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Soil Vapor Investigation Study

ARO Corporation Site
Cheektowaga, New York

March 2009

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Soil Vapor Investigation Study

ARO Corporation Site
Cheektowaga, New York

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1. Introduction

On behalf of Ingersoll Rand Company, ARCADIS has prepared this Soil Vapor Investigation Study report on the results of the Soil Vapor Investigation (SVI) at the ARO Corporation Site (the Site) in Cheektowaga, New York. The SVI was performed in accordance with the New York State Department of Environmental Conservation's (NYSDEC's) approved Work Plan for Soil Vapor Investigation Study (work plan) (ARCADIS 2007). The SVI is being conducted in a phased approach. This phase of the SVI specifically focuses on an evaluation of whether volatile organic compounds (VOCs) are entering the soil gas in the vadose zone from site groundwater, and if these VOCs have the potential to migrate via soil gas into the indoor air of nearby buildings.

As described herein, the vapor intrusion pathway will be evaluated in a phased manner. During the initial phase of work in May 2008, ARCADIS conducted soil gas and ambient air sampling to determine the presence of soil gas upgradient of the area of groundwater impacts. Following review of the May 2008 soil gas results, ARCADIS prepared the Interim Draft Soil Vapor Investigation Report, ARO Corporation Site, which recommended additional soil gas sampling be conducted. The additional soil gas sampling was intended to confirm the detections of VOCs, and to collect samples when groundwater elevations were lower and while operating different recovery wells associated with VER remedial system. This report provides background information on the Site, describes the soil gas investigation methodology, and summarizes the results for the soil gas sampling events.

To supplement the semi-annual groundwater monitoring program at the site, ARCADIS collected groundwater samples from monitoring wells located upgradient of the groundwater VOC plume. These results are incorporated herein and evaluated as part of the SVI study.

2. Background

The site description, with respect to its location, setting, history and current use, and previous investigations, is described in the following sections. This information was used as a basis for developing the scope of work as described in the work plan (ARCADIS 2007).

2.1 Site Location and Description

The ARO Corporation site is located on Broadway Street (Route 130) in the Town of Cheektowaga, Erie County, New York (see Figure 1). The property consists of the former ARO Corporation parcel and two parcels formerly owned by Richard J. Zydel located adjacent to and west of the ARO parcel. The area surrounding the site is zoned as light industrial/residential. The site is an inactive hazardous waste disposal site and listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 915147. The site is designated as a Class "4" site.

Processes and uses in the facility in areas relevant to this report include the following (Capsule Environmental Engineering 1994): The ARO metals preparation room was located on the west side of the main facility building, prior to ARO occupation of the facility, this area was formerly a paint shop. ARO also had small-scale paint operations in the northern portion of the building before these operations were moved into the eastern wing of the building in 1992. Small-scale chemical lab operations and a mold room were also located in the northern part of the building at one time, and a water-quality/environmental lab was also located in the northwest corner of the building.

The remedial investigation (RI) at the site was conducted during the early 1990's and is summarized in various investigation reports. The extent of VOCs at the site delineated during the RI determined that site-related VOCs consisted of trichloroethene [TCE], cis -1,2 dichloroethene [DCE] and vinyl chloride, and were present in the subsurface beneath the southern portion of the former ARO building and the area to the south and downgradient of the source areas identified near the former metals prep room (RW-10 area) and loading dock (RW-3 area). The Record of Decision (ROD) defined the remedial action objectives for the site and the area to be addressed by the remedy. ARCADIS designed and implemented a Vacuum Enhanced Recovery (VER) groundwater collection and treatment system which began operation in 1998 (Geraghty & Miller 1997).

The former ARO main facility building, which was demolished in December 1997, covered approximately 69,000 square feet of the property. The floor slab of the former main facility building was left in place and not demolished. A separate maintenance and storage building, approximately 4,800 square feet in size was not demolished, and is located south of the main facility building (Figure 2). This building currently houses the VER system. Other property areas include a paved area north of the former main facility building, and a larger, paved parking lot area south of the former building. Areas south and west of the parking lot are open fields. The former Zydel properties

included abandoned homes and a garage that were demolished in late November 1998.

The nearest buildings to the site are residential dwellings located on Broadway Street. The locations of the nearest residential dwellings and approximate property lines are shown on Figure 2. The single family residence directly north and adjacent to the site is located at 3707 Broadway Street, the residence to the northeast is 3689 Broadway Street and the residence just northwest of the site is located at 3745 Broadway Street. No information is available at this time with respect to the presence or depth of basements at these residences. All of these residences are described on tax records as having city water and sewer, gas hot air heating and no central air conditioning. Dates of construction for the residences range from 1949 to 1956.

2.2 Site History and Current Use

The former ARO facility manufactured life support equipment, cryogenic storage vessels, breathing regulators and testing equipment. Manufacturing operations were located within the former 69,000 square foot facility building which is shown on Figure 2. Operations were discontinued in the early 1990's and in 1994 the building was vacated. As noted in Section 2.1, the facility building was demolished in 1997 and the former building slab left in place.

The site is currently vacant and is not used for any purpose other than the remedial system operations described below. Routine weekly and monthly site checks are conducted to monitor the operation and performance of the remedial system.

3. Soil Vapor Investigation Methodology

The objective of the SVI was to determine whether site-related VOCs (trichloroethene [TCE], cis -1,2 dichloroethene [DCE], and vinyl chloride) are present in soil gas in the unsaturated (vadose) zone, and, if present, evaluate the potential for soil vapor to migrate into indoor air at concentrations above background, as a result of the vapor intrusion pathway.

3.1 Soil Gas Probe Installation

Soil gas samples were collected using permanent soil vapor probes installed using the Geoprobe® System by Nothnagle Drilling on May 2, 2008 (Figure 3). The soil gas probe installations were constructed in generally the same manner at each location

with some modification to the proposed depth due to shallow groundwater conditions (see Figure 4). The three soil gas probe screens were installed at the following depths: SG-1 ~1'1" to 1'9" bgs (top of slab), SG-2 ~6" to 1' bgs (top of slab), and SG-3 ~10" to 1'6" bgs. These depths were selected to provide information on vapor concentrations directly above the water table.

The soil vapor probe was installed using a steel rod driven into the subsurface. Each borehole was filled with bentonite to seal off any water and place the permanent soil vapor probe at the desired depth. The probe consisted of a stainless-steel screen fitted with inert sampling tubing (Teflon or Teflon-lined polyethylene). With the probe installed at the bottom of the sampling interval, the drive rod was slowly retracted and the screened interval was filled with a porous backfill material of glass beads and then sealed with a bentonite layer. The remainder of the borehole was completed with a cement or cement/bentonite seal. Sample tubing was capped following installation (and following all sample activities) to prevent potential soil gas flow to the surface, and to help prevent infiltration of outdoor air or water. A protective casing was set on top of the probe tubing and grouted in place to minimize infiltration of water and/or outdoor air, and to prevent accidental damage. Construction details for each soil gas probe are included in Appendix A.

3.2 Soil Gas Sampling

ARCADIS performed three sampling events at the site on May 6, 2008, September 25, 2008, and February 9, 2009 in accordance with the methodology outlined in the Work Plan submitted to the NYSDEC in December 2007. During each sampling event, water levels were collected in site monitoring wells to determine depth to groundwater below ground surface and groundwater flow directions within the shallow till soils.

- On May 6, 2008 ARCADIS collected soil gas samples from the 3 soil gas probe locations including two ambient air samples shown on Figure 3. A single duplicate sample was collected from SG-3 which was randomly selected. The VER system was running at the time of the sampling with wells RW-4, RW-5 and RW-6 online. Groundwater contours at the time of sampling are shown on Figure 5a.

- On September 26, 2008 ARCADIS collected soil gas samples from the 3 soil gas probe locations including two ambient air samples shown on Figure 3. A single duplicate sample was collected from SG-3 which was randomly selected. The VER system was running at the time of the sampling with wells RW-1, RW-3 and RW-10 online. Groundwater contours at the time of sampling are shown on Figure 5b.

- On February 9, 2009 ARCADIS collected soil gas samples from 2 of the 3 soil gas probe locations and the two ambient air samples shown on Figure 3. Soil gas probe SG-3 could not be sampled due the presence of water in the probe screen. A single duplicate sample was collected from SG-2 which was randomly selected. The VER system was running at the time of the sampling with wells RW-1, RW-3, RW-9, and RW-10 online. Groundwater contours at the time of sampling are shown on Figure 5c.

Prior to collecting soil gas samples, a tracer gas test using helium was completed to test the integrity of the vapor probe installations. In brief, helium was introduced into a shroud covering the intersection of the sample tubing and the ground. After releasing the tracer gas, a helium detector probe was placed inside the sample tubing and through the shroud covering. The atmosphere under the shroud theoretically contained 75% helium. The helium detector purged the air from the sample tubing. If helium was not detected during purging, then the sample tubing did not contain leaks which would allow helium to be introduced to the sample tubing.

On May 6, 2008 sample probes SG-1 and SG-2 passed the helium test on the first attempt. SG-3 passed on the second attempt after tightening connections. Each sample point was then purged approximately 1-3 volumes. Minor amounts of water were present in SG-2. ARCADIS purged the soil gas probe of water before setting up the sampling canister. Based on the limited amount of water present, it is likely that some water was present within the bentonite seal and was temporarily trapped.

On September 26, 2008 all sample probes passed the helium test on the first attempt. Each sample point was then purged approximately 1-3 volumes. When purging SG-1 water was present. ARCADIS purged the probe dry before setting up the sampling canister.

On February 9, 2009 sample probes SG-1 and SG-2 passed the helium test; SG-1 passed on the first attempt and SG-2 passed on the second attempt. Each sample point was then purged approximately 1-3 volumes. The SG-2 casing and tubing contained a minor amount of water, and a peristaltic pump was used to purge the probe dry before setting up the sampling canister. SG-3 was not sampled; due to a recent snow melt surface water had collected on the ground surface and was likely introduced into the vadose zone of the soil. SG-3 was purged with a peristaltic pump for 2 hours and 40 minutes, over 1055 mL of water was removed from the well and water still remained in the tubing.

Soil gas samples were collected using passivated (less than -28" Hg) 1 liter stainless steel SUMMA canisters supplied from Centek laboratories of Syracuse NY. Canisters were certified clean by the laboratory and supplied with vacuum gauges and pre-set flow controllers capable of collecting a sample over an 8 hour time period. Once the canister was full, the canister was sealed and labeled with the sample identification number for the soil vapor point. Each canister was sealed with chain-of-custody tape and chain-of-custody forms were completed in triplicate. Samples were delivered directly to the analytical laboratory on the collection day or following day as was necessary.

Sampling logs were used to record outdoor plot sketches, local weather information for the preceding 24 to 48 hours, and any other pertinent observations. The following information was also recorded: a) sample identification; b) date and time of sample collection; c) sampling depth; d) field personnel; e) sampling methods and devices; f) purge volumes; g) tracer test results; h) volume of soil vapor extracted; i) vacuum of canisters before and after sample collection; j) apparent moisture content (dry, moist, or saturated) of the sampling zone; and k) chain of custody protocols and records. Sampling logs are provided in Appendix B.

3.3 Outdoor Ambient Air Monitoring

Outdoor ambient air samples were collected to characterize site-specific outdoor air conditions, since outdoor air has the potential to influence soil gas and indoor air quality. This is particularly true at the ARO site given the shallow soil gas sampling depths. These samples were used to identify potential infiltration of outdoor air into soil gas due to changes in outdoor barometric pressures. Given the shallow sampling depths, ambient air can migrate into soil gas. During each sampling event the ambient air samples were collected concurrently with the soil gas survey. Two ambient air samples were collected from both upwind and downwind of soil gas samples (see Figure 3). Sample locations were selected following completion of the field reconnaissance, and based on wind and weather conditions on the day of sampling. Ambient air samples were collected from 3 to 5 feet above the ground surface.

Ambient air samples were collected using passivated (less than -28" Hg) 1 liter stainless steel SUMMA canisters supplied from Centek Laboratories. Canisters were certified clean by the laboratory and supplied with vacuum gauges and pre-set flow controllers capable of collecting a sample over an 8 hour time period concurrent with soil gas samples. The canister was sealed and labeled with the sample identification number for the soil vapor point prior to losing vacuum. Each canister was sealed with

chain-of-custody tape and chain-of-custody forms were completed in triplicate. Samples were delivered directly to the analytical laboratory.

Ambient air sample logs were used to record sample locations, local weather for the preceding 24 to 48 hours and any other pertinent observations. Similarly, the following information was recorded: a) sample identification; b) date and time of sample collection; c) sampling height; d) field personnel; e) sampling methods and devices; f) purge volumes; g) sample volume; h) vacuum of canisters before and after sample collection; and i) chain of custody protocols and records.

3.4 Laboratory Analysis

Soil gas and ambient air samples were analyzed by Centek, an ELAP-certified laboratory using EPA Method TO-15 (Determination of VOCs in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography Mass Spectrometry). Target analytes included site-related VOCs, consisting of TCE, cis-1,2 DCE and vinyl chloride. Whole-air samples were analyzed for VOCs using a quadrupole or ion-trap gas chromatograph/mass spectrometer (GS/MS) system to provide compound detection limits of 0.5 micrograms per cubic meter ($\mu g/m^3$) for most constituents. Detection limits requested from the laboratory for TCE in soil gas were 0.5 $\mu g/m^3$ and TCE in ambient air at 0.25 $\mu g/m^3$.

3.5 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) measures were followed to minimize potential errors and facilitate obtaining high quality data. The field personnel avoided actions that could cause sample interference in the field, such as fueling vehicles, using permanent marking pens, and wearing freshly dry-cleaned clothing or personal fragrances. Appropriate QA/QC protocols were followed during sample collection and laboratory analysis, including:

- Certified clean sample devices and containers.
- Addressing issues associated with the shallow sample depths. Due to the shallow groundwater conditions, the sub-slab vapor sample SG-2 had water in the tubing prior to sampling during the May 2008 event. The sampling point was purged dry and the tubing was lifted up approximately 2" from the bottom. No water or condensation was observed in the tubing during sampling. Soil gas probe SG-3

was not sampled during the February 2009 sampling event due to the presence of water in sample tubing.

- Sample holding times (30 days) and temperatures were met and documented.
- Chain-of-custody practices were followed consistently and appropriately.
- A single duplicate soil gas sample was collected in a manner consistent with the other samples. The duplicate sample was collected concurrently with the parent sample using a "T" fitting to effectively split the sample into a separate sample canister.

3.6 Data Validation

Analytical data generated during the soil gas investigation were accompanied by a NYSDEC Analytical Services Protocol (ASP) deliverable package. Data validation was conducted by an ARCADIS data validator. The data collected in this study is represented by the laboratory analytical packages provided by Centek Laboratories located in Syracuse, New York. Results of the data validation indicate that the data required qualification with some estimations and dilution factors. The validation included the following items:

- Adherence to specific holding times;
- Laboratory blank-detected constituents;
- Matrix spike/spike duplicate precision and accuracy; and
- Field duplicate precision.

Pertinent field sampling records (i.e., field notes, chain of custody records) were reviewed in conjunction with the laboratory deliverables for accuracy, precision, completeness, overall quality of data, and absence of transcription errors. The results of the data validation are summarized in the memoranda provided in Appendix C with the laboratory analytical reports.

4. Analytical Results

Tables 1 through 3 present the ambient air and soil gas sampling analytical results for May 6, 2008, and September 26, 2008, and February 19, 2009, consecutively. Table 4 summarizes the site-related VOCs TCE, DCE and vinyl chloride detected in soil gas samples that are the chemical constituents of concern that are being addressed by the VER system. These results are discussed in the following sections.

4.1 Outdoor Ambient Air

As shown in Table 1, a total of 12 constituents (1,2,4 trimethylbenzene, acetone, benzene, carbon tetrachloride, chloromethane, Freon 11, Freon 12, isopropyl alcohol, m&p-xylene, methyl ethyl ketone, methylene chloride, and toluene) were detected in the upwind and downwind May 6, 2008 air samples. The downwind ambient air sample also had 3 more VOCs detected (1,4-dichlorobenzene, o-xylene, and tetrachloroethylene). The ambient air samples had no detections of the site related VOCs target analytes TCE, DCE, and vinyl chloride.

As shown in Table 2 for September 26, 2008, a total of 12 constituents (1,2,4 trimethylbenzene, acetone, benzene, carbon tetrachloride, chloromethane, Freon 11, Freon 12, m&p-xylene, methyl ethyl ketone, methylene chloride, toluene, and Trichloroethene) were detected in the upwind and downwind ambient air samples. The downwind ambient air sample also had 3 more VOCs detected (1,4-dichlorobenzene, cis-1,2-Dichloroethene, and hexane). For site related VOCs, TCE was detected in both the upwind and downwind ambient air samples, DCE was detected in the downwind ambient air sample.

As shown in Table 3 for February 19, 2009, a total of 20 VOCs (1,2,4-Trimethylbenzene, 1,4-Dichlorobenzene, acetone, benzene, carbon disulfide, carbon tetrachloride, chloroform, chloromethane, freon 11, freon 113, freon 12, heptane, hexane, m&p-xylene, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, tetrachloroethylene, toluene, and TCE) were detected in the upwind ambient air sample, including TCE a site related VOC. For the downwind sample, a total of 13 VOCs (acetone, benzene, carbon disulfide, carbon tetrachloride, chloromethane, freon 11, freon 113, freon 12, hexane, isopropyl alcohol, methyl ethyl ketone, methylene chloride, and toluene) were detected, none of the site related VOCs were detected.

4.2 Soil Gas

4.2.1 May 2008 Sampling Event

As shown in Table 1, VOCs detected in the May 6, 2008 sub-slab soil vapor sample SG-1 had 19 chemical constituents detected including the site related VOCs TCE, DCE, and vinyl chloride. In the sub-slab soil vapor sample SG-2, there were 22 chemicals detected with TCE being the only site-related VOC detected. The results for the SG-3 soil gas sample, collected from soil gas probe installed in the field west of the building slab had 19 detections including all three site-related VOCs. The duplicate sample at SG-3 had 18 chemicals detected. When compared with SG-3 results, bromodichloromethane was the only chemical not detected in the duplicate sample.

Acetone, benzene, freon 11, freon 12, methylene chloride, tetrachlorethylene and toluene were all detected in the ambient air samples and in at least two of the vapor samples. However, 1,4–dichlorobenzene, carbon tetrachloride, and chloromethane were detected in the ambient air sample(s), but were not detected in the soil gas samples.

4.2.2 September 2008 Sampling Event

For the September 26, 2008 sampling event, the sub-slab soil vapor samples SG-1, and SG-2 had 28 VOCs detected. There were 18 VOCs detected in soil vapor sample SG-3. Site-related compounds TCE, DCE and vinyl chloride were detected in the sub-slab soil vapor sample at SG-1 and SG-2. At SG-3, TCE and DCE were detected, but vinyl chloride was not (but vinyl chloride was reported in the duplicate sample). At SG-1, vinyl chloride was detected at 12900 ug/m3, this is anomalously high compared to other sampling events (177 ug/m3 in May 08, 320 ug/m3 in February 2009). The duplicate sample was collected at SG-3, the analysis of this sample returned very similar results to that of SG-3, with the following exception: Freon 113 and vinyl chloride were detected in the duplicate sample. However since the detected concentrations were very close to the detection limit for those two compounds duplicate precision can still be described as acceptable.

Several VOCs were detected in soil vapor samples, but not in ambient air samples. VOCs were not detected in ambient air samples that were not also detected in at least one soil vapor sample. These VOCs include: 1,1-Dichloroethene, 1,2-Dichloroethane, 2,2,4-trimethylpentane, 4-ethyltoluene, chloroethane, chloroform, ethylbenzene, freon 113, heptane, hexane, isopropyl alcohol, methyl ethyl ketone, styrene, trans-1,2-

Dichloroethene, and vinyl chloride. TCE was the only site-related VOC detected in all sub-slab soil vapor, and ambient air samples.

4.2.3 February 2009 Sampling Event

During the February 19, 2009 sampling event, the sub-slab soil gas sample SG-1 had detections of 20 VOCs including the site related VOCs TCE, DCE and vinyl chloride. SG-2 had 19 detections of VOCs, including DCE and TCE, but not vinyl chloride. The duplicate sample at SG-2 had 26 detections of VOCs. Chemical compounds detected in the duplicate sample, but not in the SG-2 sample, included 1,3,5-Trimethylbenzene, 4-ethyltoluene, DCE, ethylebenzene, heptane, o-xylene, and tetrachloroethene.

The only VOC that was detected in the ambient air samples, but not in any of the soil vapor samples was ethylbenzene. Five VOCs were found in soil gas samples but not in the ambient air samples. These VOCs were 1,1-Dichloroethene, 1,3,5-Trimethylbenzene, 4-ethyltoluene, cyclohexane, and o-Xylene. Vinyl chloride was detected at SG-1, and in the duplicate sample for SG-2, but not in the ambient air samples.

5. Groundwater Flow Direction

Depth to groundwater measurements collected from site monitoring wells during each sampling event are summarized in Table 5. Water level data from monitoring wells MW-1, MW-15 and MW-17 near the soil gas probe locations indicate that the water table was less than 1-2 feet below grade (building slab at SG-1 and SG-2, and ground surface at SG-3) during each of the sampling events. Groundwater contour maps were constructed from water levels during the May 2008, September 2008 and February 2009 sampling events and are presented on Figures 5a, 5b and 5c, respectively. Groundwater flow patterns are consistent with the flow directions observed during the previous ten years of groundwater monitoring and also show the hydraulic influence of the VER system on water levels as indicated by the lowered water levels in the vicinity of the VER recovery wells. Groundwater flow during the sampling events was generally in a southerly direction in the northern portion of the site and area of the SVI study during each sampling event, consistent with historical groundwater flow patterns and direction within the shallow till flow regime.

6. Monitoring Well Groundwater Analytical Data

To supplement the semi-annual groundwater sampling program that is conducted to monitor the performance of the VER system, monitoring wells located around the perimeter of the groundwater VOC plume were sampled on February 16, 2009. The perimeter wells included MW-8, MW-9, and MW-15 which are located hydraulically upgradient of the VOC groundwater plume. VOC analytical results are included in Table 6 and the laboratory data sheets for these wells are included in Appendix C. VOCs were not detected in monitoring wells MW-8, MW-9 or MW-15 above the detection limit. These data are consistent with historical groundwater analytical results from previous sampling events over the past 16 years including during the RI.

7. Discussion

Soil gas and ambient air sample results for the site-related VOCs TCE, DCE, and vinyl chloride are summarized in Table 4. Site related VOCs were detected at each of the soil gas probes during the sampling events. The subslab soil gas samples collected from the SG-1 location have the highest detections of the site-related VOCs TCE, DCE, and vinyl chloride. In comparison, soil gas sample results for SG-2 and SG-3 reported relatively low concentrations of the site related VOCs, and often these values were estimated at or below the quantitation limits.

As presented in Table 5, groundwater elevations were only slightly different during the three sampling rounds. Water levels during the September 2008 sampling event were slightly lower than the May 2008 and February 2009 events. It is expected that under the site conditions of shallow groundwater the capillary fringe extends upward limiting the vertical thickness of the vadose zone and may impact the analytical results for the soil vapor samples. Given the silt and clay rich soils and the shallow depth to groundwater, it is likely that the vadose zone does not act as an effective migration pathway for soil gas in the native soils except potentially within the unsaturated construction fill material directly beneath the building slab (where SG-1 and SG-2 are located).

The nearest residences to the site are all hydraulically upgradient of the soil gas probes. The nearest residence to the SG-1 location is at 3745 Broadway Street which is approximately 208 feet upgradient of the SG-1 sample location. The adjacent residence at 3707 Broadway Street is 222 feet from SG-1. The SG-2 sample location is approximately 173 feet from the residence at 3707 Broadway Street. The SG-3

sample location is approximately 196 feet from the center of the nearest residence at 3689 Broadway Street.

Groundwater migration of contaminants from the former facility towards the residences is unlikely based on the RI data and the groundwater level monitoring performed during the past 10 years of groundwater monitoring. This is also supported by the non-detect results for VOC samples collected in February 2009 from monitoring wells MW-8, MW-9 and MW-15. VOCs were also non-detect in monitoring well MW-1 during the investigation and monitoring activities during the RI. Migration of VOCs in soil vapor or sub-slab vapor towards the upgradient residences is also unlikely due to the occurrence of shallow groundwater, the limited extent of the vadose zone below the ground surface and the cement slab, and the low permeability of the till soils.

8. Summary

ARCADIS prepared this report to summarize the soil gas and ambient air sample data collected at the ARO Corporation site in Cheektowaga, New York. This sampling was completed to evaluate whether VOCs are entering the soil gas in the vadose zone from site groundwater, and if these VOCs have the potential to migrate via soil gas into indoor air in the nearby buildings. As noted above, pervasive shallow groundwater conditions at the site (less than 1 to 2 feet below ground surface in the area of the soil gas probes) have resulted in a minimal vadose zone that prevents the installation of effective soil gas probes. The dense silt and clay rich glacial till at the site has a low hydraulic conductivity, which is common in hydrogeologic settings where shallow groundwater conditions occur. While the soil gas probes were designed to minimize surface water infiltration, water was removed prior to sampling at some of the probe locations. These site conditions therefore do not reflect a true vadose zone as the capillary fringe likely extends to near ground surface at these locations due to the silty-clay soils. Sub-slab conditions beneath the former ARO concrete slab also include a constructed gravel base layer, which may facilitate the movement of soil gas. This gravel layer is only associated with the former plant footprint and does not extend to the adjacent field to the west of the former ARO building or the adjacent residential properties. The operating VER system at the site was designed and implemented to apply a vacuum to the subsurface soils and the areas beneath the building slab which removes vapors and groundwater from the subsurface, and provides control of impacted groundwater and vapors.

Based on the review of the soil gas and ambient air data from the three sampling events, the following summarizes the soil vapor investigation data study at the site:

- Due to the shallow groundwater conditions at the time of sampling, it is likely that the capillary fringe extends into the screened interval for the soil gas probes and has impacted the analytical results.

- The detection of site-related VOCs TCE, DCE and vinyl chloride in soil gas samples was highest at the SG-1 soil gas probe location. Based on a review of historical soil gas data for the site, the presence of VOCs detected in soil gas at this location appears to be isolated and upgradient of the groundwater impacts that are being remediated under the VER groundwater collection and treatment system. Any migration of soil gas generated within the area of the groundwater VOC impacts is currently controlled by the operation of the VER system.

