 mob to IR96-SG02

1524 Purge 1L @ 200 mL/min.

Water leak check - pass

VOCs = \emptyset LEL = 6%

H₂S = \emptyset CO = \emptyset

O₂ = 18.1% CO₂ = 2.2%

CH₄ = \emptyset

1530 IR96-SG02-13B

Can = 10740

FC = 10694

P_i = -29 "Hg

1537 P_f = -2.96 "Hg

1550 mob to field trailer to get Horiba, pump, etc.

[Handwritten signature]

4/15/13

1600 Mob to IR78-MWVI01
to collect water quality
measurements:

Temp: 18.33 °C

pH: 5.33

turbidity (NTU): 45.6

DO (mg/L): 11.68

DO (%): 127.3

TDS (g/L): 0.219

Conductivity (mS/cm): 0.338

ORP (mv): -31

1615 Return to field trailer to
organize samples.

1700 Off site for the day

Kim Stokes

MCIEAST MCB CAMLEJ 4/16/13

IRP VI MONITORING WE-19

Personnel: Kim Stokes /DFW
David Seed /RDU

Objective: Complete sampling
in Bldg 1601.

0800 met at field trailer to
obtain supplies.

Attend H&S meeting.

0815 mob to Bldg 1601.

Set up at -SG25

He enclosure: 63%.

0900 Purge 1L @ 200 mL/min.

Vocs = 4.3 ppm LEL = 6%

H₂S = 0 CO = 0

O₂ = 18.6% CO₂ = 1.5

CH₄ = 0.0

0913 IR78-SG25-13B

Can: 10431

FC: 10213

Pi: -29 "Hg

0920 P_g: -6 "Hg

0925 IR78-SG25-13B

for radon

0930 Mob to -SG26; locating probes.

Kim Stokes

4/16/13

1010 IR78-IA25-13B

for radon

1020 IR78-IA26-13B

for radon

1030 Set up at -SG67

He enclosure = 62.5%

1035 Purge 1L @ 200 mL/min.

He: ~~62.5%~~ 125 ppmv (PASS)

VOCs: 0.4 ppmv LEL: 4%

CO: \emptyset O₂: 19.9%

CO₂: 1.1% CH₄: \emptyset

H₂S: \emptyset

1044 IR78-SG67-13B

Can = 10118

FC = 10583

P_i = -29 "Hg

1051 P_f = -3.83 "Hg

1044 IR78-SG67D-13B

Can = 10111

FC = 10170

P_i = -28 "Hg

1051 P_f = -2.46 "Hg

1057 IR78-SG67-13B

for radon

4/16/13

1110 Return to field trailer to pick up extra cans from ChemTech.

Fed Ex shipment has not arrived.

1140 mob to Bldg 1606 to remove probe unions from -SG70 and -SG71.

Probe union broke off in -SG70; will have to remove probe.

Remove union from -SG71 and rethreaded w/ pipe threading tool.

1215 Broke for lunch.

1310 Return to field trailer; UPS left Chemtech box on back steps.

Pack (9) radon samples for shipment to USC via Fed Ex No. 8025 4473 8434.

1345 K. Stokes to Bldg 1601 to continue sample collection. D Seed to Postal Annex.

4/16/13

1410 Set up at IR78-SG26
in Bldg 1601.

He enclosure = 58%

1419 Purge 1L @ 200 mL/min.

VOCs = 3.7 ppmv He = 0%

CO = \emptyset O₂ = 19.3%

CO₂ = 0.7% H₂S = \emptyset

LEL = 5% CH₄ = \emptyset

1427 IR78-SG26-13B

Can = 10468

FC = 10484

Pi = -29.52 "Hg

1434 P_f = -3.58 "Hg

1445 mob to -SG27.

He enclosure = 58%

1503 Purge 1L @ 200 mL/min.

He = 0 ppmv O₂ = 18.7

VOCs = 0.3 ppmv LEL = 6%

CH₄ = \emptyset CO₂ = 1.8%

H₂S = \emptyset CO = \emptyset

1518 IR78-SG27-13B

Can = 10748

FC = 10575

Pi = -28.69 "Hg



4/16/13

1525 P_f = -6.60 "Hg

mob to -SG28

He enclosure = 56.2%

1547 Purge 1L @ 200 mL/min

He = 525 ppmv CO =

VOCs = 0.1 ppmv O₂ = 18.5%

CO₂ = 1.6% H₂S = \emptyset

LEL = 6% CH₄ = \emptyset

1555 IR78-SG28-13B

Can = 10670

FC = 10475

Pi = -29.60 "Hg

1602 P_f = -6.15 "Hg

1615 Set up at -SG66

He enclosure = 58.3%

1617 Purge 1L @ 200 mL/min

He = 0 ppmv VOCs = 0.1 ppmv

O₂ = 18.8% CO₂ = 1.5%

CO = 4 ppmv H₂S = \emptyset

LEL = 6% CH₄ = \emptyset

1624 IR78-SG66-13B

Can = 10760 Pi = -28 "Hg

1631 FC = 10512 P_f = -5.10 "Hg

[IGNORE "DO NOT USE" ON CAN]



4/16/13

*Tool to remove probe union
and 1/2 socket on wench

1645 Return to field trailer

to organize equipment.

D. Seed off site for the day.

1700 Organizing materials

1800 Off site for the day.

Kim Stokes

MCIEAST MCB CAMLEJ 4/17/13

IRP VI MONITORING WE19

Personnel: Kim Stokes / DFW

David Seed / RDW

Objective: - Remove probe at IR78-

SG70 in Bldg 1606

• Pack and ship samples to ChemTech
and equipment to vendors.

0930 Arrive at field trailer to
pack samples and check COCs.

1000 D. Seed on site to assist.

1145 Mob to Postal Annex to
ship (12) boxes to ChemTech
Fed Ex No. 8017 9236 0311.

1245 Broke for lunch

1330 Return to Base

1350 mob to Bldg 1606 to
attempt probe removal @
-SG70.

1415 Could not chisel concrete
out; chisel bent. Patched
concrete over flush mount
probe.

1500 Off site for the week.

Kim Stokes

Preliminary Building Survey for Vapor Intrusion Investigation



CH2MHILL

Date: 4/8/13
Preparer: Kim Stokes
Facility: TC942 Camp Geiger Site 93
Address: E Street between 9th and 10th Sts.

School of Infantry - Supply Warehouse

Contact Person: Captain Ash (bldg); Andy Unsworth (bldg manager)
Phone Number: _____
e-mail address: _____

Building Description

Building or Room Identifier: TC942

Primary Activity within Building (select one):

- Manufacturing Storage Other
- Chemical processing Chemical Storage
- Administrative Instrumentation/Control

Notes: Office space in north
Warehouse (Ready to Eat Meals) (tents)

Approximate floor space _____

Number of floors 1

Multi-room building or Single room

Ceiling height 15'

Aboveground Construction Wood Concrete
 Brick Cinderblock
 Other _____

Floor plan attached? Yes No

Notes: _____

Preliminary Building Survey for Vapor Intrusion Investigation

Evaluation of Potential Conduits from Soil

Floor/foundation description (check all that apply)

Wood

Concrete

Elevated above grade?

2.5 ft above

Below grade?

Other _____

Expansion joints present (if concrete floor)?

Yes

No

N/A

Are expansion joints sealed?

Yes

No

N/A

need repair

Are sumps or floor drains present?

Yes

No

N/A

male head

Are basements or subsurface vaults present?

Yes

No

N/A

Are there subsurface drainage problems?

Yes

No

N/A

Notes:

Evaluation of Potential Pathways/Driving Forces

Are there locations with elevated positive or negative pressure (look for doors not opening/closing properly, perceptible airflow, audible fan noise)

Is there one air conditioning zone or multiple zones (if in a multi-room building)?

Single zone

Multi-zone

Other _____

Air vents in office space only; wall units - HVAC

3 units (see photo)

(building management may know; another tip-off is the presence of multiple thermostats = multiple zones)

Sources of outdoor air

Mechanical (air handling unit)

Doors

Windows

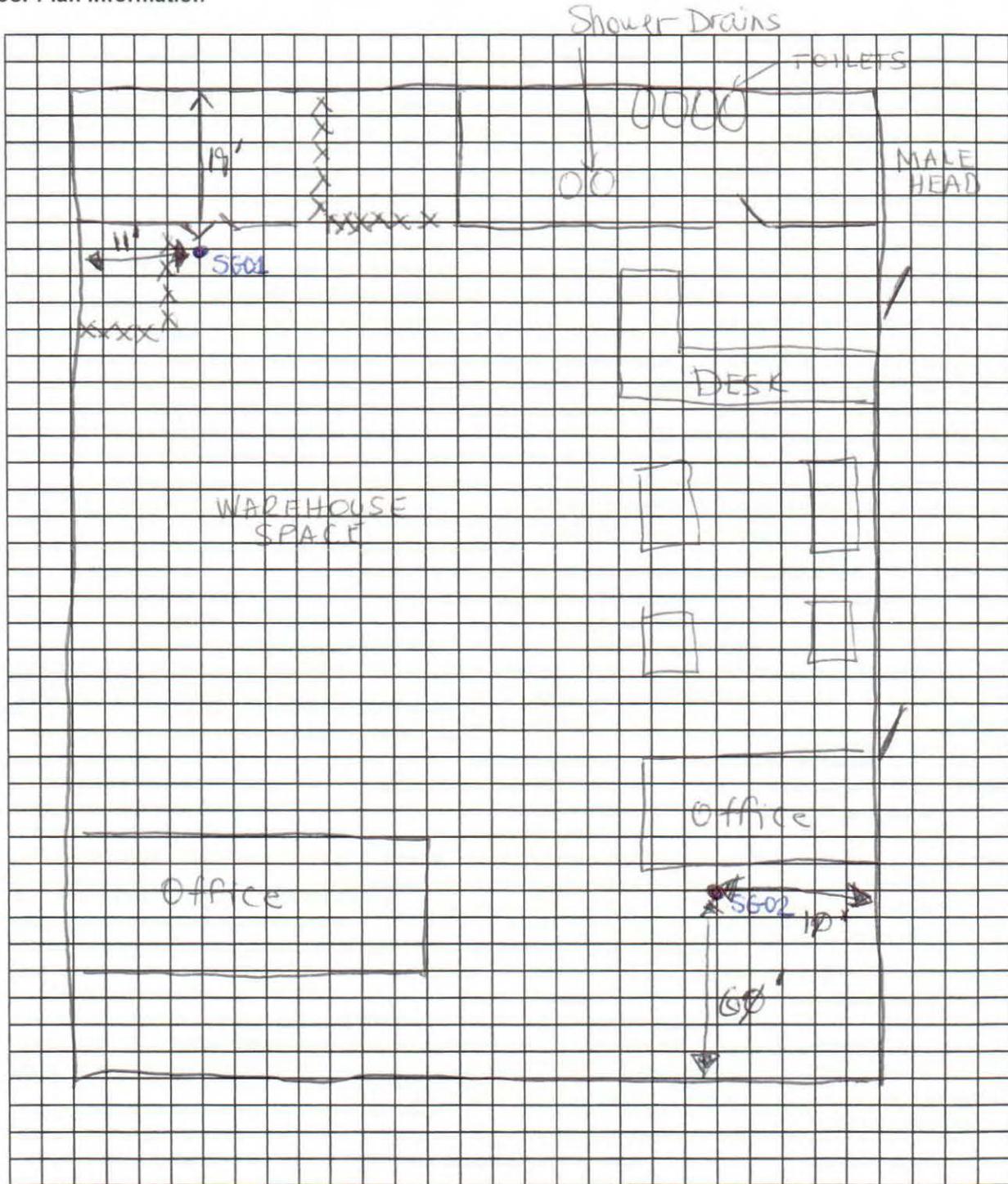
South bay door - a few hours a day.

HVAC - Fedders Unitary Products
model # H24-10009

Date: 4/8/13
Preparer: Kim Stokes
Facility: TC942
Description (floor): _____



Floor Plan Information





GROUNDWATER SAMPLING DATA SHEET

WELL ID: IR78-MWVI01

Project Name: MCI-EAST MCB CAMLEJ VI Monitoring
 Project Number: 424419
 Start Date: 4/14/2013
 Sampling Team: David Seed/RDU
Kim Stokes/DFW
 Purge Method: Low Flow
 Equipment: Peristaltic Pump
Horiba U-22; HACH Turbidity Meter
 Tubing Materials: 1/4 Teflon tubing

Casing Materials: 2 inch PVC Sch 40
 PID Reading: 0 ppmv
 Weather: Sunny, High 80 degrees F

Well Depth: 13 ft btoc
 Start Water Level: 4.89 ft btoc
 Water Column: 8.11 ft
 Well Diameter: 2 in
 Volume per foot: 0.163 gal/ft
 Well Volume: 1.32 gal
 Start Time: 12:55
 End Time: 13:35
 Screened Interval: 3-13 ft btoc
 Pump/Tubing Intake: 5.5 ft btoc

| Diam. (in) | Vol. (gal/ft) |
|------------|---------------|
| 1 | 0.041 |
| 1.25 | 0.064 |
| 2 | 0.163 |
| 4 | 0.653 |

WELL STABILIZATION DATA

| Time | Volume Removed (gallons) | pH | SPCOND. (mS/cm) | Temp. (°C) | ORP (mV) | Water level (ft) | D.O. (mg/L) | Turbidity (NTU) | Pumping rate (Lpm) | Appearance |
|---------------------------|--------------------------|-----------|-----------------|------------|-------------|------------------|-------------|------------------|--------------------|------------|
| Requirements ¹ | | + / - 0.1 | + / - 3% | + / - 0.2 | + / - 10 mV | < 0.3 ft | + / - 10% | <10 or + / - 10% | <0.5LPM | |
| 12:55 | NA | NA | NA | NA | NA | NA | NA | 97.6 | 0.35 | Cloudy |
| 13:00 | NA | NA | NA | NA | NA | NA | NA | 57.2 | 0.35 | Cloudy |
| 13:05 | NA | NA | NA | NA | NA | NA | NA | 40.0 | 0.35 | Cloudy |
| 13:10 | NA | NA | NA | NA | NA | 5.20 | NA | 25.7 | 0.35 | Clear |
| 13:15 | NA | NA | NA | NA | NA | 5.23 | NA | 22.1 | 0.35 | Clear |
| 13:20 | NA | NA | NA | NA | NA | 5.28 | NA | 23.1 | 0.35 | Clear |
| 13:25 | NA | NA | NA | NA | NA | 5.30 | NA | 15.4 | 0.35 | Clear |
| 13:30 | 4.00 | 5.33 | 0.338 | 18.33 | -31.0 | 5.31 | 11.68 | 17.2 | 0.35 | Clear |
| | | | | | | | | | | |
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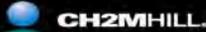
SAMPLE INFORMATION

Sample ID: IR78-MWVI01-GW01-13B; IR78-MWVI01-GW01D-13B; IR78-MWVI01-GW01MS/MSD-1; Primary Laboratory: ChemTech
 Analyses: 8260B QA/QC Laboratory: ChemTech
 Collection Date: 4/14/2013 Shipment Method: Fed Ex Priority Overnight
 Collection Time: 13:40 Well Condition/Comments: Good
 Field Filter? (Y/N): N

¹ Sampling standards adapted from USEPA Groundwater Sampling Guidelines for Superfund and RCRA Project Managers, 2002

Attachment B
Chains of Custody

|  | | 12750 Merit Drive Suite 1100 Dallas, TX Tel No: (352) 384-7002 Fax No: (352) 214-2814 | | <h1>CHAIN-OF-CUSTODY RECORD</h1> | | | | | | | | | | ¹ COC NUMBER: 424419 - 04172013-01 | | | |
|--|-------------------------|---|--------------------------|--|--------------------------|-------------------------|--|--|--------------------|-------------|---|--|---|---|---|--|--|
| ² PROJECT NAME: MCIEAST MCB CAMLEJ | | ⁵ PROJECT NUMBER: 424419.FI.FS | | ⁸ LAB NAME AND CONTACT: ChemTech Kurt Hummler, Lab PM | | | | ¹¹ FAX AND MAIL REPORTS/EDD TO: <small>RECIPIENT 1 (Name and Company)</small> Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | | | | ¹⁴ RECIPIENT 1 (Address, Tel No. , and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 | | | | | |
| ³ PROJECT PHASE/SITE/TASK: IRP VI Monitoring | | ⁶ CTO OR DO NUMBER: WE-19 | | ⁹ LAB PO NUMBER: NA | | | | ¹² FAX AND MAIL REPORTS/EDD TO: <small>RECIPIENT 2 (Name and Company)</small> Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | | | | ¹⁵ RECIPIENT 2 (Address, Tel No. , and Fax No.): email | | | | | |
| ⁴ PROJECT CONTACT: Kimberly Stokes | | ⁷ PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | | ¹⁰ LAB TEL NO AND FAX NO: phone: 908-728-3143 | | | | ¹³ FAX AND MAIL REPORTS/EDD TO: <small>RECIPIENT 3 (Name and Company)</small> Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | | | ¹⁶ RECIPIENT 3 (Address, Tel No. , and Fax No.): email | | | | | |
| | | | | | | | | | | | | ²⁵ ANALYSES | | | | | |
| ¹⁷ ITEM | ¹⁹ SAMPLE ID | ²⁰ MATRIX <small>(see codes on SOP)</small> | ²¹ DATE START | ²¹ DATE FINISHED | ²² TIME START | ²² TIME STOP | ²³ CANISTER VACUUM IN FIELD, HG (START) | ²³ CANISTER VACUUM IN FIELD, HG (STOP) | FLOW CONTROLLER ID | CANISTER ID | ²⁵ DATA PKG LEVEL <small>(see codes on SOP)</small> | ²⁴ TAT <small>(calendar days)</small> | Select VOCs by TO-15 SCAN Low-Level | Select VOCs by TO-15 SCAN | ²⁶ SAMPLE TYPE <small>(see codes on SOP)</small> | ²⁷ LAB ID <small>(for lab's use)</small> | ²⁸ COMMENTS/ SCREENING READINGS |
| 1 | IR88-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 10:12 | 8:01 | -30 | 0 | 10528 | 10443 | IV | 28 | X | | | | Collected for less than 24 hrs but can reached 0 " Hg |
| 2 | IR88-IA16-13B | IA | 4/9/2013 | 4/10/2013 | 10:32 | 8:09 | -30 | -5 | 10708 | 10494 | IV | 28 | X | | | | |
| 3 | IR88-IA15-13B | IA | 4/9/2013 | 4/10/2013 | 10:30 | 8:06 | -29 | -5.09 | 10222 | 10158 | IV | 28 | X | | | | |
| 4 | SWMU360-IA21-13B | IA | 4/9/2013 | 4/10/2013 | 13:46 | 11:44 | -30 | -18 | 10696 | 10591 | IV | 28 | X | | | | Collected for approximately 22 hrs but final pressure only 18 " Hg |
| 5 | SWMU360-IA21D-13B | IA | 4/9/2013 | 4/10/2013 | 13:46 | 11:44 | -29 | -0.13 | 10542 | 10268 | IV | 28 | X | | | | |
| 6 | SWMU360-IA22-13B | IA | 4/9/2013 | 4/10/2013 | 13:43 | 11:40 | -30 | -5.7 | 10771 | 10325 | IV | 28 | X | | | | |
| 7 | IR78-IA28-13B | IA | 4/9/2013 | 4/10/2013 | 16:07 | 15:23 | -29 | -6.13 | 10631 | 10601 | IV | 28 | X | | | | |
| 8 | IR96-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 14:30 | 11:55 | -30 | -5.6 | N/A | 10153 | IV | 28 | X | | | | Lost track of FC ID |
| 9 | IR78-IA29-13B | IA | 4/9/2013 | 4/10/2013 | 16:12 | 15:28 | -30 | -0.16 | 10626 | 10440 | IV | 28 | X | | | | |
| 10 | IR78-IA26-13B | IA | 4/9/2013 | 4/10/2013 | 16:34 | 15:52 | -30 | -5.5 | 10236 | 10060 | IV | 28 | X | | | | |
| ²⁹ SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | | | | ³⁰ FedEx number: | | | | ³¹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): | | | | | | | | | |
| ³² RELINQUISHED BY | | | DATE | | TIME | | ³³ RECEIVED BY | | | DATE | | TIME | | | | | |
| Printed Name and Signature: | | | | | | | Printed Name and Signature: | | | | | | | | | | |
| Kimberly Stokes | | | 17-Apr-2013 | | 17:30 | | | | | | | | | | | | |
| Printed Name and Signature: | | | | | | | Printed Name and Signature: | | | | | | | | | | |
| Printed Name and Signature: | | | | | | | Printed Name and Signature: | | | | | | | | | | |
| Printed Name and Signature: | | | | | | | Printed Name and Signature: | | | | | | | | | | |
| Distribution: [<input checked="" type="checkbox"/>] Original - Laboratory (To be returned with Analytical Report); [<input type="checkbox"/>] Copy 1 - Project File; [<input type="checkbox"/>] Copy 2 - PMO | | | | | | | | | | | | | | | | | |
| <small>Form CCI001, Rev 06/00</small> | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|-------------------------|--|--|--|---|
|  <small>12750 Merit Drive Suite 1100 Dallas, TX Tel No: (352) 384-7002 Fax No: (352) 214-2814</small> | CHAIN-OF-CUSTODY RECORD | | | | ¹ COC NUMBER: 424419 - 04172013-02 |
| | | | | | |

| | | | | |
|--------------------------|----------------------------|----------------------------------|--|--|
| PROJECT NAME: | PROJECT NUMBER: | LAB NAME AND CONTACT: | FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company) | RECIPIENT 1 (Address, Tel No. , and Fax No.): |
| MCIEAST MCB CAMLEJ | 424419.FLFS | ChemTech Kurt Hummler, Lab PM | Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 |
| PROJECT PHASE/SITE/TASK: | CTO OR DO NUMBER: | LAB PO NUMBER: | FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company) | RECIPIENT 2 (Address, Tel No. , and Fax No.): |
| IRP VI Monitoring | WE-19 | NA | Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | email |
| PROJECT CONTACT: | PROJECT TEL NO AND FAX NO: | LAB TEL NO AND FAX NO: | FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company) | RECIPIENT 3 (Address, Tel No. , and Fax No.): |
| Kimberly Stokes | phone: 214-998-4839 | phone: 908-728-3143 | Kimberly Stokes/CH2M HILL kstokes@ch2m.com | email |

| | | | | | | | | | | | | | | ANALYSES | | | |
|------|------------------|------------------------------|------------|---------------|------------|-----------|--|---|--------------------|-------------|--------------------------------------|------------------------|---|------------------------------|---|---------------------------|---------------------------------|
| ITEM | SAMPLE ID | MATRIX (see codes on SOP) | DATE START | DATE FINISHED | TIME START | TIME STOP | CANISTER VACUUM IN FIELD, HG (START) | CANISTER VACUUM IN FIELD, HG (STOP) | FLOW CONTROLLER ID | CANISTER ID | DATA PKG LEVEL (see codes on SOP) | TAT (calendar days) | Select VOCs by TO-15 SCAN Low-Level | Select VOCs by TO-15 SCAN | SAMPLE TYPE (see codes on SOP) | LAB ID (for lab's use) | COMMENTS/ SCREENING READINGS |
| 1 | IR78-IA27-13B | IA | 4/9/2013 | 4/10/2013 | 17:45 | 15:43 | -29 | -5.69 | 10101 | 10315 | IV | 28 | X | | | | |
| 2 | IR78-IA25-13B | IA | 4/9/2013 | 4/10/2013 | 17:42 | 15:47 | -30 | -5.74 | 10567 | 10407 | IV | 28 | X | | | | |
| 3 | IR78-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 18:22 | 16:04 | -28 | -4.15 | 10713 | 10589 | IV | 28 | X | | | | |
| 4 | SWMU360-SG12-13B | SG | 4/10/2013 | 4/10/2013 | 9:00 | 9:08 | -30 | -6 | 10166 | 10663 | IV | 28 | | X | | VOCs = 0.1 ppmv | |
| 5 | IR35-IA01-13B | IA | 4/10/2013 | 4/11/2013 | 16:00 | 15:55 | -29 | -4.1 | 10201 | 10606 | IV | 28 | X | | | | |
| 6 | IR35-IA02-13B | IA | 4/10/2013 | 4/11/2013 | 16:15 | 15:50 | -28 | -3.92 | 10545 | 10441 | IV | 28 | X | | | | |
| 7 | IR35-IA02D-13B | IA | 4/10/2013 | 4/11/2013 | 16:20 | 15:50 | -30 | -4.8 | 10254 | 10257 | IV | 28 | X | | | | |
| 8 | IR35-OA01-13B | OA | 4/10/2013 | 4/11/2013 | 16:35 | 16:00 | -30 | -1.35 | 10577 | 10266 | IV | 28 | X | | | | |
| 9 | IR89-IA03-13B | IA | 4/11/2013 | 4/12/2013 | 15:30 | 14:40 | -30 | -4.12 | 10228 | 10289 | IV | 28 | X | | | | |
| 10 | IR89-IA03D-13B | IA | 4/11/2013 | 4/12/2013 | 15:30 | 14:40 | -29 | -4.6 | 10183 | 10312 | IV | 28 | X | | | | |

| | | |
|--|-----------------------------|---|
| ²⁵ SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | ²⁶ FedEx number: | ²⁷ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
|--|-----------------------------|---|

| RELINQUISHED BY | DATE | TIME | RECEIVED BY | DATE | TIME |
|--|-------------|-------|-----------------------------|------|------|
| Printed Name and Signature: Kimberly Stokes | 17-Apr-2013 | 17:30 | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |



12750 Merit Drive Suite 1100 Dallas, TX
Tel No: (352) 394-7002
Fax No: (352) 214-2814

CHAIN-OF-CUSTODY RECORD

¹ COC NUMBER:
424419 - 04172013-03

| | | | | |
|---|---|--|--|---|
| ² PROJECT NAME: MCIEAST MCB CAMLEJ | ⁵ PROJECT NUMBER: 424419.FLFS | ³ LAB NAME AND CONTACT: ChemTech Kurt Hummler, Lab PM | ¹¹ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | ¹⁴ RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 |
| ⁴ PROJECT PHASE/SITE/TASK: IRP VI Monitoring | ⁶ CTO OR DO NUMBER: WE-19 | ⁹ LAB PO NUMBER: NA | ¹² FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | ¹⁵ RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| ⁸ PROJECT CONTACT: Kimberly Stokes | ⁷ PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | ¹⁰ LAB TEL NO AND FAX NO: phone: 908-728-3143 | ¹³ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | ¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.): email |

| ¹⁷ ITEM | ¹⁹ SAMPLE ID | ²⁰ MATRIX (see codes on SOP) | ²¹ DATE START | ²¹ DATE FINISHED | ²¹ TIME START | ²¹ TIME STOP | ²² CANISTER VACUUM IN FIELD HG (START) | ²³ CANISTER VACUUM IN FIELD HG (STOP) | FLOW CONTROLLER ID | CANISTER ID | ²⁴ DATA PKG LEVEL (see codes on SOP) | ²⁵ DAY (calendar days) | Select VOCs by TO-15 SCAN Low-Level | Select VOCs by TO-15 SCAN | ²⁶ SAMPLE TYPE (see codes on SOP) | ²⁷ LAB ID (for lab's use) | ²⁸ COMMENTS/ SCREENING READINGS | ²⁵ ANALYSES | |
|--------------------|-------------------------|--|--------------------------|-----------------------------|--------------------------|-------------------------|---|--|--------------------|-------------|--|--------------------------------------|---|------------------------------|---|---|---|------------------------|--|
| | | | | | | | | | | | | | | | | | | | |
| 1 | IR89-IA04-13B | IA | 4/11/2013 | 4/12/2013 | 15:33 | 14:42 | -29 | -4.3 | 10516 | 10445 | IV | 28 | X | | | | | | |
| 2 | IR89-OA01-13B | IA | 4/11/2013 | 4/12/2013 | 15:35 | 14:34 | -29 | -4.69 | 10706 | 10598 | IV | 28 | X | | | | | | |
| 3 | SWMU360-SG20-13B | SG | 4/11/2013 | 4/11/2013 | 12:24 | 12:31 | -29.5 | -7 | 10647 | 10462 | IV | 28 | | X | | | VOCs = 12.3 ppmv | | |
| 4 | IR73-SG04-13B | SG | 4/12/2013 | 4/12/2013 | 10:50 | 10:57 | -30 | -7 | 10480 | 10455 | IV | 28 | | X | | | VOCs = 0.1 ppmv | | |
| 5 | IR73-SG04D-13B | SG | 4/12/2013 | 4/12/2013 | 10:50 | 10:57 | -29 | -7.2 | 10638 | 10720 | IV | 28 | | X | | | VOCs = 0.1 ppmv | | |
| 6 | IR73-SG03-13B | SG | 4/12/2013 | 4/12/2013 | 11:32 | 11:39 | -29 | -6.2 | 10215 | 10758 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 7 | IR73-SG02-13B | SG | 4/12/2013 | 4/12/2013 | 12:10 | 12:17 | -30 | -7.6 | 10554 | 10657 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 8 | IR73-SG01-13B | SG | 4/12/2013 | 4/12/2013 | 12:37 | 12:44 | -29 | -7.72 | 10255 | 10682 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 9 | IR88-SG19-13B | SG | 4/12/2013 | 4/12/2013 | 16:42 | 16:49 | -28.5 | -2.97 | 10192 | 10147 | IV | 28 | | X | | | VOCs = 0.6 ppmv | | |
| 10 | IR93-SG01-13B | SG | 4/13/2013 | 4/13/2013 | 8:38 | 8:45 | -28.5 | -1.01 | 10163 | 10799 | IV | 28 | | X | | | VOCs = 0 ppmv | | |

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| ²⁹ SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | ³⁰ FedEx number: | ³¹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
|--|-----------------------------|---|

| ³² RELINQUISHED BY | DATE | TIME | ³³ RECEIVED BY | DATE | TIME |
|--|-------------|-------|-----------------------------|------|------|
| Printed Name and Signature: Kimberly Stokes | 17-Apr-2013 | 17:30 | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |



12750 Merit Drive Suite 1100 Dallas, TX
Tel No: (352) 394-7002
Fax No: (352) 214-2814

CHAIN-OF-CUSTODY RECORD

¹ COC NUMBER:
424419 - 04172013-04

| | | | | |
|---|---|--|--|---|
| ² PROJECT NAME: MCIEAST MCB CAMELJ | ⁵ PROJECT NUMBER: 424419.FLFS | ³ LAB NAME AND CONTACT: ChemTech Kurt Hummler, Lab PM | ¹¹ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | ¹⁴ RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 |
| ⁴ PROJECT PHASE/SITE/TASK: IRP VI Monitoring | ⁶ CTO OR DO NUMBER: WE-19 | ⁹ LAB PO NUMBER: NA | ¹² FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | ¹⁵ RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| ⁸ PROJECT CONTACT: Kimberly Stokes | ⁷ PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | ¹⁰ LAB TEL NO AND FAX NO: phone: 908-728-3143 | ¹³ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | ¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.): email |

²⁵ ANALYSES

| ¹⁷ ITEM | ¹⁹ SAMPLE ID | ²⁰ MATRIX (see codes on SOP) | ²¹ DATE START | ²¹ DATE FINISHED | ²¹ TIME START | ²¹ TIME STOP | ²² CANISTER VACUUM IN FIELD HG (START) | ²² CANISTER VACUUM IN FIELD HG (STOP) | FLOW CONTROLLER ID | CANISTER ID | ²³ DATA PKG LEVEL (see codes on SOP) | ²⁴ DAY (calendar days) | Select VOCs by TO-15 SCAN Low-Level | Select VOCs by TO-15 SCAN | ²⁶ SAMPLE TYPE (see codes on SOP) | ²⁷ LAB ID (for lab's use) | ²⁸ COMMENTS/ SCREENING READINGS |
|--------------------|-------------------------|--|--------------------------|-----------------------------|--------------------------|-------------------------|--|---|--------------------|-------------|--|--------------------------------------|---|------------------------------|---|---|---|
| 1 | IR93-SG02-13B | SG | 4/13/2013 | 4/13/2013 | 9:04 | 9:11 | -28.5 | -6.7 | 10177 | 10734 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 2 | IR35-SG13-13B | SG | 4/13/2013 | 4/13/2013 | 9:57 | 10:04 | -29 | -5.6 | 10250 | 10652 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 3 | IR88-CS01-13B | CS | 4/13/2013 | 4/14/2013 | 13:50 | 12:00 | -29 | 0 | 10457 | 10258 | IV | 28 | X | | | | |
| 4 | IR88-CS01D-13B | CS | 4/13/2013 | 4/14/2013 | 13:50 | 12:00 | -28 | -3.2 | 10537 | 10304 | IV | 28 | X | | | | |
| 5 | IR88-OA02-13B | OA | 4/13/2013 | 4/14/2013 | 14:00 | 12:05 | -29 | -4.4 | 10176 | 10411 | IV | 28 | X | | | | |
| 6 | IR88-SG20-13B | SG | 4/15/2013 | 4/15/2013 | 8:20 | 8:27 | -28 | -4.7 | 10221 | 10660 | IV | 28 | | X | | | VOCs = 0.1 ppmv |
| 7 | IR88-SG20D-13B | SG | 4/15/2013 | 4/15/2013 | 8:20 | 8:27 | -29 | -5.2 | 10569 | 10726 | IV | 28 | | X | | | VOCs = 0.1 ppmv |
| 8 | IR78-SG72-13B | SG | 4/15/2013 | 4/15/2013 | 9:21 | 9:28 | -29 | -6.5 | 10543 | 10729 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 9 | IR78-SG70-13B | SG | 4/15/2013 | 4/15/2013 | 10:05 | 10:12 | -28 | 0 | 10553 | 10656 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 10 | IR78-SG71-13B | SG | 4/15/2013 | 4/15/2013 | 11:25 | 11:32 | -29 | 0 | 10764 | 10800 | IV | 28 | | X | | | VOCs = 0 ppmv |

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| ²⁹ SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | ³⁰ FedEx number | ³¹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
|--|----------------------------|---|

| ³² RELINQUISHED BY | DATE | TIME | ³³ RECEIVED BY | DATE | TIME |
|--|-------------|-------|-----------------------------|------|------|
| Printed Name and Signature: Kimberly Stokes | 17-Apr-2013 | 17:30 | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |

|  <small>12750 Merit Drive Suite 1100 Dallas, TX Tel No: (352) 394-7002 Fax No: (352) 214-2814</small> | | CHAIN-OF-CUSTODY RECORD | | | | | | | | | | <small>¹ COC NUMBER:</small> 424419 - 04172013-05 | | | | | | | |
|---|--|--|---|---|---|--|---|---|-----------------------------------|----------------------------|--|---|--|--|---|---|--|---------------------|--|
| <small>² PROJECT NAME:</small> | | <small>³ PROJECT NUMBER:</small> | | <small>⁴ LAB NAME AND CONTACT:</small> | | | | <small>⁵ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company):</small> | | | | <small>⁶ RECIPIENT 1 (Address, Tel No., and Fax No.):</small> | | | | | | | |
| MCIEAST MCB CAMLEJ | | 424419.FLFS | | ChemTech Kurt Hummler, Lab PM | | | | Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | | | | 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 | | | | | | | |
| <small>⁷ PROJECT PHASE/SITE/TASK:</small> | | <small>⁸ CTO OR DO NUMBER:</small> | | <small>⁹ LAB PO NUMBER:</small> | | | | <small>¹⁰ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company):</small> | | | | <small>¹¹ RECIPIENT 2 (Address, Tel No., and Fax No.):</small> | | | | | | | |
| IRP VI Monitoring | | WE-19 | | NA | | | | Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | | | | email | | | | | | | |
| <small>¹² PROJECT CONTACT:</small> | | <small>¹³ PROJECT TEL NO AND FAX NO:</small> | | <small>¹⁴ LAB TEL NO AND FAX NO:</small> | | | | <small>¹⁵ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company):</small> | | | | <small>¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.):</small> | | | | | | | |
| Kimberly Stokes | | phone: 214-998-4839 | | phone: 908-728-3143 | | | | Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | | | email | | | | | | | |
| <small>¹⁷ ANALYSES</small> | | | | | | | | | | | | | | | | | | | |
| <small>¹⁷ ITEM</small> | <small>¹⁸ SAMPLE ID</small> | <small>¹⁹ MATRIX (see codes on SOP)</small> | <small>²⁰ DATE START</small> | <small>²¹ DATE FINISHED</small> | <small>²² TIME START</small> | <small>²³ TIME STOP</small> | <small>²⁴ CANISTER VACUUM IN FIELD HG. (START)</small> | <small>²⁵ CANISTER VACUUM IN FIELD HG. (STOP)</small> | <small>FLOW CONTROLLER ID</small> | <small>CANISTER ID</small> | <small>²⁶ DATA PKG LEVEL (see codes on SOP)</small> | <small>²⁷ TAT (calendar days)</small> | <small>Select VOCs by TO-15 SCAN Low-Level</small> | <small>Select VOCs by TO-15 SCAN</small> | <small>²⁸ SAMPLE TYPE (see codes on SOP)</small> | <small>²⁹ LAB ID (for lab's use)</small> | <small>³⁰ COMMENTS/ SCREENING READINGS</small> | | |
| 1 | SWMU360-SG21-13B | SG | 4/15/2013 | 4/15/2013 | 14:09 | 14:16 | -29 | -0.46 | 10539 | 10755 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 2 | SWMU360-SG22-13B | SG | 4/15/2013 | 4/15/2013 | 14:40 | 14:47 | -28 | -1.06 | 10703 | 10677 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 3 | IR96-SG01-13B | SG | 4/15/2013 | 4/15/2013 | 15:07 | 15:14 | -29 | -5.27 | 10774 | 10750 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 4 | IR96-SG02-13B | SG | 4/15/2013 | 4/15/2013 | 15:30 | 15:37 | -29 | -2.96 | 10694 | 10740 | IV | 28 | | X | | | VOCs = 0 ppmv | | |
| 5 | IR78-SG25-13B | SG | 4/16/2013 | 4/16/2013 | 9:13 | 9:20 | -29 | -6 | 10213 | 10431 | IV | 28 | | X | | | VOCs = 4.3 ppmv | | |
| 6 | IR78-SG26-13B | SG | 4/16/2013 | 4/16/2013 | 14:27 | 14:34 | -29.52 | -3.58 | 10484 | 10468 | IV | 28 | | X | | | VOCs = 3.7 ppmv | | |
| 7 | IR78-SG27-13B | SG | 4/16/2013 | 4/16/2013 | 15:18 | 15:25 | -28.69 | -6.6 | 10575 | 10748 | IV | 28 | | X | | | VOCs = 0.3 ppmv | | |
| 8 | IR78-SG28-13B | SG | 4/16/2013 | 4/16/2013 | 15:55 | 16:02 | -29.6 | -6.15 | 10475 | 10670 | IV | 28 | | X | | | VOCs = 0.1 ppmv | | |
| 9 | IR78-SG66-13B | SG | 4/16/2013 | 4/16/2013 | 16:24 | 16:31 | -28 | -5.1 | 10512 | 10760 | IV | 28 | | X | | | VOCs = 0.1 ppmv; Ignore "Do Not Use" note on canister tag - please analyze | | |
| 10 | IR78-SG67-13B | SG | 4/16/2013 | 4/16/2013 | 10:44 | 10:51 | -29 | -3.83 | 10583 | 10118 | IV | 28 | | X | | | VOCs = 0.4 ppmv | | |
| 11 | IR78-SG67D-13B | SG | 4/16/2013 | 4/16/2013 | 10:44 | 10:51 | -28 | -2.46 | 10170 | 10111 | IV | 28 | | X | | | VOCs = 0.4 ppmv | | |
| <small>³¹ SAMPLER(S) AND COMPANY: (please print)</small> | | <small>³² FedEx number:</small> | | | | <small>³³ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):</small> | | | | | | | | | | | | | |
| David Seed / CH2M HILL Kim Stokes / CH2M HILL | | | | | | | | | | | | | | | | | | | |
| <small>³⁴ RELINQUISHED BY</small> | | | | | <small>DATE</small> | | | <small>TIME</small> | | | <small>³⁵ RECEIVED BY</small> | | | | | <small>DATE</small> | | <small>TIME</small> | |
| Printed Name and Signature: Kimberly Stokes | | | | | 17-Apr-2013 | | | 17:30 | | | Printed Name and Signature: | | | | | | | | |
| Printed Name and Signature: | | | | | | | | | | | Printed Name and Signature: | | | | | | | | |
| <small>Distribution: [x] Original - Laboratory (To be returned with Analytical Report); [] Copy 1 - Project File; [] Copy 2 - PMO</small> | | | | | | | | | | | | | | | | | | | |
| <small>Form CCR01, Rev 06/00</small> | | | | | | | | | | | | | | | | | | | |

| | | | | |
|--|--|---|---|--|
| 2 PROJECT NAME: MCIEAST MCB CAMLEJ | 5 PROJECT NUMBER: 424419.FLFS | 8 LAB NAME AND CONTACT: ChemTech Kurt Hummler, Lab PM | 11 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | 14 RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd, Suite 304 Charlotte, NC 28226 #704-543-3274 |
| 3 PROJECT PHASE/SITE/TASK: IRP VI Monitoring | 6 CTO OR DO NUMBER: WE-19 | 9 LAB PO NUMBER: NA | 12 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | 15 RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| 4 PROJECT CONTACT: Kimberly Stokes | 7 PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | 10 LAB TEL NO AND FAX NO: phone: 908-728-3143 | 13 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | 16 RECIPIENT 3 (Address, Tel No., and Fax No.): email |

| 17 ITEM | 19 SAMPLE ID | 20 MATRIX <small>(see codes on SOP)</small> | 21 DATE | 21 Number of Vials | 22 TIME | 22 Preservative | 23 DATA PKG LEVEL <small>(see codes on SOP)</small> | 24 TAT <small>(calendar days)</small> | 8260B | 26 SAMPLE TYPE <small>(see codes on SOP)</small> | 27 LAB ID <small>(for lab's use)</small> | 28 COMMENTS/ SCREENING READINGS | | | | | | |
|---------|----------------------------|--|-----------|--------------------|---------|-----------------|--|--|--------------|---|---|------------------------------------|--|--|--|--|--|--|
| 1 | IR78-MWVI01-GW01-13B | GW | 4/10/2013 | 3 | 13:40 | HCl | N/A | 14 | X | | | | | | | | | |
| 2 | IR78-MWVI01-GW01D-13B | GW | 4/11/2013 | 3 | 13:45 | HCl | N/A | 14 | X | | | | | | | | | |
| 3 | IR78-MWVI01-GW01MS/MSD-13B | GW | 4/11/2013 | 9 | 13:40 | HCl | N/A | 14 | X | | | | | | | | | |
| 4 | EB-041413 | GW | 4/11/2013 | 3 | 15:50 | HCl | N/A | 14 | X | | | | | | | | | |
| 5 | TB-041413 | GW | 4/11/2013 | 3 | N/A | HCl | N/A | 14 | X | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |

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|---|---|--|
| 25 SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | 30 FedEx number: 7995 3177 9618 | 31 SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
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| | | | | | |
|--|-------------|-------|-----------------------------|------|------|
| 32 RELINQUISHED BY: | DATE | TIME | 33 RECEIVED BY: | DATE | TIME |
| Printed Name and Signature: Kimberly Stokes | 16-Apr-2013 | 17:30 | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |

| | | | |
|---|---|-------------------------|--|
|  | 12750 Merit Drive Suite 1100 Dallas, TX Tel No: (352) 384-7002 Fax No: (352) 214-2814 | CHAIN-OF-CUSTODY RECORD | 1 COC NUMBER: 424419 - 04112013-01 |
|---|---|-------------------------|--|

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|--|--|---|---|--|
| 2 PROJECT NAME: MCIEAST MCB CAMELJ | 5 PROJECT NUMBER: 424419.FIFS | 8 LAB NAME AND CONTACT: USC Department of Earth Sciences Doug Hammond, Lab PM | 11 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | 14 RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 |
| 7 PROJECT PHASE/SITE/TASK: IRP VI Monitoring | 6 CTO OR DO NUMBER: WE-19 | 9 LAB PO NUMBER: NA | 12 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | 15 RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| 4 PROJECT CONTACT: Kimberly Stokes | 7 PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | 10 LAB TEL NO AND FAX NO: phone: 213-740-5837 | 13 FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | 16 RECIPIENT 3 (Address, Tel No., and Fax No.): email |

| 17 ITEM | 19 SAMPLE ID | 20 MATRIX (see codes on SOP) | 21 DATE START | 21 DATE FINISHED | 22 TIME START | 22 TIME STOP | 23 DATA PKG LEVEL (see codes on SOP) | 24 *FAT (calendar days) | Radon | | | 26 SAMPLE TYPE (see codes on SOP) | 27 LAB ID (for lab's use) | 28 COMMENTS/ SCREENING READINGS | 25 ANALYSES | | | | |
|---------|------------------|---------------------------------|---------------|------------------|---------------|--------------|---|----------------------------|-------|--|--|--------------------------------------|------------------------------|------------------------------------|-------------|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
| 1 | SWMU360-SG12-13B | SG | 4/10/2013 | 4/10/2013 | 9:05 | 9:10 | N/A | 14 | X | | | | | | | | | | |
| 2 | SWMU360-SG20-13B | SG | 4/11/2013 | 4/11/2013 | 12:27 | 12:32 | N/A | 14 | X | | | | | | | | | | |
| 3 | SWMU360-IA21-13B | SG | 4/11/2013 | 4/11/2013 | 12:57 | 13:02 | N/A | 14 | X | | | | | | | | | | |
| 4 | SWMU360-IA22-13B | SG | 4/11/2013 | 4/11/2013 | 13:00 | 13:05 | N/A | 14 | X | | | | | | | | | | |
| 5 | IR96-OA01-13B | SG | 4/11/2013 | 4/11/2013 | 13:05 | 13:10 | N/A | 14 | X | | | | | | | | | | |
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| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
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| 29 SAMPLER(S) AND COMPANY: (release print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | 30 Field# number: 802544738456 | 31 SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
|--|--|--|

| | | | | | |
|---|----------------------|----------------|--|-------|-------|
| 32 RELINQUISHED BY: Printed Name and Signature: Kimberly Stokes | DATE: 19-Mar-2013 | TIME: 17:30 | 33 RECEIVED BY: Printed Name and Signature: | DATE: | TIME: |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |



12750 Merit Drive Suite 1100 Dallas, TX
Tel No: (352) 384-7002
Fax No: (352) 214-2814

CHAIN-OF-CUSTODY RECORD

¹ COC NUMBER:

**424419 -
04112013-01**

| | | | | |
|---|---|--|--|---|
| ² PROJECT NAME: MCIEAST MCB CAMLEJ | ⁵ PROJECT NUMBER: 424419.FLFS | ³ LAB NAME AND CONTACT: USC Department of Earth Sciences Doug Hammond, Lab PM | ¹¹ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | ¹⁴ RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 |
| ⁴ PROJECT PHASE/SITE/TASK: IRP VI Monitoring | ⁶ CTO OR DO NUMBER: WE-19 | ⁷ LAB PO NUMBER: NA | ¹² FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL kerihallberg@ch2m.com | ¹⁵ RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| ⁸ PROJECT CONTACT: Kimberly Stokes | ⁹ PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | ¹⁰ LAB TEL NO AND FAX NO: phone: 213-740-5837 | ¹³ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | ¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.): email |

| ¹⁷ ITEM | ¹⁹ SAMPLE ID | ²⁰ MATRIX (see codes on SOP) | ²¹ DATE START | ²¹ DATE FINISHED | ²² TIME START | ²² TIME STOP | ²¹ DATA PKG LEVEL (see codes on SOP) | ²⁴ TAT (calendar days) | Radon | | ²⁵ SAMPLE TYPE (see codes on SOP) | ²⁷ LAB ID (for lab's use) | ²⁸ COMMENTS/ SCREENING READINGS | ²⁹ ANALYSES | | | |
|--------------------|-------------------------|--|--------------------------|-----------------------------|--------------------------|-------------------------|--|--------------------------------------|-------|--|---|---|---|------------------------|--|--|--|
| | | | | | | | | | | | | | | | | | |
| 1 | IR78-SG70-13B | SG | 4/15/2013 | 4/15/2013 | 10:15 | 10:20 | N/A | 14 | X | | | | | | | | |
| 2 | IR78-IA28-13B | IA | 4/15/2013 | 4/15/2013 | 10:20 | 10:25 | N/A | 14 | X | | | | | | | | |
| 3 | IR78-OA01-13B | OA | 4/15/2013 | 4/15/2013 | 10:30 | 10:35 | N/A | 14 | X | | | | | | | | |
| 4 | IR78-IA29-13B | IA | 4/15/2013 | 4/15/2013 | 10:45 | 10:50 | N/A | 14 | X | | | | | | | | |
| 5 | IR78-SG71-13B | SG | 4/15/2013 | 4/15/2013 | 11:35 | 11:40 | N/A | 14 | X | | | | | | | | |
| 6 | IR78-SG25-13B | SG | 4/16/2013 | 4/16/2013 | 9:20 | 9:25 | N/A | 14 | X | | | | | | | | |
| 7 | IR78-IA25-13B | IA | 4/16/2013 | 4/16/2013 | 10:05 | 10:10 | N/A | 14 | X | | | | | | | | |
| 8 | IR78-IA26-13B | IA | 4/16/2013 | 4/16/2013 | 10:15 | 10:20 | N/A | 14 | X | | | | | | | | |
| 9 | IR78-SG67-13B | SG | 4/16/2013 | 4/16/2013 | 10:52 | 10:57 | N/A | 14 | X | | | | | | | | |

| | | |
|--|---|---|
| ²⁶ SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | ²⁸ EcolEX number: 802544738456 | ³¹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): |
|--|---|---|

| | | | | | |
|--|-------------|-------|-----------------------------|------|------|
| ³² RELINQUISHED BY | DATE | TIME | ³³ RECEIVED BY | DATE | TIME |
| Printed Name and Signature: Kimberly Stokes | 19-Mar-2013 | 17:30 | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |
| Printed Name and Signature: | | | Printed Name and Signature: | | |

Attachment C
Utility Location Report

ECLS INC.

Geophysical Survey

Building TC942, 133, 57, and 1827

CTO WE55

Sites: Building TC942 Camp Geiger; Building 133, 57, and 1827 Camp Lejeune main side

Survey Crew: Michael Thompson, Ben Sox

Equipment: GSSI GPR SIR 3000, 1.6 GHz Antenna

Procedure: Before field work was conducted utility maps were pulled. These maps came from Base Utility's published map. The maps showed the utilities that could be encountered when the survey began. For each site a visual inspection of the outside of the buildings was conducted to determine where and what utilities were running into the buildings. The CH2M hill representative then showed where the holes for air sampling were to be drilled. The 1.6 GHz antenna penetrates the ground to a maximum depth of three feet. This size antenna gives a finer image at shallow depths making it ideal for concrete scanning. The GPR unit was then run in straight line with tick marks made on the concrete which represented an anomaly. The GPR antenna was then moved over two feet and the process was repeated. The marks representing the anomalies were then lined up to show the orientation of the rebar. Next this process was repeated perpendicular to the established lines. When completed this gave the CH2M Hill representative a lattice (checkered board pattern) of the rebar beneath the concrete. This gave a save area to drill for the air sampling.

Conclusions:

Building TC942: After visual inspection it was determined the communication and power where running overhead and the two drill areas were not in conflict with water or sewer. The GPR survey was conducted per the procedures. It was determined that there was checkered board lattice of rebar, with

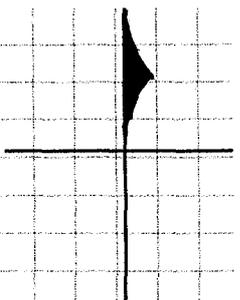
each box 6"x6" (see sketch 1). No other anomalies showed up to suggest any other conflicts with the drilling site.

Building 133: The visual inspection of the site determined the communication and power were running overhead. This specific site survey was conducted over two days; the first day was 4/8/13, and the second 4/10/13. The first day three areas were cleared: one in room 113 and two others in the hallway (see sketch 2). They were surveyed per the procedure process discussed earlier. Some of the pieces of rebar did not make a straight line (see sketch 2). This is believed to be a fault in the building process as this building was constructed in the 1960's, and the rebar had shifted in the long curing process. After CH2M Hill representatives sampled these areas it was determined that more sampling sites were needed. On April 10 2013 four more areas were surveyed and cleared for drilling. There were two areas in Room 112 and two areas in Room 109 (see sketch 3). The survey produced a checkered board pattern of the rebar, some out of line pieces of rebar showed up again. On average the squares in the pattern 3"x3" see sketches 2 and 3).

Building 57 Barracks: The building was visually inspected and determined utilities were running overhead. The first location was in the Military Police company office. The survey was conducted per the procedure discussed earlier. The survey produced a checkerboard pattern of 2"x2" size squares (see sketch 4). The next site was in the lounge area of the barracks. This survey produced the same 2"x2" checkered board pattern seen in the company office. It was determined this was a wire mesh frame in the concrete.

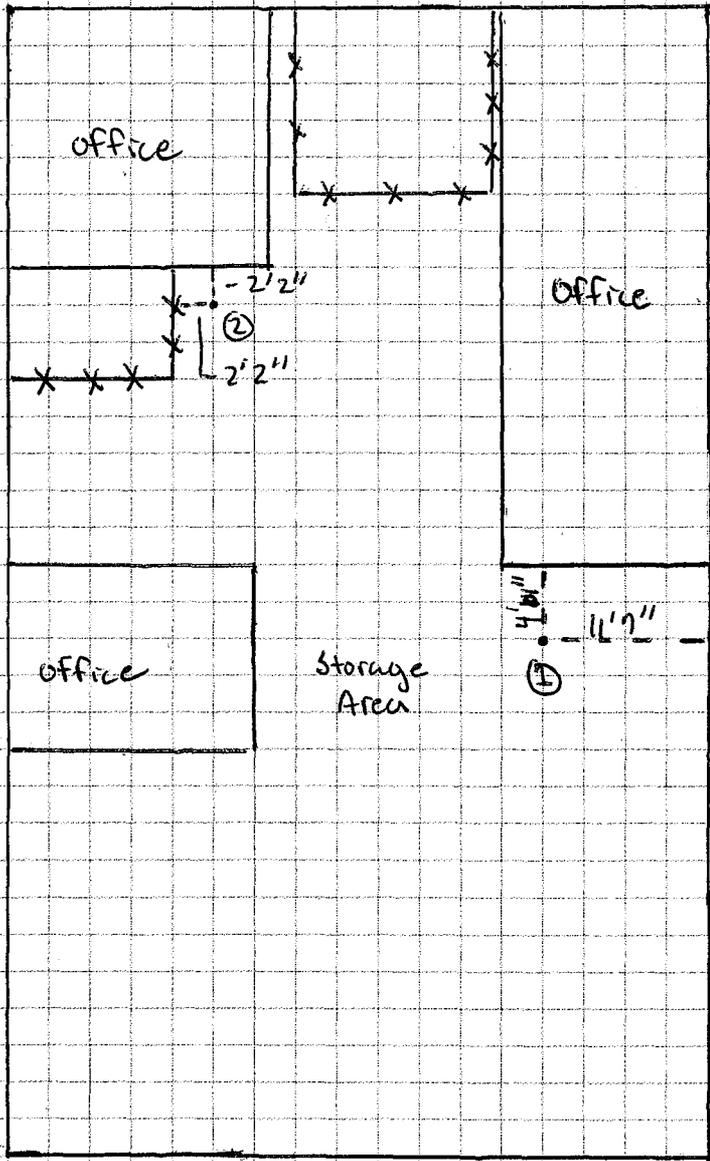
Building 1827: First a visual inspection of the building was conducted. This determined there would be no conflicts with the sampling areas. In both areas the survey was conducted as the procedures discussed earlier. The survey produced a checkered board pattern with 2"x2" squares (see sketch 5). It was determined that this represented a wire mesh frame beneath the concrete.

