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ISCO Pilot Injection Summary Report

Former GM Delco Plant 5, Kokomo, IN

USEPA ID IND000806844

Prepared for:

RACER Trust

May 6, 2015

ARCADIS

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Drawings

Appendices

Acronyms and Abbreviations

% by wt.	percent by weight
bgs	below ground surface
CMP	Corrective Measures Proposal
CSM	conceptual site model
CVOC	chlorinated volatile organic compounds
DO	dissolved oxygen
Ft	feet
ft/day	feet per day
gpm	gallons per minute
HPT	hydraulic profiling tool
ISCO	in-situ chemical oxidation
K	hydraulic conductivity
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mS/cm	milliSeimens per centimeter
ORP	oxidation reduction potential
PACE	PACE Analytical Services
PID	photoionization detector
PVC	polyvinyl chloride
RACER	Revitalizing Auto Communities Environmental Response
RFI	Resource Conservation and Recovery Act Facility Investigation
ROI	radius of influence
TCE	trichloroethene
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1 Introduction

ARCADIS U.S., Inc. (ARCADIS) has prepared this report on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, to summarize the implementation and findings of an in-situ chemical oxidation (ISCO) pilot study and associated investigations at the Former GM Delco Plant 5 in Kokomo, Indiana (Site) located at 1723 North Washington Street, Kokomo, Indiana (Drawing 1). ISCO was identified in the Corrective Measures Proposal (CMP; ARCADIS 2011) as the selected remedial alternative to reduce concentrations of volatile organic compounds (VOCs) in groundwater at the Site after the implementation of a pilot test to verify the applicability at the Site. A pilot test was conducted to study the effectiveness of ISCO for meeting the Site's groundwater remedial objectives. If the technology was found to be effective, data could then be obtained to design a full-scale remedy.

This report describes two related tasks:

- The ISCO Pilot Study, completed between November 2013 and March 2014, comprising the installation of a pilot injection well network, a fresh-water injection test, baseline monitoring, a sodium permanganate ISCO injection, and post-injection monitoring

- The follow-up ISCO Investigation, completed in August 2014, comprising exploratory soil borings, hydraulic testing, and vertical profiling of VOCs to address data gaps identified in the preliminary pilot study results

The pilot study objectives were described in the Pilot ISCO Treatment Work Plan (Work Plan; ARCADIS 2013). ARCADIS initially submitted the Work Plan to the United States Environmental Protection Agency (USEPA) on August 21, 2013. USEPA provided comments to the Work Plan on August 29, 2013. ARCADIS responded to the comments on October 24, 2013. USEPA approved completion of the pilot test on October 25, 2013. The follow-up investigations were completed as described in the ISCO Investigation Work Plan (ARCADIS 2014), submitted to USEPA on July 14, 2014.

As described in this report, the findings of the pilot study and follow-up investigation show that ISCO is not a suitable remedial alternative to meet the site-wide groundwater cleanup objectives. The data collected during the pilot study and investigation resulted in several changes to the groundwater conceptual site model (CSM) for the Site. An updated groundwater CSM is provided as Appendix A.

2 Existing Conditions

A Resource Conservation and Recovery Act Facility Investigation (RFI) of the Site characterized environmental conditions. The results of the RFI including the nature and extent of impacted media are summarized in the RFI Report, prepared by ARCADIS and submitted USEPA in 2010. The principal contaminants identified at the Site are chlorinated volatile organic compounds (CVOCs), predominantly trichloroethene (TCE). The CMP then identified separate remedies to address soil and groundwater containing CVOC concentrations higher than risk-based threshold treatment concentrations of 400 milligrams per kilogram (mg/kg) TCE in soil, and 4,000 micrograms per liter (µg/L) of TCE in groundwater. The locations and geologic units affected are distinct for the two media:

- Soil with TCE concentrations higher than the threshold treatment concentration have been delineated to a region in the west-central portion of the Site, shown on Drawing 5. These soil impacts are contained within a surficial unit referred to as the “Upper Confining Unit”, comprising 15 to 20 feet of clay and till.

- Groundwater with TCE concentrations higher than the threshold treatment criteria has been identified in several areas on the Site, shown on Drawings 10 through 13. These groundwater impacts are contained within a sand and gravel, water-bearing unit (referred to as the S1 Unit) that underlies the Upper Confining Unit.

Though lower concentrations of CVOC have been detected in deeper hydrostratigraphic units, S1 is the only unit where concentrations are high enough to require remedial action per the CMP. The S1 Unit is most commonly encountered between 10 and 20 feet below ground surface (bgs). The thickness of the S1 Unit varies from 35 feet near the center of the former operations area to as little as 1 foot near the southeastern margins of the investigated area. Where groundwater sampling has been completed at multiple depths in the S1 Unit, TCE concentrations are highest near the top of the unit and decrease with depth. The S1 Unit is underlain by a hard clay till, referred to as the Middle Confining Unit, which limits hydraulic communication with a deeper water-bearing sand unit referred to as the S2 Unit.

In the pilot study area (Drawing 4), the S1 Unit varies in thickness between approximately 30 and 35 feet, starting from approximately 15 feet bgs. In this area, the elevation of the S1 potentiometric surface falls at or just above the contact with the

Upper Confining Unit. While the S1 is most commonly confined, in localized areas and in periods of low water levels, a thin S1 vadose zone may exist. The direction of groundwater flow in the S1 Unit is interpreted to be toward the southeast and east. Drawings 6 through 9 depict the potentiometric surface of the S1 in four recent groundwater gauging events.

3 ISCO Pilot Study

As noted previously, the CMP identified ISCO as the selected remedial option to reduce concentrations of TCE in groundwater at the Site to lower than 4,000 μg/L. ISCO was selected based on the short timeframe that is typically required for it to reduce residual CVOC mass, and its limited infrastructure requirements. The Work Plan (ARCADIS 2013) identified sodium permanganate as the most appropriate reagent for ISCO injections, and outlined a pilot study to gather data needed to understand how ISCO could be implemented at full scale. The pilot study was designed to meet the following specific objectives:

1. Demonstrate the effectiveness of sodium permanganate to treat elevated concentrations of TCE and daughter products present in S1 Unit groundwater.
2. Evaluate potential rebound of dissolved-phase CVOCs.
3. Determine the design parameters for full-scale system design and implementation of ISCO, if appropriate, based on measured injection flow rates, injection pressures, injection volume to radius relationship, and oxidant transport downgradient of the injection well.
4. Evaluate the feasibility of implementing a full-scale ISCO treatment remedy to address TCE in S1 Unit groundwater at or above a threshold treatment concentration of 4,000 µg/L, as defined in the CMP.

3.1 Summary of Study Design and Scope

As detailed in the Work Plan (ARCADIS 2013), the pilot study was implemented in the vicinity of existing monitoring wells MW-0620-S1 and MW-0622-S1, in the west-central portion of the Site (Drawing 2). The location is within a region of the Site where groundwater concentrations of TCE have consistently exceeded the 4000 µg/L threshold treatment concentration, and includes existing monitoring well locations that were incorporated into the study.

The test was designed based on the understanding of contaminant distribution and groundwater flow in the pilot study area at the time. In this area, the S1 Unit is thicker

than 30 feet; however, the TCE concentrations exceeding the 4,000 µg/L threshold were known to exist only in the upper 5 to 10 feet of the unit. Based on existing potentiometric surface maps and hydraulic testing, groundwater was presumed to flow toward the southeast at an average linear velocity of 1 foot per day. On that basis, the Work Plan (ARCADIS 2013) outlined a test design that included the following:

- A single injection well, screening the upper 10 feet of S1 Unit
- Two dose-response wells to evaluate injection radius of influence (ROI)
- A shallow and deep performance monitoring well pair located directly downgradient of the injection well to measure the reagent drift and the treatment efficiency. The deeper well was included to evaluate to what degree density-driven flow may influence vertical distribution as reagent drifts downgradient.

The pilot study's scope of work included the following:

- Well installation to build the pilot study well network
- Performance of a fresh-water injection test to determine approximate injection flow rates as design criteria for field planning and scheduling the ISCO pilot study
- Pre-injection baseline monitoring to document initial conditions
- A single ISCO injection with concurrent data collection to document injection performance
- Three months of post-injection monitoring.

The implementation of each of the above tasks is described below.

3.2 ISCO Well Installation

In November 2013, injection well IW-1301-S1, dose-response well DR-1301-S1, and two performance monitoring wells (PM-1301-S1 and PM-1302-S1) were installed using roto-sonic drilling techniques as part of the ISCO Pilot Study injection well network. Injection well IW-1301-S1 and performance monitoring well PM-1301-S1 were installed as 2-inch diameter wells with 10-foot stainless steel V-wire screens (0.010-inch slot) and Schedule 40 polyvinyl chloride (PVC) risers. The wells were screened from

approximately 15 feet bgs to 25 feet bgs to target groundwater in the upper portion of the S1 Unit. Dose response well DR-1301-S1 and performance monitoring well PM-1302-S1 were installed as 2-inch diameter wells with 10-foot (14.5 to 24.5 feet bgs) and 15-foot (24.5 to 39.5 feet bgs) Schedule 40 PVC screens (0.010-inch slot) and risers, respectively. The boring and well construction logs for these installations are included as Appendix B.

A sieve sample was collected from the S1 Unit. The sample was collected to refine the well design for sand pack and screen slot size for full-scale ISCO implementation. The soil was collected in a 1-gallon, Ziploc® bag and submitted to Alt & Witzig Engineering, Inc. in Indianapolis for analysis. The resulting sieve analysis report is included as Appendix C.

The ISCO Pilot Study monitoring well network is oriented as follows (Drawing 2):

- Dose-response Well: DR-1301-S1 approximately 8 feet side-gradient of the injection well, screened in the same vertical interval as Injection Well IW-1301-S1 (top 10 feet of the S1 Unit, approximately 15 to 25 feet bgs)

- Dose-response Well: Monitoring Well MW-0620-S1, 12.6 feet side-gradient of the injection well, screened in the same vertical interval as Injection Well IW-1301-S1 (top 10 feet of the S1 Unit, approximately 15 to 25 feet bgs)

- Nested Performance Monitoring Wells: PM-1301-S1 and PM-1302-S1, located 49.9 feet and 50.2 feet downgradient of the injection well, respectively, and screened from 14.5 to 24.5 feet bgs and 24.5 to 39.5 feet bgs, respectively. It should be noted that PM-1302-S1 is not screened to the base of the S1 Unit (bottom of screen is approximately 5 to 7 feet higher than the till underlying the S1 Unit). The nested wells were installed to evaluate the vertical distribution of the sodium permanganate throughout the S1 Unit and monitor for density-driven flow.

3.3 Fresh-Water Injection Test

On December 4, 2013, a fresh-water injection test was completed to determine approximate gravity-fed injection flow rates as design criteria for field planning and scheduling the ISCO Pilot Study. For the fresh-water injection test:

- Approximately 220 gallons of potable water were introduced from an above-ground tote to injection well (IW-1301-S1) over a period of 35 minutes.

- A steady injection rate of 6.3 gallons per minute (gpm) was achieved via gravity drainage with all valves completely open.

- No significant hydraulic mounding was observed.

The fresh-water injection test demonstrated that injection well IW-1301-S1 could readily accept injected fluids via gravity flow. The limiting factor on the fresh-water injection flow rates was the rate of gravity drainage from the holding tank, and not the formation. The maximum potential injection rate of the well was not determined during the fresh-water injection test.

3.4 Pre-ISCO Baseline Monitoring

On December 16, 2013, ARCADIS remobilized to the Site to complete a baseline sampling event prior to the ISCO injection. All five of the wells in the injection well network (IW-1301-S1, MW-0620-S1, DR-1301-S1, PM-1301-S1, and PM-1302-S1) were sampled to obtain pre-injection concentrations of the following parameters: VOCs, alkalinity, total sodium and manganese, and dissolved sodium and manganese.

Each of the noted wells was sampled using low-flow sampling techniques in accordance with the Indiana Department of Environmental Management's, The Micro-Purge Sampling Option (IDEM 2012) technical guidance document, which details acceptable low-flow or micro-purge sampling technique. Using a multi-parameter water quality meter and flow-through cell, water quality information including pH, temperature, specific conductance, oxidation/reduction potential (ORP), dissolved oxygen (DO), and turbidity were continuously monitored and recorded until readings stabilized. Low-flow logs for this sampling event are provided as Appendix D.

Each of the samples was analyzed for VOCs by USEPA SW-8260, alkalinity by SM 2320B, total sodium and manganese by USEPA SW-6010, and dissolved sodium and manganese by USEPA SW-6010 according to guidance documented in the Quality Assurance Project Plan (ARCADIS 2005),. Samples were submitted for analysis to Pace Analytical Services, Inc. in Indianapolis, Indiana (PACE). Groundwater analytical results are summarized in Table 1. Lab reports are provided in Appendix E.

3.5 ISCO Injection

ARCADIS conducted the ISCO injection over a 4-day period from December 17 through December 20, 2013. The injections included the initial planned reagent

injection and additional dilute rinse-water and clean-water injections. As described below, the additional injections were field adjustments undertaken when the initial reagent injection did not achieve the target ROI.

3.5.1 Reagent Injection

Prior to the injections, ARCADIS constructed a secondary containment system and security fencing to house the injection chemicals, the mixing system and the injection manifold. A 40 percent by weight (% by wt.) stock sodium permanganate solution was diluted to 10% by wt. sodium permanganate injection solution with potable water from a nearby fire hydrant. ARCADIS used a mix ratio of 60 gallons of stock solution to 240 gallons of hydrant water.

The injection was completed using an injection well head apparatus with a drop-tube delivering the reagent below the water table surface using gravity flow, while remaining open to the atmosphere. To monitor the progress of the injection, the injection was completed using gravity flow from a pre-mixed batch of sodium permanganate solution stored in a 330-gallon tote. A total of 3,600 gallons of 10% by wt. sodium permanganate solution was injected over a period of 9.5 hours (1.5 hours on December 17, 2013 and 8 hours on December 18, 2013) at an average flow rate of 7.1 gpm (see Appendix F and Appendix G for injection data). This flow rate was the maximum rate achievable with the injection equipment. No formation resistance to injection was observed (e.g., declining injection rates or reagent mounding in the casing to the wellhead).