- Soil gas concentrations in the vicinity of the SG-1 probe location have not been delineated to the detection limits achievable under the SVI study or assessed for any potential vapor intrusion related to any future use of this area of the property. Under current site use there are no occupied structures. Future development would consider implementation of a sub-slab vapor extraction system beneath any proposed occupied structures.

9. Recommendations

While the hydrogeologic conditions at the site (shallow groundwater table and limited vadose zone, low permeability till soils) and hydraulically upgradient position of the residences on Broadway Street with respect to groundwater impacts suggest low potential for migration of soil gas to the north of the site, data are not available to evaluate the extent of any off-site migration on the adjacent property in close proximity to SG-1. Further investigation would be necessary to determine the presence of any site-related VOCs in the adjacent off-site property. ARCADIS recommends collecting groundwater samples for laboratory analysis of site related parameters (TCE, DCE and vinyl chloride) on the properties at 3707 Broadway Street and 3745 Broadway Street, and from the existing monitoring well MW-1. ARCADIS will prepare a letter work plan describing the scope and methodology for the proposed off-site investigation for review and comment by the NYSDEC. The work will be scheduled upon successfully obtaining access to these two residential properties.

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Tables

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Table 1. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, May 2008, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 (µg/m^3) 05/6/08	SG-2 (µg/m^3) 05/6/08	SG-3 (µg/m^3) 05/6/08	Dup-1 (µg/m^3) 05/6/08	Up wind Ambient Air (µg/m^3) 05/6/08	Downwind Ambient Air (µg/m^3) 05/6/08
1,1,1-Trichloroethane	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832
1,1,2,2-Tetrachloroethane	< 1.05	< 1.05	< 1.05	< 1.05	< 1.05	< 1.05
1,1,2-Trichloroethane	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832
1,1-Dichloroethane	< 0.617	< 0.617	< 0.617	< 0.617	< 0.617	< 0.617
1,1-Dichloroethene	21 DJ	< 0.605	< 0.605	< 0.605	< .605	< .605
1,2,4-Trichlorobenzene	< 1.13	< 1.13	< 1.13	< 1.13	< 1.13	< 1.13
1,2,4-Trimethylbenzene	< 0.749	10.7 J	< 0.749	< 0.749	1.05	0.999
1,2-Dibromoethane	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17
1,2-Dichlorobenzene	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917
1,2-Dichloroethane	< 0.617	< 0.617	1.85 J	1.4 J	< 0.617	< 0.617
1,2-Dichloropropane	< 0.705	< 0.705	< 0.705	< 0.705	< 0.705	< 0.705
1,3,5-Trimethylbenzene	< 0.750	4.7 J	< 0.750	< 0.750	< 0.750	< 0.750
1,3-butadiene	< 0.337	< 0.337	< 0.337	< 0.337	< 0.337	< 0.337
1,3-Dichlorobenzene	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917
1,4-Dichlorobenzene	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917	0.611
1,4-Dioxane	< 1.10	< 1.10	< 1.10	< 1.10	< 1.10	< 1.10
2,2,4-trimethylpentane	1.09 J	415 DJ	9.97 DJ	3.09 J	< 0.712	< 0.712
4-ethyltoluene	< 0.750	4.55 J	< 0.750	< 0.750	< 0.750	< 0.750
Acetone	16.9 DJ	197 DJ	37.9 DJ	25.6 DJ	15.2 D	14.6 DJ
Allyl chloride	< 0.477	< 0.477	< 0.477	< 0.477	< 0.477	< 0.477
Benzene	1.46 J	3.18 J	9.74 DJ	4.61 J	0.487	0.649
Benzyl chloride	< 0.877	< 0.877	< 0.877	< 0.877	< 0.877	< 0.877
Bromodichloromethane	< 1.02	< 1.02	1.36 J	< 1.02	< 1.02	< 1.02
Bromoform	< 1.58	< 1.58	< 1.58	< 1.58	< 1.58	< 1.58
Bromomethane	< 592	< 0.592	< 0.592	< 0.592	< 0.592	< 0.592
Carbon disulfide	9.18 DJ	7.91 DJ	31.7 DJ	9.81 DJ	< 0.475	< 0.475
Carbon tetrachloride	< 0.256	< 0.256	< 0.256	< 0.256	0.767	0.831
Chlorobenzene	< 0.702	< 0.702	< 0.702	< 0.702	< 0.702	< 0.702
Chloroethane	< 0.402	< 0.402	< 0.402	< 0.402	< 0.402	< 0.402
Chloroform	1.64 J	14.9 DJ	10.7 J	3.23 J	< 0.744	< 0.744
Chloromethane	< 0.315	< 0.315	< 0.315	< 0.315	0.735	0.777
cis-1,2-Dichloroethene	74.2 DJ	< 0.604	2.5 J	1.29 J	< 0.604	< 0.604
cis-1,3-Dichloropropene	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692
Cyclohexane	13.3 DJ	37.4 DJ	58.1 DJ	19.2 DJ	< 0.525	< 0.525
Dibromochloromethane	< 1.30	< 1.30	< 1.30	< 1.30	< 1.30	< 1.30
Ethyl acetate	< 0.916	< 0.916	< 0.916	< 0.916	< 0.916	< 0.916
Ethylbenzene	< 0.662	5.08	< 0.662	< 0.662	< 0.662	< 0.662
Freon 11	< 0.857	1.09 J	1.71 J	1.26 J	1.31	1.37
Freon 113	418 DJ	1.01 J	14.5 J	4.52 J	< 1.17	< 1.17

Table 1. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, May 2008, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 ($\mu g/m^3$) 05/6/08	SG-2 ($\mu g/m^3$) 05/6/08	SG-3 ($\mu g/m^3$) 05/6/08	Dup-1 ($\mu g/m^3$) 05/6/08	Up wind Ambient Air ($\mu g/m^3$) 05/6/08	Downwind Ambient Air ($\mu g/m^3$) 05/6/08
Freon 114	< 1.07	< 1.07	< 1.07	< 1.07	< 1.07	< 1.07
Freon 12	< 0.754	2.06 J	2.46 J	2.21 J	2.41	2.56
Heptane	6.21 J	44.6 DJ	27.9 DJ	10.4 DJ	< 0.625	< 0.625
Hexachloro-1,3-butadiene	< 1.63	< 1.63	< 1.63	< 1.63	< 1.63	< 1.63
Hexane	6.45 DJ	75.9 DJ	29 DJ	12.2 DJ	< 0.537	< 0.537
Isopropyl alcohol	12.5 DJ	< 0.375	< 0.375	< 0.375	8 D	11.9 DJ
m&p-Xylene	3.27 J	13.4 J	< 1.32	< 1.32	0.574	0.971
Methyl Butyl Ketone	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25
Methyl Ethyl Ketone	< 0.899	48.3 DJ	13.5 DJ	6.89 DJ	0.42	0.659
Methyl Isobutyl Ketone	3.79 J	34.6 DJ	15.8 DJ	6.66 DJ	< 1.25	< 1.25
Methyl tert-butyl ether	< 0.550	< 0.550	< 0.550	< 0.550	< 0.550	< 0.550
Methylene chloride	1.91 J	2.79 J	7.03 J	5.61 J	1.31	1.27
o-Xylene	< 0.662	7.46	< 0.662	< 0.662	< 0.662	0.53
Propylene	< 0.262	< 0.262	< 0.262	< 0.262	< 0.262	< 2.62
Styrene	< 0.649	7.06 J	< 0.649	< 0.649	< 0.649	< 0.649
Tetrachloroethylene	0.758 J	1.79 J	3.03 J	1.45 J	< 1.03	1.1 J
Tetrahydrofuran	< 0.450	< 0.450	< 0.450	< 0.450	< 0.450	< 0.450
Toluene	7.24	20.7 DJ	18 DJ	14.5 J	2.72	3.41
trans-1,2-Dichloroethene	41.5 DJ	< 0.604	< 0.604	< 0.604	< 0.604	< 0.604
trans-1,3-Dichloropropene	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692
Trichloroethene	403 D	1.75 J	39.3 DJ	8.14 J	< 0.218	< 0.218
Vinyl acetate	< 0.537	< 0.537	< 0.537	< 0.537	< 0.537	< 0.537
Vinyl Bromide	< 0.667	< 0.667	< 0.667	< 0.667	< 0.667	< 0.667
Vinyl chloride	177 D	< .104	2 J	0.546 J	< 0.104	< 0.104

J Analyte detected at or below quantitation limits

D Dilution factor

< Compound was analyzed for but not detected above the quantitation limit

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Table 2. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, September 2008, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 (µg/m^3) 09/26/08	SG-2 (µg/m^3) 09/26/08	SG-3 (µg/m^3) 09/26/08	Dup-1 (µg/m^3) 09/26/08	Up wind Ambient Air (µg/m^3) 09/26/08	Downwind Ambient Air (µg/m^3) 09/26/08
1,1,1-Trichloroethane	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832
1,1,2,2-Tetrachloroethane	< 1.05	< 1.05	< 1.05	< 1.05	< 1.05	< 1.05
1,1,2-Trichloroethane	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832	< 0.832
1,1-Dichloroethane	< 0.617	< 0.617	< 0.617	< 0.617	< 0.617	< 0.617
1,1-Dichloroethene	506	< 0.605	< 0.605	< 0.605	< .605	< .605
1,2,4-Trichlorobenzene	< 1.13	< 1.13	< 1.13	< 1.13	< 1.13	< 1.13
1,2,4-Trimethylbenzene	7.24 J	6.45 J	9.19	9.09	1.05	1.15
1,2-Dibromoethane	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17
1,2-Dichlorobenzene	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917
1,2-Dichloroethane	< 0.617	0.578	< 0.617	< 0.617	< 0.617	< 0.617
1,2-Dichloropropane	< 0.705	< 0.705	< 0.705	< 0.705	< 0.705	< 0.705
1,3,5-Trimethylbenzene	2.85 J	3.05 J	3	2.8	< 0.750	< 0.750
1,3-butadiene	< 0.337	< 0.337	< 0.337	< 0.337	< 0.337	< 0.337
1,3-Dichlorobenzene	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917	< 0.917
1,4-Dichlorobenzene	< 0.917	< 0.917	1.1	1.1	< 0.917	0.611
1,4-Dioxane	< 1.10	< 1.10	< 1.10	< 1.10	< 1.10	< 1.10
2,2,4-trimethylpentane	0.76	< 0.712	< 0.712	< 0.712	< 0.712	< 0.712
4-ethyltoluene	3.25 J	3.20 J	3.2	3.1	< 0.750	< 0.750
Acetone	107 J	86.2	34.1 EJ	35.2 EJ	12.6 EJ	11.7 EJ
Allyl chloride	< 0.477	< 0.477	< 0.477	< 0.477	< 0.477	< 0.477
Benzene	18.5	9.74	8.48 EJ	12.1 EJ	0.357 J	0.649
Benzyl chloride	< 0.877	< 0.877	< 0.877	< 0.877	< 0.877	< 0.877
Bromodichloromethane	< 1.02	< 1.02	< 1.02	< 1.02	< 1.02	< 1.02
Bromoform	< 1.58	< 1.58	< 1.58	< 1.58	< 1.58	< 1.58
Bromomethane	< 592	< 0.592	< 0.592	< 0.592	< 0.592	< 0.592
Carbon disulfide	2.98	12	8.8 EJ	8.45 EJ	< 0.475	< 0.475
Carbon tetrachloride	0.448	0.32	< 0.256	< 0.256	0.384	0.448
Chlorobenzene	< 0.702	< 0.702	< 0.702	< 0.702	< 0.702	< 0.702
Chloroethane	< 0.402	0.268	< 0.402	< 0.402	< 0.402	< 0.402
Chloroform	0.993	0.744	< 0.744	< 0.744	< 0.744	< 0.744
Chloromethane	0.294	0.777	< 0.315	< 0.315	0.525	0.483
cis-1,2-Dichloroethene	297 J	6.29	1.45	1.69	< 0.604	0.443 J
cis-1,3-Dichloropropene	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692
Cyclohexane	< 0.526	< 0.525	< 0.525	< 0.525	< 0.525	< 0.525
Dibromochloromethane	< 1.30	< 1.30	< 1.30	< 1.30	< 1.30	< 1.30
Ethyl acetate	< 0.916	< 0.916	< 0.916	< 0.916	< 0.916	< 0.916
Ethylbenzene	2.52 J	3.62 J	1.32	1.24	< 0.662	< 0.662
Freon 11	< 0.857	1.26	< 0.857	< 0.857	0.971	0.971
Freon 113	3890 J	1.4	< 1.17	0.857 J	< 1.17	< 1.17

Table 2. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, September 2008, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 (µg/m^3) 09/26/08	SG-2 (µg/m^3) 09/26/08	SG-3 (µg/m^3) 09/26/08	Dup-1 (µg/m^3) 09/26/08	Up wind Ambient Air (µg/m^3) 09/26/08	Downwind Ambient Air (µg/m^3) 09/26/08
Freon 114	< 1.07	< 1.07	< 1.07	< 1.07	< 1.07	< 1.07
Freon 12	< 0.754	1.56	0.603 J	0.553 J	1.91	1.76
Heptane	3.12	< 0.625	< 0.625	< 0.625	< 0.625	< 0.625
Hexachloro-1,3-butadiene	< 1.63	< 1.63	< 1.63	< 1.63	< 1.63	< 1.63
Hexane	5.87	5.95	< 0.537	< 0.537	0.645	0.609
Isopropyl alcohol	16.2	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375
m&p-Xylene	6.00 J	8.21 J	3	3	0.530 J	< 1.32
Methyl Butyl Ketone	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25
Methyl Ethyl Ketone	7.79	11.7	9.32 EJ	10.3 EJ	0.959	0.689 J
Methyl Isobutyl Ketone	< 1.25	0.999 J	< 1.25	< 1.25	< 1.25	< 1.25
Methyl tert-butyl ether	< 0.550	< 0.550	< 0.550	< 0.550	< 0.550	< 0.550
Methylene chloride	35.3 J	5.65	< 0.530	< 0.530	0.565	0.6
o-Xylene	2.6	3.40 J	1.5	1.59	< 0.662	< 0.662
Propylene	< 0.262	< 0.262	< 0.262	< 0.262	< 0.262	< 0.262
Styrene	2.34 J	2.94 J	1.56	1.56	< 0.649	< 0.649
Tetrachloroethylene	2.00 J	2.07 J	1.03	1.03	< 1.03	2.41
Tetrahydrofuran	2.46	3.3	3.12	3.66	< 0.450	< 0.450
Toluene	7.43 J	8.04 J	4.33	4.33	1.84	1.92
trans-1,2-Dichloroethene	77.4 J	< 0.604	< 0.604	< 0.604	< 0.604	< 0.604
trans-1,3-Dichloropropene	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692	< 0.692
Trichloroethene	38.2	24	7.97	8.58	1.31	1.64
Vinyl acetate	< 0.537	< 0.537	< 0.537	< 0.537	< 0.537	< 0.537
Vinyl Bromide	< 0.667	< 0.667	< 0.667	< 0.667	< 0.667	< 0.667
Vinyl chloride	12900	2.86	< 0.104	0.286	< 0.104	< 0.104

J Analyte detected at or below quantitation limits

D Dilution factor

E Value above quantitation range

< Compound was analyzed for but not detected above the quantitation limit

Table 3. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, February 2009, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 (µg/m^3) 02/18/09	SG-2 (µg/m^3) 02/18/09	SG-3 (µg/m^3) 02/18/09	Dup-1 (µg/m^3) 02/18/09	Up wind Ambient Air (µg/m^3) 02/18/09	Downwind Ambient Air (µg/m^3) 02/18/09
1,1,1-Trichloroethane	< 0.83	< 0.83	NS	< 0.83	< 0.83	< 0.83
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	NS	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 0.83	< 0.83	NS	< 0.83	< 0.83	< 0.83
1,1-Dichloroethane	< 0.62	< 0.62	NS	< 0.62	< 0.62	< 0.62
1,1-Dichloroethene	41	< 0.60	NS	< 0.60	< 0.60	< 0.60
1,2,4-Trichlorobenzene	< 1.1	< 1.1	NS	< 1.1	< 1.1	< 1.1
1,2,4-Trimethylbenzene	< 0.75	0.95 J	NS	1.6 J	0.55 J	< 0.75
1,2-Dibromoethane	< 1.2	< 1.2	NS	< 1.2	< 1.2	< 1.2
1,2-Dichlorobenzene	< 0.92	< 0.92	NS	< 0.92	< 0.92	< 0.92
1,2-Dichloroethane	< 0.62	< 0.62	NS	< 0.62	< 0.62	< 0.62
1,2-Dichloropropane	< 0.70	< 0.70	NS	< 0.70	< 0.70	< 0.70
1,3,5-Trimethylbenzene	< 0.75	< 0.75	NS	0.70 J	< 0.75	< 0.75
1,3-butadiene	< 0.34	< 0.34	NS	< 0.34	< 0.34	< 0.34
1,3-Dichlorobenzene	< 0.92	< 0.92	NS	< 0.92	< 0.92	< 0.92
1,4-Dichlorobenzene	1.1 J	2.6	NS	2.9	0.67 J	< 0.92
1,4-Dioxane	< 1.1	< 1.1	NS	< 1.1	< 1.1	< 1.1
2,2,4-trimethylpentane	< 0.71	< 0.71	NS	< 0.71	< 0.71	< 0.71
4-ethyltoluene	< 0.75	< 0.75	NS	0.70 J	< 0.75	< 0.75
Acetone	14	10 J	NS	16 J	12	11
Allyl chloride	< 0.48	< 0.48	NS	< 0.48	< 0.48	< 0.48
Benzene	1 J	1.5	NS	1.2	1.3	0.91 J
Benzyl chloride	< 0.88	< 0.88	NS	< 0.88	< 0.88	< 0.88
Bromodichloromethane	< 1.0	< 1.0	NS	< 1.0	< 1.0	< 1.0
Bromoform	< 1.6	< 1.6	NS	< 1.6	< 1.6	< 1.6
Bromomethane	< 0.59	< 0.59	NS	< 0.59	< 0.59	< 0.59
Carbon disulfide	1.2 J	0.54 J	NS	0.98 J	1.3	0.44 J
Carbon tetrachloride	0.83 J	0.83	NS	0.90	1.1	0.90 J
Chlorobenzene	< 0.70	< 0.70	NS	< 0.70	< 0.70	< 0.70
Chloroethane	< 0.40	< 0.40 J	NS	< 0.40	< 0.40	< 0.40
Chloroform	< 0.74	< 0.74	NS	< 0.74	2.2	< 0.74
Chloromethane	0.86 J	1.0	NS	2.0 J	0.97	1.0 J
cis-1,2-Dichloroethene	210	< 0.60	NS	0.64	< 0.60	< 0.60
cis-1,3-Dichloropropene	< 0.69	< 0.69	NS	< 0.69	< 0.69	< 0.69
Cyclohexane	0.59 J	<0.52	NS	< 0.52	< 0.52	< 0.52
Dibromochloromethane	< 1.3	< 1.3	NS	< 1.3	< 1.3	< 1.3
Ethyl acetate	< 0.92	< 0.92	NS	< 0.92	< 0.92	< 0.92
Ethylbenzene	< 0.66	< 0.66	NS	0.97	< 0.66	< 0.66
Freon 11	2.2 J	1.9	NS	2.6	2.1	1.8 J
Freon 113	260	1.3	NS	1.2	0.86 J	1.2 J

Table 3. Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, February 2009, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Chemical Name TO-15	SG-1 (µg/m^3) 02/18/09	SG-2 (µg/m^3) 02/18/09	SG-3 (µg/m^3) 02/18/09	Dup-1 (µg/m^3) 02/18/09	Up wind Ambient Air (µg/m^3) 02/18/09	Downwind Ambient Air (µg/m^3) 02/18/09
Freon 114	< 1.1	< 1.1	NS	< 1.1	< 1.1	< 1.1
Freon 12	3.0 J	3.8	NS	3.9	3.5	3.8 J
Heptane	1.0 J	< 0.62	NS	1.2	0.67	< 0.62
Hexachloro-1,3-butadiene	< 1.6	< 1.6	NS	< 1.6	< 1.6	< 1.6
Hexane	1.0 J	0.39 J	NS	1.2 J	0.50 J	0.39 J
Isopropyl alcohol	2.0 J	0.75	NS	< 0.37	< 0.37	0.62 J
m&p-Xylene	< 1.3	1.0 J	NS	2.3 J	0.57 J	< 1.3
Methyl Butyl Ketone	< 1.2	< 1.2	NS	< 1.2	< 1.2	< 1.2
Methyl Ethyl Ketone	0.90 J	0.81 J	NS	1.3 J	0.90	0.57 J
Methyl Isobutyl Ketone	< 1.2	0.46 J	NS	0.83 J	0.58 J	< 1.2
Methyl tert-butyl ether	< 0.55	< 0.55	NS	< 0.55	< 0.55	< 0.55
Methylene chloride	< 0.53	1.0	NS	1.3	0.42 J	0.71 J
o-Xylene	< 0.66	< 0.66	NS	0.97	< 0.66	< 0.66
Propylene	< 0.26	< 0.26	NS	< 0.26	< 0.26	< 0.26
Styrene	< 0.65	0.48 J	NS	0.95	< 0.65	< 0.65
Tetrachloroethylene	<1.0	<1.0	NS	1.5	0.83 J	< 1.0
Tetrahydrofuran	< 0.45	< 0.45	NS	< 0.45	< 0.45	< 0.45
Toluene	0.96 J	1.4 J	NS	2.3 J	1.7	1.0 J
trans-1,2-Dichloroethene	14	< 0.60	NS	< 0.60	< 0.60	< 0.60
trans-1,3-Dichloropropene	< 0.69	< 0.69	NS	< 0.69	< 0.69	< 0.69
Trichloroethene	580	0.98 J	NS	2.7 J	1.6	< 0.22
Vinyl acetate	< 0.54	< 0.54	NS	< 0.54	< 0.54	< 0.54
Vinyl Bromide	< 0.67	< 0.67	NS	< 0.67	< 0.67	< 0.67
Vinyl chloride	340	< .10	NS	0.29	< 0.10	< 0.10

J Analyte detected at or below quantitation limits

D Dilution factor

NS Not sampled

< Compound was analyzed for but not detected above the quantitation limit

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Table 4. Site Related Volatile Organic Compounds Detected in Soil Vapor and Ambient Air, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Sample ID	Date	DCE ($\mu g/m^3$)	TCE ($\mu g/m3$)	Vinyl chloride ($\mu g/m3$)
SG-1	5/6/2008	74.2 DJ	403 D	177 D
	9/26/2008	297	38.2	12900
	2/19/2009	210	580	340
SG-2	5/6/2008	ND	1.75 J	ND
	9/26/2008	6.29	24	2.86
	2/19/2009	ND	0.98	ND
SG-3	5/6/2008	2.5 J	39.3DJ	2 J
	9/26/2008	1.45	7.97	ND
	2/19/2009	NS	NS	NS
Upwind Ambient Air	5/6/2008	ND	ND	ND
	9/26/2008	ND	1.31	ND
	2/19/2009	ND	1.6	ND
Downwind Ambient Air	5/6/2008	ND	ND	ND
	9/26/2008	ND	1.64	ND
	2/19/2009	ND	ND	ND

J Analyte detected at or below quantitation limits
D Dilution factor
NS Not sampled
ND Not detected
NA Not applicable

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Table 5. Groundwater Elevation Data, Soil Vapor Investigation Study ARO Corporation Site, Cheektowaga, NY

Well	Measuring Point Elevation	Date					
		5/6/08		9/26/08		2/18/09	
		VER system on: RW-4,5,6		VER system on: RW-1,3,10		VER system on: RW-1,3,9,10	
		DTW	GW Elev.	DTW	GW Elev.	DTW	GW Elev.
MW-1	104.12	3.60	100.52	4.04	100.08	3.30	100.82
MW-2	101.33	5.92	95.41	6.85	94.48	5.46	95.87
MW-3	100.2	4.93	95.27	8.96	91.24	5.07	95.13
MW-3R	—	21.3	—	21.79	—	21.5	—
MW-4	103.52	5.36	98.16	6.25	97.27	—	—
MW-4R	100.98	29.7	71.28	29.14	71.84	29.18	71.80
MW-5	103.31	11.69	91.62	11.66	91.65	10.99	92.32
MW-6	98.50	4.21	94.29	7.7	90.80	3.54	94.96
MW-7	102.16	13.69	88.47	13.32	88.84	9.13	93.03
MW-8	99.49	3.43	96.06	4.81	94.68	2.52	96.97
MW-9	100.29	3.91	96.38	4.65	95.64	3.28	97.01
MW-10R	98.94	—	—	3.18	95.76	—	—
MW-11	99.82	—	—	10.60	89.22	9.83	89.99
MW-13	99.86	4.72	95.14	16.73	83.13	11.01	88.85
MW-14	103.14	9.17	93.97	10.4	92.74	6.38	96.76
MW-14R	101.80	11.29	90.51	11.41	90.39	11.45	90.35
MW-15	103.16	4.22	98.94	4.93	98.23	3.18	99.98
MW-16	99.70	8.16	91.54	7.48	92.22	4.24	95.46
MW-17	99.92	—	—	—	—	—	—
MW-18	98.56	—	—	—	—	—	—
MW-19	100.52	6.4	94.12	8.29	92.23	4.24	96.28
MW-20	101.70	8.14	93.56	10.18	91.52	6.35	95.35
MW-21	100.34	7.4	92.94	8.61	91.73	5.94	94.40
MW-22	101.39	7.81	93.58	9.22	92.17	6.96	94.43
MW-23	100.25	9.88	90.37	9.3	90.95	4.76	95.49
MW-24	98.22	3.3	94.92	4.38	93.84	2.37	95.85
MW-25	97.80	3.08	94.72	5.13	92.67	—	—
MW-26	98.76	2.05	96.71	3.26	95.50	1.49	97.27
MW-27	98.80	—	—	2.96	95.84	2.8	96.00
MW-28	101.04	3.8	97.24	4.77	96.27	3.35	97.69
MW-29	101.01	4.93	96.08	6.29	94.72	3.13	97.88
OW-101	99.84	4.60	95.24	6.50	93.34	3.52	96.32
OW-102	98.60	1.91	96.69	2.02	96.58	1.43	97.17
OW-103	98.20	—	—	—	—	—	—
VEROW-1	98.44	4.23	94.21	7.68	90.76	3.52	94.92
VEROW-2	98.58	3.85	94.73	6.95	91.63	3.33	95.25

Definitions:
DTW - Depth to water
"—" - data not available/recorded.
Notes:
* Monitoring wells MW-4, MW-5, MW-7, and MW-11 underwent repairs in September 2008 which altered their measuring points. These wells will be re-surveyed in 2009. This table uses the previous measuring point elevations, as the repairs did not result in significant Measuring point elevations given in feet above mean sea level.
Water levels measured in feet below top of well casing.