N



10th Street

Building TC 1942
Camp Geiger
Geophysical
Concrete Scan
Sketch

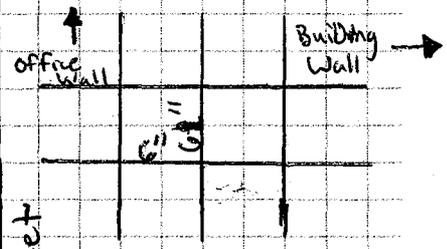


D Street

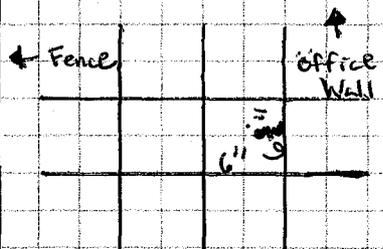
E Street

9th Street

① Rebar Lattice



② Rebar Lattice



①

| | |
|-----------|-------------|
| PROJECT: | TC 1942 GPR |
| DRAWN BY: | BS |
| SCALE: | N/A |
| DATE: | 4-9-13 |

This sketch is only to be used as a reference to visualize the actual layout of the property, utilities and/or any other items that may be named herein. This document is not to be used as a legal description and is not admissible in any court or administration.

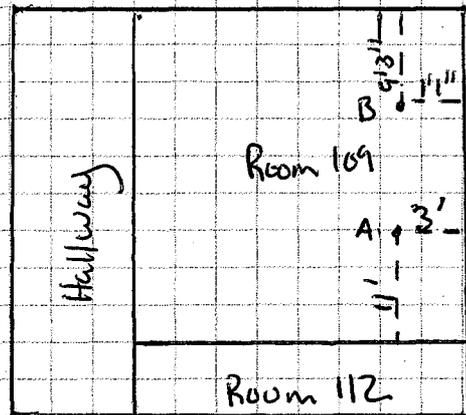
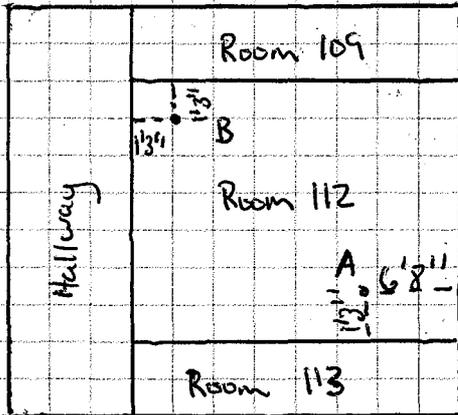
ECLS
SURVEYING THE EAST COAST
111 S. 13TH ST.
ERWIN, NC 28339

910.897.3257 EASTCOASTLS.COM 910.897.2329 (FAX)

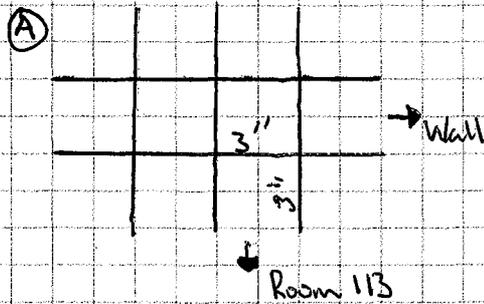
Building 133 Concrete Scans 4-10-13

Scan 1 Room 112 Bathroom

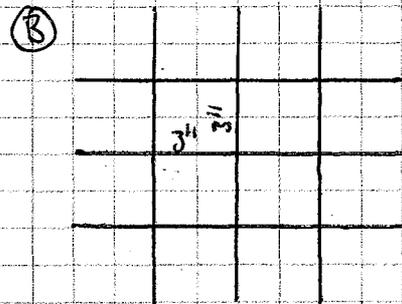
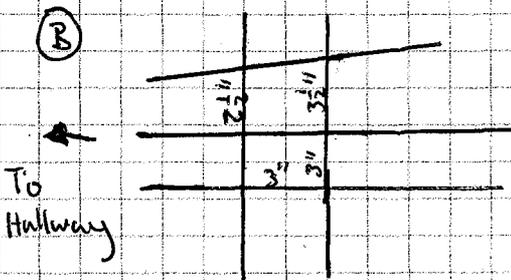
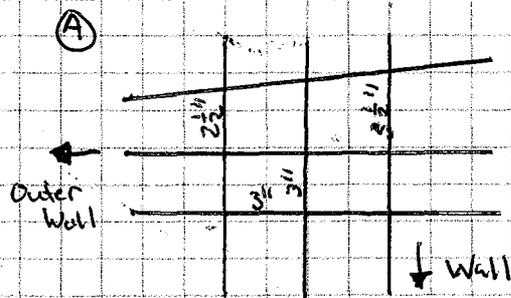
Scan 2 Room 109 Company Office



Rebar Lattice



Rebar Lattice



③

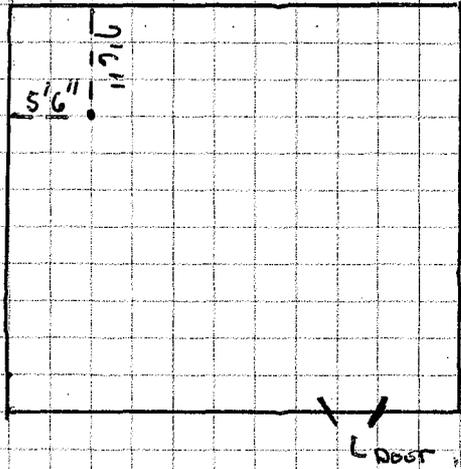
PROJECT: Bui 133 GPR
 DRAWN BY: BS
 SCALE: N/A
 DATE: 4-15-13

This sketch is only to be used as a reference to visualize the actual layout of the property, utilities and/or any other items that may be named herein. This document is not to be used as a legal description and is not admissible in any court or administration.

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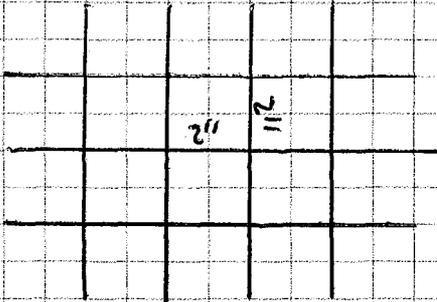
GPR Concrete Scan Building 57 Camp Lejeune

Scan 1 Company Office MP.

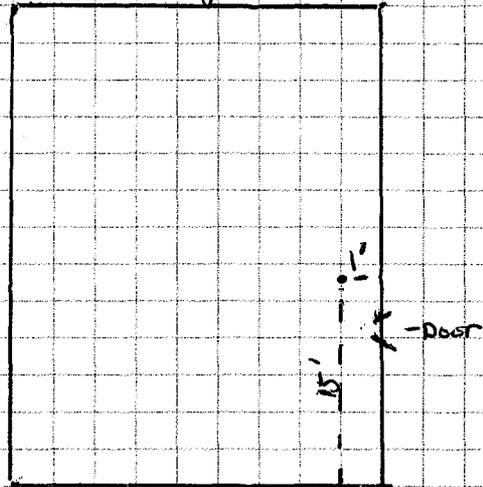


Lawn

Rebar Lattice

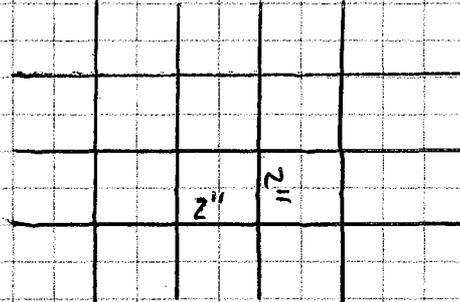


Scan 2 Lounge
Parking Lot



Lawn

Rebar Lattice



4

E
C
L
S

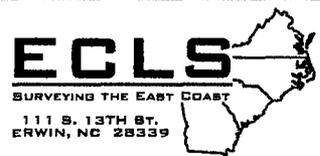
PROJECT: Building 57 GPR

DRAWN BY: BS

SCALE: N/A

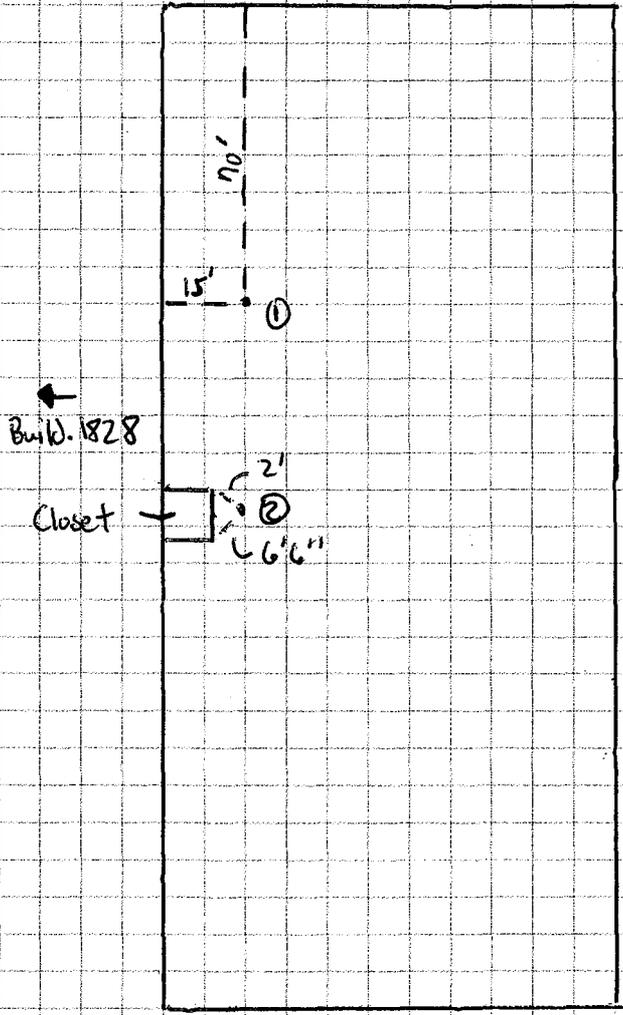
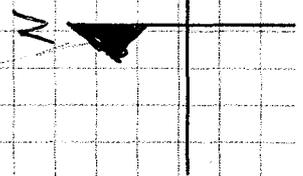
DATE: 4/15/13

This sketch is only to be used as a reference to visualize the actual layout of the property, utilities and/or any other items that may be named herein. This document is not to be used as a legal description and is not admissible in any court or administration.

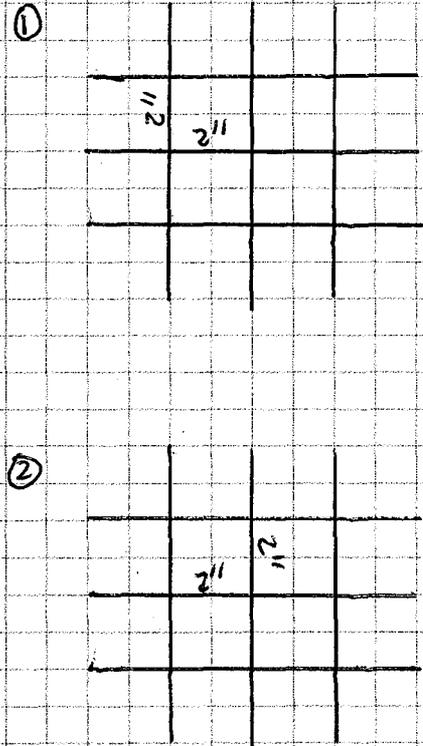


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Building 1827 Concrete Scan GPR



Rebar Lattice



Duncan St

5

| | | |
|------------------|-----------|-------------------|
| E C L S | PROJECT: | Building 1827 GPR |
| | DRAWN BY: | BS |
| | SCALE: | N/A |
| | DATE: | 4/15/13 |

This sketch is only to be used as a reference to visualize the actual layout of the property, utilities and/or any other items that may be named herein. This document is not to be used as a legal description and is not admissible in any court or administration.

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111 S. 13TH ST.
ERWIN, NC 28339

910.897.3257 EASTCOASTLS.COM 910.897.2329 (FAX)

(Submit to CH2M HILL
PM within 24 hrs of
location activities)

Buried Utility Location Tracking Form

Project Location: Camp Lejeune
CH2M HILL Project No.: CTO-WESS
CH2M HILL Project Manager:

CH2M HILL Purchase Order: 951893

Name/Phone: Maggie Radford (919) 749-9479
Fax:
Email: maggie.Radford@CH2M
CH2M HILL Field Team Leader: Name/Phone: Kim (214) 998-4839

Utility Location Subcontractor: ELLS inc
Subcontractor POC: Ben Sox
(919) 961-0147

Dates of location activities:

Check each box using an "X" if a buried utility is present within 5 feet of a marked Station ID. If color of the flag or paint differs from listed color, note change in color on the form.

| Station ID | Gas (Yellow) | Electric (Red) | Fiber optic (Orange) | Cable (Orange) | Water (Blue) | San. Sewer (Green) | Storm Sewer (Green) | Steam (Yellow) | Petroleum (Yellow) | Compressed air (Yellow) | Other _____ | Other _____ | Other _____ | Other _____ | Date completed | Technician initials | *NOTE: utilities marked with those which run into the building. * | Notes (methods/tools used) |
|---------------------|--------------|----------------|----------------------|----------------|--------------|--------------------|---------------------|----------------|--------------------|-------------------------|-------------|-------------|-------------|-------------|----------------|---------------------|--|----------------------------|
| <u>TC 942</u> | | | <u>X</u> | <u>X</u> | <u>X</u> | | | | | | | | | | <u>4/8/13</u> | <u>ms</u> | <u>areas clear</u> | |
| <u>Building 133</u> | | | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | | | | | | | | | <u>4/8/13</u> | <u>W</u> | <u>areas clear</u> | |
| <u>Building 57</u> | | | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | | | | | | | | | <u>4/10/13</u> | <u>W</u> | <u>areas clear</u> | |
| <u>Building 127</u> | | | | <u>X</u> | <u>X</u> | <u>X</u> | | | | | | | | | <u>4/10/13</u> | <u>W</u> | <u>areas clear</u> | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

The findings of the buried utility location activities summarized herein were conducted in strict accordance with the CH2M HILL scope of work.

[Signature]
Subcontractor's Signature

4-10-13
Date

Attachment D
HAPSITE Data

ATTACHMENT D
HAPSITE Data
MCIEAST-MCB CAMLEJ
North Carolina

4/9/13 MBOS
Indoor Air/Soil Gas Samples

| Compound | Sample ID BLDGHP57-HPIA1 | | | Sample ID BLDGHP57-HPIAZR1 | | | Sample ID BLDGHP57-HPIA3 | | | Sample ID BLDG1828-HPIA1 | | | Sample ID BLDG1828-HPIA2 | | | Sample ID BLDG1606-HPIA1 | | | Sample ID BLDG1606-HPIA2 | | | Sample ID BLDG1601-HPIA1 | | | Sample ID BLDG1601-HPIA2 | | |
|---------------------|--------------------------|---------------|---|----------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|
| | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | | DF 1 | | |
| | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q |
| Chloroform | 0.10 | 0.10 | U | 0.10 | 0.14 | U | 0.10 | 0.10 | U |
| Trichloroethylene | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U |
| Tetrachloroethylene | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.11 | U | 0.10 | 0.10 | U |

4/10/13 MBOS
Indoor Air/Soil Gas Samples

| Compound | Sample ID BLDG533-HPIA01 | | | Sample ID BLDG533-HPIA02 | | | Sample ID BLDG533-HPIA03 | | |
|---------------------|--------------------------|---------------|---|--------------------------|---------------|---|--------------------------|---------------|---|
| | DF 1 | | | DF 1 | | | DF 1 | | |
| | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q | RL | Result (ppbv) | Q |
| Chloroform | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U |
| Trichloroethylene | 0.10 | 0.10 | U | 0.10 | 0.10 | U | 0.10 | 0.10 | U |
| Tetrachloroethylene | 0.10 | 0.17 | U | 0.10 | 0.13 | U | 0.10 | 0.10 | U |

U=Not Detected above the reporting limit
E=Exceeds Upper Limit of Calibration

Attachment E
Data Quality Evaluation

Data Quality Evaluation

The purpose of this data quality evaluation is to summarize the findings of the data validation effort and any effects it found concerning the availability of the data for the vapor intrusion investigation at Sites 35, 73, 78, 88, 89, 93, and 96 (formerly SWMU 360).

Indoor air, crawlspace, outdoor air, soil gas, and groundwater samples were collected in April 2013. All samples were analyzed by ChemTech in Mountainside, NJ for Volatile Organic Compounds (VOCs). Air samples were analyzed by EPA method TO-15; groundwater samples were analyzed by SW-846 8260C.

The data packages were reviewed by an independent data validator, DataQual Environmental Services in St. Louis, Missouri using the Quality Assurance/Quality (QA/QC) control criteria specified in the following: appropriate SW846 and EPA methodology, the laboratory Standard Operating Procedures, and professional judgment. In instances where data qualification was necessary, the validator used qualifiers that are presented in the EPA National Functional Guidelines and Region IV Modification to the National Functional Guidelines.

Crawlspace and Indoor Air Data

This section evaluates the analytical results derived from the analysis of crawlspace and indoor air samples.

Five hundred twenty two data points were generated.

There were no rejected results. The data set is 100% percent complete (all results are available for use as reported).

All data points were qualified as one of the following: U (non-detect), J (estimated), detected (represented by “[none]”), and UJ (non-detect, quantitation limit may be inaccurate).

| DV Qualifier | DV Qualification Code | Description | Data Point Count | Percent |
|--------------|-----------------------|--|------------------|---------|
| U | U | Not detected | 292 | 55.94% |
| J | J | Analyte present; Result is estimated because it is below the quantitation limit | 144 | 27.59% |
| [none] | [none] | Detected | 47 | 9.00% |
| J | FD | Analyte present; Quantitation limit may be inaccurate due to non-compliant field duplicate results | 29 | 5.56% |
| UJ | FD | Not detected; Indicates non-compliant field duplicate reproducibility | 9 | 1.72% |
| UJ | BSL | Not detected: Quantitation limit may be inaccurate due to low recovery in the laboratory control samples | 1 | 0.19% |
| TOTAL: | | | 522 | 100.00% |

Outdoor Air Data

This section evaluates the analytical results derived from the analysis of outdoor air samples.

One hundred seventy four data points were generated.

The validation process did not result in any qualifications being applied to the data. The data set is 100% percent complete.

All data points fall in one of the following categories: U (non-detect), J (estimated), and detected (represented by “[none]”).

| DV Qualifier | DV Qualification Code | Description | Data Point Count | Percent |
|--------------|-----------------------|---|------------------|---------|
| U | U | Not detected | 112 | 64.37% |
| J | J | Analyte present; Result is estimated because it is below the quantitation limit | 48 | 27.59% |
| [none] | [none] | Detected | 14 | 8.05% |
| TOTAL: | | | 174 | 100.00% |

Soil Gas Data

This section evaluates the analytical results derived from the analysis of soil gas samples.

Seven hundred eighty three data points were generated.

There were no rejected results. The data set is 100% percent complete.

All data points were qualified as one of the following: U (non-detect), J (estimated), detected (represented by “[none]”), and UJ (non-detect, quantitation limit may be inaccurate).

| DV Qualifier | DV Qualification Code | Description | Data Point Count | Percent |
|--------------|-----------------------|--|------------------|---------|
| U | U | Not detected | 390 | 49.81% |
| J | J | Analyte present; Result is estimated because it is below the quantitation limit | 213 | 27.20% |
| [none] | [none] | Detected | 142 | 18.14% |
| J | FD | Analyte present; Quantitation limit may be inaccurate due to non-compliant field duplicate reproducibility | 25 | 3.19% |
| UJ | FD | Not detected; Indicates non-compliant field duplicate reproducibility | 13 | 1.66% |
| TOTAL: | | | 783 | 100.00% |

Groundwater Data

This section evaluates the analytical results derived from the analysis of groundwater samples.

Sixty two data points were generated.

There were no rejected results. The data set is 100% percent complete.

All data points were qualified as one of the following: U (non-detect), detected (represented by “[none]”), UJ (non-detect, quantitation limit may be inaccurate), or J (estimated).

| DV Qualifier | DV Qualification Code | Description | Data Point Count | Percent |
|--------------|-----------------------|---|------------------|---------|
| U | U | Not detected | 46 | 74.19% |
| [none] | [none] | Detected | 6 | 9.68% |
| UJ | ICH | Not detected; Quantitation limit may be inaccurate due to high relative response factors exhibited during initial calibration | 4 | 6.45% |

| DV Qualifier | DV Qualification Code | Description | Data Point Count | Percent |
|--------------|-----------------------|--|------------------|---------|
| J | MSH | Analyte present; Result is estimated due to high matrix spike and/or matrix spike duplicate recovery | 2 | 3.23% |
| J | J | Analyte present; Result is estimated because it is below the quantitation limit | 2 | 3.23% |
| J | FD | Analyte present; indicates non-compliant field duplicate reproducibility | 2 | 3.23% |
| TOTAL: | | | 62 | 100.00% |

Overall Assessment

All data collected at Sites 35, 73, 78, 88, 89, 93, and 96 during the April 2013 vapor intrusion investigation are found to be of exceptional quality. No data was rejected due to QA/QC deficiencies and all data is available for use by the project team.

DataQual

Environmental Services, LLC

CH2M HILL
11301 Carmel Commons Blvd
Suite 304
Charlotte, NC 28226

July 23, 2013
SDG# E1885, Chemtech
MCB Camp Lejeune- Jacksonville, NC, CTO-WE19

Dear Ms. Kleist,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # E1885. The data validation was performed in accordance with SW846 Method 8260 for volatiles; the National Functional Guidelines for Organic Data Review (June 2008), as applicable, and good professional judgment. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

| Sample ID | Lab ID | Matrix | VOA |
|--------------------------|----------|--------|-----|
| IR78-MWV101-GW01-13B | E1885-01 | water | X |
| IR78-MWV101-GW01D-13B | E1885-04 | water | X |
| EB-041413 | E1885-05 | water | X |
| TB-041413 | E1885-06 | water | X |
| IR78-MWV101-GW01-13B MS | E1885-02 | water | X |
| IR78-MWV101-GW01-13B MSD | E1885-03 | water | X |

The following quality control samples were provided with this SDG: sample IR78-MWV101-GW01D-13B - field duplicate of sample IR78-MWV101-GW01-13B, sample EB-041413- equipment blank and sample TB-041413- trip blank.

The samples were evaluated based on the following criteria:

- Data Completeness *
- Technical Holding Times *
- Instrument Performance *
- Initial/Continuing Calibrations
- Blanks *
- Internal Standards *
- Surrogates *
- Laboratory Control Samples *
- Matrix Spike Recoveries
- Matrix Duplicate RPDs *
- Field Duplicates
- Identification/Quantitation *
- Reporting Limits *

* - indicates that no qualifications were required based on this criteria

Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that when a compound or analyte is flagged due to blank contamination the BL qualifier code takes precedence over all other qualifier codes except a code that explains rejected data.

VOA

Due to high %RSD in the initial calibration, qualifications were added to the data.

Due to high recovery in the matrix spike the associated samples were qualified.

The field duplicate pair did not exhibit comparable results; therefore qualifications were added to those compounds.

Specific Evaluation of Data

Data Completeness

The SDG was received complete and intact. Resubmissions were required as four samples had incorrect sample IDs. The laboratory was contacted and all appropriate forms were submitted with correct sample IDs.

Technical Holding Times

According to chain of custody records, sampling was performed on 4/14/13 and samples were received at the laboratory 4/17/13. All sample preparation and analysis was performed within method holding time requirements.

Initial/Continuing Calibration

VOA

Calibration standards exhibited %RSDs that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results were qualified as indicated.

| Standard ID | Compound(s) | %RSD | Samples | Q Flag | Qual Code |
|-------------|-----------------------------|------------|-------------|--------|-----------|
| IC 4/15/13 | bromomethane cyclohexane | 21 36.3 | all samples | J/UJ | ICH |

Matrix Spike Samples

VOA

The associated matrix spike for sample IR78-MWV101-GW01-13B exhibited high recoveries for the compounds listed; qualifications were applied as stated in the table below.

| Sample ID | Compound | MS % Rec | MSD % Rec | QC Limit | Qualifier | Qual Code |
|--|------------------------|-------------|--------------|-------------|-----------|--------------|
| IR78-MWV101-GW01-13B, IR78-MWV101-GW01D-13B | cis-1,2-dichloroethene | 129 | 134 | 70-125 | J | MSH |

Field Duplicates

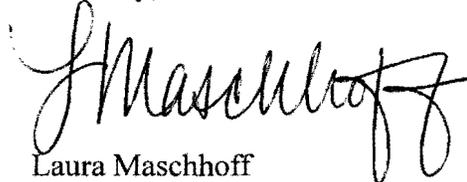
VOA

The field duplicate pair listed below exhibited non-compliant field duplicate reproducibility for the compounds listed, qualifications were applied as stated.

| Sample ID | Compound | % RPD | Qualification | Qualifier Code |
|--|-----------------|-------|---------------|----------------|
| IR78-MWV101-GW01-13B, IR78-MWV101-GW01D-13B | trichloroethene | 35 | J | FD |

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff
President

Summary of Data Qualifications

VOA

| Sample ID | Compound | Results | Q-Flag | Q Code |
|--|-----------------------------|---------|--------|--------|
| all samples | bromomethane cyclohexane | +/- | J/UJ | ICH |
| IR78-MWV101-GW01-13B, IR78-MWV101-GW01D-13B | cis-1,2-dichloroethene | + | J | MSH |
| IR78-MWV101-GW01-13B, IR78-MWV101-GW01D-13B | trichloroethene | + | J | FD |

Glossary of Qualification Flags and Abbreviations

Qualification Flags (Q-Flags)

| | |
|----|---|
| U | not detected above the reported sample quantitation limit |
| J | estimated value |
| UJ | reported quantitation limit is qualified as estimated |
| R | result is rejected; the presence or absence of the analyte cannot be verified |
| D | result value is based on dilution analysis result |
| NJ | analyte has been tentatively identified, estimated value |
| L | analyte present, biased low |
| UL | not detected, quantitation limit is probably higher |
| K | analyte present, biased high |

Inorganic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|---------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 10X the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL and the result is raised to the RL and flagged U. |
| R or J+ | The blank contaminant concentration was greater than the RL and the sample result is greater than the RL but less than 10X the blank contaminant concentration. The reported results are flagged either as rejected R or biased high J+ based on the professional judgment of the validator. (see NFG, Rev. date 10/04, p. 17 for extracted blanks (PB)) |

Organic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is raised to the RL and flagged U. |
| U | The sample result for the blank contaminant is greater than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is flagged U at the reported value. |

General Abbreviations

| | |
|----------|--|
| RL / MDL | reporting limit/method detection limit |
| CRQL | contract required quantitation limit |
| Q Code | qualifier code |
| + | positive result |
| - | non-detect result |

QUALIFIER CODE REFERENCE

| Qualifier | Description |
|------------------|--|
| TN | Tune |
| BSL | Blank Spike/LCS - High Recovery |
| BSH | Blank Spike/LCS - Low Recovery |
| BD | Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision |
| BRL | Below Reporting Limit |
| ISL | Internal Standard - Low Recovery |
| ISH | Internal Standard - High Recovery |
| MSL | Matrix Spike and/or Matrix Spike Duplicate - Low Recovery |
| MSH | Matrix Spike and/or Matrix Spike Duplicate - High Recovery |
| MI | Matrix interference obscuring the raw data |
| MDP | Matrix Spike/Matrix Spike Duplicate Precision |
| 2S | Second Source - Bad reproducibility between tandem detectors |
| SSL | Spiked Surrogate - Low Recovery |
| SSH | Spiked Surrogate - High Recovery |
| SD | Serial Dilution Reproducibility |
| ICL | Initial Calibration - Low Relative Response Factors (RRF) |
| ICH | Initial Calibration - High Relative Response Factors (RRF) |
| ICB | Initial Calibration - Bad Linearity or Curve Function |
| CCL | Continuing Calibration - Low Recovery or %Difference |
| CCH | Continuing Calibration - High Recovery or %Difference |
| LD | Lab Duplicate Reproducibility |
| HT | Holding Time |
| PD | Pesticide Degradation |
| 2C | Second Column - Poor Dual Column Reproducibility |
| LR | Concentration Exceeds Linear Range |
| BL | Blank Contamination |
| RE | Redundant Result - due to Re-analysis or Re-extraction |
| DL | Redundant Result - due to Dilution |
| FD | Field Duplicate |
| OT | Other - explained in data validation report |
| %SOL | High moisture content |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | IR78-MWVI01-GW01-13B | SDG No.: | e1885 |
| Lab Sample ID: | E1885-01 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID : 0.25 | Level : | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005227.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|-------|-----------|------|-----|------------|-------|
| TARGETS | | | | | | | |
| 75-01-4 | Vinyl Chloride | 12.5 | | 0.34 | 0.5 | 1 | ug/L |
| 74-83-9 | Bromomethane | 0.5 | J US ICH | 0.2 | 0.5 | 1 | ug/L |
| 75-09-2 | Methylene Chloride | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 156-60-5 | trans-1,2-Dichloroethene | 0.95 | J | 0.41 | 0.5 | 1 | ug/L |
| 75-34-3 | 1,1-Dichloroethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 110-82-7 | Cyclohexane | 0.5 | J US ICH | 0.2 | 0.5 | 1 | ug/L |
| 56-23-5 | Carbon Tetrachloride | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 156-59-2 | cis-1,2-Dichloroethene | 20.4 | J MSH | 0.35 | 0.5 | 1 | ug/L |
| 540-59-0 | Total 1,2-Dichloroethene | 21.4 | | 0.76 | 1 | 2 | ug/L |
| 67-66-3 | Chloroform | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 71-55-6 | 1,1,1-Trichloroethane | 0.5 | U | 0.4 | 0.5 | 1 | ug/L |
| 108-87-2 | Methylcyclohexane | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 71-43-2 | Benzene | 2.1 | | 0.32 | 0.5 | 1 | ug/L |
| 107-06-2 | 1,2-Dichloroethane | 0.5 | U | 0.48 | 0.5 | 1 | ug/L |
| 79-01-6 | Trichloroethene | 0.88 | J JFD | 0.28 | 0.5 | 1 | ug/L |
| 78-87-5 | 1,2-Dichloropropane | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 75-27-4 | Bromodichloromethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 108-88-3 | Toluene | 0.5 | U | 0.37 | 0.5 | 1 | ug/L |
| 127-18-4 | Tetrachloroethene | 0.5 | U | 0.27 | 0.5 | 1 | ug/L |
| 100-41-4 | Ethyl Benzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 179601-23-1 | m/p-Xylenes | 1 | U | 0.95 | 1 | 2 | ug/L |
| 1330-20-7 | Total Xylenes | 1.5 | U | 1.38 | 1.5 | 3 | ug/L |
| 95-47-6 | o-Xylene | 0.5 | U | 0.43 | 0.5 | 1 | ug/L |
| 98-82-8 | Isopropylbenzene | 0.5 | U | 0.45 | 0.5 | 1 | ug/L |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.31 | 0.5 | 1 | ug/L |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.5 | U | 0.38 | 0.5 | 1 | ug/L |
| 106-46-7 | 1,4-Dichlorobenzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 91-20-3 | Naphthalene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 108-20-3 | Diisopropyl ether | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | IR78-MWVI01-GW01D-13B | SDG No.: | e1885 |
| Lab Sample ID: | E1885-04 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID: 0.25 | Level: | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005225.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|-------|--------------|------|-----|------------|-------|
| TARGETS | | | | | | | |
| 75-01-4 | Vinyl Chloride | 9.7 | | 0.34 | 0.5 | 1 | ug/L |
| 74-83-9 | Bromomethane | 0.5 | <i>MSICH</i> | 0.2 | 0.5 | 1 | ug/L |
| 75-09-2 | Methylene Chloride | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 156-60-5 | trans-1,2-Dichloroethene | 0.76 | J | 0.41 | 0.5 | 1 | ug/L |
| 75-34-3 | 1,1-Dichloroethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 110-82-7 | Cyclohexane | 0.5 | <i>MSICH</i> | 0.2 | 0.5 | 1 | ug/L |
| 56-23-5 | Carbon Tetrachloride | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 156-59-2 | cis-1,2-Dichloroethene | 15.5 | <i>JMSH</i> | 0.35 | 0.5 | 1 | ug/L |
| 540-59-0 | Total 1,2-Dichloroethene | 16.3 | | 0.76 | 1 | 2 | ug/L |
| 67-66-3 | Chloroform | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 71-55-6 | 1,1,1-Trichloroethane | 0.5 | U | 0.4 | 0.5 | 1 | ug/L |
| 108-87-2 | Methylcyclohexane | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 71-43-2 | Benzene | 1.6 | | 0.32 | 0.5 | 1 | ug/L |
| 107-06-2 | 1,2-Dichloroethane | 0.5 | U | 0.48 | 0.5 | 1 | ug/L |
| 79-01-6 | Trichloroethene | 0.62 | <i>JJFB</i> | 0.28 | 0.5 | 1 | ug/L |
| 78-87-5 | 1,2-Dichloropropane | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 75-27-4 | Bromodichloromethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 108-88-3 | Toluene | 0.5 | U | 0.37 | 0.5 | 1 | ug/L |
| 127-18-4 | Tetrachloroethene | 0.5 | U | 0.27 | 0.5 | 1 | ug/L |
| 100-41-4 | Ethyl Benzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 179601-23-1 | m/p-Xylenes | 1 | U | 0.95 | 1 | 2 | ug/L |
| 1330-20-7 | Total Xylenes | 1.5 | U | 1.38 | 1.5 | 3 | ug/L |
| 95-47-6 | o-Xylene | 0.5 | U | 0.43 | 0.5 | 1 | ug/L |
| 98-82-8 | Isopropylbenzene | 0.5 | U | 0.45 | 0.5 | 1 | ug/L |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.31 | 0.5 | 1 | ug/L |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.5 | U | 0.38 | 0.5 | 1 | ug/L |
| 106-46-7 | 1,4-Dichlorobenzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 91-20-3 | Naphthalene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 108-20-3 | Diisopropyl ether | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | IR78-MWVI01-GW01D-13B | SDG No.: | e1885 |
| Lab Sample ID: | E1885-04 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID: 0.25 | Level: | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005225.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|------------------------|---------|-----------|----------|-----|------------|---------|
| SURROGATES | | | | | | | |
| 17060-07-0 | 1,2-Dichloroethane-d4 | 48 | | 70 - 120 | | 96% | SPK: 50 |
| 1868-53-7 | Dibromofluoromethane | 50.7 | | 85 - 115 | | 101% | SPK: 50 |
| 2037-26-5 | Toluene-d8 | 49.9 | | 85 - 120 | | 100% | SPK: 50 |
| 460-00-4 | 4-Bromofluorobenzene | 47.2 | | 75 - 120 | | 94% | SPK: 50 |
| INTERNAL STANDARDS | | | | | | | |
| 363-72-4 | Pentafluorobenzene | 1217950 | 7.87 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 1781270 | 8.79 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 1570080 | 11.61 | | | | |
| 3855-82-1 | 1,4-Dichlorobenzene-d4 | 751412 | 13.56 | | | | |

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

D = Dilution

MM
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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|---------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | EB-041413 | SDG No.: | e1885 |
| Lab Sample ID: | E1885-05 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group I |
| GC Column: | RXI-624 ID: 0.25 | Level: | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005219.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|-------|-----------|------|-----|------------|-------|
| TARGETS | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 74-83-9 | Bromomethane | 0.5 | <i>U</i> | 0.2 | 0.5 | 1 | ug/L |
| 75-09-2 | Methylene Chloride | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 156-60-5 | trans-1,2-Dichloroethene | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 75-34-3 | 1,1-Dichloroethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 110-82-7 | Cyclohexane | 0.5 | <i>U</i> | 0.2 | 0.5 | 1 | ug/L |
| 56-23-5 | Carbon Tetrachloride | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 156-59-2 | cis-1,2-Dichloroethene | 0.5 | U | 0.35 | 0.5 | 1 | ug/L |
| 540-59-0 | Total 1,2-Dichloroethene | 1 | U | 0.76 | 1 | 2 | ug/L |
| 67-66-3 | Chloroform | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 71-55-6 | 1,1,1-Trichloroethane | 0.5 | U | 0.4 | 0.5 | 1 | ug/L |
| 108-87-2 | Methylcyclohexane | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 71-43-2 | Benzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 107-06-2 | 1,2-Dichloroethane | 0.5 | U | 0.48 | 0.5 | 1 | ug/L |
| 79-01-6 | Trichloroethene | 0.5 | U | 0.28 | 0.5 | 1 | ug/L |
| 78-87-5 | 1,2-Dichloropropane | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 75-27-4 | Bromodichloromethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 108-88-3 | Toluene | 0.5 | U | 0.37 | 0.5 | 1 | ug/L |
| 127-18-4 | Tetrachloroethene | 0.5 | U | 0.27 | 0.5 | 1 | ug/L |
| 100-41-4 | Ethyl Benzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 179601-23-1 | m/p-Xylenes | 1 | U | 0.95 | 1 | 2 | ug/L |
| 1330-20-7 | Total Xylenes | 1.5 | U | 1.38 | 1.5 | 3 | ug/L |
| 95-47-6 | o-Xylene | 0.5 | U | 0.43 | 0.5 | 1 | ug/L |
| 98-82-8 | Isopropylbenzene | 0.5 | U | 0.45 | 0.5 | 1 | ug/L |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.31 | 0.5 | 1 | ug/L |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.5 | U | 0.38 | 0.5 | 1 | ug/L |
| 106-46-7 | 1,4-Dichlorobenzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 91-20-3 | Naphthalene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 108-20-3 | Diisopropyl ether | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | EB-041413 | SDG No.: | e1885 |
| Lab Sample ID: | E1885-05 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID: 0.25 | Level: | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005219.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|------------------------|---------|-----------|----------|-----|------------|---------|
| SURROGATES | | | | | | | |
| 17060-07-0 | 1,2-Dichloroethane-d4 | 47.5 | | 70 - 120 | | 95% | SPK: 50 |
| 1868-53-7 | Dibromofluoromethane | 50.2 | | 85 - 115 | | 100% | SPK: 50 |
| 2037-26-5 | Toluene-d8 | 49.9 | | 85 - 120 | | 100% | SPK: 50 |
| 460-00-4 | 4-Bromofluorobenzene | 46.7 | | 75 - 120 | | 93% | SPK: 50 |
| INTERNAL STANDARDS | | | | | | | |
| 363-72-4 | Pentafluorobenzene | 1254750 | 7.87 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 1818740 | 8.79 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 1600600 | 11.61 | | | | |
| 3855-82-1 | 1,4-Dichlorobenzene-d4 | 749304 | 13.56 | | | | |

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 E = Value Exceeds Calibration Range
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 D = Dilution

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | TB-041413 | SDG No.: | e1885 |
| Lab Sample ID: | E1885-06 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID: 0.25 | Level : | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005218.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|-------|-----------|------|-----|------------|-------|
| TARGETS | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 74-83-9 | Bromomethane | 0.5 | <i>U</i> | 0.2 | 0.5 | 1 | ug/L |
| 75-09-2 | Methylene Chloride | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 156-60-5 | trans-1,2-Dichloroethene | 0.5 | U | 0.41 | 0.5 | 1 | ug/L |
| 75-34-3 | 1,1-Dichloroethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 110-82-7 | Cyclohexane | 0.5 | <i>U</i> | 0.2 | 0.5 | 1 | ug/L |
| 56-23-5 | Carbon Tetrachloride | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 156-59-2 | cis-1,2-Dichloroethene | 0.5 | U | 0.35 | 0.5 | 1 | ug/L |
| 540-59-0 | Total 1,2-Dichloroethene | 1 | U | 0.76 | 1 | 2 | ug/L |
| 67-66-3 | Chloroform | 0.5 | U | 0.34 | 0.5 | 1 | ug/L |
| 71-55-6 | 1,1,1-Trichloroethane | 0.5 | U | 0.4 | 0.5 | 1 | ug/L |
| 108-87-2 | Methylcyclohexane | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 71-43-2 | Benzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 107-06-2 | 1,2-Dichloroethane | 0.5 | U | 0.48 | 0.5 | 1 | ug/L |
| 79-01-6 | Trichloroethene | 0.5 | U | 0.28 | 0.5 | 1 | ug/L |
| 78-87-5 | 1,2-Dichloropropane | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 75-27-4 | Bromodichloromethane | 0.5 | U | 0.36 | 0.5 | 1 | ug/L |
| 108-88-3 | Toluene | 0.5 | U | 0.37 | 0.5 | 1 | ug/L |
| 127-18-4 | Tetrachloroethene | 0.5 | U | 0.27 | 0.5 | 1 | ug/L |
| 100-41-4 | Ethyl Benzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 179601-23-1 | m/p-Xylenes | 1 | U | 0.95 | 1 | 2 | ug/L |
| 1330-20-7 | Total Xylenes | 1.5 | U | 1.38 | 1.5 | 3 | ug/L |
| 95-47-6 | o-Xylene | 0.5 | U | 0.43 | 0.5 | 1 | ug/L |
| 98-82-8 | Isopropylbenzene | 0.5 | U | 0.45 | 0.5 | 1 | ug/L |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.31 | 0.5 | 1 | ug/L |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.5 | U | 0.46 | 0.5 | 1 | ug/L |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.5 | U | 0.38 | 0.5 | 1 | ug/L |
| 106-46-7 | 1,4-Dichlorobenzene | 0.5 | U | 0.32 | 0.5 | 1 | ug/L |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 91-20-3 | Naphthalene | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |
| 108-20-3 | Diisopropyl ether | 0.5 | U | 0.2 | 0.5 | 1 | ug/L |

*LM
072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/17/13 |
| Client Sample ID: | TB-041413 | SDG No.: | e1885 |
| Lab Sample ID: | E1885-06 | Matrix: | Water |
| Analytical Method: | SW8260C | % Moisture: | 100 |
| Sample Wt/Vol: | 5 Units: mL | Final Vol: | 5000 uL |
| Soil Aliquot Vol: | uL | Test: | VOCMS Group1 |
| GC Column: | RXI-624 ID: 0.25 | Level : | LOW |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VN005218.D | 1 | | 04/18/13 | VN041813 |

| CAS Number | Parameter | Conc. | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|------------------------|---------|-----------|----------|-----|------------|---------|
| SURROGATES | | | | | | | |
| 17060-07-0 | 1,2-Dichloroethane-d4 | 48.2 | | 70 - 120 | | 96% | SPK: 50 |
| 1868-53-7 | Dibromofluoromethane | 51 | | 85 - 115 | | 102% | SPK: 50 |
| 2037-26-5 | Toluene-d8 | 49.7 | | 85 - 120 | | 99% | SPK: 50 |
| 460-00-4 | 4-Bromofluorobenzene | 46.7 | | 75 - 120 | | 93% | SPK: 50 |
| INTERNAL STANDARDS | | | | | | | |
| 363-72-4 | Pentafluorobenzene | 1200710 | 7.87 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 1755300 | 8.79 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 1550360 | 11.61 | | | | |
| 3855-82-1 | 1,4-Dichlorobenzene-d4 | 727921 | 13.56 | | | | |

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

D = Dilution

MM
012313

Data Completeness

The data package was received complete and intact. Resubmissions were not required. (SW846 Method 8260B-limited compound list)

Laboratory: Chemtech

Holding Times

Sampling Date: 4/14/13
 Received Date: 4/17/13
 Analysis Dates: 4/18/13
 Cooler Temp: 4°C

All prep and analysis holding time requirements were met.

Calibrations

Mass assignments were verified by the injection of BFB. Qualifications were required for the initial calibration curves due to high %RSD, see attached forms. No qualifications were required for continuing calibrations-compound that had high %D was qualified in initial calibration.

Internal Standards

All criteria met.

Blank Summary

Blank qualification guidelines:

- No action is taken if a compound is found in the blank but not in the sample.
- Sample weight, volume or dilution factor must be taken into consideration when applying criteria.
- Qualification/Action codes where applied as stated in table below:

| Blank Type | Blank Result | Sample Result | Action for Samples |
|---------------|---------------------|----------------------------------|---|
| Method, Field | Detects | Not detected | No qualifications |
| | < LOD* | < LOD* | Report LOD value with a U |
| | | ≥ LOD* | Use professional judgment |
| | > LOD* | < LOD* | Report LOD value with a U |
| | | ≥ LOD* and < blank concentration | Report the concentration for the sample with a U, or qualify the data as unusable R |
| | = LOD* | ≥ LOD* and ≥ blank concentration | Use professional judgment |
| | | < LOD* | Report LOD value with a U |
| | | ≥ LOD* | Use professional judgment |
| | Gross contamination | Detects | Qualify results as unusable R |

*2x the LOD for methylene chloride, 2-butanone and acetone

DataQual

Worksheets - VOA

No contamination was exhibited in the method blanks. The associated QC blanks for these samples were: sample TB-041413- trip blank (no positive results exhibited); sample EB-041413- equipment blank.

Blank Contamination and Qualification Summaries

| Blank ID | Compound | Concentration | Reporting Limit (LOD) |
|----------|----------|---------------|-----------------------|
| | | | |

Associated samples and required qualifications are noted in the following table.

| Sample ID | Compound | Q Flag | Qual Code |
|-------------------|----------|--------|-----------|
| no qualifications | | | |

Surrogates

All criteria were met.

Laboratory Control Sample

All criteria were met.

Matrix Spike/Spike Duplicate Samples

An MS/MSD was submitted for sample IR78-MWV101-GW01-13B-qualifications were applied as stated in the table below.

| Sample ID | Compound | MS % Rec | MSD % Rec | QC Limit | Qualifier | Qual Code |
|--|------------------------|----------|-----------|----------|-----------|-----------|
| IR78-MWV101-GW01-13B, IR78-MWV101-GW01D-13B | cis-1,2-dichloroethene | 129 | 134 | 70-125 | J | MSH |

Field Duplicate Sample

A field duplicate was submitted for sample IR78-MWV101-GW01-13B -qualifications required, see attached sheets.

Specific Comments:

All sample results were reported within the calibration range of the instruments.

Detection limits were acceptable. Raw data and calculations were verified.

We have limited the supporting documentation, found with these worksheets, to those forms that indicate qualifications were required.

Validator Signature:  Date: 7/22/13

SDG#E1885
 MCB Camp Lejeune, CTO-WE19
 VOA
 Page 2

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEM TECH Contract: CH2M03
 Lab Code: CHEM Case No.: E1885 SAS No.: E1885 SDG NO: E1885
 Lab File ID: VN005086.D BFB Injection Date: 04/15/2013
 Instrument ID: MSVOA N BFB Injecti onTime : 09:35
 GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: Y/N N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50 | 15.0 - 40.0% of mass 95 | 16 |
| 75 | 30.0 - 60.0% of mass 95 | 45.4 |
| 95 | Base Peak, 100% relative abundance | 100 |
| 96 | 5.0 - 9.0% of mass 95 | 6.9 |
| 173 | Less than 2.0% of mass 174 | 0.0 (0.0) 1 |
| 174 | 50.0 - 100.0% of mass 95 | 88.6 |
| 175 | 5.0 - 9.0% of mass 174 | 6.6 (7.4) 1 |
| 176 | 95.0 - 101.0% of mass 174 | 85.6 (96.6) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.9 (6.9) 2 |

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|----------------|---------------|-------------|---------------|---------------|
| VSTDIC001 | VSTDIC001 | VN005087.D | 04/15/2013 | 11:47 |
| VSTDIC005 | VSTDIC005 | VN005088.D | 04/15/2013 | 12:53 |
| VSTDIC020 | VSTDIC020 | VN005089.D | 04/15/2013 | 13:25 |
| VSTDIC050 | VSTDIC050 | VN005090.D | 04/15/2013 | 13:53 |
| VSTDIC100 | VSTDIC100 | VN005091.D | 04/15/2013 | 14:21 |
| VSTDIC200 | VSTDIC200 | VN005092.D | 04/15/2013 | 14:49 |

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEM TECH Contract: CH2M03
 Lab Code: CHEM Case No: E1885 SAS No: E1885 SDG No: E1885
 Instrument ID: MSVOA_N Calibration Date(s): 04/15/2013 04/15/2013
 Heated Purge: (Y/N) N Calibration Time(s): 11:47 14:49
 GC Column: RXI-624 ID: 0.25 (mm)

| LAB FILE ID: | RRF001 = VN005087.D | RRF005 = VN005088.D | RRF020 = VN005089.D | RRF050 = VN005090.D | RRF100 = VN005091.D | RRF200 = VN005092.D | RRF | % RSD |
|---------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|-------|
| Vinyl Chloride | 0.624 | 0.518 | 0.560 | 0.563 | 0.569 | 0.571 | 0.567 | 6 |
| Bromomethane | 0.532 | 0.389 | 0.357 | 0.333 | 0.331 | 0.323 | 0.378 | 21 |
| Methylene Chloride | 0.586 | 0.489 | 0.476 | 0.471 | 0.471 | 0.471 | 0.494 | 9.3 |
| trans-1,2-Dichloroethane | 0.519 | 0.459 | 0.464 | 0.463 | 0.464 | 0.462 | 0.472 | 4.9 |
| 1,1-Dichloroethane | 0.881 | 0.772 | 0.789 | 0.795 | 0.797 | 0.797 | 0.805 | 4.8 |
| Cyclohexane | 1.564 | 0.886 | 0.776 | 0.745 | 0.734 | 0.724 | 0.905 | 36.3 |
| Carbon Tetrachloride | 0.499 | 0.425 | 0.435 | 0.420 | 0.424 | 0.421 | 0.437 | 7 |
| cis-1,2-Dichloroethane | 0.540 | 0.533 | 0.537 | 0.533 | 0.531 | 0.534 | 0.535 | 0.6 |
| Chloroform | 0.902 | 0.812 | 0.826 | 0.822 | 0.826 | 0.824 | 0.835 | 4 |
| 1,1,1-Trichloroethane | 0.807 | 0.736 | 0.743 | 0.745 | 0.739 | 0.741 | 0.752 | 3.6 |
| Methylcyclohexane | 0.632 | 0.565 | 0.583 | 0.533 | 0.541 | 0.539 | 0.565 | 6.6 |
| Benzene | 1.329 | 1.232 | 1.239 | 1.205 | 1.212 | 1.211 | 1.238 | 3.8 |
| 1,2-Dichloroethane | 0.420 | 0.407 | 0.399 | 0.392 | 0.394 | 0.395 | 0.401 | 2.6 |
| Trichloroethene | 0.420 | 0.372 | 0.380 | 0.361 | 0.361 | 0.365 | 0.377 | 6 |
| 1,2-Dichloropropane | 0.354 | 0.319 | 0.315 | 0.309 | 0.309 | 0.310 | 0.319 | 5.5 |
| Bromodichloromethane | 0.448 | 0.417 | 0.428 | 0.417 | 0.420 | 0.421 | 0.425 | 2.8 |
| Toluene | 0.887 | 0.812 | 0.808 | 0.780 | 0.794 | 0.795 | 0.812 | 4.7 |
| Tetrachloroethene | 0.514 | 0.448 | 0.446 | 0.457 | 0.469 | 0.502 | 0.473 | 6.1 |
| Ethyl Benzene | 1.832 | 1.703 | 1.705 | 1.632 | 1.655 | 1.684 | 1.702 | 4.1 |
| m/p-Xylenes | 0.757 | 0.680 | 0.673 | 0.640 | 0.653 | 0.662 | 0.678 | 6.1 |
| o-Xylene | 0.745 | 0.667 | 0.670 | 0.648 | 0.652 | 0.654 | 0.673 | 5.4 |
| Isopropylbenzene | 3.827 | 3.462 | 3.454 | 3.307 | 3.386 | 3.619 | 3.509 | 5.3 |
| 1,1,2,2-Tetrachloroethane | 0.953 | 0.797 | 0.849 | 0.836 | 0.821 | 0.825 | 0.847 | 6.5 |
| 1,3,5-Trimethylbenzene | 2.972 | 2.730 | 2.715 | 2.608 | 2.681 | 2.815 | 2.753 | 4.6 |
| 1,2,4-Trimethylbenzene | 3.134 | 2.787 | 2.799 | 2.648 | 2.697 | 2.811 | 2.813 | 6 |
| 1,4-Dichlorobenzene | 1.852 | 1.624 | 1.628 | 1.547 | 1.566 | 1.595 | 1.635 | 6.8 |
| 1,2,4-Trichlorobenzene | 1.035 | 1.071 | 1.123 | 1.057 | 1.026 | 1.088 | 1.066 | 3.3 |
| Naphthalene | 2.372 | 2.309 | 2.723 | 2.717 | 2.635 | 2.870 | 2.605 | 8.4 |
| 1,2-Dichloroethane-d4 | | 0.485 | 0.506 | 0.489 | 0.478 | 0.476 | 0.487 | 2.4 |
| Dibromofluoromethane | | 0.286 | 0.308 | 0.287 | 0.279 | 0.277 | 0.287 | 4.2 |
| Toluene-d8 | | 1.163 | 1.185 | 1.099 | 1.088 | 1.080 | 1.123 | 4.2 |
| 4-Bromofluorobenzene | | 0.420 | 0.450 | 0.409 | 0.406 | 0.378 | 0.413 | 6.3 |
| Diisopropyl ether | 1.252 | 1.211 | 1.255 | 1.263 | 1.276 | 1.270 | 1.254 | 1.8 |

* Compounds with required minimum RRF and maximum %RSD values.
 All other compounds must meet a minimum RRF of 0.010.