During the reagent injection, performance was evaluated by several methods:

- Vertical conductivity profiling was conducted at the dose-response wells hourly to test for arrival of the sodium permanganate and identify any stratification or preferential pathways. The profiles were completed using CTD-Diver® dataloggers, and were conducted as step-tests in approximately 1-foot depth increments across the well screens.

- Grab samples from dose-response wells were collected using bailers periodically for visual inspection presence of the sodium permanganate.

The field monitoring conducted during the reagent injection testing identified no evidence of reagent breakthrough at the dose-response wells. The specific conductance measurements recorded during vertical profiling did not exceed the

baseline of approximately 1.2 milliSeimens per centimeter (mS/cm) in either dose-response well. Data resulting from these vertical conductivity profiling tests are included in Appendix F, and Appendix G summarizes the general field monitoring data collected during the injection. The grab water samples also contained no visible evidence of sodium permanganate.

3.5.2 Secondary Dilute and Clean-Water Injection

A secondary 1,250-gallon dilute rinse water injection was completed following the sodium permanganate injection because the reagent had not yet been detected at the dose-response or performance monitoring wells. The dilute rinse water was injected over a period of approximately 4.5 hours (1 hour on December 18, 2013 and 3.5 hours on December 19, 2013) at an average rate of 4.7 gpm. As during the reagent injection, grab water samples were collected periodically from the dose-response wells to monitor for reagent breakthrough. No evidence of sodium permanganate was observed during the rinse-water injection.

A clean-water injection followed the rinse-water injection and was comprised of 4,200 gallons of fresh water injected over a period of approximately 6.5 hours (3 hours on December 19, 2013 and 3.5 hours on December 20, 2013) at an average injection flow rate of 10.9 gpm. The injection was terminated after 4,200 gallons when sodium permanganate was observed in a bailer sample from DR-1301-S1 approximately 8 feet from the injection well. The water sample was a light purple color. Field color chart comparison indicated sodium permanganate concentration of approximately 5 to 10 milligrams per liter (mg/L). No evidence of sodium permanganate was detected at the other dose-response well (MW-0620-S1), located 12.6 feet from the injection well.

3.6 Post-Injection Monitoring

The post-injection monitoring phase of the pilot study commenced on December 20, 2013, at the completion of the injection phase, and continued for 3 months, ending on March 27, 2014. The monitoring program included the following:

- Continuous monitoring of water levels and conductivity with data logging conductivity transducers deployed in each of the pilot test wells
- Ten post-injection monitoring events, during which the pilot study wells were manually gauged, sampled for field evidence of sodium permanganate, and vertically profiled for conductivity

- One post-injection groundwater sampling event, conducted on January 30, 2014, to analyze for potential changes in VOC concentrations related to the ISCO injections.

During each post-injection monitoring event, depth-to-water measurements were recorded for each well to a precision of ± 0.01 foot. After depth-to-water measurements were recorded, data were collected from the data logging conductivity probes to obtain a vertical conductivity profile of each of the wells. The groundwater was inspected via bailer sample method for the visual presence of sodium permanganate in the groundwater with a color standard. One well volume was purged from each of the monitoring wells with a dedicated bailer. Each sample was inspected visually for a pink or purple color indicative of the presence of the reagent and tested for manganese via Method 8034 using a HACH DR/890 field kit. Post-injection manganese monitoring data are summarized in Table 2, and conductivity and water-level data are included in Appendix F and Appendix G.

The post-injection VOC sampling event was conducted on January 30, 2014, approximately 6 weeks post-injection. Samples were collected from each of the pilot study wells via low-flow sampling methods, consistent with pre-study sampling techniques (see Section 3.4). Samples were analyzed for VOCs by USEPA SW-8260, alkalinity by SM 2320B, total sodium and manganese by USEPA SW-6010, and dissolved sodium and manganese by USEPA SW-6010. Samples were submitted for analysis to PACE. Groundwater analytical results are summarized in Table 1. Two additional samples were collected from MW-0620-S1 as part of the site-wide groundwater monitoring events completed in March and September 2014, and these data are also presented in Table 1 for continuity. Laboratory reports for these analyses are provided in Appendix E.

The most noteworthy findings of the post-injection monitoring are summarized as follows:

- After the reagent and freshwater injections ended, and throughout the post-injection monitoring period, no evidence of sodium permanganate was found in the dose-response or performance monitoring wells (i.e., DR-1301-S1, MW-0620-S1, PM-1301-S1, and PM1302-S2).

- At dose-response well DR-1301-S1, where 5 to10 mg/L of reagent was observed at the end of the injection, none was detected 3 days post-injection and thereafter.

- In the injection well, the only indication of residual reagent was the high conductivity noted in the base of the well and a faint purple color in water sampled from the bottom of the injection well found 3 days post-injection. This water was assumed to have been contained in the end cap of the well below the slots in the screen because vertical conductivity profiling showed no elevated conductivity across the screened interval.

The TCE concentrations in all five test wells were similar between the baseline and post-injection samples. As expected, manganese and sodium concentrations in the injection well were higher than baseline concentrations. The dose-response and performance monitoring wells exhibited no meaningful change in the concentrations of manganese or sodium.

3.7 ISCO Pilot Study Preliminary Analysis

As previously noted, the ISCO Pilot Study was designed to evaluate the effectiveness of ISCO as a groundwater remedy, and to generate design parameters for full-scale implementation, if appropriate. As described above, the study encountered two significant challenges:

- The initial injection was unable to achieve its target ROI of 10 feet. Only after two additional unplanned injections of rinse-water and clean-water was a low concentration of reagent detectable at one of the dose-response wells.

- The injected reagent was not detected at any of the pilot study wells during the post-injection monitoring period.

This test outcome raised questions about the likely effectiveness of ISCO as a suitable corrective measure, including:

- The influence of heterogeneity and anisotropy on groundwater transport pathways in the S1 Unit

- The potential for density-driven flow to have affected reagent distribution.

These uncertainties prompted the need for the follow-up ISCO Investigation, described below. A more complete analysis of the pilot study results is included in Section 4.5, which incorporates the findings of the additional investigations.

4 ISCO Investigation

The ISCO Investigation was conducted between August 4 and August 8, 2014 to further evaluate the performance of the ISCO Pilot Study injection, and to provide additional data to refine the CSM. The primary objectives of this investigation were to:

1. Evaluate whether residual sodium permanganate was present within or downgradient of the pilot study area, and if present, determine its horizontal and vertical extent
2. Further define the thickness and permeability of the S1 Unit in the northwestern quarter of the Site
3. Verify the vertical distribution of CVOCs in the S1 Unit.

The investigation consisted of the following tasks:

- Drilling of 11 soil borings (ISCO-1 to ISCO-11) within and downgradient of the pilot study area to assess the post-injection presence/absence of sodium permanganate in soil of the S1 Unit

- Collection of grab groundwater samples from seven existing monitoring wells (MW-0605-S1, MW-0502-S1, MW-0101-S1U, MW-0517-S1, MW-0604-S1, MW-0503-S1, and MW-0504-S1) within and downgradient of the pilot study area to assess the post-injection presence/absence of sodium permanganate in the S1 Unit groundwater

- High-resolution soil sampling at two locations (ISCO-2 and ISCO-3) within the pilot study area to characterize the vertical distribution of VOCs in the S1 Unit

- Hydrostratigraphic profiling of two locations (HPT-1 and HPT-2) within the pilot study area using the Hydraulic-Profiling-Tool (HPT) and pneumatic slug tests.

Investigation locations are shown on Drawing 2. Each of the ISCO Investigation tasks is described in greater detail below.

4.1 Post-Injection Sodium Permanganate Investigation

Eleven soil borings were advanced to better characterize the S1 Unit and determine whether sodium permanganate remained in the subsurface. Initially, seven soil borings were advanced in the pilot study area through the S1 Unit. When no evidence of

sodium permanganate was found in the seven initial borings, four additional soil borings were advanced in the downgradient direction. The locations of these soil borings, identified as ISCO-1 through ISCO-11, are shown on Drawing 2.

Each boring was advanced by a direct-push rig to depths ranging from 32 to 73 feet bgs. The depth of each boring extended at least until encountering the clay till underlying the S1 Unit, in order to evaluate whether the sodium permanganate had migrated vertically downward to the base of the S1 Unit. In addition, two locations (ISCO-1 and ISCO-2) were drilled to the base of the S2 Unit to evaluate the nature of the middle confining unit (which separates the S1 and S2 Units).

The soil at each boring was visually inspected by a geologist in the field for evidence of sodium permanganate (i.e., purple or pink color), field screened using an 11.7 electron-volt photoionization detector (PID) and classified in accordance with the ISCO Investigation Work Plan (ARCADIS 2014). Soil classifications, field observations, and PID readings were recorded on the boring logs, which are included in Appendix B.

The findings of the boring program include the following:

- No sodium permanganate was observed in the 11 soil borings drilled or the seven additional monitoring wells tested during this phase of the investigation.

- The S1 Unit thickness varies from approximately 35 feet at the injection area (e.g., ISCO-1), to approximately 10 feet at ISCO-10 (315 feet downgradient). As the S1 Unit thins, it is being pinched by thickening clay/till units lying both above and below the S1 Unit.

- The composition of the S1 Unit is dominantly sand and gravel, with very few fines, and infrequent beds of finer grained sands or silt. Beds with pebbles or cobbles were identified at most locations, though these do not appear to be laterally continuous between boring locations. At only a few locations (most notably ISCO-3) were beds of finer grained sand or silt noted as interbedded. Where these finer beds occurred, it was only in the upper half of the S1 Unit.

While the S1 and S2 aquifers appear to be hydraulically separated, the clay confining unit between the aquifers can be quite thin where the S1 is thickest. The borings advanced at ISCO-1 and ISCO-8 suggest that the till may be altogether absent; however the absence of the till in these locations is likely not representative of the naturally occurring conditions found at the Site. The boring logs at these locations note

that there was poor recovery at intervals where the till unit was predicted to occur. At these locations a cobble was caught in the cutting shoe at the tip drill rod which prohibited the collection of a continuous soil sample. In order to better determine the presence/absence of the till unit, HPT-1 was advanced in the vicinity of these location and the pressure response signature (Appendix H) indicates the till unit is indeed present. Therefore, this laterally continuous presence of the till unit is illustrated on the cross section provided at Drawing 4.

4.2 Expanded Well Network Sampling for Sodium Permanganate

As an additional check for the presence of sodium permanganate, bailer samples were collected from a group of on-site monitoring wells in the assumed downgradient direction of the injection well (MW-0605-S1, 0502-S1, MW-0101-S1U, MW-0517-S1 MW-0604-S1, MW-0503-S1, and MW-0504-S1). Well locations are shown on Drawing 2. Each grab water sample was visually inspected for sodium permanganate. No evidence of sodium permanganate was observed in any of the seven additional monitoring wells tested.

4.3 High-Resolution Soil Sampling

Though existing groundwater data from the pilot study area had shown that VOC concentrations in the S1 Unit were highest in the upper half of the unit, greater resolution about CVOC mass distribution was needed to evaluate whether potential future remedial efforts could be more tightly targeted. To meet this objective, saturated soil samples were collected at 2-foot depth intervals from the top to the bottom of the S1 Unit at two of the borings completed as part of the drilling program described above (i.e., ISCO-2 and ISCO-3).

All soil samples were collected in accordance with the ISCO Investigation Work Plan (ARCADIS 2014). Sample containers were immediately sealed, labeled, and placed in an ice-packed cooler. Samples were submitted to PACE for analysis of VOCs using USEPA Method 8260.

Soil sampling results are summarized in Table 3 and illustrated on the cross section presented on Drawing 4. Note that these samples represented saturated soil, and that the results reflect total VOC mass, which is a combination of both sorbed and dissolved-phase mass. These data support several observations:

- At both locations, the concentrations of TCE are highest at the top of the S1 aquifer, and decline very rapidly with depth, falling below the laboratory detection limit near the base of the S1 Unit.

- At ISCO-3, the highest concentrations were shown to be within a zone where soil descriptions noted several finer grained beds interbedded within the more permeable sand and gravel.

- At ISCO-2, soil descriptions suggest that the upper zone of the S1 Unit, where impacts are highest, is more uniformly permeable.

4.4 HPT Logging

This task contained two components to better understand the hydraulic properties of the S1 Unit:

- Hydraulic profiling using the HPT direct-sensing tool

- Discrete slug tests using a direct-push pneumatic slug-testing apparatus.

The HPT is used to evaluate the hydrostratigraphy of a formation by creating a continuous profile of the relative soil permeabilities. The HPT is a direct-sensing tool advanced by direct-push. The tool injects a small volume of water (typically 200 milliliters per minute) during advancement and continuously measures the fluid pressure generated by the injection. The pressure response data provide a relative measure of permeability that is comparable within the vertical profile of each HPT location as well as between locations at a given site. In general, a high-pressure response correlates with lower permeability units (silt/clay), and a low-pressure response correlates to high permeability units (sand/gravel). By completing pressure-dissipation tests, the pressure log may also be translated to an estimate of hydraulic conductivity. HPT has limited ability to resolve low permeability materials, where the fluid pressure does not dissipate quickly enough, and very high permeability materials, where the injected fluid causes no measurable change in fluid pressure. HPT logs generated as part of this Pilot Study are included in Appendix H. The HPT results are also shown relative to the stratigraphy of nearby boring locations on plots provided in Appendix H. These data support several observations:

- In general, the S1 Unit was shown to exhibit very high hydraulic conductivity, expressed throughout its vertical thickness, and a high degree of lateral

heterogeneity. This heterogeneity was highlighted by the differences between the profiles for the two HPT locations, which were only 35 feet apart.

- While there is little evidence that less permeable interbedded soil (e.g., fine sand or silt) exists within the S1 Unit at location HPT-1, zones of moderately lower permeability do appear at location HPT-2.

- In portions of the S1 Unit at both locations, the HPT was unable to increase fluid pressure above hydrostatic pressure. Where this occurs, beds of higher relative hydraulic conductivity could be present but would not be distinguished by the profiles.

- A particularly transmissive zone was identified at the base of the S1 Unit at HPT-1, which correlates with the predicted basal gravel deposits previously noted at the Site. This zone was not clearly identified at HPT-2; however, a pneumatic slug test of this zone (described below) showed that higher permeability existed at the base of the S1 Unit than could be resolved by the HPT tool.