Table 6. Volatile Organic Compounds Detected in Groundwater, February 2009, Soil Vapor Investigation Study
ARO Corporation Site, Cheektowaga, NY

TO-15	MW-7 (µg/L)	MW-8 (µg/L)	MW-9 (µg/L)	MW-15 (µg/L)	MW-21 (µg/L)
1,1,1-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Hexanone	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	2.2	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorome thane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	4.7	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	12	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylenes	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

< Compound was analyzed for but not detected above the quantitation limit

FIGURES

ARCADIS

Figures

CITY:(ALBANY) DIV/GROUP:(ENV) DB:(R.HOOTMAN) LD:(B.ALTOM) PIC:(M.SANFORD) PM:(M.SANFORD) TM:(G.MILES)
G:\ENVCAD\Knoxville\RETURN-TO\Albany-NY\AY000220\0012\200903 SVI STUDY\AY000220_reg.dwg LAYOUT: 1 SAVED: 3/20/2009 1:58 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: TN1_STANDARD.CTB PLOTTED: 4/2/2009 11:54 AM BY: ALTOM, BRENDA

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Site Location Map

ARCADIS

FIGURE
1

SOURCE: RAY L. SONNENBERGER LAND SURVEYOR, 1997

LEGEND

MW-17	MONITORING WELL LOCATION AND DESIGNATION
OW-101	OBSERVATION WELL LOCATION AND DESIGNATION
RW-2	RECOVERY WELL LOCATION AND DESIGNATION
VEROW-2	MONITORING WELL LOCATION AND DESIGNATION
PF-2	PNEUMATIC FRACTURING WELL LOCATION AND DESIGNATION
SG-1	SOIL-GAS PROBE LOCATION
AA	AMBIENT AIR SAMPLING LOCATION
	RECOVERY SYSTEM TRENCH/PIPING
	PROPOSED GROUNDWATER SAMPLE LOCATION

N

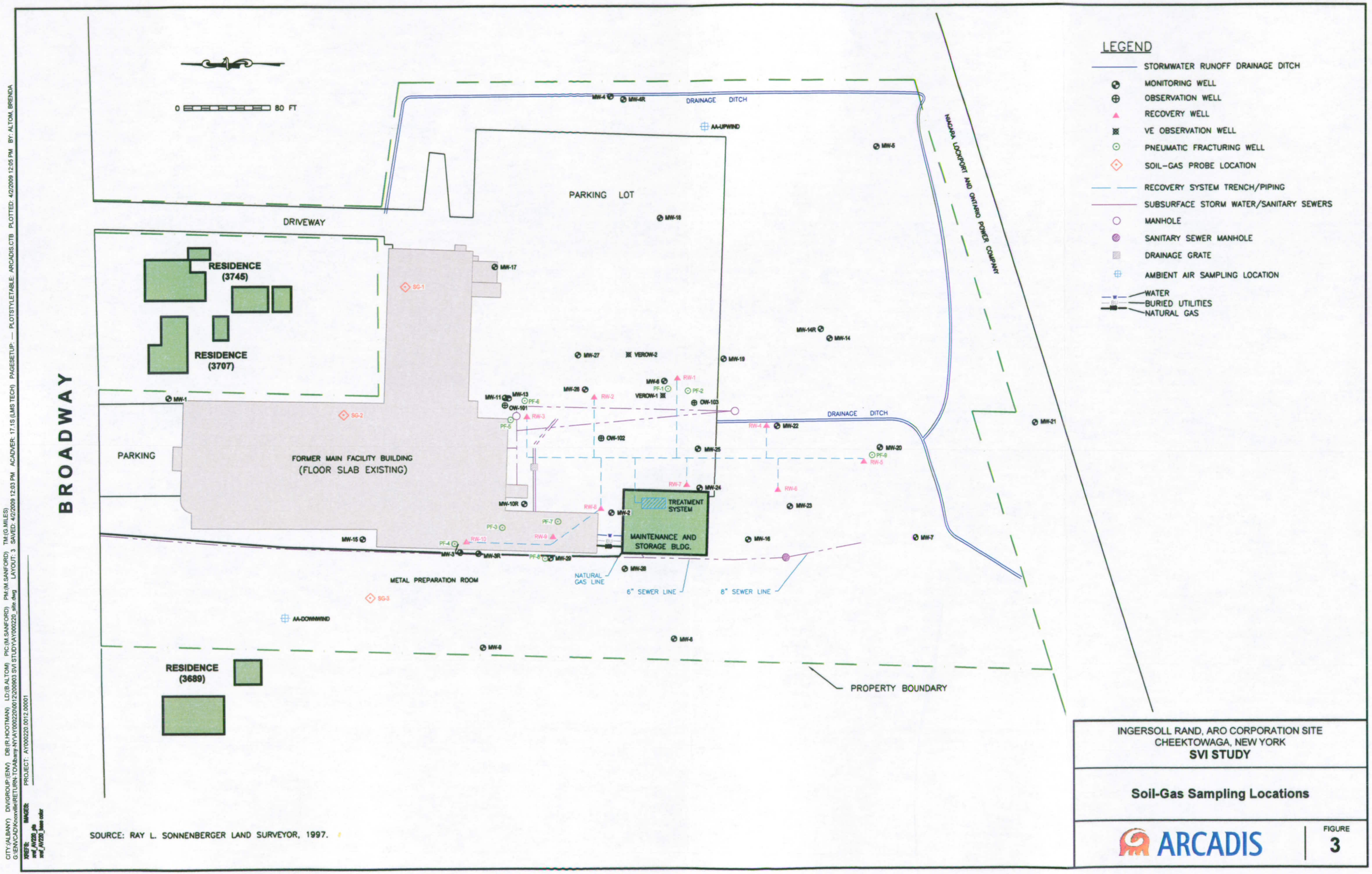
0 80 FT

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Site Plan and VER System Layout

ARCADIS

FIGURE 2



LEGEND

- STORMWATER RUNOFF DRAINAGE DITCH
- MONITORING WELL
- OBSERVATION WELL
- RECOVERY WELL
- VE OBSERVATION WELL
- PNEUMATIC FRACTURING WELL
- SOIL-GAS PROBE LOCATION
- RECOVERY SYSTEM TRENCH/PIPING
- SUBSURFACE STORM WATER/SANITARY SEWERS
- MANHOLE
- SANITARY SEWER MANHOLE
- DRAINAGE GRATE
- AMBIENT AIR SAMPLING LOCATION
- WATER
- BURIED UTILITIES
- NATURAL GAS

SOURCE: RAY L. SONNENBERGER LAND SURVEYOR, 1997.

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI STUDY

Soil-Gas Sampling Locations

ARCADIS

FIGURE 3

CITY:(ALBANY) DIV/GROUP:(ENV) DB:(R.HOOTMAN) LD:(B.ALTOM) PIC:(M.SANFORD) PM:(M.SANFORD) TM:(G.MILES)
G:\ENV\CAD\Knoxville\RET\URN-TO\Albany-NY\AY000220\0012\200903 SVI STUDY\AY000220_site.dwg LAYOUT: 3 SAVED: 4/2/2009 12:03 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 4/2/2009 12:05 PM BY: ALTOM, BRENDA
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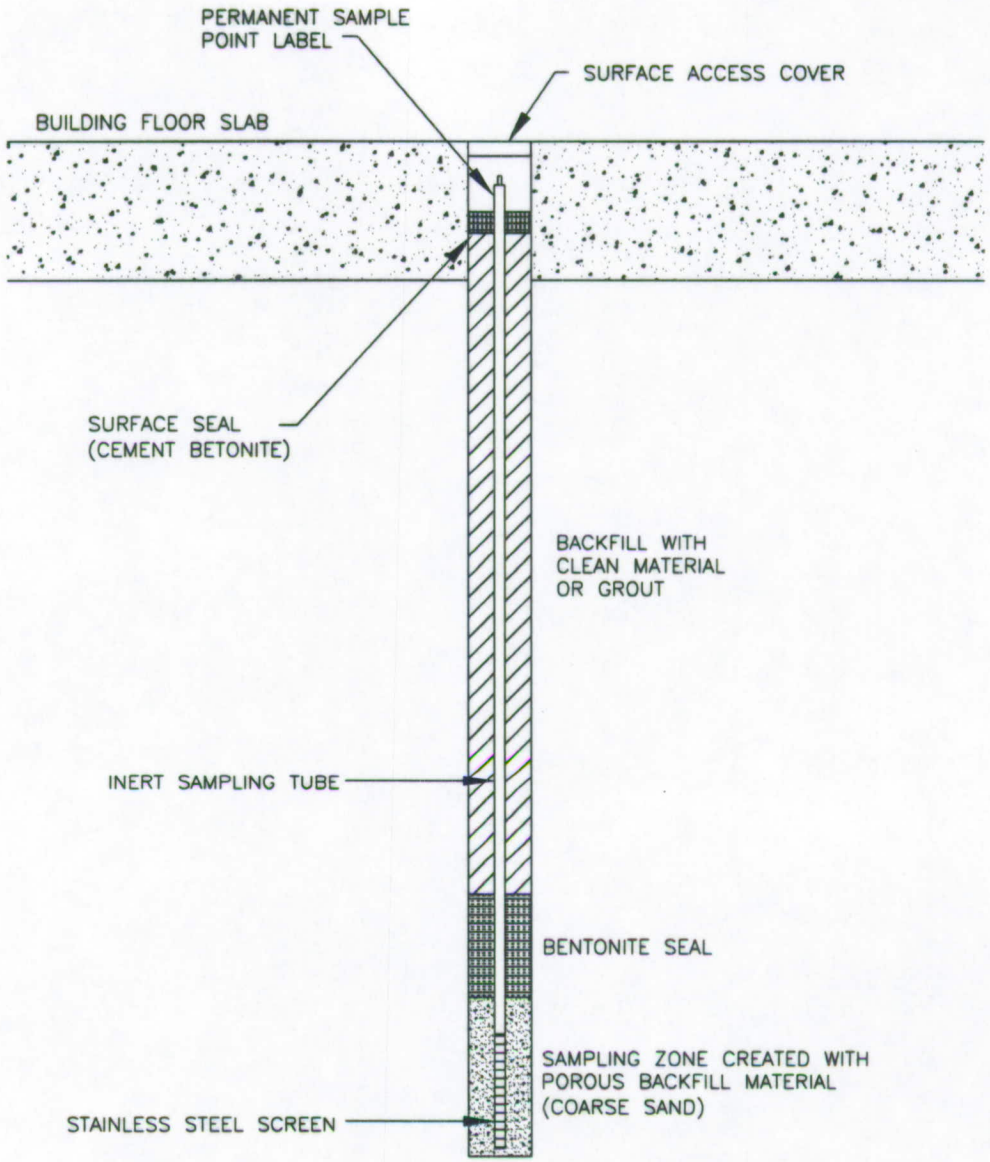
xref_AY220_base color
PROJECT: AY000220.0012.00001



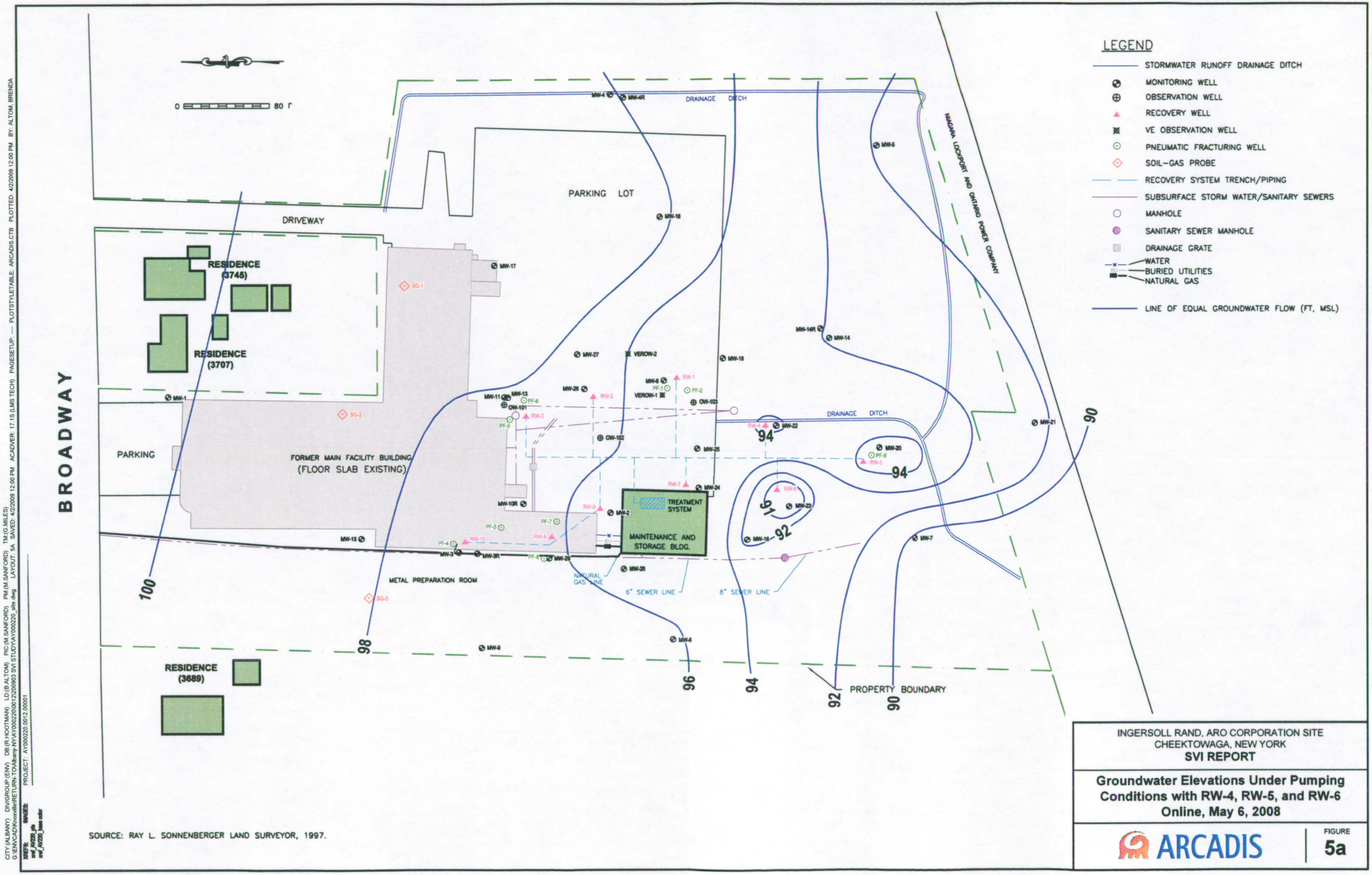
NOT TO SCALE

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Schematic of Soil-Gas Probe

ARCADIS

FIGURE
4



SOURCE: RAY L. SONNENBERGER LAND SURVEYOR, 1997.

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Groundwater Elevations Under Pumping Conditions with RW-4, RW-5, and RW-6 Online, May 6, 2008

ARCADIS

FIGURE **5a**

CITY:(ALBANY) DIV/GROUP:(ENV) DB:(R.HOOTMAN) LD:(B.ALTOM) PIC:(M.SANFORD) PM:(M.SANFORD) TM:(G.MILES)
G:\ENVCAD\Knoxville\RETURN-TO\Albany-NY\AY000220\0012\200903 SVI STUDY\AY000220_site.dwg LAYOUT: 5A SAVED: 4/2/2009 12:00 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: -- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 4/2/2009 12:00 PM BY: ALTOM, BRENDA
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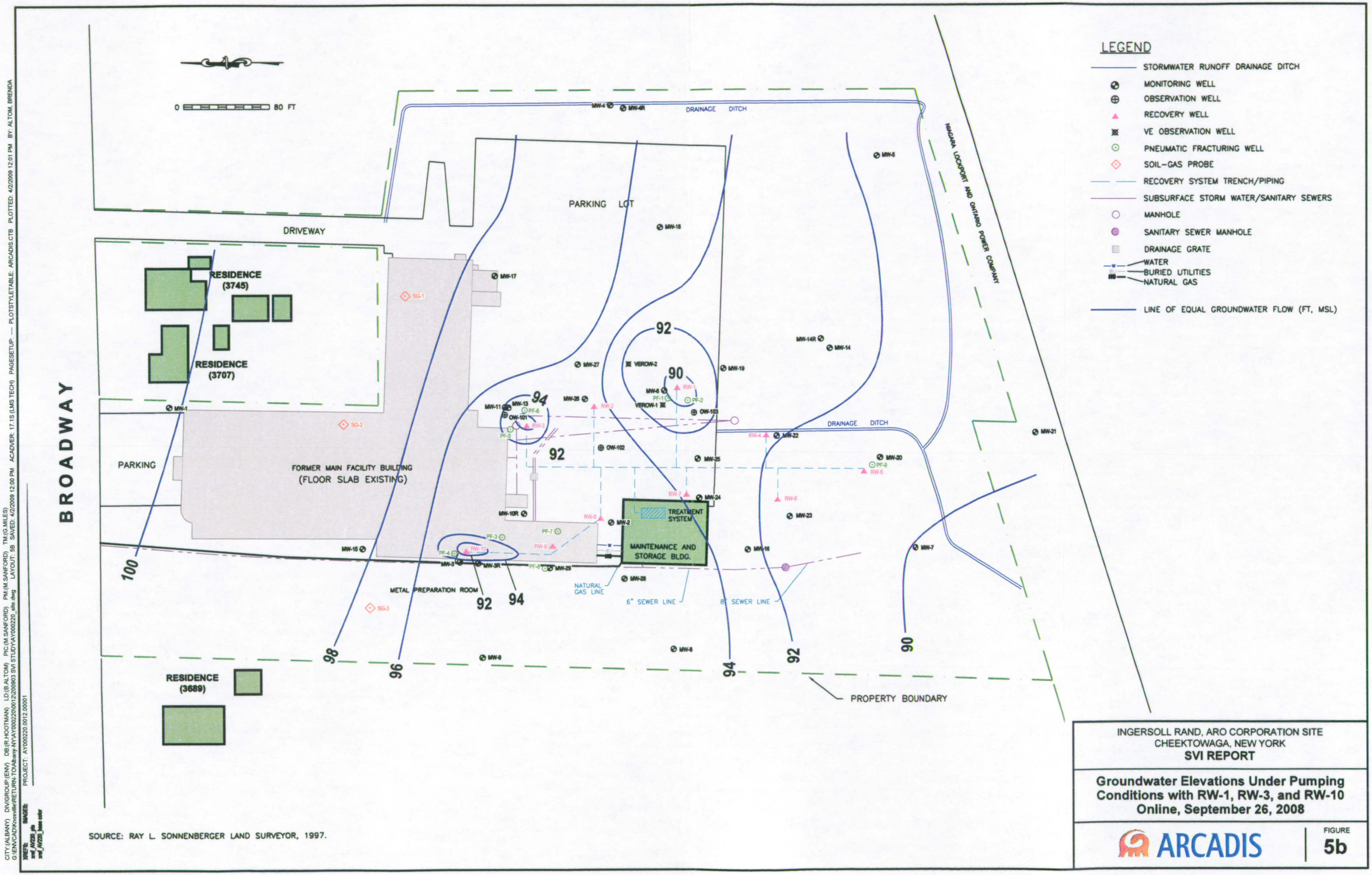
PROJECT: AY000220.0012.00001



LEGEND

- STORMWATER RUNOFF DRAINAGE DITCH
- MONITORING WELL
- OBSERVATION WELL
- RECOVERY WELL
- VE OBSERVATION WELL
- PNEUMATIC FRACTURING WELL
- SOIL-GAS PROBE
- RECOVERY SYSTEM TRENCH/PIPING
- SUBSURFACE STORM WATER/SANITARY SEWERS
- MANHOLE
- SANITARY SEWER MANHOLE
- DRAINAGE GRATE
- WATER
- BURIED UTILITIES
- NATURAL GAS
- LINE OF EQUAL GROUNDWATER FLOW (FT, MSL)

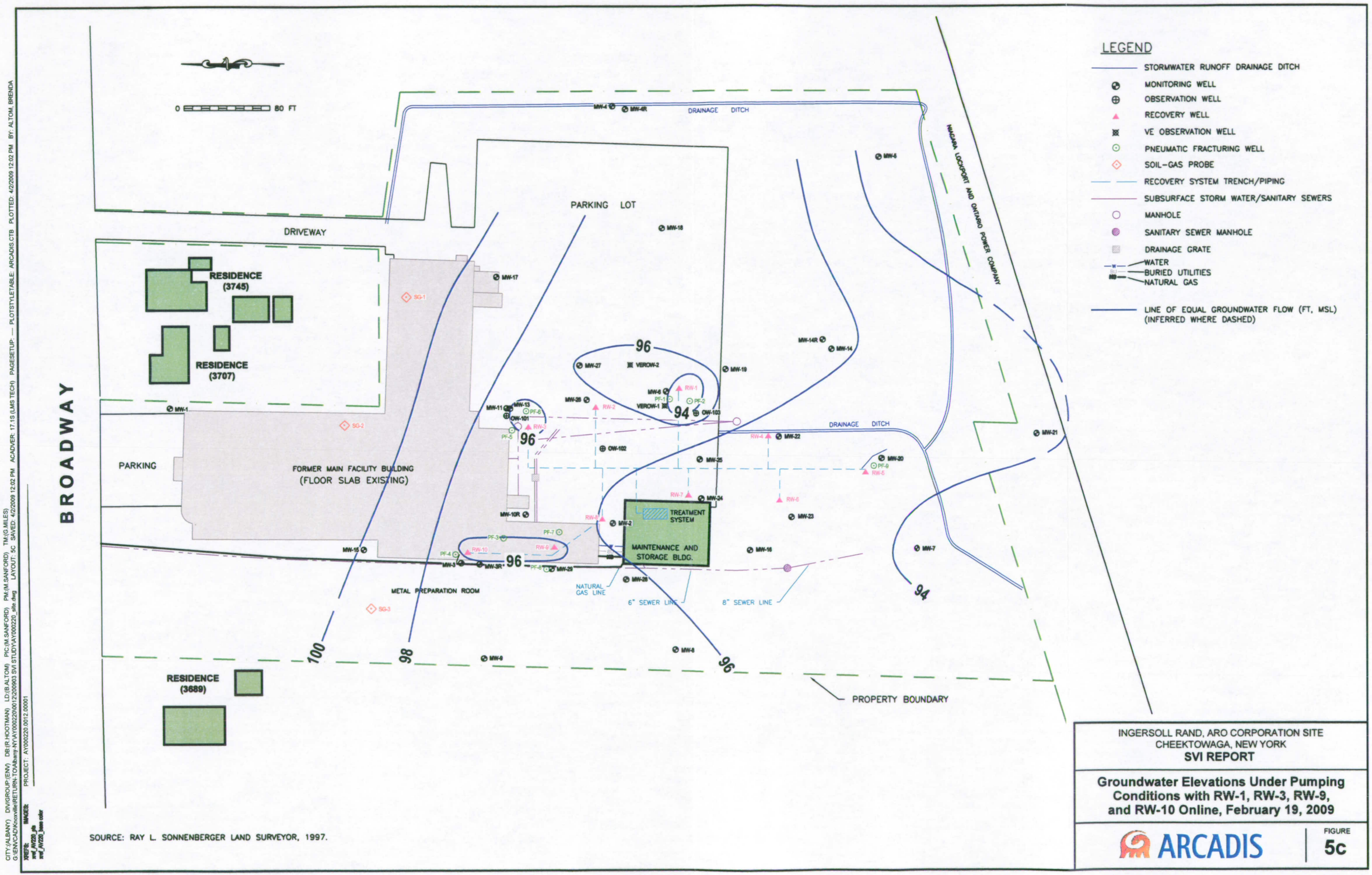
SOURCE: RAY L. SONNENBERGER LAND SURVEYOR, 1997.

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Groundwater Elevations Under Pumping Conditions with RW-1, RW-3, and RW-10 Online, September 26, 2008

ARCADIS

FIGURE **5b**



LEGEND

- STORMWATER RUNOFF DRAINAGE DITCH
- MONITORING WELL
- OBSERVATION WELL
- RECOVERY WELL
- VE OBSERVATION WELL
- PNEUMATIC FRACTURING WELL
- SOIL-GAS PROBE
- RECOVERY SYSTEM TRENCH/PIPING
- SUBSURFACE STORM WATER/SANITARY SEWERS
- MANHOLE
- SANITARY SEWER MANHOLE
- DRAINAGE GRATE
- WATER
- BURIED UTILITIES
- NATURAL GAS
- LINE OF EQUAL GROUNDWATER FLOW (FT, MSL) (INFERRED WHERE DASHED)

SOURCE: RAY L. SONNENBERGER LAND SURVEYOR, 1997.