284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEM TECH Contract: CH2M03
 Lab Code: CHEM Case No.: E1885 SAS No.: E1885 SDG NO: E1885
 Lab File ID: VN005210.D BFB Injection Date: 04/18/2013
 Instrument ID: MSVOA N BFB Injecti onTime : 10:42
 GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: Y/N N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50 | 15.0 - 40.0% of mass 95 | 16.3 |
| 75 | 30.0 - 60.0% of mass 95 | 48.5 |
| 95 | Base Peak, 100% relative abundance | 100 |
| 96 | 5.0 - 9.0% of mass 95 | 6.9 |
| 173 | Less than 2.0% of mass 174 | 0.6 (0.6) 1 |
| 174 | 50.0 - 100.0% of mass 95 | 93 |
| 175 | 5.0 - 9.0% of mass 174 | 6.4 (6.9) 1 |
| 176 | 95.0 - 101.0% of mass 174 | 90.4 (97.3) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 (6.4) 2 |

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|-------------------------|---------------|-------------|---------------|---------------|
| VSTDCCG050 | VSTDCCG050 | VN005211.D | 04/18/2013 | 11:18 |
| VN0418WBL01 | VN0418WBL01 | VN005212.D | 04/18/2013 | 13:14 |
| VN0418WBS01 | VN0418WBS01 | VN005213.D | 04/18/2013 | 13:42 |
| TB-041413 | E1885-06 | VN005218.D | 04/18/2013 | 16:10 |
| EB-041413 | E1885-05 | VN005219.D | 04/18/2013 | 16:38 |
| IR78-MWVI01-GW01D-13B | E1885-04 | VN005225.D | 04/18/2013 | 19:27 |
| IR78-MWVI01-GW01-13B | E1885-01 | VN005227.D | 04/18/2013 | 20:23 |
| IR78-MWVI01-GW01-13BMS | E1885-02MS | VN005228.D | 04/18/2013 | 20:51 |
| IR78-MWVI01-GW01-13BMSD | E1885-03MSD | VN005229.D | 04/18/2013 | 21:19 |

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: CH2M03
 Lab Code: CHEM Case No.: E1885 SAS No.: E1885 SDG No.: E1885
 Instrument ID: MSVOA N Calibration Date/Time: 04/18/2013 11:18
 Lab File ID: VN005211.D Init. Calib. Date(s): 04/15/2013 04/15/2013
 Heated Purge: (Y/N) N Init. Calib. Time(s): 11:47 14:49
 GC Column: RXI-624 ID: 0.25 (mm)

| COMPOUND | RRF | RRF050 | MIN RRF | %D | MAX%D |
|---------------------------|-------|--------|---------|--------|-------|
| Vinyl chloride | 0.567 | 0.475 | | -16.23 | 20 |
| Bromomethane | 0.378 | 0.318 | | -15.87 | 20 |
| Methylene Chloride | 0.494 | 0.436 | | -11.74 | 20 |
| trans-1,2-Dichloroethane | 0.472 | 0.428 | | -9.32 | 20 |
| 1,1-Dichloroethane | 0.805 | 0.728 | 0.1 | -9.56 | 20 |
| Cyclohexane | 0.905 | 0.654 | | -27.74 | 20 |
| Carbon Tetrachloride | 0.437 | 0.436 | | -0.23 | 20 |
| cis-1,2-Dichloroethane | 0.535 | 0.505 | | -5.61 | 20 |
| Chloroform | 0.835 | 0.794 | | -4.91 | 20 |
| 1,1,1-Trichloroethane | 0.752 | 0.721 | | -4.12 | 20 |
| Methylcyclohexane | 0.565 | 0.539 | | -4.6 | 20 |
| Benzene | 1.238 | 1.158 | | -6.46 | 20 |
| 1,2-Dichloroethane | 0.401 | 0.395 | | -1.5 | 20 |
| Trichloroethane | 0.377 | 0.364 | | -3.45 | 20 |
| 1,2-Dichloropropane | 0.319 | 0.295 | | -7.52 | 20 |
| Bromodichloromethane | 0.425 | 0.415 | | -2.35 | 20 |
| Toluene | 0.812 | 0.765 | | -5.79 | 20 |
| Tetrachloroethane | 0.473 | 0.410 | | -13.32 | 20 |
| Ethylbenzene | 1.702 | 1.601 | | -5.93 | 20 |
| m/p-Xylenes | 0.678 | 0.637 | | -6.05 | 20 |
| o-Xylene | 0.673 | 0.632 | | -6.09 | 20 |
| Isopropylbenzene | 3.509 | 3.270 | | -6.81 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.847 | 0.788 | 0.3 | -6.97 | 20 |
| 1,3,5-Trimethylbenzene | 2.753 | 2.577 | | -6.39 | 20 |
| 1,2,4-Trimethylbenzene | 2.813 | 2.630 | | -6.51 | 20 |
| 1,4-Dichlorobenzene | 1.635 | 1.574 | | -3.67 | 20 |
| 1,2,4-Trichlorobenzene | 1.066 | 1.079 | | 1.22 | 20 |
| Naphthalene | 2.605 | 2.511 | | -3.61 | 20 |
| 1,2-Dichloroethane-d4 | 0.487 | 0.473 | | -2.88 | 20 |
| Dibromofluoromethane | 0.287 | 0.296 | | 3.14 | 20 |
| Toluene-d8 | 1.123 | 1.098 | | -2.23 | 20 |
| 4-Bromofluorobenzene | 0.413 | 0.415 | | 0.48 | 20 |
| Diisopropyl ether | 1.254 | 1.111 | | -11.4 | 20 |

All other compounds must meet a minimum RRF of 0.010.

Qual in Ital

Matrix Spike/Matrix Spike Duplicate Summary SW-846

SDG No.: E1885

Client: CH2M Hill

Analytical Method: SW8260-Low

| Parameter | Spike | Sample | | Rec | | | RPD | | Limits | |
|---------------------------|------------|--------------------|------------------------|-----|------|----------------|------|-----|--------|-----|
| | | Result | Result | Rec | Qual | RPD | Qual | Low | High | RPD |
| Lab Sample ID : | E1885-02MS | Client Sample ID : | IR78-MWV101-GW01-13BMS | | | | | | | |
| Vinyl chloride | 50 | 12.5 | 63.4 | 102 | | | | 50 | 145 | |
| Bromomethane | 50 | | 49.1 | 98 | | | | 30 | 145 | |
| Methylene Chloride | 50 | 0 | 47.5 | 95 | | | | 55 | 140 | |
| trans-1,2-Dichloroethene | 50 | 0.95 | 50 | 98 | | | | 60 | 140 | |
| 1,1-Dichloroethane | 50 | | 48.6 | 97 | | | | 70 | 135 | |
| Cyclohexane | 50 | | 45.4 | 91 | | | | 56 | 141 | |
| Carbon Tetrachloride | 50 | | 50.8 | 102 | | | | 65 | 140 | |
| cis-1,2-Dichloroethene | 50 | 20.4 | 84.7 | 129 | * | J ⁺ | | 70 | 125 | |
| Chloroform | 50 | 0 | 51.1 | 102 | | | | 65 | 135 | |
| 1,1,1-Trichloroethane | 50 | 0 | 51.3 | 103 | | | | 65 | 130 | |
| Methylcyclohexane | 50 | 0 | 44.4 | 89 | | | | 56 | 137 | |
| Benzene | 50 | 2.1 | 49.7 | 95 | | | | 80 | 120 | |
| 1,2-Dichloroethane | 50 | 0 | 50.2 | 100 | | | | 70 | 130 | |
| Trichloroethene | 50 | 0.88 | 48.9 | 96 | | | | 70 | 125 | |
| 1,2-Dichloropropane | 50 | | 46.5 | 93 | | | | 75 | 125 | |
| Bromodichloromethane | 50 | | 50.4 | 101 | | | | 75 | 120 | |
| Toluene | 50 | 0 | 47.4 | 95 | | | | 75 | 120 | |
| Tetrachloroethene | 50 | 0 | 38.1 | 76 | | | | 45 | 150 | |
| Ethyl Benzene | 50 | 0 | 47.1 | 94 | | | | 75 | 125 | |
| m/p-Xylenes | 100 | 0 | 94.1 | 94 | | | | 75 | 130 | |
| o-Xylene | 50 | 0 | 47.8 | 96 | | | | 80 | 120 | |
| Isopropylbenzene | 50 | 0 | 46.9 | 94 | | | | 75 | 125 | |
| 1,1,2,2-Tetrachloroethane | 50 | 0 | 50.4 | 101 | | | | 65 | 130 | |
| 1,3,5-Trimethylbenzene | 50 | 0 | 46.8 | 94 | | | | 75 | 130 | |
| 1,2,4-Trimethylbenzene | 50 | 0 | 46.4 | 93 | | | | 75 | 130 | |
| 1,4-Dichlorobenzene | 50 | 0 | 48.2 | 96 | | | | 75 | 125 | |
| 1,2,4-Trichlorobenzene | 50 | 0 | 50.2 | 100 | | | | 65 | 135 | |
| Naphthalene | 50 | 0 | 52.5 | 105 | | | | 55 | 140 | |
| Diisopropyl ether | 50 | 0 | 47.3 | 95 | | | | 70 | 130 | |

Matrix Spike/Matrix Spike Duplicate Summary SW-846

SDG No.: E1885

Client: CH2M Hill

Analytical Method: SW8260-Low

| Parameter | Spike | Sample | | Rec | RPD | | Limits | | RPD |
|---------------------------|-------------|--------------------|-------------------------|-----|------|-----|--------|------|-----|
| | | Result | Result | | Qual | RPD | Low | High | |
| Lab Sample ID : | E1885-03MSD | Client Sample ID : | IR78-MWVI01-GW01-13BMSD | | | | | | |
| Vinyl chloride | 50 | 12.5 | 63.9 | 103 | 1 | | 50 | 145 | 20 |
| Bromomethane | 50 | | 47.8 | 96 | 3 | | 30 | 145 | 20 |
| Methylene Chloride | 50 | 0 | 46 | 92 | 3 | | 55 | 140 | 20 |
| trans-1,2-Dichloroethene | 50 | 0.95 | 49 | 96 | 2 | | 60 | 140 | 20 |
| 1,1-Dichloroethane | 50 | | 47.3 | 95 | 3 | | 70 | 135 | 20 |
| Cyclohexane | 50 | | 44.5 | 89 | 2 | | 56 | 141 | 20 |
| Carbon Tetrachloride | 50 | | 50.1 | 100 | 1 | | 65 | 140 | 20 |
| cis-1,2-Dichloroethene | 50 | 20.4 | 87.3 | 134 | * | 3 | 70 | 125 | 20 |
| Chloroform | 50 | 0 | 49.3 | 99 | 4 | | 65 | 135 | 20 |
| 1,1,1-Trichloroethane | 50 | 0 | 49.9 | 100 | 3 | | 65 | 130 | 20 |
| Methylcyclohexane | 50 | 0 | 44.6 | 89 | 0 | | 56 | 137 | 20 |
| Benzene | 50 | 2.1 | 49.4 | 95 | 1 | | 80 | 120 | 20 |
| 1,2-Dichloroethane | 50 | 0 | 49.9 | 100 | 1 | | 70 | 130 | 20 |
| Trichloroethene | 50 | 0.88 | 49.6 | 97 | 1 | | 70 | 125 | 20 |
| 1,2-Dichloropropane | 50 | | 46.5 | 93 | 0 | | 75 | 125 | 20 |
| Bromodichloromethane | 50 | | 49.7 | 99 | 1 | | 75 | 120 | 20 |
| Toluene | 50 | 0 | 47.3 | 95 | 0 | | 75 | 120 | 20 |
| Tetrachloroethene | 50 | 0 | 36.9 | 74 | 3 | | 45 | 150 | 20 |
| Ethyl Benzene | 50 | 0 | 46.7 | 93 | 1 | | 75 | 125 | 20 |
| m/p-Xylenes | 100 | 0 | 92.8 | 93 | 1 | | 75 | 130 | 20 |
| o-Xylene | 50 | 0 | 47.1 | 94 | 1 | | 80 | 120 | 20 |
| Isopropylbenzene | 50 | 0 | 46.6 | 93 | 1 | | 75 | 125 | 20 |
| 1,1,2,2-Tetrachloroethane | 50 | 0 | 50.3 | 101 | 0 | | 65 | 130 | 20 |
| 1,3,5-Trimethylbenzene | 50 | 0 | 46.9 | 94 | 0 | | 75 | 130 | 20 |
| 1,2,4-Trimethylbenzene | 50 | 0 | 46.3 | 93 | 0 | | 75 | 130 | 20 |
| 1,4-Dichlorobenzene | 50 | 0 | 48.4 | 97 | 0 | | 75 | 125 | 20 |
| 1,2,4-Trichlorobenzene | 50 | 0 | 50.4 | 101 | 0 | | 65 | 135 | 20 |
| Naphthalene | 50 | 0 | 52.3 | 105 | 0 | | 55 | 140 | 20 |
| Diisopropyl ether | 50 | 0 | 45.7 | 91 | 3 | | 70 | 130 | 20 |

FIELD DUPLICATE SAMPLE SUMMARY

Sample ID: IR78-MWV101-GW01-13B
Duplicate Sample ID: IR78-MWV101-GW01D-13B

Water: RPD>30%
 Soil: RPD>30%

| Compound | Sample Conc. | Dup. Sample Conc. | %RPD |
|--------------------------|--------------|-------------------|---------|
| vinyl chloride | 12.5 | 9.7 | 25 |
| trans-1,2-dichloroethene | 0.95 | 0.76 | 22 |
| cis-1,2-dichloroethene | 20.4 | 15.5 | 27 |
| total 1,2-dichloroethene | 21.4 | 16.3 | 27 |
| benzene | 2.1 | 1.6 | 27 |
| trichloroethene | 0.88 | 0.62 | 35 |
| | | | #DIV/0! |

COMMENTS: Qualify trichloroethene results as estimated (J)

* one of the results below the LOD
 if both results are below the LOD the results are not compared

DataQual

VOA

Initial Calibration Date: 4/15/2013**RRF and %RSD Calculations:**Compound Name: vinyl chloride
Lab Value: 0.571

| | |
|-----------------------|---------|
| Area of Compound | 2430739 |
| Area of Internal STD | 1065042 |
| Conc. of Internal STD | 50 |
| Conc. of Compound | 200 |
| Calculated RRF | 0.571 |

Compound Name: benzene
Lab Value: 3.8

| | |
|------------------|--------|
| RRF of STD 1 | 1.3290 |
| RRF of STD 2 | 1.2320 |
| RRF of STD 3 | 1.2390 |
| RRF of STD 4 | 1.2050 |
| RRF of STD 5 | 1.2120 |
| RRF of STD 6 | 1.2110 |
| Calculated % RSD | 3.8 |

Continuing Calibration File ID: 4/18/2013**RRF and %D Calculations:**Compound Name: bromomethane
Lab Value: 0.318

| | |
|-----------------------|---------|
| Area of Compound | 348072 |
| Area of Internal STD | 1095452 |
| Conc. of Internal STD | 50 |
| Conc. of Compound | 50 |
| Calculated RRF | 0.318 |

Compound Name: naphthalene
Lab Value: 3.6

| | |
|-----------------------|-------|
| Average RRF | 2.605 |
| Calibration Check RRF | 2.511 |
| Calculated % D | 3.6 |

CASE NARRATIVE**CH2M Hill****Project Name: CTO WE19 Camp Lejeune****Project # N/A****Chemtech Project # E1885****Test Name: VOCMS Group1****A. Number of Samples and Date of Receipt:**

6 Water samples were received on 04/17/2013.

B. Parameters

According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:

The analysis performed on instrument MSVOA_N were done using GC column RXI-624SIL MS 30m 0.25mm 1.4 um. Cat#13868. The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The MS {E1885-02MS} with File ID: VN005228.D recoveries met the requirements for all compounds except for cis-1,2-Dichloroethene[129%].

The MSD {E1885-03MSD} with File ID: VN005229.D recoveries met the acceptable requirements except for cis-1,2-Dichloroethene[134%].

The RPD recoveries met criteria .

The Blank Spike met requirements for all samples .

The Blank analysis did not indicate the presence of lab contamination.

The Initial Calibration met the requirements .

The %RSD is greater than 15% in the Initial Calibration (Method 82N041513W.M) for Bromomethane & Cyclohexane these compounds are passing on Linear regression .

The Continuous Calibration met the requirements .

The Tuning criteria met requirements.

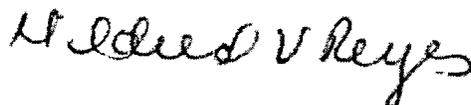
E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

 Mildred V. Reyes, QA/QC Supervisor
2013.05.01 12:04:46 -05'00'

Signature _____

E1885

| | | | | | |
|--|---|--|--|--|--|
| CH2MHILL. | | CHAIN-OF-CUSTODY RECORD | | | 424419 - 1 |
| 1270 West Dixie Suite 1100 Camak, TX Tel No. (252) 204-7000 Fax No. (252) 214-2814 | | | | | |
| PROJECT NAME: MCEAST MCB CAMLEJ | PROJECT NUMBER: 424419.F1.RS | LAB NAME AND CONTACT: ChemTech Kert Hummer, Lab PM | FAX AND MAIL REPORTS/SEND TO: RECIPIENT 1 (Name and Company): Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | | RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd, Suite 304 Charlotte |
| PROJECT PHASE/STAGE/TASK: IRP VI Monitoring | CTO OR DO NUMBER: WE-19 | LAB PO NUMBER: NA | FAX AND MAIL REPORTS/SEND TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | | RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| PROJECT CONTACT: Kimberly Stokes | PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | LAB TEL NO AND FAX NO: phone: 908-728-3143 | FAX AND MAIL REPORTS/SEND TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | RECIPIENT 3 (Address, Tel No., and Fax No.): email |

1
4
2,3
5
6

| ITEM | SAMPLE ID | MATRIX (see notes on SOP) | DATE | Number of Vials | TIME | Preservative | DATA PKG LEVEL (see notes on SOP) | DATE (inclusive days) | STATUS | SAMPLE TYPE (see notes on SOP) | LAB ID (see lab's use) | COMMENTS/SCREENING READINGS |
|------|----------------------------|---------------------------|-----------|-----------------|-------|--------------|-----------------------------------|-----------------------|--------|--------------------------------|------------------------|-----------------------------|
| 1 | IR78-MWV101-GW01-13B | GW | 4/10/2013 | 3 | 13:40 | HCl | N/A | 14 | X | | | |
| 2 | IR78-MWV101-GW01D-13B | GW | 4/11/2013 | 3 | 13:45 | HCl | N/A | 14 | X | | | |
| 3 | IR78-MWV101-GW01MS/MSD-13B | GW | 4/11/2013 | 9 | 13:40 | HCl | N/A | 14 | X | | | |
| 4 | EB-041413 | GW | 4/11/2013 | 3 | 15:50 | HCl | N/A | 14 | X | | | |
| 5 | TB-041413 | GW | 4/11/2013 | 3 | N/A | HCl | N/A | 14 | X | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |

| | | | | |
|--|-------------|---------------------------------|--|---------|
| SAMPLER(S) AND COMPANY: (please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | | FedEx number: 7995 3377 9618 | SAMPLER TEMPERATURE AND CONDITION UPON RECEIPT (if applicable) | |
| REQUISITIONED BY | DATE | TIME | RECEIVED BY | DATE |
| Kimberly Stokes <i>Kimberly Stokes</i> | 16-Apr-2013 | 1700 | | |
| Fedex | 4/17/13 | 935 | Polak Shah | 4/17/13 |

935

Temp: 4°C

Kurt Hummler

From: Bianca.Kleist@CH2M.com
Sent: Thursday, April 18, 2013 1:08 PM
To: kurt@chemtech.net
Subject: FW: CTO WE19 Camp Lejeune GW

Hi Kurt, per the email below all the samples were collected on 4/14 and not 4/11 or 4/10. Can you please make an update on your end? Thanks!

From: Stokes, Kimberly/DFW
Sent: Thursday, April 18, 2013 12:12 PM
To: Kleist, Bianca/CLT
Subject: RE: CTO WE19 Camp Lejeune GW

These should all read 4/14/13. Sorry for the confusion.



Kim Stokes
Environmental Engineer 3
Environmental Services

CH2M HILL
11044 Wallbrook Drive
Dallas, TX 75238
Direct Dial: 972-663-2269
Work Cell: 214-998-4839
Fax: 972-387-6623
kstokes@ch2m.com
www.ch2mhill.com

From: Kleist, Bianca/CLT
Sent: Wednesday, April 17, 2013 5:17 PM
To: Stokes, Kimberly/DFW
Subject: FW: CTO WE19 Camp Lejeune GW

Hi Kim, can you please confirm the sample time for IR78-MWV101? The COC shows 4/10 however the dup and all the other samples appear to be collected on 4/11. Thanks!

From: Kurt Hummler [<mailto:kurt@chemtech.net>]
Sent: Wednesday, April 17, 2013 11:03 AM
To: Kleist, Bianca/CLT
Subject: CTO WE19 Camp Lejeune GW

Hi Bianca,

In reference to the groundwater samples received for CTO WE19 Camp Lejeune:

Can you confirm the collection date for the first sample listed on the attached chain of custody.

Regards

Kurt Hummler
Direct Phone: (908) 728-3143
Office Phone: (908) 789 8900 ext. 3143

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: E1885

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page) ✓

Check chain-of-custody for proper relinquish/return of samples ✓

Is the chain of custody signed and complete ✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts ✓

Collect information for each project id from server. Were all requirements followed ✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page ✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody ✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ✓

Do requested analyses on Chain of Custody agree with the log-in page ✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ✓

Were the samples received within hold time ✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ✓

ANALYTICAL:

Was method requirement followed? ✓

Was client requirement followed? ✓

Does the case narrative summarize all QC failure? ✓

All runlogs and manual integration are reviewed for requirements ✓

All manual calculations and /or hand notations verified ✓

1st Level QA Review Signature:

MOHINI SONI

Date: 04/26/2013

2nd Level QA Review Signature:



Nimisha

2013.04.30 17:37:13 -05'00'

Date:



DataQual

Environmental Services, LLC

CH2M HILL
11301 Carmel Commons Blvd
Suite 304
Charlotte, NC 28226

July 23, 2013
SDG# E1907, Chemtech
MCB Camp Lejeune- Jacksonville, NC, CTO-WE19

Dear Ms. Kleist,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # E1907. The data validation was performed in accordance with TO-15 for volatiles; the National Functional Guidelines for Organic Data Review (June 2008), as applicable, and good professional judgment. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

| Sample ID | Lab ID | Matrix | VOA |
|-------------------|----------|--------|-----|
| IR88-OA01-13B | E1907-01 | air | X |
| IR88-IA16-13B | E1907-02 | air | X |
| IR88-IA15-13B | E1907-03 | air | X |
| SWMU360-IA21-13B | E1907-04 | air | X |
| SWMU360-IA21D-13B | E1907-05 | air | X |
| SWMU360-IA22-13B | E1907-06 | air | X |
| IR78-IA28-13B | E1907-07 | air | X |
| IR96-OA01-13B | E1907-08 | air | X |
| IR78-IA29-13B | E1907-09 | air | X |
| IR78-IA26-13B | E1907-10 | air | X |
| IR78-IA27-13B | E1907-11 | air | X |
| IR78-IA25-13B | E1907-12 | air | X |
| IR78-OA01-13B | E1907-13 | air | X |
| SWMU360-SG12-13B | E1907-14 | air | X |
| IR35-IA01-13B | E1907-15 | air | X |
| IR35-IA02-13B | E1907-16 | air | X |
| IR35-IA02D-13B | E1907-17 | air | X |
| IR35-OA01-13B | E1907-18 | air | X |
| IR89-IA03-13B | E1907-19 | air | X |
| IR89-IA03D-13B | E1907-20 | air | X |

The following quality control samples were provided with this SDG: sample SWMU360-IA21D-13B - field duplicate of sample SWMU360-IA21-13B, sample IR35-IA02D-13B - field duplicate of sample IR35-IA02-13B and sample IR89-IA03D-13B - field duplicate of sample IR89-IA03-13B.

The samples were evaluated based on the following criteria:

- Data Completeness *
- Technical Holding Times *
- Instrument Performance *
- Initial/Continuing Calibrations *
- Blanks *
- Internal Standards *
- Surrogates *
- Laboratory Control Samples
- Matrix Spike Recoveries NA
- Matrix Duplicate RPDs NA
- Field Duplicates
- Identification/Quantitation
- Reporting Limits *

* - indicates that no qualifications were required based on this criteria

Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that when a compound or analyte is flagged due to blank contamination the BL qualifier code takes precedence over all other qualifier codes except a code that explains rejected data.

VOA

One of the submitted laboratory control samples exhibited low recovery; therefore qualifications were added to the associated samples.

The field duplicate pairs did not exhibit comparable results; therefore qualifications were added to those compounds.

One sample required a dilution to obtain results within the calibration range.

Specific Evaluation of Data

Data Completeness

The SDG was received complete and intact. Resubmissions were not required.

Technical Holding Times

According to chain of custody records, sampling was performed on 4/9-11/13 and samples were received at the laboratory 4/18/13. All sample preparation and analysis was performed within method holding time requirements.

Laboratory Control Samples

VOA

One of the four Laboratory Control Samples exhibited low recoveries for the compounds listed; qualifications were applied as stated in the table below.

| Sample ID | Compound | LCS % Rec | QC limit | Qualifier | Qual Code |
|----------------|-------------|-----------|----------|-----------|-----------|
| IR35-IAO2D-13B | naphthalene | 65 | 70-130 | J/UJ | BSL |

Field Duplicates

VOA

The field duplicate pairs listed below exhibited non-compliant field duplicate reproducibility for the compounds listed, qualifications were applied as stated.

| Sample ID | Compound | % RPD | Qualification | Qualifier Code |
|---------------------------------|--------------------------|-------|---------------|----------------|
| SWMU360-IA21-13B | benzene | 114 | J/UJ | FD |
| SWMU360-IA21D-13B | toluene | 167 | | |
| | tetrachloroethene | 131 | | |
| | ethyl benzene | 200 | | |
| | m,p-xylene | 186 | | |
| | total xylene | 190 | | |
| | o-xylene | 200 | | |
| | 1,3,5-trimethylbenzene | 200 | | |
| | 1,2,4-tri methyl benzene | 200 | | |
| | 1,4-dichlorobenzene | 200 | | |
| | isopropylbenzene | 200 | | |
| IR35-IA02-13B IR35-IA02D-13B | 1,2,4-trimethylbenzene | 200 | | |
| IR89-IA03-13B IR89-IA03D-13B | m,p-xylene | 90 | J/UJ | FD |
| | total xylene | 91 | | |
| | o-xylene | 93 | | |

Identification/Quantitation

VOA

A dilution was required for sample SWMU360-SG12-13B to obtain results within the calibration range; therefore, the E-flagged results in the initial analysis were rejected in favor of the corresponding D-flagged results in the dilution.

Sample IR88-IA16-13B was re-analyzed at a dilution; however the dilution was not needed and therefore excluded.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura Maschhoff". The signature is written in a cursive style with a large, looping initial "L".

Laura Maschhoff
President

Summary of Data Qualifications

VOA

| Sample ID | Compound | Results | Q-Flag | Q Code |
|-------------------------------------|---|---------|---------|--------|
| IR35-IA02D-13B | naphthalene | +/- | J/UJ | BSL |
| SWMU360-IA21-13B, SWMU360-IA21D-13B | benzene toluene tetrachloroethene ethyl benzene m,p-xylene total xylene o-xylene 1,3,5-trimethylbenzene 1,2,4-tri methyl benzene 1,4-dichlorobenzene isopropylbenzene | +/- | J/UJ | FD |
| IR35-IA02-13B, IR35-IA02D-13B | 1,2,4-trimethylbenzene | +/- | J/UJ | FD |
| IR89-IA03-13B, IR89-IA03D-13B | m,p-xylene total xylene o-xylene | +/- | J/UJ | FD |
| SWMU360-SG12-13B | all E-flagged results | +/- | exclude | DL |
| SWMU360-SG12-13BDL | all results except D-flagged compounds | +/- | exclude | DL |
| IR88-IA16-13BDL | all results | +/- | exclude | RE |

Glossary of Qualification Flags and Abbreviations

Qualification Flags (Q-Flags)

| | |
|----|---|
| U | not detected above the reported sample quantitation limit |
| J | estimated value |
| UJ | reported quantitation limit is qualified as estimated |
| R | result is rejected; the presence or absence of the analyte cannot be verified |
| D | result value is based on dilution analysis result |
| NJ | analyte has been tentatively identified, estimated value |
| L | analyte present, biased low |
| UL | not detected, quantitation limit is probably higher |
| K | analyte present, biased high |

Inorganic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|---------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 10X the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL and the result is raised to the RL and flagged U. |
| R or J+ | The blank contaminant concentration was greater than the RL and the sample result is greater than the RL but less than 10X the blank contaminant concentration. The reported results are flagged either as rejected R or biased high J+ based on the professional judgment of the validator. (see NFG, Rev. date 10/04, p. 17 for extracted blanks (PB)) |

Organic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is raised to the RL and flagged U. |
| U | The sample result for the blank contaminant is greater than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is flagged U at the reported value. |

General Abbreviations

| | |
|----------|--|
| RL / MDL | reporting limit/method detection limit |
| CRQL | contract required quantitation limit |
| Q Code | qualifier code |
| + | positive result |
| - | non-detect result |

QUALIFIER CODE REFERENCE

| Qualifier | Description |
|-----------|--|
| TN | Tune |
| BSL | Blank Spike/LCS - High Recovery |
| BSH | Blank Spike/LCS - Low Recovery |
| BD | Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision |
| BRL | Below Reporting Limit |
| ISL | Internal Standard - Low Recovery |
| ISH | Internal Standard - High Recovery |
| MSL | Matrix Spike and/or Matrix Spike Duplicate - Low Recovery |
| MSH | Matrix Spike and/or Matrix Spike Duplicate - High Recovery |
| MI | Matrix interference obscuring the raw data |
| MDP | Matrix Spike/Matrix Spike Duplicate Precision |
| 2S | Second Source - Bad reproducibility between tandem detectors |
| SSL | Spiked Surrogate - Low Recovery |
| SSH | Spiked Surrogate - High Recovery |
| SD | Serial Dilution Reproducibility |
| ICL | Initial Calibration - Low Relative Response Factors (RRF) |
| ICH | Initial Calibration - High Relative Response Factors (RRF) |
| ICB | Initial Calibration - Bad Linearity or Curve Function |
| CCL | Continuing Calibration - Low Recovery or %Difference |
| CCH | Continuing Calibration - High Recovery or %Difference |
| LD | Lab Duplicate Reproducibility |
| HT | Holding Time |
| PD | Pesticide Degradation |
| 2C | Second Column - Poor Dual Column Reproducibility |
| LR | Concentration Exceeds Linear Range |
| BL | Blank Contamination |
| RE | Redundant Result - due to Re-analysis or Re-extraction |
| DL | Redundant Result - due to Dilution |
| FD | Field Duplicate |
| OT | Other - explained in data validation report |
| %SOL | High moisture content |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019687.D | 1 | | 04/22/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.38 | 1.32 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.16 | 0.51 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.03 | 0.16 | U | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 2.5 | 9.42 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.03 | 0.2 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.12 | 0.52 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.16 | 0.69 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.16 | 0.69 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.2 | | | 65 - 135 | | 102% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2125330 | | 6.61 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6452310 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6055830 | | 13.7 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019687.D | 1 | | 04/22/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA16-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019688.D | 1 | | 04/22/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.1 | 0.35 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.19 | 0.93 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.21 | 0.67 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.1 | 0.54 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 7.9 | 29.8 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.13 | 0.88 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.56 | 2.43 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.5 | 6.52 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 2.01 | 8.73 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.51 | 2.22 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.14 | 0.84 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.4 | | | 65 - 135 | | 104% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2198020 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6600990 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6223210 | | 13.7 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
072213

010

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA16-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019688.D | 1 | | 04/22/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

LM
070213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA16-13BDL | SDG No.: | E1907 |
| Lab Sample ID: | E1907-02DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019700.D | 2 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.06 | 0.15 | UD | 0.06 | 0.06 | 1 | ppbv |
| 74-83-9 | Bromomethane | 0.2 | 0.78 | UD | 0.06 | 0.2 | 1 | ppbv |
| 75-09-2 | Methylene Chloride | 0.2 | 0.69 | UD | 0.1 | 0.2 | 1 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.2 | 0.79 | UD | 0.1 | 0.2 | 1 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.2 | 0.81 | UD | 0.08 | 0.2 | 1 | ppbv |
| 110-82-7 | Cyclohexane | 0.2 | 0.69 | UD | 0.2 | 0.2 | 1 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | JD | 0.06 | 0.06 | 1 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.2 | 0.79 | UD | 0.1 | 0.2 | 1 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.4 | 0.02 | UD | 0.2 | 0.4 | 2 | ppbv |
| 67-66-3 | Chloroform | 0.2 | 0.98 | JD | 0.04 | 0.2 | 1 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.06 | 0.33 | UD | 0.06 | 0.06 | 1 | ppbv |
| 71-43-2 | Benzene | 0.22 | 0.7 | JD | 0.08 | 0.2 | 1 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.2 | 0.81 | UD | 0.2 | 0.2 | 1 | ppbv |
| 79-01-6 | Trichloroethene | 0.06 | 0.32 | UD | 0.03 | 0.06 | 1 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.2 | 0.92 | UD | 0.2 | 0.2 | 1 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.2 | 1.34 | UD | 0.1 | 0.2 | 1 | ppbv |
| 108-88-3 | Toluene | 8.4 | 31.7 | JD | 0.1 | 0.2 | 1 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.14 | 0.95 | JD | 0.06 | 0.06 | 1 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.54 | 2.35 | JD | 0.2 | 0.2 | 1 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.4 | 6.08 | JD | 0.2 | 0.4 | 2 | ppbv |
| 1330-20-7 | Total Xylenes | 1.9 | 8.25 | JD | 0.4 | 0.6 | 3 | ppbv |
| 95-47-6 | o-Xylene | 0.5 | 2.17 | JD | 0.2 | 0.2 | 1 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.2 | 0.98 | UD | 0.2 | 0.2 | 1 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.2 | 1.37 | UD | 0.2 | 0.2 | 1 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.2 | 0.98 | UD | 0.2 | 0.2 | 1 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.2 | 0.98 | UD | 0.2 | 0.2 | 1 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.2 | 1.2 | UD | 0.2 | 0.2 | 1 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.2 | 1.48 | UD | 0.08 | 0.2 | 1 | ppbv |
| 91-20-3 | Naphthalene | 0.2 | 1.05 | UD | 0.08 | 0.2 | 1 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2134600 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6788680 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6635070 | | 13.71 | | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA16-13BDL | SDG No.: | E1907 |
| Lab Sample ID: | E1907-02DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019700.D | 2 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA15-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019689.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.13 | 0.45 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.04 | 0.2 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.24 | 0.77 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.81 | 4.35 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 5.3 | 20.0 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.31 | 2.1 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.2 | 0.87 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.27 | 1.17 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.37 | 1.61 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |

| | | | | | | | | |
|-------------------|-------------------------|------|--|--|----------|--|------|---------|
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.3 | | | 65 - 135 | | 103% | SPK: 10 |

| | | | | | | | | |
|---------------------------|---------------------|---------|--|------|--|--|--|--|
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2235320 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6780200 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6407420 | | 13.7 | | | | |

TENTITIVE IDENTIFIED COMPOUNDS



 014

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-IA15-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019689.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-IA21-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019690.D | 1.3 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|-------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.039 | 0.1 | U | 0.039 | 0.039 | 0.65 | ppbv |
| 74-83-9 | Bromomethane | 0.13 | 0.5 | U | 0.039 | 0.13 | 0.65 | ppbv |
| 75-09-2 | Methylene Chloride | 0.767 | 2.66 | | 0.065 | 0.13 | 0.65 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.13 | 0.52 | U | 0.065 | 0.13 | 0.65 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.13 | 0.53 | U | 0.052 | 0.13 | 0.65 | ppbv |
| 110-82-7 | Cyclohexane | 0.273 | 0.94 | J | 0.13 | 0.13 | 0.65 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.104 | 0.65 | J | 0.039 | 0.039 | 0.65 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.13 | 0.52 | U | 0.065 | 0.13 | 0.65 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.26 | 0.01 | U | 0.13 | 0.26 | 1.3 | ppbv |
| 67-66-3 | Chloroform | 0.104 | 0.51 | J | 0.026 | 0.13 | 0.65 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.039 | 0.21 | U | 0.039 | 0.039 | 0.65 | ppbv |
| 71-43-2 | Benzene | 0.624 | 1.99 | J JPD | 0.052 | 0.13 | 0.65 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.13 | 0.53 | U | 0.13 | 0.13 | 0.65 | ppbv |
| 79-01-6 | Trichloroethene | 0.286 | 1.54 | J | 0.02 | 0.039 | 0.65 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.13 | 0.6 | U | 0.13 | 0.13 | 0.65 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.13 | 0.87 | U | 0.065 | 0.13 | 0.65 | ppbv |
| 108-88-3 | Toluene | 16.9 | 63.7 | J PD | 0.065 | 0.13 | 0.65 | ppbv |
| 127-18-4 | Tetrachloroethene | 2.1 | 14.2 | | 0.039 | 0.039 | 0.65 | ppbv |
| 100-41-4 | Ethyl Benzene | 1.3 | 5.65 | | 0.13 | 0.13 | 0.65 | ppbv |
| 179601-23-1 | m/p-Xylene | 3.5 | 15.2 | | 0.13 | 0.26 | 1.3 | ppbv |
| 1330-20-7 | Total Xylenes | 4.9 | 21.3 | | 0.26 | 0.39 | 1.95 | ppbv |
| 95-47-6 | o-Xylene | 1.4 | 6.08 | | 0.13 | 0.13 | 0.65 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.143 | 0.7 | J JPD | 0.13 | 0.13 | 0.65 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.13 | 0.89 | U | 0.13 | 0.13 | 0.65 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.26 | 1.28 | J JPD | 0.13 | 0.13 | 0.65 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.702 | 3.45 | J JPD | 0.13 | 0.13 | 0.65 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.546 | 3.28 | J JPD | 0.13 | 0.13 | 0.65 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.13 | 0.97 | U | 0.052 | 0.13 | 0.65 | ppbv |
| 91-20-3 | Naphthalene | 0.13 | 0.68 | U | 0.052 | 0.13 | 0.65 | ppbv |

| | | | | | | | | |
|-------------------|-------------------------|-----|--|--|----------|--|-----|---------|
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |

| | | | | | | | | |
|---------------------------|---------------------|---------|--|-------|--|--|--|--|
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2025960 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6144520 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5057600 | | 13.71 | | | | |

TENTITIVE IDENTIFIED COMPOUNDS

Handwritten: WM 072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-IA21-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019690.D | 1.3 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-IA21D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019691.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.54 | 1.88 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.12 | 0.41 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.05 | 0.31 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.03 | 0.15 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.17 | 0.54 | J JPD | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.2 | 1.07 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.5 | 5.65 | J JPD | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.44 | 2.98 | J J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.13 | 0.56 | J J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.13 | 0.56 | J J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | J JPD | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.2 | | | 65 - 135 | | 102% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2186360 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6688260 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6250350 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
07/22/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-IA21D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019691.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-1A22-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019692.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.75 | 2.61 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.15 | 0.52 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.06 | 0.29 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.35 | 1.12 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.13 | 0.7 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 5.7 | 21.5 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.08 | 0.54 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.37 | 1.61 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.96 | 4.17 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.35 | 5.86 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.39 | 1.69 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.13 | 0.64 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.49 | 2.41 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.77 | 4.63 | | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.15 | 0.79 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2255600 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6804910 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6023310 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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072213
020

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-IA22-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019692.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA28-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019693.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.6 | 9.03 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.22 | 0.76 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.04 | 0.2 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.2 | 0.64 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.07 | 0.38 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 12.3 | 46.4 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.05 | 0.34 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.34 | 1.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.2 | 5.21 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.72 | 7.47 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.52 | 2.26 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.18 | 0.88 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.15 | 0.9 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.3 | | | 65 - 135 | | 102% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2221910 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6877130 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6474260 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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072213 022

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA28-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019693.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | I | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019694.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.37 | 1.29 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.13 | 0.42 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.23 | 1.24 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 6.4 | 24.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.06 | 0.41 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.26 | 1.13 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.41 | 1.78 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.59 | 2.56 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.18 | 0.78 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.13 | 0.64 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|------|--|--|----------|------|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.2 | | | 65 - 135 | 102% | SPK: 10 |
|----------|-------------------------|------|--|--|----------|------|---------|

INTERNAL STANDARDS

| | | | | | | | |
|-----------|---------------------|---------|--|-------|--|--|--|
| 74-97-5 | Bromochloromethane | 2184900 | | 6.62 | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6762110 | | 8.29 | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6350700 | | 13.71 | | | |

TENTATIVE IDENTIFIED COMPOUNDS

LM
07/23
024

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019694.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA29-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019695.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.41 | 1.42 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.13 | 0.45 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.04 | 0.2 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.11 | 0.35 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.05 | 0.27 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 5.6 | 21.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.04 | 0.27 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.11 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.16 | 0.69 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.16 | 0.69 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.1 | | | 65 - 135 | | 101% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2210680 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6755400 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6260330 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

WV
07/23 026

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA29-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019695.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA26-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019696.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.84 | 2.92 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.11 | 0.38 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.03 | 0.15 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.16 | 0.51 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.18 | 0.97 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 7.6 | 28.6 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.07 | 0.47 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.44 | 1.91 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.1 | 4.78 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.56 | 6.78 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.46 | 2 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.12 | 0.59 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.43 | 2.11 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.23 | 1.21 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.1 | | | 65 - 135 | | 101% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2189700 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6658460 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6264790 | | 13.71 | | | | |
| TENTATIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA26-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019696.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RI = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA27-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019697.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.37 | 1.29 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.14 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.07 | 0.34 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.15 | 0.48 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.13 | 0.7 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 8.1 | 30.5 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.05 | 0.34 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.66 | 2.87 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.3 | 5.65 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.83 | 7.95 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.53 | 2.3 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.12 | 0.59 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.45 | 2.21 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.13 | 0.68 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.1 | | | 65 - 135 | | 101% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2152150 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6611990 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6234240 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

*WMA
072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA27-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019697.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA25-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-12 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019698.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.43 | 1.49 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.17 | 0.59 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.18 | 0.58 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.14 | 0.75 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 8.3 | 31.3 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.12 | 0.81 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.77 | 3.34 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2.1 | 9.12 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 3.04 | 13.2 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.94 | 4.08 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.11 | 0.54 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.46 | 2.26 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1.8 | 8.85 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.69 | 3.62 | | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.3 | | | 65 - 135 | | 103% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 2143450 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6604760 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6242400 | | 13.71 | | | | |
| TENTATIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Handwritten signature/initials

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-IA25-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-12 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019698.D | 1 | | 04/23/13 | VL042213 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-13 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019746.D | 1 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.098 | 0.38 | J | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 5 | 17.4 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.125 | 0.43 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.075 | 0.47 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.142 | 0.45 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.241 | 1.3 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3.9 | 14.7 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.046 | 0.31 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.212 | 0.92 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.399 | 1.73 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.563 | 2.45 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.164 | 0.71 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.3 | | | 65 - 135 | | 103% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1643060 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5466360 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4988050 | | 13.78 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-13 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019746.D | 1 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG12-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-14 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019723.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-------------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.243 | 0.62 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.1 | 7.3 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.143 | 0.58 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.536 | 1.84 | | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.327 | 1.3 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.327 | 0.01 | J | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.464 | 2.27 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.059 | 0.32 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 8.1 | 25.9 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.206 | 0.83 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.393 | 2.11 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.294 | 1.36 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 6.1 | 23.0 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 43.6 | 295 | <i>EXDL</i> | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1.2 | 5.21 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2.9 | 12.6 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 3.72 | 16.2 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.817 | 3.55 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.297 | 1.46 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.298 | 1.47 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.842 | 4.14 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.154 | 0.93 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.139 | 0.73 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1622710 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 6061750 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6209380 | | 13.76 | | | | |
| TENTATIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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07/20/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG12-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-14 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019723.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG12-13BDL | SDG No.: | E1907 |
| Lab Sample ID: | E1907-14DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019724.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|---------------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD <i>XDL</i> | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 14.3 | 45.7 | D | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 0.3 | 1.61 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 9.3 | 35.0 | D | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 54.7 | 370 | D | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 2.1 | 9.12 | JD <i>XDL</i> | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 5.2 | 22.6 | JD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 6.9 | 30.0 | JD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1.7 | 7.38 | JD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.2 | | | 65 - 135 | | 102% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1625780 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5987240 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 6008260 | | 13.76 | | | | |

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/10/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG12-13BDL | SDG No.: | E1907 |
| Lab Sample ID: | E1907-14DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019724.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-IA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-15 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019747.D | 1 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.1 | 7.3 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.204 | 0.7 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.057 | 0.36 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 340-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.198 | 0.63 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.1 | 0.54 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 6.6 | 24.9 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.08 | 0.54 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.167 | 0.73 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.445 | 1.93 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.599 | 2.6 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.154 | 0.67 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.1 | | | 65 - 135 | | 101% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1698140 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5673800 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5330720 | | 13.78 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-IA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-15 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019747.D | 1 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

LM
070213
041

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-IA02-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-16 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019748.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

WJL
07/23
 043

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-IA02D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-17 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VM009990.D | 1 | | 04/24/13 | vm042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|--------------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.49 | 1.7 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.23 | 0.79 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.09 | 0.57 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.09 | 0.44 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.24 | 0.77 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.08 | 0.43 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 5 | 18.8 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.1 | 0.68 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.36 | 1.56 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1 | 4.34 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.37 | 5.95 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.37 | 1.61 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.12 | 0.59 | J JFB | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U US, UO BHL | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.6 | | | 65 - 135 | | 106% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 870077 | | 6.17 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 1195170 | | 7.82 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 863453 | | 13.18 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Handwritten notes:
MM 080513
MM 072213
044

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-IA02D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-17 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VM009990.D | 1 | | 04/24/13 | vm042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

WMA
07/24/13
 045

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-18 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019749.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.431 | 1.5 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.289 | 0.99 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.058 | 0.36 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.221 | 0.71 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.239 | 1.28 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 6.8 | 25.6 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.099 | 0.67 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.585 | 2.54 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.3 | 5.65 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.76 | 7.65 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.461 | 2 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1751550 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5885760 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5523950 | | 13.78 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/11/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-OA01-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-18 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019749.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

04/25/13 047

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-1A03-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-19 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019750.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.424 | 1.47 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.059 | 0.37 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.067 | 0.21 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.031 | 0.17 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3.4 | 12.8 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.064 | 0.43 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.359 | 1.56 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.2 | 5.21 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.67 | 7.26 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.471 | 2.05 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1713890 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5700430 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5243780 | | 13.77 | | | | |
| TENTATIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-IA03-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-19 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019750.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-IA03D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-20 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019751.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.43 | 1.49 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.056 | 0.35 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.058 | 0.19 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.06 | 0.32 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 4.7 | 17.7 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.05 | 0.34 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.202 | 0.88 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.455 | 1.98 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.627 | 2.72 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.172 | 0.75 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1729970 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5757400 | | 8.34 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5324680 | | 13.77 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-1A03D-13B | SDG No.: | E1907 |
| Lab Sample ID: | E1907-20 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019751.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

*W.A.
07/21/13*

Data Completeness

The data package was received intact and complete. Resubmissions were not required. (Method TO-15)

Laboratory: Chemtech

Holding Times

Sampling Date: 4/9-11/13
 Received Date: 4/18/13
 Analysis Dates: 4/22-24/13

All holding time requirements were met.

Calibrations

Mass assignments were verified by the injection of BFB. No qualifications were required for the initial and continuing calibrations.

Internal Standards

All criteria were met.

Blank Summary

Blank qualification guidelines:

- No action is taken if a compound is found in the blank but not in the sample.
- Sample weight, volume or dilution factor must be taken into consideration when applying criteria.
- Qualification/Action codes where applied as stated in table below:
-

| Blank Type | Blank Result | Sample Result | Action for Samples |
|---------------|---------------------|--------------------------------|---|
| Method, Field | Detects | Not detected | No qualifications |
| | < RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | > RL | < RL | Report RL value with a U |
| | | ≥ RL and < blank concentration | Report the concentration for the sample with a U, or qualify the data as unusable R |
| | | ≥ RL and ≥ blank concentration | Use professional judgment |
| | = RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | Gross contamination | Detects | Qualify results as unusable R |

No contamination was exhibited the method blanks associated with these samples. There was no field QC associated with this data package.

Blank Contamination and Qualification Summaries

| Blank ID | Compound | Concentration | Reporting Limit |
|----------|----------|---------------|-----------------|
| | | | |

Associated samples and required qualifications are noted in the following table.

| Sample ID | Compound | Q Flag | Qual Code |
|-------------------|----------|--------|-----------|
| no qualifications | | | |

Surrogates

All criteria were met.

Laboratory Control Sample

One of the four LCS submitted exhibited a low recovery; qualifications were applied as stated in the table below.

| Sample ID | Compound | LCS % Rec | QC Limit | Qualifier | Qual Code |
|----------------|-------------|-----------|----------|-----------|-----------|
| IR35-IA02D-13B | naphthalene | 65 | 70-130 | J/UJ | BSL |

Matrix Spike/Spike Duplicate Samples

An MS/MSD was not submitted for this data package.

Field Duplicate Sample Summary

A field duplicate was submitted for SWMU360-IA21-13B, IR35-IA02-13B and IR89-IA03-13B- qualifications were required, see attached sheet.

Specific Comments:

All sample results were reported within the calibration range of the instruments. Dilutions were required for samples SWMU360-SG12-13B and IR88-IA16-13B to obtain results within the calibration range.

Detection limits were acceptable. Raw data and calculations were verified.

We have limited the supporting documentation, found with these worksheets, to those forms that indicate qualifications were required.

Reviewer



Date:

7.22.13

SDG# E1907
 MCB Camp Lejeune, CTO-WE19
 TO-15
 Page 2

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VM0423ABL

Lab Name: CHEM TECHContract: CH2M03Lab Code: CHEM Case No.: E1907SAS No.: E1907 SDG NO.: E1907Lab File ID: VM009978.DLab Sample ID: VM0423ABLDate Analyzed: 04/23/2013Time Analyzed: 17:54GC Column: RTX-1 ID: 0.32 (mm)Heated Purge: (Y/N) NInstrument ID: MSVOA M

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| EPA SAMPLENO. | LAB SAMPLEID | LAB FILE ID | DATE ANALYZED |
|------------------|-----------------|----------------|------------------|
| VM0423ABS | VM0423ABS | VM009979.D | 04/23/2013 |
| IR35-IA02D-13B | E1907-17 | VM009990.D | 04/24/2013 |

COMMENTS: _____

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: E1907
 Client: CH2M Hill
 Analytical Method: SWTO-15

| Lab Sample ID | Parameter | Spike | Result | Rec | RPD | Qual | Limits | | RPD |
|---------------|---------------------------|-------|--------|-----|-----|------|--------|------|-----|
| | | | | | | | Low | High | |
| VM0423ABS | Vinyl Chloride | 10 | 10.2 | 102 | | | 70 | 130 | |
| | Bromomethane | 10 | 11 | 110 | | | 70 | 130 | |
| | Methylene Chloride | 10 | 9.1 | 91 | | | 70 | 130 | |
| | trans-1,2-Dichloroethene | 10 | 8.3 | 83 | | | 70 | 130 | |
| | 1,1-Dichloroethane | 10 | 9.3 | 93 | | | 70 | 130 | |
| | Cyclohexane | 10 | 8.9 | 89 | | | 70 | 130 | |
| | Carbon Tetrachloride | 10 | 11.5 | 115 | | | 70 | 130 | |
| | cis-1,2-Dichloroethene | 10 | 10 | 100 | | | 70 | 130 | |
| | Chloroform | 10 | 10.1 | 101 | | | 70 | 130 | |
| | 1,1,1-Trichloroethane | 10 | 10.4 | 104 | | | 70 | 130 | |
| | Benzene | 10 | 9.7 | 97 | | | 70 | 130 | |
| | 1,2-Dichloroethane | 10 | 11.1 | 111 | | | 70 | 130 | |
| | Trichloroethene | 10 | 10.4 | 104 | | | 70 | 130 | |
| | 1,2-Dichloropropane | 10 | 9.6 | 96 | | | 70 | 130 | |
| | Bromodichloromethane | 10 | 11.1 | 111 | | | 70 | 130 | |
| | Toluene | 10 | 10.2 | 102 | | | 70 | 130 | |
| | Tetrachloroethene | 10 | 10.6 | 106 | | | 70 | 130 | |
| | Ethyl Benzene | 10 | 9.6 | 96 | | | 70 | 130 | |
| | m/p-Xylene | 20 | 19.5 | 98 | | | 70 | 130 | |
| | o-Xylene | 10 | 9.9 | 99 | | | 70 | 130 | |
| | Isopropylbenzene | 10 | 9.7 | 97 | | | 70 | 130 | |
| | 1,1,2,2-Tetrachloroethane | 10 | 9.3 | 93 | | | 70 | 130 | |
| | 1,3,5-Trimethylbenzene | 10 | 10.3 | 103 | | | 70 | 130 | |
| | 1,2,4-Trimethylbenzene | 10 | 10.6 | 106 | | | 70 | 130 | |
| | 1,4-Dichlorobenzene | 10 | 10 | 100 | | | 70 | 130 | |
| | 1,2,4-Trichlorobenzene | 10 | 8.6 | 86 | | | 70 | 130 | |
| | Naphthalene | 10 | 6.5 | 65 | | | 70 | 130 | |

5705

DataQual

VOA TO-15

Initial Calibration Date: 4/22/2013

RRF and %RSD Calculations:

Compound Name: vinyl chloride
Lab Value: 0.867

| | |
|-----------------------|---------|
| Area of Compound | 103079 |
| Area of Internal STD | 2377628 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 0.5 |
| Calculated RRF | 0.867 |

Compound Name: toluene
Lab Value: 16.40

| | |
|------------------|--------|
| RRF of STD 1 | 1.1390 |
| RRF of STD 2 | 1.4670 |
| RRF of STD 3 | 1.4580 |
| RRF of STD 4 | 1.4440 |
| RRF of STD 5 | 1.0110 |
| Calculated % RSD | 16.40 |

Continuing Calibration File ID: 4/24/2013

RRF and %D Calculations:

Compound Name: trichloroethene
Lab Value: 0.390

| | |
|-----------------------|---------|
| Area of Compound | 2595074 |
| Area of Internal STD | 6654781 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 10 |
| Calculated RRF | 0.390 |

Compound Name: methylene choride
Lab Value: 5.7

| | |
|-----------------------|-------|
| Average RRF | 0.769 |
| Calibration Check RRF | 0.725 |
| Calculated % D | 5.7 |

CASE NARRATIVE**CH2M Hill****Project Name: CTO WE19 Camp Lejeune****Project # N/A****Chemtech Project # E1907****Test Name: VOCMS Group2****A. Number of Samples and Date of Receipt:**

20 Air samples were received on 04/18/2013.

B. Parameters

According to the Chain of Custody document, the following analyses were requested: SUMMA Canister Rental and VOCMS Group2. This data package contains results for VOCMS Group2.