Pneumatic slug testing was performed as an additional step to improve quantification of the HPT results, and to directly evaluate hydraulic conductivity at selected zones of interest. The slug tests were conducted in direct-push boreholes completed adjacent to locations HPT-1 and HPT-2 (see Drawing 2), targeting the following:

- Three intervals in the upper zone of the S1 Unit at HPT-1 to evaluate the potential existence of lower permeability zones in this horizon

- One test interval at the base of the S1 Unit in HPT-2 to evaluate the existence of a higher conductivity zone

- One test interval in the S2 Unit from HPT-2 to verify hydraulic conductivity estimated previously through slug testing in November 2006.

Slug testing was completed in boreholes advanced with a direct-push rig. Each test interval was approximately16 inches long and accessed via a stainless steel screen. Pneumatic slug tests are conducted by sealing the well head and applying air pressure to depress the water level. As air pressure increases in the well, the water level falls until the water pressure and the air pressure returns to equilibrium. After the water level is stable, air is released from the sealed well head by opening an air release valve. The water level recovery is a rising head slug test and produces very high quality data with

little interference. A pressure transducer is used to monitor and record the change of the water level in the well during the pneumatic slug test. Slug test responses were analyzed using the AQTESOLV Pro analysis software package (HydroSOLVE, Inc. v4.5). The AQTESOLV model output for each test and corresponding solution is included in Appendix G. The test intervals and estimated values of hydraulic conductivity are summarized below.

Location	Test Depth (feet bgs)	Zone Targeted	Estimated Hydraulic Conductivity (ft/day)
HPT-1	16.1 - 17.4	Upper S1	36
HPT-1	17.4 - 18.7	Upper S1	72
HPT-1	18.7 - 20.0	Upper S1	73
HPT-2	44.7 - 46.0	Basal S1	309
HPT-2	54.7 - 56.0	S2	45

In general, the estimates of hydraulic conductivity from the upper zone of the S1 Unit agree well with the HPT log result for that depth. The higher hydraulic conductivity result from the basal zone of the S1 Unit at HPT-2 is significantly higher than the comparable HPT estimate. This discrepancy highlights the limited ability of HPT to detect very high hydraulic conductivity intervals. It is important to note, therefore, that similar high permeability zones may occur within the S1 profile that are not evident in the HPT profiles.

The single test result for the upper zone of the S2 Unit (45 ft/day at HPT-2 54.7 to 56.0 feet bgs) is within the range of prior estimates from that unit, as reported in the RFI Report. As presented in Table 3.4.1 of the RFI Report, the average K value estimated in the S2 Unit was 137 ft/day.

4.5 Conclusions of the ISCO Investigation

The ISCO Investigation was undertaken to gather data to better understand sodium permanganate distribution and drift because no evidence of the oxidant was detected in the performance monitoring well network. The results suggest that several factors contributed to these study results:

- The heterogeneity and anisotropy of the upper portion of the S1 Unit (i.e., the portion screened by the pilot injection well) are sufficiently high that injections failed

to create radial flow and achieve a uniform solute distribution around the injection well. As described in the updated groundwater CSM (Appendix A), the S1 Unit consists primarily of sand and gravel glacial outwash, most likely deposited from a braided stream. Because braided stream deposits tend to form long, narrow beds rather than laterally extensive, planer beds, the hydraulic conductivity is greatest in the direction parallel to the deposited beds. While the S1 Unit is highly permeable in general, the most highly permeable beds (e.g., clean gravel bar deposits) are also interpreted to accommodate the largest proportion of flux through the flow system. Injections into a unit such as the S1 are, therefore, not likely to distribute uniformly, biased to the most permeable beds.

- Beyond the injection well ROI, the anisotropy of the S1 Unit is also likely to have skewed the transport path of the injected reagent in a direction oblique to the maximum horizontal gradient. Because the performance monitoring wells were located directly downgradient of the injection well, the fact that sodium permanganate was not detected at those wells suggests that the dominant axis of anisotropy is not aligned with the southeasterly groundwater gradient. As discussed in the CSM (Appendix A), the apparent eastward trend of the site-wide TCE plume provides some evidence that the anisotropy may favor easterly flow.

- The high bulk hydraulic conductivity of the S1 Unit, and the absence of frequent fine grained beds (e.g., as demonstrated by the HPT), suggests that the S1 Unit would pose little resistance to density-driven downward flow. The HPT and soil boring descriptions identified relatively few low permeability beds within the vertical profile of the S1 Unit. The denser-than-water sodium permanganate solution likely drifted on a downward trending vector to the lower portion of the S1 Unit.

Several of the conclusions described above represent refinements to the CSM. Appendix A incorporates these findings in a groundwater CSM update.

5 Effectiveness of ISCO as Groundwater Remedy

Based on the findings presented in this report, ISCO is no longer considered a suitable remedial alternative to meet the site-wide groundwater cleanup objectives. The primary obstacle to effective ISCO implementation is delivery of ISCO reagent at the depths where VOC concentrations are highest. The thickness of the S1 Unit is estimated to average 30 feet throughout most of the areas where TCE in groundwater exceeds the threshold treatment concentration of 4,000 μg/L; however, high-resolution sampling has shown that the VOC mass is heavily biased to the top of the unit. As

illustrated on Drawing 5, saturated soil samples collected at the two profiled boring locations exceeded 20 mg/kg TCE within the upper 6 feet of the S1 Unit, while concentrations of deeper samples declined very rapidly. This implies that effective treatment of groundwater at concentrations higher than the 4,000 µg/L TCE threshold treatment concentration would require ISCO reagent delivery immediately below the Upper Confining Unit. The ISCO Pilot Study, however, has shown that a combination of density-driven flow and high heterogeneity and anisotropy limit the ability of injections to achieve a significant ROI and distribute reagent at the top of the S1 Unit. To overcome these challenges, a full-scale ISCO remedy would require a prohibitively dense network of injection wells open only to the very top of the S1 Unit. Even if such a network could be constructed, density-driven flow would transport most of the injected reagent quickly below the target treatment zone.

While ISCO appears to be ineffective as a site-wide groundwater remedy, it is worth noting that the approach may have useful applications under specific conditions. For instance, in downgradient regions of the TCE plume, the S1 Unit thins significantly and TCE concentrations are expected to be more uniformly distributed across the vertical thickness of the unit (i.e., not limited to the very top). Under these conditions, ISCO injections would be more successful achieving reagent distribution where needed to reduce VOC concentrations. Additional characterization of the VOC mass distribution and aquifer geometry would be required to fully understand whether ISCO would be effective in a specific location.

The ISCO Pilot Study has shown that the assumptions used to form the basis ISCO remedy presented in the CMP are not valid (ROI, mass of reagent required, volume of injected solution); therefore, an alternative groundwater remedial strategy should be considered. ARCADIS recommends proceeding with the planned remedy of soil impacts at the Site through the implementation of Calcium Oxide pilot study and full-scale soil corrective measures. Based on the current groundwater concentrations observed in the S1 Unit, and the high groundwater flux through the unit observed during the pilot study, ARCADIS anticipates that soil source removal is likely to result in rapid improvement in groundwater concentrations.

ARCADIS and RACER Trust recommend closely evaluating groundwater quality during and post-soil remediation, and subsequently re-evaluating the most appropriate corrective measure for the remaining groundwater concentrations at that time. As discussed with the USEPA, in order to evaluate monitored natural attenuation as a suitable alternative for groundwater restoration at the Site, additional data will be collected in the spring of 2015. As mentioned previously and evaluated in detail in the

RFI Report (ARCADIS 2010), the current groundwater concentrations do not pose an unacceptable risk to human health or the environment; therefore, taking the time to address the soil impacts that are driving the potential future vapor intrusion risk will result in a favorable “baseline” to address groundwater impacts.

6 References

ARCADIS. 2005. Appendix B of RCRA Corrective Action RCRA Facility Investigation Work Plan. Former GM Delco Plant 5, Kokomo, IN. USEPA ID IND000806844. December 15.

ARCADIS. 2010. RCRA Corrective Action RCRA Facility Investigation Report. Former GM Delco Plant 5, Kokomo, IN. USEPA ID IND000806844. May 21.

ARCADIS. 2011. Corrective Measures Proposal. RCRA Corrective Action Former GM Delco Plant 5, Kokomo, Indiana. USEPA ID No. IND000806844. December 6.

ARCADIS. 2013. Pilot ISCO Treatment Work Plan. Former GM Delco Plant 5. USEPA ID IND000806844. August 21.

ARCADIS. 2014. ISCO Investigation Work Plan. Former GM Delco Plant 5. USEPA ID IND000806844. July 14.

Indiana Department of Environmental Management. 2012. The Micro-Purge Sampling Option. June 6.

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Tables

ARCADIS

Table 1
ISCO Groundwater Analytical Summary
ISCO Investigation Report
Former GM Delco Plant 5, Kokomo, Indiana

Sample ID	Date	Timeframe	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	TCE	Vinyl Chloride	Alkalinity, total $CaCO_3$	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Manganese, total	Manganese, dissolved	Sodium, total	Sodium, dissolved
Injection Well														
IW-1301-S1	12/16/2013	Baseline	< 5.0	29	6.8	560	<2.0	372	372	< 2.0	295	296	45600	48000
IW-1301-S1	1/30/2014	Post-Injection	< 5.0	10.9	< 5.0	679	<2.0	470	470	< 2.0	10500	NS	84200	NS
Dose-Response Wells														
MW-0620-S1	11/21/2006	Historical	< 5.0	110	11	5900	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	11/14/2008	Historical	< 5.0	75	10.4	5940	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	4/19/2012	Historical	< 5.0	86.9	< 5.0	4830	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	10/31/2012	Historical	< 5.0	213	10	5660	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	4/2/2013	Historical	< 5.0	17.8	< 5.0	12400	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	10/16/2013	Historical	< 5.0	1820	5	1780	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	12/16/2013	Baseline	< 5.0	1930	17.8	2520	<2.0	370	370	< 2.0	328	324	38100	39400
MW-0620-S1	1/30/2014	Post-Injection	< 5.0	39.8	< 5.0	10200	<2.0	336	336	< 2.0	69	NS	10100	NS
MW-0620-S1	5/13/2014	Post-Injection	< 5.0	167	< 5.0	5770	<2.0	NS	NS	NS	NS	NS	NS	NS
MW-0620-S1	9/25/2014	Post-Injection	< 5.0	9.2	< 5.0	4830	<2.0	NS	NS	NS	NS	NS	NS	NS
DR-1301-S1	12/16/2013	Baseline	< 5.0	51.9	20.7	1940	3.3	386	386	< 2.0	343	334	43500	44700
DR-1301-S1	1/30/2014	Post-Injection	< 5.0	70.3	14.6	1100	<2.0	377	377	< 2.0	2000	NS	45700	NS
Performance Monitoring Wells														
PM-1301-S1	12/16/2013	Baseline	< 5.0	15.1	< 5.0	801	<2.0	378	378	< 2.0	372	349	53700	55600
PM-1301-S1	1/30/2014	Post-Injection	< 5.0	16.8	< 5.0	891	<2.0	394	394	< 2.0	421	NS	49700	NS
PM-1302-S1	12/16/2013	Baseline	< 5.0	< 5.0	< 5.0	75.8	<2.0	374	374	< 2.0	210	208	54200	57300
PM-1302-S1	1/30/2014	Post-Injection	< 5.0	6.4	< 5.0	24.9	<2.0	386	386	< 2.0	413	NS	59500	NS

Notes:
Results reported in micrograms per liter (µg/L).
NS - Not sampled for constituent
ISCO - In Situ Chemical Oxidation
DCE - dichloroethene
TCE - trichloroethene
$CaCO_3$ - calcium carbonate

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Table 2
Post-Injection Manganese Summary
ISCO Investigation
Former GM Delco Plant 5, Kokomo, Indiana

Location	Date	DTW	TD	Mn (mg/L)
IW-1301-S1	12/20/13	NM	NM	2.2
	12/23/13	13.63	23.90	4.4
	01/03/14	13.86	23.41	9.0
	01/17/14	13.00	23.37	3.2
	01/23/14	13.63	23.90	0.0
	01/30/14	13.81	23.90	0.0
	02/13/14	13.50	23.90	4.8
	02/27/14	12.75	23.93	6.7
	03/13/14	13.50	23.90	4.8
	03/27/14	12.75	23.93	5.8
MW-0620-S1	12/20/13	14.50	NM	8.1
	12/23/13	12.60	18.54	3.6
	01/03/14	13.78	18.54	0.5
	01/17/14	12.68	18.50	0.9
	01/23/14	13.53	18.52	0.6
	01/30/14	13.71	18.35	0.6
	02/13/14	13.41	18.35	0.6
	02/27/14	12.29	18.51	0.8
	03/13/14	13.41	18.35	0.6
	03/27/14	12.29	18.51	0.0
DR-1301-S1	12/20/13	14.69	NM	4.2
	12/23/13	13.48	24.83	0.1
	01/03/14	13.96	24.83	3.5
	01/17/14	13.05	23.99	0.8
	01/23/14	13.73	24.83	5.4
	01/30/14	13.89	24.65	5.4
	02/13/14	13.60	24.65	1.5
	02/27/14	12.80	24.81	0.9
	03/13/14	13.50	23.90	1.5
	03/27/14	12.80	24.81	3.4
PM-1301-S1	12/20/13	14.51	24.32	2.8
	12/23/13	13.29	24.32	0.0
	01/03/14	13.80	24.32	turbid
	01/17/14	13.01	24.28	0.0
	01/23/14	13.54	24.34	0.9
	01/30/14	13.72	24.18	0.9
	02/13/14	13.42	24.18	0.1
	02/27/14	12.63	24.29	1.0
	03/13/14	13.42	24.18	0.0
	03/27/14	12.63	24.29	0.1

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Table 2
Post-Injection Manganese Summary
ISCO Investigation
Former GM Delco Plant 5, Kokomo, Indiana

Location	Date	DTW	TD	Mn (mg/L)
PM-1302-S1	12/20/13	14.55	39.19	2.4
	12/23/13	13.36	39.19	1.5
	01/03/14	13.87	39.19	1.0
	01/17/14	13.07	39.14	0.0
	01/23/14	13.62	39.22	1.5
	01/30/14	13.78	39.10	1.5
	02/13/14	13.50	39.10	0.0
	02/27/14	12.70	39.17	0.6
	03/13/14	13.50	39.10	0.1
	03/27/14	12.70	39.17	0.8