INGERSOLL RAND, ARO CORPORATION SITE
CHEEKTOWAGA, NEW YORK
SVI REPORT

Groundwater Elevations Under Pumping Conditions with RW-1, RW-3, RW-9, and RW-10 Online, February 19, 2009

ARCADIS

FIGURE 5c

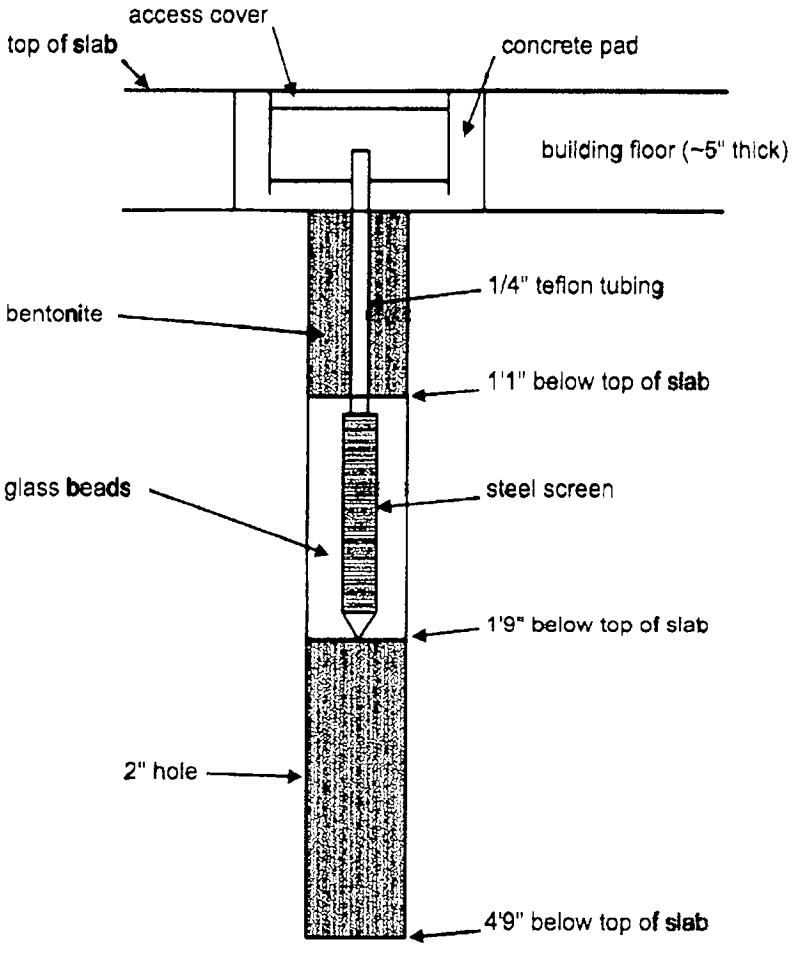
ARCADIS

Appendix A

Soil Gas Probe Construction Logs

ARCADIS

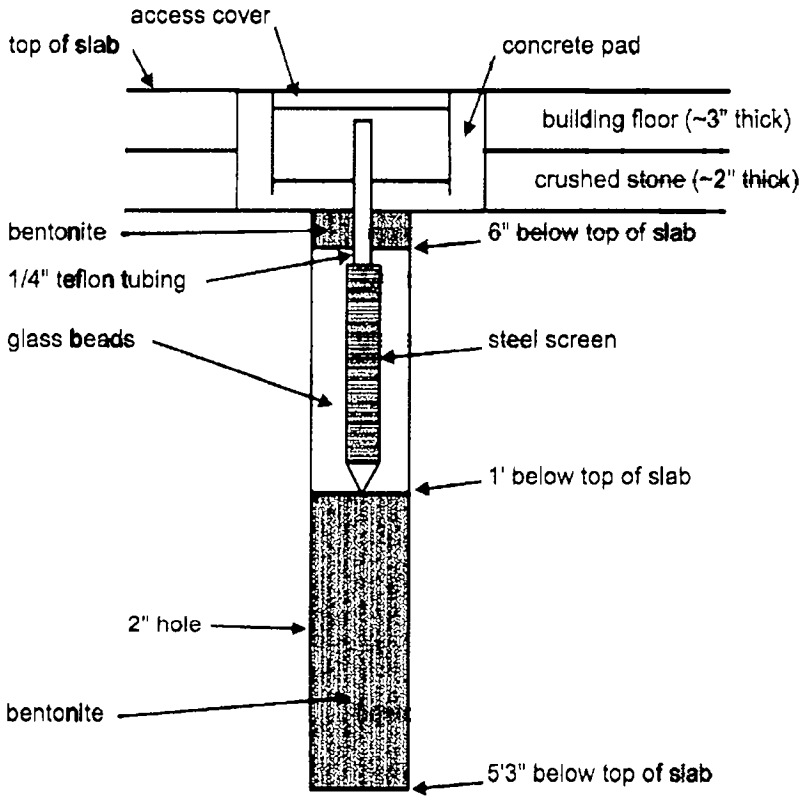
Project: IR-ARO
Location: Cheektowaga,NY
Soil Gas Probe ID: SG-1
Date Installed: 5/2/08



NOT TO SCALE

ARCADIS

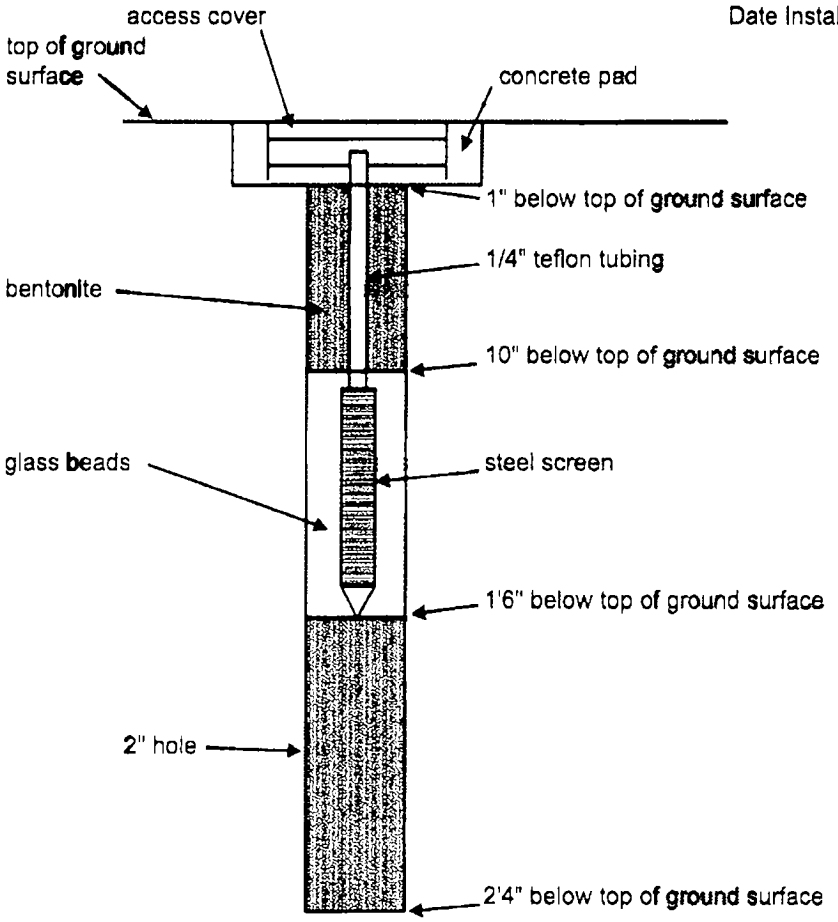
Project: IR-ARO
Location: Cheektowaga,NY
Soil Gas Probe ID: SG-2
Date Installed: 5/2/08



NOT TO SCALE

ARCADIS

Project: IR-ARO
Location: Cheektowaga,NY
Soil Gas Probe ID: SG-3
Date Installed: 5/2/08



NOT TO SCALE

ARCADIS

Appendix B

Soil Gas Sampling Logs

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-1

Client:	ARCADIS	**Date/Day:**	5/6/2008 / Tuesday
Project:	IR- ARO	**Weather:**	Sun and Clear
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW very little
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	1' 9"	**Approximate Volume of Sampling Train:**	20 mL
Time of Collection:	Start: 0746 Stop: 1546	**Approximate Purge Volume:**	150 ml

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-27	0.7
MW-13	4.72
MW-1	3.6

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 567

Flow Controller ID: 533

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Gauge Reading Prior to Sample Collection**	**Gauge Reading Following Sample Collection**
	28.5	0

General Observations/Notes:

Passed 1st helium test.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-2

Client:	ARCADIS	**Date/Day:**	5/6/2008 / Tuesday
Project:	IR- ARO	**Weather:**	Sun and Clear
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW very little
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	10"	**Approximate Volume of Sampling Train:**	14 mL
Time of Collection:	Start: 1007 Stop: 1807	**Approximate Purge Volume:**	300 ml

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-1	3.60
MW-15	4.22
OW-101	4.60

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 551

Flow Controller ID: 523

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	28	0

General Observations/Notes:

On the first purge with the syringe water came up through the tubing. KA collected the water in voa vials purging the hole dry then pulled the tubing up about 2". SG-2 passed the helium test. No water was present after moving the position of the tubing.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-3 / DUP

Client:	ARCADIS	**Date/Day:**	5/6/2008 / Tuesday
Project:	IR- ARO	**Weather:**	Sun and Clear
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW very little
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	1' 6"	**Approximate Volume of Sampling Train:**	18mL
Time of Collection:	Start: 0941 Stop: 1701	**Approximate Purge Volume:**	150 ml

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15	4.22
MW-3	4.93
MW-9	3.91

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 552 / 543(Dup)

Flow Controller ID: 526 / 525 (Dup)

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	28 (SG-3) / 29 (Dup)	0 (SG-3) / 0 (Dup)

General Observations/Notes:

Passed helium test second time. Has to tighten up some of the clamps under the shroud after the first helium test.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: Downwind - AA

Client:	ARCADIS	**Date/Day:**	5/6/2008 / Tuesday
Project:	IR- ARO	**Weather:**	Sun and Clear
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW very little
Samplers:	Katie Arnold	**Subcontractor:**	
Logged By:	Katie Arnold	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 0914 Stop: 1716	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 550

Flow Controller ID: 520

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	28.5	0.0

General Observations/Notes:

Ambient Air sample
Located northwest of the MW-15

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: Upwind - AA

Client:	ARCADIS	**Date/Day:**	5/6/2008 / Tuesday
Project:	IR- ARO	**Weather:**	Sun and Clear
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW very little
Samplers:	Katie Arnold	**Subcontractor:**	
Logged By:	Katie Arnold	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 0918 Stop: 1720	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 540

Flow Controller ID: 527

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	27.5	1.0

General Observations/Notes:

Ambient Air sample
Located south of the MW-4 cluster

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-1

Client:	ARCADIS	**Date/Day:**	9/26/2008 / Friday
Project:	IR- ARO	**Weather:**	Part Sun to light rain
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SE to NW/ light
Samplers:	Chris Davern	**Subcontractor:**	
Logged By:	Chris Davern	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	Dry / • Moist
Sampling Depth:	1'9"	**Approximate Volume of Sampling Train:**	25 mL
Time of Collection:	Start: 1115 Stop: 1925	**Approximate Purge Volume:**	150 mL (vapor) 50 mL (water)

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-11	10.60
MW-13	16.73
OW-101	6.50

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 461

Flow Controller ID: 126

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	31	2.5

General Observations/Notes:

SG-1 vapor point had standing water inslide flushmount casing. Purged 45 mL vapor, then purged 50 mL water. Purged ~100mL
Additional vapor with no water. Water purged may have been from standing water than had seeped down along outside of tubing.
Purged standing water and reinforced clay seal.
Passed Helium Tracer Test.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-2

Client:	ARCADIS	**Date/Day:**	9/26/2008 / Friday
Project:	IR- ARO	**Weather:**	Part Sun to light rain
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SE to NW/ light
Samplers:	Chris Davern	**Subcontractor:**	
Logged By:	Chris Davern	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	Dry / • Moist
Sampling Depth:	10"	**Approximate Volume of Sampling Train:**	10 mL
Time of Collection:	Start: 925 Stop: 1850	**Approximate Purge Volume:**	120 mL (vapor)

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15	4.93
MW-1	4.04

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 312

Flow Controller ID: 149

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	28.7	5

General Observations/Notes:

Passed Helium Tracer Test.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-3/DUP-1

Client:	ARCADIS	**Date/Day:**	9/26/2008 / Friday
Project:	IR- ARO	**Weather:**	Part Sun to light rain
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SE to NW/ light
Samplers:	Chris Davern	**Subcontractor:**	
Logged By:	Chris Davern	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	Dry / • Moist
Sampling Depth:	1.5'	**Approximate Volume of Sampling Train:**	10 mL
Time of Collection:	Start: 1018 Stop: 1915	**Approximate Purge Volume:**	100 mL (vapor)

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15	4.93
MW-1	4.04

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 312

Flow Controller ID: 149

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	27.5 / 30.0(DUP)	0 / 5 (DUP)

General Observations/Notes:

Passed Helium Tracer Test.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: . Downwind - AA

Client:	ARCADIS	**Date/Day:**	9/26/2008 / Friday
Project:	IR- ARO	**Weather:**	Part Sun to Light Rain
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW
Samplers:	Chris Davern	**Subcontractor:**	
Logged By:	Chris Davern	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 1145 Stop: 1950	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 529

Flow Controller ID: 147

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	30.0	4.5

General Observations/Notes:

Ambient Air sample
Observed same wind pattern as during previous SVI sampling event. Downwind location approximately 80' Northwest of well MW-15.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: Downwind - AA

Client:	ARCADIS	**Date/Day:**	9/26/2008 / Friday
Project:	IR- ARO	**Weather:**	Part Sun to Light Rain
Location:	Cheektowaga, NY	**Temperature:**	55 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SW
Samplers:	Chris Davern	**Subcontractor:**	
Logged By:	Chris Davern	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 1140 Stop: 1945	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 191

Flow Controller ID: 48

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	34.5	8.8

General Observations/Notes:

Ambient Air sample
Observed same wind pattern as during previous SVI sampling event. Upwind location at southeast corner of parking lot by MW-4 and MW-18.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-1

Client:	ARCADIS	**Date/Day:**	2/18/2009 / Wednesday
Project:	IR- ARO	**Weather:**	Snow
Location:	Cheektowaga, NY	**Temperature:**	35 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SSW
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	Dry / •Moist
Sampling Depth:	1' 9"	**Approximate Volume of Sampling Train:**	20 mL
Time of Collection:	Start: 0753 Stop: 1553	**Approximate Purge Volume:**	200 ml

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-17	0.1 (water in casing)
MW-13	11.01
MW-1	3.30
MW-27	2.80

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 564

Flow Controller ID: 119

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	30.0	6.5

General Observations/Notes:

Passed helium test, waited ~2 minutes after introducing the Helium into the shroud. Little water in the casing and tubing, used a peristaltic pump to purge water.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-2 / DUP

Client:	ARCADIS	**Date/Day:**	2/18/2009 / Wednesday
Project:	IR- ARO	**Weather:**	Snow
Location:	Cheektowaga, NY	**Temperature:**	35 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SSW
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	10"	**Approximate Volume of Sampling Train:**	12 mL
Time of Collection:	Start: 0849 / 0850 (DUP) Stop: 1650 / 1650 (DUP)	**Approximate Purge Volume:**	200 mL

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15	
MW-3	
MW-9	

SUMMA Canister Information

Size (circle one): • 1 L 6 L

Canister ID: 374 / 101 (DUP)

Flow Controller ID: 279 / 403 (DUP)

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	29.0 / 28.0 (DUP)	4.0 / 9.0 (DUP)

General Observations/Notes:

Passed Helium Test second round. Purged 2 minutes with Helium detector.
No water in the surrounding casing, used peristaltic pump to purge any water (there was no water).

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: SG-3

Client:	ARCADIS	**Date/Day:**	2/18/2009 / Wednesday
Project:	IR- ARO	**Weather:**	Snow
Location:	Cheektowaga, NY	**Temperature:**	35 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SSW
Samplers:	Katie Arnold	**Subcontractor:**	Nothnagle installed previously
Logged By:	Katie Arnold	**Equipment:**	Geoprobe
		Moisture Content of Sampling Zone (circle one):	•Dry / Moist
Sampling Depth:	1.6'	**Approximate Volume of Sampling Train:**	19 mL
Time of Collection:	Start: Stop:	**Approximate Purge Volume:**	*

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15	7.93
MW-3	21.50
MW-9	3.28

SUMMA Canister Information

Size (circle one): 1 L 6 L

Canister ID: NA

Flow Controller ID: NA

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	NA	NA

General Observations/Notes:

Purged vapor point with peristaltic pump. From 0740 to 1020 and collected over 1055 mL of water.
Water was still in the borehole and sample tubing,
Did not sample.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: Downwind - AA

Client:	ARCADIS	**Date/Day:**	2/18/2009 / Wednesday
Project:	IR- ARO	**Weather:**	Snow
Location:	Cheektowaga, NY	**Temperature:**	35 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SSW
Samplers:	Katie Arnold	**Subcontractor:**	
Logged By:	Katie Arnold	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	Dry / •Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 0827 Stop: 1627	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 159

Flow Controller ID: 125

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	30.0	3.0

General Observations/Notes:

Ambient Air sample
Wind was stronger in the morning.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Soil Gas Sample Collection Log

Sample ID: Downwind - AA

Client:	ARCADIS	**Date/Day:**	2/18/2009 / Wednesday
Project:	IR- ARO	**Weather:**	Snow
Location:	Cheektowaga, NY	**Temperature:**	35 degrees F
Project #:	AY000220.0012	**Wind Speed/Direction:**	SSW
Samplers:	Katie Arnold	**Subcontractor:**	
Logged By:	Katie Arnold	**Equipment:**	
		Moisture Content of Sampling Zone (circle one):	Dry / •Moist
Sampling Depth:	3' above ground	**Approximate Volume of Sampling Train:**	NA
Time of Collection:	Start: 0858 Stop: 1659	**Approximate Purge Volume:**	NA

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA
	NA

SUMMA Canister Information

Size (circle one): •1 L 6 L

Canister ID: 197

Flow Controller ID: 42

Tracer Gas Information (if applicable)

Tracer Gas and Source of Tracer Gas: NA

Canister Pressure (inches Hg):

Reported By Laboratory	Gauge Reading Prior to Sample Collection	Gauge Reading Following Sample Collection
	27.5	8.0

General Observations/Notes:

Ambient Air sample
Wind was stronger in the morning.

Approximating Sampling Train Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

ARCADIS

Appendix C

Laboratory Analytical Data Reports

DATA USABILITY SUMMARY REPORT

IR-ARO

JAMESTOWN, NEW YORK

SDG #C0805005

AIR VOLATILE ANALYSES

Analyses performed by:

Centek Laboratories
Syracuse, New York

Review performed by:

ARCADIS
Infrastructure, environment, facilities

Report #C0805005
Project #AY000220.0012.0002

Summary

The following is an assessment of the data package for Sample Delivery Group (SDG) #C0805005 for sampling from the ARO Jamestown Site. Included with this assessment are the corrected sample results, sample compliance report and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
SG-1	C0805005-001A	Air	5/6/08	NA	X				
SG-3	C0805005-002A	Air	5/6/08	NA	X				
DUP-1	C0805005-003A	Air	5/6/08	SG-3	X				
Downwind-AA	C0805005-004A	Air	5/6/08	NA	X				
Upwind-AA	C0805005-005A	Air	5/6/08	NA	X				
SG-2	C0805005-006A	Air	5/6/08	NA	X				
Trip Blank	C0805005-007A	Air	5/6/08	NA	X				

Introduction

Analyses were performed according to (United Stated Environmental Protection Agency) USEPA Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15) and NYSDEC Modifications to R9 TO-15 QA/QC Criteria February 2008.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

AIR VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Method TO-15	Air	30 days storage from collection to analysis	Ambient temperature

All samples were analyzed within the specified holding times and met canister return pressure criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24 hour tune clock.

System performance and column resolution were acceptable.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	% Recovery
SG-1 SG-1 (10X)	Bromofluorobenzene	>UL
SG-3 SG-3 (10X) SG-3 (40X)	Bromofluorobenzene	>UL
DUP-1 DUP-1 (10X)	Bromofluorobenzene	>UL
SG-2 SG-2 (10X)	Bromofluorobenzene	>UL

Upper control limit (UL)
Lower control limit (LL)
Diluted (D)
Acceptable (AC)

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	J
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	No Action
	Detect	

5. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

5.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

5.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SG-1 SG-3 DUP-1 Upwind-AA Downwind-AA SG-2 Trip Blank	CCV %D	Tetrachloroethylene	220%
	CCV %D	Methyl Butyl Ketone	36.2%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 30%	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >30% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >30% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

1. RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e. ketones, 1,4-Dioxane, etc.)

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
DUP-1	Chlorobenzene-d5	>UL
	Bromochloromethane	AC
	1,4-Difluorobenzene	AC

Acceptable (AC)

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	J
	Detect	J
< 25%	Non-detect	R
	Detect	J

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SG-1 SG-3 DUP-1 Upwind-AA Downwind-AA SG-2 Trip Blank	1,1,2-Trichloroethane	135%
	Bromoform	135%
	Methyl Butyl Ketone	293%

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
LCS percent recovery >130%	Non-detect	No Action
	Detect	J
LCS percent recovery <70% but > 10%	Non-detect	J
	Detect	J
< 10%	Non-detect	R
	Detect	J

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

8. Laboratory Duplicates (Laboratory Replicates)

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Laboratory duplicates were not performed as part of this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table:

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/DUP-1	1,2-Dichloroethane	0.450	0.340	AC
	2,2,4-Trimethylpentane	2.10	0.650	AC
	Acetone	15.7	10.6	AC
	Benzene	3.00	1.42	NC
	Bromodichloromethane	0.200	ND(0.150)	AC
	Carbon Disulfide	10.0	3.10	NC
	Chloroform	2.16	0.650	NC
	Cis-1,2-Dichloroethene	0.620	0.320	AC
	Cyclohexane	16.6	5.50	NC
	Freon 11	0.300	0.220	AC
	Freon 113	1.86	0.580	NC
	Freon 12	0.490	0.440	AC
	Heptane	6.70	2.50	AC
	Hexane	8.10	3.40	NC
	Methyl Ethyl Ketone	4.50	2.30	AC
	Methyl Isobutyl Ketone	3.80	1.60	AC
	Methylene Chloride	1.99	1.59	22%
	Tetrachloroethylene	0.440	0.210	AC
	Toluene	4.70	3.78	NC

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Trichloroethene	7.20	1.49	NC
	Vinyl Chloride	0.770	0.210	114%

ND = Not detected.
AC = Acceptable.
NC = Not compliant.

The compounds associated with benzene, carbon disulfide, cyclohexane, chloroform, Freon 113, hexane, toluene, trichloroethene, and vinyl chloride at sample locations SG-3 and DUP-1 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
SG-1	1,1-Dichloroethene	35.9E	5.2D	5.2D
	Acetone	5.83E	7.0D	7.0D
	Carbon Disulfide	2.84E	2.9D	2.9D
	Cis-1,2-Dichloroethene	189.3E	18.4D	18.4D
	Cyclohexane	4.50E	3.8D	3.8D
	Freon 113	310E	53.6D	53.6D
	Hexane	2.86E	1.80D	1.80D
	Isopropyl Alcohol	3.76E	5.0D	5.0D
	Trans-1,2-Dichloroethene	15.6E	10.3D	10.3D
	Trichloroethene	654E	73.8D	73.8D
	Vinyl Chloride	458E	68.0D	68.0D
SG-3	2,2,4-Trimethylpentane	3.50E	1.50D	1.50D
	Acetone	16.8E	15.7D	15.7D
	Benzene	3.26E	3.00D	3.00D
	Carbon Disulfide	12.01E	10.0D	10.0D
	Cyclohexane	25.6E	16.6D	16.6D
	Heptane	11.6E	6.70D	6.70D
	Hexane	13.9E	8.10D	8.10D
	Methyl Ethyl Ketone	3.26E	4.50D	4.50D
	Methyl Isobutyl Ketone	8.24E	3.80D	3.80D

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
	Toluene	7.45E	4.70D	4.70D
	Trichloroethene	3.53E	7.20D	7.20D
DUP-1	Acetone	11.3E	10.6D	10.6D
	Carbon Disulfide	2.88E	3.10D	3.10D
	Cyclohexane	9.84E	5.50D	5.50D
	Heptane	4.90E	2.50D	2.50D
	Hexane	6.07E	3.40D	3.40D
	Methyl Ethyl Ketone	2.36E	2.30D	2.30D
	Methyl Isobutyl Ketone	3.56E	1.60D	1.60D
Downwind-AA	Acetone	5.67E	6.05D	6.05D
	Isopropyl Alcohol	4.08E	4.75D	4.75D
Upwind-AA	Acetone	6.13E	6.30D	6.30D
	Isopropyl Alcohol	2.50E	3.20D	3.20D
SG-2	2,2,4-Trimethylpentane	146E	87.3D	87.3D
	Acetone	92.7E	81.6D	81.6D
	Carbon Disulfide	2.57E	2.50D	2.50D
	Chloroform	2.58E	3.00D	3.00D
	Cyclohexane	6.89E	10.7D	10.7D
	Heptane	13.0E	10.7D	10.7D
	Hexane	24.3E	21.2D	21.2D
	Methyl Ethyl Ketone	23.4E	16.1D	16.1D
	Methyl Isobutyl Ketone	10.5E	8.30D	8.30D
	Toluene	6.83E	5.40D	5.40D

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR AIR VOCs

VOCs Method TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure/vacuum (5"Hg ± 1)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X			
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Field Duplicate (%RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X	X		
Compound identification and quantitation		X		X	
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – percent relative difference, %R - percent recovery, RPD - relative percent difference, %D – difference

DATA VALIDATION CHECKLIST FOR FIELD DATA DOCUMENTATION

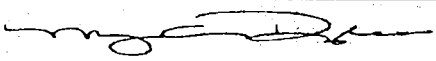
CHAIN OF CUSTODY DOCUMENTATION	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Date Collected		X		X	
Methods of analysis		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Sample type (Air, Aqueous, Soil, Sediment, or Biota)		X		X	
Sample container type		X		X	
Chain-of-Custody (COC) form completed		X		X	
Required analytical method requested		X		X	
Number and type of field QC sample collected (blanks, replicates, splits, etc.)		X		X	
Sample shipping		X		X	

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliant? VOC	SVOC	PCB/TPH	MET	Pest	Non-Compliance
C0805005	5/6/08	TO-15	SG-1	Air	No	--	--	--	--	VOC- Surrogate %Recovery, CCAL %D
C0805005	5/6/08	TO-15	SG-3	Air	No	--	--	--	--	VOC- Surrogate %Recovery, CCAL %D, Field Duplicate %RPD
C0805005	5/6/08	TO-15	DUP-1	Air	No	--	--	--	--	VOC- Surrogate %Recovery, CCAL %D, Internal Standards, Field Duplicate %RPD
C0805005	5/6/08	TO-15	Upwind-AA	Air	No	--	--	--	--	VOC- CCAL %D
C0805005	5/6/08	TO-15	Downwind-AA	Air	No	--	--	--	--	VOC- CCAL %D
C0805005	5/6/08	TO-15	SG-2	Air	No	--	--	--	--	VOC- Surrogate %Recovery, CCAL %D
C0805005	5/6/08	TO-15	Trip Blank	Air	No	--	--	--	--	VOC- CCAL %D