C. Analytical Techniques:

The analysis performed on instrument MSVOA_L were done using GC column RTX-1, which is 60 meters, 0.32 mm id, 1.0 um df, Restek Cat. #10157. The Trap was supplied by Entech, glass bead and Tenax , Entech 7100A Preconcentrator. The analysis performed on instrument MSVOA_M were done using GC column RTX-1, which is 60 meters, 0.32 mm id, 1.0 um df, Restek Cat. #10157. The Trap was supplied by Entech, glass bead and Tenax , Entech 7100A Preconcentrator. The analysis of VOCMS Group2 was based on method TO-15.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike for {VM0423ABS} with File ID: VM009979.D met requirements for all samples except for Naphthalene[65%] but it was not detected in Samples.

The Blank analysis did not indicate the presence of lab contamination.

The Initial Calibration met the requirements .

The Continuous Calibration met the requirements .

The Tuning criteria met requirements.

Samples SWMU360-IA21-13B was diluted due to bad matrix.

Samples SWMU360-SG12-13B, IR88-IA16-13B were diluted due to high concentrations.

The not QT.review data is reported in the miscellaneous.

E. Additional Comments:

The Manual Integrations are performed for the followings:

| Sample ID | File ID | Parameter | Review | Review | Supervised | Supervised | Reason |
|-----------|---------|-----------|--------|--------|------------|------------|--------|
| | | | | | | | |

| | | | By | On | By | On | |
|-------------|------------|---------------------------|-----|----------------------------|----------|-------------------------|---|
| VSTDICCC010 | VL019673.D | 1,2-Dibromoethane | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC010 | VL019673.D | Chlorobenzene-d5 | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC010 | VL019673.D | m/p-Xylene | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | 1,2-Dibromoethane | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | 1,4-Difluorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | Chlorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | 1,1,1,2-Tetrachloroethane | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Chlorobenzene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Naphthalene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |

| | | | | | | | |
|------------|------------|-------------------------------|-----|----------------------------|----------|-------------------------|---|
| VSTDIC0.5 | VL019676.D | 1,4-Difluorobenzene | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDIC0.5 | VL019676.D | Chlorobenzene-d5 | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDIC015 | VL019677.D | 1,1,1,2- Tetrachloroethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDIC015 | VL019677.D | Chlorobenzene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDIC015 | VL019677.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDIC015 | VL019677.D | Dibromochloromethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDIC015 | VL019677.D | Toluene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | 1,1,1,2- Tetrachloroethane | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Bromoform | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Dibromochloromethane | sam | 4/22/2013 | Prashant | 4/24/2013 | Peak |

| | | | | | | | |
|--------------|------------|-------------------------|---------|----------------------|----------|----------------------|---|
| | | | | 8:20:19 PM | | 2:41:03 PM | Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Toluene | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VL0422ABL | VL019679.D | Chlorobenzene-d5 | sam | 4/22/2013 8:21:24 PM | Prashant | 4/24/2013 2:41:08 PM | Peak Integrated by Software incorrectly |
| VL0422ABS | VL019684.D | 1,2-Dibromoethane | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Chlorobenzene | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Dibromochloromethane | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Naphthalene | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| 0.1 PPBV RPT | VL019685.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Peak missed by the software |
| 0.1 PPBV RPT | VL019685.D | m/p-Xylene | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Incorrect baseline |
| 0.03PPBV RPT | VL019686.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | 1-Bromo-4-Fluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Bromochloromethane | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by |

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|----------|------------|------------------------|---------|----------------------------|---------|-------------------------|---|
| | | | | AM | | | the software |
| E1907-01 | VL019687.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak missed by the software |
| E1907-01 | VL019687.D | Bromochloromethane | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak missed by the software |
| E1907-01 | VL019687.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak missed by the software |
| E1907-01 | VL019687.D | cis-1,2-Dichloroethene | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak Deleted due to Peak Integrated by Software incorrectly |
| E1907-01 | VL019687.D | Cyclohexane | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak Integrated by Software incorrectly |
| E1907-01 | VL019687.D | Hexane | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak Integrated by Software incorrectly |
| E1907-01 | VL019687.D | Toluene | shreena | 4/23/2013 8:37:44 AM | AHPatel | 4/25/2013 7:00:41 AM | Peak missed by the software |
| E1907-02 | VL019688.D | 1,2,4-Trimethylbenzene | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Coelution Of the peak |
| E1907-02 | VL019688.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Peak missed by the software |
| E1907-02 | VL019688.D | Bromochloromethane | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Peak missed by the software |
| E1907-02 | VL019688.D | Carbon Disulfide | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Peak missed by the software |
| E1907-02 | VL019688.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Peak missed by the software |

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|----------|------------|---------------------|---------|----------------------------|----------|-------------------------|---|
| E1907-02 | VL019688.D | Hexane | shreena | 4/23/2013 8:38:03 AM | AHPatel | 4/25/2013 7:00:43 AM | Peak Integrated by Software incorrectly |
| E1907-03 | VL019689.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:38:08 AM | AHPatel | 4/25/2013 7:00:46 AM | Peak missed by the software |
| E1907-03 | VL019689.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:08 AM | AHPatel | 4/25/2013 7:00:46 AM | Peak missed by the software |
| E1907-03 | VL019689.D | Hexane | shreena | 4/23/2013 8:38:08 AM | AHPatel | 4/25/2013 7:00:46 AM | Peak Integrated by Software incorrectly |
| E1907-04 | VL019690.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:13 AM | AHPatel | 4/25/2013 7:00:48 AM | Peak missed by the software |
| E1907-04 | VL019690.D | Toluene | shreena | 4/23/2013 8:38:13 AM | AHPatel | 4/25/2013 7:00:48 AM | Peak missed by the software |
| E1907-05 | VL019691.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:38:21 AM | Prashant | 4/24/2013 2:42:43 PM | Peak missed by the software |
| E1907-05 | VL019691.D | Bromochloromethane | shreena | 4/23/2013 8:38:21 AM | Prashant | 4/24/2013 2:42:43 PM | Peak missed by the software |
| E1907-05 | VL019691.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:21 AM | Prashant | 4/24/2013 2:42:43 PM | Peak missed by the software |
| E1907-05 | VL019691.D | Hexane | shreena | 4/23/2013 8:38:21 AM | Prashant | 4/24/2013 2:42:43 PM | Peak Integrated by Software incorrectly |
| E1907-05 | VL019691.D | Toluene | shreena | 4/23/2013 8:38:21 AM | Prashant | 4/24/2013 2:42:43 PM | Peak missed by the software |
| E1907-06 | VL019692.D | Bromochloromethane | shreena | 4/23/2013 8:38:41 AM | Prashant | 4/24/2013 2:42:36 PM | Peak missed by the software |
| E1907-06 | VL019692.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:41 AM | Prashant | 4/24/2013 2:42:36 PM | Peak missed by the software |

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|----------|------------|-------------------------|---------|----------------------------|----------|-------------------------|---|
| E1907-06 | VL019692.D | Hexane | shreena | 4/23/2013 8:38:41 AM | Prashant | 4/24/2013 2:42:36 PM | Peak Integrated by Software incorrectly |
| E1907-07 | VL019693.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak missed by the software |
| E1907-07 | VL019693.D | 1-Bromo-4-Fluorobenzene | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak missed by the software |
| E1907-07 | VL019693.D | 4-Ethyltoluene | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Coelution Of the peak |
| E1907-07 | VL019693.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak missed by the software |
| E1907-07 | VL019693.D | Hexane | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak Integrated by Software incorrectly |
| E1907-07 | VL019693.D | n-Butylbenzene | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak Integrated by Software incorrectly |
| E1907-07 | VL019693.D | Toluene | shreena | 4/23/2013 8:38:54 AM | Prashant | 4/24/2013 2:42:30 PM | Peak missed by the software |
| E1907-08 | VL019694.D | 4-Ethyltoluene | shreena | 4/23/2013 8:39:03 AM | Prashant | 4/24/2013 2:42:23 PM | Coelution Of the peak |
| E1907-08 | VL019694.D | Bromochloromethane | shreena | 4/23/2013 8:39:03 AM | Prashant | 4/24/2013 2:42:23 PM | Peak missed by the software |
| E1907-08 | VL019694.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:39:03 AM | Prashant | 4/24/2013 2:42:23 PM | Peak missed by the software |
| E1907-08 | VL019694.D | Hexane | shreena | 4/23/2013 8:39:03 AM | Prashant | 4/24/2013 2:42:23 PM | Peak Integrated by Software incorrectly |
| E1907-08 | VL019694.D | Toluene | shreena | 4/23/2013 8:39:03 AM | Prashant | 4/24/2013 2:42:23 PM | Peak missed by the software |
| E1907-09 | VL019695.D | 1-Bromo-4- | shreena | 4/23/2013 | Prashant | 4/24/2013 | Peak |

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|----------|------------|---------------------|---------|----------------------|----------|----------------------|---|
| | | Fluorobenzene | | 8:39:19 AM | | 2:42:18 PM | missed by the software |
| E1907-09 | VL019695.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:39:19 AM | Prashant | 4/24/2013 2:42:18 PM | Peak missed by the software |
| E1907-09 | VL019695.D | Chloromethane | shreena | 4/23/2013 8:39:19 AM | Prashant | 4/24/2013 2:42:18 PM | Coelution Of the peak |
| E1907-09 | VL019695.D | Hexane | shreena | 4/23/2013 8:39:19 AM | Prashant | 4/24/2013 2:42:18 PM | Peak Integrated by Software incorrectly |
| E1907-09 | VL019695.D | Toluene | shreena | 4/23/2013 8:39:19 AM | Prashant | 4/24/2013 2:42:18 PM | Peak missed by the software |
| E1907-11 | VL019697.D | Hexane | shreena | 4/23/2013 8:39:33 AM | Prashant | 4/24/2013 2:42:10 PM | Peak Integrated by Software incorrectly |
| E1907-11 | VL019697.D | m/p-Xylene | shreena | 4/23/2013 8:39:33 AM | Prashant | 4/24/2013 2:42:10 PM | Coelution Of the peak |
| E1907-12 | VL019698.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Peak missed by the software |
| E1907-12 | VL019698.D | 2-Hexanone | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Peak missed by the software |
| E1907-12 | VL019698.D | 4-Ethyltoluene | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Coelution Of the peak |
| E1907-12 | VL019698.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Peak missed by the software |
| E1907-12 | VL019698.D | Hexane | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Peak Integrated by Software incorrectly |
| E1907-12 | VL019698.D | m/p-Xylene | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Coelution Of the peak |
| E1907-12 | VL019698.D | Toluene | shreena | 4/23/2013 8:39:45 AM | Prashant | 4/24/2013 2:42:03 PM | Peak missed by the software |

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|------------|------------|-------------------------|---------|----------------------------|----------|-------------------------|---|
| E1907-09DL | VL019699.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:39:51 AM | Prashant | 4/24/2013 2:41:55 PM | Peak missed by the software |
| E1907-09DL | VL019699.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:39:51 AM | Prashant | 4/24/2013 2:41:55 PM | Peak missed by the software |
| E1907-09DL | VL019699.D | Chloromethane | shreena | 4/23/2013 8:39:51 AM | Prashant | 4/24/2013 2:41:55 PM | Coelution Of the peak |
| E1907-09DL | VL019699.D | Hexane | shreena | 4/23/2013 8:39:51 AM | Prashant | 4/24/2013 2:41:55 PM | Peak Integrated by Software incorrectly |
| E1907-02DL | VL019700.D | 1,4-Difluorobenzene | sam | 4/23/2013 1:26:21 PM | Prashant | 4/24/2013 2:41:49 PM | Peak Integrated by Software incorrectly |
| E1907-02DL | VL019700.D | 1-Bromo-4-Fluorobenzene | sam | 4/23/2013 1:26:21 PM | Prashant | 4/24/2013 2:41:49 PM | Peak Integrated by Software incorrectly |
| E1907-02DL | VL019700.D | Bromochloromethane | sam | 4/23/2013 1:26:21 PM | Prashant | 4/24/2013 2:41:49 PM | Peak Integrated by Software incorrectly |
| E1907-02DL | VL019700.D | Propene | sam | 4/23/2013 1:26:21 PM | Prashant | 4/24/2013 2:41:49 PM | Peak Integrated by Software incorrectly |
| E1907-02DL | VL019700.D | tert-Butyl alcohol | sam | 4/23/2013 1:26:21 PM | Prashant | 4/24/2013 2:41:49 PM | Peak Integrated by Software incorrectly |
| VSTDCCC010 | VL019702.D | Chlorobenzene-d5 | sam | 4/24/2013 1:21:43 PM | Prashant | 4/24/2013 2:43:21 PM | Peak Integrated by Software incorrectly |
| VL0423ABL | VL019703.D | Bromochloromethane | sam | 4/24/2013 2:00:10 PM | Prashant | 4/24/2013 2:43:25 PM | Peak Integrated by Software incorrectly |
| VL0423ABS | VL019704.D | Chlorobenzene | sam | 4/24/2013 1:21:53 PM | Prashant | 4/24/2013 2:43:32 PM | Peak Integrated by Software incorrectly |

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|------------|------------|-----------------------------|---------|----------------------------|----------|-------------------------|---|
| VL0423ABS | VL019704.D | Chlorobenzene-d5 | sam | 4/24/2013 1:21:53 PM | Prashant | 4/24/2013 2:43:32 PM | Peak Integrated by Software incorrectly |
| E1907-14DL | VL019724.D | 1,4-Difluorobenzene | shreena | 4/24/2013 9:00:49 AM | sam | 4/24/2013 1:59:37 PM | Peak missed by the software |
| E1907-14DL | VL019724.D | 1-Bromo-4- Fluorobenzene | shreena | 4/24/2013 9:00:49 AM | sam | 4/24/2013 1:59:37 PM | Peak missed by the software |
| E1907-14DL | VL019724.D | 2-Butanone | shreena | 4/24/2013 9:00:49 AM | sam | 4/24/2013 1:59:37 PM | Peak Integrated by Software incorrectly |
| E1907-14DL | VL019724.D | Bromochloromethane | shreena | 4/24/2013 9:00:49 AM | sam | 4/24/2013 1:59:37 PM | Peak missed by the software |
| E1907-14DL | VL019724.D | Chlorobenzene-d5 | shreena | 4/24/2013 9:00:49 AM | sam | 4/24/2013 1:59:37 PM | Peak missed by the software |
| VSTDCCC010 | VL019737.D | 1,2-Dibromoethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VSTDCCC010 | VL019737.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Coelution Of the peak |
| VSTDCCC010 | VL019737.D | Dibromochloromethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | 1,4-Difluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | 1-Bromo-4- Fluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | 1,1,2-Trichloroethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | 1,2-Dichlorobenzene | sam | 4/25/2013 2:40:00 | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by |

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|-----------|------------|----------------------|---------|----------------------------|---------|-------------------------|---|
| | | | | PM | | | the software |
| VL0424ABS | VL019739.D | 1,4-Dichlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Bromoform | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Chlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Chlorobenzene-d5 | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Dibromochloromethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| E1907-13 | VL019746.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:39 AM | sam | 4/25/2013 2:41:52 PM | Peak missed by the software |
| E1907-15 | VL019747.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:44 AM | sam | 4/25/2013 2:41:57 PM | Peak missed by the software |
| E1907-16 | VL019748.D | 1,4-Difluorobenzene | shreena | 4/25/2013 2:17:53 AM | sam | 4/25/2013 2:42:14 PM | Peak missed by the software |
| E1907-16 | VL019748.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:53 AM | sam | 4/25/2013 2:42:14 PM | Peak missed by the software |
| E1907-16 | VL019748.D | tert-Butyl alcohol | shreena | 4/25/2013 2:17:53 AM | sam | 4/25/2013 2:42:14 PM | Peak Integrated by Software incorrectly |
| E1907-16 | VL019748.D | Tetrahydrofuran | shreena | 4/25/2013 2:17:53 AM | sam | 4/25/2013 2:42:14 PM | Coelution Of the peak |
| E1907-18 | VL019749.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:18:12 AM | sam | 4/25/2013 2:41:12 PM | Peak missed by the software |
| E1907-18 | VL019749.D | Toluene | shreena | 4/25/2013 2:18:12 AM | sam | 4/25/2013 2:41:12 PM | Peak missed by the software |

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|----------|------------|--------------------|---------|----------------------------|-----|-------------------------|-----------------------------|
| E1907-19 | VL019750.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:18:17 AM | sam | 4/25/2013 2:42:02 PM | Peak missed by the software |
| E1907-19 | VL019750.D | Toluene | shreena | 4/25/2013 2:18:17 AM | sam | 4/25/2013 2:42:02 PM | Peak missed by the software |
| E1907-20 | VL019751.D | Bromochloromethane | shreena | 4/25/2013 7:43:24 AM | sam | 4/25/2013 2:41:19 PM | Peak missed by the software |
| E1907-20 | VL019751.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:43:24 AM | sam | 4/25/2013 2:41:19 PM | Peak missed by the software |

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature **Kalpana Raythattha**

Digitally signed by Kalpana Raythattha
DN: cn=Kalpana Raythattha, o=CHEMTECH,
ou=QC, email=kalpna@chemtech.net, c=US
Date: 2013.05.09 08:15:08 -05'00'

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Results Qualifiers" are used:

| | |
|-------|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value |
| U | Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10 U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required. |
| ND | Indicates the analyte was analyzed for, but not detected |
| J | Indicates an estimated value. This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3 ug/L was calculated report as 3 J. This flag is used when similar situation arise on any organic parameter i.e. Pest, PCB and others. |
| B | Indicates the analyte was found in the blank as well as the sample report as "12 B". |
| E | Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis. |
| D | This flag identifies all compounds identified in an analysis at a secondary dilution factor. |
| P | This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form 1 and flagged with a "P". |
| N | This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used. |
| A | This flag indicates that a Tentatively Identified Compound is a suspected aldol-condensation product. |
| Q | Indicates the LCS did not meet the control limits requirements |

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: E1907

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page) ✓

Check chain-of-custody for proper relinquish/return of samples ✓

Is the chain of custody signed and complete ✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts ✓

Collect information for each project id from server. Were all requirements followed ✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page ✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody ✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ✓

Do requested analyses on Chain of Custody agree with the log-in page ✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ✓

Were the samples received within hold time ✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ✓

ANALYTICAL:

Was method requirement followed? ✓

Was client requirement followed? ✓

Does the case narrative summarize all QC failure? ✓

All runlogs and manual integration are reviewed for requirements ✓

All manual calculations and /or hand notations verified ✓

1st Level QA Review Signature:

NIDHI SHAH

Date: 05/06/2013

2nd Level QA Review Signature:

Kalpna RaythatthaDigitally signed by Kalpna Raythattha
DN: cn=Kalpna Raythattha, o=CHEMTECH,
ou=QC, email=kalpna@chemtech.net, c=US
Date: 2013.05.08 23:40:43 -05'00'

Date: _____

| | | CHAIN-OF-CUSTODY RECORD | | | | | | | | | | COC NUMBER: 424419 - 04172013-01 | | | | | |
|---|-------------------|--|------------|--|------------|--|--|--|--------------------|----------------------|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|--------------------------------|
| PROJECT NAME: MCIEAST MCB CAMLEJ | | PROJECT NUMBER: 424419.FLRS | | LAB NAME AND CONTACT: ChemTech Kurt Hummer, Lab PM | | | | FAX AND MAIL REPORT SEND TO: RECIPIENT 1 (Name and Company): Blanca Kleins/CH2M HILL blanca.kleins@ch2m.com | | | | RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 4704-543-3274 | | | | | |
| PROJECT PHASE/TASK: IRP VI Monitoring | | CTO OR DO NUMBER: WE-19 | | LAB PO NUMBER: NA | | | | FAX AND MAIL REPORT SEND TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | | | | RECIPIENT 2 (Address, Tel No., and Fax No.): epmail | | | | | |
| PROJECT CONTACT: Kimberly Stokes | | PROJECT TELNO AND FAXNO: phone: 214-998-4839 | | LAB TELNO AND FAXNO: phone: 908-728-1143 | | | | FAX AND MAIL REPORT SEND TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | | | RECIPIENT 3 (Address, Tel No., and Fax No.): emah | | | | | |
| | | | | | | | | | | | | ANALYSIS | | | | | |
| ITEM | SAMPLE ID | MATRIX (see codes on SOP) | DATE START | DATE FINISHED | TIME START | TIME STOP | CANISTER VACUUM IN FIELD HG (BT/AT) | CANISTER VACUUM IN FIELD HG (BT/PT) | FLOW CONTROLLER ID | CANISTER ID | DATA LOG LEVEL (see codes on SOP) | TIME (calendar day) | SELECT VOCs by TO-15 SCAN LOW Level | SELECT VOCs by TO-15 SCAN Level | SAMPLE TYPE (see codes on SOP) | LAB ID (for lab's use) | COMMENTS/ SCREENING RESULTS |
| 1 | IR88-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 10:13 | 6:01 | -30 | 0 | 10528 | 10443 | IV | 28 | X | | | Collected for less than 24 hrs but can reach 0" Hg | |
| 2 | IR89-IA16-13B | IA | 4/9/2013 | 4/10/2013 | 10:52 | 8:09 | -30 | -5 | 10708 | 10494 | IV | 28 | X | | | | |
| 3 | IR88-IA15-13B | IA | 4/9/2013 | 4/10/2013 | 10:30 | 8:06 | -29 | -5.99 | 10222 | 10158 | IV | 28 | X | | | | |
| 4 | SWMU368-IA21-13B | IA | 4/9/2013 | 4/10/2013 | 13:46 | 13:44 | -30 | -18 | 10696 | 10591 | IV | 28 | X | | | Collected for approximately 22 hrs but 0uml pressure only 18" Hg | |
| 5 | SWMU360-IA21D-13B | IA | 4/9/2013 | 4/10/2013 | 13:46 | 11:44 | -29 | -0.13 | 10542 | 10268 | IV | 28 | X | | | | |
| 6 | SWMU360-IA22-13B | IA | 4/9/2013 | 4/10/2013 | 13:43 | 11:40 | -30 | -5.7 | 10771 | 10325 | IV | 28 | X | | | | |
| 7 | IR78-IA28-13B | IA | 4/9/2013 | 4/10/2013 | 16:07 | 15:23 | -29 | -6.13 | 10651 | 10601 | IV | 28 | X | | | | |
| 8 | IR94-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 14:30 | 11:55 | -30 | -6.6 | N/A | 10153 | IV | 28 | X | | | Lost track of FC ID | |
| 9 | IR78-IA29-13B | IA | 4/9/2013 | 4/10/2013 | 16:12 | 15:28 | -30 | -0.16 | 10626 | 10440 | IV | 28 | X | | | | |
| 10 | IR78-IA26-13B | IA | 4/9/2013 | 4/10/2013 | 16:34 | 15:52 | -30 | -8.5 | 10236 | 10660 | IV | 28 | X | | | | |
| SAMPLE(S) AND COMPANY: (elemental) David Seed / CH2M HILL, Elin Stokes / CH2M HILL. | | POC number: | | SAMPLE TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): | | | | | | | | | | | | | |
| RELINQUISHED BY: Printed Name and Signature: Kimberly Stokes | | DATE: 17-Apr-2013 | | TIME: 17:30 | | RECEIVED BY: Printed Name and Signature: Palak Shah | | DATE: 4/18/13 | | TIME: 7:20 | | | | | | | |
| Printed Name and Signature: Fedex | | DATE: 4-18-13 | | TIME: 7:20 | | RECEIVED BY: Printed Name and Signature: Palak Shah | | DATE: 4/18/13 | | TIME: 7:20 | | | | | | | |

072



12000 Wood Drive Suite 700 Dallas, TX
Tel No. (214) 998-7002
Fax No. (214) 214-2914

CHAIN-OF-CUSTODY RECORD

¹ CUC NUMBER:
424419 - 04172013-02

| | | | | |
|--|---|--|--|--|
| ¹ PROJECT NAME: MCEAST MCB CAMELEJ | ² PROJECT NUMBER: 424419.FLFS | ³ LAB NAME AND CONTACT: Chem Tech Kurt Hummer, Lab PM | ¹¹ FAX AND MAIL REPORTS/SEND TO: RECIPIENT 1 (Name and Company): Blanca Klotz/CH2M HILL, blanca.klotz@ch2m.com | ¹² RECIPIENT 1 (Address, Tel No., and Fax No.): 11301 Carmel Commons Blvd, Suite 304 Charlotte, NC 28226#704-543-3274 |
| ⁴ PROJECT PHASE/TYPE: IRP VI Monitoring | ⁵ CTO OR DO NUMBER: WE-19 | ⁶ LAB PO NUMBER: NA | ¹³ FAX AND MAIL REPORTS/SEND TO: RECIPIENT 2 (Name and Company): Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | ¹⁴ RECIPIENT 2 (Address, Tel No., and Fax No.): email |
| ⁷ PROJECT CONTACT: Kimberly Stokes | ⁸ PROJECT TEL NO AND FAX NO: phone: 214-998-4839 | ⁹ LAB TEL NO AND FAX NO: phone: 908-728-3143 | ¹⁵ FAX AND MAIL REPORTS/SEND TO: RECIPIENT 3 (Name and Company): Kimberly Stokes/CH2M HILL kstokes@ch2m.com | ¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.): email |

| ITEM | SAMPLE ID | MATRIX (as noted on SOP) | DATE START | DATE FINISHED | TIME START | TIME STOP | CONDUCTER VACUUM IN FIELD HD (START) | CONDUCTER VACUUM IN FIELD FD (STOP) | FLOW CONTROLLER ID | CONTAINER ID | DATA RED LEVEL (as indicated) | VAT (containers) | Select VOCs by TO-15 SCAN Low Level | Select VOCs by TO-15 SCAN | SAMPLE TYPE (see notes on SOP) | LAB ID (for lab's use) | COMMENTS/ SCREENING READINGS | ANALYSES | |
|------|------------------|-----------------------------|------------|---------------|------------|-----------|---|--|--------------------|--------------|----------------------------------|---------------------|---|------------------------------|---|---------------------------|---------------------------------|----------|--|
| | | | | | | | | | | | | | | | | | | | |
| 1 | IR78-IA27-13B | IA | 4/9/2013 | 4/10/2013 | 17:45 | 18:43 | -29 | -5.69 | 10101 | 10315 | IV | 28 | X | | | | | | |
| 2 | IR78-IA25-13B | IA | 4/9/2013 | 4/10/2013 | 17:42 | 18:47 | -30 | -5.74 | 10567 | 10407 | IV | 28 | X | | | | | | |
| 3 | IR78-OA01-13B | OA | 4/9/2013 | 4/10/2013 | 18:22 | 16:04 | -28 | -4.15 | 10713 | 10589 | IV | 28 | X | | | | | | |
| 4 | SWMU368-SG12-13B | SG | 4/10/2013 | 4/10/2013 | 9:00 | 9:08 | -30 | -6 | 10164 | 10663 | IV | 28 | | X | | | VOCs = 0.1 ppav | | |
| 5 | IR35-IA01-13B | IA | 4/10/2013 | 4/11/2013 | 14:00 | 15:55 | -29 | -4.1 | 10291 | 10606 | IV | 28 | X | | | | | | |
| 6 | IR35-IA02-13B | IA | 4/10/2013 | 4/11/2013 | 16:15 | 15:50 | -38 | -3.92 | 10545 | 10441 | IV | 28 | X | | | | | | |
| 7 | IR35-IA02D-13B | IA | 4/10/2013 | 4/11/2013 | 14:20 | 15:50 | -30 | -4.8 | 10254 | 10257 | IV | 28 | X | | | | | | |
| 8 | IR35-OA01-13B | OA | 4/10/2013 | 4/11/2013 | 14:35 | 16:00 | -30 | -1.35 | 10577 | 10266 | IV | 28 | X | | | | | | |
| 9 | IR89-IA03-13B | IA | 4/11/2013 | 4/12/2013 | 15:30 | 14:40 | -30 | -4.12 | 10220 | 10289 | IV | 28 | X | | | | | | |
| 10 | IR89-IA03D-13B | IA | 4/11/2013 | 4/12/2013 | 15:30 | 14:40 | -29 | -4.6 | 10183 | 10312 | IV | 28 | X | | | | | | |

| | | | | | | | | | | | |
|--|--|-----------------------------|--|---|--|--|--|---------|--|------|--|
| ¹⁷ SAMPLER(S) AND COMPANY: (Please print) David Seed / CH2M HILL Kim Stokes / CH2M HILL | | ¹⁸ Field number: | | ¹⁹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): | | | | | | | |
| ²⁰ RELINQUISHED BY | | DATE | | TIME | | ²¹ RECEIVED BY | | DATE | | TIME | |
| Printed Name and Signature: <i>Kim Stokes</i> | | 3/7-Apr-2013 | | 17:50 | | Printed Name and Signature: <i>Palak Shah</i> | | 4/18/13 | | 7:20 | |
| Printed Name and Signature: <i>Kim Stokes</i> | | | | | | Printed Name and Signature: | | | | | |
| Printed Name and Signature: <i>Kim Stokes</i> | | | | | | Printed Name and Signature: | | | | | |
| Printed Name and Signature: <i>Kim Stokes</i> | | | | | | Printed Name and Signature: | | | | | |

Cover Page

Order ID : E1907**Project ID :** CTO WE19 Camp Lejeune**Client :** CH2M Hill**Lab Sample Number**E1907-01
E1907-02
E1907-03
E1907-04
E1907-05
E1907-06
E1907-07
E1907-08
E1907-09
E1907-10
E1907-11
E1907-12
E1907-13
E1907-14
E1907-15
E1907-16
E1907-17
E1907-18
E1907-19
E1907-20**Client Sample Number**IR88-OA01-13B
IR88-IA16-13B
IR88-IA15-13B
SWMU360-IA21-13B
SWMU360-IA21D-13B
SWMU360-IA22-13B
IR78-IA28-13B
IR96-OA01-13B
IR78-IA29-13B
IR78-IA26-13B
IR78-IA27-13B
IR78-IA25-13B
IR78-OA01-13B
SWMU360-SG12-13B
IR35-IA01-13B
IR35-IA02-13B
IR35-IA02D-13B
IR35-OA01-13B
IR89-IA03-13B
IR89-IA03D-13B

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following

signature **Kalpana Raythattha**

Digitally signed by Kalpana Raythattha

DN: cn=Kalpana Raythattha, o=CHEMTECH, ou=QC, email=kalpana@chemtech.net, c=US

Date: 2013.05.09 08:14:43 -05'00'

Signature : _____

Date: 5/6/2013

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

DataQual

Environmental Services, LLC

CH2M HILL
11301 Carmel Commons Blvd
Suite 304
Charlotte, NC 28226

July 23, 2013
SDG# E1908, Chemtech
MCB Camp Lejeune- Jacksonville, NC, CTO-WE19

Dear Ms. Kleist,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # E1908. The data validation was performed in accordance with TO-15 for volatiles; the National Functional Guidelines for Organic Data Review (June 2008), as applicable, and good professional judgment. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

| Sample ID | Lab ID | Matrix | VOA |
|------------------|----------|--------|-----|
| IR89-IA04-13B | E1908-01 | air | X |
| IR89-OA01-13B | E1908-02 | air | X |
| SWMU360-SG20-13B | E1908-03 | air | X |
| IR73-SG04-13B | E1908-04 | air | X |
| IR73-SG04D-13B | E1908-05 | air | X |
| IR73-SG03-13B | E1908-06 | air | X |
| IR73-SG02-13B | E1908-07 | air | X |
| IR73-SG01-13B | E1908-08 | air | X |
| IR88-SG19-13B | E1908-09 | air | X |
| IR93-SG01-13B | E1908-10 | air | X |
| IR93-SG02-13B | E1908-11 | air | X |
| IR35-SG13-13B | E1908-12 | air | X |
| IR88-CS01-13B | E1908-13 | air | X |
| IR88-CS01D-13B | E1908-14 | air | X |
| IR88-OA02-13B | E1908-15 | air | X |
| IR88-SG20-13B | E1908-16 | air | X |
| IR88-SG02D-13B | E1908-17 | air | X |
| IR78-SG72-13B | E1908-18 | air | X |
| IR78-SG70-13B | E1908-19 | air | X |
| IR78-SG71-13B | E1908-20 | air | X |

The following quality control samples were provided with this SDG: sample IR73-SG04D-13B - field duplicate of sample IR73-SG04-13B, sample IR88-CS01D-13B - field duplicate of sample IR88-CS01-13B and sample IR88-SG02D-13B - field duplicate of sample IR88-SG02-13B.

The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times *
- Instrument Performance *
- Initial/Continuing Calibrations *
- Blanks *
- Internal Standards *
- Surrogates *
- Laboratory Control Samples *
- Matrix Spike Recoveries NA
- Matrix Duplicate RPDs NA
- Field Duplicates
- Identification/Quantitation
- Reporting Limits *

* - indicates that no qualifications were required based on this criteria

Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that when a compound or analyte is flagged due to blank contamination the BL qualifier code takes precedence over all other qualifier codes except a code that explains rejected data.

VOA

The field duplicate pairs did not exhibit comparable results; therefore qualifications were added to those compounds.

Several samples required a dilution to obtain results within the calibration range.

Specific Evaluation of Data

Data Completeness

The SDG was received complete and intact. Resubmissions were required as four samples had incorrect sample IDs. The laboratory was contacted and all appropriate forms were submitted with correct sample IDs.

Technical Holding Times

According to chain of custody records, sampling was performed on 4/11-15/13 and samples were received at the laboratory 4/18/13. All sample preparation and analysis was performed within method holding time requirements.

Field Duplicates

VOA

The field duplicate pairs listed below exhibited non-compliant field duplicate reproducibility for the compounds listed, qualifications were applied as stated.

| Sample ID | Compound | % RPD | Qualification | Qualifier Code |
|----------------------------------|--------------------------|-------|---------------|----------------|
| IR73-SG04-13B, IR73-SG04D-13B | benzene | 158 | J/UJ | FD |
| | 1,2-dichloroethane | 200 | | |
| | toluene | 112 | | |
| | o-xylene | 90 | | |
| | 1,3,5-trimethylbenzene | 200 | | |
| | 1,2,4-tri methyl benzene | 200 | | |
| IR88-CS01-13B IR88-CS01D-13B | methylene chloride | 131 | J/UJ | FD |
| | cyclohexane | 200 | | |
| | total xylene | 101 | | |
| | o-xylene | 200 | | |
| IR88-SG20-13B IR88-SG20D-13B | 1,2-dichloroethane | 200 | J/UJ | FD |
| | trichloroethene | 152 | | |
| | toluene | 135 | | |
| | cyclohexane | 200 | | |
| | chloroform | 200 | | |
| | benzene | 200 | | |

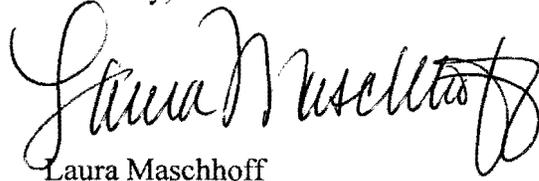
Identification/Quantitation

VOA

A dilution was required for samples SWMU360-SG20-13B, IR73-SG04-13B, IR73-SG04D-13B, IR93-SG02-13B and IR88-SG20D-13B to obtain results within the calibration range; therefore, the E-flagged results in the initial analysis were rejected in favor of the corresponding D-flagged results in the dilution.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura Maschhoff". The signature is fluid and cursive, with a large initial "L" and a stylized "M".

Laura Maschhoff
President

Summary of Data Qualifications

VOA

| Sample ID | Compound | Results | Q-Flag | Q Code |
|--|--|---------|---------|--------|
| IR73-SG04-13B, IR73-SG04D-13B | benzene 1,2-dichloroethane toluene o-xylene 1,3,5-trimethylbenzene 1,2,4-tri methyl benzene | +/- | J/UJ | FD |
| IR88-CS01-13B, IR88-CS01D-13B | methylene chloride cyclohexane total xylene o-xylene | +/- | J/UJ | FD |
| IR88-SG20-13B, IR88-SG20D-13B | 1,2-dichloroethane trichloroethene toluene cyclohexane chloroform benzene | +/- | J/UJ | FD |
| SWMU360-SG20-13B, IR73-SG04-13B, IR73-SG04D-13B, IR93-SG02-13B, IR88-SG20D-13B | all E-flagged results | +/- | exclude | DL |
| SWMU360-SG20-13BDL, IR73-SG04-13BDL, IR73-SG04D-13BDL, IR93-SG02-13BDL, IR88-SG20D-13BDL | all results except D-flagged compounds | +/- | exclude | DL |

Glossary of Qualification Flags and Abbreviations

Qualification Flags (Q-Flags)

| | |
|----|---|
| U | not detected above the reported sample quantitation limit |
| J | estimated value |
| UJ | reported quantitation limit is qualified as estimated |
| R | result is rejected; the presence or absence of the analyte cannot be verified |
| D | result value is based on dilution analysis result |
| NJ | analyte has been tentatively identified, estimated value |
| L | analyte present, biased low |
| UL | not detected, quantitation limit is probably higher |
| K | analyte present, biased high |

Inorganic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|---------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 10X the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL and the result is raised to the RL and flagged U. |
| R or J+ | The blank contaminant concentration was greater than the RL and the sample result is greater than the RL but less than 10X the blank contaminant concentration. The reported results are flagged either as rejected R or biased high J+ based on the professional judgment of the validator. (see NFG, Rev. date 10/04, p. 17 for extracted blanks (PB)) |

Organic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is raised to the RL and flagged U. |
| U | The sample result for the blank contaminant is greater than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is flagged U at the reported value. |

General Abbreviations

| | |
|----------|--|
| RL / MDL | reporting limit/method detection limit |
| CRQL | contract required quantitation limit |
| Q Code | qualifier code |
| + | positive result |
| - | non-detect result |

QUALIFIER CODE REFERENCE

| Qualifier | Description |
|------------------|--|
| TN | Tune |
| BSL | Blank Spike/LCS - High Recovery |
| BSH | Blank Spike/LCS - Low Recovery |
| BD | Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision |
| BRL | Below Reporting Limit |
| ISL | Internal Standard - Low Recovery |
| ISH | Internal Standard - High Recovery |
| MSL | Matrix Spike and/or Matrix Spike Duplicate - Low Recovery |
| MSH | Matrix Spike and/or Matrix Spike Duplicate - High Recovery |
| MI | Matrix interference obscuring the raw data |
| MDP | Matrix Spike/Matrix Spike Duplicate Precision |
| 2S | Second Source - Bad reproducibility between tandem detectors |
| SSL | Spiked Surrogate - Low Recovery |
| SSH | Spiked Surrogate - High Recovery |
| SD | Serial Dilution Reproducibility |
| ICL | Initial Calibration - Low Relative Response Factors (RRF) |
| ICH | Initial Calibration - High Relative Response Factors (RRF) |
| ICB | Initial Calibration - Bad Linearity or Curve Function |
| CCL | Continuing Calibration - Low Recovery or %Difference |
| CCH | Continuing Calibration - High Recovery or %Difference |
| LD | Lab Duplicate Reproducibility |
| HT | Holding Time |
| PD | Pesticide Degradation |
| 2C | Second Column - Poor Dual Column Reproducibility |
| LR | Concentration Exceeds Linear Range |
| BL | Blank Contamination |
| RE | Redundant Result - due to Re-analysis or Re-extraction |
| DL | Redundant Result - due to Dilution |
| FD | Field Duplicate |
| OT | Other - explained in data validation report |
| %SOL | High moisture content |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-IA04-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019752.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.475 | 1.65 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.383 | 1.32 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.054 | 0.34 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.133 | 0.42 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.128 | 0.69 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 4.1 | 15.4 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.037 | 0.25 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.282 | 1.22 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.773 | 3.36 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.02 | 4.45 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.252 | 1.09 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1724270 | | 6.66 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5780700 | | 8.34 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5400830 | | 13.77 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-IA04-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019752.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-OA01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019760.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.31 | 1.07 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.15 | 0.48 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.27 | 1.45 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3.9 | 14.7 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.1 | 0.68 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.35 | 1.52 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.1 | 4.78 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.52 | 6.6 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.42 | 1.82 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.11 | 0.54 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.2 | | | 65 - 135 | | 102% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1704620 | | 6.64 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5481930 | | 8.31 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5058410 | | 13.74 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR89-OA01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019760.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

WJ
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG20-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019776.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|------|-------|------|------|-----|----|------|
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | U | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | U | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | U | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | U | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | U | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | U | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | U | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | U | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | U | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | J | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.8 | 4.36 | J | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | U | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | U | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 22.8 | 122 | | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | U | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | U | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 1 | 3.77 | U | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 1600 | 10849 | EXDL | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | U | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | U | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | U | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | U | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | U | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | U | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | U | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | U | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | U | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | U | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | U | 0.4 | 1 | 5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | 98% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | | |
|-----------|---------------------|---------|--|-------|
| 74-97-5 | Bromochloromethane | 1572110 | | 6.63 |
| 540-36-3 | 1,4-Difluorobenzene | 4805200 | | 8.31 |
| 3114-55-4 | Chlorobenzene-d5 | 4846590 | | 13.75 |

TENTATIVE IDENTIFIED COMPOUNDS

LM
072213

012

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG20-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019776.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG20-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-03DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019793.D | 1200 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|-------|-------|--------|-----|-----|------|------|
| 75-01-4 | Vinyl Chloride | 36 | 92.0 | UD XDL | 36 | 36 | 600 | ppbv |
| 74-83-9 | Bromomethane | 120 | 465 | UD | 36 | 120 | 600 | ppbv |
| 75-09-2 | Methylene Chloride | 120 | 416 | UD | 60 | 120 | 600 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 120 | 475 | UD | 60 | 120 | 600 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 120 | 485 | UD | 48 | 120 | 600 | ppbv |
| 110-82-7 | Cyclohexane | 120 | 413 | UD | 120 | 120 | 600 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 36 | 226 | UD | 36 | 36 | 600 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 120 | 475 | UD | 60 | 120 | 600 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 240 | 9.82 | UD | 120 | 240 | 1200 | ppbv |
| 67-66-3 | Chloroform | 120 | 586 | UD | 24 | 120 | 600 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 36 | 196 | UD | 36 | 36 | 600 | ppbv |
| 71-43-2 | Benzene | 120 | 383 | UD | 48 | 120 | 600 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 120 | 485 | UD | 120 | 120 | 600 | ppbv |
| 79-01-6 | Trichloroethene | 130 | 698 | UD | 18 | 36 | 600 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 120 | 554 | UD | 120 | 120 | 600 | ppbv |
| 75-27-4 | Bromodichloromethane | 120 | 803 | UD | 60 | 120 | 600 | ppbv |
| 108-88-3 | Toluene | 120 | 452 | UD | 60 | 120 | 600 | ppbv |
| 127-18-4 | Tetrachloroethene | 10300 | 69846 | UD | 36 | 36 | 600 | ppbv |
| 100-41-4 | Ethyl Benzene | 120 | 521 | UD XDL | 120 | 120 | 600 | ppbv |
| 179601-23-1 | m/p-Xylene | 240 | 1042 | UD | 120 | 240 | 1200 | ppbv |
| 1330-20-7 | Total Xylenes | 360 | 1563 | UD | 240 | 360 | 1800 | ppbv |
| 95-47-6 | o-Xylene | 120 | 521 | UD | 120 | 120 | 600 | ppbv |
| 98-82-8 | Isopropylbenzene | 120 | 589 | UD | 120 | 120 | 600 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 120 | 824 | UD | 120 | 120 | 600 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 120 | 589 | UD | 120 | 120 | 600 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 120 | 589 | UD | 120 | 120 | 600 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 120 | 721 | UD | 120 | 120 | 600 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 120 | 890 | UD | 48 | 120 | 600 | ppbv |
| 91-20-3 | Naphthalene | 120 | 629 | UD | 48 | 120 | 600 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|-----|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | 65 - 135 | 99% | SPK: 10 |
|----------|-------------------------|-----|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1502260 | 6.62 |
| 540-36-3 | 1,4-Difluorobenzene | 4643800 | 8.29 |
| 3114-55-4 | Chlorobenzene-d5 | 4500240 | 13.71 |

*LM
072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG20-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-03DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019793.D | 1200 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019785.D |) | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.2 | 4.17 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 20.3 | 99.1 | EXDL | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 1.1 | 3.51 | JFD | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.17 | 0.69 | JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.22 | 1.18 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1.7 | 11.4 | | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.1 | 4.15 | JFD | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 2.6 | 17.6 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.19 | 0.83 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.53 | 2.3 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.67 | 2.91 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.14 | 0.61 | JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1590780 | | 6.63 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4890460 | | 8.31 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4506490 | | 13.72 | | | | |

TENTATIVE IDENTIFIED COMPOUNDS

*2 corrections
LIM 080513*

*LIM
022715*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019785.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

WM
07/22/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-04DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019777.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|---------------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD <i>UDL</i> | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 25.3 | 123 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD <i>UDL</i> | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 0.3 | 1.61 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 1 | 3.77 | UD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 3.8 | 25.8 | UD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | 98% | | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1542130 | | | 6.63 | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4765360 | | | 8.31 | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4638110 | | | 13.73 | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-04DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019777.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04D-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019786.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-------------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.84 | 2.92 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.05 | 0.31 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 27.2 | 132 | <i>EXDL</i> | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.13 | 0.42 | <i>JFD</i> | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | <i>UJFD</i> | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.14 | 0.75 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 2.7 | 18.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3.9 | 14.7 | <i>JFD</i> | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 1.8 | 12.2 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.39 | 1.69 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.85 | 3.69 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.22 | 5.3 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.37 | 1.61 | <i>JFD</i> | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.3 | 1.47 | <i>JFD</i> | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.93 | 4.57 | <i>JFD</i> | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.11 | 0.58 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | 99% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1662330 | 6.63 |
| 540-36-3 | 1,4-Difluorobenzene | 5075360 | 8.31 |
| 3114-55-4 | Chlorobenzene-d5 | 4820520 | 13.72 |

TENTITIVE IDENTIFIED COMPOUNDS

LM
072213
020

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04D-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019786.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

WJ
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04D-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-05DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019778.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 30.3 | 147 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 0.3 | 1.61 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 2.1 | 14.1 | JD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 2.3 | 8.67 | JD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 1.7 | 11.5 | JD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1540360 | | 6.63 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4728880 | | 8.31 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4587240 | | 13.73 | | | | |

LM
072213

022

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG04D-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-05DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019778.D | 10 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG03-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019787.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.6 | 5.56 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.12 | 0.41 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.32 | 1.56 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.07 | 0.22 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.19 | 0.77 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.34 | 1.83 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.18 | 0.83 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.08 | 0.3 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 2.1 | 14.2 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.2 | 0.87 | U | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.3 | 1.3 | U | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.12 | 0.59 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.37 | 1.82 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.15 | 0.79 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | | 65 - 135 | 96% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1662270 | 6.63 |
| 540-36-3 | 1,4-Difluorobenzene | 5156750 | 8.3 |
| 3114-55-4 | Chlorobenzene-d5 | 4970630 | 13.72 |

TENTITIVE IDENTIFIED COMPOUNDS

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG03-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019787.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019788.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.79 | 2.74 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.14 | 0.57 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.14 | 0.75 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.11 | 0.51 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.44 | 1.66 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 1.3 | 8.82 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.13 | 0.56 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.13 | 0.56 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.15 | 0.74 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.11 | 0.58 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.7 | | | 65 - 135 | | 97% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1674630 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5308900 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5072990 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
072213 026

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019788.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019789.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.73 | 2.54 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.14 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.28 | 1.11 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.28 | 0.01 | J | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.13 | 0.42 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.12 | 0.49 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 5.8 | 31.2 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.9 | 7.16 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.77 | 5.22 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.2 | 0.87 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.48 | 2.08 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.7 | 3.04 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.22 | 0.96 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.13 | 0.64 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.41 | 2.02 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.13 | 0.68 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1692290 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5251020 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5014830 | | 13.71 | | | | |
| TENTATIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Handwritten signature/initials

028

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR73-SG01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019789.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG19-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019790.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.8 | 2.78 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.13 | 0.45 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.08 | 0.39 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.11 | 0.35 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.11 | 0.45 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.09 | 0.48 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3.6 | 13.6 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.59 | 4 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.21 | 0.91 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.32 | 1.39 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.11 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.18 | 0.94 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.7 | | | 65 - 135 | 96% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1668730 | 6.62 |
| 540-36-3 | 1,4-Difluorobenzene | 5266830 | 8.29 |
| 3114-55-4 | Chlorobenzene-d5 | 5391710 | 13.71 |

TENTATIVE IDENTIFIED COMPOUNDS

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/12/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG19-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019790.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019791.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.3 | 4.52 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 1.6 | 7.81 | | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.09 | 0.48 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.1 | 4.15 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.74 | 5.02 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.24 | 1.04 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.36 | 1.56 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.12 | 0.52 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.08 | 0.42 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | | 65 - 135 | | 96% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1687480 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5400790 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5379810 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019791.D | 1 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019809.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|------------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 4 | 13.9 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 62.8 | 216 | <i>EXD</i> | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.2 | 0.64 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 1.8 | 9.67 | | 0.02 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 2.8 | 10.6 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.39 | 2.64 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.18 | 0.78 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.76 | 3.3 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.06 | 4.6 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.3 | 1.3 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.2 | 0.98 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.17 | 0.89 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | | 65 - 135 | | 96% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | | 1611550 | | 6.62 | | | |
| 540-36-3 | 1,4-Difluorobenzene | | 5201380 | | 8.29 | | | |
| 3114-55-4 | Chlorobenzene-d5 | | 4433260 | | 13.71 | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

WM
073013

034

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019809.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ/ CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|-----------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

MM
073013

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG02-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-11DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019794.D | 10 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 8.4 | 29.2 | D | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 140 | 481 | D | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 2.1 | 11.3 | JD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 2.6 | 9.8 | JD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.7 | 4.75 | JD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1524350 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4914190 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4455650 | | 13.71 | | | | |

Handwritten signature/initials

036

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR93-SG02-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-11DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019794.D | 10 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-SG13-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-12 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019810.D | 1 | | 04/27/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.1 | 3.82 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 2.3 | 7.92 | | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.74 | 3.61 | | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.11 | 0.59 | J | 0.02 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.65 | 2.45 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.37 | 2.51 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.11 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.38 | 1.65 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.58 | 2.52 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.2 | 0.87 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.88 | 4.33 | | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 2.2 | 10.8 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.1 | | | 65 - 135 | | 91% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1547260 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4537350 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4055790 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
07/30/13

038

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/13/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR35-SG13-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-12 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019810.D | 1 | | 04/27/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

LM
073013

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-CS01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-13 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019761.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.5 | 1.74 | JFB | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | WJFB | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.04 | 0.21 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.2 | 4.52 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.03 | 0.2 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.2 | 0.87 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.2 | 0.87 | JFB | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | WJFB | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | JFB | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | WJFB | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|------|--|----------|------|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10.1 | | 65 - 135 | 101% | SPK: 10 |
|----------|-------------------------|------|--|----------|------|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1672960 | 6.64 |
| 540-36-3 | 1,4-Difluorobenzene | 5361730 | 8.32 |
| 3114-55-4 | Chlorobenzene-d5 | 4870890 | 13.74 |

*2 corrections
WML 080518*

TENTATIVE IDENTIFIED COMPOUNDS

*WML
07/23/13*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-CS01-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-13 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019761.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-CS01D-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-14 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019762.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|-----------------------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.4 | 8.34 | JPD | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.4 | 1.38 | JPD | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.05 | 0.24 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.12 | 0.38 | JPD | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.04 | 0.21 | J | 0.02 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.5 | 5.65 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.03 | 0.2 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.11 | 0.48 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.44 | 1.91 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.61 | 2.65 | JPD | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.17 | 0.74 | JPD | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1696010 | | 6.641 | 1 correction UM072213 | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5430230 | | 8.318 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4945620 | | 13.737 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

UM 072213 042

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-CS01D-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-14 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019762.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

LM
07/23/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-OA02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-15 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019763.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.65 | 2.26 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.11 | 0.35 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.06 | 0.32 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.7 | 6.41 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.03 | 0.2 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.13 | 0.56 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.13 | 0.56 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 10 | | | 65 - 135 | | 100% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | | 1661690 | | 6.64 | | | |
| 540-36-3 | 1,4-Difluorobenzene | | 5278260 | | 8.31 | | | |
| 3114-55-4 | Chlorobenzene-d5 | | 4787280 | | 13.74 | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

MM
07/23/13

044

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/14/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-OA02-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-15 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019763.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG20-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-16 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019811.D | 1 | | 04/27/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|--------------|------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.48 | 1.67 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.08 | 0.5 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.14 | 0.57 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.19 | 1.02 | U | 0.02 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.39 | 1.47 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.28 | 1.9 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.14 | 0.61 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.51 | 2.22 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.77 | 3.34 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.26 | 1.13 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.19 | 0.93 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.71 | 3.49 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.32 | 1.68 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|-----|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | 65 - 135 | 96% | SPK: 10 |
|----------|-------------------------|-----|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1477320 | 6.62 |
| 540-36-3 | 1,4-Difluorobenzene | 5018420 | 8.29 |
| 3114-55-4 | Chlorobenzene-d5 | 4091930 | 13.71 |

TENTITIVE IDENTIFIED COMPOUNDS

MM
07/30/13

046

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG20-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-16 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019811.D | 1 | | 04/27/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

MM
07/30/13

047

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG20D-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-17 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019801.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

MM
073013

049

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG20D-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-17DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019802.D | 10 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-------------------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 44.2 | 152 | JFD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 1.1 | 5.91 | JFD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 1.3 | 4.9 | JFD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.3 | 2.03 | UD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1581120 | | 6.63 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5209300 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4757960 | | 13.72 | | | | |

MM
073013

050

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR88-SG20D-13BDL | SDG No.: | E1908 |
| Lab Sample ID: | E1908-17DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019802.D | 10 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

MM
073013

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG72-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-18 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019803.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.1 | 3.82 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 7.7 | 26.5 | | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.04 | 0.25 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.15 | 0.73 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.16 | 0.87 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.26 | 0.83 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 1.8 | 9.67 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 2.3 | 8.67 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 1.3 | 8.82 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.22 | 0.96 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylenc | 0.81 | 3.52 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.14 | 4.95 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.33 | 1.43 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.13 | 0.64 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.4 | 1.97 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.17 | 0.89 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | 98% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1645450 | 6.63 |
| 540-36-3 | 1,4-Difluorobenzene | 5107020 | 8.3 |
| 3114-55-4 | Chlorobenzene-d5 | 4613620 | 13.72 |

TENTITIVE IDENTIFIED COMPOUNDS

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG72-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-18 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019803.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

LM
072213
 053

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG70-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-19 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019805.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 0.47 | 1.63 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.15 | 0.94 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.26 | 1.27 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.05 | 0.27 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.05 | 0.16 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.08 | 0.43 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.66 | 2.49 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 0.3 | 2.03 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.2 | 0.87 | U | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.3 | 1.3 | U | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | | 95% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1579390 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 4726260 | | 8.3 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4415630 | | 13.71 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
072213 054

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG70-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-19 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019805.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG71-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-20 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019807.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 3.2 | 11.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.33 | 1.14 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.06 | 0.38 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.3 | 1.47 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.24 | 1.31 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.1 | 0.32 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.13 | 0.7 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.28 | 1.06 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 3.1 | 21.0 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.1 | 0.43 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.1 | 0.43 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.16 | 0.79 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.09 | 0.47 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.3 | | | 65 - 135 | 93% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1580840 | 6.62 |
| 540-36-3 | 1,4-Difluorobenzene | 4697010 | 8.3 |
| 3114-55-4 | Chlorobenzene-d5 | 4566800 | 13.71 |

TENTATIVE IDENTIFIED COMPOUNDS

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG71-13B | SDG No.: | E1908 |
| Lab Sample ID: | E1908-20 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019807.D | 1 | | 04/26/13 | VL042613 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Data Completeness

The data package was received intact and complete. Resubmissions were required as four samples were submitted with incorrect sample IDs. The lab was contacted and corrected forms and EDD were submitted. (Method TO-15)

Laboratory: Chemtech

Holding Times

Sampling Date: 4/11-15/13
 Received Date: 4/18/13
 Analysis Dates: 4/25-27/13

All holding time requirements were met.