Notes:
Mn - Manganese - Reading collected with Hach field test kit
DTW - Depth to water (feet below top of casing [TOC])
TD - Total well depth (ft below TOC)
mg/L - milligrams per liter
NM - Not measured

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Table 3
ISCO Saturated Soil Analytical Summary
ISCO Investigation
Former GM Delco Plant 5, Kokomo, Indiana

Boring ID	Depth	CVOCs - 8265 (µg/kg)				
		Acetone	cis-1,2-Dichloroethene	Methylene chloride	Trichloroethene	Tetrachloroethene
ISCO-2	13-15	**9450**	< 243 U	< 972 U	**18700**	< 243 U
ISCO-2	15-17	**4230**	< 111 U	< 446 U	**20300**	< 111 U
ISCO-2	17-19	**71.9 J**	**3.3 J**	< 18.2 U	**20800**	< 4.6 U
ISCO-2	19-21	**66.9 J**	< 3.9 U	< 15.5 U	**9970**	< 3.9 U
ISCO-2	21-23	**76.5 J**	**3.6 J**	< 16.6 U	**228**	< 4.2 U
ISCO-2	23-25	**83.9 J**	**4.7**	< 17.3 U	**11.2**	< 4.3 U
ISCO-2	25-27	**106**	< 4.1 U	< 16.3 U	**3.1 J**	< 4.1 U
ISCO-2	27-29	**115**	< 4.5 U	< 18.2 U	**9.9**	< 4.5 U
ISCO-2	29-31	**72.9 J**	< 4.1 U	< 16.5 U	**3.3 J**	< 4.1 U
ISCO-2	31-33	**124**	< 4.6 U	< 18.4 U	**2.2 J**	< 4.6 U
ISCO-2	33-35	< 87.9 U	< 4.4 U	< 17.6 U	**6.0**	< 4.4 U
ISCO-2	35-37	< 81.4 U	< 4.1 U	< 16.3 U	< 4.1 U	< 4.1 U
ISCO-2	37-39	< 84.1 U	< 4.2 U	**10.5 J**	**2.0 J**	< 4.2 U
ISCO-2	39-41	**95.8**	< 4.3 U	< 17.0 U	< 4.3 U	< 4.3 U
ISCO-2	41-43	< 89.1 U	< 4.5 U	< 17.8 U	< 4.5 U	< 4.5 U
ISCO-2	43-45	< 72.0 U	< 3.6 U	< 14.4 U	< 3.6 U	< 3.6 U
ISCO-2	45-47	< 91.0 U	< 4.5 U	< 18.2 U	< 4.5 U	< 4.5 U
ISCO-3	14-16	**97.0**	**24.4**	**9.0 J**	**72900**	**3.4 J**
ISCO-3	16-18	**5030**	**181**	< 448 U	**67500**	**55.3 J**
ISCO-3	18-20	< 4430 U	< 222 U	< 887 U	**27200**	< 222 U
ISCO-3	20-22	< 3910 U	< 195 U	< 782 U	**7450**	< 195 U
ISCO-3	22-24	< 80.0 U	**10.1**	< 16.0 U	**2670**	< 4.0 U
ISCO-3	24-26	< 87.2 U	**6.5**	< 17.4 U	**38.1**	< 4.4 U
ISCO-3	26-28	< 4000 U	**155 J**	< 799 U	**4080**	< 200 U

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Table 3
ISCO Saturated Soil Analytical Summary
ISCO Investigation
Former GM Delco Plant 5, Kokomo, Indiana

Boring ID	Depth	CVOCs - 8265 (µg/kg)				
		Acetone	cis-1,2-Dichloroethene	Methylene chloride	Trichloroethene	Tetrachloroethene
ISCO-3	28-30	< 89.0 U	**6.3**	< 17.8 U	**7.5**	< 4.4 U
ISCO-3	30-32	< 83.9 U	**5.3**	< 16.8 U	**10.5**	< 4.2 U
ISCO-3	32-34	**95.8 J**	< 5.1 U	< 20.5 U	**4.7 J**	< 5.1 U
ISCO-3	34-36	**89.0 J**	< 4.6 U	< 18.5 U	**1.2 J**	< 4.6 U
ISCO-3	36-38	**71.4 J**	< 4.1 U	< 16.6 U	< 4.1 U	< 4.1 U
ISCO-3	38-40	**81.4 J**	< 4.3 U	< 17.1 U	**3.2 J**	< 4.3 U
ISCO-3	40-42	< 94.9 U	< 4.7 U	< 19.0 U	< 4.7 U	< 4.7 U
ISCO-3	42-44	< 105 U	< 5.3 U	< 21.0 U	< 5.3 U	< 5.3 U
ISCO-3	44-45	< 107 U	< 5.4 U	< 21.4 U	< 5.4 U	< 5.4 U

Notes:
Only constituents that were detected in the analysis are presented on the table
Detected results are presented in bold text
ISCO - In Situ Chemical Oxidation
CVOC - chlorinated volatile organic compound
µg/kg - micrograms per kilogram
J - Estimated concentration
U - Detected concentration was below the reporting limit

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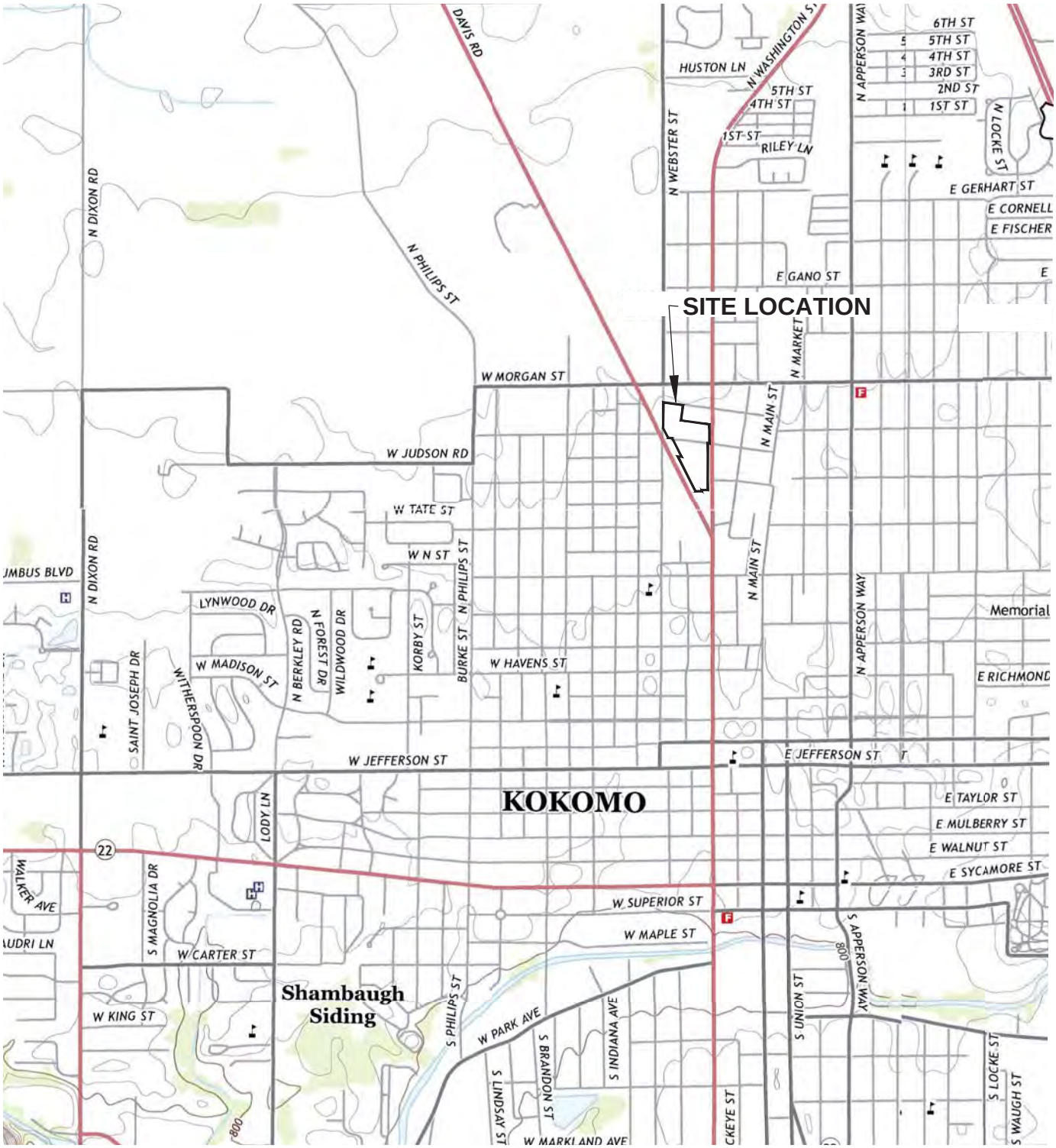
Drawings



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUAD. GALVESTON, IN; MIAMI, IN; KOKOMO EAST, IN; KOKOMO WEST, IND, DATED 2013.

0 2000' 4000'

GRAPHIC SCALE

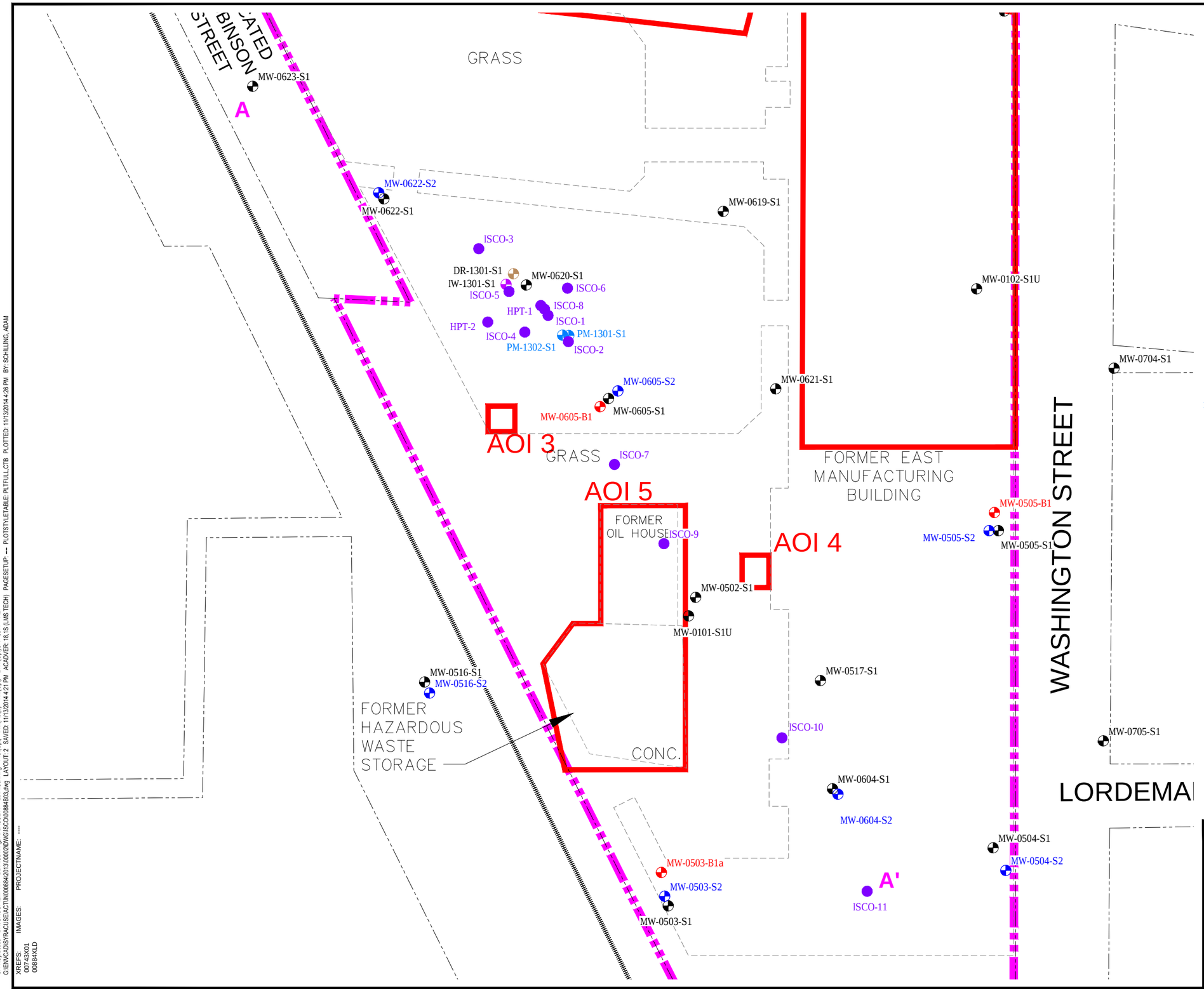
RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA

ISCO PILOT INJECTION SUMMARY REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1



RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

ISCO PILOT STUDY AREA

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DRAWING
2

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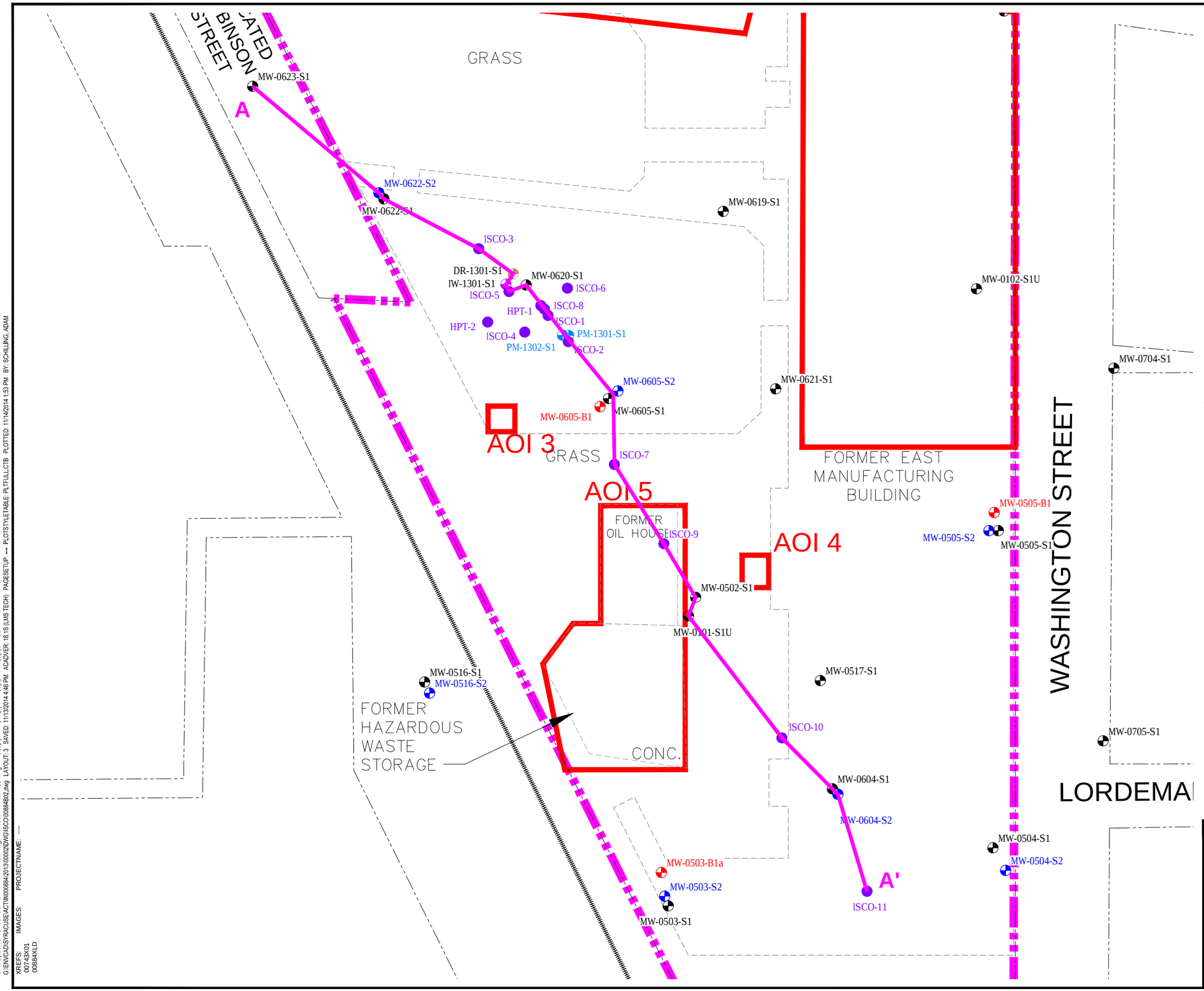

RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA

ISCO PILOT INJECTION SUMMARY REPORT

CROSS SECTION LOCATION MAP

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DRAWING
3

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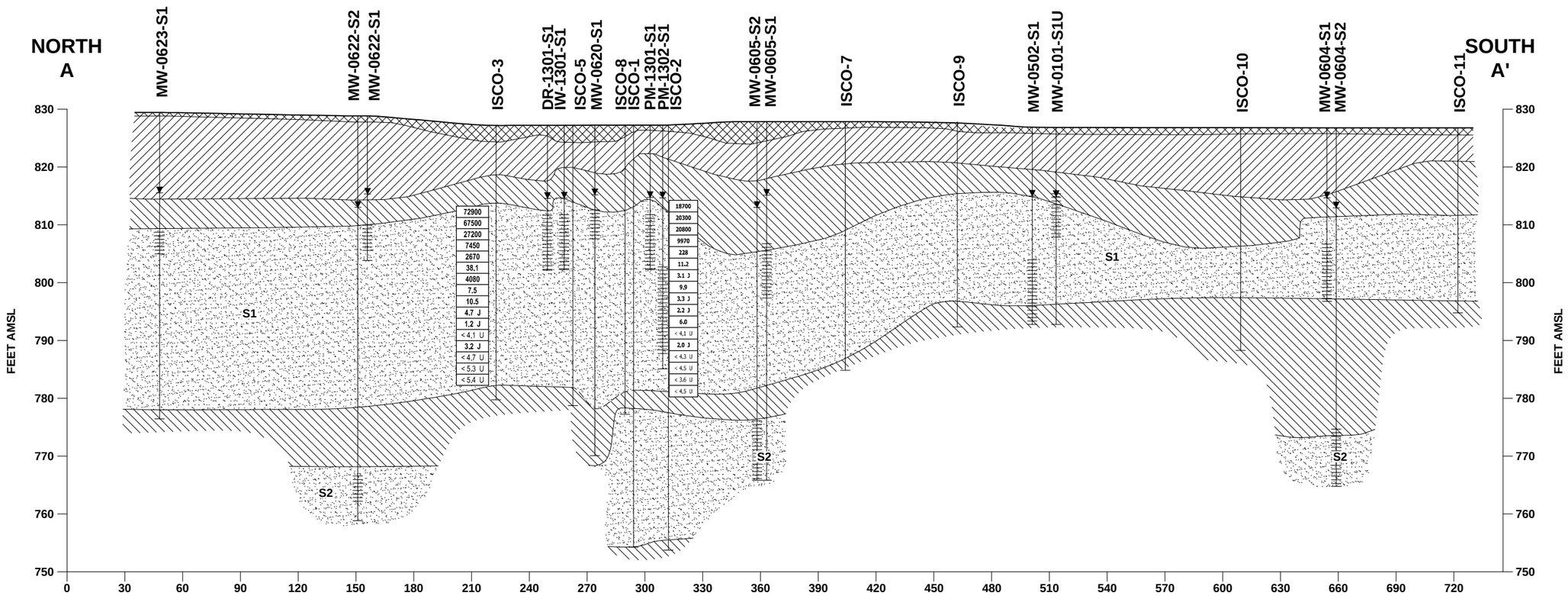


LEGEND:

- FILL/TOPSOIL/GRAVEL/ASPHALT
- PLASTIC CLAY
- SAND
- TILL
- MONITORING WELL SCREENED INTERVAL
- S1/S2 — SATURATED UNIT ID
- ▼ — DEPTH TO WATER DATA (4/22/2014) (INJECTION WELL NETWORK DEPTH TO WATER DATA COLLECTED 3/27/2014)

NOTES:

1. SURFACE ELEVATIONS OF ISCO WELLS AND SOIL BORINGS ARE ESTIMATED FROM KNOWN SURFACE ELEVATIONS.
2. ISCO-8 WAS BLANK DRILLED TO 33.5' BELOW GROUND SURFACE.
3. DATA BOXES ARE TRICHLOROETHENE (TCE) IN SOIL. UNITS ARE MICROGRAMS PER LITER ($\mu g/Kg$)
4. INJECTION WELL NETWORK DEPTH TO WATER DATA IS BASED ON MW-0620-S1 TOP OF CASING ELEVATION.

0 10' 20'
VERTICAL SCALE

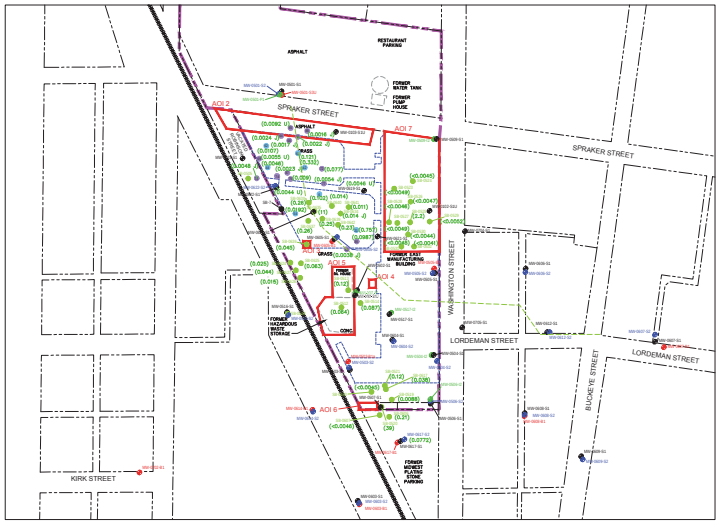
0 30' 60'
HORIZONTAL SCALE

RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

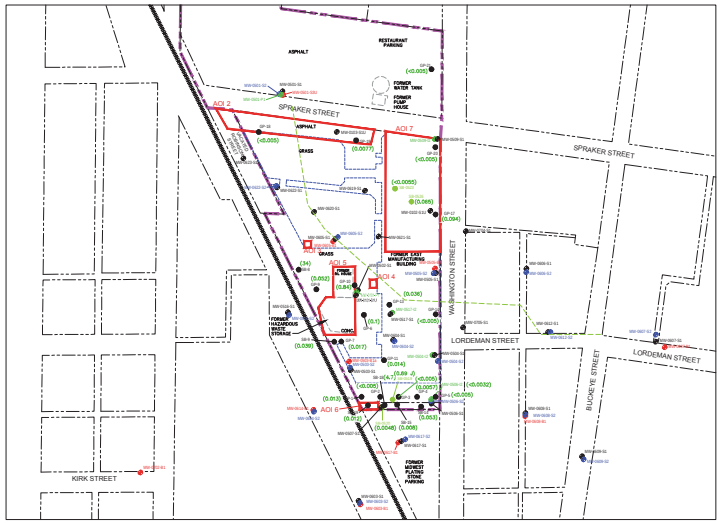
CROSS SECTION A-A'

ARCADIS

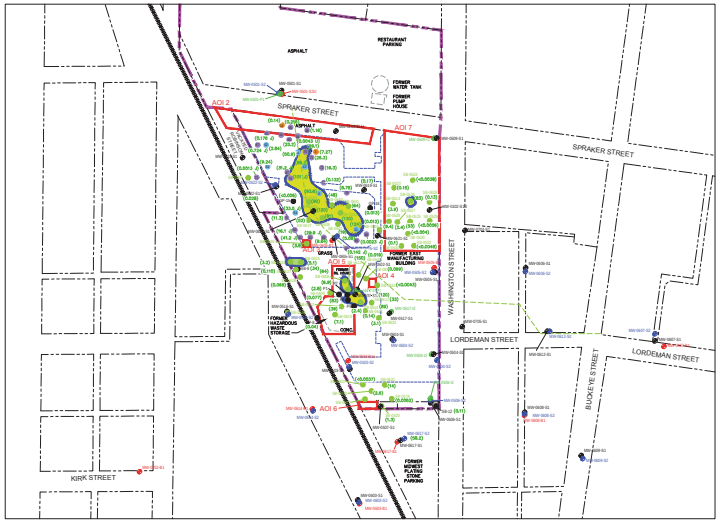
DRAWING
4



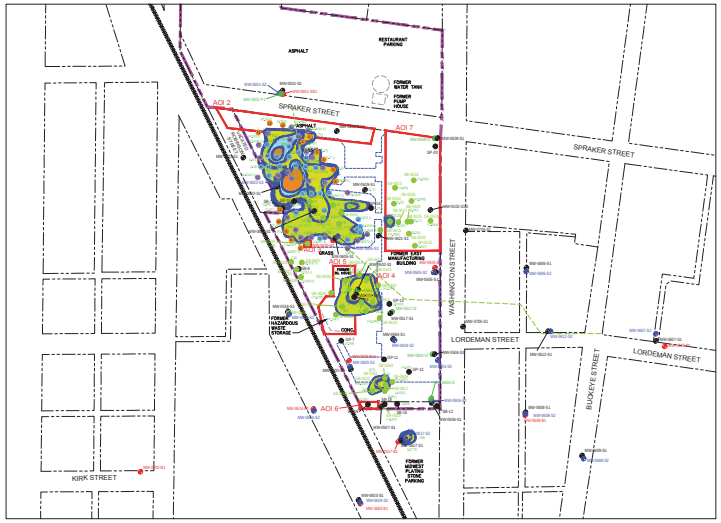
0-2 FEET
BELOW GROUND SURFACE



2-8 FEET
BELOW GROUND SURFACE



8-10 FEET
BELOW GROUND SURFACE



GREATER THAN 10 FEET
BELOW GROUND SURFACE

N

LEGEND

- MW-0501-P1 — MONITORING WELL SCREENED IN DISCONTINUOUS UNIT P1 DENOTES SCREENED INTERVAL IS IN A PERCHED ZONE ABOVE UNIT S1 I2 DENOTES SCREENED INTERVAL IS A SAND UNIT BETWEEN UNITS S1 AND S2
- MW-0603-S1 — MONITORING WELL S2 SCREENED IN UNIT S1
- MW-0603-S2 — MONITORING WELL SCREENED IN UNIT S2
- MW-0603-B1 — MONITORING WELL SCREENED IN UNIT B1 RFI PHASE IV
- MW-0615-B1a — MONITORING WELL (B1a LOCATIONS ARE OPEN BEDROCK BOREHOLES TO A DEPTH OF APPROXIMATELY 150 FT BG CURRENTLY SEALED WITH FLUTE LINERS) PRE-RFI SOIL BORING LOCATIONS
- RFI SOIL BORING LOCATIONS
- RFI PHASE IV LOCATION (ID IS THE LAST DIGIT ASSOCIATED WITH BORING ID) E.G. 1 EQUALS SB-0701 AND 54 EQUALS SB-0754
- RFI PHASE IV NOVEMBER 2007 STEP-OUT LOCATIONS (ID IS THE LAST DIGIT ASSOCIATED WITH BORING ID) E.G. 63 EQUALS SB-0763 AND 75 EQUALS SB-0775
- RFI PHASE IV JANUARY 2008 STEP-OUT LOCATIONS (ID IS THE LAST DIGIT ASSOCIATED WITH BORING ID) E.G. 01 EQUALS SB-0801 AND 14 EQUALS SB-0814
- TCE CONCENTRATION IN mg/kg (NOVEMBER/DECEMBER 2008)
- (<0.005) — HISTORIC TCE CONCENTRATION IN mg/kg (OCTOBER 2005, MARCH & NOVEMBER 2006, MARCH 2007)
- WILLIAM B. MORGAN SEWER (10" CLAY TILE) (ATTEMPTS TO LOCATE SEWER WERE UNSUCCESSFUL IN DECEMBER 2007)
- SOIL CONCENTRATIONS EXCEED 1,000 mg/kg
- SOIL CONCENTRATIONS RANGE FROM 500 TO 1,000 mg/kg
- SOIL CONCENTRATIONS EXCEED REGION 9 COMMERCIAL/INDUSTRIAL BASED PRG FOR DIRECT CONTACT AT A TARGET CANCER RISK OF 1a-5 (61 mg/kg)
- SOIL CONCENTRATIONS EXCEED CALCULATED SOIL MIGRATION TO GROUNDWATER CRITERIA (2 mg/kg)