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY:	Mary Ann Doyle
SIGNATURE:	
DATE:	7/14/08
VALIDATION PEER REVIEW BY:	Joseph C. Houser
SIGNATURE:	
DATE:	7/16/08

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	Client Sample ID:	SG-1
Lab Order:	C0805005	Tag Number:	567, 533
Project:	A4000220.0012/IR-ARO	Collection Date:	5/6/2008
Lab ID:	C0805005-001A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	-3			"Hg		5/6/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		TO-15				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,1-Dichloroethene	5.20 DJ	6.00	J	ppbV	40	5/9/2008 3:05:00 AM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,2,4-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,2-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 4:35:00 PM
2,2,4-trimethylpentane	0.230 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Acetone	7.00 DJ	3.00		ppbV	10	5/9/2008 2:30:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Benzene	0.450 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Carbon disulfide	2.90 DJ	1.50		ppbV	10	5/9/2008 2:30:00 AM
Carbon tetrachloride	ND	0.0400		ppbV	1	5/8/2008 4:35:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Chloroform	0.330 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
Chloromethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
cis-1,2-Dichloroethene	18.4 DJ	6.00		ppbV	40	5/9/2008 3:05:00 AM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Cyclohexane	3.80 DJ	1.50		ppbV	10	5/9/2008 2:30:00 AM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 4:35:00 PM
Ethylbenzene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM

Qualifiers:
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	SG-1
Lab Order:	C0805005	**Tag Number:**	567, 533
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-001A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Freon 113	53.6 DJ	6.00		ppbV	40	5/8/2008 3:05:00 AM
Freon 114	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Freon 12	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Heptane	1.49 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Hexane	1.80 DJ	1.50		ppbV	10	5/8/2008 2:30:00 AM
Isopropyl alcohol	5.00 DJ	1.50		ppbV	10	5/8/2008 2:30:00 AM
m&p-Xylene	0.740 J	0.300		ppbV	1	5/8/2008 4:35:00 PM
Methyl Butyl Ketone	ND J	0.300		ppbV	1	5/8/2008 4:35:00 PM
Methyl Ethyl Ketone	ND	0.300		ppbV	1	5/8/2008 4:35:00 PM
Methyl Isobutyl Ketone	0.910 J	0.300		ppbV	1	5/8/2008 4:35:00 PM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Methylene chloride	0.540 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
o-Xylene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Tetrachloroethylene	0.110 J	0.150		ppbV	1	5/8/2008 4:35:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Toluene	1.89	0.150		ppbV	1	5/8/2008 4:35:00 PM
trans-1,2-Dichloroethene	10.3 DJ	1.50		ppbV	10	5/8/2008 2:30:00 AM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Trichloroethene	73.8 D	3.60		ppbV	80	5/16/2008 10:01:00 AM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 4:35:00 PM
Vinyl chloride	680 D	1.60		ppbV	40	5/8/2008 3:05:00 AM
Vinyl chloride	42.3	3.60		ppbV	80	5/16/2008 10:01:00 AM
Surr: Bromofluorobenzene	122	70-130		%REC	40	5/8/2008 3:05:00 AM
Surr: Bromofluorobenzene	435	70-130	S	%REC	1	5/8/2008 4:35:00 PM
Surr: Bromofluorobenzene	103	70-130		%REC	80	5/16/2008 10:01:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits	
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	SG-3
Lab Order:	C0805005	**Tag Number:**	552, 526
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-002A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	-2			"Hg		5/6/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2,4-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2-Dichloroethane	0.450 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 5:10:00 PM
2,2,4-trimethylpentane	2.10 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Acetone	15.7 DJ	3.00		ppbV	10	5/9/2008 3:41:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Benzene	3.00 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Bromodichloromethane	0.200 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Carbon disulfide	10.0 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
Carbon tetrachloride	ND	0.0400		ppbV	1	5/8/2008 5:10:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Chloroform	2.16 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Chloromethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
cis-1,2-Dichloroethene	0.620 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Cyclohexane	16.6 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 5:10:00 PM
Ethylbenzene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	SG-3
Lab Order:	C0805005	**Tag Number:**	552, 526
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-002A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	0.300 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Freon 113	1.86 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Freon 12	0.490 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Heptane	6.70 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Hexane	8.10 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
Isopropyl alcohol	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
m&p-Xylene	ND	0.300		ppbV	1	5/8/2008 5:10:00 PM
Methyl Butyl Ketone	ND J	0.300		ppbV	1	5/8/2008 5:10:00 PM
Methyl Ethyl Ketone	4.50 DJ	3.00		ppbV	10	5/9/2008 3:41:00 AM
Methyl Isobutyl Ketone	3.80 DJ	3.00		ppbV	10	5/9/2008 3:41:00 AM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Methylene chloride	1.99 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
o-Xylene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Tetrachloroethylene	0.440 J	0.150		ppbV	1	5/8/2008 5:10:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Toluene	4.70 DJ	1.50		ppbV	10	5/9/2008 3:41:00 AM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Trichloroethene	7.20 DJ	1.60		ppbV	40	5/9/2008 4:17:00 AM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 5:10:00 PM
Vinyl chloride	0.770 J	0.0400		ppbV	1	5/8/2008 5:10:00 PM
Surr: Bromofluorobenzene	408	70-130	S	%REC	10	5/9/2008 3:41:00 AM
Surr: Bromofluorobenzene	1010	70-130	S	%REC	1	5/8/2008 5:10:00 PM
Surr: Bromofluorobenzene	142	70-130	S	%REC	40	5/9/2008 4:17:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits.		

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Dup-1
Lab Order:	C0805005	**Tag Number:**	543, 525
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-003A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	-3			"Hg		5/8/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,2,4-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,2-Dibromoethane	ND	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,2-Dichloroethane	0.340	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 5:45:00 PM
2,2,4-trimethylpentane	0.650	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Acetone	10.8	3.00	DJ	ppbV	10	5/9/2008 4:50:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Benzene	1.42	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Carbon disulfide	3.10	1.50	DJ	ppbV	10	5/9/2008 4:50:00 AM
Carbon tetrachloride	ND	0.0400		ppbV	1	5/8/2008 5:45:00 PM
Chlorobenzene	ND	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Chloroform	0.660	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
Chloromethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
cis-1,2-Dichloroethene	0.320	0.150	J	ppbV	1	5/8/2008 5:45:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Cyclohexane	5.60	1.50	DJ	ppbV	10	5/9/2008 4:50:00 AM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 5:45:00 PM
Ethylbenzene	ND	0.150	J	ppbV	1	5/8/2008 5:45:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits	
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Dup-1
Lab Order:	C0805005	**Tag Number:**	543, 525
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-003A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	0.220 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
Freon 113	0.580 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Freon 12	0.440 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
Heptane	2.50 DJ	1.50		ppbV	10	5/9/2008 4:50:00 AM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Hexane	3.40 DJ	1.50		ppbV	10	5/9/2008 4:50:00 AM
Isopropyl alcohol	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
m&p-Xylene	ND	0.300		ppbV	1	5/8/2008 5:45:00 PM
Methyl Butyl Ketone	ND J	0.300		ppbV	1	5/8/2008 5:45:00 PM
Methyl Ethyl Ketone	2.30 DJ	3.00	X	ppbV	10	5/9/2008 4:50:00 AM
Methyl Isobutyl Ketone	1.60 DJ	3.00	X	ppbV	10	5/9/2008 4:50:00 AM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Methylene chloride	1.59 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
o-Xylene	ND J	0.150		ppbV	1	5/8/2008 5:45:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Tetrachloroethylene	0.210 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Toluene	3.78 J	0.150		ppbV	1	5/8/2008 5:45:00 PM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Trichloroethene	1.49 J	0.0400		ppbV	1	5/8/2008 5:45:00 PM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 5:45:00 PM
Vinyl chloride	0.210 J	0.0400		ppbV	1	5/8/2008 5:45:00 PM
Surr: Bromofluorobenzene	102	70-130	S	%REC	10	5/9/2008 4:50:00 AM
Surr: Bromofluorobenzene	468	70-130	S	%REC	1	5/8/2008 5:45:00 PM

NOTES:

* High surrogate recoveries appears that the contamination is from fuel

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits	
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Downwind - AA
Lab Order:	C0805005	**Tag Number:**	550, 520
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	-3			"Hg		5/6/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2,4-Trimethylbenzene	0.200	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
1,4-Dichlorobenzene	0.100	0.150	J	ppbV	1	5/8/2008 4:00:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 4:00:00 PM
2,2,4-trimethylpentane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Acetone	6.05	1.50		ppbV	5	5/9/2008 1:58:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Benzene	0.200	0.150		ppbV	1	5/8/2008 4:00:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Carbon disulfide	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Carbon tetrachloride	0.130	0.0400		ppbV	1	5/8/2008 4:00:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Chloroform	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Chloromethane	0.370	0.150		ppbV	1	5/8/2008 4:00:00 PM
cis-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Cyclohexane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 4:00:00 PM
Ethylbenzene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM

Qualifiers:			
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Downwind - AA
Lab Order:	C0805005	**Tag Number:**	550, 520
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	0.240	0.150		ppbV	1	5/8/2008 4:00:00 PM
Freon 113	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Freon 12	0.510	0.150		ppbV	1	5/8/2008 4:00:00 PM
Heptane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Hexane	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Isopropyl alcohol	4.75	0.750		ppbV	5	5/8/2008 1:56:00 AM
m&p-Xylene	0.220	0.300	J	ppbV	1	5/8/2008 4:00:00 PM
Methyl Butyl Ketone	ND	0.300		ppbV	1	5/8/2008 4:00:00 PM
Methyl Ethyl Ketone	0.220	0.300	J	ppbV	1	5/8/2008 4:00:00 PM
Methyl Isobutyl Ketone	ND	0.300		ppbV	1	5/8/2008 4:00:00 PM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Methylene chloride	0.360	0.150		ppbV	1	5/8/2008 4:00:00 PM
o-Xylene	0.120	0.150	J	ppbV	1	5/8/2008 4:00:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Tetrachloroethylene	0.160	0.150		ppbV	1	5/8/2008 4:00:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Toluene	0.890	0.150		ppbV	1	5/8/2008 4:00:00 PM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Trichloroethene	ND	0.0400		ppbV	1	5/8/2008 4:00:00 PM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 4:00:00 PM
Vinyl chloride	ND	0.0400		ppbV	1	5/8/2008 4:00:00 PM
Surr: Bromofluorobenzene	88.0	70-130		%REC	1	5/8/2008 4:00:00 PM

Qualifiers:			
	B	Analyte detected in the associated Method Blank	E Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits	

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Upwind - AA
Lab Order:	C0805005	**Tag Number:**	540, 527
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-005A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Vacuum Reading "Hg	-2			"Hg		5/6/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2,4-Trimethylbenzene	0.210	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 3:25:00 PM
2,2,4-trimethylpentane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Acetone	6.30	1.50		ppbV	5	5/9/2008 1:22:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Benzene	0.150	0.150		ppbV	1	5/8/2008 3:25:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Carbon disulfide	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Carbon tetrachloride	0.120	0.0400		ppbV	1	5/8/2008 3:25:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Chloroform	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Chloromethane	0.350	0.150		ppbV	1	5/8/2008 3:25:00 PM
cis-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Cyclohexane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 3:25:00 PM
Ethylbenzene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Upwind - AA
Lab Order:	C0805005	**Tag Number:**	540, 527
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-005A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	0.230	0.150		ppbV	1	5/8/2008 3:25:00 PM
Freon 113	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Freon 12	0.480	0.150		ppbV	1	5/8/2008 3:25:00 PM
Heptane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Hexane	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Isopropyl alcohol	3.20 D	0.750		ppbV	5	5/8/2008 1:22:00 AM
m&p-Xylene	0.130	0.300	J	ppbV	1	5/8/2008 3:25:00 PM
Methyl Butyl Ketone	ND J	0.300		ppbV	1	5/8/2008 3:25:00 PM
Methyl Ethyl Ketone	0.140	0.300	J	ppbV	1	5/8/2008 3:25:00 PM
Methyl Isobutyl Ketone	ND	0.300		ppbV	1	5/8/2008 3:25:00 PM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Methylene chloride	0.370	0.150		ppbV	1	5/8/2008 3:25:00 PM
o-Xylene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Tetrachloroethylene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Toluene	0.710	0.150		ppbV	1	5/8/2008 3:25:00 PM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Trichloroethene	ND	0.0400		ppbV	1	5/8/2008 3:25:00 PM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 3:25:00 PM
Vinyl chloride	ND	0.0400		ppbV	1	5/8/2008 3:25:00 PM
Surr: Bromofluorobenzene	86.0	70-130		%REC	1	5/8/2008 3:25:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	Client Sample ID:	SG-2
Lab Order:	C0805005	Tag Number:	551, 523
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-006A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	-3			"Hg		5/6/2008
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2,4-Trimethylbenzene	2.14 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,3,5-Trimethylbenzene	0.940 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
1,4-Dioxane	ND	0.900		ppbV	1	5/8/2008 6:19:00 PM
2,2,4-trimethylpentane	87.3 DJ	13.5		ppbV	90	5/12/2008 4:30:00 PM
4-ethyltoluene	0.910 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Acetone	81.6 DJ	12.0		ppbV	40	5/9/2008 6:30:00 AM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Benzene	0.980 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Carbon disulfide	2.50 DJ	1.50		ppbV	10	5/9/2008 5:56:00 AM
Carbon tetrachloride	ND	0.0400		ppbV	1	5/8/2008 6:19:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Chloroform	3.00 DJ	1.50		ppbV	10	5/9/2008 5:56:00 AM
Chloromethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
cis-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Cyclohexane	19.7 DJ	1.50		ppbV	10	5/9/2008 5:56:00 AM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 6:19:00 PM
Ethylbenzene	1.15	0.150		ppbV	1	5/8/2008 6:19:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	SG-2
Lab Order:	C0805005	**Tag Number:**	551, 523
Project:	A4000220.0012/IR-ARO	**Collection Date:**	5/6/2008
Lab ID:	C0805005-006A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	0.190 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Freon 113	0.130 J	0.150	J	ppbV	1	5/8/2008 6:19:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Freon 12	0.410 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Heptane	10.7 DJ	1.50		ppbV	10	5/8/2008 5:56:00 AM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Hexane	21.2 DJ	1.50		ppbV	10	5/8/2008 5:56:00 AM
Isopropyl alcohol	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
m&p-Xylene	3.04 J	0.300		ppbV	1	5/8/2008 6:19:00 PM
Methyl Butyl Ketone	ND J	0.300		ppbV	1	5/8/2008 6:19:00 PM
Methyl Ethyl Ketone	18.1 DJ	3.00		ppbV	10	5/8/2008 5:56:00 AM
Methyl Isobutyl Ketone	8.30 DJ	3.00		ppbV	10	5/8/2008 5:56:00 AM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Methylene chloride	0.790 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
o-Xylene	1.69	0.150		ppbV	1	5/8/2008 6:19:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Styrene	1.63 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Tetrachloroethylene	0.280 J	0.150		ppbV	1	5/8/2008 6:19:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Toluene	5.40 DJ	1.50		ppbV	10	5/8/2008 5:56:00 AM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Trichloroethene	0.320 J	0.0400		ppbV	1	5/8/2008 6:19:00 PM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 6:19:00 PM
Vinyl chloride	ND	0.0400		ppbV	1	5/8/2008 6:19:00 PM
Surr: Bromofluorobenzene	147	70-130	S	%REC	10	5/8/2008 5:56:00 AM
Surr: Bromofluorobenzene	283	70-130	S	%REC	1	5/8/2008 6:19:00 PM
Surr: Bromofluorobenzene	117	70-130		%REC	40	5/8/2008 6:30:00 AM
Surr: Bromofluorobenzene	121	70-130		%REC	90	5/12/2008 4:30:00 PM

Qualifiers:			
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	Client Sample ID:	Trip Blank
Lab Order:	C0805005	Tag Number:	546
Project:	A4000220.0012/IR-ARO	Collection Date:	
Lab ID:	C0805005-007A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Vacuum Reading "Hg	NA			"Hg		
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,1,2,2-Tetrachloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,1,2-Trichloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,1-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,1-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2,4-Trichlorobenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2,4-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2-Dibromoethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2-Dichloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,2-Dichloropropane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,3,5-Trimethylbenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,3-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,4-Dichlorobenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
1,4-Dioxane	ND	0.300		ppbV	1	5/8/2008 2:50:00 PM
2,2,4-trimethylpentane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
4-ethyltoluene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Acetone	ND	0.300		ppbV	1	5/8/2008 2:50:00 PM
Allyl chloride	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Benzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Benzyl chloride	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Bromodichloromethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Bromoform	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Bromomethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Carbon disulfide	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Carbon tetrachloride	ND	0.0400		ppbV	1	5/8/2008 2:50:00 PM
Chlorobenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Chloroethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Chloroform	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Chloromethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
cis-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
cis-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Cyclohexane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Dibromochloromethane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Ethyl acetate	ND	0.250		ppbV	1	5/8/2008 2:50:00 PM
Ethylbenzene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *05-Jun-08*

CLIENT:	Arcadis	**Client Sample ID:**	Trip Blank
Lab Order:	C0805005	**Tag Number:**	546
Project:	A4000220.0012/IR-ARO	**Collection Date:**	
Lab ID:	C0805005-007A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Freon 113	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Freon 114	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Freon 12	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Heptane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Hexachloro-1,3-butadiene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Hexane	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Isopropyl alcohol	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
m&p-Xylene	ND	0.300		ppbV	1	5/8/2008 2:50:00 PM
Methyl Butyl Ketone	ND	0.300	J	ppbV	1	5/8/2008 2:50:00 PM
Methyl Ethyl Ketone	ND	0.300		ppbV	1	5/8/2008 2:50:00 PM
Methyl Isobutyl Ketone	ND	0.300		ppbV	1	5/8/2008 2:50:00 PM
Methyl tert-butyl ether	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Methylene chloride	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
o-Xylene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Propylene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Styrene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Tetrachloroethylene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Tetrahydrofuran	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Toluene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
trans-1,2-Dichloroethene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
trans-1,3-Dichloropropene	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Trichloroethene	ND	0.0400		ppbV	1	5/8/2008 2:50:00 PM
Vinyl acetate	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Vinyl Bromide	ND	0.150		ppbV	1	5/8/2008 2:50:00 PM
Vinyl chloride	ND	0.0400		ppbV	1	5/8/2008 2:50:00 PM
Surr: Bromofluorobenzene	75.0	70-130		%REC	1	5/8/2008 2:50:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits	
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			

Mike Palmer / Leo / Dave / Ross

ARCADIS Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name B4000220.0012 / IR-ARD
Project Location Cheektowaga NY
Laboratory Centek Labs
Project Manager Marc Sanford
Sampler(s)/Affiliation Katie Arnold

Sample ID/Location	Matrix	Date/Time Sampled	Time Lab ID	Canister ID	Regulator ID	Gauge Reading Prior to Sampling	Gauge Reading Following Sampling	TO-15		Remarks	Total
SG-1	A	5/6/08	0846	567	533	28.5	0.0	1			1
SG-3	A	5/6/08	0901	552	526	28.0	0.0	1			1
Dup-1	A	5/6/08	—	543	525	29.0	0.0	1			1
~~downwind~~ - AA	A	5/6/08	0914	550	520	28.5	0.0	1			1
~~upwind~~ - AA	A	5/6/08	0918	540	527	21.5	1.0	1			1
SG-2	A	5/6/08	10:07	551	523	28.0	0.0	1		*Please analyse	1
Trip Blank	—	—	—	—	—	—	—	1		TCE, Cis-1,2 DCE	1
										and Vinyl Chloride	
										at a detection	
										limit of	
										0.5 µg/m³	

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 7

Relinquished by: Katie Arnold	Organization: Arcadis	Date: 5/6/08	Time:	Seal Intact?	Yes No N/A
Received by:	Organization: Centek	Date: 5/6/08	Time:		
Relinquished by:	Organization:	Date: / /	Time:	Seal Intact?	Yes No N/A
Received by:	Organization:	Date: / /	Time:		

Special Instructions/Remarks:
NYSDEC ASP deliverable package
Standard TAT

Delivery Method: ☒ In Person ☐ Common Carrier _____ ☐ Lab Courier ☐ Other _____

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Infrastructure, environment, facilities

Imagine the result

INGERSOLL RAND- ARO SITE

Data Usability Summary Report

CHEEKTOWAGA, NEW YORK

TO-15 Volatile Analyses

SDG# C0809042

Analyses Performed By:
Centek Laboratories, LLC

Report: #9296R
Project: AY220.0012.0001

Summary

The following is an assessment of the data package for Sample Delivery Group(SDG) #C0809042 for sampling from the ARO Jamestown Site. Included with this assessment are the corrected sample results, sample compliance report and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
SG-1	C0809042-001A	Air	09/26/08		X				
SG-2	C0809042-002A	Air	09/26/08		X				
SG-3	C0809042-003A	Air	09/26/08		X				
DUP-1	C0809042-004A	Air	09/26/08	SG-3	X				
Upwind AA	C0809042-005A	Air	09/26/08		X				
Downwind AA	C0809042-006A	Air	09/26/08		X				

Introduction

Analyses were performed according to (United Stated Environmental Protection Agency) USEPA Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15) and NYSDEC Modifications to R9 TO-15 QA/QC Criteria February 2008.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

AIR VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Method TO-15	Air	30 days storage from collection to analysis	Ambient temperature

All samples were analyzed within the specified holding times and met canister return pressure criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24 hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
SG-1 (40X) SG-1 (640X)	Bromofluorobenzene	>UL

Upper control limit (UL)
Lower control limit (LL)
Diluted (D)
Acceptable (AC)

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	J
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	No Action
	Detect	

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
SG-1 SG-2	Chlorobenzene-d5	>UL

Acceptable (AC)

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	J
	Detect	J
< 25%	Non-detect	R
	Detect	J

Note: Sample results were not qualified as rejected (R) due to the deviations listed above.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%. The relative percent difference (RPD) between the LCS/LCSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Laboratory Duplicates (Laboratory Replicates)

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Laboratory duplicates were not performed as part of this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/DUP-1	1,2,4-trimethyl benzene	9.19	9.09	AC

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	1,3,5-trimethyl benzene	3.00	2.80	AC
	4-ethyl toluene	3.20	3.10	AC
	Acetone	34.1 E	35.2 E	AC
	Benzene	8.48 E	12.1 E	NC
	Carbon Disulfide	8.80 E	8.45 E	AC
	Cis-1,2-Dichlorethene	1.45	1.69	AC
	Ethylbenzene	1.32	1.24	AC
	Freon 113	ND(1.17)	0.857	AC
	Freon 12	0.603	0.553	AC
	Methyl Ethyl Ketone	9.32 E	10.3 E	AC
	o-Xylene	1.50	1.59	AC
	Tetrahydrofuran	3.12	3.66	AC
	Trichloroethene	7.97	8.58	AC
	Vinyl Choride	ND(0.104)	0.286	AC

ND = Not detected.
AC = Acceptable.
NC = Not compliant.