Calibrations

Mass assignments were verified by the injection of BFB. No qualifications were required for the initial and continuing calibrations.

Internal Standards

All criteria were met.

Blank Summary

Blank qualification guidelines:

- No action is taken if a compound is found in the blank but not in the sample.
- Sample weight, volume or dilution factor must be taken into consideration when applying criteria.
- Qualification/Action codes where applied as stated in table below:
-

| Blank Type | Blank Result | Sample Result | Action for Samples |
|---------------|---------------------|--------------------------------|---|
| Method, Field | Detects | Not detected | No qualifications |
| | < RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | > RL | < RL | Report RL value with a U |
| | | ≥ RL and < blank concentration | Report the concentration for the sample with a U, or qualify the data as unusable R |
| | | ≥ RL and ≥ blank concentration | Use professional judgment |
| | = RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | Gross contamination | Detects | Qualify results as unusable R |

No contamination was exhibited the method blanks associated with these samples. There was no field QC associated with this data package.

FIELD DUPLICATE SAMPLE SUMMARY

Sample ID: ~~SWMU350-SG05-051013~~ IR73-SG04-13B
 Duplicate Sample ID: ~~SWMU350-SG05D-051013~~ IR73-SG04D-13B

Air: RPD>75%

MM
072213

| Compound | Sample Conc. | Dup. Sample Conc. | %RPD |
|------------------------|--------------|-------------------|---------|
| methylene chloride | 1.2 | 0.84 | 35 |
| carbon tetrachloride | 0.06 | 0.05 | 18 |
| chloroform | 25.3 | 30.3 | 18 |
| benzene | 1.1 | 0.13 | 158 |
| 1,2-dichloroethane | 0.17 | | 200 |
| trichloroethene | 0.22 | 0.14 | 44 |
| bromodichloromethane | 1.7 | 2.7 | 45 |
| toluene | 1.1 | 3.9 | 112 |
| tetrachloroethene | 2.6 | 1.8 | 36 |
| ethyl benzene | 0.19 | 0.39 | 69 |
| m,p-xylene | 0.53 | 0.85 | 46 |
| total xylene | 0.67 | 1.22 | 58 |
| o-xylene | 0.14 | 0.37 | 90 |
| 1,3,5-trimethylbenzene | | 0.3 | 200 |
| 1,2,4-trimethylbenzene | | 0.93 | 200 |
| | | | #DIV/0! |

COMMENTS: Qualify benzene, 1,2-dichloroethane, toluene, o-xylene, 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene as estimated (J/UJ).

* result below the LOD
 only results above the LOD are listed

FIELD DUPLICATE SAMPLE SUMMARY

Sample ID: IR88-SG20-13B
 Duplicate Sample ID: IR88-SG20D-13B

Air: RPD>75%

| Compound | Sample Conc. | Dup. Sample Conc. | %RPD |
|------------------------|--------------|-------------------|---------|
| methylene chloride | 0.48 | 0.58 | 19 |
| carbon tetrachloride | 0.08 | 0.07 | 13 |
| 1,2-dichloroethane | 0.14 | | 200 |
| trichloroethene | 0.19 | 1.4 | 152 |
| toluene | 0.39 | 2 | 135 |
| tetrachloroethene | 0.27 | 0.25 | 8 |
| ethyl benzene | 0.14 | 0.27 | 63 |
| m,p-xylene | 0.51 | 0.98 | 63 |
| total xylene | 0.77 | 1.41 | 59 |
| o-xylene | 0.26 | 0.43 | 49 |
| 1,3,5-trimethylbenzene | 0.19 | 0.29 | 42 |
| 1,2,4-trimethylbenzene | 0.71 | 0.94 | 28 |
| naphthalene | 0.32 | 0.41 | 25 |
| cyclohexane | | 44.2 | 200 |
| chloroform | | 0.19 | 200 |
| benzene | | 0.21 | 200 |
| | | | #DIV/0! |

COMMENTS: Qualify 1,2-dichloroethane, trichloroethene, toluene, cyclohexane, chloroform and benzene as estimated (J/UJ).

* result below the LOD
 only results above the LOD are listed

DataQual

VOA TO-15

Initial Calibration Date: 4/22/2013**RRF and %RSD Calculations:**

Compound Name: vinyl chloride

Lab Value: 0.867

| | |
|-----------------------|---------|
| Area of Compound | 103079 |
| Area of Internal STD | 2377628 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 0.5 |
| Calculated RRF | 0.867 |

Compound Name: toluene

Lab Value: 16.40

| | |
|------------------|--------|
| RRF of STD 1 | 1.1390 |
| RRF of STD 2 | 1.4670 |
| RRF of STD 3 | 1.4580 |
| RRF of STD 4 | 1.4440 |
| RRF of STD 5 | 1.0110 |
| Calculated % RSD | 16.40 |

Continuing Calibration File ID: 4/24/2013**RRF and %D Calculations:**

Compound Name: trichloroethene

Lab Value: 0.390

| | |
|-----------------------|---------|
| Area of Compound | 2595074 |
| Area of Internal STD | 6654781 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 10 |
| Calculated RRF | 0.390 |

Compound Name: methylene choride

Lab Value: 5.7

| | |
|-----------------------|-------|
| Average RRF | 0.769 |
| Calibration Check RRF | 0.725 |
| Calculated % D | 5.7 |

DataQual Environmental Services, LLC

From: Kurt Hummler <kurt@chemtech.net>
Sent: Monday, July 29, 2013 8:08 AM
To: 'DataQual Environmental Services, LLC'
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908
Attachments: Rev E1908.zip

Good morning Laura,

A copy of the revised EDD is attached.

Regards

Kurt Hummler

Chemtech
Direct Phone: (908) 728-3143
Office Phone: (908) 789 8900 ext. 3143
Fax: (908) 789 8922
www.chemtech.net

From: DataQual Environmental Services, LLC [mailto: dataqual@charter.net]
Sent: Monday, July 29, 2013 9:05 AM
To: khummler@chemtech.net
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'; Laura Maschhoff
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908

Thanks Kurt. I will be looking for the delivery. I also needed a revised EDD file, will that be included on a CD with the hard copy or do I still need that from you?

Thanks,
Laura

From: Kurt Hummler [mailto: kurt@chemtech.net]
Sent: Friday, July 26, 2013 11:38 AM
To: 'DataQual Environmental Services, LLC'
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908

Hi Laura,

My apologies. You were not copied on the attached email from our QA/QC Director. The hardcopy was mailed to you and should be received by Monday.

Regards

Kurt Hummler

Chemtech
Direct Phone: (908) 728-3143
Office Phone: (908) 789 8900 ext. 3143
Fax: (908) 789 8922
www.chemtech.net

From: DataQual Environmental Services, LLC [<mailto:dataqual@charter.net>]
Sent: Friday, July 26, 2013 11:30 AM
To: khummler@chemtech.net
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'; Laura Maschhoff
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908

Hi Kurt,

Just wanted to follow-up on the requested information below. If you could just give me an estimated time that I can expect to receive this for planning on our end.

Thank you,
Laura

From: Kurt Hummler [<mailto:kurt@chemtech.net>]
Sent: Monday, July 22, 2013 3:58 PM
To: 'DataQual Environmental Services, LLC'
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908

Hi Laura,

We'll take a look at your email and get back to you as soon as possible.

Regards

Kurt Hummler

Chemtech
Direct Phone: (908) 728-3143
Office Phone: (908) 789 8900 ext. 3143
Fax: (908) 789 8922
www.chemtech.net

From: DataQual Environmental Services, LLC [<mailto:dataqual@charter.net>]
Sent: Monday, July 22, 2013 2:45 PM
To: kurt@chemtech.net
Cc: 'Bianca Kleist'; 'Jacqueline Cleveland'
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908
Importance: High

Hi Kurt,

Please note that *I found an error in the e-mail request below*. **Please use the request in this e-mail.** I'm sorry for the confusion.

SDG# E1908

- Based on the Cover Page (page 4 of data package) and COC (assuming IDs were applied in order), it appears that the incorrect sample ID were used.

- It appears that Lab Sample E1908-17 is incorrect. According to the COC the sample ID should IR88-SG20D-13B however it appears that the sample ID used in the data package was IR89-SG20D-13B.
- It appears that Lab sample ID E1908-16 is incorrect. According to the COC the sample ID should IR88-SG20-13B however it appears that the sample ID used in the data package was IR93-SG02-13B.
- It also appears that Lab sample ID E1908-11 is incorrect. According to the COC the sample ID should IR93-SG02-13B however it appears that the sample ID used in the data package was IR35-SG13-13B.
- It also appears that Lab sample ID E1908-12 is incorrect. According to the COC the sample ID should IR35-SG13-13B however it appears that the sample ID used in the data package was IR88-SG20-13B.

Please submit all forms and data with corrected sample ID for both samples and send hard copy of the corrections to the address below. Please submit corrected EDD as well.

Thank you,
Laura

From: DataQual Environmental Services, LLC [<mailto:dataqual@charter.net>]
Sent: Monday, July 22, 2013 1:02 PM
To: kurt@chemtech.net
Cc: Bianca Kleist; Jacqueline Cleveland; Laura Maschhoff
Subject: request concerning TO-15 for CTO-WE19 SDG# E1908

Hi Kurt,

The following questions are for project CTO-WE19 Camp Lejeune concerning the **TO-15 fraction** data package.

SDG# E1908

- Based on the Cover Page (page 4 of data package) and COC (assuming IDs were applied in order), it appears that the incorrect sample ID was used for Lab Sample E1908-17. According to the COC the sample ID should IR88-SG20D-13B however it appears that the sample ID used in the data package was IR89-SG20D-13B. It also appears that Lab sample ID E1908-16 is incorrect. According to the COC the sample ID should IR93-SG02-13B however it appears that the sample ID used in the data package was IR35-SG13-13B. It also appears that Lab sample ID E1908-12 is incorrect. According to the COC the sample ID should IR35-SD13-13B however it appears that the sample ID used in the data package was IR88-SG20-13B. Please submit all forms and data with corrected sample ID for both samples and send hard copy of the corrections to the address below. Please submit corrected EDD as well.

If there are any questions concerning these issues please feel free to contact me.

Thank you,
Laura

Laura Maschhoff
DataQual Environmental Services, LLC
5830 Amberway Drive
St. Louis, MO 63128
dataqual@charter.net
314-330-1327

DataQual Environmental Services, LLC

From: Himanshu Prajapati <Himanshu@chemtech.net>
Sent: Wednesday, July 24, 2013 12:05 PM
To: Bianca.Kleist@CH2M.com
Cc: kurt@chemtech.net
Subject: RE: request concerning TO-15 for CTO-WE19 SDG# E1908

Hello,

Data Package and EDD for E1908 (TO-15 Fraction) has been revised with correct Client IDs. As per the request from Data Validator we are going to send corrected hard copy forms to Laura Maschhoff at DataQual Environmental Services, LLC.

We have generated Corrective Action Report for this issue. In order to complete this Corrective Action report we will need an explanation from the Lab Analyst. Lab analyst who had worked on E1908 is on vacation till end of this week. We will be able to send you the completed Corrective Action Report once the Lab Analyst will be back to work.

Please let me know if you have any further questions.

Regards,

Himanshu Prajapati
QA/QC Director
Direct Line: (908)728-3152
General Number: (908)789-8900
Fax: (908)789-8922

CHEMTECH

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APPENDIX A

CAR TRACKING #: CAR0713-006

CORRECTIVE ACTION/PREVENTIVE ACTION REPORT

Created By : Himanshu Prajapati

Client: CH2M Hill Order ID: E1908 Date Initiated: 07/24/2013
 Project ID : CTO WE19 Camp Lejeune Initiated By: Client Yes Client notification: Yes
 Approved By: Divyajit Mehta Department: GCMS VOA Due Date : 07/31/2013 Given To: semsettin yesilyurt

Description : E1908-11, E1908-12 & E1908-16 were reported with wrong client IDs in hard copy.

Root Cause Analysis : Lab analyst has mistyped CHEMTECH Sample ID at the time of analysis. Data was generated using wrong CHEMTECH Sample ID and associated Client ID. After realizing the mistake lab analyst has corrected CHEMTECH Sample ID but associated Client IDs were not corrected. Therefore wrong hard copy data was generated and submitted.

Analysis submitted By: semsettin yesilyurt Review By: mohammad ahmed

Proposed Corrective Action : If CHEMTECH Sample ID required to be changed then Lab analyst has to make sure to change CHEMTECH Sample ID as well as associated Client IDs. After correcting the CHEMTECH Sample ID & Client IDs, data needs to be transfer again which will be used to generate the final hard copy data package.

Proposed Preventive Action : In case of a change in CHEMTECH Sample IDs, Lab supervisor has to make sure that Lab analyst must change CHEMTECH Sample ID and associated Client ID and then transfer data so that Final hard copy data package and EDD will have correct information.

Corrective/Preventive Action Proposed By: semsettin yesilyurt Supervisor: mohammad ahmed
 QA/QC Director: Himanshu Prajapati Technical Director: Divyajit Mehta

Follow-Up completed on: Date: 07/29/2013 By: Himanshu Prajapati
 Follow Up Review : _____

 CAR Completion: Date: 07/29/2013 By: Himanshu Prajapati

CLOSE OUT

Was the proposed corrective action implemented? Yes
 Was the proposed preventive action implemented? Yes
 If No, Why? _____

063F



APPENDIX A

CAR TRACKING #: CAR0713-005

CORRECTIVE ACTION/PREVENTIVE ACTION REPORT

Created By : Himanshu Prajapati

Client: CH2M Hill Order ID: E1908 Date Initiated: 07/24/2013
 Project ID : CTO WE19 Camp Lejeune Initiated By: Client Yes Client notification: Yes
 Approved By: Divyajit Mehta Department: Receiving Due Date : 07/31/2013 Given To: Palak Shah

Description : E1908-17 was logged using wrong client ID. Chain of Custody indicate Client ID for E1908-17 as IR88-SG20D-13B but it was logged as IR89-SG20D-13B.

Root Cause Analysis : As a part of log in procedure whenever any log in errors are discovered, a project ticket has to be created and then log in needs to be corrected. Then Sample Management supervisor or Project Manager has to review that Project ticket to make sure that log in is corrected. In case of E1908 log in error were identified for E1908-16 & E1908-17 at the time of labeling but Project ticket was not created. Sample custodian thought that he has change client ID for E1908-16 & E1908-17 but actually it was corrected only for E1908-16. Because there was no project ticket raised for this error, no second review review was done. Therefore this mistake happened.

Analysis submitted By: Palak Shah Review By: Snehal Mehta

Proposed Corrective Action : Sample management personel has to create a ticket whenever any errors are identified for log in. Sample management personel has to veirfy whether all correction are done properly or not.

Proposed Preventive Action : Sample management personel has to create a ticket whenever any errors are identified for log in. As soon as ticket is raised and corrections are done sample management personel has to either notify supervisor or project manager to review the corrections and make a note of this on "Sample Detail Form".

Corrective/Preventive Action Proposed By: Snehal Mehta Supervisor: Divyajit Mehta
 QA/QC Director: Himanshu Prajapati Technical Director: Divyajit Mehta

Follow-Up completed on: Date: 07/25/2013 By: Himanshu Prajapati
 Follow Up Review :

CAR Completion: Date: 07/25/2013 By: Himanshu Prajapati

CLOSE OUT

Was the proposed corrective action implemented? Yes
 Was the proposed preventive action implemented? Yes
 If No, Why? _____

0636

CASE NARRATIVE**CH2M Hill****Project Name: CTO WE19 Camp Lejeune****Project # N/A****Chemtech Project # E1908****Test Name: VOCMS Group2****A. Number of Samples and Date of Receipt:**

20 Air samples were received on 04/18/2013.

B. Parameters

According to the Chain of Custody document, the following analyses were requested: SUMMA Canister Rental and VOCMS Group2. This data package contains results for VOCMS Group2.

C. Analytical Techniques:

The analysis performed on instrument MSVOA_L were done using GC column RTX-1, which is 60 meters, 0.32 mm id, 1.0 um df, Restek Cat. #10157. The Trap was supplied by Entech, glass bead and Tenax , Entech 7100A Preconcentrator. The analysis of VOCMS Group2 was based on method TO-15.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike met requirements for all samples .

The Blank analysis did not indicate the presence of lab contamination.

The Initial Calibration met the requirements .

The Continuous Calibration met the requirements .

The Tuning criteria met requirements.

Samples SWMU360-SG20-13B was diluted due to bad matrix.

Samples SWMU360-SG20-13B, IR73-SG04-13B, IR73-SG04D-13B, IR35-SG13-13B and IR89-SG20D-13B were diluted due to high concentrations.

E. Additional Comments:

The not QT review data is reported in the Miscellaneous.

F. Manual Integration Comments:

| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|-------------|------------|---------------------------|-----------|-------------------------|---------------|-------------------------|---|
| VSTDICCC010 | VL019673.D | 1,2-Dibromoethane | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC010 | VL019673.D | Chlorobenzene-d5 | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC010 | VL019673.D | m/p-Xylene | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | 1,2-Dibromoethane | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | 1,4-Difluorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | Chlorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC002 | VL019674.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | 1,1,1,2-Tetrachloroethane | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Chlorobenzene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC001 | VL019675.D | Naphthalene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrated by Software incorrectly |
| VSTDICCC0.5 | VL019676.D | 1,4-Difluorobenzene | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDICCC0.5 | VL019676.D | Chlorobenzene-d5 | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDICCC015 | VL019677.D | 1,1,1,2-Tetrachloroethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCC015 | VL019677.D | Chlorobenzene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCC015 | VL019677.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCC015 | VL019677.D | Dibromochloromethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |

| | | | | | | | |
|--------------|------------|-------------------------------|--------------|----------------------------|------------------|-------------------------|---|
| VSTDIC015 | VL019677.D | Toluene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | 1,1,1,2- Tetrachloroethane | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Bromoform | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Dibromochloromethane | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VL0422ABS | VL019684.D | 1,2-Dibromoethane | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Chlorobenzene | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Dibromochloromethane | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| VL0422ABS | VL019684.D | Naphthalene | shreena | 4/23/2013 8:37:11 AM | AHPatel | 4/25/2013 7:00:36 AM | Peak missed by the software |
| 0.1 PPBV RPT | VL019685.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Peak missed by the software |
| 0.1 PPBV RPT | VL019685.D | m/p-Xylene | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Incorrect baseline |
| 0.03PPBV RPT | VL019686.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | 1-Bromo-4- Fluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Bromochloromethane | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |

| | | | | | | | |
|------------|------------|-----------------------------|---------|----------------------------|---------|-------------------------|--------------------------------|
| VSTDCCC010 | VL019737.D | 1,2-Dibromoethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VSTDCCC010 | VL019737.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Coelution Of the peak |
| VSTDCCC010 | VL019737.D | Dibromochloromethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | 1,4-Difluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | 1-Bromo-4- Fluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABL | VL019738.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | 1,1,2-Trichloroethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | 1,2-Dichlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | 1,4-Dichlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Bromoform | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Chlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Chlorobenzene-d5 | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424ABS | VL019739.D | Dibromochloromethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| E1908-01 | VL019752.D | Bromochloromethane | shreena | 4/25/2013 7:43:30 AM | sam | 4/25/2013 2:41:31 PM | Peak missed by the software |
| E1908-01 | VL019752.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:43:30 AM | sam | 4/25/2013 2:41:31 PM | Peak missed by the software |
| E1908-02 | VL019760.D | 1,4-Difluorobenzene | sam | 4/25/2013 5:17:17 PM | AHPatel | 4/30/2013 2:14:43 AM | Peak missed by the software |
| E1908-02 | VL019760.D | Chlorobenzene-d5 | sam | 4/25/2013 5:17:17 PM | AHPatel | 4/30/2013 2:14:43 AM | Peak missed by the software |
| E1908-13 | VL019761.D | Chlorobenzene-d5 | sam | 4/25/2013 5:17:45 PM | AHPatel | 4/30/2013 2:14:46 AM | Coelution Of the peak |

| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|------------|------------|-----------------------|-----------|-----------------------------|---------------|-----------------------------|---|
| E1908-14 | VL019762.D | Chlorobenzene-d5 | sam | 4/25/2013 5:17:59 PM | AHPatel | 4/30/2013 2:14:48 AM | Coelution Of the peak |
| E1908-15 | VL019763.D | Chlorobenzene-d5 | sam | 4/25/2013 5:18:28 PM | AHPatel | 4/30/2013 2:14:50 AM | Coelution Of the peak |
| E1908-15 | VL019763.D | Toluene | sam | 4/25/2013 5:18:28 PM | AHPatel | 4/30/2013 2:14:50 AM | Peak missed by the software |
| VSTDCCC010 | VL019765.D | 1,4-Dioxane | sam | 4/25/2013 5:23:21 PM | AHPatel | 4/27/2013 1:54:35 AM | Incorrect baseline |
| VSTDCCC010 | VL019765.D | Chlorobenzene-d5 | sam | 4/25/2013 5:23:21 PM | AHPatel | 4/27/2013 1:54:35 AM | Coelution Of the peak |
| VL0425ABS | VL019767.D | 1,4-Dioxane | sam | 4/25/2013 5:23:42 PM | AHPatel | 4/27/2013 1:54:37 AM | Incorrect baseline |
| VL0425ABS | VL019767.D | Chlorobenzene-d5 | sam | 4/25/2013 5:23:42 PM | AHPatel | 4/27/2013 1:54:37 AM | Coelution Of the peak |
| E1900-05 | VL019769.D | Ethyl Benzene | shreena | 4/26/2013 9:20:12 AM | sam | 4/26/2013 3:08:52 PM | Peak Integrated by Software incorrectly |
| E1908-03 | VL019776.D | Tetrachloroethene | shreena | 4/26/2013 9:20:18 AM | AHPatel | 4/27/2013 1:54:40 AM | Coelution Of the peak |
| E1908-10 | VL019791.D | Cyclohexane | sam | 4/26/2013 11:01:51 AM | AHPatel | 4/27/2013 1:54:14 AM | Incorrect baseline |
| E1908-10 | VL019791.D | Propene | sam | 4/26/2013 11:01:51 AM | AHPatel | 4/27/2013 1:54:14 AM | Peak Integrated by Software incorrectly |
| E1908-16DL | VL019796.D | Tetrachloroethene | sam | 4/26/2013 1:12:12 PM | AHPatel | 4/27/2013 1:54:17 AM | Peak Integrated by Software incorrectly |
| VSTDCCC010 | VL019798.D | Chlorobenzene-d5 | sam | 4/29/2013 10:51:00 AM | AHPatel | 4/30/2013 2:15:23 AM | Coelution Of the peak |
| VL0426ABS | VL019800.D | Chlorobenzene-d5 | shreena | 4/27/2013 12:59:21 AM | sam | 4/29/2013 10:51:11 AM | Peak missed by the software |
| E1908-18 | VL019803.D | 1,1,2-Trichloroethane | sam | 4/29/2013 10:53:02 AM | AHPatel | 4/30/2013 2:15:25 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-18 | VL019803.D | Hexane | sam | 4/29/2013 10:53:02 AM | AHPatel | 4/30/2013 2:15:25 AM | Poor Resolution of peaks exhibited on Chromatograms |

| | | | | | | | |
|------------|------------|-------------------|---------|-----------------------------|---------|-----------------------------|--|
| E1908-18 | VL019803.D | Styrene | sam | 4/29/2013 10:53:02 AM | AHPatel | 4/30/2013 2:15:25 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-19DL | VL019806.D | Tetrachloroethene | shreena | 4/27/2013 12:59:27 AM | sam | 4/29/2013 10:51:16 AM | Coelution Of the peak |
| E1908-20 | VL019807.D | Hexane | sam | 4/29/2013 10:53:23 AM | AHPatel | 4/30/2013 2:15:27 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-20 | VL019807.D | Naphthalene | sam | 4/29/2013 10:53:23 AM | AHPatel | 4/30/2013 2:15:27 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-11 | VL019809.D | Chlorobenzene | sam | 4/29/2013 10:53:46 AM | AHPatel | 4/30/2013 2:15:30 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-11 | VL019809.D | Styrene | sam | 4/29/2013 10:53:46 AM | AHPatel | 4/30/2013 2:15:30 AM | Poor Resolution of peaks exhibited on Chromatograms |
| E1908-12 | VL019810.D | Ethanol | shreena | 4/27/2013 5:30:46 AM | sam | 4/29/2013 10:51:24 AM | Coelution Of the peak |
| E1908-12 | VL019810.D | Ethyl Benzene | shreena | 4/27/2013 5:30:46 AM | sam | 4/29/2013 10:51:24 AM | Peak Integrated by Software incorrectly |
| E1908-16 | VL019811.D | Ethyl Benzene | shreena | 4/27/2013 5:30:52 AM | sam | 4/29/2013 10:51:31 AM | Peak Integrated by Software Incorrectly |
| E1908-12 | VL019815.D | Ethanol | shreena | 4/27/2013 5:30:55 AM | sam | 4/29/2013 10:51:39 AM | Coelution Of the peak |

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2013.05.14 13:16:22 -05'00'

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: E1908

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page) ✓

Check chain-of-custody for proper relinquish/return of samples ✓

Is the chain of custody signed and complete ✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts ✓

Collect information for each project id from server. Were all requirements followed ✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page ✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody ✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ✓

Do requested analyses on Chain of Custody agree with the log-in page ✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ✓

Were the samples received within hold time ✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ✓

ANALYTICAL:

Was method requirement followed? ✓

Was client requirement followed? ✓

Does the case narrative summarize all QC failure? ✓

All runlogs and manual integration are reviewed for requirements ✓

All manual calculations and /or hand notations verified ✓

1st Level QA Review Signature: NIDHI SHAH

Date: 05/04/2013

Digitally signed by Kalpana Raythattha
DN: cn=Kalpana Raythattha, o=CHEMTECH, ou=QC,
email=kalpana@chemtech.net, c=US
Date: 2013.05.04 09:28:55 -05'00'

2nd Level QA Review Signature: _____

Kalpana Raythattha

| CH2MHILL <small>12700 Wood Drive Suite 1700 Dallas, TX Tel No: (972) 994-7092 Fax No: (972) 214-2614</small> | | CHAIN-OF-CUSTODY RECORD | | | | | | | | | | <small>¹ COC NUMBER:</small> 424419 - 04172013-03 | | | | |
|--|------------------|---|---|-------|--|---|----------|--|--|------|---|---|--------|---|-----|------------------|
| | | <small>² PROJECT NAME:</small> MCEAST MCB CAMLEJ | | | <small>³ PROJECT NUMBER:</small> 424419.FL.FS | | | <small>⁴ LAB NAME AND CONTACT:</small> ChemTech Kurt Hummer, Lab PM | | | <small>⁵ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company):</small> Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | | | <small>⁶ RECIPIENT 1 (Address, Tel No., and Fax No.):</small> 11301 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 | | |
| <small>⁷ PROJECT PHASE/STEP/TASK:</small> IRP VI Monitoring | | | <small>⁸ CTO OR DO NUMBER:</small> WE-19 | | | <small>⁹ LAB NO NUMBER:</small> NA | | | <small>¹⁰ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company):</small> Keri Hallberg/CH2M HILL keri.hallberg@ch2m.com | | | <small>¹¹ RECIPIENT 2 (Address, Tel No., and Fax No.):</small> email | | | | |
| <small>¹² PROJECT CONTACT:</small> Kimberly Stokes | | | <small>¹³ PROJECT TEL NO AND FAX NO:</small> phone: 214-996-4839 | | | <small>¹⁴ LAB TEL NO AND FAX NO:</small> phone: 908-728-3143 | | | <small>¹⁵ FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company):</small> Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | | <small>¹⁶ RECIPIENT 3 (Address, Tel No., and Fax No.):</small> email | | | | |
| <small>¹⁷ ANALYSES</small> | | | | | | | | | | | | | | | | |
| ITEM | SAMPLE ID | DATE | DATE | TIME | TIME | CANISTER | CANISTER | FLOW | CANISTER | DATA | TAT | SELECT | SELECT | SAMPLE | LAB | COMMENTS |
| | | | | | | | | | | | | | | | | |
| 1 | IR89-IA84-13B | 4/11/2013 | 4/12/2013 | 15:33 | 14:42 | -29 | -4.3 | 10516 | 10445 | IV | 28 | X | | | | |
| 2 | IR89-OA01-13B | 4/11/2013 | 4/12/2013 | 15:35 | 14:34 | -29 | -4.69 | 10706 | 10598 | IV | 28 | X | | | | |
| 3 | SWMU360-SG20-13B | 4/11/2013 | 4/11/2013 | 12:34 | 12:31 | -29.5 | -7 | 10647 | 10462 | IV | 28 | | X | | | VOCs = 12.3 ppmv |
| 4 | IR73-SG04-13B | 4/12/2013 | 4/12/2013 | 10:50 | 10:57 | -30 | -7 | 10480 | 10455 | IV | 28 | | X | | | VOCs = 0.1 ppmv |
| 5 | IR73-SG04D-13B | 4/12/2013 | 4/12/2013 | 10:50 | 10:57 | -29 | -7.2 | 10638 | 10720 | IV | 28 | | X | | | VOCs = 0.1 ppmv |
| 6 | IR73-SG03-13B | 4/12/2013 | 4/12/2013 | 11:32 | 11:39 | -29 | -6.2 | 10215 | 10758 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 7 | IR73-SG02-13B | 4/12/2013 | 4/12/2013 | 12:10 | 12:17 | -30 | -7.6 | 10554 | 10657 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 8 | IR73-SG01-13B | 4/12/2013 | 4/12/2013 | 12:37 | 12:44 | -29 | -7.72 | 10255 | 10602 | IV | 28 | | X | | | VOCs = 0 ppmv |
| 9 | IR88-SG19-13B | 4/12/2013 | 4/12/2013 | 16:42 | 16:49 | -28.5 | -2.97 | 10192 | 10147 | IV | 28 | | X | | | VOCs = 0.6 ppmv |
| 10 | IR93-SG01-13B | 4/15/2013 | 4/15/2013 | 8:38 | 8:45 | -28.5 | -1.01 | 10163 | 10799 | IV | 28 | | X | | | VOCs = 0 ppmv |
| <small>¹⁸ SAMPLER(S) AND COMPANY: (please print)</small> David Seed / CH2M HILL Kim Stokes / CH2M HILL | | <small>¹⁹ FedEx number:</small> | | | <small>²⁰ SAMPLER TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):</small> | | | | | | | | | | | |
| <small>²¹ RECEIVED BY</small> Printed Name and Signature: Kimberly Stokes | | <small>DATE</small> 17-Apr-2013 | | | <small>TIME</small> 17:30 | | | <small>²² RECEIVED BY</small> Printed Name and Signature: | | | <small>DATE</small> 4/18/13 | | | <small>TIME</small> 7:20 | | |
| Printed Name and Signature: | | | | | | | | Printed Name and Signature: | | | | | | | | |
| Printed Name and Signature: | | | | | | | | Printed Name and Signature: | | | | | | | | |
| Printed Name and Signature: | | | | | | | | Printed Name and Signature: | | | | | | | | |
| Fedex | | 4-18-13 | | | 7:20 | | | Palak Shah | | | 4/18/13 | | | 7:20 | | |
| Distribution: (x) Original - Laboratory (To be returned with Analytical Report); () Copy 1 - Project File; () Copy 2 - PMO | | | | | | | | | | | | | | | | |

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| CH2M HILL <small>12700 Beatt Drive Suite 100 Dallas, TX Tel No: (972) 964-7002 Fax No: (972) 244-2814</small> | | CHAIN-OF-CUSTODY RECORD | | | | | | | | | | ¹ COC NUMBER: 424419-04172013-04 | | | | | | | | |
|---|----------------|---|--|---------------|--|--|---|---|---|-------------|--|---|---|--|------------------------------|--|---|---------------------------|--------------------------------|--|
| | | ¹ PROJECT NAME: MCIEAST MCB CAMLEJ | | | ² PROJECT NUMBER: 424419.FLFS | | | ³ LAB NAME AND CONTACT: ChemTech Kurt Hummer, Lab PM | | | ⁴ FAX AND MAIL REPORTS/SEND TO: ^{RECIPIENT 1 (Name and Company)} Bianca Kleist/CH2M HILL bianca.kleist@ch2m.com | | | ⁵ RECIPIENT 1 (Address, Tel No., and Fax No.): 11501 Carmel Commons Blvd. Suite 304 Charlotte, NC 28226 #704-543-3274 | | | | | | |
| ⁶ PROJECT PHASE/TASK: IRP VI Monitoring | | | ⁷ CTO OR IDO NUMBER: WE-19 | | | ⁸ LAB PO NUMBER: NA | | | ⁹ FAX AND MAIL REPORTS/SEND TO: ^{RECIPIENT 2 (Name and Company)} Karl Hallberg/CH2M HILL karl.hallberg@ch2m.com | | | ¹⁰ RECIPIENT 2 (Address, Tel No., and Fax No.): email | | | | | | | | |
| ¹¹ PROJECT CONTACT: Kimberly Stokes | | | ¹² PROJECT TEL NO AND FAX NO: phone: 214-998-8839 | | | ¹³ LAB TEL NO AND FAX NO: phone: 908-728-5143 | | | ¹⁴ FAX AND MAIL REPORTS/SEND TO: ^{RECIPIENT 3 (Name and Company)} Kimberly Stokes/CH2M HILL kstokes@ch2m.com | | | ¹⁵ RECIPIENT 3 (Address, Tel No., and Fax No.): email | | | | | | | | |
| | | | | | | | | | | | | ¹⁶ ANALYSE | | | | | | | | |
| ITEM | SAMPLE ID | MATRIX (see notes on RCP) | DATE START | DATE FINISHED | TIME START | TIME STOP | CANISTER VOLUME IN FIELD 30 (START) | CANISTER VOLUME IN FIELD 30 (STOP) | FLOW CONTROLLER ID | CANISTER ID | DATA PRO LEVEL (see notes on RCP) | TAT (minutes) | Select VOCs by TO-15 SCAN Low Level | | Select VOCs by TO-15 SCAN | | SAMPLE TYPE (see notes on RCP) | LAB ID (for lab's use) | COMMENT/ SCREENING READINGS | |
| | | | | | | | | | | | | | X | | X | | | | | |
| 1 | IR93-SG02-13B | SG | 4/13/2013 | 4/13/2013 | 9:04 | 9:11 | -28.5 | -6.7 | 10177 | 10734 | IV | 28 | | | X | | | | VOCs = 0 ppav | |
| 2 | IR35-SG13-13B | SG | 4/13/2013 | 4/13/2013 | 9:57 | 10:04 | -29 | -5.6 | 10250 | 10652 | IV | 28 | | | X | | | | VOCs = 0 ppav | |
| 3 | IR88-CS01-13B | CS | 4/13/2013 | 4/14/2013 | 13:50 | 12:00 | -29 | 0 | 10457 | 10258 | IV | 28 | X | | | | | | | |
| 4 | IR88-CS01D-13B | CS | 4/13/2013 | 4/14/2013 | 13:50 | 12:00 | -28 | -3.2 | 10537 | 10304 | IV | 28 | X | | | | | | | |
| 5 | IR88-OA02-13B | OA | 4/13/2013 | 4/14/2013 | 14:00 | 12:05 | -29 | -4.4 | 10176 | 10411 | IV | 28 | X | | | | | | | |
| 6 | IR88-SG20-13B | SG | 4/15/2013 | 4/15/2013 | 8:20 | 8:27 | -28 | -4.7 | 10221 | 10660 | IV | 28 | | | X | | | | VOCs = 0.1 ppav | |
| 7 | IR88-SG20D-13B | SG | 4/15/2013 | 4/15/2013 | 8:20 | 8:27 | -29 | -5.2 | 10569 | 10726 | IV | 28 | | | X | | | | VOCs = 0.1 ppav | |
| 8 | IR78-SG72-13B | SG | 4/15/2013 | 4/15/2013 | 9:21 | 9:28 | -29 | -6.5 | 10543 | 10729 | IV | 28 | | | X | | | | VOCs = 0 ppav | |
| 9 | IR78-SG70-13B | SG | 4/15/2013 | 4/15/2013 | 10:05 | 10:12 | -28 | 0 | 10553 | 10656 | IV | 28 | | | X | | | | VOCs = 0 ppav | |
| 10 | IR78-SG71-13B | SG | 4/15/2013 | 4/15/2013 | 11:25 | 11:33 | -29 | 0 | 10764 | 10800 | IV | 28 | | | X | | | | VOCs = 0 ppav | |
| ¹⁷ SAMPLED AND COMPANY: (please print) David Seel / CH2M HILL Kim Stokes / CH2M HILL | | | ¹⁸ FedEx number: | | | | | | | | | ¹⁹ SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): | | | | | | | | |
| ²⁰ RECEIVED BY Printed Name and Signature: Kimberly Stokes | | | DATE 17-Apr-2013 | | | TIME 17:30 | | | ²¹ RECEIVED BY Printed Name and Signature: | | | DATE | | | TIME | | | | | |
| Printed Name and Signature: | | | | | | | | | Printed Name and Signature: | | | | | | | | | | | |
| Printed Name and Signature: | | | | | | | | | Printed Name and Signature: | | | | | | | | | | | |
| Printed Name and Signature: | | | | | | | | | Printed Name and Signature: | | | | | | | | | | | |
| Fedex | | | 4-18-13 | | | 7:20 | | | Palak Shah | | | 4/18/13 | | | 7:20 | | | | | |

072

DataQual

Environmental Services, LLC

CH2M HILL
11301 Carmel Commons Blvd
Suite 304
Charlotte, NC 28226

July 23, 2013
SDG# E1909, Chemtech
MCB Camp Lejeune- Jacksonville, NC, CTO-WE19

Dear Ms. Kleist,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # E1909. The data validation was performed in accordance with TO-15 for volatiles; the National Functional Guidelines for Organic Data Review (June 2008), as applicable, and good professional judgment. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

| Sample ID | Lab ID | Matrix | VOA |
|------------------|----------|--------|-----|
| SWMU360-SG21-13B | E1909-01 | air | X |
| SWMU360-SG22-13B | E1909-02 | air | X |
| IR96-SG01-13B | E1909-03 | air | X |
| IR96-SG02-13B | E1909-04 | air | X |
| IR78-SG25-13B | E1909-05 | air | X |
| IR78-SG26-13B | E1909-06 | air | X |
| IR78-SG27-13B | E1909-07 | air | X |
| IR78-SG28-13B | E1909-08 | air | X |
| IR78-SG66-13B | E1909-09 | air | X |
| IR78-SG67-13B | E1909-10 | air | X |
| IR78-SG67D-13B | E1909-11 | air | X |

The following quality control samples were provided with this SDG: sample IR78-SG67D-13B - field duplicate of sample IR78-SG67-13B.

The samples were evaluated based on the following criteria:

- Data Completeness *
- Technical Holding Times *
- Instrument Performance *
- Initial/Continuing Calibrations *
- Blanks *
- Internal Standards *
- Surrogates *
- Laboratory Control Samples *
- Matrix Spike Recoveries NA

- Matrix Duplicate RPDs NA
- Field Duplicates
- Identification/Quantitation
- Reporting Limits *

* - indicates that no qualifications were required based on this criteria

Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that when a compound or analyte is flagged due to blank contamination the BL qualifier code takes precedence over all other qualifier codes except a code that explains rejected data.

VOA

The field duplicate pair did not exhibit comparable results; therefore qualifications were added to those compounds.

Several samples required a dilution to obtain results within the calibration range.

Specific Evaluation of Data

Data Completeness

The SDG was received complete and intact. Resubmissions were not required.

Technical Holding Times

According to chain of custody records, sampling was performed on 4/15-16/13 and samples were received at the laboratory 4/18/13. All sample preparation and analysis was performed within method holding time requirements.

Field Duplicates

VOA

Sample IR78-SG67-13B and field duplicate sample IR78-SG67D-13B exhibited non-compliant field duplicate reproducibility for the compounds listed in the table below, qualifications were applied as stated.

| Compound | % RPD | Qualification | Qualifier Code |
|---------------|-------|---------------|----------------|
| toluene | 132 | J/UJ | FD |
| ethyl benzene | 200 | | |
| m,p-xylene | 200 | | |
| total xylene | 200 | | |
| o-xylene | 200 | | |
| cyclohexane | 200 | | |
| naphthalene | 200 | | |

Identification/Quantitation

VOA

A dilution was required for samples SWMU360-SG21-13B, SWMU360-SG22-13B, IR96-SG01-13B, IR96-SG02-13B, IR78-SG25-13B, IR78-SG26-13B, IR78-SG27-13B, IR78-SG28-13B, IR78-SG67-13B and IR78-SG67D-13B to obtain results within the calibration range; therefore, the E-flagged results in the initial analysis were rejected in favor of the corresponding D-flagged results in the dilution. Samples IR78-SG25-13BDL1, IR78-SG26-13BDL1 and IR78-SG67-13BDL1 exhibited results above the calibration range; therefore the results for E-flagged compounds were used from the second dilution for this sample in IR78-SG25-13BDL2, IR78-SG26-13BDL2 and IR78-SG67-13BDL2.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff
President

Summary of Data Qualifications

VOA

| Sample ID | Compound | Results | Q-Flag | Q Code |
|---|--|---------|---------|--------|
| IR78-SG67-13B, IR78-SG67D-13B | toluene ethyl benzene m,p-xylene total xylene o-xylene cyclohexane naphthalene | +/- | J/UJ | FD |
| SWMU360-SG21-13B, SWMU360-SG22-13B, IR96-SG01-13B, IR96-SG02-13B, IR78-SG25-13B, IR78-SG26-13B, IR78-SG27-13B, IR78-SG28-13B, IR78-SG67-13B, IR78-SG67D-13B | all E-flagged results | + | exclude | DL |
| SWMU360-SG21-13BDL, SWMU360-SG22-13BDL, IR96-SG01-13BDL, IR96-SG02-13BDL, IR78-SG25-13BDL, IR78-SG26-13BDL, IR78-SG27-13BDL, IR78-SG28-13BDL, IR78-SG67-13BDL, IR78-SG67D-13BDL | all results except D-flagged compounds | +/- | exclude | DL |
| IR78-SG25-13BDL1, IR78-SG26-13BDL1, IR78-SG67-13BDL1 | all E-flagged results | +/- | exclude | DL |
| IR78-SG25-13BDL2, IR78-SG26-13BDL2, IR78-SG67-13BDL2 | all results except D-flagged compounds | +/- | exclude | DL |

Glossary of Qualification Flags and Abbreviations

Qualification Flags (Q-Flags)

| | |
|----|---|
| U | not detected above the reported sample quantitation limit |
| J | estimated value |
| UJ | reported quantitation limit is qualified as estimated |
| R | result is rejected; the presence or absence of the analyte cannot be verified |
| D | result value is based on dilution analysis result |
| NJ | analyte has been tentatively identified, estimated value |
| L | analyte present, biased low |
| UL | not detected, quantitation limit is probably higher |
| K | analyte present, biased high |

Inorganic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|---------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 10X the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL and the result is raised to the RL and flagged U. |
| R or J+ | The blank contaminant concentration was greater than the RL and the sample result is greater than the RL but less than 10X the blank contaminant concentration. The reported results are flagged either as rejected R or biased high J+ based on the professional judgment of the validator. (see NFG, Rev. date 10/04, p. 17 for extracted blanks (PB)) |

Organic Field/Lab Blank Qualification Flags (Q-Flags)

| | |
|------|--|
| NA | The sample result for the blank contaminant is greater than the sample RL and is greater than 5X (10X for common laboratory contaminants) the blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers. |
| RL-U | The sample result for the blank contaminant is less than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is raised to the RL and flagged U. |
| U | The sample result for the blank contaminant is greater than the sample RL but is less than 5X (10X for common laboratory contaminants) the blank value, so the result is flagged U at the reported value. |

General Abbreviations

| | |
|----------|--|
| RL / MDL | reporting limit/method detection limit |
| CRQL | contract required quantitation limit |
| Q Code | qualifier code |
| + | positive result |
| - | non-detect result |

QUALIFIER CODE REFERENCE

| Qualifier | Description |
|-----------|--|
| TN | Tune |
| BSL | Blank Spike/LCS - High Recovery |
| BSH | Blank Spike/LCS - Low Recovery |
| BD | Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision |
| BRL | Below Reporting Limit |
| ISL | Internal Standard - Low Recovery |
| ISH | Internal Standard - High Recovery |
| MSL | Matrix Spike and/or Matrix Spike Duplicate - Low Recovery |
| MSH | Matrix Spike and/or Matrix Spike Duplicate - High Recovery |
| MI | Matrix interference obscuring the raw data |
| MDP | Matrix Spike/Matrix Spike Duplicate Precision |
| 2S | Second Source - Bad reproducibility between tandem detectors |
| SSL | Spiked Surrogate - Low Recovery |
| SSH | Spiked Surrogate - High Recovery |
| SD | Serial Dilution Reproducibility |
| ICL | Initial Calibration - Low Relative Response Factors (RRF) |
| ICH | Initial Calibration - High Relative Response Factors (RRF) |
| ICB | Initial Calibration - Bad Linearity or Curve Function |
| CCL | Continuing Calibration - Low Recovery or %Difference |
| CCH | Continuing Calibration - High Recovery or %Difference |
| LD | Lab Duplicate Reproducibility |
| HT | Holding Time |
| PD | Pesticide Degradation |
| 2C | Second Column - Poor Dual Column Reproducibility |
| LR | Concentration Exceeds Linear Range |
| BL | Blank Contamination |
| RE | Redundant Result - due to Re-analysis or Re-extraction |
| DL | Redundant Result - due to Dilution |
| FD | Field Duplicate |
| OT | Other - explained in data validation report |
| %SOL | High moisture content |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG21-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019725.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.3 | 4.52 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.801 | 2.56 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.103 | 0.42 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 2 | 10.8 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.5 | 5.65 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 35.9 | 243 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.283 | 1.23 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.662 | 2.88 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.937 | 4.07 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.275 | 1.19 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.401 | 1.97 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1.1 | 5.41 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.111 | 0.58 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | 98% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1603720 | 6.66 |
| 540-36-3 | 1,4-Difluorobenzene | 5913190 | 8.33 |
| 3114-55-4 | Chlorobenzene-d5 | 5984950 | 13.76 |

TENTITIVE IDENTIFIED COMPOUNDS

1221
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG21-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-01 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019725.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG21-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-01DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019726.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 1.8 | 9.67 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 4.8 | 18.1 | UD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 38.7 | 262 | UD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD XDL | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1561800 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5780810 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5778650 | | 13.76 | | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG21-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-01DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019726.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG22-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019727.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|-------|------|-------------|-------|------|-----|------|
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 3.2 | 11.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.106 | 0.36 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.255 | 1.39 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.805 | 2.57 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.398 | 2.14 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.5 | 5.65 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 72.7 | 492 | <i>EXDL</i> | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.204 | 0.89 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.467 | 2.03 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.679 | 2.95 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.212 | 0.92 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.252 | 1.24 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.684 | 3.36 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | 95% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1537780 | 6.65 |
| 540-36-3 | 1,4-Difluorobenzene | 5664620 | 8.33 |
| 3114-55-4 | Chlorobenzene-d5 | 5745500 | 13.76 |

TENTITIVE IDENTIFIED COMPOUNDS

*LM
072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG22-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-02 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019727.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG22-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-02DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019728.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 0.3 | 1.61 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 4.6 | 17.3 | UD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 140 | 949 | UD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1503010 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5567790 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5545990 | | 13.76 | | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | SWMU360-SG22-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-02DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019728.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG01-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019729.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|-------|------|-------------|-------|------|-----|------|
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.3 | 4.52 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 4.4 | 15.2 | | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.057 | 0.36 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.953 | 3.04 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.1 | 0.54 | J | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.9 | 7.16 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 21.5 | 145 | <i>EXDL</i> | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.282 | 1.22 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.721 | 3.13 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.03 | 4.49 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.313 | 1.36 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.188 | 0.92 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.579 | 2.85 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.182 | 0.95 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | | |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.7 | | | 65 - 135 | | 97% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|

INTERNAL STANDARDS

| | | | | | | | | |
|-----------|---------------------|---------|--|-------|--|--|--|--|
| 74-97-5 | Bromochloromethane | 1535100 | | 6.66 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5694270 | | 8.34 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5799900 | | 13.76 | | | | |

TENTITIVE IDENTIFIED COMPOUNDS

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG01-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-03 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019729.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|------------|-------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG01-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-03DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019730.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|------|------|----|------|-----|----|------|
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 4.4 | 15.2 | JD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 0.3 | 1.61 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 5.1 | 19.2 | D | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 20.7 | 140 | D | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |

SURROGATES

| | | | | | | | | |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.7 | | | 65 - 135 | | 97% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|

INTERNAL STANDARDS

| | | | | | | | | |
|-----------|---------------------|---------|--|-------|--|--|--|--|
| 74-97-5 | Bromochloromethane | 1442730 | | 6.66 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5371710 | | 8.34 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5373320 | | 13.76 | | | | |

UM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG01-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-03DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019730.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG02-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019731.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|-----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.2 | 4.17 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.105 | 0.36 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.1 | 0.49 | U | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.03 | 0.16 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.968 | 3.09 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 0.973 | 5.23 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 2.5 | 9.42 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 80.4 | 545 | | EXDL 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.355 | 1.54 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.884 | 3.84 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.27 | 5.52 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.387 | 1.68 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.401 | 1.97 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1.1 | 5.41 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.155 | 0.81 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | | 95% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1482910 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5478820 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5570110 | | 13.76 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG02-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-04 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019731.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG02-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-04DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019740.D | 40 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|
|------------|-----------|------------|-------------|-----------|-----|-----|------------|-------|

TARGETS

| | | | | | | | | |
|-------------|---------------------------|------|-------|----|-----|-----|----|------|
| 75-01-4 | Vinyl Chloride | 1.2 | 3.07 | UD | 1.2 | 1.2 | 20 | ppbv |
| 74-83-9 | Bromomethane | 4 | 15.5 | UD | 1.2 | 4 | 20 | ppbv |
| 75-09-2 | Methylene Chloride | 4 | 13.9 | UD | 2 | 4 | 20 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 4 | 16.2 | UD | 1.6 | 4 | 20 | ppbv |
| 110-82-7 | Cyclohexane | 4 | 13.8 | UD | 4 | 4 | 20 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1.2 | 7.55 | UD | 1.2 | 1.2 | 20 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 8 | 0.327 | UD | 4 | 8 | 40 | ppbv |
| 67-66-3 | Chloroform | 4 | 19.5 | UD | 0.8 | 4 | 20 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 1.2 | 6.55 | UD | 1.2 | 1.2 | 20 | ppbv |
| 71-43-2 | Benzene | 4 | 12.8 | UD | 1.6 | 4 | 20 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 4 | 16.2 | UD | 4 | 4 | 20 | ppbv |
| 79-01-6 | Trichloroethene | 1.2 | 6.45 | UD | 0.6 | 1.2 | 20 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 4 | 18.5 | UD | 4 | 4 | 20 | ppbv |
| 75-27-4 | Bromodichloromethane | 4 | 26.8 | UD | 2 | 4 | 20 | ppbv |
| 108-88-3 | Toluene | 4 | 15.1 | UD | 2 | 4 | 20 | ppbv |
| 127-18-4 | Tetrachloroethene | 78.2 | 530 | UD | 1.2 | 1.2 | 20 | ppbv |
| 100-41-4 | Ethyl Benzene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 1330-20-7 | Total Xylenes | 12 | 52.1 | UD | 8 | 12 | 60 | ppbv |
| 179601-23-1 | m/p-Xylene | 8 | 34.8 | UD | 4 | 8 | 40 | ppbv |
| 95-47-6 | o-Xylene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 98-82-8 | Isopropylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 4 | 27.5 | UD | 4 | 4 | 20 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 4 | 24.0 | UD | 4 | 4 | 20 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 4 | 29.7 | UD | 1.6 | 4 | 20 | ppbv |
| 91-20-3 | Naphthalene | 4 | 21.0 | UD | 1.6 | 4 | 20 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|-----|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | 65 - 135 | 99% | SPK: 10 |
|----------|-------------------------|-----|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1704880 | 6.68 |
| 540-36-3 | 1,4-Difluorobenzene | 6086160 | 8.35 |
| 3114-55-4 | Chlorobenzene-d5 | 5902810 | 13.79 |

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021

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/15/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR96-SG02-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-04DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019740.D | 40 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

LM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019733.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|------------------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 3.4 | 11.8 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.27 | 1.07 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 2.7 | 10.9 | | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.3 | 1.03 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1.1 | 6.92 | | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 2.3 | 9.12 | | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2.57 | 0.105 | | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 30.2 | 147 | E XDL | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 120 | 654 | E XDL | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 1.7 | 5.43 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 170 | 913 | E XDL | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 2.9 | 10.9 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 47.7 | 323 | E XDL | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.47 | 2.04 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.1 | 4.78 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.5 | 6.52 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.4 | 1.74 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.2 | 0.98 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.6 | 2.95 | | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.14 | 0.73 | J | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | | |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | | 95% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|--|-----|---------|

INTERNAL STANDARDS

| | | | | |
|-----------|---------------------|---------|--|-------|
| 74-97-5 | Bromochloromethane | 1455050 | | 6.67 |
| 540-36-3 | 1,4-Difluorobenzene | 5721520 | | 8.38 |
| 3114-55-4 | Chlorobenzene-d5 | 5629750 | | 13.79 |