NOTE:

1. SAMPLE DEPTHS REPRESENT THE DEEPEST SAMPLE COLLECTED FROM THE BORING.

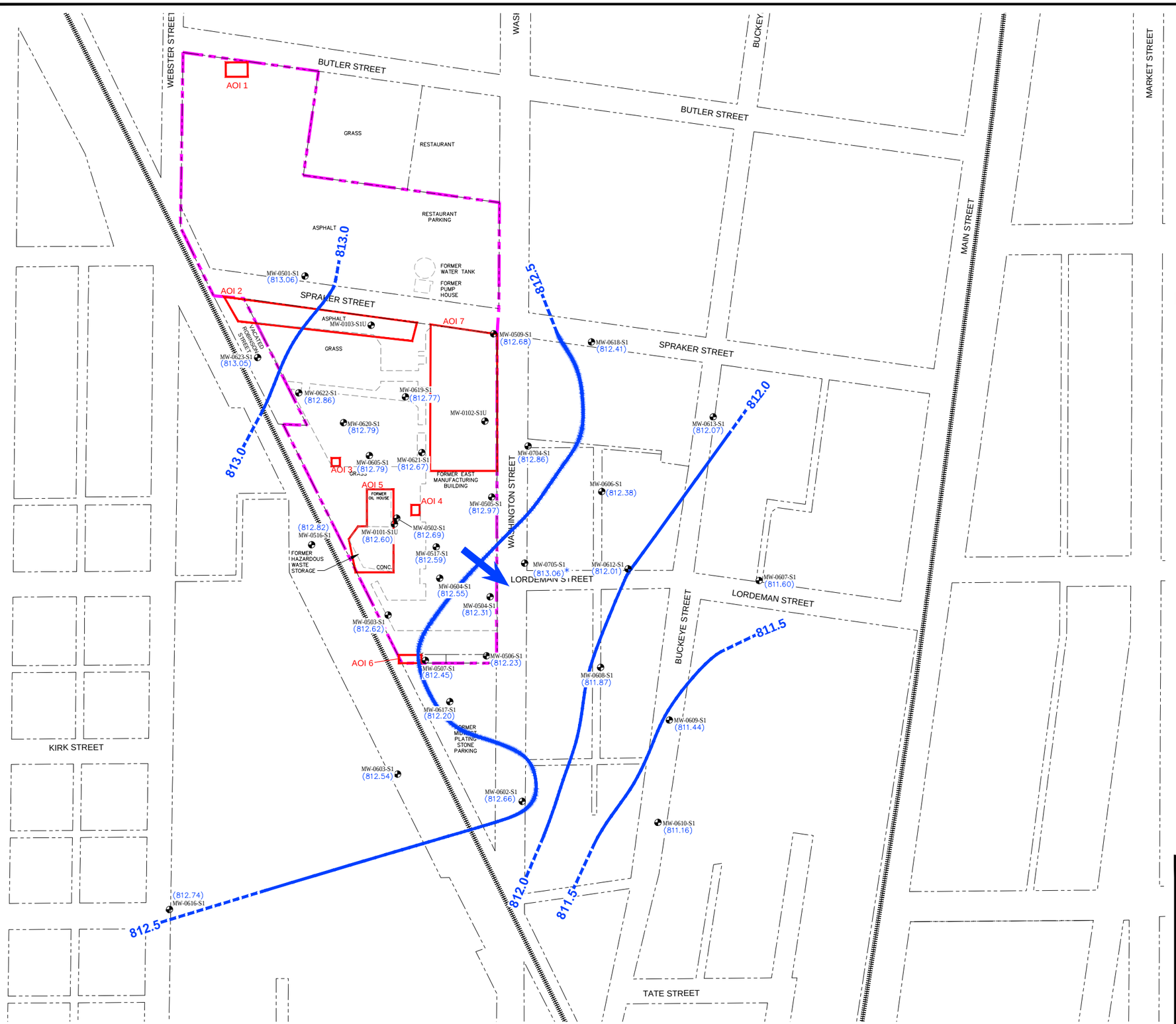
0 150' 300'
GRAPHIC SCALE

RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

TCE CONCENTRATION CONTOURS IN SOIL

ARCADIS

DRAWING
5

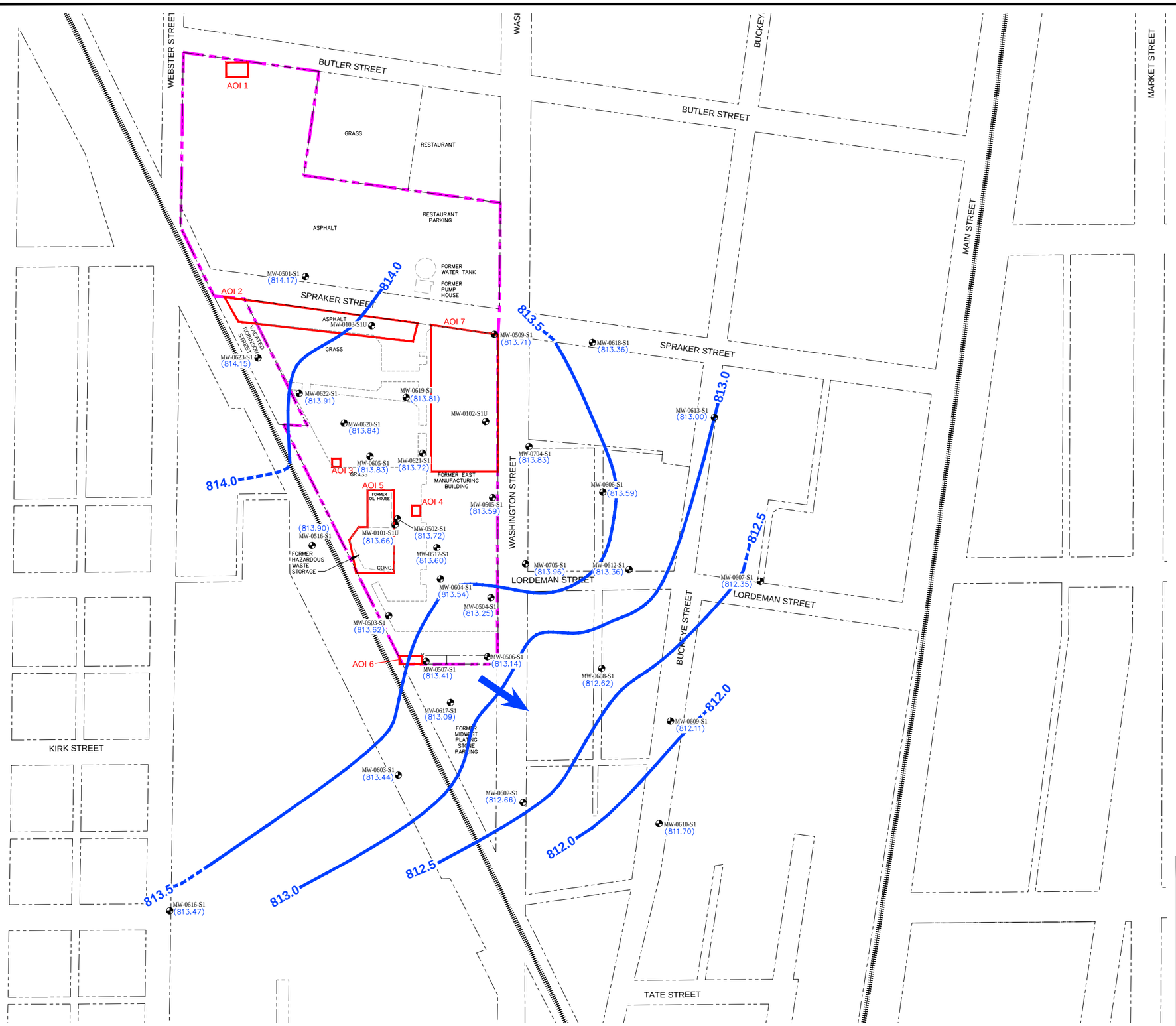


RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POTENTIOMETRIC SURFACE - UNIT S1 (OCTOBER 9, 2012)

ARCADIS

DRAWING
6



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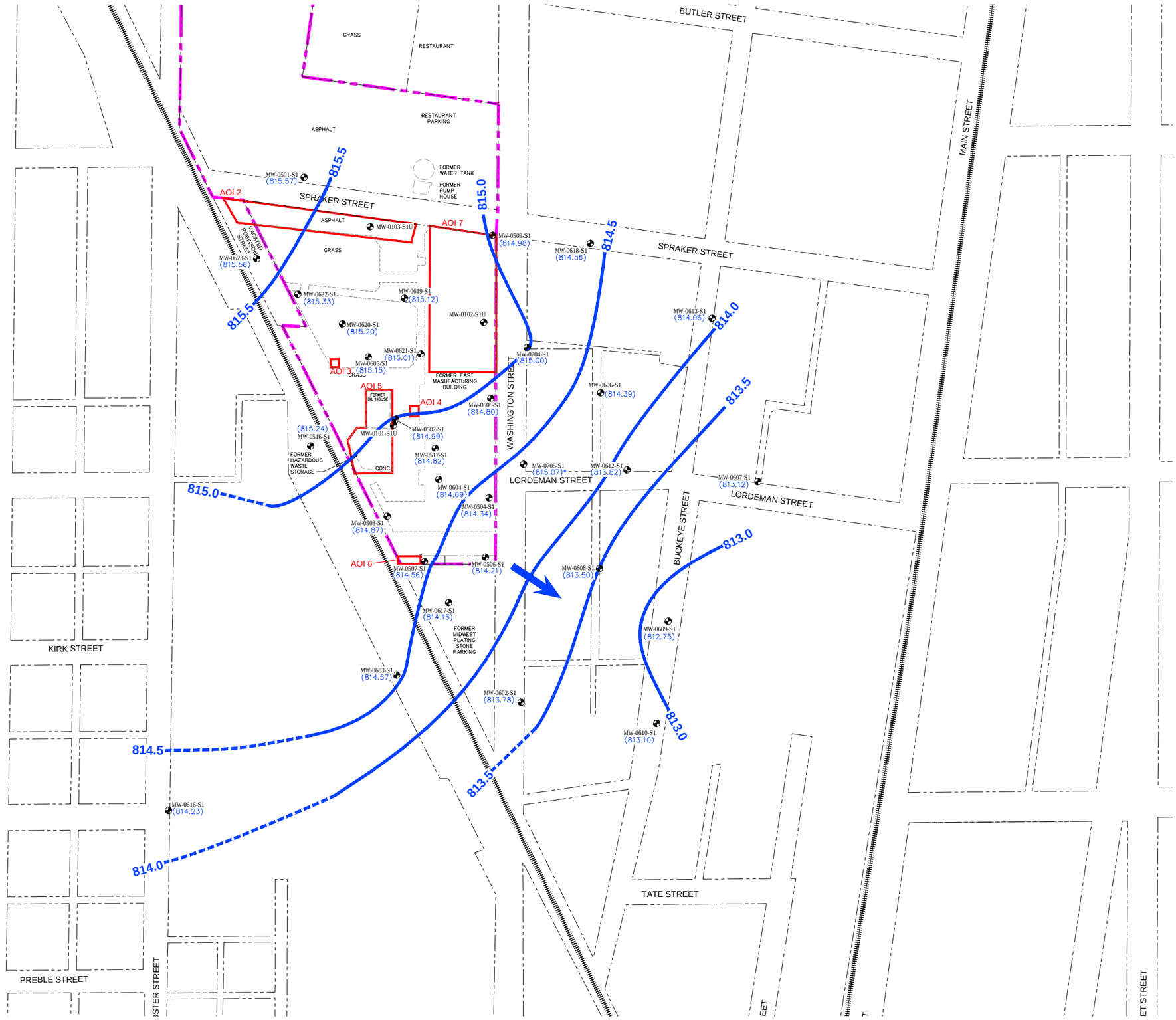
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POTENTIOMETRIC SURFACE - UNIT S1 (SEPTEMBER 24, 2013)

ARCADIS

DRAWING
7

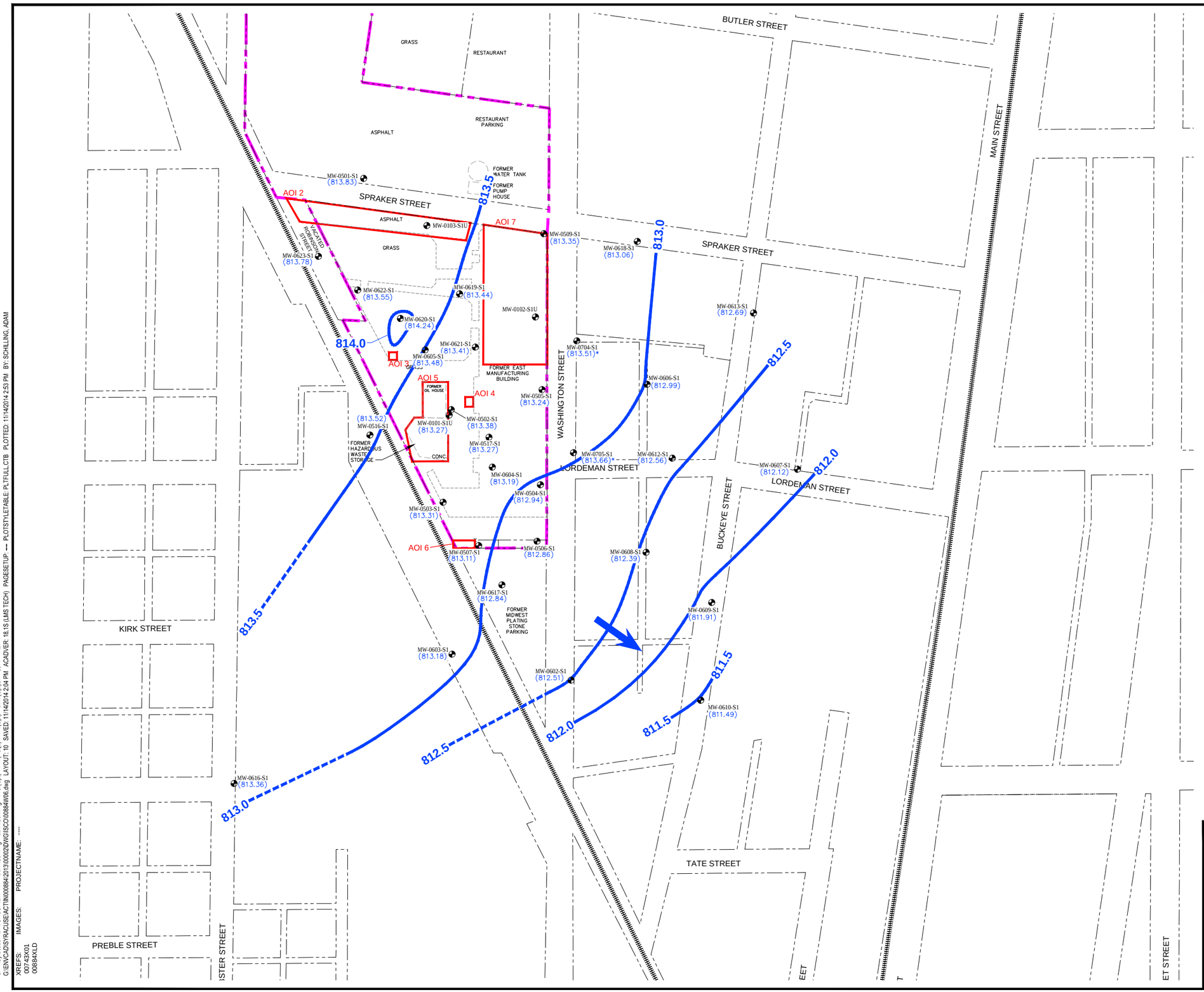


RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POTENTIOMETRIC SURFACE - UNIT S1 (APRIL 22, 2014)