The compound benzene associated with sample locations SG-3 and DUP-1 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

10. **Compound Identification**

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
SG-2	Acetone	86.2 E	NA	86.2 EJ
SG-3	Acetone	34.1 E	NA	34.1 EJ
	Benzene	8.48 E	NA	8.48 EJ
	Carbon Disulfide	8.80 E	NA	8.80 EJ
	Methyl Ethyl Ketone	9.32 E	NA	9.32 EJ
DUP-1	Acetone	35.2 E	NA	35.2 EJ
	Benzene	12.1 E	NA	12.1 EJ
	Carbon Disulfide	8.45 E	NA	8.45 EJ

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
	Methyl Ethyl Ketone	10.3 E	NA	10.3 EJ
Upwind AA	Acetone	12.6 E	NA	12.6 EJ
Downwind AA	Acetone	11.7 E	NA	11.7 EJ

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR AIR VOCs

VOCs Method TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure/vacuum (5"Hg ± 1)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X			
B. Equipment blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Field/Lab Duplicate (%D)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X	X		
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – percent relative difference, %R - percent recovery, RPD - relative percent difference, %D – difference

DATA VALIDATION CHECKLIST FOR FIELD DATA DOCUMENTATION

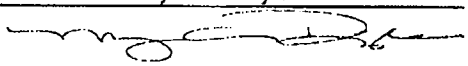
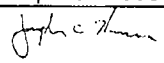
CHAIN OF CUSTODY DOCUMENTATION	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Date Collected		X		X	
Methods of analysis		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Sample type (Air, Aqueous, Soil, Sediment, or Biota)		X		X	
Sample container type		X		X	
Chain-of-Custody (COC) form completed		X		X	
Required analytical method requested		X		X	
Number and type of field QC sample collected (blanks, replicates, splits, etc.)		X		X	
Sample shipping		X		X	

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB/PEST /HERB	MET	MISC	
C0809042	09/26/08	TO-15	SG-1	Air	No	--	--	--	--	Surrogate recovery, internal standard
C0809042	09/26/08	TO-15	SG-2	Air	No	--	--	--	--	Internal standard, calibration exceedence
C0809042	09/26/08	TO-15	SG-3	Air	No	--	--	--	--	Field duplicate, calibration exceedence
C0809042	09/26/08	TO-15	DUP-1	Air	No	--	--	--	--	Field duplicate, calibration exceedence
C0809042	09/26/08	TO-15	Upwind AA	Air	No	--	--	--	--	Calibration exceedence
C0809042	09/26/08	TO-15	Downwind AA	Air	No	--	--	--	--	Calibration exceedence

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY:	Mary Ann Doyle
SIGNATURE:	
DATE:	11/18/08
VALIDATION PEER REVIEW BY:	Joseph C. Houser
SIGNATURE:	
DATE:	11/19/08

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Centek Laboratories, LLC — **Chain of Custody**

143 Midler Park Drive
Syracuse, NY 13206
Phone: 315-431-9730 Fax: 315-431-9731 Emergency: 315-416-2751 / 416-2762

Site Name: IR-ARO
Project: Vapor Intrusion
PO#:
Other:

Detection Limit: 5ppbv; 1ug/M3; 1ug/M3 +TCE .25
Report Level: Level I; Level II; Cal "B" Like

Turnaround Time:	Check One	Rush TAT Surcharge %	Due Date:
5 Business Days	☑	0%	
4 Business Days	☐	35%	
3 Business Days	☐	60%	
2 Business Days	☐	75%	
Next Day by 5pm	☐	100%	
Next Day by Noon	☐	150%	
Same Day	☐	200%	

Company: ARCADIS
Report: Marc Sanford
465 New Karner Rd, 1st Flr
Albany, NY 12205
Phone: 518-452-7826
Fax: 518-452-4398
Email: marc.sanford@arcadis-us.com

Company: ARCADIS
Invoice: " "
Phone: "
Fax: "
Email: "

Sample ID	Date Sampled	Canister Number	Regulator Number	Analysis Request	Comments	Vacuum Start/Stop
						31 / 2.5
SG-1	9/26/08	461	126	TO-15	* Please analyze	28.7 / 5
SG-2		312	149		TCE, cis-1,2, DCE,	27.5 / 0
SG-3		90	265		and Vinyl Chloride at	30 / 4.5
DUP-1		408	57		a detection limit of	34.5 / 8.8
Upwind AA		191	48		0.5 ug/m3	30 / 4.5
Downwind AA		429	147			

	Print Name	Signature	Date/Time	Courier:
Chain of Custody Sampled by:	Chris Davern		9/26/08	
Relinquished by:	Chris Davern		9/27 17:00	
Received at Lab by:			9/27/08 11:10	

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Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	Client Sample ID:	SG-1
Lab Order:	C0809042	Tag Number:	461,126
Project:	IR-ARO	Collection Date:	9/26/2008
Lab ID:	C0809042-001A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 8:58:00 PM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/29/2008 8:58:00 PM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 8:58:00 PM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 8:58:00 PM
1,1-Dichloroethene	506	48.4		ug/m3	80	9/30/2008 2:51:00 PM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/29/2008 8:58:00 PM
1,2,4-Trimethylbenzene	7.24 J	0.749		ug/m3	1	9/29/2008 8:58:00 PM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/29/2008 8:58:00 PM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 8:58:00 PM
1,2-Dichloroethane	1.11	0.617		ug/m3	1	9/29/2008 8:58:00 PM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/29/2008 8:58:00 PM
1,3,5-Trimethylbenzene	2.85 J	0.750		ug/m3	1	9/29/2008 8:58:00 PM
1,3-butadiene	ND	0.337		ug/m3	1	9/29/2008 8:58:00 PM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 8:58:00 PM
1,4-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 8:58:00 PM
1,4-Dioxane	ND	1.10		ug/m3	1	9/29/2008 8:58:00 PM
2,2,4-trimethylpentane	0.760	0.712		ug/m3	1	9/29/2008 8:58:00 PM
4-ethyltoluene	3.25 J	0.750		ug/m3	1	9/29/2008 8:58:00 PM
Acetone	107 J	29.0		ug/m3	40	9/29/2008 10:11:00 PM
Allyl chloride	ND	0.477		ug/m3	1	9/29/2008 8:58:00 PM
Benzene	18.5	4.87		ug/m3	10	9/29/2008 9:34:00 PM
Benzyl chloride	ND	0.877		ug/m3	1	9/29/2008 8:58:00 PM
Bromodichloromethane	ND	1.02		ug/m3	1	9/29/2008 8:58:00 PM
Bromoform	ND	1.58		ug/m3	1	9/29/2008 8:58:00 PM
Bromomethane	ND	0.592		ug/m3	1	9/29/2008 8:58:00 PM
Carbon disulfide	2.98	0.475		ug/m3	1	9/29/2008 8:58:00 PM
Carbon tetrachloride	0.448	0.256		ug/m3	1	9/29/2008 8:58:00 PM
Chlorobenzene	ND	0.702		ug/m3	1	9/29/2008 8:58:00 PM
Chloroethane	ND	0.402		ug/m3	1	9/29/2008 8:58:00 PM
Chloroform	0.993	0.744		ug/m3	1	9/29/2008 8:58:00 PM
Chloromethane	0.294	0.315	J	ug/m3	1	9/29/2008 8:58:00 PM
cis-1,2-Dichloroethene	297 J	24.2		ug/m3	40	9/29/2008 10:11:00 PM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 8:58:00 PM
Cyclohexane	ND	0.525		ug/m3	1	9/29/2008 8:58:00 PM
Dibromochloromethane	ND	1.30		ug/m3	1	9/29/2008 8:58:00 PM
Ethyl acetate	ND	0.916		ug/m3	1	9/29/2008 8:58:00 PM
Ethylbenzene	2.52 J	0.662		ug/m3	1	9/29/2008 8:58:00 PM
Freon 11	ND	0.857		ug/m3	1	9/29/2008 8:58:00 PM
Freon 113	3890 J	748		ug/m3	640	9/30/2008 3:26:00 PM
Freon 114	ND	1.07		ug/m3	1	9/29/2008 8:58:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	Client Sample ID:	SG-1
Lab Order:	C0809042	Tag Number:	461,126
Project:	IR-ARO	Collection Date:	9/26/2008
Lab ID:	C0809042-001A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	ND	0.754		ug/m3	1	9/29/2008 8:58:00 PM
Heptane	3.12	0.625		ug/m3	1	9/29/2008 8:58:00 PM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/29/2008 8:58:00 PM
Hexane	5.87	0.537		ug/m3	1	9/29/2008 8:58:00 PM
Isopropyl alcohol	16.2	3.75		ug/m3	10	9/29/2008 9:34:00 PM
m&p-Xylene	6.00 J	1.32		ug/m3	1	9/29/2008 8:58:00 PM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/29/2008 8:58:00 PM
Methyl Ethyl Ketone	7.79	8.99	J	ug/m3	10	9/29/2008 9:34:00 PM
Methyl Isobutyl Ketone	ND	1.25		ug/m3	1	9/29/2008 8:58:00 PM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/29/2008 8:58:00 PM
Methylene chloride	35.3 J	21.2		ug/m3	40	9/29/2008 10:11:00 PM
o-Xylene	2.60	0.662		ug/m3	1	9/29/2008 8:58:00 PM
Propylene	ND	0.262		ug/m3	1	9/29/2008 8:58:00 PM
Styrene	2.34 J	0.649		ug/m3	1	9/29/2008 8:58:00 PM
Tetrachloroethylene	2.00 J	1.03		ug/m3	1	9/29/2008 8:58:00 PM
Tetrahydrofuran	2.46	0.450		ug/m3	1	9/29/2008 8:58:00 PM
Toluene	7.43 J	0.575		ug/m3	1	9/29/2008 8:58:00 PM
trans-1,2-Dichloroethene	77.4 J	24.2		ug/m3	40	9/29/2008 10:11:00 PM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 8:58:00 PM
Trichloroethene	38.2	2.18		ug/m3	10	9/29/2008 9:34:00 PM
Vinyl acetate	ND	0.537		ug/m3	1	9/29/2008 8:58:00 PM
Vinyl Bromide	ND	0.667		ug/m3	1	9/29/2008 8:58:00 PM
Vinyl chloride	12900	265		ug/m3	2560	9/30/2008 5:58:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	SG-2
Lab Order:	C0809042	**Tag Number:**	312,149
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-002A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 10:46:00 PM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/29/2008 10:46:00 PM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 10:46:00 PM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 10:46:00 PM
1,1-Dichloroethene	ND	0.605		ug/m3	1	9/29/2008 10:46:00 PM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/29/2008 10:46:00 PM
1,2,4-Trimethylbenzene	6.45 J	0.749		ug/m3	1	9/29/2008 10:46:00 PM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/29/2008 10:46:00 PM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 10:46:00 PM
1,2-Dichloroethane	0.576	0.617	J	ug/m3	1	9/29/2008 10:46:00 PM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/29/2008 10:46:00 PM
1,3,5-Trimethylbenzene	3.05 J	0.750		ug/m3	1	9/29/2008 10:46:00 PM
1,3-butadiene	ND	0.337		ug/m3	1	9/29/2008 10:46:00 PM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 10:46:00 PM
1,4-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 10:46:00 PM
1,4-Dioxane	ND	1.10		ug/m3	1	9/29/2008 10:46:00 PM
2,2,4-trimethylpentane	ND	0.712		ug/m3	1	9/29/2008 10:46:00 PM
4-ethyltoluene	3.20 J	0.750		ug/m3	1	9/29/2008 10:46:00 PM
Acetone	86.2	7.24	E J	ug/m3	10	9/29/2008 11:22:00 PM
Allyl chloride	ND	0.477		ug/m3	1	9/29/2008 10:46:00 PM
Benzene	9.74	4.87		ug/m3	10	9/29/2008 11:22:00 PM
Benzyl chloride	ND	0.877		ug/m3	1	9/29/2008 10:46:00 PM
Bromodichloromethane	ND	1.02		ug/m3	1	9/29/2008 10:46:00 PM
Bromoform	ND	1.58		ug/m3	1	9/29/2008 10:46:00 PM
Bromomethane	ND	0.592		ug/m3	1	9/29/2008 10:46:00 PM
Carbon disulfide	12.0	4.75		ug/m3	10	9/29/2008 11:22:00 PM
Carbon tetrachloride	0.320	0.256		ug/m3	1	9/29/2008 10:46:00 PM
Chlorobenzene	ND	0.702		ug/m3	1	9/29/2008 10:46:00 PM
Chloroethane	0.268	0.402	J	ug/m3	1	9/29/2008 10:46:00 PM
Chloroform	0.744	0.744		ug/m3	1	9/29/2008 10:46:00 PM
Chloromethane	0.777	0.315		ug/m3	1	9/29/2008 10:46:00 PM
cis-1,2-Dichloroethene	6.29	0.604		ug/m3	1	9/29/2008 10:46:00 PM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 10:46:00 PM
Cyclohexane	ND	0.525		ug/m3	1	9/29/2008 10:46:00 PM
Dibromochloromethane	ND	1.30		ug/m3	1	9/29/2008 10:46:00 PM
Ethyl acetate	ND	0.916		ug/m3	1	9/29/2008 10:46:00 PM
Ethylbenzene	3.62 J	0.662		ug/m3	1	9/29/2008 10:46:00 PM
Freon 11	1.26	0.857		ug/m3	1	9/29/2008 10:46:00 PM
Freon 113	1.40	1.17		ug/m3	1	9/29/2008 10:46:00 PM
Freon 114	ND	1.07		ug/m3	1	9/29/2008 10:46:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	Client Sample ID:	SG-2
Lab Order:	C0809042	Tag Number:	312,149
Project:	IR-ARO	Collection Date:	9/26/2008
Lab ID:	C0809042-002A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	1.96	0.754		ug/m3	1	9/29/2008 10:46:00 PM
Heptane	ND	0.625		ug/m3	1	9/29/2008 10:46:00 PM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/29/2008 10:46:00 PM
Hexane	5.95	0.537		ug/m3	1	9/29/2008 10:46:00 PM
Isopropyl alcohol	ND	0.375		ug/m3	1	9/29/2008 10:46:00 PM
m&p-Xylene	8.21 J	1.32		ug/m3	1	9/29/2008 10:46:00 PM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/29/2008 10:46:00 PM
Methyl Ethyl Ketone	11.7	8.99		ug/m3	10	9/29/2008 11:22:00 PM
Methyl Isobutyl Ketone	0.999 J	1.25	J	ug/m3	1	9/29/2008 10:46:00 PM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/29/2008 10:46:00 PM
Methylene chloride	5.65	0.530		ug/m3	1	9/29/2008 10:46:00 PM
o-Xylene	3.40 J	0.662		ug/m3	1	9/29/2008 10:46:00 PM
Propylene	ND	0.262		ug/m3	1	9/29/2008 10:46:00 PM
Styrene	2.94 J	0.649		ug/m3	1	9/29/2008 10:46:00 PM
Tetrachloroethylene	2.07 J	1.03		ug/m3	1	9/29/2008 10:46:00 PM
Tetrahydrofuran	3.30	0.450		ug/m3	1	9/29/2008 10:46:00 PM
Toluene	8.04 J	5.75		ug/m3	10	9/29/2008 11:22:00 PM
trans-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/29/2008 10:46:00 PM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 10:46:00 PM
Trichloroethene	24.0	2.18		ug/m3	10	9/29/2008 11:22:00 PM
Vinyl acetate	ND	0.537		ug/m3	1	9/29/2008 10:46:00 PM
Vinyl Bromide	ND	0.667		ug/m3	1	9/29/2008 10:46:00 PM
Vinyl chloride	2.86	0.104		ug/m3	1	9/29/2008 10:46:00 PM

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	Client Sample ID:	SG-3
Lab Order:	C0809042	Tag Number:	90,265
Project:	IR-ARO	Collection Date:	9/26/2008
Lab ID:	C0809042-003A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/30/2008 12:33:00 AM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/30/2008 12:33:00 AM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/30/2008 12:33:00 AM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/30/2008 12:33:00 AM
1,1-Dichloroethene	ND	0.605		ug/m3	1	9/30/2008 12:33:00 AM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/30/2008 12:33:00 AM
1,2,4-Trimethylbenzene	9.19	0.749		ug/m3	1	9/30/2008 12:33:00 AM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/30/2008 12:33:00 AM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/30/2008 12:33:00 AM
1,2-Dichloroethane	ND	0.617		ug/m3	1	9/30/2008 12:33:00 AM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/30/2008 12:33:00 AM
1,3,5-Trimethylbenzene	3.00	0.750		ug/m3	1	9/30/2008 12:33:00 AM
1,3-butadiene	ND	0.337		ug/m3	1	9/30/2008 12:33:00 AM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/30/2008 12:33:00 AM
1,4-Dichlorobenzene	1.10	0.917		ug/m3	1	9/30/2008 12:33:00 AM
1,4-Dioxane	ND	1.10		ug/m3	1	9/30/2008 12:33:00 AM
2,2,4-trimethylpentane	ND	0.712		ug/m3	1	9/30/2008 12:33:00 AM
4-ethyltoluene	3.20	0.750		ug/m3	1	9/30/2008 12:33:00 AM
Acetone	34.1	0.724	EJ	ug/m3	1	9/30/2008 12:33:00 AM
Allyl chloride	ND	0.477		ug/m3	1	9/30/2008 12:33:00 AM
Benzene	8.48	0.487	EJ	ug/m3	1	9/30/2008 12:33:00 AM
Benzyl chloride	ND	0.877		ug/m3	1	9/30/2008 12:33:00 AM
Bromodichloromethane	ND	1.02		ug/m3	1	9/30/2008 12:33:00 AM
Bromoform	ND	1.58		ug/m3	1	9/30/2008 12:33:00 AM
Bromomethane	ND	0.592		ug/m3	1	9/30/2008 12:33:00 AM
Carbon disulfide	8.80	0.475	EJ	ug/m3	1	9/30/2008 12:33:00 AM
Carbon tetrachloride	ND	0.256		ug/m3	1	9/30/2008 12:33:00 AM
Chlorobenzene	ND	0.702		ug/m3	1	9/30/2008 12:33:00 AM
Chloroethane	ND	0.402		ug/m3	1	9/30/2008 12:33:00 AM
Chloroform	ND	0.744		ug/m3	1	9/30/2008 12:33:00 AM
Chloromethane	ND	0.315		ug/m3	1	9/30/2008 12:33:00 AM
cis-1,2-Dichloroethene	1.45	0.604		ug/m3	1	9/30/2008 12:33:00 AM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/30/2008 12:33:00 AM
Cyclohexane	ND	0.525		ug/m3	1	9/30/2008 12:33:00 AM
Dibromochloromethane	ND	1.30		ug/m3	1	9/30/2008 12:33:00 AM
Ethyl acetate	ND	0.916		ug/m3	1	9/30/2008 12:33:00 AM
Ethylbenzene	1.32	0.662		ug/m3	1	9/30/2008 12:33:00 AM
Freon 11	ND	0.857		ug/m3	1	9/30/2008 12:33:00 AM
Freon 113	ND	1.17		ug/m3	1	9/30/2008 12:33:00 AM
Freon 114	ND	1.07		ug/m3	1	9/30/2008 12:33:00 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT: Arcadis
Lab Order: C0809042
Project: IR-ARO
Lab ID: C0809042-003A

Client Sample ID: SG-3
Tag Number: 90,265
Collection Date: 9/26/2008
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	0.603	0.754	J	ug/m3	1	9/30/2008 12:33:00 AM
Heptane	ND	0.625		ug/m3	1	9/30/2008 12:33:00 AM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/30/2008 12:33:00 AM
Hexane	ND	0.537		ug/m3	1	9/30/2008 12:33:00 AM
Isopropyl alcohol	ND	0.375		ug/m3	1	9/30/2008 12:33:00 AM
m&p-Xylene	3.00	1.32		ug/m3	1	9/30/2008 12:33:00 AM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/30/2008 12:33:00 AM
Methyl Ethyl Ketone	9.32	0.899	E J	ug/m3	1	9/30/2008 12:33:00 AM
Methyl Isobutyl Ketone	ND	1.25		ug/m3	1	9/30/2008 12:33:00 AM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/30/2008 12:33:00 AM
Methylene chloride	ND	0.530		ug/m3	1	9/30/2008 12:33:00 AM
o-Xylene	1.50	0.662		ug/m3	1	9/30/2008 12:33:00 AM
Propylene	ND	0.262		ug/m3	1	9/30/2008 12:33:00 AM
Styrene	1.56	0.649		ug/m3	1	9/30/2008 12:33:00 AM
Tetrachloroethylene	1.03	1.03		ug/m3	1	9/30/2008 12:33:00 AM
Tetrahydrofuran	3.12	0.450		ug/m3	1	9/30/2008 12:33:00 AM
Toluene	4.33	0.575		ug/m3	1	9/30/2008 12:33:00 AM
trans-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/30/2008 12:33:00 AM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/30/2008 12:33:00 AM
Trichloroethene	7.97	0.218		ug/m3	1	9/30/2008 12:33:00 AM
Vinyl acetate	ND	0.537		ug/m3	1	9/30/2008 12:33:00 AM
Vinyl Bromide	ND	0.667		ug/m3	1	9/30/2008 12:33:00 AM
Vinyl chloride	ND	0.104		ug/m3	1	9/30/2008 12:33:00 AM

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
JN Non-routine analyte. Quantitation estimated.
S Spike Recovery outside accepted recovery limits
E Value above quantitation range
J Analyte detected at or below quantitation limits
ND Not Detected at the Reporting Limit

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	Dupe-1
Lab Order:	C0809042	**Tag Number:**	408,57
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/30/2008 2:20:00 AM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/30/2008 2:20:00 AM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/30/2008 2:20:00 AM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/30/2008 2:20:00 AM
1,1-Dichloroethene	ND	0.605		ug/m3	1	9/30/2008 2:20:00 AM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/30/2008 2:20:00 AM
1,2,4-Trimethylbenzene	9.09	0.749		ug/m3	1	9/30/2008 2:20:00 AM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/30/2008 2:20:00 AM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/30/2008 2:20:00 AM
1,2-Dichloroethane	ND	0.617		ug/m3	1	9/30/2008 2:20:00 AM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/30/2008 2:20:00 AM
1,3,5-Trimethylbenzene	2.80	0.750		ug/m3	1	9/30/2008 2:20:00 AM
1,3-butadiene	ND	0.337		ug/m3	1	9/30/2008 2:20:00 AM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/30/2008 2:20:00 AM
1,4-Dichlorobenzene	1.10	0.917		ug/m3	1	9/30/2008 2:20:00 AM
1,4-Dioxane	ND	1.10		ug/m3	1	9/30/2008 2:20:00 AM
2,2,4-trimethylpentane	ND	0.712		ug/m3	1	9/30/2008 2:20:00 AM
4-ethyltoluene	3.10	0.750		ug/m3	1	9/30/2008 2:20:00 AM
Acetone	35.2	0.724	EJ	ug/m3	1	9/30/2008 2:20:00 AM
Allyl chloride	ND	0.477		ug/m3	1	9/30/2008 2:20:00 AM
Benzene	12.1	0.487	EJ	ug/m3	1	9/30/2008 2:20:00 AM
Benzyl chloride	ND	0.877		ug/m3	1	9/30/2008 2:20:00 AM
Bromodichloromethane	ND	1.02		ug/m3	1	9/30/2008 2:20:00 AM
Bromoform	ND	1.58		ug/m3	1	9/30/2008 2:20:00 AM
Bromomethane	ND	0.592		ug/m3	1	9/30/2008 2:20:00 AM
Carbon disulfide	8.45	0.475	EJ	ug/m3	1	9/30/2008 2:20:00 AM
Carbon tetrachloride	ND	0.256		ug/m3	1	9/30/2008 2:20:00 AM
Chlorobenzene	ND	0.702		ug/m3	1	9/30/2008 2:20:00 AM
Chloroethane	ND	0.402		ug/m3	1	9/30/2008 2:20:00 AM
Chloroform	ND	0.744		ug/m3	1	9/30/2008 2:20:00 AM
Chloromethane	ND	0.315		ug/m3	1	9/30/2008 2:20:00 AM
cis-1,2-Dichloroethene	1.69	0.604		ug/m3	1	9/30/2008 2:20:00 AM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/30/2008 2:20:00 AM
Cyclohexane	ND	0.525		ug/m3	1	9/30/2008 2:20:00 AM
Dibromochloromethane	ND	1.30		ug/m3	1	9/30/2008 2:20:00 AM
Ethyl acetate	ND	0.916		ug/m3	1	9/30/2008 2:20:00 AM
Ethylbenzene	1.24	0.662		ug/m3	1	9/30/2008 2:20:00 AM
Freon 11	ND	0.857		ug/m3	1	9/30/2008 2:20:00 AM
Freon 113	0.857	1.17	J	ug/m3	1	9/30/2008 2:20:00 AM
Freon 114	ND	1.07		ug/m3	1	9/30/2008 2:20:00 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	Dupe-1
Lab Order:	C0809042	**Tag Number:**	408,57
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	0.553	0.754	J	ug/m3	1	9/30/2008 2:20:00 AM
Heptane	ND	0.625		ug/m3	1	9/30/2008 2:20:00 AM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/30/2008 2:20:00 AM
Hexane	ND	0.537		ug/m3	1	9/30/2008 2:20:00 AM
Isopropyl alcohol	ND	0.375		ug/m3	1	9/30/2008 2:20:00 AM
m&p-Xylene	3.00	1.32		ug/m3	1	9/30/2008 2:20:00 AM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/30/2008 2:20:00 AM
Methyl Ethyl Ketone	10.3	0.899	EJ	ug/m3	1	9/30/2008 2:20:00 AM
Methyl Isobutyl Ketone	ND	1.25		ug/m3	1	9/30/2008 2:20:00 AM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/30/2008 2:20:00 AM
Methylene chloride	ND	0.530		ug/m3	1	9/30/2008 2:20:00 AM
o-Xylene	1.59	0.662		ug/m3	1	9/30/2008 2:20:00 AM
Propylene	ND	0.262		ug/m3	1	9/30/2008 2:20:00 AM
Styrene	1.56	0.649		ug/m3	1	9/30/2008 2:20:00 AM
Tetrachloroethylene	1.03	1.03		ug/m3	1	9/30/2008 2:20:00 AM
Tetrahydrofuran	3.66	0.450		ug/m3	1	9/30/2008 2:20:00 AM
Toluene	4.33	0.575		ug/m3	1	9/30/2008 2:20:00 AM
trans-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/30/2008 2:20:00 AM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/30/2008 2:20:00 AM
Trichloroethene	8.58	0.218		ug/m3	1	9/30/2008 2:20:00 AM
Vinyl acetate	ND	0.537		ug/m3	1	9/30/2008 2:20:00 AM
Vinyl Bromide	ND	0.667		ug/m3	1	9/30/2008 2:20:00 AM
Vinyl chloride	0.286	0.104		ug/m3	1	9/30/2008 2:20:00 AM

NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.