TENTITIVE IDENTIFIED COMPOUNDS

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072213
023

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019733.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019734.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|------|-----|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 12.7 | 44.1 | D | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 2.5 | 10.1 | JD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1 | 6.29 | JD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 2.4 | 9.52 | JD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2.4 | 0.10 | JD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 33.5 | 163 | D | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 450 | 2455 | ED XDL | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 7.5 | 24.0 | D | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 890 | 4783 | ED | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 5.7 | 21.5 | D | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 57.1 | 387 | D | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1.2 | 5.21 | JD XDL | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 3 | 13.0 | JD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 4.2 | 18.2 | JD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1.2 | 5.21 | JD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 2.4 | 11.8 | JD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|-----|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | 65 - 135 | 96% | SPK: 10 |
|----------|-------------------------|-----|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1402240 | 6.66 |
| 540-36-3 | 1,4-Difluorobenzene | 5426970 | 8.35 |
| 3114-55-4 | Chlorobenzene-d5 | 5293050 | 13.76 |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019734.D | 10 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019792.D | 300 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 9 | 23.0 | UD XDL 9 | | 9 | 150 | ppbv |
| 74-83-9 | Bromomethane | 30 | 116 | UD | 9 | 30 | 150 | ppbv |
| 75-09-2 | Methylene Chloride | 30 | 104 | UD | 15 | 30 | 150 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 30 | 118 | UD | 15 | 30 | 150 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 30 | 121 | UD | 12 | 30 | 150 | ppbv |
| 110-82-7 | Cyclohexane | 30 | 103 | UD | 30 | 30 | 150 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 9 | 56.6 | UD | 9 | 9 | 150 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 30 | 118 | UD | 15 | 30 | 150 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 60 | 2.45 | UD | 30 | 60 | 300 | ppbv |
| 67-66-3 | Chloroform | 30 | 146 | UD | 6 | 30 | 150 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 380 | 2073 | D | 9 | 9 | 150 | ppbv |
| 71-43-2 | Benzene | 30 | 95.8 | UD XDL | 12 | 30 | 150 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 30 | 121 | UD XDL | 30 | 30 | 150 | ppbv |
| 79-01-6 | Trichloroethene | 3100 | 16660 | D | 4.5 | 9 | 150 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 30 | 138 | UD XDL | 30 | 30 | 150 | ppbv |
| 75-27-4 | Bromodichloromethane | 30 | 200 | UD | 15 | 30 | 150 | ppbv |
| 108-88-3 | Toluene | 30 | 113 | UD | 15 | 30 | 150 | ppbv |
| 127-18-4 | Tetrachloroethene | 42 | 284 | UD | 9 | 9 | 150 | ppbv |
| 100-41-4 | Ethyl Benzene | 30 | 130 | UD | 30 | 30 | 150 | ppbv |
| 179601-23-1 | m/p-Xylene | 60 | 260 | UD | 30 | 60 | 300 | ppbv |
| 1330-20-7 | Total Xylenes | 90 | 390 | UD | 60 | 90 | 450 | ppbv |
| 95-47-6 | o-Xylene | 30 | 130 | UD | 30 | 30 | 150 | ppbv |
| 98-82-8 | Isopropylbenzene | 30 | 147 | UD | 30 | 30 | 150 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 30 | 206 | UD | 30 | 30 | 150 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 30 | 147 | UD | 30 | 30 | 150 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 30 | 147 | UD | 30 | 30 | 150 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 30 | 180 | UD | 30 | 30 | 150 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 30 | 222 | UD | 12 | 30 | 150 | ppbv |
| 91-20-3 | Naphthalene | 30 | 157 | UD | 12 | 30 | 150 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1579750 | | 6.62 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5008160 | | 8.29 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4912330 | | 13.71 | | | | |

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027

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG25-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-05DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019792.D | 300 | | 04/26/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019735.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.27 | 0.69 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.2 | 7.64 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.17 | 0.67 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1.1 | 4.45 | | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.86 | 2.96 | | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.21 | 1.32 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 1.17 | 0.05 | | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 51.4 | 251 | EXDL | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 110 | 600 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 10.2 | 32.6 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 180 | 967 | EXDL | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 7.5 | 28.3 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 58.2 | 394 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 2 | 8.69 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 4.8 | 20.8 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 6 | 26.1 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 1.2 | 5.21 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.41 | 2.02 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.14 | 0.69 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.13 | 0.68 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | | 95% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1387620 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5565050 | | 8.38 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5368210 | | 13.79 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

UM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019735.D | 1 | | 04/24/13 | VL042313 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

MM
072213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019773.D | 60 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 1.8 | 4.6 | UD XDL | 1.8 | 1.8 | 30 | ppbv |
| 74-83-9 | Bromomethane | 6 | 23.3 | UD | 1.8 | 6 | 30 | ppbv |
| 75-09-2 | Methylene Chloride | 6 | 20.8 | UD | 3 | 6 | 30 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 6 | 23.8 | UD | 3 | 6 | 30 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 6 | 24.3 | UD | 2.4 | 6 | 30 | ppbv |
| 110-82-7 | Cyclohexane | 6 | 20.6 | UD | 6 | 6 | 30 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1.8 | 11.3 | UD | 1.8 | 1.8 | 30 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 12 | 0.491 | UD | 6 | 12 | 60 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 6 | 23.8 | UD | 3 | 6 | 30 | ppbv |
| 67-66-3 | Chloroform | 70.2 | 342 | D | 1.2 | 6 | 30 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 300 | 1636 | D | 1.8 | 1.8 | 30 | ppbv |
| 71-43-2 | Benzene | 8.4 | 26.8 | JD XDL | 2.4 | 6 | 30 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 6 | 24.3 | UD | 6 | 6 | 30 | ppbv |
| 79-01-6 | Trichloroethene | 3200 | 17197 | HD | 0.9 | 1.8 | 30 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 6 | 27.7 | UD | 6 | 6 | 30 | ppbv |
| 75-27-4 | Bromodichloromethane | 6 | 40.2 | UD | 3 | 6 | 30 | ppbv |
| 108-88-3 | Toluene | 6 | 22.6 | UD | 3 | 6 | 30 | ppbv |
| 127-18-4 | Tetrachloroethene | 63 | 427 | D | 1.8 | 1.8 | 30 | ppbv |
| 100-41-4 | Ethyl Benzene | 6 | 26.1 | UD XDL | 6 | 6 | 30 | ppbv |
| 179601-23-1 | m/p-Xylene | 12 | 52.1 | UD | 6 | 12 | 60 | ppbv |
| 1330-20-7 | Total Xylenes | 18 | 78.2 | UD | 12 | 18 | 90 | ppbv |
| 95-47-6 | o-Xylene | 6 | 26.1 | UD | 6 | 6 | 30 | ppbv |
| 98-82-8 | Isopropylbenzene | 6 | 29.5 | UD | 6 | 6 | 30 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 6 | 41.2 | UD | 6 | 6 | 30 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 6 | 29.5 | UD | 6 | 6 | 30 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 6 | 29.5 | UD | 6 | 6 | 30 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 6 | 36.1 | UD | 6 | 6 | 30 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 6 | 44.5 | UD | 2.4 | 6 | 30 | ppbv |
| 91-20-3 | Naphthalene | 6 | 31.4 | UD | 2.4 | 6 | 30 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1608570 | | 6.63 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5084680 | | 8.31 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 4826800 | | 13.73 | | | | |

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072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019773.D | 60 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019774.D | 600 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-----|-----|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 18 | 46.0 | UD XDL | 18 | 18 | 300 | ppbv |
| 74-83-9 | Bromomethane | 60 | 232 | UD | 18 | 60 | 300 | ppbv |
| 75-09-2 | Methylene Chloride | 60 | 208 | UD | 30 | 60 | 300 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 60 | 237 | UD | 30 | 60 | 300 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 60 | 242 | UD | 24 | 60 | 300 | ppbv |
| 110-82-7 | Cyclohexane | 60 | 206 | UD | 60 | 60 | 300 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 18 | 113 | UD | 18 | 18 | 300 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 120 | 4.91 | UD | 60 | 120 | 600 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 60 | 237 | UD | 30 | 60 | 300 | ppbv |
| 67-66-3 | Chloroform | 66 | 322 | JD | 12 | 60 | 300 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 260 | 1418 | JD | 18 | 18 | 300 | ppbv |
| 71-43-2 | Benzene | 60 | 191 | UD | 24 | 60 | 300 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 60 | 242 | UD | 60 | 60 | 300 | ppbv |
| 79-01-6 | Trichloroethene | 3900 | 20959 | UD | 9 | 18 | 300 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 60 | 277 | UD XDL | 60 | 60 | 300 | ppbv |
| 75-27-4 | Bromodichloromethane | 60 | 401 | UD | 30 | 60 | 300 | ppbv |
| 108-88-3 | Toluene | 60 | 226 | UD | 30 | 60 | 300 | ppbv |
| 127-18-4 | Tetrachloroethene | 54 | 366 | JD | 18 | 18 | 300 | ppbv |
| 100-41-4 | Ethyl Benzene | 60 | 260 | UD | 60 | 60 | 300 | ppbv |
| 179601-23-1 | m/p-Xylene | 120 | 521 | UD | 60 | 120 | 600 | ppbv |
| 1330-20-7 | Total Xylenes | 180 | 781 | UD | 120 | 180 | 900 | ppbv |
| 95-47-6 | o-Xylene | 60 | 260 | UD | 60 | 60 | 300 | ppbv |
| 98-82-8 | Isopropylbenzene | 60 | 294 | UD | 60 | 60 | 300 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 60 | 412 | UD | 60 | 60 | 300 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 60 | 294 | UD | 60 | 60 | 300 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 60 | 294 | UD | 60 | 60 | 300 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 60 | 360 | UD | 60 | 60 | 300 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 60 | 445 | UD | 24 | 60 | 300 | ppbv |
| 91-20-3 | Naphthalene | 60 | 314 | UD | 24 | 60 | 300 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | 99% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1574630 | 6.63 |
| 540-36-3 | 1,4-Difluorobenzene | 4867630 | 8.31 |
| 3114-55-4 | Chlorobenzene-d5 | 4685760 | 13.73 |

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033

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG26-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-06DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019774.D | 600 | | 04/25/13 | VL042513 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

*WMA
072213*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG27-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019753.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.156 | 0.4 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 2.2 | 7.64 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.093 | 0.38 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.164 | 0.56 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.055 | 0.35 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.173 | 0.69 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.173 | 0.01 | J | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.593 | 2.9 | | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 24.8 | 135 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 6.7 | 21.4 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 19.5 | 104 | EXDL | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 5.2 | 19.6 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 39.7 | 269 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1.2 | 5.21 | | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 3.2 | 13.9 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 4.07 | 17.7 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.874 | 3.8 | | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.188 | 0.92 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | | |
|----------|-------------------------|-----|--|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.6 | | | 65 - 135 | 96% | SPK: 10 |
|----------|-------------------------|-----|--|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1736800 | 6.67 |
| 540-36-3 | 1,4-Difluorobenzene | 5714490 | 8.34 |
| 3114-55-4 | Chlorobenzene-d5 | 5378420 | 13.77 |

TENTITIVE IDENTIFIED COMPOUNDS

LM
012213

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG27-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-07 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019753.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG27-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-07DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019741.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 29.5 | 160 | D | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD XDL | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD XDL | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 19.3 | 103 | D XDL | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD XDL | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 1 | 3.77 | UD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 43.6 | 295 | D | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD XDL | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1695250 | | 6.68 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5956860 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5751000 | | 13.79 | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG27-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-07DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019741.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG28-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019754.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-------------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.8 | 6.25 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.156 | 0.54 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.082 | 0.33 | J | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.082 | 0.00 | J | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.083 | 0.41 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.696 | 3.8 | | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 3 | 9.58 | | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 1.2 | 6.45 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 3 | 11.3 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 59.3 | 402 | <i>EXDL</i> | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.495 | 2.15 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 1.3 | 5.65 | | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.72 | 7.45 | | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.416 | 1.81 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.257 | 1.26 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.3 | | | 65 - 135 | | 93% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1735840 | | 6.66 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5744970 | | 8.34 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5543650 | | 13.76 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG28-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-08 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019754.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG28-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-08DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019742.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|---------------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD <i>XDL</i> | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 1 | 4.88 | UD | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 0.3 | 1.64 | UD | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 2.3 | 7.35 | UD | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 1.1 | 5.91 | UD | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 1.9 | 7.16 | UD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 78.1 | 529 | UD | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD <i>XDL</i> | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1669280 | | 6.68 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5784700 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5670090 | | 13.79 | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG28-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-08DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019742.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG66-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019755.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-----------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 3.2 | 11.1 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.191 | 0.66 | J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.03 | 0.19 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 0.061 | 0.3 | J | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 5.1 | 27.8 | | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.143 | 0.46 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 1 | 5.37 | | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.52 | 1.96 | | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 6.1 | 41.4 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.125 | 0.54 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.125 | 0.54 | J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.114 | 0.6 | J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.3 | | | 65 - 135 | | 93% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1750830 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5858660 | | 8.33 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5556930 | | 13.76 | | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG66-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-09 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019755.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019756.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|----------------|---------------------------|------------|-------------|-----------|-------|------|------------|-------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 1.4 | 4.86 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.14 | 0.48 | J JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.07 | 0.44 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 6.2 | 30.3 | | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 37.1 | 202 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.123 | 0.39 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 87.7 | 471 | EXDL | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 1.2 | 4.52 | JFD | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 19.5 | 132 | EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.276 | 1.2 | J JFD | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.904 | 3.93 | J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 1.28 | 5.58 | J J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.38 | 1.65 | J J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.108 | 0.57 | J JFD | 0.04 | 0.1 | 0.5 | ppbv |

SURROGATES

| | | | | | | |
|----------|-------------------------|-----|--|----------|-----|---------|
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.4 | | 65 - 135 | 94% | SPK: 10 |
|----------|-------------------------|-----|--|----------|-----|---------|

INTERNAL STANDARDS

| | | | |
|-----------|---------------------|---------|-------|
| 74-97-5 | Bromochloromethane | 1605950 | 6.65 |
| 540-36-3 | 1,4-Difluorobenzene | 5514720 | 8.34 |
| 3114-55-4 | Chlorobenzene-d5 | 5326440 | 13.76 |

TENTATIVE IDENTIFIED COMPOUNDS

Handwritten: WJ 072213 045

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019756.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

Handwritten signature and date: WJ 07/22/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019744.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.3 | 0.77 | UD XDL | 0.3 | 0.3 | 5 | ppbv |
| 74-83-9 | Bromomethane | 1 | 3.88 | UD | 0.3 | 1 | 5 | ppbv |
| 75-09-2 | Methylene Chloride | 1 | 3.47 | UD | 0.5 | 1 | 5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 1 | 4.05 | UD | 0.4 | 1 | 5 | ppbv |
| 110-82-7 | Cyclohexane | 1 | 3.44 | UD | 1 | 1 | 5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.3 | 1.89 | UD | 0.3 | 0.3 | 5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 1 | 3.96 | UD | 0.5 | 1 | 5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 2 | 0.08 | UD | 1 | 2 | 10 | ppbv |
| 67-66-3 | Chloroform | 5.2 | 25.4 | D | 0.2 | 1 | 5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 39.3 | 214 | D | 0.3 | 0.3 | 5 | ppbv |
| 71-43-2 | Benzene | 1 | 3.19 | UD XDL | 0.4 | 1 | 5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 1 | 4.05 | UD | 1 | 1 | 5 | ppbv |
| 79-01-6 | Trichloroethene | 290 | 1558 | ED | 0.15 | 0.3 | 5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 1 | 4.62 | UD | 1 | 1 | 5 | ppbv |
| 75-27-4 | Bromodichloromethane | 1 | 6.7 | UD | 0.5 | 1 | 5 | ppbv |
| 108-88-3 | Toluene | 0.86 | 3.24 | JD | 0.5 | 1 | 5 | ppbv |
| 127-18-4 | Tetrachloroethene | 15 | 101 | D | 0.3 | 0.3 | 5 | ppbv |
| 100-41-4 | Ethyl Benzene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 179601-23-1 | m/p-Xylene | 2 | 8.69 | UD XDL | 1 | 2 | 10 | ppbv |
| 1330-20-7 | Total Xylenes | 3 | 13.0 | UD | 2 | 3 | 15 | ppbv |
| 95-47-6 | o-Xylene | 1 | 4.34 | UD | 1 | 1 | 5 | ppbv |
| 98-82-8 | Isopropylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1 | 6.87 | UD | 1 | 1 | 5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 1 | 4.92 | UD | 1 | 1 | 5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 1 | 6.01 | UD | 1 | 1 | 5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 1 | 7.42 | UD | 0.4 | 1 | 5 | ppbv |
| 91-20-3 | Naphthalene | 1 | 5.24 | UD | 0.4 | 1 | 5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.8 | | | 65 - 135 | | 98% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1688420 | | 6.67 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5724390 | | 8.35 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5557000 | | 13.78 | | | | |

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Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019744.D | 10 | | 04/24/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019757.D | 40 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|---------------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 1.2 | 3.07 | UD <i>XDL</i> | 1.2 | 1.2 | 20 | ppbv |
| 74-83-9 | Bromomethane | 4 | 15.5 | UD | 1.2 | 4 | 20 | ppbv |
| 75-09-2 | Methylene Chloride | 4 | 13.9 | UD | 2 | 4 | 20 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 4 | 16.2 | UD | 1.6 | 4 | 20 | ppbv |
| 110-82-7 | Cyclohexane | 4 | 13.8 | UD | 4 | 4 | 20 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1.2 | 7.55 | UD | 1.2 | 1.2 | 20 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 8 | 0.327 | UD | 4 | 8 | 40 | ppbv |
| 67-66-3 | Chloroform | 4 | 19.5 | UD | 0.8 | 4 | 20 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 25.7 | 140 | D | 1.2 | 1.2 | 20 | ppbv |
| 71-43-2 | Benzene | 4 | 12.8 | UD | 1.6 | 4 | 20 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 4 | 16.2 | UD | 4 | 4 | 20 | ppbv |
| 79-01-6 | Trichloroethene | 210 | 1128 | D | 0.6 | 1.2 | 20 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 4 | 18.5 | UD <i>XDL</i> | 4 | 4 | 20 | ppbv |
| 75-27-4 | Bromodichloromethane | 4 | 26.8 | UD | 2 | 4 | 20 | ppbv |
| 108-88-3 | Toluene | 4 | 15.1 | UD | 2 | 4 | 20 | ppbv |
| I27-18-4 | Tetrachloroethene | 9.4 | 63.7 | UD | 1.2 | 1.2 | 20 | ppbv |
| 100-41-4 | Ethyl Benzene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 1330-20-7 | Total Xylenes | 12 | 52.1 | UD | 8 | 12 | 60 | ppbv |
| 179601-23-1 | m/p-Xylene | 8 | 34.8 | UD | 4 | 8 | 40 | ppbv |
| 95-47-6 | o-Xylene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 98-82-8 | Isopropylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 4 | 27.5 | UD | 4 | 4 | 20 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 4 | 24.0 | UD | 4 | 4 | 20 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 4 | 29.7 | UD | 1.6 | 4 | 20 | ppbv |
| 91-20-3 | Naphthalene | 4 | 21.0 | UD | 1.6 | 4 | 20 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1751480 | | 6.65 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5884130 | | 8.32 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5582160 | | 13.74 | | | | |

Handwritten signature and date: 07/21/13 049

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67-13BDL2 | SDG No.: | E1909 |
| Lab Sample ID: | E1909-10DL2 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019757.D | 40 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

WM
022030

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67D-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019758.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------------------|---------------------------|------------|-------------|-------------------|----------|------|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 0.03 | 0.08 | U | 0.03 | 0.03 | 0.5 | ppbv |
| 74-83-9 | Bromomethane | 0.1 | 0.39 | U | 0.03 | 0.1 | 0.5 | ppbv |
| 75-09-2 | Methylene Chloride | 3 | 10.4 | | 0.05 | 0.1 | 0.5 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 0.1 | 0.4 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 110-82-7 | Cyclohexane | 0.1 | 0.34 | U J | 0.1 | 0.1 | 0.5 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 0.066 | 0.42 | J | 0.03 | 0.03 | 0.5 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 0.1 | 0.4 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 0.2 | 0.01 | U | 0.1 | 0.2 | 1 | ppbv |
| 67-66-3 | Chloroform | 4.6 | 22.5 | | 0.02 | 0.1 | 0.5 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 29.9 | 163 | U EXDL | 0.03 | 0.03 | 0.5 | ppbv |
| 71-43-2 | Benzene | 0.112 | 0.36 | J | 0.04 | 0.1 | 0.5 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 0.1 | 0.4 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-01-6 | Trichloroethene | 78.9 | 424 | U EXDL | 0.015 | 0.03 | 0.5 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 0.1 | 0.46 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 75-27-4 | Bromodichloromethane | 0.1 | 0.67 | U | 0.05 | 0.1 | 0.5 | ppbv |
| 108-88-3 | Toluene | 0.245 | 0.92 | U J | 0.05 | 0.1 | 0.5 | ppbv |
| 127-18-4 | Tetrachloroethene | 14.4 | 97.6 | | 0.03 | 0.03 | 0.5 | ppbv |
| 100-41-4 | Ethyl Benzene | 0.1 | 0.43 | U J | 0.1 | 0.1 | 0.5 | ppbv |
| 179601-23-1 | m/p-Xylene | 0.2 | 0.87 | U J | 0.1 | 0.2 | 1 | ppbv |
| 1330-20-7 | Total Xylenes | 0.3 | 1.3 | U J | 0.2 | 0.3 | 1.5 | ppbv |
| 95-47-6 | o-Xylene | 0.1 | 0.43 | U J | 0.1 | 0.1 | 0.5 | ppbv |
| 98-82-8 | Isopropylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.1 | 0.69 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.1 | 0.49 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 0.1 | 0.6 | U | 0.1 | 0.1 | 0.5 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.1 | 0.74 | U | 0.04 | 0.1 | 0.5 | ppbv |
| 91-20-3 | Naphthalene | 0.1 | 0.52 | U J | 0.04 | 0.1 | 0.5 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.5 | | | 65 - 135 | | 95% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | | 1710740 | | 6.64 | | | |
| 540-36-3 | 1,4-Difluorobenzene | | 5742680 | | 8.33 | | | |
| 3114-55-4 | Chlorobenzene-d5 | | 5644380 | | 13.74 | | | |
| TENTITIVE IDENTIFIED COMPOUNDS | | | | | | | | |

*LM
07/25/13*

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67D-13B | SDG No.: | E1909 |
| Lab Sample ID: | E1909-11 | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 | Units: | mL |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019758.D | 1 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|-------------|------------------|---------------|----------------|-----------|-----|-----|------------|-------|
| 000108-20-3 | Diisopropylether | 1 | | U | | | 4.47 | ppbv |

U = Not Detected

RL = Reporting Limit

MDL = Method Detection Limit

E = Value Exceeds Calibration Range

D = Dilution

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

Q = indicates LCS control criteria did not meet requirements

WMT
072213
072052

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67D-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-11DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019759.D | 40 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|---------------------------|---------------------------|------------|-------------|-----------|----------|-----|------------|---------|
| TARGETS | | | | | | | | |
| 75-01-4 | Vinyl Chloride | 1.2 | 3.07 | UD XDL | 1.2 | 1.2 | 20 | ppbv |
| 74-83-9 | Bromomethane | 4 | 15.5 | UD | 1.2 | 4 | 20 | ppbv |
| 75-09-2 | Methylene Chloride | 4 | 13.9 | UD | 2 | 4 | 20 | ppbv |
| 156-60-5 | trans-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 75-34-3 | 1,1-Dichloroethane | 4 | 16.2 | UD | 1.6 | 4 | 20 | ppbv |
| 110-82-7 | Cyclohexane | 4 | 13.8 | UD | 4 | 4 | 20 | ppbv |
| 56-23-5 | Carbon Tetrachloride | 1.2 | 7.55 | UD | 1.2 | 1.2 | 20 | ppbv |
| 156-59-2 | cis-1,2-Dichloroethene | 4 | 15.9 | UD | 2 | 4 | 20 | ppbv |
| 540-59-0 | Total 1,2-Dichloroethene | 8 | 0.327 | UD | 4 | 8 | 40 | ppbv |
| 67-66-3 | Chloroform | 4 | 19.5 | UD | 0.8 | 4 | 20 | ppbv |
| 71-55-6 | 1,1,1-Trichloroethane | 25.5 | 139 | UD | 1.2 | 1.2 | 20 | ppbv |
| 71-43-2 | Benzene | 4 | 12.8 | UD XDL | 1.6 | 4 | 20 | ppbv |
| 107-06-2 | 1,2-Dichloroethane | 4 | 16.2 | UD XDL | 4 | 4 | 20 | ppbv |
| 79-01-6 | Trichloroethene | 220 | 1182 | UD | 0.6 | 1.2 | 20 | ppbv |
| 78-87-5 | 1,2-Dichloropropane | 4 | 18.5 | UD XDL | 4 | 4 | 20 | ppbv |
| 75-27-4 | Bromodichloromethane | 4 | 26.8 | UD | 2 | 4 | 20 | ppbv |
| 108-88-3 | Toluene | 4 | 15.1 | UD | 2 | 4 | 20 | ppbv |
| 127-18-4 | Tetrachloroethene | 9.7 | 65.8 | UD | 1.2 | 1.2 | 20 | ppbv |
| 100-41-4 | Ethyl Benzene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 1330-20-7 | Total Xylenes | 12 | 52.1 | UD | 8 | 12 | 60 | ppbv |
| 179601-23-1 | m/p-Xylene | 8 | 34.8 | UD | 4 | 8 | 40 | ppbv |
| 95-47-6 | o-Xylene | 4 | 17.4 | UD | 4 | 4 | 20 | ppbv |
| 98-82-8 | Isopropylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 4 | 27.5 | UD | 4 | 4 | 20 | ppbv |
| 108-67-8 | 1,3,5-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 95-63-6 | 1,2,4-Trimethylbenzene | 4 | 19.7 | UD | 4 | 4 | 20 | ppbv |
| 106-46-7 | 1,4-Dichlorobenzene | 4 | 24.0 | UD | 4 | 4 | 20 | ppbv |
| 120-82-1 | 1,2,4-Trichlorobenzene | 4 | 29.7 | UD | 1.6 | 4 | 20 | ppbv |
| 91-20-3 | Naphthalene | 4 | 21.0 | UD | 1.6 | 4 | 20 | ppbv |
| SURROGATES | | | | | | | | |
| 460-00-4 | 1-Bromo-4-Fluorobenzene | 9.9 | | | 65 - 135 | | 99% | SPK: 10 |
| INTERNAL STANDARDS | | | | | | | | |
| 74-97-5 | Bromochloromethane | 1713170 | | 6.64 | | | | |
| 540-36-3 | 1,4-Difluorobenzene | 5532890 | | 8.32 | | | | |
| 3114-55-4 | Chlorobenzene-d5 | 5225880 | | 13.74 | | | | |

Handwritten signature and date:
 WMB
 07/25/13

Report of Analysis

| | | | |
|--------------------|-----------------------|-----------------|--------------|
| Client: | CH2M Hill | Date Collected: | 04/16/13 |
| Project: | CTO WE19 Camp Lejeune | Date Received: | 04/18/13 |
| Client Sample ID: | IR78-SG67D-13BDL | SDG No.: | E1909 |
| Lab Sample ID: | E1909-11DL | Matrix: | Air |
| Analytical Method: | TO-15 | Test: | VOCMS Group2 |
| Sample Wt/Vol: | 400 Units: mL | | |

| | | | | |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| VL019759.D | 40 | | 04/25/13 | VL042413 |

| CAS Number | Parameter | Conc. ppbv | Conc. ug/M3 | Qualifier | MDL | LOD | LOQ / CRQL | Units |
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|
|------------|-----------|---------------|----------------|-----------|-----|-----|------------|-------|

U = Not Detected
 RL = Reporting Limit
 MDL = Method Detection Limit
 E = Value Exceeds Calibration Range
 D = Dilution

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 N = Presumptive Evidence of a Compound
 * = Values outside of QC limits
 Q = indicates LCS control criteria did not meet requirements

LM
072213
054

Data Completeness

The data package was received intact and complete. Resubmissions were not required. (Method TO-15)

Laboratory: Chemtech

Holding Times

Sampling Date: 4/15-16/13
 Received Date: 4/18/13
 Analysis Dates: 4/24-25/13

All holding time requirements were met.

Calibrations

Mass assignments were verified by the injection of BFB. No qualifications were required for the initial and continuing calibrations.

Internal Standards

All criteria were met.

Blank Summary

Blank qualification guidelines:

- No action is taken if a compound is found in the blank but not in the sample.
- Sample weight, volume or dilution factor must be taken into consideration when applying criteria.
- Qualification/Action codes where applied as stated in table below:
-

| Blank Type | Blank Result | Sample Result | Action for Samples |
|---------------|---------------------|--------------------------------|---|
| Method, Field | Detects | Not detected | No qualifications |
| | < RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | > RL | < RL | Report RL value with a U |
| | | ≥ RL and < blank concentration | Report the concentration for the sample with a U, or qualify the data as unusable R |
| | | ≥ RL and ≥ blank concentration | Use professional judgment |
| | = RL | < RL | Report RL value with a U |
| | | ≥ RL | Use professional judgment |
| | Gross contamination | Detects | Qualify results as unusable R |

No contamination was exhibited the method blanks associated with these samples. There was no field QC associated with this data package.

Blank Contamination and Qualification Summaries

| Blank ID | Compound | Concentration | Reporting Limit |
|----------|----------|---------------|-----------------|
| | | | |

Associated samples and required qualifications are noted in the following table.

| Sample ID | Compound | Q Flag | Qual Code |
|-------------------|----------|--------|-----------|
| no qualifications | | | |

Surrogates

All criteria were met.

Laboratory Control Sample

All criteria were met.

Matrix Spike/Spike Duplicate Samples

An MS/MSD was not submitted for this data package.

Field Duplicate Sample Summary

A field duplicate was submitted for IR78-SG67-13B- qualifications were required, see attached sheet.

Specific Comments:

All sample results were reported within the calibration range of the instruments. Dilutions were required for samples SWMU360-SG21-13B, SWMU360-SG22-13B, IR96-SG01-13B, IR96-SG02-13B, IR78-SG25-13B, IR78-SG26-13B, IR78-SG27-13B, IR78-SG28-13B, IR78-SG67-13B and IR78-SG67D-13B to obtain results within the calibration range.

Detection limits were acceptable. Raw data and calculations were verified.

We have limited the supporting documentation, found with these worksheets, to those forms that indicate qualifications were required.

Reviewer _____



Date: 7.22.13

SDG# E1909
MCB Camp Lejeune, CTO-WE19
TO-15
Page 2

FIELD DUPLICATE SAMPLE SUMMARY

Sample ID: IR78-SG67-13B
Duplicate Sample ID: IR78-SG67D-13B

Air: RPD>75%

| Compound | Sample Conc. | Dup. Sample Conc. | %RPD |
|-----------------------|--------------|-------------------|---------|
| methylene chloride | 1.4 | 3 | 73 |
| carbon tetrachloride | 0.07 | 0.066 | 6 |
| benzene | 0.123 | 0.112 | 9 |
| trichloroethene | 210 | 220 | 5 |
| toluene | 1.2 | 0.245 | 132 |
| tetrachloroethene | 15 | 14.4 | 4 |
| ethyl benzene | 0.276 | | 200 |
| m,p-xylene | 0.904 | | 200 |
| total xylene | 1.28 | | 200 |
| o-xylene | 0.38 | | 200 |
| cyclohexane | 0.14 | | 200 |
| chloroform | 6.2 | 4.6 | 30 |
| 1,1,1-trichloroethane | 39.3 | 25.5 | 43 |
| naphthalene | 0.108 | | 200 |
| | | | #DIV/0! |

COMMENTS: Qualify toluene, ethyl benzene, m,p-xylene, o-xylene, total xylene
naphthalene and cyclohexane as estimated (J/UJ).

* result below the LOD
only results above the LOD are listed

DataQual

VOA TO-15

Initial Calibration Date: 4/22/2013**RRF and %RSD Calculations:**

Compound Name: vinyl chloride

Lab Value: 0.867

| | |
|-----------------------|---------|
| Area of Compound | 103079 |
| Area of Internal STD | 2377628 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 0.5 |
| Calculated RRF | 0.867 |

Compound Name: toluene

Lab Value: 16.40

| | |
|------------------|--------|
| RRF of STD 1 | 1.1390 |
| RRF of STD 2 | 1.4670 |
| RRF of STD 3 | 1.4580 |
| RRF of STD 4 | 1.4440 |
| RRF of STD 5 | 1.0110 |
| Calculated % RSD | 16.40 |

Continuing Calibration File ID: 4/24/2013**RRF and %D Calculations:**

Compound Name: trichloroethene

Lab Value: 0.390

| | |
|-----------------------|---------|
| Area of Compound | 2595074 |
| Area of Internal STD | 6654781 |
| Conc. of Internal STD | 10 |
| Conc. of Compound | 10 |
| Calculated RRF | 0.390 |

Compound Name: methylene choride

Lab Value: 5.7

| | |
|-----------------------|-------|
| Average RRF | 0.769 |
| Calibration Check RRF | 0.725 |
| Calculated % D | 5.7 |

CASE NARRATIVE**CH2M Hill****Project Name: CTO WE19 Camp Lejeune****Project # N/A****Chemtech Project # E1909****Test Name: VOCMS Group2****A. Number of Samples and Date of Receipt:**

11 Air samples were received on 04/18/2013.

B. Parameters

According to the Chain of Custody document, the following analyses were requested: SUMMA Canister Rental and VOCMS Group2. This data package contains results for VOCMS Group2.

C. Analytical Techniques:

The analysis performed on instrument MSVOA_L were done using GC column RTX-1, which is 60 meters, 0.32 mm id, 1.0 um df, Restek Cat. #10157. The Trap was supplied by Entech, glass bead and Tenax , Entech 7100A Preconcentrator. The analysis of VOCMS Group2 was based on method TO-15.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike met requirements for all samples .

The Blank analysis did not indicate the presence of lab contamination.

The Initial Calibration met the requirements .

The Continuous Calibration met the requirements .

The Tuning criteria met requirements.

Samples SWMU360-SG21-13B, SWMU360-SG22-13B, IR96-SG01-13B, IR96-SG02-13B, IR78-SG25-13B, IR78-SG25-13BDL, IR78-SG26-13B, IR78-SG26-13BDL, IR78-SG27-13B, IR78-SG28-13B, IR78-SG67-13B, IR78-SG67-13BDL and IR78-SG67D-13B were diluted due to high concentrations.

E. Additional Comments:

The Manual Integrations are performed for the followings:

| Sequence | | VL042213 | | Instrument | | | MSVOA_I | |
|-----------|---------|-----------|-----------|------------|---------------|---------------|---------|--|
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason | |
| | | | | | | | | |

| | | | | | | | |
|-----------------|----------------|-----------------------------------|-----|-------------------------|----------|-------------------------|--|
| VSTDICCC01 0 | VL019673. D | 1,2- Dibromoethane | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC01 0 | VL019673. D | Chlorobenzene- d5 | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC01 0 | VL019673. D | m/p-Xylene | sam | 4/23/2013 1:26:56 PM | Prashant | 4/24/2013 2:40:35 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC002 | VL019674. D | 1,2- Dibromoethane | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC002 | VL019674. D | 1,4- Difluorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC002 | VL019674. D | Chlorobenzene | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC002 | VL019674. D | Chlorobenzene- d5 | sam | 4/22/2013 8:20:09 PM | Prashant | 4/24/2013 2:40:41 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC001 | VL019675. D | 1,1,1,2- Tetrachloroethan e | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC001 | VL019675. D | Chlorobenzene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrat ed by Software incorrect ly |
| VSTDICCC001 | VL019675. D | Chlorobenzene- d5 | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Peak Integrat ed by |

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| | | | | | | | |
|-----------|------------|-------------|-----|----------------------|----------|----------------------|---|
| VSTDIC001 | VL019675.D | Naphthalene | sam | 4/22/2013 8:20:14 PM | Prashant | 4/24/2013 2:40:46 PM | Software incorrectly Peak Integrated by Software incorrectly |
|-----------|------------|-------------|-----|----------------------|----------|----------------------|---|

| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|------------|------------|---------------------------|-----------|----------------------|---------------|----------------------|---|
| VSTDICCO15 | VL019676.D | 1,4-Difluorobenzene | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019676.D | Chlorobenzene-d5 | sam | 4/22/2013 8:21:20 PM | Prashant | 4/24/2013 2:40:52 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019677.D | 1,1,1,2-Tetrachloroethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019677.D | Chlorobenzene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019677.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019677.D | Dibromochloromethane | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICCO15 | VL019677.D | Toluene | sam | 4/22/2013 8:20:55 PM | Prashant | 4/24/2013 2:40:57 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | 1,1,1,2-Tetrachloroethane | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Bromoform | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Chlorobenzene-d5 | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| VSTDICV010 | VL019678.D | Dibromochloromethane | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |

| | | | |
|----------|----------|------------|---------|
| Sequence | VL042213 | Instrument | MSVOA_I |
|----------|----------|------------|---------|

| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|--------------|------------|-------------------------|-----------|---------------------------|---------------|-------------------------|---|
| VSTDICV010 | VL019678.D | Toluene | sam | 4/22/2013 8:20:19 PM | Prashant | 4/24/2013 2:41:03 PM | Peak Integrated by Software incorrectly |
| 0.1 PPBV RPT | VL019685.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Peak missed by the software |
| 0.1 PPBV RPT | VL019685.D | m/p-Xylene | shreena | 4/23/2013 8:37:16 AM | AHPatel | 4/25/2013 7:00:37 AM | Incorrect baseline |
| 0.03PPBV RPT | VL019686.D | 1,4-Difluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | 1-Bromo-4-Fluorobenzene | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Bromochloromethane | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| 0.03PPBV RPT | VL019686.D | Chlorobenzene-d5 | shreena | 4/23/2013 8:37:32 AM | AHPatel | 4/25/2013 7:00:39 AM | Peak missed by the software |
| Sequence | VL042313 | Instrument | MSVOA_I | | | | |
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
| VSTDCCC010 | VL019702.D | Chlorobenzene-d5 | sam | 4/24/2013 3 1:21:43 PM | Prashant | 4/24/2013 2:43:21 PM | Peak Integrated by Software incorrectly |
| VL0423ABL | VL019703.D | Bromochloromethane | sam | 4/24/2013 3 2:00:10 PM | Prashant | 4/24/2013 2:43:25 PM | Peak Integrated by Software incorrectly |
| VL0423ABS | VL019704.D | Chlorobenzene | sam | 4/24/2013 3 1:21:53 PM | Prashant | 4/24/2013 2:43:32 PM | Peak Integrated by Software incorrectly |
| VL0423ABS | VL019704.D | Chlorobenzene-d5 | sam | 4/24/2013 3 1:21:53 PM | Prashant | 4/24/2013 2:43:32 PM | Peak Integrated by Software incorrectly |
| E1909-01 | VL019725.D | Dichlorodifluoromethane | shreena | 4/24/2013 9:01:13 AM | sam | 4/24/2013 2:00:47 PM | Coelution Of the peak |
| E1909-01DL | VL019726.D | 1,2,4-Trimethylbenzene | shreena | 4/24/2013 9:01:19 AM | sam | 4/24/2013 2:01:15 PM | Incorrect baseline |
| E1909- | VL019727.D | 1,2,4-Trimethylbenzene | shreena | 4/24/2013 | sam | 4/24/2013 | Incorrect |

| | | | | | | | |
|------------|------------|---------------------|---------|-------------------------|-----|-------------------------|-----------------------------|
| 02 | | | | 9:01:40 AM | | 1:59:49 PM | baseline |
| E1909-02 | VL019727.D | Chloromethane | shreena | 4/24/2013 9:01:40 AM | sam | 4/24/2013 1:59:49 PM | Coelution Of the peak |
| E1909-02DL | VL019728.D | 1,4-Difluorobenzene | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak missed by the software |

| Sequence | | VL04231 | | Instrument | | MSVOA_I | |
|------------|------------|-------------------------|-----------|-------------------------|---------------|-------------------------|---|
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
| E1909-02DL | VL019728.D | 1-Bromo-4-Fluorobenzene | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak missed by the software |
| E1909-02DL | VL019728.D | 2-Butanone | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak Integrated by Software incorrectly |
| E1909-02DL | VL019728.D | Bromochloromethane | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak missed by the software |
| E1909-02DL | VL019728.D | Chlorobenzene-d5 | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak missed by the software |
| E1909-02DL | VL019728.D | Tetrachloroethene | shreena | 4/24/2013 9:02:02 AM | sam | 4/24/2013 2:00:53 PM | Peak missed by the software |
| E1909-03 | VL019729.D | 1,2,4-Trimethylbenzene | shreena | 4/24/2013 9:02:07 AM | sam | 4/24/2013 2:00:58 PM | Incorrect baseline |
| E1909-04 | VL019731.D | 1,2,4-Trimethylbenzene | shreena | 4/24/2013 9:04:31 AM | sam | 4/24/2013 1:58:23 PM | Incorrect baseline |
| E1909-04 | VL019731.D | Bromochloromethane | shreena | 4/24/2013 9:04:31 AM | sam | 4/24/2013 1:58:23 PM | Peak missed by the software |
| E1909-04 | VL019731.D | Cyclohexane | shreena | 4/24/2013 9:04:31 AM | sam | 4/24/2013 1:58:23 PM | Peak missed by the software |
| E1909-04 | VL019731.D | Tetrahydrofuran | shreena | 4/24/2013 9:04:31 AM | sam | 4/24/2013 1:58:23 PM | Coelution Of the peak |

| Sequence | | VL04241 | | Instrument | | MSVOA_I | |
|----------|--|---------|--|------------|--|---------|--|
| | | 3 | | | | | |

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| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|------------|------------|-------------------------|-----------|----------------------|---------------|----------------------|-----------------------------|
| VSTDC010 | VL019737.D | 1,2-Dibromethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VSTDC010 | VL019737.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Coelution Of the peak |
| VSTDC010 | VL019737.D | Dibromochloromethane | sam | 4/25/2013 2:38:00 PM | AHPatel | 4/30/2013 2:14:17 AM | Peak missed by the software |
| VL0424AB.L | VL019738.D | 1,4-Difluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424AB.L | VL019738.D | 1-Bromo-4-Fluorobenzene | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424AB.L | VL019738.D | Chlorobenzene-d5 | sam | 4/25/2013 2:38:19 PM | AHPatel | 4/30/2013 2:14:20 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | 1,1,2-Trichloroethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | 1,2-Dichlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | 1,4-Dichlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | Bromoform | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | Chlorobenzene | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |

| Sequence | VL042413 | Instrument | MSVOA_I | | | | |
|------------|------------|-------------------------|-----------|----------------------|---------------|----------------------|-----------------------------|
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
| VL0424AB.S | VL019739.D | Chlorobenzene-d5 | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| VL0424AB.S | VL019739.D | Dibromochloromethane | sam | 4/25/2013 2:40:00 PM | AHPatel | 4/30/2013 2:14:22 AM | Peak missed by the software |
| E1909-04DL | VL019740.D | 1-Bromo-4-Fluorobenzene | sam | 4/25/2013 2:39:24 PM | AHPatel | 4/30/2013 2:14:24 AM | Peak missed by the software |
| E1909- | VL019740 | Bromochloro | sam | 4/25/2013 | AHPatel | 4/30/2013 | Peak missed by the |

| | | | | | | | |
|------------|------------|---------------------|---------|----------------------|---------|----------------------|-----------------------------|
| E1909-04DL | .D | Chlorobenzene | shreena | 3 2:39:24 PM | | 2:14:24 AM | software |
| E1909-04DL | VL019740.D | Chlorobenzene-d5 | sam | 4/25/2013 2:39:24 PM | AHPatel | 4/30/2013 2:14:24 AM | Peak missed by the software |
| E1909-07DL | VL019741.D | Bromochlorobenzene | sam | 4/25/2013 2:40:15 PM | AHPatel | 4/30/2013 2:14:39 AM | Peak missed by the software |
| E1909-07DL | VL019741.D | Chlorobenzene-d5 | sam | 4/25/2013 2:40:15 PM | AHPatel | 4/30/2013 2:14:39 AM | Peak missed by the software |
| E1909-08DL | VL019742.D | 1,4-Difluorobenzene | shreena | 4/25/2013 2:17:31 AM | sam | 4/25/2013 2:40:28 PM | Peak missed by the software |
| E1909-08DL | VL019742.D | Bromochlorobenzene | shreena | 4/25/2013 2:17:31 AM | sam | 4/25/2013 2:40:28 PM | Peak missed by the software |
| E1909-08DL | VL019742.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:31 AM | sam | 4/25/2013 2:40:28 PM | Peak missed by the software |
| E1909-09 | VL019743.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:19 AM | sam | 4/25/2013 2:40:37 PM | Peak missed by the software |
| E1909-10DL | VL019744.D | Chlorobenzene-d5 | shreena | 4/25/2013 2:17:24 AM | sam | 4/25/2013 2:41:44 PM | Peak missed by the software |

| | | | |
|----------|--------------|------------|---------|
| Sequence | VL04241 3 | Instrument | MSVOA_I |
|----------|--------------|------------|---------|

| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
|------------|------------|-----------------|-----------|----------------------|---------------|----------------------|-----------------------------|
| E1909-10DL | VL019744.D | Trichloroethane | shreena | 4/25/2013 2:17:24 AM | sam | 4/25/2013 2:41:44 PM | Peak missed by the software |

| | | | | | | | |
|----------|------------|-----------------------|---------|----------------------|-----|----------------------|-----------------------------|
| E1909-07 | VL019753.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:43:41 AM | sam | 4/25/2013 2:42:31 PM | Peak missed by the software |
| E1909-08 | VL019754.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:43:45 AM | sam | 4/25/2013 2:42:49 PM | Peak missed by the software |
| E1909-09 | VL019755.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:43:48 AM | sam | 4/25/2013 2:43:22 PM | Peak missed by the software |
| E1909-10 | VL019756.D | 1,1,1-Trichloroethane | shreena | 4/25/2013 7:44:03 AM | sam | 4/25/2013 2:42:56 PM | Peak missed by the software |
| E1909- | VL01975 | 1,4- | shreena | 4/25/2013 | sam | 4/25/2013 | Peak missed by the software |

CHEMTECH

284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

2
B.1

| | | | | | | | |
|----------|----------------|------------------|---------|----------------------------|-----|----------------------------|---|
| 10 | 6.D | Difluorobenzene | | 3 7:44:03 AM | | 3 2:42:56 PM | |
| E1909-10 | VL01975 6.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:44:03 AM | sam | 4/25/2013 2:42:56 PM | Peak missed by the software |
| E1909-10 | VL01975 6.D | Ethyl Acetate | shreena | 4/25/2013 7:44:03 AM | sam | 4/25/2013 2:42:56 PM | Peak Integrated by Software incorrectly |

| Sequence | | VL04241 3 | | Instrument | | MSVOA_I | |
|-------------|----------------|---------------------|-----------|----------------------------|---------------|-------------------------|-----------------------------|
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
| E1909-10 | VL01975 6.D | Trichloroethene | shreena | 4/25/2013 7:44:03 AM | sam | 4/25/2013 2:42:56 PM | Peak missed by the software |
| E1909-10DL2 | VL01975 7.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:44:29 AM | sam | 4/25/2013 2:43:28 PM | Peak missed by the software |
| E1909-10DL2 | VL01975 7.D | Trichloroethene | shreena | 4/25/2013 7:44:29 AM | sam | 4/25/2013 2:43:28 PM | Peak missed by the software |
| E1909-11 | VL01975 8.D | Chlorobenzene-d5 | shreena | 4/25/2013 7:44:40 AM | sam | 4/25/2013 2:43:05 PM | Peak missed by the software |
| E1909-11 | VL01975 8.D | Trichloroethene | shreena | 4/25/2013 7:44:40 AM | sam | 4/25/2013 2:43:05 PM | Incorrect baseline |
| E1909-11DL | VL01975 9.D | 1,4-Difluorobenzene | shreena | 4/25/2013 8:24:52 AM | sam | 4/25/2013 2:43:09 PM | Peak missed by the software |
| E1909-11DL | VL01975 9.D | Chlorobenzene-d5 | shreena | 4/25/2013 8:24:52 AM | sam | 4/25/2013 2:43:09 PM | Peak missed by the software |

| Sequence | | VL04251 3 | | Instrument | | MSVOA_I | |
|------------|----------------|--------------|-----------|----------------------------|---------------|----------------------------|--------------------|
| Sample ID | File ID | Parameter | Review By | Review On | Supervised By | Supervised On | Reason |
| VSTDCCC010 | VL01976 5.D | 1,4-Dioxane | sam | 4/25/2013 5:23:21 PM | AHPatel | 4/27/2013 1:54:35 AM | Incorrect baseline |

| | | | | | | | |
|-----------------|----------------|------------------|-----|----------------------------|---------|----------------------------|-----------------------|
| IVSTDCCC 010 | VL01976 5.D | Chlorobenzene-d5 | sam | 4/25/2013 5:23:21 PM | AHPatel | 4/27/2013 1:54:35 AM | Coelution Of the peak |
| VL0425A BS | VL01976 7.D | 1,4-Dioxane | sam | 4/25/2013 5:23:42 PM | AHPatel | 4/27/2013 1:54:37 AM | Incorrect baseline |
| VL0425A BS | VL01976 7.D | Chlorobenzene-d5 | sam | 4/25/2013 5:23:42 PM | AHPatel | 4/27/2013 1:54:37 AM | Coelution Of the peak |

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2013.05.10 07:33:04 -05'00'

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Results Qualifiers" are used:

| | |
|-------|--|
| Value | If the result is a value greater than or equal to the detection limit, report the value |
| U | Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10 U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required. |
| ND | Indicates the analyte was analyzed for, but not detected |
| J | Indicates an estimated value. This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3 ug/L was calculated report as 3 J. This is flag is used when similar situation arise on any organic parameter i.e. Pest, PCB and others. |
| B | Indicates the analyte was found in the blank as well as the sample report as "12 B". |
| E | Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis. |
| D | This flag identifies all compounds identified in an analysis at a secondary dilution factor. |
| P | This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form 1 and flagged with a "P". |
| N | This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used. |
| A | This flag indicates that a Tentatively Identified Compound is a suspected aldol-condensation product. |
| Q | Indicates the LCS did not meet the control limits requirements |

APPENDIX A**QA REVIEW GENERAL DOCUMENTATION**

Project #: E1909

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

1st Level QA Review Signature:

MOHINI SONI

Date: 05/03/2013

2nd Level QA Review Signature:

Kalpana RaythatthaDigitally signed by Kalpana Raythattha
DN: cn=Kalpana Raythattha, o=CHEMTECH, ou=QC, email=kalpana@chemtech.net, c=US
Date: 2013.05.03 15:55 -05'00'

| CH2M HILL <small>12750 Merit Drive Suite 1700 Dallas, TX Tel No. (214) 344-7229 Fax No. (214) 214-2814</small> | | CHAIN-OF-CUSTODY RECORD | | | | | | <small>¹ COC NUMBER:</small> 424419-04172013-05 | | | | | | | | | |
|--|------------------|--|------------|--|------------|---|--|---|--------------------|---|--|---|--|---|--|--|--|
| | | <small>¹ PROJECT NAME:</small> MCEAST MCB CAMELJ | | <small>² PROJECT NUMBER:</small> 424419.FLFS | | <small>³ LAB NAME AND CONTACT:</small> CheemTech Kurt Haemmer, Lab PM | | <small>¹¹ FAX AND MAIL REPORTS/SDU TO: RECIPIENT 1 (Name and Company):</small> Bianca Kleist/CHEM HILL, bianca.kleist@ch2m.com | | <small>¹⁴ RECIPIENT 1 (Address, Tel No., and Fax No.):</small> 11301 Caravel Commons Blvd. Suite 304 Charlotte, NC 28226 #794-543-3274 | | | | | | | |
| <small>¹ PROJECT PHASE/SITE/TASK:</small> IRP VI Monitoring | | <small>⁴ CTO OR DO NUMBER:</small> WE-19 | | <small>⁵ LAB PO NUMBER:</small> NA | | <small>¹¹ FAX AND MAIL REPORTS/SDU TO: RECIPIENT 2 (Name and Company):</small> Kerl Halberg/CHEM HILL, kerl.halberg@ch2m.com | | <small>¹⁵ RECIPIENT 2 (Address, Tel No., and Fax No.):</small> email | | | | | | | | | |
| <small>¹ PROJECT CONTACT:</small> Kimberly Stokes | | <small>⁶ PROJECT TEL NO AND FAX NO.:</small> phones: 214-998-4839 | | <small>⁵ LAB TEL NO AND FAX NO.:</small> phones: 908-728-5143 | | <small>¹¹ FAX AND MAIL REPORTS/SDU TO: RECIPIENT 3 (Name and Company):</small> Kimberly Stokes/CHEM HILL, kstokes@ch2m.com | | <small>¹⁴ RECIPIENT 3 (Address, Tel No., and Fax No.):</small> email | | | | | | | | | |
| <small>⁷ ANALYSIS</small> | | | | | | | | | | | | | | | | | |
| ITEM | SAMPLE ID | MATRIX <small>(see codes on SOP)</small> | DATE START | DATE FINISHED | TIME START | TIME STOP | CANISTER VACUUM IN FIELD HG (START) | CANISTER VACUUM IN FIELD HG (STOP) | FLOW CONTROLLER ID | CANISTER ID | DATA RECOVERY <small>(see codes on SOP)</small> | TAT <small>(see code on SOP)</small> | <small>¹⁶ Select VOCs by TO-15 SCAN Low Level</small> <input type="checkbox"/> | <small>¹⁶ Select VOCs by TO-15 SCAN</small> <input checked="" type="checkbox"/> | SAMPLE TYPE <small>(see codes on SOP)</small> | LAB ID <small>(for lab's use)</small> | COMMENTS/ SCREENING READINGS |
| 1 | SWMU340-SG21-13B | SG | 4/15/2013 | 4/15/2013 | 14:09 | 14:16 | -29 | -0.46 | 10539 | 10755 | IV | 28 | | X | | | VOCs = 0 ppbv |
| 2 | SWMU340-SG12-13B | SG | 4/15/2013 | 4/15/2013 | 14:40 | 14:47 | -28 | -1.06 | 10703 | 10677 | IV | 28 | | X | | | VOCs = 0 ppbv |
| 3 | IR96-SG01-13B | SG | 4/15/2013 | 4/15/2013 | 15:07 | 15:14 | -29 | -5.27 | 10774 | 10750 | IV | 28 | | X | | | VOCs = 0 ppbv |
| 4 | IR96-SG02-13B | SG | 4/15/2013 | 4/15/2013 | 15:30 | 15:37 | -29 | -2.96 | 10634 | 10740 | IV | 28 | | X | | | VOCs = 0 ppbv |
| 5 | IR78-SG15-13B | SG | 4/16/2013 | 4/16/2013 | 9:13 | 9:20 | -29 | -6 | 10213 | 10431 | IV | 28 | | X | | | VOCs = 4.3 ppbv |
| 6 | IR78-SG16-13B | SG | 4/16/2013 | 4/16/2013 | 14:27 | 14:34 | -29.52 | -3.58 | 10484 | 10468 | IV | 28 | | X | | | VOCs = 3.7 ppbv |
| 7 | IR78-SG17-13B | SG | 4/16/2013 | 4/16/2013 | 15:19 | 15:25 | -28.69 | -6.6 | 10575 | 10748 | IV | 28 | | X | | | VOCs = 0.3 ppbv |
| 8 | IR78-SG19-13B | SG | 4/16/2013 | 4/16/2013 | 15:55 | 16:02 | -29.6 | -6.15 | 10475 | 10670 | IV | 28 | | X | | | VOCs = 0.1 ppbv |
| 9 | IR78-SG66-13B | SG | 4/16/2013 | 4/16/2013 | 16:24 | 16:31 | -28 | -8.1 | 10512 | 10760 | IV | 28 | | X | | | VOCs = 0.1 ppbv; ignore "Do Not Use" note on canister tag - please analyze |
| 10 | IR78-SG67-13B | SG | 4/16/2013 | 4/16/2013 | 10:44 | 10:51 | -29 | -3.83 | 10583 | 10119 | IV | 28 | | X | | | VOCs = 0.4 ppbv |
| 11 | IR78-SG67D-13B | SG | 4/16/2013 | 4/16/2013 | 10:44 | 10:51 | -28 | -2.46 | 10170 | 10111 | IV | 28 | | X | | | VOCs = 0.4 ppbv |
| <small>¹⁷ SAMPLER(S) AND COMPANY: (please print)</small> David Seed / CHEM HILL Klan Stokes / CHEM HILL | | <small>¹⁸ FedEx number:</small> | | <small>¹⁹ SAMPLES TEMPERATURE AND CONDITION (UPON RECEIPT) (for lab's use):</small> | | | | | | | | | | | | | |
| <small>²⁰ RECEIVED BY</small> Printed Name and Signature: Kimberly Stokes | | DATE 17-Apr-2013 | | TIME 17:30 | | <small>²¹ RECEIVED BY</small> Printed Name and Signature: Palak Shah | | DATE 4/18/13 | | TIME 7:20 | | | | | | | |
| Printed Name and Signature: Fedex | | DATE 4-18-13 | | TIME 7:20 | | Printed Name and Signature: Palak Shah | | DATE 4/18/13 | | TIME 7:20 | | | | | | | |