ARCADIS

DRAWING **8**

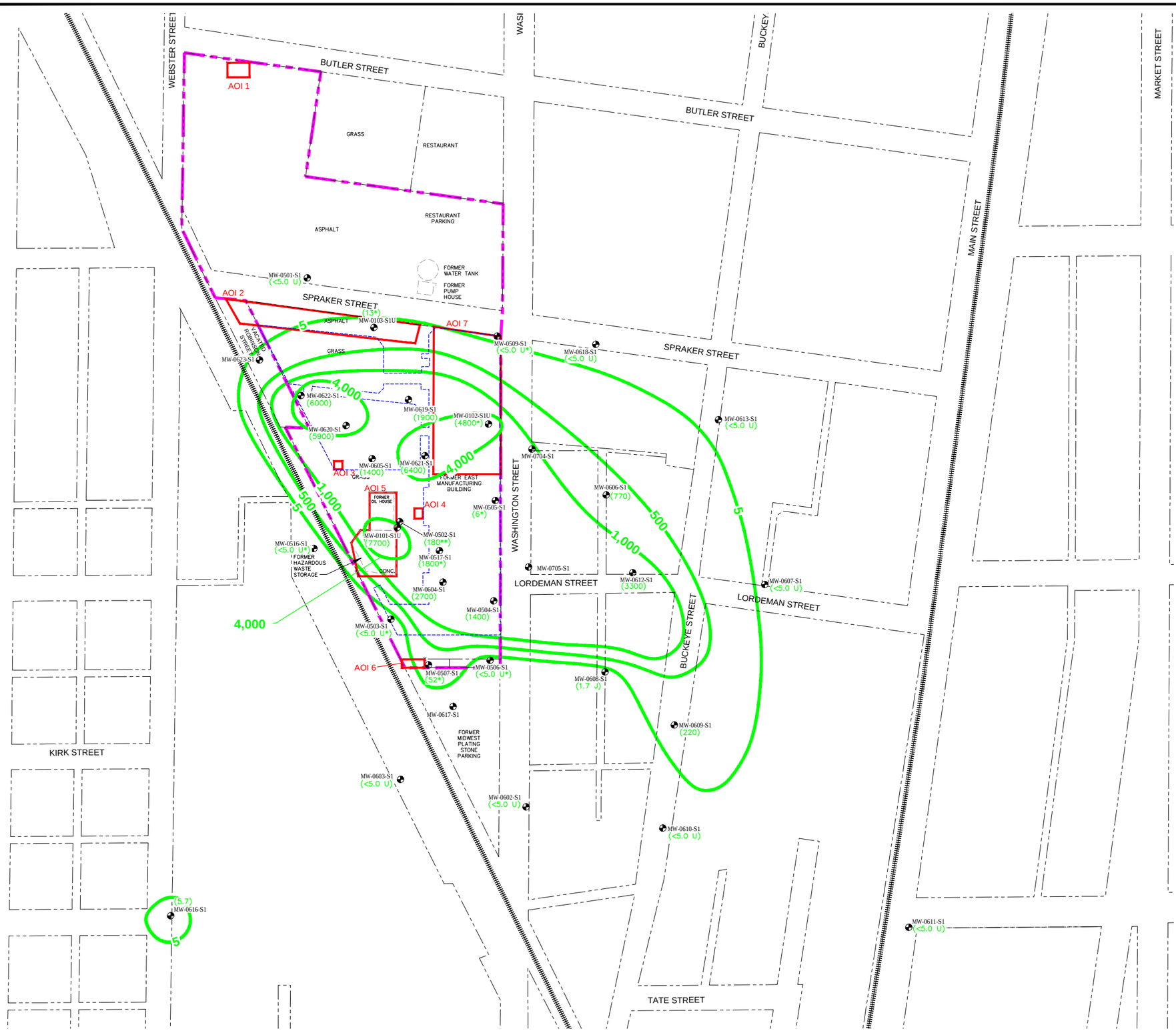


RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POTENTIOMETRIC SURFACE - UNIT S1 (SEPTEMBER 3, 2014)

ARCADIS

DRAWING
9

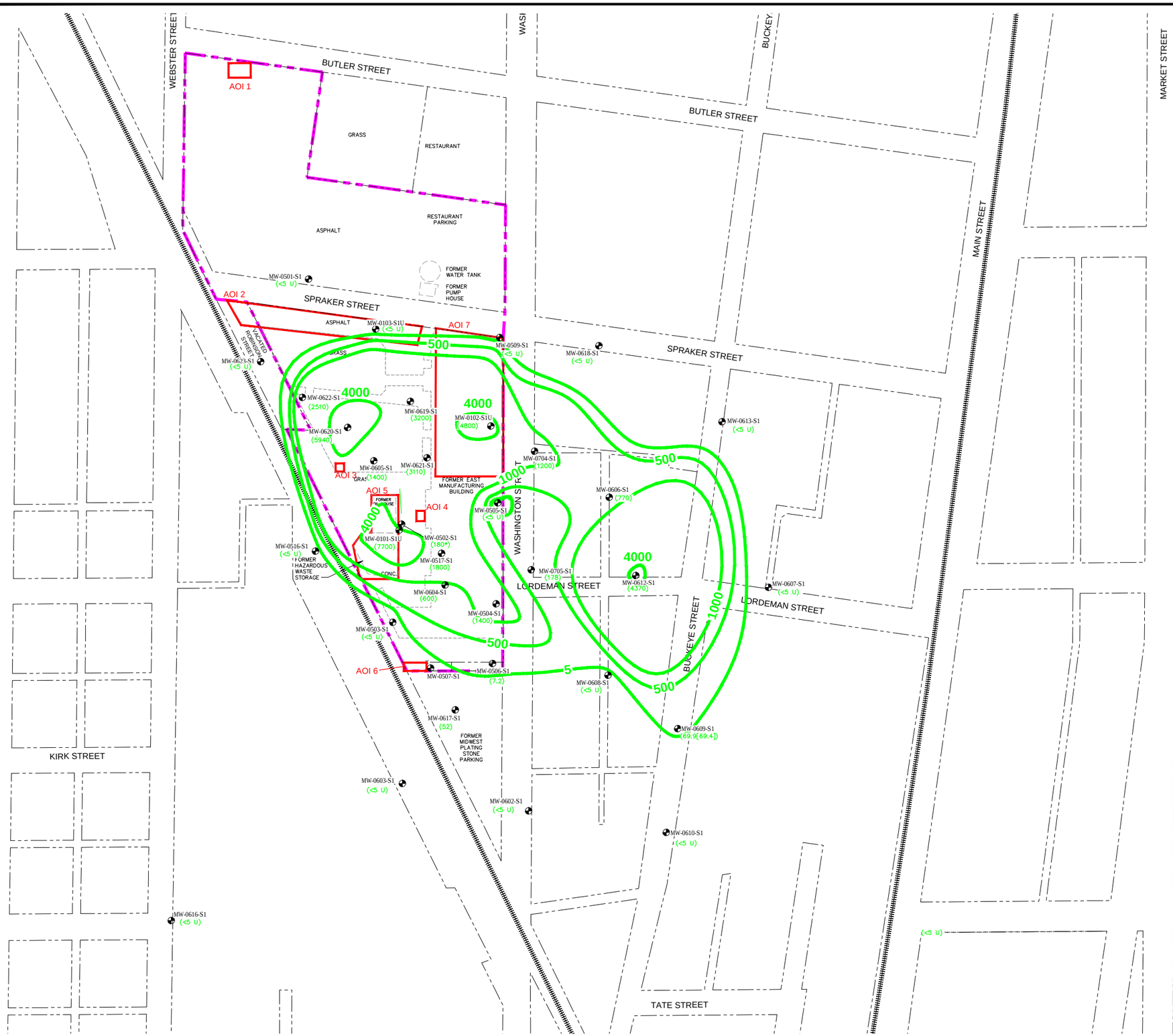


RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

TCE GROUNDWATER CONCENTRATION CONTOURS - UNIT S1 (NOVEMBER 2006)

ARCADIS

DRAWING **10**

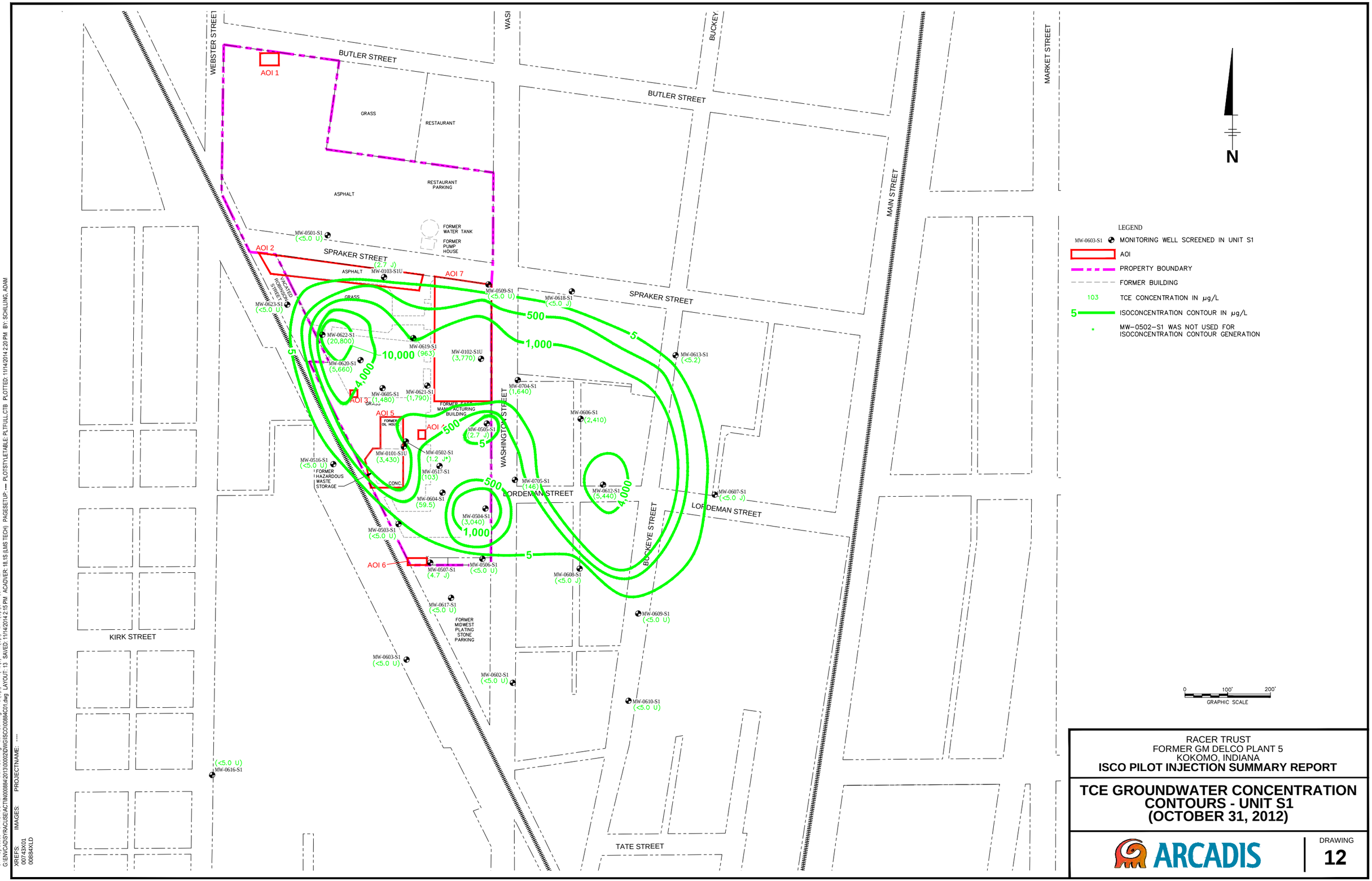


RACER TRUST
FORMER GM DELCO PLANT 5
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

TCE GROUNDWATER CONCENTRATION CONTOURS - UNIT S1 (JUNE 24, 2009)