Qualifiers:	B Analyte detected in the associated Method Blank	E	Value above quantitation range
	H Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	Client Sample ID:	Upwind AA
Lab Order:	C0809042	Tag Number:	191,48
Project:	IR-ARO	Collection Date:	9/26/2008
Lab ID:	C0809042-005A	Matrix:	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 6:35:00 PM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/29/2008 6:35:00 PM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 6:35:00 PM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 6:35:00 PM
1,1-Dichloroethene	ND	0.605		ug/m3	1	9/29/2008 6:35:00 PM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/29/2008 6:35:00 PM
1,2,4-Trimethylbenzene	1.05	0.749		ug/m3	1	9/29/2008 6:35:00 PM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/29/2008 6:35:00 PM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 6:35:00 PM
1,2-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 6:35:00 PM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/29/2008 6:35:00 PM
1,3,5-Trimethylbenzene	ND	0.750		ug/m3	1	9/29/2008 6:35:00 PM
1,3-butadiene	ND	0.337		ug/m3	1	9/29/2008 6:35:00 PM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 6:35:00 PM
1,4-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 6:35:00 PM
1,4-Dioxane	ND	1.10		ug/m3	1	9/29/2008 6:35:00 PM
2,2,4-trimethylpentane	ND	0.712		ug/m3	1	9/29/2008 6:35:00 PM
4-ethyltoluene	ND	0.750		ug/m3	1	9/29/2008 6:35:00 PM
Acetone	12.6	0.724	E J	ug/m3	1	9/29/2008 6:35:00 PM
Allyl chloride	ND	0.477		ug/m3	1	9/29/2008 6:35:00 PM
Benzene	0.357	0.487	J	ug/m3	1	9/29/2008 6:35:00 PM
Benzyl chloride	ND	0.877		ug/m3	1	9/29/2008 6:35:00 PM
Bromodichloromethane	ND	1.02		ug/m3	1	9/29/2008 6:35:00 PM
Bromoform	ND	1.58		ug/m3	1	9/29/2008 6:35:00 PM
Bromomethane	ND	0.592		ug/m3	1	9/29/2008 6:35:00 PM
Carbon disulfide	ND	0.475		ug/m3	1	9/29/2008 6:35:00 PM
Carbon tetrachloride	0.384	0.256		ug/m3	1	9/29/2008 6:35:00 PM
Chlorobenzene	ND	0.702		ug/m3	1	9/29/2008 6:35:00 PM
Chloroethane	ND	0.402		ug/m3	1	9/29/2008 6:35:00 PM
Chloroform	ND	0.744		ug/m3	1	9/29/2008 6:35:00 PM
Chloromethane	0.525	0.315		ug/m3	1	9/29/2008 6:35:00 PM
cis-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/29/2008 6:35:00 PM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 6:35:00 PM
Cyclohexane	ND	0.525		ug/m3	1	9/29/2008 6:35:00 PM
Dibromochloromethane	ND	1.30		ug/m3	1	9/29/2008 6:35:00 PM
Ethyl acetate	ND	0.916		ug/m3	1	9/29/2008 6:35:00 PM
Ethylbenzene	ND	0.662		ug/m3	1	9/29/2008 6:35:00 PM
Freon 11	0.971	0.857		ug/m3	1	9/29/2008 6:35:00 PM
Freon 113	ND	1.17		ug/m3	1	9/29/2008 6:35:00 PM
Freon 114	ND	1.07		ug/m3	1	9/29/2008 6:35:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	Upwind AA
Lab Order:	C0809042	**Tag Number:**	191,48
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-005A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	1.91	0.754		ug/m3	1	9/29/2008 6:35:00 PM
Heptane	ND	0.625		ug/m3	1	9/29/2008 6:35:00 PM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/29/2008 6:35:00 PM
Hexane	0.645	0.537		ug/m3	1	9/29/2008 6:35:00 PM
Isopropyl alcohol	ND	0.375		ug/m3	1	9/29/2008 6:35:00 PM
m&p-Xylene	0.530	1.32	J	ug/m3	1	9/29/2008 6:35:00 PM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/29/2008 6:35:00 PM
Methyl Ethyl Ketone	0.959	0.899		ug/m3	1	9/29/2008 6:35:00 PM
Methyl Isobutyl Ketone	ND	1.25		ug/m3	1	9/29/2008 6:35:00 PM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/29/2008 6:35:00 PM
Methylene chloride	0.565	0.530		ug/m3	1	9/29/2008 6:35:00 PM
o-Xylene	ND	0.662		ug/m3	1	9/29/2008 6:35:00 PM
Propylene	ND	0.262		ug/m3	1	9/29/2008 6:35:00 PM
Styrene	ND	0.649		ug/m3	1	9/29/2008 6:35:00 PM
Tetrachloroethylene	ND	1.03		ug/m3	1	9/29/2008 6:35:00 PM
Tetrahydrofuran	ND	0.450		ug/m3	1	9/29/2008 6:35:00 PM
Toluene	1.84	0.575		ug/m3	1	9/29/2008 6:35:00 PM
trans-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/29/2008 6:35:00 PM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 6:35:00 PM
Trichloroethene	1.31	0.218		ug/m3	1	9/29/2008 6:35:00 PM
Vinyl acetate	ND	0.537		ug/m3	1	9/29/2008 6:35:00 PM
Vinyl Bromide	ND	0.667		ug/m3	1	9/29/2008 6:35:00 PM
Vinyl chloride	ND	0.104		ug/m3	1	9/29/2008 6:35:00 PM

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	Downwind AA
Lab Order:	C0809042	**Tag Number:**	429,147
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-006A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
1,1,1-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 7:47:00 PM
1,1,2,2-Tetrachloroethane	ND	1.05		ug/m3	1	9/29/2008 7:47:00 PM
1,1,2-Trichloroethane	ND	0.832		ug/m3	1	9/29/2008 7:47:00 PM
1,1-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 7:47:00 PM
1,1-Dichloroethene	ND	0.605		ug/m3	1	9/29/2008 7:47:00 PM
1,2,4-Trichlorobenzene	ND	1.13		ug/m3	1	9/29/2008 7:47:00 PM
1,2,4-Trimethylbenzene	1.15	0.749		ug/m3	1	9/29/2008 7:47:00 PM
1,2-Dibromoethane	ND	1.17		ug/m3	1	9/29/2008 7:47:00 PM
1,2-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 7:47:00 PM
1,2-Dichloroethane	ND	0.617		ug/m3	1	9/29/2008 7:47:00 PM
1,2-Dichloropropane	ND	0.705		ug/m3	1	9/29/2008 7:47:00 PM
1,3,5-Trimethylbenzene	ND	0.750		ug/m3	1	9/29/2008 7:47:00 PM
1,3-butadiene	ND	0.337		ug/m3	1	9/29/2008 7:47:00 PM
1,3-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 7:47:00 PM
1,4-Dichlorobenzene	ND	0.917		ug/m3	1	9/29/2008 7:47:00 PM
1,4-Dioxane	ND	1.10		ug/m3	1	9/29/2008 7:47:00 PM
2,2,4-trimethylpentane	ND	0.712		ug/m3	1	9/29/2008 7:47:00 PM
4-ethyltoluene	ND	0.750		ug/m3	1	9/29/2008 7:47:00 PM
Acetone	11.7	0.724	E J	ug/m3	1	9/29/2008 7:47:00 PM
Allyl chloride	ND	0.477		ug/m3	1	9/29/2008 7:47:00 PM
Benzene	ND	0.487		ug/m3	1	9/29/2008 7:47:00 PM
Benzyl chloride	ND	0.877		ug/m3	1	9/29/2008 7:47:00 PM
Bromodichloromethane	ND	1.02		ug/m3	1	9/29/2008 7:47:00 PM
Bromoform	ND	1.58		ug/m3	1	9/29/2008 7:47:00 PM
Bromomethane	ND	0.592		ug/m3	1	9/29/2008 7:47:00 PM
Carbon disulfide	ND	0.475		ug/m3	1	9/29/2008 7:47:00 PM
Carbon tetrachloride	0.448	0.256		ug/m3	1	9/29/2008 7:47:00 PM
Chlorobenzene	ND	0.702		ug/m3	1	9/29/2008 7:47:00 PM
Chloroethane	ND	0.402		ug/m3	1	9/29/2008 7:47:00 PM
Chloroform	ND	0.744		ug/m3	1	9/29/2008 7:47:00 PM
Chloromethane	0.483	0.315		ug/m3	1	9/29/2008 7:47:00 PM
cis-1,2-Dichloroethene	0.443	0.604	J	ug/m3	1	9/29/2008 7:47:00 PM
cis-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 7:47:00 PM
Cyclohexane	ND	0.525		ug/m3	1	9/29/2008 7:47:00 PM
Dibromochloromethane	ND	1.30		ug/m3	1	9/29/2008 7:47:00 PM
Ethyl acetate	ND	0.916		ug/m3	1	9/29/2008 7:47:00 PM
Ethylbenzene	ND	0.662		ug/m3	1	9/29/2008 7:47:00 PM
Freon 11	0.971	0.857		ug/m3	1	9/29/2008 7:47:00 PM
Freon 113	ND	1.17		ug/m3	1	9/29/2008 7:47:00 PM
Freon 114	ND	1.07		ug/m3	1	9/29/2008 7:47:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *14-Nov-08*

CLIENT:	Arcadis	**Client Sample ID:**	Downwind AA
Lab Order:	C0809042	**Tag Number:**	429,147
Project:	IR-ARO	**Collection Date:**	9/26/2008
Lab ID:	C0809042-006A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: LL
Freon 12	1.76	0.754		ug/m3	1	9/29/2008 7:47:00 PM
Heptane	ND	0.625		ug/m3	1	9/29/2008 7:47:00 PM
Hexachloro-1,3-butadiene	ND	1.63		ug/m3	1	9/29/2008 7:47:00 PM
Hexane	0.609	0.537		ug/m3	1	9/29/2008 7:47:00 PM
Isopropyl alcohol	ND	0.375		ug/m3	1	9/29/2008 7:47:00 PM
m&p-Xylene	ND	1.32		ug/m3	1	9/29/2008 7:47:00 PM
Methyl Butyl Ketone	ND	1.25		ug/m3	1	9/29/2008 7:47:00 PM
Methyl Ethyl Ketone	0.689	0.899	J	ug/m3	1	9/29/2008 7:47:00 PM
Methyl Isobutyl Ketone	ND	1.25		ug/m3	1	9/29/2008 7:47:00 PM
Methyl tert-butyl ether	ND	0.550		ug/m3	1	9/29/2008 7:47:00 PM
Methylene chloride	0.600	0.530		ug/m3	1	9/29/2008 7:47:00 PM
o-Xylene	ND	0.662		ug/m3	1	9/29/2008 7:47:00 PM
Propylene	ND	0.262		ug/m3	1	9/29/2008 7:47:00 PM
Styrene	ND	0.649		ug/m3	1	9/29/2008 7:47:00 PM
Tetrachloroethylene	2.41	1.03		ug/m3	1	9/29/2008 7:47:00 PM
Tetrahydrofuran	ND	0.450		ug/m3	1	9/29/2008 7:47:00 PM
Toluene	1.92	0.575		ug/m3	1	9/29/2008 7:47:00 PM
trans-1,2-Dichloroethene	ND	0.604		ug/m3	1	9/29/2008 7:47:00 PM
trans-1,3-Dichloropropene	ND	0.692		ug/m3	1	9/29/2008 7:47:00 PM
Trichloroethene	1.64	0.218		ug/m3	1	9/29/2008 7:47:00 PM
Vinyl acetate	ND	0.537		ug/m3	1	9/29/2008 7:47:00 PM
Vinyl Bromide	ND	0.667		ug/m3	1	9/29/2008 7:47:00 PM
Vinyl chloride	ND	0.104		ug/m3	1	9/29/2008 7:47:00 PM

NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

DATA VALIDATION CHECKLIST IR-IRA

ARCADIS, Inc.
3850 N. Causeway Blvd.
Suite 1600
Metairie, LA 70002
Tel. (504) 832-4174
Fax. (504) 832-2145

Environmental Project:
IR-ARO

Project Number:
AY000220.0012.0007

Sample Team:	ARCADIS
Sample Matrix:	Air
Analytical Laboratory:	Centex Laboratories – Syracuse, NY
Laboratory Work Order No.:	C0902031
Lab Project Manager:	Russell Pelligreno
Analyses:	TO-15
QA Reporting Level:	ARCADIS, Level II
ARCADIS Project Manager:	Marc Sanford

Analytical data were evaluated in accordance with applicable analytical method control criteria, laboratory control limits, USEPA SW-846 method requirements, and "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999). National Functional Guidelines were used primarily to determine applicable qualification.

The data verification was performed at a Level II and included review of data package completeness, method blanks laboratory control samples accuracy, surrogate recoveries, holding time compliance and field and laboratory duplicate precision. Laboratory calculations were not verified. Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation. Field sampling documentation was not reviewed as a component of this validation.

Only QA/QC results and analytical data associated with analytes/compounds of interest were reviewed for this validation.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The following samples were included in this data validation:

SDG Number	Sample ID	Sample Date	Parent Sample
C0902031	SG-1	02/18/09	
C0902031	Downwind AA	02/18/09	
C0902031	SG-2	02/18/09	
C0902031	DUP-1	02/18/09	SG-2
C0902031	Upwind AA	02/18/09	
C0902031	Trip Blank	02/18/09	

I. GENERAL INFORMATION

ITEMS REVIEWED	REPORTED/REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Chain of Custody		X	X		X		
2. Sampling dates and times		X	X		X		
3. Sample type on COC		X	X		X		
4. Field QC samples		X	X		X		
5. Case Narrative		X	X		X		
6. Sample Receipt Condition		X	X		X		

"Exceptions Noted" = If an exception was noted in the Case Narrative this will be checked in the affirmative.
"General Comments Noted" = If there are other comments associated with Data Quality (not necessarily noted in the Case Narrative) this will be checked in the affirmative.

The following field QC samples were collected and included in this SDG:

Date Collected	QC Sample ID	Associated Samples	QC Type	SDG Number
02/18/09	DUP-1	SG-2	Field Duplicate	C0902031
02/18/09	Trip Blank	Samples shipped 02/18/09	Trip Blank	C0902031

II. VOLATILE COMPOUNDS

ITEMS REVIEWED	REPORTED/REVIEWED		EXCEPTIONS NOTED		GENERAL COMMENTS NOTED		ITEM NOT REQUIRED
	NO	YES	NO	YES	NO	YES	
1. Holding times		X	X		X		
2. Reporting limits		X	X			X	
3. Blanks							
A. Method Blanks		X	X		X		
B. Trip Blanks		X	X		X		
4. Laboratory control sample (LCS) (%R)		X	X			X	
5. Surrogate Recoveries (%R)		X		X	X		
6. Field Duplicate Comparison (RPD)		X		X		X	
7.Lab Duplicate Comparison (RPD)							X

VOCs - volatile organic compounds %R - percent recovery RPD - relative percent difference MSD- Matrix Spike Duplicate
"Exceptions Noted" = If an exception was noted in the accompanying case narrative or by the validator this will be checked in the affirmative where data qualification was applied.
"General Comments Noted" = If there are other comments associated with Data Quality (not necessarily noted in the case narrative) this will be checked in the affirmative where data qualification was not warranted.

COMMENTS: The samples were analyzed for Volatiles by Method TO-15. Performance was acceptable, with the following exceptions and notes.

2. Several samples required dilutions due to elevated concentrations of target analytes. There were no elevated reporting limits for non-detect results because non-detects were reported from the 1x dilution.

4. The recovery of bromoform was above the control limit in the LCS for batch R2317. The associated field samples were non-detect for this compound. No qualification is necessary.

5. The surrogate recoveries were above the control limit in the 1x dilutions of SG-1 and Downwind-AA. The samples were analyzed at secondary dilutions and the surrogate recoveries were acceptable in the secondary dilutions. All detections reported from the 1x dilutions in these two samples are qualified as estimated. See attached table for details of the qualifications.

6. DUP-1 was collected as a field duplicate of SG-2. The RPDs for several compounds were above the 25% control limit. See attached table for details of the qualifications.

Qualifier Definitions:

J – Result is considered to be estimated at the value reported.

UJ – Result is considered not detected but estimated due to QC deficiencies.

UB – Non-detect at the Reporting Limit or at the concentration reported if greater than the RL due to associated blank contamination.

R – Result is qualified as unusable, data point is rejected.

Explanation/Notes:

Sample ID	Parameter	Result	Units	Qualifier	Reason
SG-1	1,4-Dichlorobenzene	0.18	ppbV	J	Surrogate Recovery
	Benzene	0.31	ppbV	J	Surrogate Recovery
	Carbon disulfide	0.38	ppbV	J	Surrogate Recovery
	Carbon Tetachloride	0.13	ppbV	J	Surrogate Recovery
	Chloromethane	0.41	ppbV	J	Surrogate Recovery
	Cyclohexane	0.17	ppbV	J	Surrogate Recovery
	Freon 11	0.39	ppbV	J	Surrogate Recovery
	Freon 12	0.59	ppbV	J	Surrogate Recovery
	Heptane	0.24	ppbV	J	Surrogate Recovery
	Hexane	0.29	ppbV	J	Surrogate Recovery
	Isopropyl Alcohol	0.81	ppbV	J	Surrogate Recovery
	Methyl ethyl ketone	0.30	ppbV	J	Surrogate Recovery
	Toluene	0.25	ppbV	J	Surrogate Recovery
Downwind-AA	Benzene	0.28	ppbV	J	Surrogate Recovery
	Carbon disulfide	0.14	ppbV	J	Surrogate Recovery
	Carbon Tetachloride	0.14	ppbV	J	Surrogate Recovery
	Chloromethane	0.49	ppbV	J	Surrogate Recovery

Downwind-AA	Freon 11	0.32	ppbV	J	Surrogate Recovery
	Freon 113	0.16	ppbV	J	Surrogate Recovery
	Freon 12	0.76	ppbV	J	Surrogate Recovery
	Hexane	0.11	ppbV	J	Surrogate Recovery
	Isopropyl Alcohol	0.25	ppbV	J	Surrogate Recovery
	Methyl ethyl ketone	0.19	ppbV	J	Surrogate Recovery
	Methylene chloride	0.20	ppbV	J	Surrogate Recovery
	Toluene	0.27	ppbV	J	Surrogate Recovery
SG-2	1,2,4-Trimethylbenzene	0.19	ppbV	J	Field Duplicate RPD
	Acetone	4.2	ppbV	J	Field Duplicate RPD
	Carbon Disulfide	0.17	ppbV	J	Field Duplicate RPD
	Chloromethane	0.48	ppbV	J	Field Duplicate RPD
	Hexane	0.11	ppbV	J	Field Duplicate RPD
	m,p-Xylene	0.23	ppbV	J	Field Duplicate RPD
	Methyl Ethyl Ketone	0.27	ppbV	J	Field Duplicate RPD
	Toluene	0.37	ppbV	J	Field Duplicate RPD
	Trichloroethene	0.18	ppbV	J	Field Duplicate RPD
DUP-1	1,2,4-Trimethylbenzene	0.32	ppbV	J	Field Duplicate RPD
	Acetone	6.8	ppbV	J	Field Duplicate RPD
	Carbon Disulfide	0.31	ppbV	J	Field Duplicate RPD

DUP-1	Chloromethane	0.94	ppbV	J	Field Duplicate RPD
	Hexane	0.33	ppbV	J	Field Duplicate RPD
	m,p-Xylene	0.52	ppbV	J	Field Duplicate RPD
	Methyl Ethyl Ketone	0.42	ppbV	J	Field Duplicate RPD
	Toluene	0.59	ppbV	J	Field Duplicate RPD
	Trichloroethene	0.49	ppbV	J	Field Duplicate RPD

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: Rachelle Borne

DATE: April 1, 2009

PEER REVIEW: Jane Kennedy

DATE: April 1, 2009

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	SG-1
Lab Order:	C0902031	**Tag Number:**	564,119
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-001A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Lab's Vacuum Reading	-4			"Hg		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		TO-15				Analyst: RJP
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,1-Dichloroethene	10	1.5		ppbV	10	2/25/2009 5:23:00 AM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,2,4-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,3,5-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
1,4-Dichlorobenzene	0.18	0.15	J	ppbV	1	2/24/2009 9:39:00 PM
1,4-Dioxane	ND	0.30		ppbV	1	2/24/2009 9:39:00 PM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
4-ethyltoluene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Acetone	6.0	3.0		ppbV	10	2/25/2009 5:23:00 AM
Allyl chloride	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Benzene	0.31	0.15	J	ppbV	1	2/24/2009 9:39:00 PM
Benzyl chloride	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Bromodichloromethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Bromoform	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Bromomethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Carbon disulfide	0.38	0.15	J	ppbV	1	2/24/2009 9:39:00 PM
Carbon tetrachloride	0.13	0.040	J	ppbV	1	2/24/2009 9:39:00 PM
Chlorobenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Chloroethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Chloroform	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Chloromethane	0.41	0.15	J	ppbV	1	2/24/2009 9:39:00 PM
cis-1,2-Dichloroethene	53	14		ppbV	90	2/26/2009 12:56:00 PM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Cyclohexane	0.17	0.15	J	ppbV	1	2/24/2009 9:39:00 PM
Dibromochloromethane	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Ethyl acetate	ND	0.25		ppbV	1	2/24/2009 9:39:00 PM
Ethylbenzene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

RB 4.3.09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	SG-1
Lab Order:	C0902031	**Tag Number:**	564,119
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-001A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 11	0.39 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
Freon 113	34	6.0		ppbV	40	2/25/2009 5:56:00 AM
Freon 114	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Freon 12	0.59 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
Heptane	0.24 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Hexane	0.29 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
Isopropyl alcohol	0.81 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
m&p-Xylene	ND	0.30		ppbV	1	2/24/2009 9:39:00 PM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/24/2009 9:39:00 PM
Methyl Ethyl Ketone	0.30 J	0.30		ppbV	1	2/24/2009 9:39:00 PM
Methyl Isobutyl Ketone	ND	0.30		ppbV	1	2/24/2009 9:39:00 PM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Methylene chloride	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
o-Xylene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Propylene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Styrene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Tetrachloroethylene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Tetrahydrofuran	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Toluene	0.25 J	0.15		ppbV	1	2/24/2009 9:39:00 PM
trans-1,2-Dichloroethene	3.4	1.5		ppbV	10	2/25/2009 5:23:00 AM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Trichloroethene	110	3.6		ppbV	90	2/26/2009 12:56:00 PM
Vinyl acetate	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Vinyl Bromide	ND	0.15		ppbV	1	2/24/2009 9:39:00 PM
Vinyl chloride	130	3.6		ppbV	90	2/26/2009 12:56:00 PM
Surr: Bromofluorobenzene	177	70-130	S	%REC	1	2/24/2009 9:39:00 PM
Surr: Bromofluorobenzene	110	70-130		%REC	10	2/25/2009 5:23:00 AM
Surr: Bromofluorobenzene	80.0	70-130		%REC	40	2/25/2009 5:56:00 AM

Qualifiers:			
B	Analyte detected in the associated Method Blank	**E**	Value above quantitation range
H	Holding times for preparation or analysis exceeded	**J**	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	**ND**	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

RJP 4.3.09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	DOWNWIND-AA
Lab Order:	C0902031	**Tag Number:**	159,125
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-002A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab's Vacuum Reading	-3			"Hg		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,1-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2,4-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,3,5-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,4-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
1,4-Dioxane	ND	0.30		ppbV	1	2/24/2009 10:13:00 PM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
4-ethyltoluene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Acetone	4.7	1.5		ppbV	5	2/25/2009 6:29:00 AM
Allyl chloride	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Benzene	0.28 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
Benzyl chloride	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Bromodichloromethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Bromoform	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Bromomethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Carbon disulfide	0.14 J	0.15	J	ppbV	1	2/24/2009 10:13:00 PM
Carbon tetrachloride	0.14 J	0.040		ppbV	1	2/24/2009 10:13:00 PM
Chlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Chloroethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Chloroform	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Chloromethane	0.49 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
cis-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Cyclohexane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Dibromochloromethane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Ethyl acetate	ND	0.25		ppbV	1	2/24/2009 10:13:00 PM
Ethylbenzene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

RD 4.3.09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	DOWNWIND-AA
Lab Order:	C0902031	**Tag Number:**	159,125
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-002A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 11	0.32 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
Freon 113	0.16 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
Freon 114	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Freon 12	0.76 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
Heptane	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Hexane	0.11 J	0.15	J	ppbV	1	2/24/2009 10:13:00 PM
Isopropyl alcohol	0.25 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
m&p-Xylene	ND	0.30		ppbV	1	2/24/2009 10:13:00 PM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/24/2009 10:13:00 PM
Methyl Ethyl Ketone	0.19 J	0.30	J	ppbV	1	2/24/2009 10:13:00 PM
Methyl Isobutyl Ketone	ND	0.30		ppbV	1	2/24/2009 10:13:00 PM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Methylene chloride	0.20 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
o-Xylene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Propylene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Styrene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Tetrachloroethylene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Tetrahydrofuran	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Toluene	0.27 J	0.15		ppbV	1	2/24/2009 10:13:00 PM
trans-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Trichloroethene	ND	0.040		ppbV	1	2/24/2009 10:13:00 PM
Vinyl acetate	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Vinyl Bromide	ND	0.15		ppbV	1	2/24/2009 10:13:00 PM
Vinyl chloride	ND	0.040		ppbV	1	2/24/2009 10:13:00 PM
Surr: Bromofluorobenzene	138	70-130	S	%REC	1	2/24/2009 10:13:00 PM
Surr: Bromofluorobenzene	119	70-130		%REC	5	2/25/2009 6:29:00 AM

Qualifiers:	**B**	Analyte detected in the associated Method Blank	**E**	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	**J**	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	**ND**	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		

RJP 4-3-09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	SG-2
Lab Order:	C0902031	**Tag Number:**	374,279
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-003A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Lab's Vacuum Reading	-4			"Hg		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,1-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,2,4-Trimethylbenzene	0.19	0.15	J	ppbV	1	2/24/2009 10:46:00 PM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,3,5-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,4-Dichlorobenzene	0.42	0.15		ppbV	1	2/24/2009 10:46:00 PM
1,4-Dioxane	ND	0.30		ppbV	1	2/24/2009 10:46:00 PM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
4-ethyltoluene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Acetone	4.2	1.5	J	ppbV	5	2/25/2009 7:01:00 AM
Allyl chloride	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Benzene	0.46	0.15		ppbV	1	2/24/2009 10:46:00 PM
Benzyl chloride	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Bromodichloromethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Bromoform	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Bromomethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Carbon disulfide	0.17	0.15	J	ppbV	1	2/24/2009 10:46:00 PM
Carbon tetrachloride	0.13	0.040		ppbV	1	2/24/2009 10:46:00 PM
Chlorobenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Chloroethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Chloroform	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Chloromethane	0.48	0.15	J	ppbV	1	2/24/2009 10:46:00 PM
cis-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Cyclohexane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Dibromochloromethane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Ethyl acetate	ND	0.25		ppbV	1	2/24/2009 10:46:00 PM
Ethylbenzene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

PB 4.3.09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	SG-2
Lab Order:	C0902031	**Tag Number:**	374,279
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-003A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 11	0.33	0.15		ppbV	1	2/24/2009 10:46:00 PM
Freon 113	0.17	0.15		ppbV	1	2/24/2009 10:46:00 PM
Freon 114	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Freon 12	0.76	0.15		ppbV	1	2/24/2009 10:46:00 PM
Heptane	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Hexane	0.11 J	0.15	J	ppbV	1	2/24/2009 10:46:00 PM
Isopropyl alcohol	0.30	0.15		ppbV	1	2/24/2009 10:46:00 PM
m&p-Xylene	0.23 J	0.30	J	ppbV	1	2/24/2009 10:46:00 PM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/24/2009 10:46:00 PM
Methyl Ethyl Ketone	0.27 J	0.30	J	ppbV	1	2/24/2009 10:46:00 PM
Methyl Isobutyl Ketone	0.11	0.30	J	ppbV	1	2/24/2009 10:46:00 PM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Methylene chloride	0.29	0.15		ppbV	1	2/24/2009 10:46:00 PM
o-Xylene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Propylene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Styrene	0.11	0.15	J	ppbV	1	2/24/2009 10:46:00 PM
Tetrachloroethylene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Tetrahydrofuran	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Toluene	0.37 J	0.15		ppbV	1	2/24/2009 10:46:00 PM
trans-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Trichloroethene	0.18 J	0.040		ppbV	1	2/24/2009 10:46:00 PM
Vinyl acetate	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Vinyl Bromide	ND	0.15		ppbV	1	2/24/2009 10:46:00 PM
Vinyl chloride	ND	0.040		ppbV	1	2/24/2009 10:46:00 PM
Surr: Bromofluorobenzene	97.0	70-130		%REC	1	2/24/2009 10:46:00 PM