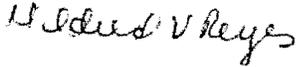
070

Cover Page

Order ID : E1909**Project ID :** CTO WE19 Camp Lejeune**Client :** CH2M Hill**Lab Sample Number**E1909-01
E1909-02
E1909-03
E1909-04
E1909-05
E1909-06
E1909-07
E1909-08
E1909-09
E1909-10
E1909-11**Client Sample Number**SWMU360-SG21-13B
SWMU360-SG22-13B
IR96-SG01-13B
IR96-SG02-13B
IR78-SG25-13B
IR78-SG26-13B
IR78-SG27-13B
IR78-SG28-13B
IR78-SG66-13B
IR78-SG67-13B
IR78-SG67D-13B

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature :

Mildred V. Reyes, QA/QC Supervisor
2013.05.10 07:33:17 -05'00'

Date: 5/3/2013

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Attachment F
Screening Levels

| Analyte | CAS Number | IASL Non-Residential ($\mu\text{g}/\text{m}^3$) | IASL Non-Residential (ppbv) | IASL Residential ($\mu\text{g}/\text{m}^3$) | IASL Residential (ppbv) |
|--|------------|---|-----------------------------|---|-------------------------|
| 1,1,1-Trichloroethane (1,1,1-TCA) | 71-55-6 | 4.38E+03 | 8.03E+02 | 1.04E+03 | 1.91E+02 |
| 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA) | 79-34-5 | 2.11E+00 | 3.07E-01 | 4.84E-01 | 7.05E-02 |
| 1,1-Dichloroethane (1,1-DCA) | 75-34-3 | 7.67E+01 | 1.90E+01 | 1.75E+01 | 4.32E+00 |
| 1,2,4-Trichlorobenzene (1,2,4-TCB) | 120-82-1 | 1.75E+00 | 2.36E-01 | 4.17E-01 | 5.62E-02 |
| 1,2,4-Trimethylbenzene (1,2,4-TMB) | 95-63-6 | 6.13E+00 | 1.25E+00 | 1.46E+00 | 2.97E-01 |
| 1,2-Dichloroethane (1,2-DCA) | 107-06-2 | 4.72E+00 | 1.17E+00 | 1.08E+00 | 2.67E-01 |
| 1,2-Dichloropropane (1,2-DCP) | 78-87-5 | 3.50E+00 | 7.58E-01 | 8.34E-01 | 1.81E-01 |
| 1,4-Dichlorobenzene (1,4-DCB) | 106-46-7 | 1.11E+01 | 1.85E+00 | 2.55E+00 | 4.24E-01 |
| 1,3,5-Trimethylbenzene (1,3,5-TMB) | 108-67-8 | - | - | - | - |
| Benzene | 71-43-2 | 1.57E+01 | 4.91E+00 | 3.60E+00 | 1.13E+00 |
| Bromodichloromethane | 75-27-4 | 3.31E+00 | 4.94E-01 | 7.59E-01 | 1.13E-01 |
| Bromomethane | 74-83-9 | 4.38E+00 | 1.13E+00 | 1.04E+00 | 2.68E-01 |
| Carbon tetrachloride | 56-23-5 | 2.04E+01 | 3.24E+00 | 4.68E+00 | 7.44E-01 |
| Chloroform | 67-66-3 | 5.33E+00 | 1.09E+00 | 1.22E+00 | 2.50E-01 |
| cis-1,2-Dichloroethene (cis-1,2-DCE) | 156-59-2 | - | - | - | - |
| Isopropylbenzene (cumene) | 98-82-8 | 3.50E+02 | 7.12E+01 | 8.34E+01 | 1.70E+01 |
| Cyclohexane | 110-82-7 | 5.26E+03 | 1.53E+03 | 1.25E+03 | 3.63E+02 |
| Ethylbenzene | 100-41-4 | 4.91E+01 | 1.13E+01 | 1.12E+01 | 2.58E+00 |
| m- & p-xylenes | 1330-20-7 | 8.76E+01 | 2.02E+01 | 2.09E+01 | 4.82E+00 |
| Methylene chloride | 75-09-2 | 5.26E+02 | 1.51E+02 | 1.25E+02 | 3.60E+01 |
| Naphthalene | 91-20-3 | 2.63E+00 | 5.02E-01 | 6.26E-01 | 1.19E-01 |
| O-xylene | 95-47-6 | 8.76E+01 | 2.02E+01 | 2.09E+01 | 4.82E+00 |
| Tetrachloroethene (PCE) | 127-18-4 | 3.50E+01 | 5.16E+00 | 8.34E+00 | 1.23E+00 |
| Toluene | 108-88-3 | 4.38E+03 | 1.16E+03 | 1.04E+03 | 2.76E+02 |
| Total 1,2-DCE | 540-59-0 | - | - | - | - |
| trans-1,2-Dichloroethene (trans-1,2-DCE) | 156-60-5 | - | - | - | - |
| Trichloroethene (TCE) | 79-01-6 | 1.75E+00 | 3.26E-01 | 4.17E-01 | 7.76E-02 |
| Vinyl chloride (VC) | 75-01-4 | 2.79E+01 | 1.09E+01 | 1.68E+00 | 6.57E-01 |
| Xylene, total | 1330-20-7 | 8.76E+01 | 2.02E+01 | 2.09E+01 | 4.82E+00 |

Notes:

Non-residential (Industrial) IASL (TCR = 10-5 or THQ = 0.2) - North Carolina Department of Environment and Natural Resources-Division of Waste Management-Residential Sub-Slab and Soil Gas Screening Level (June 2014)

Residential IASL (TCR = 10-5 or THQ = 0.2) - North Carolina Department of Environment and Natural Resources-Division of Waste Management-Residential Sub-Slab and Soil Gas Screening Level (June 2014)

$\mu\text{g}/\text{m}^3$ to ppbv conversion performed with online conversion tool (<http://www.airtoxics.com/cclasses/unitcalc.html>)

Concentration (PPbv) = Concentration ($\mu\text{g}/\text{m}^3$) * 24.46/MW @ 25oC

"-" NC VISL not available for this constituent

| Analyte | CAS Number | SGSL Non-Residential ($\mu\text{g}/\text{m}^3$) | SGSL Non-Residential (ppbv) | Base-specific SGSL Non-Residential (ppbv) | SGSL Residential ($\mu\text{g}/\text{m}^3$) | SGSL Residential (ppbv) |
|--|------------|---|-----------------------------|---|---|-------------------------|
| 1,1,1-Trichloroethane (1,1,1-TCA) | 71-55-6 | 4.38E+05 | 8.03E+04 | 8.03E+05 | 3.48E+04 | 6.38E+03 |
| 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA) | 79-34-5 | 2.11E+02 | 3.07E+01 | 3.07E+02 | 1.61E+01 | 2.35E+00 |
| 1,1-Dichloroethane (1,1-DCA) | 75-34-3 | 7.67E+03 | 1.89E+03 | 1.89E+04 | 5.85E+02 | 1.45E+02 |
| 1,2,4-Trichlorobenzene (1,2,4-TCB) | 120-82-1 | 1.75E+02 | 2.36E+01 | 2.36E+02 | 1.39E+01 | 1.87E+00 |
| 1,2,4-Trimethylbenzene (1,2,4-TMB) | 95-63-6 | 6.13E+02 | 1.25E+02 | 1.25E+03 | 4.87E+01 | 9.91E+00 |
| 1,2-Dichloroethane (1,2-DCA) | 107-06-2 | 4.72E+02 | 1.17E+02 | 1.17E+03 | 3.60E+01 | 8.89E+00 |
| 1,2-Dichloropropane (1,2-DCP) | 78-87-5 | 3.50E+02 | 7.58E+01 | 7.58E+02 | 2.78E+01 | 6.02E+00 |
| 1,4-Dichlorobenzene (1,4-DCB) | 106-46-7 | 1.11E+03 | 1.85E+02 | 1.85E+03 | 8.51E+01 | 1.42E+01 |
| 1,3,5-Trimethylbenzene (1,3,5-TMB) | 108-67-8 | - | - | - | - | - |
| Benzene | 71-43-2 | 1.57E+03 | 4.91E+02 | 4.91E+03 | 1.20E+02 | 3.76E+01 |
| Bromodichloromethane | 75-27-4 | 3.31E+02 | 4.94E+01 | 4.94E+02 | 2.53E+01 | 3.78E+00 |
| Bromomethane | 74-83-9 | 4.38E+02 | 1.13E+02 | 1.13E+03 | 3.48E+01 | 8.96E+00 |
| Carbon tetrachloride | 56-23-5 | 2.04E+03 | 3.24E+02 | 3.24E+03 | 1.56E+02 | 2.48E+01 |
| Chloroform | 67-66-3 | 5.33E+02 | 1.09E+02 | 1.09E+03 | 4.07E+01 | 8.33E+00 |
| cis-1,2-Dichloroethene (cis-1,2-DCE) | 156-59-2 | - | - | - | - | - |
| Isopropylbenzene (cumene) | 98-82-8 | 3.50E+04 | 7.12E+03 | 7.12E+04 | 2.78E+03 | 5.66E+02 |
| Cyclohexane | 110-82-7 | 5.26E+05 | 1.53E+05 | 1.53E+06 | 4.17E+04 | 1.21E+04 |
| Ethylbenzene | 100-41-4 | 4.91E+03 | 1.13E+03 | 1.13E+04 | 3.74E+02 | 8.61E+01 |
| m- & p-xylenes | 1330-20-7 | 8.76E+03 | 2.02E+03 | 2.02E+04 | 6.95E+02 | 1.60E+02 |
| Methylene chloride | 75-09-2 | 5.26E+04 | 1.51E+04 | 1.51E+05 | 4.17E+03 | 1.20E+03 |
| Naphthalene | 91-20-3 | 2.63E+02 | 5.02E+01 | 5.02E+02 | 2.09E+01 | 3.99E+00 |
| O-xylene | 95-47-6 | 8.76E+03 | 2.02E+03 | 2.02E+04 | 6.95E+02 | 1.60E+02 |
| Tetrachloroethene (PCE) | 127-18-4 | 3.50E+03 | 5.16E+02 | 5.16E+03 | 2.78E+02 | 4.10E+01 |
| Toluene | 108-88-3 | 4.38E+05 | 1.16E+05 | 1.16E+06 | 3.48E+04 | 9.24E+03 |
| Total 1,2-DCE | 540-59-0 | - | - | - | - | - |
| trans-1,2-Dichloroethene (trans-1,2-DCE) | 156-60-5 | - | - | - | - | - |
| Trichloroethene (TCE) | 79-01-6 | 1.75E+02 | 3.26E+01 | 3.26E+02 | 1.39E+01 | 2.59E+00 |
| Vinyl chloride (VC) | 75-01-4 | 2.79E+03 | 1.09E+03 | 1.09E+04 | 5.59E+01 | 2.19E+01 |
| Xylene, total | 1330-20-7 | 8.76E+03 | 2.02E+03 | 2.02E+04 | 6.95E+02 | 1.60E+02 |

Notes:

Non-residential (Industrial) SGSL = IASL (TCR = 10-5 or THQ = 0.2) * 1/AF [0.010] - North Carolina Department of Environment and Natural Resources-Division of Waste Management-Residential Sub-Slab and Soil Gas Screening Level (June 2014)

Residential SGSL = IASL (TCR = 10-5 or THQ = 0.2) * 1/AF [0.03] - North Carolina Department of Environment and Natural Resources-Division of Waste Management-Residential Sub-Slab and Soil Gas Screening Level (June 2014)

$\mu\text{g}/\text{m}^3$ to ppbv conversion performed with online conversion tool (<http://www.airtoxics.com/c/classes/unitcalc.html>)

Concentration (PPbv) = Concentration ($\mu\text{g}/\text{m}^3$) * 24.46/MW @ 25oC

"-" NC VISL not available for this constituent

Base-specific SGSL (ppbv) = C Indoor Air Screening Level [ppbv]/ α ;
 where CBase-specific soil-gas = target soil gas concentration (Base-specific soil gas SL)
 CIndoor Air Screening Level = target indoor air concentration (Indoor Air SL)
 α = AF [ratio of indoor air concentration to source vapor concentration]

| Analyte | CAS No. | GWSL Non-Residential (µg/L) |
|--|-----------|-----------------------------|
| 1,1,1-Trichloroethane (1,1,1-TCA) | 71-55-6 | 6.23E+03 |
| 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA) | 79-34-5 | 1.41E+02 |
| 1,1-Dichloroethane (1,1-DCA) | 75-34-3 | 3.34E+02 |
| 1,2,4-Trichlorobenzene (1,2,4-TCB) | 120-82-1 | 3.02E+01 |
| 1,2,4-Trimethylbenzene (1,2,4-TMB) | 95-63-6 | 2.44E+01 |
| 1,2-Dichloroethane (1,2-DCA) | 107-06-2 | 9.78E+01 |
| 1,2-Dichloropropane (1,2-DCP) | 78-87-5 | 3.04E+01 |
| 1,4-Dichlorobenzene (1,4-DCB) | 106-46-7 | 1.13E+02 |
| 1,3,5-Trimethylbenzene (1,3,5-TMB) | 108-67-8 | - |
| Benzene | 71-43-2 | 6.93E+01 |
| Bromodichloromethane | 75-27-4 | 3.38E+01 |
| Bromomethane | 74-83-9 | 1.46E+01 |
| Carbon tetrachloride | 56-23-5 | 1.81E+01 |
| Chloroform | 67-66-3 | 3.55E+01 |
| cis-1,2-Dichloroethene (cis-1,2-DCE) | 156-59-2 | - |
| Cyclohexane | 110-82-7 | 8.57E+02 |
| Ethylbenzene | 100-41-4 | 1.52E+02 |
| Isopropylbenzene (cumene) | 98-82-8 | 7.45E+02 |
| Isopropyl ether | 108-20-3 | 5.86E+03 |
| m- & p-xylenes | 1330-20-7 | 4.14E+02 |
| Methylcyclohexane | 108-87-2 | - |
| Methylene chloride | 75-09-2 | 3.96E+03 |
| Naphthalene | 91-20-3 | 1.46E+02 |
| O-xylene | 95-47-6 | 4.14E+02 |
| Tetrachloroethene (PCE) | 127-18-4 | 4.84E+01 |
| Toluene | 108-88-3 | 1.61E+04 |
| Total 1,2-DCE | 540-59-0 | - |
| trans-1,2-Dichloroethene (trans-1,2-DCE) | 156-60-5 | - |
| Trichloroethene (TCE) | 79-01-6 | 4.35E+00 |
| Vinyl chloride (VC) | 75-01-4 | 2.45E+01 |
| Xylene, total | 1330-20-7 | 4.14E+02 |

Notes:

Non-residential (Industrial) GWSL = IASL (TCR = 10⁻⁵ or THQ = 0.2) * 1/Henry's Constant* 1/AF [0.001] - North Carolina Department of Environment and Natural Resources- Division of Waste Management-Residential Sub-Slab and Soil Gas Screening Level (June 2014)

"-" NC VISL not available for this constituent

Attachment G
Empirical (Base-Specific)
Soil Gas to Indoor Air Attenuation Factors
Derived Using VI Monitoring Data

Empirical (Base-Specific) Soil Gas to Indoor Air Attenuation Factors Derived Using VI Monitoring Data

Concurrent subslab and indoor air TO-15 data collected from three non-residential buildings (Buildings 1828, 1601, and 1606) sampled at multiple areas during the 2013 VI Monitoring event were assessed when calculating empirical AFs and subsequent empirically based soil gas screening levels (SGSLs). Subslab soil gas samples were not collected at Buildings 37A and TC864 and indoor air samples were not collected at Buildings 1827, A47, and TC942; therefore concurrent data from those buildings were not available for use in this calculation. As discussed in USEPA (2008), AFs can be biased high (by up to orders of magnitude) if AFs are calculated without considering the subslab source strength. Consistent with the data evaluation and filtering approaches described in USEPA's (2008) Vapor Intrusion Database technical support document, empirical AFs were calculated only for constituents that had relatively high subslab soil gas concentrations (e.g., greater than 100 times the minimum subslab reporting limits). Consistent with USEPA (2008), empirical AFs were not calculated for VOCs that were non-detect in the subslab samples since it is assumed that the chemical is either absent in the subsurface or present below levels of concern; however, that same chemical can be present in the indoor air due to background sources, which would result in AFs that are biased artificially high. The empirical AF calculations for all of the buildings with concurrent indoor and subslab results are provided in **Table G-1**.

Concurrent indoor air concentrations were paired with each subslab soil gas sample collected at a given building and the ratios (i.e., AFs) of indoor air concentrations to subslab soil gas concentrations were calculated for VOCs with subslab concentrations greater than 100 times the minimum reporting limits (RLs) (**Table G-2**). Empirical AFs based on indoor air results that were 2 times greater than outdoor air concentrations were differentiated from AFs based on indoor air results that were similar to background outdoor levels (refer to the footnote in **Table G-1**). USEPA (2008) states that:

“When background indoor air concentrations are equivalent to or greater than the concentration contributed by vapor intrusion, the empirical attenuation factor will be biased high relative to the true attenuation factor (i.e., towards higher, more conservative values) by the contribution of background sources to indoor air. The bias varies in proportion to the relative contribution of background sources to the total indoor air concentration. ... The empirical attenuation factor is most likely to represent the attenuation due to vapor intrusion when the indoor air concentration from vapor intrusion is substantially greater than the background indoor air concentration, which is most likely to occur when subsurface vapor concentrations are high.”

As discussed by USEPA (2008), it is important to consider background indoor and/or outdoor air concentrations when calculating and interpreting empirical AFs. There is no hard-and-fast rule when attempting to determine if the indoor air concentrations are significantly greater than background levels. Indoor air concentrations have started to approach the point of being significantly different from outdoor air concentrations if they are more than 2 times the outdoor air concentrations during other site evaluations for the Navy. Therefore, 2 times the outdoor air concentrations were selected when highlighting the results in **Table G-2**.

The empirical AFs were plotted against the subslab soil gas concentrations for VOCs (**Figure G-1**). The AFs shown in **Figure G-1** were based on the AFs listed in **Table G-2** for those VOCs with subslab concentrations greater than 100 times the minimum reporting limits. There were four buildings with subslab concentrations greater than 100 times the minimum subslab RLs (**Table G-1**). Additional information (e.g., building number, VOC, investigation phase, subslab and indoor air concentration, and 2 times the outdoor air concentration) associated with each of the AFs is presented on **Figure G-1** and in **Table G-2**. The following building characteristics for all of the buildings examined in the empirical AF evaluation are summarized in **Table G-3**: (1) size of the building (small defined as less than 1,000 square feet [ft²], medium as between 1,000 to 20,000 ft², and large as between 20,000 ft² to

60,000 ft²); (2) the presence and operation of one or more HVAC systems during sampling; (3) ceiling height; (4) whether the building consists primarily of offices, warehouse space, or both; and (5) if the windows and/or doors are typically closed or left open. There are no apparent correlations between the AFs and building characteristics listed in **Tables G-1** and **G-3**, respectively.

The empirical subslab to indoor air AFs ranged from 2.0×10^{-4} to 4.3×10^{-5} for those constituents with indoor air results 2 times greater than outdoor air and potentially related to VI (**Figure G-1**). These results indicate that the SGSLs based on North Carolina Department of Environment and Natural Resources (NC DENR) [June 2014] default Non-Residential AF of 1×10^{-2} slightly (at least 10 times) over-predict indoor air concentrations when compared to the selected Base-specific AF of 1×10^{-3} . The most conservative (rather than a statistical estimate given the limited data) AF calculated from buildings with indoor air concentrations greater than 2 times the outdoor air concentrations and potentially related to VI ranged from 1×10^{-4} to 1×10^{-5} , as shown in **Table G-1**.

Additionally, samples were collected at collocated subslab soil gas and indoor air locations for radon analysis. The concentration of radon in indoor air was corrected for the ambient radon concentration and divided by the concentration of radon in subslab soil gas for each of the five buildings (**Tables G-4 to G-6**). The AFs based on radon ranged from 3.9×10^{-4} to 4.0×10^{-5} , as shown in **Figure G-2**. Comparison of Figures G-1 and G-2 shows that the attenuation factors estimated using radon were similar to those calculated using VOCs.

The Base-specific AF calculated during the Phase I/II/III Base-wide VI evaluation (CH2M HILL, 2009; CH2M HILL, 2011) was 1×10^{-3} . The AF evaluation performed during this round suggests that the Phase III Base-specific AF remain appropriate and conservative based on the following:

- Radon-based AFs are more representative as radon concentrations under the slab are uniform and indoor air sources of radon are limited or non-existent (depending on building construction).
- AFs calculated from the data collected during this VI monitoring event, where indoor air was significantly greater than 2 times the outdoor air concentrations were obtained from two data points. These calculations were performed on many more buildings during previous phases of the evaluation.

TABLE G-1

Calculation of Indoor air to Soil Gas

Empirical Attenuation Factors

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Building | Indoor Air/Soil Gas Sample Sample ID Sample Date | Minimum Subslab RL (ppb _v)* | Outdoor Max Detected Value | Outdoor 2-Times Max Detected Value | Building 1828 | | | | | | Building 1828 | | | | | | | |
|--|--|---|----------------------------------|--|----------------------------|------|---|------------------------------|---|---|-------------------------------|----------------------------|---|---|------------------------------|---|---|-------------------------------|
| | | | | | Indoor SWMU360-IA22-13B | | | Soil Gas SWMU360-SG12-13B | | | Indoor to Subslab Ratio | Indoor SWMU360-IA21-13B | | | Soil Gas SWMU360-SG20-13B | | | Indoor to Subslab Ratio |
| Chemical Name | | | | | | | | | | | | | | | | | | |
| Volatile Organic Compounds (µg/m³) | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.03 | 0.25 | U | 0.25 | U | 0.25 | U | 0.059 | J | 1 | NC | 0.325 | U | 1 | 0.8 | J | 1 | NC |
| 1,1,2,2-Tetrachloroethane | 0.1 | 0.25 | U | 0.25 | U | 0.25 | U | 0.25 | U | | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| 1,1-Dichloroethane | 0.04 | 0.25 | U | 0.25 | U | 0.25 | U | 0.143 | J | 1 | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| 1,2,4-Trichlorobenzene | 0.04 | 0.25 | U | 0.25 | U | 0.25 | U | 0.25 | U | | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| 1,2,4-Trimethylbenzene | 0.1 | 0.13 | J | 0.26 | J | 0.49 | J | 0.842 | J | 1 | NC | 0.702 | J | 1 | 2.5 | U | | NC |
| 1,2-Dichloroethane | 0.1 | 0.25 | U | 0.25 | U | 0.25 | U | 0.206 | J | 1 | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| 1,2-Dichloroethene (total) | 0.05 | 0.5 | U | 0.5 | U | 0.5 | U | 0.327 | J | 1 | NC | 0.65 | U | 1 | 5 | U | 1 | NC |
| 1,2-Dichloropropane | 0.1 | 0.25 | U | 0.25 | U | 0.25 | U | 0.294 | J | 1 | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| 1,3,5-Trimethylbenzene | 0.1 | 0.25 | U | 0.25 | U | 0.13 | J | 0.298 | J | 1 | NC | 0.26 | J | 1 | 2.5 | U | 1 | NC |
| 1,4-Dichlorobenzene | 0.1 | 0.25 | U | 0.25 | U | 0.77 | J | 0.154 | J | 1 | NC | 0.546 | J | 1 | 2.5 | U | 1 | NC |
| Benzene | 0.04 | 0.221 | J | 0.442 | J | 0.35 | J | 8.1 | J | 3 | 4.32E-02 | 0.624 | J | 1 | 2.5 | U | | NC |
| Bromodichloromethane | 0.05 | 0.25 | U | 0.25 | U | 0.25 | U | 0.25 | U | | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| Bromomethane | 0.03 | 0.25 | U | 0.25 | U | 0.25 | U | 0.25 | U | | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| Carbon tetrachloride | 0.03 | 0.075 | J | 0.15 | J | 0.06 | J | 0.25 | U | | NC | 0.104 | J | | 2.5 | U | | NC |
| Chloroform | 0.02 | 0.1 | J | 0.2 | J | 0.06 | J | 0.464 | J | 1 | NC | 0.104 | J | | 1 | J | 1 | NC |
| cis-1,2-Dichloroethene | 0.05 | 0.25 | U | 0.25 | U | 0.25 | U | 0.327 | J | 1 | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| Cyclohexane | 0.1 | 0.31 | J | 0.62 | J | 0.15 | J | 0.536 | J | | NC | 0.273 | J | | 2.5 | U | | NC |
| Ethylbenzene | 0.1 | 0.585 | | 1.17 | | 0.37 | J | 1.2 | J | 1 | NC | 1.3 | J | 1 | 2.5 | U | | NC |
| Isopropylbenzene | 0.1 | 0.25 | U | 0.25 | U | 0.25 | U | 0.297 | J | 1 | NC | 0.143 | J | 1 | 2.5 | U | 1 | NC |
| m- and p-Xylene | 0.1 | 1.3 | | 2.6 | | 0.96 | J | 2.9 | J | 1 | NC | 3.5 | J | 1 | 5 | U | | NC |
| Methylene chloride | 0.05 | 5 | | 10 | | 0.75 | J | 2.1 | J | | NC | 0.767 | J | | 2.5 | U | | NC |
| Naphthalene | 0.04 | 0.25 | U | 0.25 | U | 0.15 | J | 0.139 | J | 1 | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| o-Xylene | 0.1 | 0.461 | J | 0.922 | J | 0.39 | J | 0.817 | J | | NC | 1.4 | J | 1 | 2.5 | U | | NC |
| Tetrachloroethene | 0.03 | 0.1 | J | 0.2 | J | 0.08 | J | 54.7 | J | 3 | 1.46E-03 | 2.1 | J | 1 | 10,300 | J | 3 | 2.04E-04 |
| Toluene | 0.05 | 6.8 | | 13.6 | | 5.7 | J | 6.1 | J | 2 | 9.34E-01 | 16.9 | J | 1 | 2.5 | U | | NC |
| trans-1,2-Dichloroethene | 0.05 | 0.25 | U | 0.25 | U | 0.25 | U | 0.25 | U | | NC | 0.325 | U | 1 | 2.5 | U | | NC |
| Trichloroethene | 0.015 | 0.27 | J | 0.54 | J | 0.13 | J | 0.393 | J | | NC | 0.286 | J | | 22.8 | J | 3 | 1.25E-02 |
| Vinyl chloride | 0.03 | 0.25 | U | 0.25 | U | 0.25 | U | 0.243 | J | | NC | 0.325 | U | 1 | 2.5 | U | 1 | NC |
| Xylene, total | 0.1 | 1.761 | | 3.522 | | 1.35 | J | 3.72 | J | 1 | NC | 4.9 | J | 1 | 7.5 | U | | NC |

Notes:

- 1 = Exceeds 2-times maximum background.
- 2 = Exceeds 100-times the minimum subslab soil gas reporting limit (RL).
- 3 = Exceeds both 2-times maximum background and 100-times the minimum subslab soil gas RL.
- D = Duplicate sample
- NC = Not Calculated
- J - Analyte present, value may or may not be accurate or precise
- U - The material was analyzed for, but not detected
- ug/m3 = microgram per cubic meter
- * lowest detection limit used for analysis

TABLE G-1

Calculation of Indoor air to Soil Gas

Empirical Attenuation Factors

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Building | Building 1828 | | | | | | Building 1601 | | | | | | Building 1601 | | | | | |
|---|-------------------|----|------------------|---|-------------------------|----------|---------------|---|---------------|---|-------------------------|----------|---------------|---|---------------|---|-------------------------|---------|
| | Indoor | | Soil Gas | | Indoor to Subslab Ratio | | Indoor | | Soil Gas | | Indoor to Subslab Ratio | | Indoor | | Soil Gas | | Indoor to Subslab Ratio | |
| Sample ID | SWMU360-IA21D-13B | | SWMU360-SG20-13B | | | | IR78-IA25-13B | | IR78-SG25-13B | | | | IR78-IA26-13B | | IR78-SG27-13B | | | |
| Sample Date | | | | | | | | | | | | | | | | | | |
| Chemical Name | | | | | | | | | | | | | | | | | | |
| Volatile Organic Compounds (µg/m ³) | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.25 | U | 0.8 | J | 1 | NC | 0.25 | U | 380 | | 3 | 6.58E-04 | 0.25 | U | 29.5 | | 3 | 8.5E-03 |
| 1,1,2,2-Tetrachloroethane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.25 | U | | NC |
| 1,1-Dichloroethane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 2.7 | | 1 | NC | 0.25 | U | 0.093 | J | 1 | NC |
| 1,2,4-Trichlorobenzene | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.25 | U | | NC |
| 1,2,4-Trimethylbenzene | 0.25 | UJ | 2.5 | U | | NC | 1.8 | | 1 | | 0.6 | | 0.43 | J | 1 | | 0.25 | U |
| 1,2-Dichloroethane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.1 | J | 1 | NC | 0.25 | U | 0.25 | U | | NC |
| 1,2-Dichloroethene (total) | 0.5 | U | 5 | U | 1 | NC | 0.5 | U | 2.57 | | 1 | NC | 0.5 | U | 0.173 | J | 1 | NC |
| 1,2-Dichloropropane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.1 | J | 1 | NC | 0.25 | U | 0.25 | U | | NC |
| 1,3,5-Trimethylbenzene | 0.25 | UJ | 2.5 | U | 1 | NC | 0.46 | J | 1 | | 0.2 | J | 0.12 | J | 1 | | 0.25 | U |
| 1,4-Dichlorobenzene | 0.25 | UJ | 2.5 | U | 1 | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.25 | U | | NC |
| Benzene | 0.17 | J | 2.5 | U | | NC | 0.18 | J | 1.7 | | 1 | NC | 0.16 | J | 6.7 | | 3 | 2.4E-02 |
| Bromodichloromethane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.25 | U | | NC |
| Bromomethane | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.25 | U | | NC |
| Carbon tetrachloride | 0.05 | J | 2.5 | U | | NC | 0.06 | J | 1.1 | | 1 | NC | 0.06 | J | 0.055 | J | | NC |
| Chloroform | 0.03 | J | 1 | J | 1 | NC | 0.25 | U | 33.5 | | 3 | 7.46E-03 | 0.03 | J | 0.593 | | | NC |
| cis-1,2-Dichloroethene | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 2.3 | | 1 | NC | 0.25 | U | 0.173 | J | 1 | NC |
| Cyclohexane | 0.12 | J | 2.5 | U | | NC | 0.17 | J | 0.3 | J | | NC | 0.11 | J | 0.164 | J | | NC |
| Ethylbenzene | 0.25 | UJ | 2.5 | U | | NC | 0.77 | J | 0.47 | J | | NC | 0.44 | J | 1.2 | | 1 | NC |
| Isopropylbenzene | 0.25 | UJ | 2.5 | U | 1 | NC | 0.11 | J | 1 | | 0.1 | J | 0.25 | U | 0.188 | J | 1 | NC |
| m- and p-Xylene | 0.13 | J | 5 | U | | NC | 2.1 | | 1.1 | | | NC | 1.1 | | 3.2 | | 1 | NC |
| Methylene chloride | 0.54 | | 2.5 | U | | NC | 0.43 | J | 3.4 | | | NC | 0.84 | | 2.2 | | | NC |
| Naphthalene | 0.25 | U | 2.5 | U | 1 | NC | 0.69 | | 1 | | 0.14 | J | 0.23 | J | 1 | | 0.25 | U |
| o-Xylene | 0.25 | UJ | 2.5 | U | | NC | 0.94 | | 1 | | 0.4 | J | 0.46 | J | 0.874 | | | NC |
| Tetrachloroethene | 0.44 | J | 1 | | 10,300 | | 0.12 | J | 57.1 | | 3 | 2.10E-03 | 0.07 | J | 43.6 | | 3 | 1.6E-03 |
| Toluene | 1.5 | J | 2.5 | U | | NC | 8.3 | | 2.9 | | | NC | 7.6 | | 5.2 | | 2 | 1.5E+00 |
| trans-1,2-Dichloroethene | 0.25 | U | 2.5 | U | 1 | NC | 0.25 | U | 0.27 | J | 1 | NC | 0.25 | U | 0.25 | U | | NC |
| Trichloroethene | 0.2 | J | 22.8 | | 3 | 8.77E-03 | 0.14 | J | 3,100 | | 3 | 4.52E-05 | 0.18 | J | 19.3 | | 3 | 9.3E-03 |
| Vinyl chloride | 0.25 | U | 2.5 | U | | NC | 0.25 | U | 0.25 | U | | NC | 0.25 | U | 0.156 | J | 1 | NC |
| Xylene, total | 0.13 | J | 7.5 | U | | NC | 3.04 | | 1.5 | | | NC | 1.56 | | 4.07 | | 1 | NC |

Notes:

- 1 = Exceeds 2-times maximum background.
- 2 = Exceeds 100-times the minimum subslab soil gas reporting limit (RL).
- 3 = Exceeds both 2-times maximum background and 100-times the minimum subslab soil gas RL.
- D = Duplicate sample
- NC = Not Calculated
- J - Analyte present, value may or may not be accurate or precise
- U - The material was analyzed for, but not detected
- ug/m³ = microgram per cubic meter
- * lowest detection limit used for analysis

TABLE G-1

Calculation of Indoor air to Soil Gas

Empirical Attenuation Factors

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Building | Building 1601 | | | | | | Building 1606 | | | | | | Building 1606 | | | | | | | |
|--|---------------|---|---------------|-------|-------------------------|---------|---------------|---|---------------|------|-------------------------|---|---------------|------|---------------|--|-------------------------|---|---------------|---------|
| | Indoor | | Soil Gas | | Indoor to Subslab Ratio | | Indoor | | Soil Gas | | Indoor to Subslab Ratio | | Indoor | | Soil Gas | | Indoor to Subslab Ratio | | | |
| Sample ID | IR78-IA27-13B | | IR78-SG26-13B | | | | IR78-IA28-13B | | IR78-SG70-13B | | | | IR78-IA29-13B | | IR78-SG71-13B | | | | IR78-IA29-13B | |
| Sample Date | | | | | | | | | | | | | | | | | | | | |
| Chemical Name | | | | | | | | | | | | | | | | | | | | |
| Volatile Organic Compounds (µg/m³) | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.25 | U | | 300 | 3 | 8.3E-04 | 0.25 | U | | 0.05 | J | 1 | NC | 0.25 | U | | 0.24 | J | 1 | NC |
| 1,1,2,2-Tetrachloroethane | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,1-Dichloroethane | 0.25 | U | | 1.1 | 1 | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,2,4-Trichlorobenzene | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,2,4-Trimethylbenzene | 0.45 | J | 1 | 0.25 | U | NC | 0.18 | J | | 0.25 | U | | NC | 0.25 | U | | 0.16 | J | | NC |
| 1,2-Dichloroethane | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,2-Dichloroethene (total) | 0.5 | U | | 1.17 | 1 | NC | 0.5 | U | | 0.5 | U | | NC | 0.5 | U | | 0.5 | U | | NC |
| 1,2-Dichloropropane | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,3,5-Trimethylbenzene | 0.12 | J | 1 | 0.14 | J | 1 | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| 1,4-Dichlorobenzene | 0.25 | U | | 0.25 | U | NC | 0.15 | J | 1 | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Benzene | 0.15 | J | | 10.2 | 3 | 1.5E-02 | 0.2 | J | | 0.05 | J | | NC | 0.11 | J | | 0.11 | J | | NC |
| Bromodichloromethane | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Bromomethane | 0.25 | U | | 0.25 | U | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Carbon tetrachloride | 0.06 | J | | 0.21 | J | 1 | 0.06 | J | | 0.15 | J | | NC | 0.06 | J | | 0.06 | J | | NC |
| Chloroform | 0.07 | J | | 70.2 | 3 | 1.0E-03 | 0.04 | J | | 0.26 | J | 1 | NC | 0.04 | J | | 0.3 | J | 1 | NC |
| cis-1,2-Dichloroethene | 0.25 | U | | 1 | 1 | NC | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Cyclohexane | 0.14 | J | | 0.86 | 1 | NC | 0.22 | J | | 0.1 | J | | NC | 0.13 | J | | 0.33 | J | | NC |
| Ethylbenzene | 0.66 | J | | 2 | 1 | NC | 0.34 | J | | 0.25 | U | | NC | 0.11 | J | | 0.25 | U | | NC |
| Isopropylbenzene | 0.25 | U | | 0.41 | J | 1 | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| m- and p-Xylene | 1.3 | J | | 4.8 | 1 | NC | 1.2 | J | | 0.5 | U | | NC | 0.16 | J | | 0.1 | J | | NC |
| Methylene chloride | 0.37 | J | | 2.2 | | NC | 2.6 | J | | 0.47 | J | | NC | 0.41 | J | | 3.2 | J | | NC |
| Naphthalene | 0.13 | J | 1 | 0.13 | J | 1 | 0.25 | U | | 0.1 | J | | NC | 0.25 | U | | 0.09 | J | 1 | NC |
| o-Xylene | 0.53 | J | | 1.2 | 1 | NC | 0.52 | J | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Tetrachloroethene | 0.05 | J | | 63 | 3 | 7.9E-04 | 0.05 | J | | 0.3 | J | 1 | NC | 0.04 | J | | 3.1 | J | 3 | 1.3E-02 |
| Toluene | 8.1 | J | | 7.5 | 2 | 1.1E+00 | 12.3 | J | | 0.66 | J | | NC | 5.6 | J | | 0.28 | J | | NC |
| trans-1,2-Dichloroethene | 0.25 | U | | 0.17 | J | 1 | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Trichloroethene | 0.13 | J | | 3,900 | 3 | 3.3E-05 | 0.07 | J | | 0.08 | J | | NC | 0.05 | J | | 0.13 | J | | NC |
| Vinyl chloride | 0.25 | U | | 0.27 | J | 1 | 0.25 | U | | 0.25 | U | | NC | 0.25 | U | | 0.25 | U | | NC |
| Xylene, total | 1.83 | J | | 6 | 1 | NC | 1.72 | J | | 0.75 | U | | NC | 0.16 | J | | 0.1 | J | | NC |

Notes:

- 1 = Exceeds 2-times maximum background.
- 2 = Exceeds 100-times the minimum subslab soil gas reporting limit (RL).
- 3 = Exceeds both 2-times maximum background and 100-times the minimum subslab soil gas RL.
- D = Duplicate sample
- NC = Not Calculated
- J - Analyte present, value may or may not be accurate or precise
- U - The material was analyzed for, but not detected
- ug/m3 = microgram per cubic meter
- * lowest detection limit used for analysis

TABLE G-2

Paired Subslab and Indoor Air Samples

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Bldg | VOC | Phase | Subslab (ppb _v) | Indoor Air (ppb _v) | 2X Outdoor Air (ppb _v) | Attenuation Factor (unitless) |
|------|-----------------------|---------------|-----------------------------|--------------------------------|------------------------------------|-------------------------------|
| 1828 | Tetrachloroethylene | VI Monitoring | 10,300 (PCE) | 2.1 J | 0.20 J | 2.0E-04 |
| 1828 | Tetrachloroethylene | VI Monitoring | 10,300 (PCE) | 0.44 J | 0.20 J | 4.3E-05 |
| 1601 | Trichloroethylene | VI Monitoring | 3,900 (TCE) | 0.13 J | 0.54 J | 3.3E-05 |
| 1601 | Trichloroethylene | VI Monitoring | 3,100 (TCE) | 0.14 J | 0.54 J | 4.5E-05 |
| 1601 | 1,1,1-Trichloroethane | VI Monitoring | 380 (1,1,1-TCA) | < 0.25 | < 0.25 | 6.6E-04 |
| 1601 | 1,1,1-Trichloroethane | VI Monitoring | 300 (1,1,1-TCA) | < 0.25 | < 0.25 | 8.3E-04 |
| 1601 | Chloroform | VI Monitoring | 70 (Chloroform) | 0.07 J | 0.20 J | 1.0E-03 |
| 1601 | Tetrachloroethylene | VI Monitoring | 63 (PCE) | 0.05 J | 0.20 J | 7.9E-04 |
| 1601 | Tetrachloroethylene | VI Monitoring | 57 (PCE) | 0.12 J | 0.20 J | 2.1E-03 |
| 1828 | Tetrachloroethylene | VI Monitoring | 55 (PCE) | 0.08 J | 0.20 J | 1.5E-03 |
| 1601 | Tetrachloroethylene | VI Monitoring | 44 (PCE) | 0.07 J | 0.20 J | 1.6E-03 |
| 1601 | Chloroform | VI Monitoring | 34 (Chloroform) | < 0.25 | 0.20 J | 7.5E-03 |
| 1601 | 1,1,1-Trichloroethane | VI Monitoring | 30 (1,1,1-TCA) | < 0.25 | < 0.25 | 8.5E-03 |
| 1828 | Trichloroethylene | VI Monitoring | 23 (TCE) | 0.29 J | 0.54 J | 1.3E-02 |
| 1828 | Trichloroethylene | VI Monitoring | 23 (TCE) | 0.20 J | 0.54 J | 8.8E-03 |
| 1601 | Trichloroethylene | VI Monitoring | 19 (TCE) | 0.18 J | 0.54 J | 9.3E-03 |
| 1601 | Benzene | VI Monitoring | 10 (Benzene) | 0.15 J | 0.44 J | 1.5E-02 |
| 1828 | Benzene | VI Monitoring | 8.1 (Benzene) | 0.35 J | 0.44 J | 4.3E-02 |
| 1601 | Benzene | VI Monitoring | 6.7 (Benzene) | 0.16 J | 0.44 J | 2.4E-02 |
| 1606 | Tetrachloroethylene | VI Monitoring | 3.1 (PCE) | 0.04 J | 0.20 J | 1.3E-02 |
| 1601 | Toluene | VI Monitoring | 7.5 (Toluene) | 8.1 | 14 | 1.1E+00 |
| 1828 | Toluene | VI Monitoring | 6.1 (Toluene) | 5.7 | 14 | 9.3E-01 |
| 1601 | Toluene | VI Monitoring | 5.2 (Toluene) | 7.6 | 14 | 1.5E+00 |

J = Significantly greater than 2-times the outdoor air concentration.

These constituents were not included in the analysis due to the unlikelihood of being site-related compounds and/or related to vapor intrusion

TABLE G-3

Building Characteristics Considered During Empirical Attenuation Factor (AF) Calculations

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Building | Size ^{a/} | HVAC Running? | Ceiling Height (ft) | Offices or Warehouse | Windows or Doors Typically Open or Closed? |
|-----------------|---------------------------|----------------------|----------------------------|-----------------------------|---|
| 1601 | Large | No | 8; 30 | Both | Open |
| 1606 | Large | Yes | 8; 26 | Both | Closed |
| 1828 | Medium | No | 8; 20 | Both | Open |

^{a/} Small – less than 1,000 ft²; Medium - 1,000 ft² – 20,000 ft²; and Large –20,000 ft²– 60,000 ft².

TABLE G-4

Building-Specific Attenuation Factor - Building 1828

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| <u>Radon Concentration (pCi/L)</u> | | | | Outdoor Sample Location | Radon Concentration (pCi/L) |
|---|----------------|---------------|---|---|--|
| Subslab/Indoor Sample Location | Subslab | Indoor | Attenuation Factor^a | | |
| SG12/IA22 | 701 | 0.05 | 7E-05 | OA01 | 0.01 |
| SG20/IA21 | 1036 | 0.04 | 4E-05 | | |
| | | | | Average Outdoor Concentration: | 0.01 |
| | | | | Average Attenuation Factor Subtracting the Outdoor Concentration: | 4.0E-05 |
| Average: | 869 | 0.05 | 5E-05 | | |

Notes:

pCi/L = picocuries per Liter

^a Attenuation factor is equal to the indoor concentration divided by the subslab concentration

TABLE G-5

Building-Specific Attenuation Factor - Building 1601

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| <u>Radon Concentration (pCi/L)</u> | | | | Outdoor Sample Location | Radon Concentration (pCi/L) |
|---|----------------|---------------|---|--|--|
| Subslab/Indoor Sample Location | Subslab | Indoor | Attenuation Factor^a | | |
| SG25/IA25 | 234 | 0.07 | 3E-04 | OA01 | 0.00 |
| SG67/IA26 | 207 | 0.10 | 5E-04 | | |
| | | | | Average Outdoor Concentration: | 0.00 |
| Average: | | | | Average Attenuation Factor Subtracting the Outdoor Concentration | 3.9E-04 |

Table Notes:

pCi/L = picocuries per Liter

^a Attenuation factor is equal to the indoor concentration divided by the subslab concentration

TABLE G-6

Building-Specific Attenuation Factor - Building 1606

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| <u>Radon Concentration (pCi/L)</u> | | | | Outdoor Sample Location | Radon Concentration (pCi/L) |
|---|----------------|---------------|---|---|--|
| Subslab/Indoor Sample Location | Subslab | Indoor | Attenuation Factor^a | | |
| SG70/IA28 | 219 | 0.05 | 2E-04 | OA01 | 0 |
| SG71/IA29 | 145 | 0.14 | 1E-03 | | |
| | | | | Average Outdoor Concentration: | 0.00 |
| | | | | Average Attenuation Factor Subtracting the Outdoor Concentration: | 5.2E-04 |
| Average: | 182 | 0.10 | 5E-04 | | |

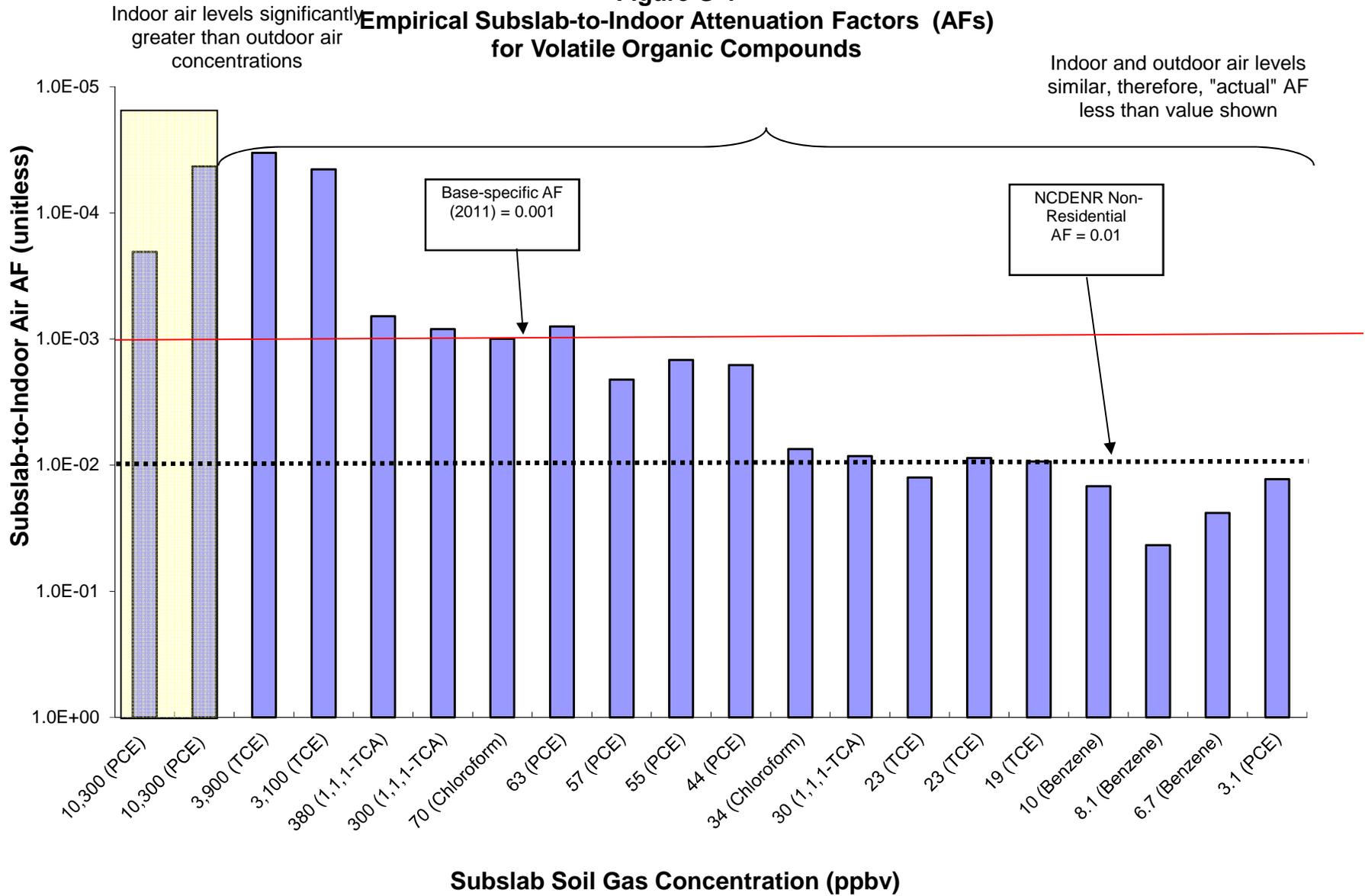
Table Notes:

pCi/L = picocuries per Liter

^a Attenuation factor is equal to the indoor concentration divided by the subslab concentration

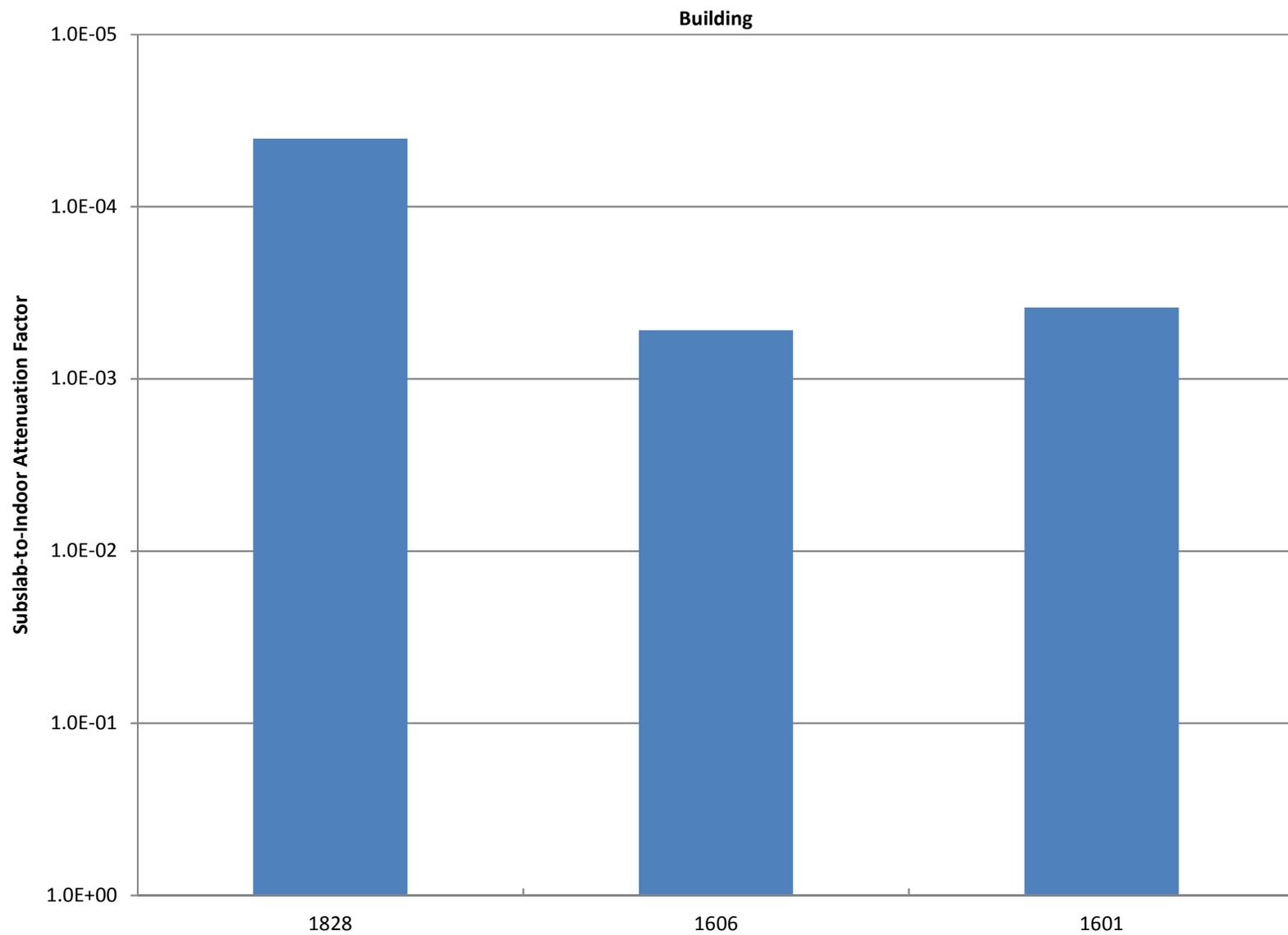
Figure G-1

**Empirical Subslab-to-Indoor Attenuation Factors (AFs)
for Volatile Organic Compounds**



NOTE: Analysis based on paired indoor/subslab MCI-EAST-MCB CAMLEJ VI Monitoring TO-15 data where subslab levels 100-times or greater than minimum subslab reporting limits (1,1,1-TCA, benzene, chloroform, cyclohexane, toluene, trichloroethylene [TCE], and tetrachloroethene [PCE])

Figure G-2 Subslab-to-Indoor AFs based on Radon



Attachment H
Analytical Data

ATTACHMENT H

Analytical Data - Groundwater

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | | IR78-MWV101-GW01-13B | IR78-MWV101-GW01D-13B |
|--|-------------------------|----------------------|-----------------------|
| | | 901 | 901 |
| Sample Date | NC Non-Residential GWSL | 4/14/13 | 4/14/13 |
| Chemical Name | | | |
| Volatile Organic Compounds (µg/L) | | | |
| 1,2-Dichloroethene (total) | - | 21.4 | 16.3 |
| Benzene | 69.3 | 2.1 | 1.6 |
| cis-1,2-Dichloroethene | - | 20.4 J | 15.5 J |
| trans-1,2-Dichloroethene | - | 0.95 J | 0.76 J |
| Trichloroethene | 4.35 | 0.88 J | 0.62 J |
| Vinyl chloride | 24.5 | 12.5 | 9.7 |

Notes:

Shading indicates detection

J - Analyte present. Value may or may not be accurate or precise
 µg/L - microgram per liter

ATTACHMENT H

Analytical Data - Indoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | NC Residential IASL | IR35-IA01-13B | IR35-IA02-13B | IR35-IA02D-13B | IR88-IA15-13B | IR88-IA16-13B |
|--------------------|---------------------|---------------|----------------|----------------|---------------|---------------|
| | | G533 | G533 | G533 | HP-57 | HP-57 |
| Sample Date | | 4/11/13 | 4/11/13 | 4/11/13 | 4/10/13 | 4/10/13 |
| Chemical Name | | | | | | |
| | | | | | | |
| Air Testing (ppbv) | | | | | | |
| Trichloroethene | 0.0776 | 0.1 J | 0.136 J | 0.08 J | 0.81 | 0.1 J |

Notes:

Bold text indicates exceedance of the more conservative of the Non-cancer (THQ = 0.2) and Cancer (TCR = 1E-5) Residential Indoor Air Vapor Intrusion Screening Level values (NCDENR, June 2014).