Qualifiers:			
B	Analyte detected in the associated Method Blank	**E**	Value above quantitation range
H	Holding times for preparation or analysis exceeded	**J**	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	**ND**	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

ND
4-309

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	DUP-1
Lab Order:	C0902031	**Tag Number:**	101,403
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		**FLD**				Analyst:
Lab's Vacuum Reading	-10			"Hg		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,1-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2,4-Trimethylbenzene	0.32 J	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,3,5-Trimethylbenzene	0.14	0.15	J	ppbV	1	2/24/2009 11:20:00 PM
1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,4-Dichlorobenzene	0.48	0.15		ppbV	1	2/24/2009 11:20:00 PM
1,4-Dioxane	ND	0.30		ppbV	1	2/24/2009 11:20:00 PM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
4-ethyltoluene	0.14	0.15	J	ppbV	1	2/24/2009 11:20:00 PM
Acetone	6.8 J	3.0		ppbV	10	2/25/2009 7:34:00 AM
Allyl chloride	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Benzene	0.38	0.15		ppbV	1	2/24/2009 11:20:00 PM
Benzyl chloride	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Bromodichloromethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Bromoform	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Bromomethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Carbon disulfide	0.31 J	0.15		ppbV	1	2/24/2009 11:20:00 PM
Carbon tetrachloride	0.14	0.040		ppbV	1	2/24/2009 11:20:00 PM
Chlorobenzene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Chloroethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Chloroform	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Chloromethane	0.94 J	0.15		ppbV	1	2/24/2009 11:20:00 PM
cis-1,2-Dichloroethene	0.16	0.15		ppbV	1	2/24/2009 11:20:00 PM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Cyclohexane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Dibromochloromethane	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Ethyl acetate	ND	0.25		ppbV	1	2/24/2009 11:20:00 PM
Ethylbenzene	0.22	0.15		ppbV	1	2/24/2009 11:20:00 PM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

4.3.09 (KB)

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	DUP-1
Lab Order:	C0902031	**Tag Number:**	101,403
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-004A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 11	0.46	0.15		ppbV	1	2/24/2009 11:20:00 PM
Freon 113	0.16	0.15		ppbV	1	2/24/2009 11:20:00 PM
Freon 114	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Freon 12	0.78	0.15		ppbV	1	2/24/2009 11:20:00 PM
Heptane	0.30	0.15		ppbV	1	2/24/2009 11:20:00 PM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Hexane	0.33 J	0.15		ppbV	1	2/24/2009 11:20:00 PM
Isopropyl alcohol	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
m&p-Xylene	0.52 J	0.30		ppbV	1	2/24/2009 11:20:00 PM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/24/2009 11:20:00 PM
Methyl Ethyl Ketone	0.42 J	0.30		ppbV	1	2/24/2009 11:20:00 PM
Methyl Isobutyl Ketone	0.20	0.30	J	ppbV	1	2/24/2009 11:20:00 PM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Methylene chloride	0.36	0.15		ppbV	1	2/24/2009 11:20:00 PM
o-Xylene	0.22	0.15		ppbV	1	2/24/2009 11:20:00 PM
Propylene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Styrene	0.22	0.15		ppbV	1	2/24/2009 11:20:00 PM
Tetrachloroethylene	0.22	0.15		ppbV	1	2/24/2009 11:20:00 PM
Tetrahydrofuran	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Toluene	0.59 J	0.15		ppbV	1	2/24/2009 11:20:00 PM
trans-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Trichloroethene	0.49 J	0.040		ppbV	1	2/24/2009 11:20:00 PM
Vinyl acetate	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Vinyl Bromide	ND	0.15		ppbV	1	2/24/2009 11:20:00 PM
Vinyl chloride	0.11	0.040		ppbV	1	2/24/2009 11:20:00 PM
Surr: Bromofluorobenzene	123	70-130		%REC	1	2/24/2009 11:20:00 PM

Qualifiers:			
	B Analyte detected in the associated Method Blank	**E** Value above quantitation range	
	H Holding times for preparation or analysis exceeded	**J** Analyte detected at or below quantitation limits	
	JN Non-routine analyte. Quantitation estimated.	**ND** Not Detected at the Reporting Limit	
	S Spike Recovery outside accepted recovery limits		

RD 4-3-09

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	UPWIND-AA
Lab Order:	C0902031	**Tag Number:**	197,42
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-005A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Lab's Vacuum Reading	-9			"Hg		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,1-Dichloroethene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,2,4-Trimethylbenzene	0.11	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,3,5-Trimethylbenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,3-butadiene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
1,4-Dichlorobenzene	0.11	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
1,4-Dioxane	ND	0.30		ppbV	1	2/25/2009 10:10:00 AM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
4-ethyltoluene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Acetone	5.2	1.5		ppbV	5	2/25/2009 10:48:00 AM
Allyl chloride	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Benzene	0.39	0.15		ppbV	1	2/25/2009 10:10:00 AM
Benzyl chloride	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Bromodichloromethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Bromoform	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Bromomethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Carbon disulfide	0.40	0.15		ppbV	1	2/25/2009 10:10:00 AM
Carbon tetrachloride	0.17	0.040		ppbV	1	2/25/2009 10:10:00 AM
Chlorobenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Chloroethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Chloroform	0.44	0.15		ppbV	1	2/25/2009 10:10:00 AM
Chloromethane	0.46	0.15		ppbV	1	2/25/2009 10:10:00 AM
cis-1,2-Dichloroethene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Cyclohexane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Dibromochloromethane	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Ethyl acetate	ND	0.25		ppbV	1	2/25/2009 10:10:00 AM
Ethylbenzene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	UPWIND-AA
Lab Order:	C0902031	**Tag Number:**	197,42
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-005A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
Freon 11	0.36	0.15		ppbV	1	2/25/2009 10:10:00 AM
Freon 113	0.11	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
Freon 114	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Freon 12	0.70	0.15		ppbV	1	2/25/2009 10:10:00 AM
Heptane	0.16	0.15		ppbV	1	2/25/2009 10:10:00 AM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Hexane	0.14	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
Isopropyl alcohol	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
m&p-Xylene	0.13	0.30	J	ppbV	1	2/25/2009 10:10:00 AM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/25/2009 10:10:00 AM
Methyl Ethyl Ketone	0.30	0.30		ppbV	1	2/25/2009 10:10:00 AM
Methyl Isobutyl Ketone	0.14	0.30	J	ppbV	1	2/25/2009 10:10:00 AM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Methylene chloride	0.12	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
o-Xylene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Propylene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Styrene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Tetrachloroethylene	0.12	0.15	J	ppbV	1	2/25/2009 10:10:00 AM
Tetrahydrofuran	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Toluene	0.45	0.15		ppbV	1	2/25/2009 10:10:00 AM
trans-1,2-Dichloroethene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Trichloroethene	0.29	0.040		ppbV	1	2/25/2009 10:10:00 AM
Vinyl acetate	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Vinyl Bromide	ND	0.15		ppbV	1	2/25/2009 10:10:00 AM
Vinyl chloride	ND	0.040		ppbV	1	2/25/2009 10:10:00 AM
Surr: Bromofluorobenzene	84.0	70-130		%REC	1	2/25/2009 10:10:00 AM

Qualifiers:

- **B** Analyte detected in the associated Method Blank
- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected at or below quantitation limits
- **JN** Non-routine analyte. Quantitation estimated.
- **ND** Not Detected at the Reporting Limit
- **S** Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	Trip Blank
Lab Order:	C0902031	**Tag Number:**	555
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-006A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLD				Analyst:
Lab's Vacuum Reading	-4			-4		2/20/2009
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: **RJP**
1,1,1-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,1,2,2-Tetrachloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,1,2-Trichloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,1-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,1-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2,4-Trichlorobenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2,4-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2-Dibromoethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2-Dichloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,2-Dichloropropane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,3,5-Trimethylbenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,3-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,4-Dichlorobenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
1,4-Dioxane	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
2,2,4-trimethylpentane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
4-ethyltoluene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Acetone	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
Allyl chloride	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Benzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Benzyl chloride	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Bromodichloromethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Bromoform	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Bromomethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Carbon disulfide	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Carbon tetrachloride	ND	0.040		ppbV	1	2/24/2009 8:31:00 PM
Chlorobenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Chloroethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Chloroform	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Chloromethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
cis-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
cis-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Cyclohexane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Dibromochloromethane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Ethyl acetate	ND	0.25		ppbV	1	2/24/2009 8:31:00 PM
Ethylbenzene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected at or below quantitation limits
- JN Non-routine analyte. Quantitation estimated.
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

Centek Laboratories, LLC

Date: *27-Feb-09*

CLIENT:	Arcadis	**Client Sample ID:**	Trip Blank
Lab Order:	C0902031	**Tag Number:**	555
Project:	AY000220.0012/IR-ARO	**Collection Date:**	2/18/2009
Lab ID:	C0902031-006A	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.25UG/M3 CT-TCE-VC		**TO-15**				Analyst: RJP
Freon 11	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Freon 113	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Freon 114	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Freon 12	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Heptane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Hexachloro-1,3-butadiene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Hexane	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Isopropyl alcohol	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
m&p-Xylene	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
Methyl Butyl Ketone	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
Methyl Ethyl Ketone	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
Methyl Isobutyl Ketone	ND	0.30		ppbV	1	2/24/2009 8:31:00 PM
Methyl tert-butyl ether	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Methylene chloride	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
o-Xylene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Propylene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Styrene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Tetrachloroethylene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Tetrahydrofuran	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Toluene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
trans-1,2-Dichloroethene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
trans-1,3-Dichloropropene	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Trichloroethene	ND	0.040		ppbV	1	2/24/2009 8:31:00 PM
Vinyl acetate	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Vinyl Bromide	ND	0.15		ppbV	1	2/24/2009 8:31:00 PM
Vinyl chloride	ND	0.040		ppbV	1	2/24/2009 8:31:00 PM
Surr: Bromofluorobenzene	75.0	70-130		%REC	1	2/24/2009 8:31:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	**E**	Value above quantitation range
H	Holding times for preparation or analysis exceeded	**J**	Analyte detected at or below quantitation limits
JN	Non-routine analyte. Quantitation estimated.	**ND**	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

ARCADIS Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page ____ of ____

Project Number/Name: Ay000220.0012 / IE-ARD
Project Location: Cheektowaga NY
Laboratory: Centek Labs
Project Manager: Marc Sanford
Sampler(s)/Affiliation: Katie Arnold

Sample ID/Location	Matrix	Date/Time Sampled	Time Lab ID	ANALYSIS / METHOD / SIZE: Canister ID	Regulator ID	Gauge Reading Prior To Sampling	Gauge Reading Following Sampling	TO-15		Remarks	Total
SG-1	A	2/18/09	0753	564	119	30	6.5	1			1
Downwind-AA	A		0827	159	125	30	3.0	1			1
SG-2	A		0849	374	279	29	4.0	1			1
Dup-1	A		—	101	403	28	9.0	1			1
upwind-AA	A	↓	0858	197	42	27.5	8.0	1			1
Trip Blank	—	—	—	555	—	—	—	1			1
									*	Please analyze TCE, Cis-1,2 DCE and Vinyl chloride at a detection limit of 0.5 µg/m³ TCE in Downwind + upwind detection limit of 0.25 µg/m³	

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: Katie Arnold	Organization: Arcadis	Date: 2/18/09	Time: 1730	Seal Intact?	Yes No N/A
Received by: [illegible]	Organization: CENTEK	Date: 2/19/09	Time: 4:00 pm		
Relinquished by: _____	Organization: _____	Date: / /	Time: _____	Seal Intact?	Yes No N/A
Received by: _____	Organization: _____	Date: / /	Time: _____		

Special Instructions/Remarks: NYS DEC ASP deliverable Package
Standard TAT

Delivery Method: ☑ In Person ☐ Common Carrier (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-1291

1 Mustard Street, Suite 250 Rochester, NY 14609-6925 (585) 288-5380 (585) 288-8475 fax

Columbia Analytical Services INC.
An Employee - Owned Company

March 06, 2009 Service Request No: R0900851

Mr. Todd Carignan
Arcadis U.S. Inc.
465 New Karner Road
1st Floor
Albany, NY 12205

Laboratory Results for: IR - ARO Site/AY000213.0013.00002

Dear Mr. Carignan:

Enclosed are the results of the sample(s) submitted to our laboratory on February 17, 2009. For your reference, these analyses have been assigned our service request number **R0900851**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 129. You may also contact me via email at MPerry@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Michael Perry
Laboratory Manager

CASE NARRATIVE

This report contains analytical results for the following samples:
Submission #: R0900851

Lab ID	Client ID
R0900851-001	MW-9
R0900851-002	MW-8
R0900851-003	MW-7
R0900851-004	DUP-1
R0900851-005	MW-15
R0900851-006	MW-21
R0900851-007	Trip Blank

All samples were received in good condition unless otherwise noted on the cooler receipt and preservation check form located at the end of this report.

All samples were preserved in accordance with approved analytical methods.

All samples have been analyzed by the approved methods cited on the analytical results pages.

All holding times and associated QC were within limits.

No analytical or QC problems were encountered.

All sampling activities performed by CAS personnel have been in accordance with "CAS Field Procedures and Measurements Manual" or by client specifications.

Columbia Analytical Services™

REPORT QUALIFIERS

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. The flag is used either when estimating a concentration for tentatively identified compounds, or when the concentration is less than the reporting limit and greater than the MDL (concentrations are not verified within the initial calibration range).

For DoD reports, the J-flag may also be used to indicate that the concentration between two columns for pesticides/Aroclors is greater than 40% difference.

B - Indicates this compound was also detected in the associated method blank at a concentration that may have contributed to the sample result.

B- Metals - Indicates an estimated value. The concentration is less than the reporting limit and greater than the MDL (concentrations are not verified within the initial calibration range).

E - Indicates that the sample concentration had exceeded the calibration range for that specific analysis.

D - Indicates the sample concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range.

*** -** Indicates that a quality control parameter has exceeded laboratory limits.

X - See Case Narrative for discussion.

P - This flag is used for a pesticide/Aroclor target concentration when there is a greater than 40% (25% for CLP) difference for detected concentrations between the two GC columns.

For DoD reports, the J-flag is used instead of "P".

N - Inorganics- Indicates the matrix spike recovery was outside laboratory limits.

N- Organics- Indicates presumptive evidence of a compound (reported as a tentatively identified compound) based on the mass spectral library search.

ACCREDITED IN ACCORDANCE WITH nelac

CAS/Rochester Lab ID # for State Certifications[1]

NELAP Accredited
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited
Navy Facilities Engineering Service Center Approved
Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
Pennsylvania ID# 68-786
Rhode Island ID # 158
West Virginia ID # 292

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1420
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-9	**Units:**	µg/L
Lab Code:	R0900851-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 07:28		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 07:28		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 07:28		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 07:28		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 07:28		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1420
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-9	**Units:**	µg/L
Lab Code:	R0900851-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 07:28		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	108	80-123	2/27/09 07:28		
Dibromofluoromethane	110	89-115	2/27/09 07:28		
Toluene-d8	109	88-124	2/27/09 07:28		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1540
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-8	**Units:**	µg/L
Lab Code:	R0900851-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 07:58		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 07:58		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 07:58		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 07:58		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 07:58		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1540
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-8	**Units:**	µg/L
Lab Code:	R0900851-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 07:58		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	108	80-123	2/27/09 07:58		
Dibromofluoromethane	110	89-115	2/27/09 07:58		
Toluene-d8	110	88-124	2/27/09 07:58		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1630
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-7	**Units:**	µg/L
Lab Code:	R0900851-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 08:28		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 08:28		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 08:28		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 08:28		144408	
Benzene	2.2		1.0	1	NA	2/27/09 08:28		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
Vinyl Chloride	4.7		1.0	1	NA	2/27/09 08:28		144408	
cis-1,2-Dichloroethene	12		1.0	1	NA	2/27/09 08:28		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 08:28		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1630
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-7	**Units:**	µg/L
Lab Code:	R0900851-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 08:28		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	108	80-123	2/27/09 08:28		
Dibromofluoromethane	111	89-115	2/27/09 08:28		
Toluene-d8	108	88-124	2/27/09 08:28		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	DUP-1	**Units:**	µg/L
Lab Code:	R0900851-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 08:58		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 08:58		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 08:58		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 08:58		144408	
Benzene	1.9		1.0	1	NA	2/27/09 08:58		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
Vinyl Chloride	4.3		1.0	1	NA	2/27/09 08:58		144408	
cis-1,2-Dichloroethene	12		1.0	1	NA	2/27/09 08:58		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 08:58		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	DUP-1	**Units:**	µg/L
Lab Code:	R0900851-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 08:58		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	108	80-123	2/27/09 08:58		
Dibromofluoromethane	111	89-115	2/27/09 08:58		
Toluene-d8	110	88-124	2/27/09 08:58		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCADIS U.S., Inc.
Project: IR - ARO Site/AY000213.0013.00002
Sample Matrix: Water

Service Request: R0900851
Date Collected: 2/16/09 1630
Date Received: 2/17/09

Sample Name: MW-15
Lab Code: R0900851-005

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 09:28		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 09:28		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 09:28		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 09:28		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 09:28		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1630
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-15	**Units:**	µg/L
Lab Code:	R0900851-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 09:28		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	109	80-123	2/27/09 09:28		
Dibromofluoromethane	110	89-115	2/27/09 09:28		
Toluene-d8	110	88-124	2/27/09 09:28		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1650
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-21	**Units:**	µg/L
Lab Code:	R0900851-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 09:57		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 09:57		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 09:57		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 09:57		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 09:57		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09 1650
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	MW-21	**Units:**	µg/L
Lab Code:	R0900851-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 09:57		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	107	80-123	2/27/09 09:57		
Dibromofluoromethane	110	89-115	2/27/09 09:57		
Toluene-d8	110	88-124	2/27/09 09:57		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	Trip Blank	**Units:**	µg/L
Lab Code:	R0900851-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 10:27		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 10:27		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 10:27		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 10:27		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 10:27		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	2/16/09
Sample Matrix:	Water	**Date Received:**	2/17/09
Sample Name:	Trip Blank	**Units:**	µg/L
Lab Code:	R0900851-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 10:27		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	107	80-123	2/27/09 10:27		
Dibromofluoromethane	108	89-115	2/27/09 10:27		
Toluene-d8	109	88-124	2/27/09 10:27		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ0901387-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
1,1,1-Trichloroethane (TCA)	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,1,2-Trichloroethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,2-Dichloroethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
1,2-Dichloropropane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
2-Butanone (MEK)	5.0	U	5.0	1	NA	2/27/09 04:00		144408	
2-Hexanone	5.0	U	5.0	1	NA	2/27/09 04:00		144408	
4-Methyl-2-pentanone	5.0	U	5.0	1	NA	2/27/09 04:00		144408	
Acetone	5.0	U	5.0	1	NA	2/27/09 04:00		144408	
Benzene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Bromodichloromethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Bromoform	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Bromomethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Carbon Disulfide	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Carbon Tetrachloride	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Chlorobenzene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Chloroethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Chloroform	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Chloromethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Dibromochloromethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Dichloromethane	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Ethylbenzene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Methyl tert-Butyl Ether	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Styrene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Tetrachloroethene (PCE)	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Toluene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Trichloroethene (TCE)	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
Vinyl Chloride	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
cis-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
cis-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
m,p-Xylenes	2.0	U	2.0	1	NA	2/27/09 04:00		144408	
o-Xylene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCADIS U.S., Inc.	**Service Request:**	R0900851
Project:	IR - ARO Site/AY000213.0013.00002	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ0901387-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
trans-1,2-Dichloroethene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	
trans-1,3-Dichloropropene	1.0	U	1.0	1	NA	2/27/09 04:00		144408	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q	Note
4-Bromofluorobenzene	107	80-123	2/27/09 04:00		
Dibromofluoromethane	108	89-115	2/27/09 04:00		
Toluene-d8	109	88-124	2/27/09 04:00		

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCADIS U.S., Inc.
Project: IR - ARO Site/AY000213.0013.00002
Sample Matrix: Water

Service Request: R0900851
Date Analyzed: 2/27/09

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260B

Units: µg/L
Basis: NA

Analysis Lot: 144408

Analyte Name	Lab Control Sample RQ0901387-02 Result	Expected	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.0	20.0	85	70 - 130
1,1,2,2-Tetrachloroethane	19.2	20.0	96	70 - 130
1,1,2-Trichloroethane	19.0	20.0	95	70 - 130
1,1-Dichloroethane (1,1-DCA)	17.3	20.0	86	70 - 130
1,1-Dichloroethene (1,1-DCE)	17.0	20.0	85	70 - 130
1,2-Dichloroethane	18.8	20.0	94	70 - 130
1,2-Dichloropropane	16.7	20.0	84	70 - 130
2-Butanone (MEK)	19.9	20.0	99	50 - 150
2-Hexanone	17.7	20.0	88	70 - 130
4-Methyl-2-pentanone	17.4	20.0	87	70 - 130
Acetone	19.3	20.0	97	50 - 150
Benzene	15.9	20.0	80	70 - 130
Bromodichloromethane	18.9	20.0	94	70 - 130
Bromoform	17.8	20.0	89	70 - 130
Bromomethane	25.7	20.0	129	50 - 150
Carbon Disulfide	21.9	20.0	110	70 - 130
Carbon Tetrachloride	17.0	20.0	85	70 - 130
Chlorobenzene	15.7	20.0	78	70 - 130
Chloroethane	18.9	20.0	94	70 - 130
Chloroform	18.5	20.0	92	70 - 130
Chloromethane	17.5	20.0	87	70 - 130
Dibromochloromethane	19.0	20.0	95	70 - 130
Dichloromethane	18.2	20.0	91	70 - 130
Ethylbenzene	14.6	20.0	73	70 - 130
Methyl tert-Butyl Ether	18.8	20.0	94	70 - 130
Styrene	16.4	20.0	82	70 - 130
Tetrachloroethene (PCE)	14.6	20.0	73	70 - 130
Toluene	15.8	20.0	79	70 - 130
Trichloroethene (TCE)	16.5	20.0	82	70 - 130
Vinyl Chloride	19.3	20.0	97	70 - 130
cis-1,2-Dichloroethene	16.9	20.0	84	70 - 130
cis-1,3-Dichloropropene	16.3	20.0	82	70 - 130
m,p-Xylenes	30.5	40.0	76	70 - 130
o-Xylene	14.7	20.0	74	70 - 130
trans-1,2-Dichloroethene	17.1	20.0	85	70 - 130
trans-1,3-Dichloropropene	16.4	20.0	82	70 - 130

Comments:

Columbia Analytical Services
An Employee-Owned Company
www.cas-lab.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

One Mustard St, Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 PAGE 1 OF 1

SR #

CAS Contact

Project Name: IR - ARD

Project Number: AY000213.0013.00002

Project Manager: Marc Sanford/Todd Carrigan

Report CC:

Company Address: 465 New Karner Rd. ARCADIS
Albany, NY 12205

Phone: 518-452-7826

FAX: 518 452 4399

Sampler's Signature: Gretchen Miles

Sampler's Printed Name: Gretchen Miles

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS		REMARKS/ ALTERNATE DESCRIPTION
MW-9		02/16/09	1420	GW	3	3	
MW-8			1540		3	3	
MW-7			1630		3	3	
DUP-1			—		3	3	
MW-15			1630		3	3	
MW-21		↓	1650	↓	3	3	
Trip Blank		—	—	—	3	3	

GCMS VOA's ☐ 8260 ☐ 624 ☐ CLP
GCMS SVOA's ☐ 8270 ☐ 625 ☐ CLP
GC VOA's ☐ 8021 ☐ 601/602
PESTICIDES ☐ 8081 ☐ 608 ☐ CLP
PCB's ☐ 8082 ☐ 608 ☐ CLP
METALS, TOTAL (List in comments below)
METALS, DISSOLVED (List in comments below)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals
(Monthly)

See QAPP ☐

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 3°C CUSTODY SEALS: Y N

TURNAROUND REQUIREMENTS
___ RUSH (SURCHARGES APPLY)
___ 24 hr ___ 48 hr ___ 5 day
✓ STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
___ I. Results Only
___ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
___ V. Specialized Forms / Custom Report
Edata ___ Yes ___ No

INVOICE INFORMATION
PO#
BILL TO
SUBMISSION #:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Gretchen Miles	Signature:	Signature	Signature	Signature	Signature
Printed Name: Gretchen Miles	Printed Name: Gregory A. Emerson	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ARCADIS	Firm: CAS	Firm	Firm	Firm	Firm
Date/Time: 02/16/09 1800	Date/Time: 2/17/09 9:25	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

SCOC-1102-08

Cooler Receipt And Preservation Check Form

Project/Client Arcadis Submission Number BCA-851

Cooler received on 2-17-09 by: KE COURIER: CAS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO			
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO			
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO			
4.	Did any VOA vials have significant* air bubbles?	YES	(NO)	N/A		
5.	Were Ice or Ice packs present?	(YES)	NO			
6.	Where did the bottles originate?	(CAS/ROC)	CLIENT			
7.	Temperature of cooler(s) upon receipt:	3°				
	Is the temperature within 0° - 6° C?:	(Yes)	Yes	Yes	Yes	Yes
	If No, Explain Below	No	No	No	No	No

Date/Time Temperatures Taken: 2-17-09 @ 9:07

Thermometer ID: 161 / IR GUN#2 / (IR GUN#3) Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition, Client Approval to Run Samples: _____

PC Secondary Review: MMP 2/17/09

Cooler Breakdown: Date: 2/17/09 by: _____

1.	Were all bottle labels complete (i.e. analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		(N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
Residual Chlorine (-)	For TCN and Phenol			If present, contact PM to add ascorbic acid	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*	ESOA11	1/10

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 8-330-001

Other Comments:

PC Secondary Review: _____

*significant air bubbles are greater than 5-6 mm