TCR - Target cancer risk

THQ - Target hazard quotient

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

IASL - indoor air screening level

ATTACHMENT H

Analytical Data - Indoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | NC Non-Residential IASL | IR78-IA25-13B | IR78-IA26-13B | IR78-IA27-13B | IR78-IA28-13B | IR78-IA29-13B | IR88-CS01-13B | IR88-CS01D-13B | IR89-IA03-13B | IR89-IA03D-13B | IR89-IA04-13B | SWMU360-IA21-13B | SWMU360-IA21D-13B | SWMU360-IA22-13B |
|---------------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|----------------|---------------|------------------|-------------------|------------------|
| Building Number | | 1601 | 1601 | 1601 | 1606 | 1606 | 37A | 37A | TC864 | TC864 | TC864 | 1828 | 1828 | 1828 |
| Sample Date | | 4/10/13 | 4/10/13 | 4/10/13 | 4/10/13 | 4/10/13 | 4/14/13 | 4/14/13 | 4/12/13 | 4/12/13 | 4/12/13 | 4/10/13 | 4/10/13 | 4/10/13 |
| Chemical Name | | | | | | | | | | | | | | |
| Air Testing (ppbv) | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 1.25 | 1.8 | 0.43 J | 0.45 J | 0.18 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.702 J | 0.25 UJ | 0.49 J |
| 1,3,5-Trimethylbenzene | NA | 0.46 J | 0.12 J | 0.12 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.26 J | 0.25 UJ | 0.13 J |
| 1,4-Dichlorobenzene | 1.85 | 0.25 U | 0.25 U | 0.25 U | 0.15 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.546 J | 0.25 UJ | 0.77 |
| Benzene | 4.91 | 0.18 J | 0.16 J | 0.15 J | 0.2 J | 0.11 J | 0.1 J | 0.12 J | 0.067 J | 0.058 J | 0.133 J | 0.624 J | 0.17 J | 0.35 J |
| Carbon tetrachloride | 3.24 | 0.06 J | 0.059 J | 0.056 J | 0.054 J | 0.104 J | 0.05 J | 0.06 J |
| Chloroform | 1.09 | 0.25 U | 0.03 J | 0.07 J | 0.04 J | 0.04 J | 0.25 U | 0.05 J | 0.25 U | 0.25 U | 0.25 U | 0.104 J | 0.03 J | 0.06 J |
| Cyclohexane | 1,530 | 0.17 J | 0.11 J | 0.14 J | 0.22 J | 0.13 J | 0.11 J | 0.25 UJ | 0.4 J | 0.25 U | 0.25 U | 0.383 J | 0.273 J | 0.15 J |
| Ethylbenzene | 11.3 | 0.77 | 0.44 J | 0.66 | 0.34 J | 0.11 J | 0.25 U | 0.11 J | 0.359 J | 0.202 J | 0.282 J | 1.3 J | 0.25 UJ | 0.37 J |
| Isopropylbenzene (cumene) | 71.2 | 0.11 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.143 J | 0.25 UJ | 0.25 U |
| m- and p-Xylene | 20.2 | 2.1 | 1.1 | 1.3 | 1.2 | 0.16 J | 0.2 J | 0.44 J | 1.2 J | 0.455 J | 0.773 J | 3.5 J | 0.13 J | 0.96 J |
| Methylene chloride | 151 | 0.43 J | 0.84 | 0.37 J | 2.6 | 0.41 J | 0.5 J | 2.4 J | 0.424 J | 0.43 J | 0.475 J | 0.767 | 0.54 | 0.75 |
| Naphthalene | 0.502 | 0.69 | 0.23 J | 0.13 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.325 U | 0.25 U | 0.15 J |
| o-Xylene | 20.2 | 0.94 | 0.46 J | 0.53 | 0.52 | 0.25 U | 0.25 UJ | 0.17 J | 0.471 J | 0.172 J | 0.252 J | 1.4 J | 0.25 UJ | 0.39 J |
| Tetrachloroethene | 5.16 | 0.12 J | 0.07 J | 0.05 J | 0.05 J | 0.04 J | 0.25 U | 0.25 U | 0.064 J | 0.05 J | 0.037 J | 2.1 J | 0.44 J | 0.08 J |
| Toluene | 1,160 | 8.3 | 7.6 | 8.1 | 12.3 | 5.6 | 1.2 | 1.5 | 3.4 | 4.7 | 4.1 | 16.9 J | 1.5 J | 5.7 |
| Trichloroethene | 0.326 | 0.14 J | 0.18 J | 0.13 J | 0.07 J | 0.05 J | 0.04 J | 0.04 J | 0.031 J | 0.06 J | 0.128 J | 0.286 J | 0.2 J | 0.13 J |
| Xylene, total | 20.2 | 3.04 | 1.56 | 1.83 | 1.72 | 0.16 J | 0.2 J | 0.61 J | 1.67 J | 0.627 J | 1.03 J | 4.9 J | 0.13 J | 1.35 J |

Notes:

Bold text indicates exceedance of the more conservative of the Non-cancer (THQ = 0.2) and Cancer (TCR = 1E-5) Non-Residential Indoor Air Vapor Intrusion Screening Level values (NCDENR, June 2014).

TCR - Target cancer risk

THQ - Target hazard quotient

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

IASL - indoor air screening level

ATTACHMENT H

Analytical Data - Outdoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR35-OA01-13B | IR78-OA01-13B | IR88-OA01-13B | IR88-OA02-13B | IR89-OA01-13B | IR96-OA01-13B |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | G533 | 1601/1606 | HP-57 | 37A | TC864 | 1828 |
| Sample Date | 4/11/13 | 4/10/13 | 4/10/13 | 4/14/13 | 4/12/13 | 4/10/13 |
| Chemical Name | | | | | | |
| Air Testing (ppbv) | | | | | | |
| 1,2,4-Trimethylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.11 J | 0.13 J |
| Benzene | 0.221 J | 0.142 J | 0.16 J | 0.11 J | 0.15 J | 0.13 J |
| Bromomethane | 0.25 U | 0.098 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.058 J | 0.075 J | 0.07 J | 0.06 J | 0.06 J | 0.06 J |
| Chloroform | 0.25 U | 0.1 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 0.289 J | 0.125 J | 0.25 U | 0.25 U | 0.31 J | 0.25 U |
| Ethylbenzene | 0.585 | 0.212 J | 0.12 J | 0.25 U | 0.35 J | 0.26 J |
| m- and p-Xylene | 1.3 | 0.399 J | 0.16 J | 0.13 J | 1.1 | 0.41 J |
| Methylene chloride | 0.431 J | 5 | 0.38 J | 0.65 | 1 | 0.37 J |
| o-Xylene | 0.461 J | 0.164 J | 0.25 U | 0.25 U | 0.42 J | 0.18 J |
| Tetrachloroethene | 0.099 J | 0.046 J | 0.03 J | 0.25 U | 0.1 J | 0.06 J |
| Toluene | 6.8 | 3.9 | 2.5 | 1.7 | 3.9 | 6.4 |
| Trichloroethene | 0.239 J | 0.241 J | 0.25 U | 0.06 J | 0.27 J | 0.23 J |
| Xylene, total | 1.76 | 0.563 J | 0.16 J | 0.13 J | 1.52 | 0.59 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

Shading indicates detection

ATTACHMENT H

Analytical Data - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | NC Residential SGSL | IR35-SG13-13B | IR88-SG19-13B | IR88-SG20-13B | IR88-SG20D-13B |
|------------------------|---------------------|---------------|---------------|---------------|----------------|
| | | G533 | HP-57 | HP-57 | HP-57 |
| Sample Date | | 4/13/13 | 4/12/13 | 4/15/13 | 4/15/13 |
| Chemical Name | | | | | |
| Air Testing (ppbv) | | | | | |
| 1,2,4-Trimethylbenzene | 9.91 | 2.2 | 0.25 U | 0.71 | 0.94 |
| 1,2-Dichloroethane | 8.89 | 0.25 U | 0.11 J | 0.14 J | 0.25 UJ |
| 1,3,5-Trimethylbenzene | - | 0.88 | 0.25 U | 0.19 J | 0.29 J |
| Benzene | 37.6 | 0.1 J | 0.11 J | 0.25 UJ | 0.21 J |
| Carbon tetrachloride | 24.8 | 0.06 J | 0.07 J | 0.08 J | 0.07 J |
| Chloroform | 8.33 | 0.74 | 0.08 J | 0.25 UJ | 0.19 J |
| Cyclohexane | 12,100 | 2.3 | 0.13 J | 0.25 UJ | 44.2 J |
| Ethylbenzene | 86.1 | 0.11 J | 0.25 U | 0.14 J | 0.27 J |
| m- and p-Xylene | 160 | 0.38 J | 0.21 J | 0.51 J | 0.98 J |
| Methylene chloride | 1,200 | 1.1 | 0.8 | 0.48 J | 0.58 |
| Naphthalene | 3.99 | 0.1 J | 0.18 J | 0.32 J | 0.41 J |
| o-Xylene | 160 | 0.2 J | 0.11 J | 0.26 J | 0.43 J |
| Tetrachloroethene | 41.0 | 0.37 J | 0.59 | 0.27 J | 0.25 J |
| Toluene | 9,240 | 0.65 | 3.6 | 0.39 J | 2 J |
| Trichloroethene | 2.59 | 0.11 J | 0.09 J | 0.19 J | 1.4 J |
| Xylene, total | 160 | 0.58 J | 0.32 J | 0.77 J | 1.41 J |

Notes:

Bold text indicates exceedance of the more conservative of the Non-cancer (THQ = 0.2) and Cancer (TCR = 1E-5) Residential Soil Gas Vapor Intrusion Screening Level values (NCDENR, June 2014).

SGSL = IASL * (1/AF); AF = 0.03

TCR - Target cancer risk

THQ - Target hazard quotient

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

NA - Not applicable

SGSL - soil gas screening level

ATTACHMENT H

Analytical Data - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | | IR73-SG04-13B | IR73-SG04D-13B | IR78-SG25-13B | IR78-SG26-13B | IR78-SG27-13B | IR78-SG28-13B | IR78-SG66-13B | IR78-SG67-13B | IR78-SG67D-13B | IR78-SG70-13B | IR78-SG71-13B | IR78-SG72-13B |
|----------------------------|-------------------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|
| Building Number | | A47 | A47 | 1601 | 1601 | 1601 | 1601 | 1601 | 1601 | 1601 | 1606 | 1606 | 1606 |
| Sample Date | NC Non-Residential SGSL | 4/12/13 | 4/12/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/15/13 | 4/15/13 | 4/15/13 |
| Chemical Name | | | | | | | | | | | | | |
| Air Testing (ppbv) | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 80,300 | 0.25 U | 0.25 U | 380 | 300 | 29.5 | 0.696 | 5.1 | 39.3 | 25.5 | 0.05 J | 0.24 J | 0.16 J |
| 1,1-Dichloroethane | 1,890 | 0.25 U | 0.25 U | 2.7 | 1.1 | 0.093 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 125 | 0.25 UJ | 0.93 J | 0.6 | 0.25 U | 0.25 U | 0.16 J | 0.4 J |
| 1,2-Dichloroethane | 117 | 0.17 J | 0.25 UJ | 0.1 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | - | 0.5 U | 0.5 U | 2.57 | 1.17 | 0.173 J | 0.082 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 75.8 | 0.25 U | 0.25 U | 0.1 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | - | 0.25 UJ | 0.3 J | 0.2 J | 0.14 J | 0.25 U | 0.257 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.13 J |
| 1,4-Dichlorobenzene | 185 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Benzene | 491 | 1.1 J | 0.13 J | 1.7 | 10.2 | 6.7 | 3 | 0.143 J | 0.123 J | 0.112 J | 0.05 J | 0.1 J | 0.26 J |
| Bromodichloromethane | 49.4 | 1.7 | 2.7 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 324 | 0.06 J | 0.05 J | 1.1 | 0.21 J | 0.055 J | 0.25 U | 0.25 U | 0.07 J | 0.066 J | 0.15 J | 0.06 J | 0.04 J |
| Chloroform | 109 | 25.3 | 30.3 | 33.5 | 70.2 | 0.593 | 0.083 J | 0.061 J | 6.2 | 4.6 | 0.26 J | 0.3 J | 0.15 J |
| cis-1,2-Dichloroethene | - | 0.25 U | 0.25 U | 2.3 | 1 | 0.173 J | 0.082 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 153,000 | 0.25 U | 0.25 U | 0.3 J | 0.86 | 0.164 J | 0.156 J | 0.191 J | 0.14 J | 0.25 UJ | 0.1 J | 0.33 J | 7.7 |
| Ethylbenzene | 1,130 | 0.19 J | 0.39 J | 0.47 J | 2 | 1.2 | 0.495 J | 0.25 U | 0.276 J | 0.25 UJ | 0.25 U | 0.25 U | 0.22 J |
| Isopropylbenzene (Cumene) | 7,120 | 0.25 U | 0.25 U | 0.1 J | 0.41 J | 0.188 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 2,020 | 0.53 J | 0.85 J | 1.1 | 4.8 | 3.2 | 1.3 | 0.125 J | 0.904 J | 0.5 UJ | 0.5 U | 0.1 J | 0.81 J |
| Methylene chloride | 15,100 | 1.2 | 0.84 | 3.4 | 2.2 | 2.2 | 1.8 | 3.2 | 1.4 | 3 | 0.47 J | 3.2 | 1.1 |
| Naphthalene | 50.2 | 0.25 U | 0.11 J | 0.14 J | 0.13 J | 0.25 U | 0.25 U | 0.114 J | 0.108 J | 0.25 UJ | 0.1 J | 0.09 J | 0.17 J |
| o-Xylene | 2,020 | 0.14 J | 0.37 J | 0.4 J | 1.2 | 0.874 | 0.416 J | 0.25 U | 0.38 J | 0.25 UJ | 0.25 U | 0.25 U | 0.33 J |
| Tetrachloroethene | 516 | 2.6 | 1.8 | 57.1 | 63 | 43.6 | 78.1 | 6.1 | 15 | 14.4 | 0.3 J | 3.1 | 1.3 |
| Toluene | 116,000 | 1.1 J | 3.9 J | 2.9 | 7.5 | 5.2 | 3 | 0.52 | 1.2 J | 0.245 J | 0.66 | 0.28 J | 2.3 |
| trans-1,2-Dichloroethene | - | 0.25 U | 0.25 U | 0.27 J | 0.17 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Trichloroethene | 32.6 | 0.22 J | 0.14 J | 3,100 | 3,900 | 19.3 | 1.2 | 1 | 210 | 220 | 0.08 J | 0.13 J | 1.8 |
| Vinyl chloride | 1,090 | 0.25 U | 0.25 U | 0.25 U | 0.27 J | 0.156 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylene, total | 2,020 | 0.67 J | 1.22 J | 1.5 | 6 | 4.07 | 1.72 | 0.125 J | 1.28 J | 0.75 UJ | 0.75 U | 0.1 J | 1.14 J |

Notes:

Bold text indicates exceedance of the more conservative of the Non-cancer (THQ = 0.2) and Cancer (TCR = 1E-5) Non-Residential Soil Gas Vapor Intrusion Screening Level values (NCDENR, June 2014).

SGSL = IASL * (1/AF); AF = 0.01

TCR - Target cancer risk

THQ - Target hazard quotient

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

SGSL - soil gas screening level

ATTACHMENT H

Analytical Data - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | | IR93-SG01-13B | IR93-SG02-13B | IR96-SG01-13B | IR96-SG02-13B | SWMU360-SG21-13B | SWMU360-SG22-13B | SWMU360-SG12-13B | SWMU360-SG20-13B |
|----------------------------|-------------------------|---------------|---------------|---------------|---------------|------------------|------------------|------------------|------------------|
| Building Number | | TC942 | TC942 | 1827 | 1827 | 1827 | 1827 | 1828 | 1828 |
| Sample Date | NC Non-Residential SGSL | 4/13/13 | 4/13/13 | 4/15/13 | 4/15/13 | 4/15/13 | 4/15/13 | 4/10/13 | 4/12/13 |
| Chemical Name | | | | | | | | | |
| Air Testing (ppbv) | | | | | | | | | |
| 1,1,1-Trichloroethane | 80,300 | 0.25 U | 0.255 J | 0.059 J | 0.8 J |
| 1,1-Dichloroethane | 1,890 | 0.25 U | 0.25 U | 0.143 J | 2.5 U |
| 1,2,4-Trimethylbenzene | 125 | 0.25 U | 0.2 J | 0.579 | 1.1 | 1.1 | 0.684 | 0.842 | 2.5 U |
| 1,2-Dichloroethane | 117 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.103 J | 0.25 U | 0.206 J | 2.5 U |
| 1,2-Dichloroethene (total) | - | 0.5 U | 0.5 U | 0.327 J | 5 U |
| 1,2-Dichloropropane | 75.8 | 0.25 U | 0.25 U | 0.294 J | 2.5 U |
| 1,3,5-Trimethylbenzene | - | 0.25 U | 0.25 U | 0.188 J | 0.401 J | 0.401 J | 0.252 J | 0.298 J | 2.5 U |
| 1,4-Dichlorobenzene | 185 | 0.25 U | 0.25 U | 0.154 J | 2.5 U |
| Benzene | 491 | 0.1 J | 0.2 J | 0.953 | 0.968 | 0.801 | 0.805 | 8.1 | 2.5 U |
| Bromodichloromethane | 49.4 | 0.25 U | 0.25 U | 0.25 U | 2.5 U |
| Carbon tetrachloride | 324 | 0.06 J | 0.03 J | 0.057 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 2.5 U |
| Chloroform | 109 | 1.6 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.464 J | 1 J |
| cis-1,2-Dichloroethene | - | 0.25 U | 0.25 U | 0.327 J | 2.5 U |
| Cyclohexane | 153,000 | 0.1 J | 140 | 4.4 | 0.105 J | 0.25 U | 0.106 J | 0.536 | 2.5 U |
| Ethylbenzene | 1,130 | 0.25 U | 0.18 J | 0.282 J | 0.355 J | 0.283 J | 0.204 J | 1.2 | 2.5 U |
| Isopropylbenzene (Cumene) | 7,120 | 0.25 U | 0.25 U | 0.297 J | 2.5 U |
| m- and p-Xylene | 2,020 | 0.24 J | 0.76 J | 0.721 J | 0.884 J | 0.662 J | 0.467 J | 2.9 | 5 U |
| Methylene chloride | 15,100 | 1.3 | 4.0 | 1.3 | 1.2 | 1.3 | 3.2 | 2.1 | 2.5 U |
| Naphthalene | 50.2 | 0.08 J | 0.17 J | 0.182 J | 0.155 J | 0.111 J | 0.25 U | 0.139 J | 2.5 U |
| o-Xylene | 2,020 | 0.12 J | 0.3 J | 0.313 J | 0.387 J | 0.275 J | 0.212 J | 0.817 | 2.5 U |
| Tetrachloroethene | 516 | 0.74 | 0.39 J | 20.7 | 78.2 | 38.7 | 140 | 54.7 | 10,300 |
| Toluene | 116,000 | 1.1 | 2.8 | 1.9 | 2.5 | 1.5 | 1.5 | 6.1 | 2.5 U |
| trans-1,2-Dichloroethene | - | 0.25 U | 0.25 U | 0.25 U | 2.5 U |
| Trichloroethene | 32.6 | 0.09 J | 1.8 | 0.1 J | 0.973 | 2 | 0.398 J | 0.393 J | 22.8 |
| Vinyl chloride | 1,090 | 0.25 U | 0.25 U | 0.243 J | 2.5 U |
| Xylene, total | 2,020 | 0.36 J | 1.06 J | 1.03 J | 1.27 J | 0.937 J | 0.679 J | 3.72 | 7.5 U |

Notes:

Bold text indicates exceedance of the more conservative of the Non-cancer (THQ = 0.2) and Cancer (TCR = 1E-5) Non-Residential Soil Gas Vapor Intrusion Screening Level values (NCDENR, June 2014).

SGSL = IASL * (1/AF); AF = 0.01

TCR - Target cancer risk

THQ - Target hazard quotient

J - Analyte present. Value may or may not be accurate or precise

ppbv - parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

SGSL - soil gas screening level

Attachment I
Raw Data Package

Attachment I
Raw Data Package - Groundwater
VI Monitoring - IRP
MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR78-MWVI01-GW01-13B | IR78-MWVI01-GW01D-13B |
|--|----------------------|-----------------------|
| Sample Date | 4/14/13 | 4/14/13 |
| Chemical Name | | |
| Volatile Organic Compounds (UG/L) | | |
| 1,1,1-Trichloroethane | 0.5 U | 0.5 U |
| 1,1,2,2-Tetrachloroethane | 0.5 U | 0.5 U |
| 1,1-Dichloroethane | 0.5 U | 0.5 U |
| 1,2,4-Trichlorobenzene | 0.5 U | 0.5 U |
| 1,2,4-Trimethylbenzene | 0.5 U | 0.5 U |
| 1,2-Dichloroethane | 0.5 U | 0.5 U |
| 1,2-Dichloroethene (total) | 21.4 | 16.3 |
| 1,2-Dichloropropane | 0.5 U | 0.5 U |
| 1,3,5-Trimethylbenzene | 0.5 U | 0.5 U |
| 1,4-Dichlorobenzene | 0.5 U | 0.5 U |
| Benzene | 2.1 | 1.6 |
| Bromodichloromethane | 0.5 U | 0.5 U |
| Bromomethane | 0.5 UJ | 0.5 UJ |
| Carbon tetrachloride | 0.5 U | 0.5 U |
| Chloroform | 0.5 U | 0.5 U |
| cis-1,2-Dichloroethene | 20.4 J | 15.5 J |
| Cyclohexane | 0.5 UJ | 0.5 UJ |
| Ethylbenzene | 0.5 U | 0.5 U |
| Isopropyl ether | 0.5 U | 0.5 U |
| Isopropylbenzene | 0.5 U | 0.5 U |
| m- and p-Xylene | 1 U | 1 U |
| Methylcyclohexane | 0.5 U | 0.5 U |
| Methylene chloride | 0.5 U | 0.5 U |
| Naphthalene | 0.5 U | 0.5 U |
| o-Xylene | 0.5 U | 0.5 U |
| Tetrachloroethene | 0.5 U | 0.5 U |
| Toluene | 0.5 U | 0.5 U |
| trans-1,2-Dichloroethene | 0.95 J | 0.76 J |
| Trichloroethene | 0.88 J | 0.62 J |
| Vinyl chloride | 12.5 | 9.7 |
| Xylene, total | 1.5 U | 1.5 U |

Notes:

- J - Analyte present. Value may or may not be accurate or precise
- U - The material was analyzed for, but not detected
- UG/L - Micrograms per liter
- UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I
Raw Data Package - Sublab Soil Gas
VI Monitoring - IRP
MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR35-SG13-13B | IR88-SG19-13B | IR88-SG20-13B | IR88-SG20D-13B |
|----------------------------|---------------|---------------|---------------|----------------|
| Sample Date | 4/13/13 | 4/12/13 | 4/15/13 | 4/15/13 |
| Chemical Name | | | | |
| Air Testing (PPBV) | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 2.2 | 0.25 U | 0.71 | 0.94 |
| 1,2-Dichloroethane | 0.25 U | 0.11 J | 0.14 J | 0.25 UJ |
| 1,2-Dichloroethene (total) | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.88 | 0.25 U | 0.19 J | 0.29 J |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Benzene | 0.1 J | 0.11 J | 0.25 UJ | 0.21 J |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.06 J | 0.07 J | 0.08 J | 0.07 J |
| Chloroform | 0.74 | 0.08 J | 0.25 UJ | 0.19 J |
| cis-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 2.3 | 0.13 J | 0.25 UJ | 44.2 J |
| Ethylbenzene | 0.11 J | 0.25 U | 0.14 J | 0.27 J |
| Isopropylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 0.38 J | 0.21 J | 0.51 J | 0.98 J |
| Methylene chloride | 1.1 | 0.8 | 0.48 J | 0.58 |
| Naphthalene | 0.1 J | 0.18 J | 0.32 J | 0.41 J |
| o-Xylene | 0.2 J | 0.11 J | 0.26 J | 0.43 J |
| Tetrachloroethene | 0.37 J | 0.59 | 0.27 J | 0.25 J |
| Toluene | 0.65 | 3.6 | 0.39 J | 2 J |
| trans-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Trichloroethene | 0.11 J | 0.09 J | 0.19 J | 1.4 J |
| Vinyl chloride | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylene, total | 0.58 J | 0.32 J | 0.77 J | 1.41 J |

Notes:

- J - Analyte present. Value may or may not be accurate or precise
- PPBV - Parts per billion volume
- U - The material was analyzed for, but not detected
- UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR73-SG01-13B | IR73-SG02-13B | IR73-SG03-13B | IR73-SG04-13B | IR73-SG04D-13B | IR78-SG25-13B | IR78-SG26-13B | IR78-SG27-13B | IR78-SG28-13B |
|----------------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|
| Sample Date | 4/12/13 | 4/12/13 | 4/12/13 | 4/12/13 | 4/12/13 | 4/16/13 | 4/16/13 | 4/16/13 | 4/16/13 |
| Chemical Name | | | | | | | | | |
| Air Testing (PPBV) | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 380 | 300 | 29.5 | 0.696 |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 2.7 | 1.1 | 0.093 J | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.41 J | 0.15 J | 0.37 J | 0.25 UJ | 0.93 J | 0.6 | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethane | 0.12 J | 0.14 J | 0.19 J | 0.17 J | 0.25 UJ | 0.1 J | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | 0.28 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 2.57 | 1.17 | 0.173 J | 0.082 J |
| 1,2-Dichloropropane | 0.25 U | 0.11 J | 0.18 J | 0.25 U | 0.25 U | 0.1 J | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.13 J | 0.25 U | 0.12 J | 0.25 UJ | 0.3 J | 0.2 J | 0.14 J | 0.25 U | 0.257 J |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.1 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Benzene | 0.13 J | 0.25 U | 0.07 J | 1.1 J | 0.13 J | 1.7 | 10.2 | 6.7 | 3 |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U | 1.7 | 2.7 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.07 J | 0.06 J | 0.07 J | 0.06 J | 0.05 J | 1.1 | 0.21 J | 0.055 J | 0.25 U |
| Chloroform | 0.25 U | 0.25 U | 0.32 J | 25.3 | 30.3 | 33.5 | 70.2 | 0.593 | 0.083 J |
| cis-1,2-Dichloroethene | 0.28 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 2.3 | 1 | 0.173 J | 0.082 J |
| Cyclohexane | 0.14 J | 0.25 U | 0.12 J | 0.25 U | 0.25 U | 0.3 J | 0.86 | 0.164 J | 0.156 J |
| Ethylbenzene | 0.2 J | 0.25 U | 0.25 U | 0.19 J | 0.39 J | 0.47 J | 2 | 1.2 | 0.495 J |
| Isopropylbenzene | 0.25 U | 0.1 J | 0.41 J | 0.188 J | 0.25 U |
| m- and p-Xylene | 0.48 J | 0.13 J | 0.5 U | 0.53 J | 0.85 J | 1.1 | 4.8 | 3.2 | 1.3 |
| Methylene chloride | 0.73 | 0.79 | 1.6 | 1.2 | 0.84 | 3.4 | 2.2 | 2.2 | 1.8 |
| Naphthalene | 0.13 J | 0.11 J | 0.15 J | 0.25 U | 0.11 J | 0.14 J | 0.13 J | 0.25 U | 0.25 U |
| o-Xylene | 0.22 J | 0.25 U | 0.25 U | 0.14 J | 0.37 J | 0.4 J | 1.2 | 0.874 | 0.416 J |
| Tetrachloroethene | 0.77 | 1.3 | 2.1 | 2.6 | 1.8 | 57.1 | 63 | 43.6 | 78.1 |
| Toluene | 1.9 | 0.44 J | 0.08 J | 1.1 J | 3.9 J | 2.9 | 7.5 | 5.2 | 3 |
| trans-1,2-Dichloroethene | 0.25 U | 0.27 J | 0.17 J | 0.25 U | 0.25 U |
| Trichloroethene | 5.8 | 0.14 J | 0.34 J | 0.22 J | 0.14 J | 3,100 | 3,900 | 19.3 | 1.2 |
| Vinyl chloride | 0.25 U | 0.25 U | 0.27 J | 0.156 J | 0.25 U |
| Xylene, total | 0.7 J | 0.13 J | 0.75 U | 0.67 J | 1.22 J | 1.5 | 6 | 4.07 | 1.72 |

Notes:

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR78-SG66-13B | IR78-SG67-13B | IR78-SG67D-13B | IR78-SG70-13B | IR78-SG71-13B | IR78-SG72-13B | IR93-SG01-13B | IR93-SG02-13B |
|----------------------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|
| Sample Date | 4/16/13 | 4/16/13 | 4/16/13 | 4/15/13 | 4/15/13 | 4/15/13 | 4/13/13 | 4/13/13 |
| Chemical Name | | | | | | | | |
| Air Testing (PPBV) | | | | | | | | |
| 1,1,1-Trichloroethane | 5.1 | 39.3 | 25.5 | 0.05 J | 0.24 J | 0.16 J | 0.25 U | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.16 J | 0.4 J | 0.25 U | 0.2 J |
| 1,2-Dichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.13 J | 0.25 U | 0.25 U |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Benzene | 0.143 J | 0.123 J | 0.112 J | 0.05 J | 0.1 J | 0.26 J | 0.1 J | 0.2 J |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.25 U | 0.07 J | 0.066 J | 0.15 J | 0.06 J | 0.04 J | 0.06 J | 0.03 J |
| Chloroform | 0.061 J | 6.2 | 4.6 | 0.26 J | 0.3 J | 0.15 J | 1.6 | 0.25 U |
| cis-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 0.191 J | 0.14 J | 0.25 UJ | 0.1 J | 0.33 J | 7.7 | 0.1 J | 140 |
| Ethylbenzene | 0.25 U | 0.276 J | 0.25 UJ | 0.25 U | 0.25 U | 0.22 J | 0.25 U | 0.18 J |
| Isopropylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 0.125 J | 0.904 J | 0.5 UJ | 0.5 U | 0.1 J | 0.81 J | 0.24 J | 0.76 J |
| Methylene chloride | 3.2 | 1.4 | 3 | 0.47 J | 3.2 | 1.1 | 1.3 | 4 |
| Naphthalene | 0.114 J | 0.108 J | 0.25 UJ | 0.1 J | 0.09 J | 0.17 J | 0.08 J | 0.17 J |
| o-Xylene | 0.25 U | 0.38 J | 0.25 UJ | 0.25 U | 0.25 U | 0.33 J | 0.12 J | 0.3 J |
| Tetrachloroethene | 6.1 | 15 | 14.4 | 0.3 J | 3.1 | 1.3 | 0.74 | 0.39 J |
| Toluene | 0.52 | 1.2 J | 0.245 J | 0.66 | 0.28 J | 2.3 | 1.1 | 2.8 |
| trans-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Trichloroethene | 1 | 210 | 220 | 0.08 J | 0.13 J | 1.8 | 0.09 J | 1.8 |
| Vinyl chloride | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylene, total | 0.125 J | 1.28 J | 0.75 UJ | 0.75 U | 0.1 J | 1.14 J | 0.36 J | 1.06 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Subslab Soil Gas

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR96-SG01-13B | IR96-SG02-13B | SWMU360-SG12-13B | SWMU360-SG20-13B | SWMU360-SG21-13B | SWMU360-SG22-13B |
|----------------------------|---------------|---------------|------------------|------------------|------------------|------------------|
| Sample Date | 4/15/13 | 4/15/13 | 4/10/13 | 4/12/13 | 4/15/13 | 4/15/13 |
| Chemical Name | | | | | | |
| Air Testing (PPBV) | | | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 0.25 U | 0.059 J | 0.8 J | 0.25 U | 0.255 J |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.25 U | 0.143 J | 2.5 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.579 | 1.1 | 0.842 | 2.5 U | 1.1 | 0.684 |
| 1,2-Dichloroethane | 0.25 U | 0.25 U | 0.206 J | 2.5 U | 0.103 J | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U | 0.5 U | 0.327 J | 5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.25 U | 0.294 J | 2.5 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.188 J | 0.401 J | 0.298 J | 2.5 U | 0.401 J | 0.252 J |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.154 J | 2.5 U | 0.25 U | 0.25 U |
| Benzene | 0.953 | 0.968 | 8.1 | 2.5 U | 0.801 | 0.805 |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.057 J | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| Chloroform | 0.25 U | 0.25 U | 0.464 J | 1 J | 0.25 U | 0.25 U |
| cis-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.327 J | 2.5 U | 0.25 U | 0.25 U |
| Cyclohexane | 4.4 | 0.105 J | 0.536 | 2.5 U | 0.25 U | 0.106 J |
| Ethylbenzene | 0.282 J | 0.355 J | 1.2 | 2.5 U | 0.283 J | 0.204 J |
| Isopropylbenzene | 0.25 U | 0.25 U | 0.297 J | 2.5 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 0.721 J | 0.884 J | 2.9 | 5 U | 0.662 J | 0.467 J |
| Methylene chloride | 1.3 | 1.2 | 2.1 | 2.5 U | 1.3 | 3.2 |
| Naphthalene | 0.182 J | 0.155 J | 0.139 J | 2.5 U | 0.111 J | 0.25 U |
| o-Xylene | 0.313 J | 0.387 J | 0.817 | 2.5 U | 0.275 J | 0.212 J |
| Tetrachloroethene | 20.7 | 78.2 | 54.7 | 10,300 | 38.7 | 140 |
| Toluene | 1.9 | 2.5 | 6.1 | 2.5 U | 1.5 | 1.5 |
| trans-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 2.5 U | 0.25 U | 0.25 U |
| Trichloroethene | 0.1 J | 0.973 | 0.393 J | 22.8 | 2 | 0.398 J |
| Vinyl chloride | 0.25 U | 0.25 U | 0.243 J | 2.5 U | 0.25 U | 0.25 U |
| Xylene, total | 1.03 J | 1.27 J | 3.72 | 7.5 U | 0.937 J | 0.679 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Indoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR78-IA25-13B | IR78-IA26-13B | IR78-IA27-13B | IR78-IA28-13B | IR78-IA29-13B | IR88-CS01-13B | IR88-CS01D-13B | IR89-IA03-13B | IR89-IA03D-13B |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|----------------|
| Sample Date | 4/10/13 | 4/10/13 | 4/10/13 | 4/10/13 | 4/10/13 | 4/14/13 | 4/14/13 | 4/12/13 | 4/12/13 |
| Chemical Name | | | | | | | | | |
| Air Testing (PPBV) | | | | | | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 0.25 U | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 1.8 | 0.43 J | 0.45 J | 0.18 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethane | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.46 J | 0.12 J | 0.12 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.15 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Benzene | 0.18 J | 0.16 J | 0.15 J | 0.2 J | 0.11 J | 0.1 J | 0.12 J | 0.067 J | 0.058 J |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.06 J | 0.059 J | 0.056 J |
| Chloroform | 0.25 U | 0.03 J | 0.07 J | 0.04 J | 0.04 J | 0.25 U | 0.05 J | 0.25 U | 0.25 U |
| cis-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 0.17 J | 0.11 J | 0.14 J | 0.22 J | 0.13 J | 0.25 UJ | 0.4 J | 0.25 U | 0.25 U |
| Ethylbenzene | 0.77 | 0.44 J | 0.66 | 0.34 J | 0.11 J | 0.25 U | 0.11 J | 0.359 J | 0.202 J |
| Isopropylbenzene | 0.11 J | 0.25 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 2.1 | 1.1 | 1.3 | 1.2 | 0.16 J | 0.2 J | 0.44 J | 1.2 J | 0.455 J |
| Methylene chloride | 0.43 J | 0.84 | 0.37 J | 2.6 | 0.41 J | 0.5 J | 2.4 J | 0.424 J | 0.43 J |
| Naphthalene | 0.69 | 0.23 J | 0.13 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| o-Xylene | 0.94 | 0.46 J | 0.53 | 0.52 | 0.25 U | 0.25 UJ | 0.17 J | 0.471 J | 0.172 J |
| Tetrachloroethene | 0.12 J | 0.07 J | 0.05 J | 0.05 J | 0.04 J | 0.25 U | 0.25 U | 0.064 J | 0.05 J |
| Toluene | 8.3 | 7.6 | 8.1 | 12.3 | 5.6 | 1.2 | 1.5 | 3.4 | 4.7 |
| trans-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U |
| Trichloroethene | 0.14 J | 0.18 J | 0.13 J | 0.07 J | 0.05 J | 0.04 J | 0.04 J | 0.031 J | 0.06 J |
| Vinyl chloride | 0.25 U | 0.25 U | 0.25 U |
| Xylene, total | 3.04 | 1.56 | 1.83 | 1.72 | 0.16 J | 0.2 J | 0.61 J | 1.67 J | 0.627 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise
 PPBV - Parts per billion volume
 U - The material was analyzed for, but not detected
 UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Indoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR89-IA04-13B | SWMU360-IA21-13B | SWMU360-IA21D-13B | SWMU360-IA22-13B |
|----------------------------|---------------|------------------|-------------------|------------------|
| Sample Date | 4/12/13 | 4/10/13 | 4/10/13 | 4/10/13 |
| Chemical Name | | | | |
| Air Testing (PPBV) | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.25 U | 0.702 J | 0.25 UJ | 0.49 J |
| 1,2-Dichloroethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U | 0.65 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.25 U | 0.26 J | 0.25 UJ | 0.13 J |
| 1,4-Dichlorobenzene | 0.25 U | 0.546 J | 0.25 UJ | 0.77 |
| Benzene | 0.133 J | 0.624 J | 0.17 J | 0.35 J |
| Bromodichloromethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.054 J | 0.104 J | 0.05 J | 0.06 J |
| Chloroform | 0.25 U | 0.104 J | 0.03 J | 0.06 J |
| cis-1,2-Dichloroethene | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| Cyclohexane | 0.383 J | 0.273 J | 0.12 J | 0.15 J |
| Ethylbenzene | 0.282 J | 1.3 J | 0.25 UJ | 0.37 J |
| Isopropylbenzene | 0.25 U | 0.143 J | 0.25 UJ | 0.25 U |
| m- and p-Xylene | 0.773 J | 3.5 J | 0.13 J | 0.96 J |
| Methylene chloride | 0.475 J | 0.767 | 0.54 | 0.75 |
| Naphthalene | 0.25 U | 0.325 U | 0.25 U | 0.15 J |
| o-Xylene | 0.252 J | 1.4 J | 0.25 UJ | 0.39 J |
| Tetrachloroethene | 0.037 J | 2.1 J | 0.44 J | 0.08 J |
| Toluene | 4.1 | 16.9 J | 1.5 J | 5.7 |
| trans-1,2-Dichloroethene | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| Trichloroethene | 0.128 J | 0.286 J | 0.2 J | 0.13 J |
| Vinyl chloride | 0.25 U | 0.325 U | 0.25 U | 0.25 U |
| Xylene, total | 1.03 J | 4.9 J | 0.13 J | 1.35 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise
 PPBV - Parts per billion volume
 U - The material was analyzed for, but not detected
 UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I
Raw Data Package - Indoor Air
VI Monitoring - IRP
MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR35-IA01-13B | IR35-IA02-13B | IR35-IA02D-13B | IR88-IA15-13B | IR88-IA16-13B |
|----------------------------|---------------|---------------|----------------|---------------|---------------|
| Sample Date | 4/11/13 | 4/11/13 | 4/11/13 | 4/10/13 | 4/10/13 |
| Chemical Name | | | | | |
| Air Testing (PPBV) | | | | | |
| 1,1,1-Trichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,1-Dichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.25 U | 0.25 UJ | 0.12 J | 0.25 U | 0.25 U |
| 1,2-Dichloroethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| 1,2-Dichloropropane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| 1,4-Dichlorobenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.14 J |
| Benzene | 0.198 J | 0.173 J | 0.24 J | 0.24 J | 0.21 J |
| Bromodichloromethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Bromomethane | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.057 J | 0.05 J | 0.09 J | 0.07 J | 0.07 J |
| Chloroform | 0.25 U | 0.25 U | 0.09 J | 0.04 J | 0.19 J |
| cis-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Cyclohexane | 0.204 J | 0.22 J | 0.23 J | 0.13 J | 0.1 J |
| Ethylbenzene | 0.167 J | 0.252 J | 0.36 J | 0.2 J | 0.56 |
| Isopropylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| m- and p-Xylene | 0.445 J | 0.79 J | 1 | 0.27 J | 1.5 |
| Methylene chloride | 2.1 | 0.657 | 0.49 J | 1 | 0.25 U |
| Naphthalene | 0.25 U | 0.25 U | 0.25 UJ | 0.25 U | 0.25 U |
| o-Xylene | 0.154 J | 0.26 J | 0.37 J | 0.1 J | 0.51 |
| Tetrachloroethene | 0.08 J | 0.101 J | 0.1 J | 0.31 J | 0.13 J |
| Toluene | 6.6 | 6.9 | 5 | 5.3 | 7.9 |
| trans-1,2-Dichloroethene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Trichloroethene | 0.1 J | 0.136 J | 0.08 J | 0.81 | 0.1 J |
| Vinyl chloride | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylene, total | 0.599 J | 1.05 J | 1.37 | 0.37 J | 2.01 |

Notes:

- J - Analyte present. Value may or may not be accurate or precise
- PPBV - Parts per billion volume
- U - The material was analyzed for, but not detected
- UJ - Analyte not detected, quantitation limit may be inaccurate

Attachment I

Raw Data Package - Outdoor Air

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Sample ID | IR35-OA01-13B | IR78-OA01-13B | IR88-OA01-13B | IR88-OA02-13B | IR89-OA01-13B | IR96-OA01-13B |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Sample Date | 4/11/13 | 4/10/13 | 4/10/13 | 4/14/13 | 4/12/13 | 4/10/13 |
| Chemical Name | | | | | | |
| Air Testing (PPBV) | | | | | | |
| 1,1,1-Trichloroethane | 0.25 U |
| 1,1,2,2-Tetrachloroethane | 0.25 U |
| 1,1-Dichloroethane | 0.25 U |
| 1,2,4-Trichlorobenzene | 0.25 U |
| 1,2,4-Trimethylbenzene | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.11 J | 0.13 J |
| 1,2-Dichloroethane | 0.25 U |
| 1,2-Dichloroethene (total) | 0.5 U |
| 1,2-Dichloropropane | 0.25 U |
| 1,3,5-Trimethylbenzene | 0.25 U |
| 1,4-Dichlorobenzene | 0.25 U |
| Benzene | 0.221 J | 0.142 J | 0.16 J | 0.11 J | 0.15 J | 0.13 J |
| Bromodichloromethane | 0.25 U |
| Bromomethane | 0.25 U | 0.098 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Carbon tetrachloride | 0.058 J | 0.075 J | 0.07 J | 0.06 J | 0.06 J | 0.06 J |
| Chloroform | 0.25 U | 0.1 J | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| cis-1,2-Dichloroethene | 0.25 U |
| Cyclohexane | 0.289 J | 0.125 J | 0.25 U | 0.25 U | 0.31 J | 0.25 U |
| Ethylbenzene | 0.585 | 0.212 J | 0.12 J | 0.25 U | 0.35 J | 0.26 J |
| Isopropylbenzene | 0.25 U |
| m- and p-Xylene | 1.3 | 0.399 J | 0.16 J | 0.13 J | 1.1 | 0.41 J |
| Methylene chloride | 0.431 J | 5 | 0.38 J | 0.65 | 1 | 0.37 J |
| Naphthalene | 0.25 U |
| o-Xylene | 0.461 J | 0.164 J | 0.25 U | 0.25 U | 0.42 J | 0.18 J |
| Tetrachloroethene | 0.099 J | 0.046 J | 0.03 J | 0.25 U | 0.1 J | 0.06 J |
| Toluene | 6.8 | 3.9 | 2.5 | 1.7 | 3.9 | 6.4 |
| trans-1,2-Dichloroethene | 0.25 U |
| Trichloroethene | 0.239 J | 0.241 J | 0.25 U | 0.06 J | 0.27 J | 0.23 J |
| Vinyl chloride | 0.25 U |
| Xylene, total | 1.76 | 0.563 J | 0.16 J | 0.13 J | 1.52 | 0.59 J |

Notes:

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

Attachment J
IRP Building Summary

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|--|
| Site 93 | TC836 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | SG848 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1026 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC754 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC829 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC813 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G930 | Y | Evaluated as part of the Base-wide evaluation and NFA was recommended |
| | TC839 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC828 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1062 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G920 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1027 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC953 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1063 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC819 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC838 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | MFCUG920 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC848 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC837 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1142 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1060 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC1061 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC942 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic GWSLs. |
| | TC1019 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| TC1143 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| TC846 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| TC827 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| TC826 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G930A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| SG920B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| Site 89 | STC872 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC864 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic GWSLs and was recommended for additional sampling at the conclusion of Phase III. |
| | AS1053 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC762 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC771 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | SG866 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1061 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1065 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC860 | Y | Evaluated as part of the Base-wide evaluation and NFA was recommended |
| | TC773 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1055 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC953 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1057 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC848 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1067 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC761 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC768 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC867 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1059 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | AS1063 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| TC846 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------------|-------------|---|--|
| Site 35 | G552 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G524 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC836 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G482 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC872 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | SG642 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | MFCUATMG640 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC760 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC569 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC774 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G542 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC608 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC864 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic GWSLs and was recommended for additional sampling at the conclusion of Phase III. |
| | SG649 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC754 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G520 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G523 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G713 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G773 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G532 | Y | Evaluated for VI during the Base-wide Evaluation and NFA was recommended |
| | G653 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC762 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G534 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC829 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G575 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G530 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC771 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC775 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G540 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | SG866 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC860 | Y | Evaluated as part of the Base-wide evaluation and NFA was recommended |
| | TC773 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC828 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC755 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G708 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G550 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G533 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic residential GWSLs and additional sampling was recommended at the conclusion of Phase III. |
| | G553 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G522 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC562 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G560 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G709 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G650 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC572 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | TC848 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G544 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G554 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G615 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G531 | Y | Evaluated for VI during the Base-wide Evaluation and NFA was recommended |
| | G480 | Y | Evaluated for VI during the Base-wide Evaluation and NFA was recommended |
| | TC761 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G551 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| STC768 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G521 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| STC867 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G702 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G541 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G710 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G640 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| TC611 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G543 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| STC769 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1STCITATMG640 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| G770 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| TC846 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|---|
| Site 35 | TC366F | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G703 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC366E | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G619 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G618 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G617 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | G644 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | SG644E | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | STC366A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| STC366B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| Site 78 | 1501 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1746 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S926 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1602 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1341 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 403A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1315 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1057 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1707 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 400 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 315 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP5 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1106 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1015 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1006 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP53 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1401 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 50 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1423 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP512 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1128 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 36 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1408 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1403 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 501 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1202 | Y | VIMS installed |
| | 1505 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1304 | N | Located within 110 ft of a biopulse well |
| | 1399 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 401 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1767 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 89 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 457 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S969A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 63 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S962 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1016 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1038 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1023 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1610 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1070 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| 1810 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1135 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| HP301 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 913 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1808 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 903 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended | |
| HP51 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 403 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1236 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1601 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic industrial GWSLs and recommended for additional sampling at the conclusion of Phase III. | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|--|
| Site 78 | 1500 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S770 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1406 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1206 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1819 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 1402 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 65 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1312 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP1016 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1605 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S965 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1124 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP515 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1311 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1111 | N | Recommended during Phase III because a subslab sample could not be collected, benzene >100 mg/L and <10 ft of separation; biopulse well located 50 ft away |
| | 1804 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1413 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1829 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1115 | Y | VIMS installed |
| | 66 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1410 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1506 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1604 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1310 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1404 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1107 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 897 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1050 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 27 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1742 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1725 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1728 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 902 | Y | VIMS installed |
| | 1306 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1101 | N | VIMS installed; indoor and outdoor air sampling at Building 1101 was added to the 5-Year monitoring event at the request of MCIEAST-MCB CAMLEJ. An active subslab depressurization system is currently in operation at this building. The additional sampling activities will be conducted to evaluate VOC concentrations in indoor air. |
| | 1883 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 593 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 967 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1225 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 16A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 896 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1701 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1340 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1230 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1105 | N | Located within 30 ft of one shallow monitoring well with VOC concentrations above generic industrial GWSLs; benzene >100 mg/L and <10 ft of separation; biopulse well located 50 ft away |
| | 433 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1762 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1772 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 853 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1053 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| 1409 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1613 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended | |
| 1750 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1056 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 901 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended | |
| S1136 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S892 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1747 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1220 | Y | VIMS installed | |
| S1753 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 39 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1713 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|---|
| Site 78 | 51715 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1010 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1688 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1515 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1738 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1765 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 5739 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1603 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 1895 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 826 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1884 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1308 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1203 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 738 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 51836 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1606 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic industrial GWSLs and recommended for additional sampling at the conclusion of Phase III. |
| | 425A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1114 | N | Located within 30 ft of one shallow monitoring well with VOC concentrations above generic industrial GWSLs; free product present <30 ft away; benzene >1000 µg/L; biopulse well < 120 ft away |
| | 1405 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP415 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP89 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1205 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1770 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1775 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 51714 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 524 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP52 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1400 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 445 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1140 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1710 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1611 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 976A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1141 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 87 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1014 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 593 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 909 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP1017 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 904 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S955 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 905 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 14 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1880 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1235 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 919 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1817 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 1407 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1108 | Y | Evaluated as part of the Base-wide evaluation and NFA was recommended |
| | 1201 | Y | VIMS installed |
| S1071 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S943 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1204 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| HP28 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 927 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1120 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 751 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1726 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 898 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1711 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1100 | Y | Evaluated as part of the Base-wide evaluation and NFA was recommended | |
| HP88 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1503 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|---|
| Site 78 | 64 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1231 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 977 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP407 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1068 | Y | VIMS installed |
| | S1752 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1771 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1112 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 14A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 15 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1851 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1301 | Y | VIMS installed |
| | S1761 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1200 | Y | VIMS installed |
| | 1104 | N | Located within 30 ft of one shallow monitoring well with VOC concentrations above generic industrial GWSLs; benzene >100 µg/L and <10 ft of separation; biopulse well located 105 ft away |
| | 500 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1037 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1309 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 84 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 895 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1775D | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1775F | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP513 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1003 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S90 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1711A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1710A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1710B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1710C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1307 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 344 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1504 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1232 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 11 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S960 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 425 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1612 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP405 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1502 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 16 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1414 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | CONT81 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | CONT80 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1829A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1829B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1829C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1880A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S15A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1D | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| 63A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1238 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1005A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S86 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| F11 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1005 | Y | VIMS installed | |
| S1808A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1808B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1808C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1808D | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1700 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S1743 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 1687 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| S770A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |

Summary of Buildings within LUC Boundary as of December 2013

VI Monitoring - IRP

MCIEAST-MCB CAMLEJ, North Carolina

| Site | BUILDNG_ID | Excluded from 2013 VI Monitoring | Reason for Exclusion/Inclusion |
|---------|------------|---|--|
| Site 96 | 1827 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic industrial GWSLs and were recommended for additional sampling at the conclusion of Phase III. |
| | 1893 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1828 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic industrial GWSLs and were recommended for additional sampling at the conclusion of Phase III. |
| | 1841 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1821 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1817 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | 1826 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1847A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 1855 | Y | Evaluated during the Base-wide Evaluation and NFA was recommended |
| | S1841F | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1841G | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1854C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1841C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1837 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S1855C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| S1855A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| Site 88 | S108 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 254 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 3B | Y | VIMS Installed |
| | 107 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 3 | Y | VIMS Installed |
| | 236 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 147 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 113 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 19 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 103 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 67 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S94 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 43 | Y | VIMS Installed |
| | 4 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 133 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | HP57 | N | Phase III results indicated subslab soil gas concentrations in exceedance of SGSLs. |
| | 37 | Y | VIMS installed |
| | 37A | N | Located within 100 ft of an upper surficial monitoring well containing VOC concentrations in exceedance of generic GWSLs. |
| | S43A | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S43B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S67C | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | 234 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| | S67B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS |
| CONT67 | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| 43C | Y | Construction Trailer with a well-ventilated skirt | |
| 43D | Y | Unoccupied guard shack | |
| 19B | Y | Not located within 100 ft of a shallow monitoring well with VOC concentrations above the NCGWQS | |
| Site 73 | SA29A | Y | Open structure where vapors from subsurface are unlikely to accumulate |
| | SA56 | Y | Open structure where vapors from subsurface are unlikely to accumulate |
| | SA57 | Y | Open structure where vapors from subsurface are unlikely to accumulate |
| | A47 | N | Located within 100 feet of shallow groundwater concentrations in exceedance of generic GWSLs and is recommended for additional sampling to evaluate VOC concentrations in subslab soil gas to confirm that the subslab soil gas concentrations have returned to baseline levels now that air sparge system has been permanently shut down. |

Added these based on IRP SAP (CH2M HILL, 2013) buildings

Building listed under two or more site names