ARCADIS

DRAWING
11



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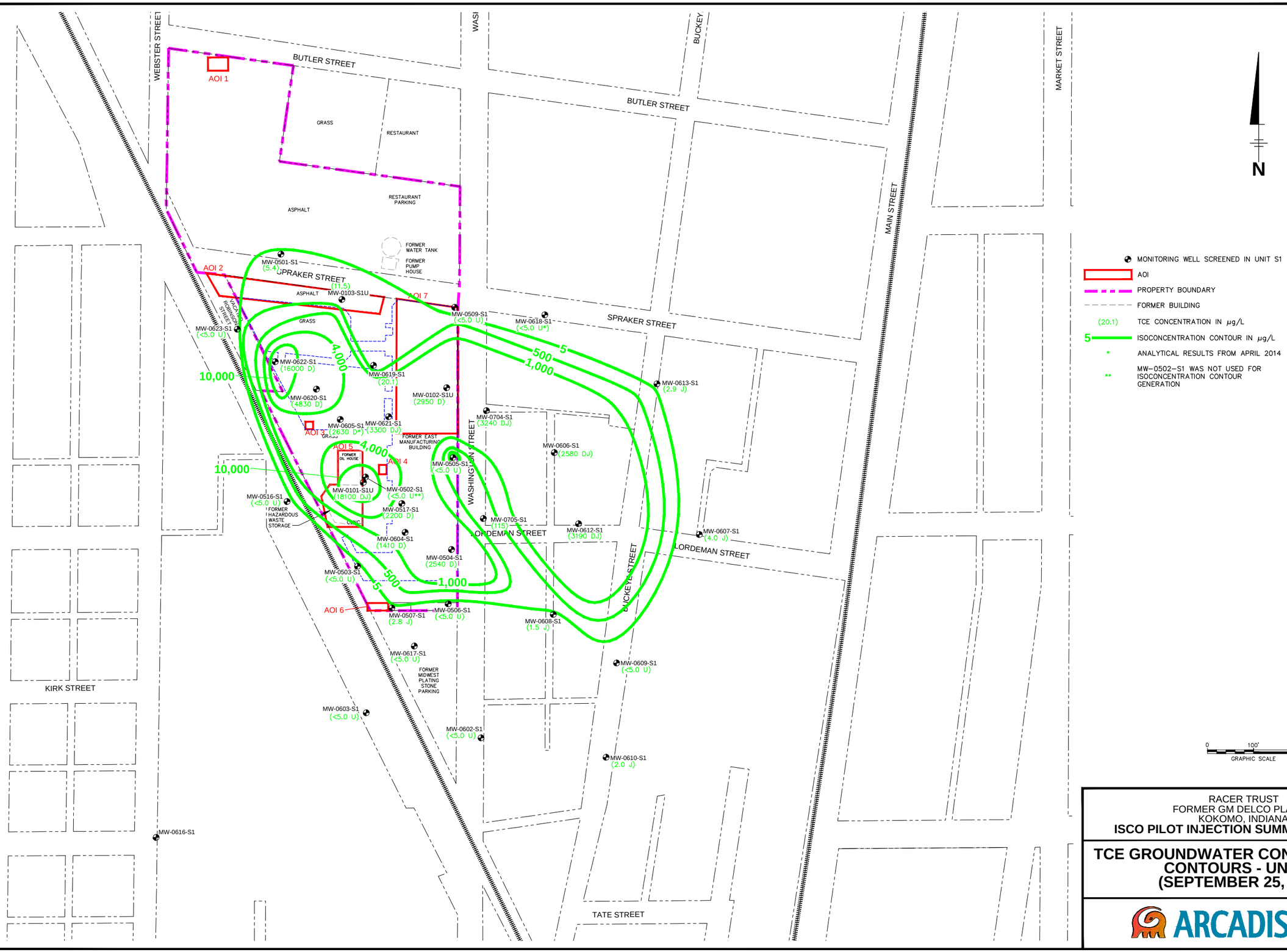
KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

TCE GROUNDWATER CONCENTRATION CONTOURS - UNIT S1 (OCTOBER 31, 2012)

ARCADIS

DRAWING **12**



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KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

TCE GROUNDWATER CONCENTRATION CONTOURS - UNIT S1 (SEPTEMBER 25, 2014)

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DRAWING
13

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Appendix A

Updated Groundwater CSM

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Imagine the result

Appendix A to the ISCO Investigation Report

Groundwater Conceptual Site Model Update

Former GM Delco Plant 5
Kokomo, IN

USEPA ID IND000806844

May 6, 2015

ARCADIS

Sarah Fisher, CHMM
Senior Scientist

Matthew D. Griles, PG
Senior Project Scientist

Updated Groundwater Conceptual Site Model

Former GM Delco Plant 5
Kokomo, IN

Prepared for:
RACER Trust

Prepared by:
ARCADIS US, Inc.

Date:
March 10, 2015

Figures

All figures called out in this conceptual site model are included in the primary report to which this CSM is an appendix.

Acronyms and Abbreviations

bgs	below ground surface
cis-1,2-DCE	cis-1,2-dichloroethene
CMP	Corrective Measures Proposal
CSM	conceptual site model
CVOC	chlorinated volatile organic compound
MCL	maximum contaminant level
PCE	tetrachloroethene
RFI	Resource Conservation and Recovery Act Facility Investigation
TCE	trichloroethene
VOC	volatile organic compound
WR-OL	Well Restriction Overlay
µg/L	micrograms per liter

1. Introduction

This appendix presents a conceptual site model (CSM) pertaining to groundwater contamination at the Former GM Delco Plant 5 in Kokomo, Indiana (Site). The CSM updates the understanding of site conditions previously described in the Resource Conservation and Recovery Act Facility Investigation (RFI) Report (ARCADIS 2010). This CSM incorporates the findings of the ISCO Pilot Study and ISCO Investigation described in the body of the ISCO Investigation Report. Drawings cited in this appendix refer to those attached to the main report body.

This CSM does not re-analyze the groundwater flow and solute transport model developed as part of the corrective measures study for the Site. The primary objective of the numerical modeling effort was to provide the basis to delineate the Well Restriction Overlay (WR-OL) District. The establishment of the WR-OL District is intended to prevent water supply wells from being installed within areas where trichloroethene (TCE) and/or cis-1,2-dichloroethene (cis-1,2-DCE) from the Site may exceed their respective maximum contaminant levels (MCLs) based on the modeling results.

2. Geology and Hydrogeology

The Site is located within the Bluffton/Tipton Till Aquifer System physiographic unit (Scott 2008), a region in which the unconsolidated-zone aquifers and the current, largely flat surface topography resulted from Pleistocene time Wisconsinan glacial advances (Wayne 1996). The geology in the area surrounding the Site consists of approximately 80 feet of alluvial and glacial deposits overlying carbonate sedimentary bedrock (Fenelon 1994). The Pleistocene glacial drift is characterized by clay tills and outwash stream deposits consisting largely of coarse sand and gravel. These sand and gravel deposits may be prolific aquifers, but are discontinuous at region scale and are found interspersed within the clay tills (Smith 1985).

2.1 Site-Specific Hydrostratigraphy

Three distinct unconsolidated sand and gravel aquifers have been identified at the Site, identified as the S1, S2, and S3 Units, with increasing depth. These water-bearing zones are each isolated by aquitards consisting of clay or till in the following sequence:

- Upper Confining Unit – consisting primarily of clay and till
- S1 Unit – sand and gravel glacial outwash
- Middle Confining Unit – hard clay-rich till
- S2 Unit - sand and gravel glacial outwash

- Lower Confining Unit - hard gray clayey silt
- S3 Unit - sand and gravel glacial outwash and highly weathered limestone
- B1 Unit - limestone bedrock

The two uppermost units have been the primary zones of concern involving Site investigations. The soil of the upper confining unit is the primary zone of chlorinated volatile organic compound (CVOC) impacts, and is inferred to be a source of groundwater contamination to the lower S1 Unit. The S1 Unit is the horizon containing the Site's most significant CVOC groundwater plume.

The total thickness of the overburden units varies between approximately 70 and 100 feet across the Site. While the hydrostratigraphic framework given above is a reasonable description of the geology in the northern half of the Site, the relative thickness of the units vary significantly in the southerly direction. Each of the "S" unit water-bearing zones thins toward the south, and the S2 and S3 Units eventually pinch out. Other minor water-bearing zones have also been identified as isolated beds within the confining units (designated P- for perched or I- for intermediate). A cross section reference figure and a geologic cross section pertaining to recent investigations are included as Drawings 3 and 4. Additional geologic cross sections and a cross section reference drawing are included as Drawings 3 through 6 in the RFI Report (ARCADIS 2010).

The primary characteristics of each unit may be summarized as follows:

- **Upper Confining Unit –** The upper confining unit is composed of topsoil, clay, and till. Underlying the topsoil is a plastic clay, which is composed of pliable silty, sandy clay and is generally encountered from the surface to approximately 15 feet below ground surface (bgs). Beneath the plastic clay lays a zone of till consisting of non-plastic and firm silt, sands, and trace pebbles. The till is encountered between approximately 10 to 20 feet bgs and ranges in thickness from 4 to 12 feet thick. The water table typically occurs near the base of this till unit, though the soil is of sufficiently low permeability that wetness is often difficult to observe in soil samples.

  The upper confining unit contains the volatile organic compound (VOC) impacts which are identified for cleanup as detailed in the Corrective Measures Proposal (CMP; ARCADIS 2011) and the Revised Work Plan for Treatability and Pilot Studies of Calcium Oxide Treatment (ARCADIS 2014). As illustrated on Drawing 5, the majority of elevated TCE concentrations are contained in the west-central portion of the Site in the soils extending from 8 feet bgs to the interface with the underlying S1 Unit. This region of most-impacted soils is suspected to be the principal source of CVOC impacts to groundwater in the S1 Unit on site.

- **S1 Unit –** The S1 Unit is the first encountered water-bearing unit, and is generally first observed between 10 to 25 feet bgs. The S1 Unit consists primarily of sand and gravel glacial outwash deposits. Outwash sediments form as meltwater from the glacier deposits sands and silts in braided-stream environments directly in front of the glacial extent. This depositional environment can create heterogeneous sedimentary deposits with complex transport flow fields which are likely multi-directional. Because braided-stream deposits tend to form long, narrow beds rather than laterally extensive, planer beds, the hydraulic conductivity is greatest in the direction parallel to the deposited beds. This anisotropy will tend to bias groundwater flow parallel to the long axis of the most highly permeable beds.

  While in bulk, the S1 Unit consists mostly of very permeable sand and gravel, Site data show that the S1 Unit is heterogeneous both laterally and vertically. In a number of borings, very highly permeable beds appear to occur at the base of the S1 Unit, while finer sand or silt beds are noted in the upper part of the unit. Neither of these observations, however, is found consistently across the Site. Based on the dynamic nature of the depositional environment, no single trend (e.g., fining upward sequence) appears to be consistently applicable.

  A key aspect of the S1 Unit is that it thins dramatically. The S1 Unit ranges in thickness from 1 foot near the eastern and southeastern margins of the study area and 35 feet near the center of the Site (e.g., the pilot test area). The highly irregular geometry of the S1 Unit means that flow paths within the unit will be skewed not only by the internal S1 aquifer properties (e.g., heterogeneity and anisotropy), but by the actual aquifer boundaries. For instance, flow along the top of the S1 Unit must descend downward if the overlying till surface descends downward.

- **Middle Confining Unit-** Underlying the S1 Unit is a hard clay (till), with thicknesses generally ranging from 10 to 40 feet. It is important that observations from the recent investigation indicate that this unit thins to a thickness of only about 1 foot or may be altogether absent near the ISCO Pilot Study area (refer to boring logs for ISCO-1, ISCO-8, and HPT-1). Based on field observations, gaps in the continuity of the Middle Confining Unit are possible.

- **S2 Unit -** Underlying the Middle Confining Unit is the S2 Unit, which is composed of poorly sorted sands and gravels, and is generally encountered at 50 to 55 feet bgs. The S2 Unit ranges in thickness from 20 feet near the center of the Site to 1.5 feet near the southeastern margins of the Site. The S2 Unit ultimately pinches out, and is not present south of the Site.

- **Lower Confining Unit-** Separating the S2 and S3 Units is a hard gray clayey silt. The Lower Confining Unit is encountered at a depth of approximately 72 to 76 feet bgs, with a thickness of 9 feet.

- **S3 Unit -** The S3 Unit is a deeper water-bearing unit that sits directly on top of the bedrock and is found exclusively in the northern portion of the Site at MW-0501-S3U. The S3 Unit is encountered at a depth of approximately 85 feet bgs, with a thickness of 7 feet.

- **B1 Unit -** The unconsolidated glacial deposits described above lie over dolomitic limestone of the Silurian Wabash Formation.

2.2 S1 Unit Groundwater Flow Patterns

Regional groundwater flow in the S1 Unit is interpreted to trend generally southeast toward Wildcat Creek, approximately 1.5 miles in the downgradient direction. Groundwater in the S1 Unit is under confined or semi-confined conditions due to the overlying clay till deposits.

The local potentiometric surface in the S1 Unit is presented on Drawings 6 through 9, representing the most recent four gauging events. These groundwater elevation contour maps are based on depth-to-water measurements recorded on October 9, 2012, September 24, 2013, April 22, 2014, and September 3, 2014, and illustrate the potentiometric surface of the first encountered groundwater.

Note that the southeastward gradient suggest that groundwater in the S1 Unit is moving from an area where the unit is thick to an area where it is thin (e.g., greater than 30 feet in the northwest under 5 feet in the southeast). This is hydraulically plausible as long as gradients or unit transmissivity increase to offset the reduced aquifer thickness. While no clear change in formation properties has been noted, the horizontal gradient clearly increases from northwest to southeast as the thickness of the S1 Unit decreases.

The lateral anisotropy and decreasing thickness of the S1 Unit are also interpreted to skew groundwater flow paths oblique to the maximum horizontal gradient. While the actual orientation of anisotropy in the S1 Unit has not been directly evaluated, a sense of its directional influence can be deduced from the path of the TCE plume relative to the hydraulic gradients. For instance, while the horizontal gradients in the S1 Unit trend southeast to south (e.g., Drawings 6 through 9), the apparent path of the TCE plume (e.g., Drawings 10 through 13) trends more easterly (east-southeast).

2.2.1 S1 Unit Groundwater Velocity

Estimates of the hydraulic conductivity of the S1 Unit are available from regional literature, site-specific slug tests completed in 2006, and the recent HPT profiling and pneumatic slugs tests. The table below summarizes hydraulic conductivities estimated from slug tests for the S1 Unit from the Site.

Test	Location	Source	Hydraulic Conductivity
MW-0605-S1	ISCO Pilot Test Area	RFI Report (2010)	96 ft/day
MW-0608-S1	Downgradient Plume Area	RFI Report (2010)	14 ft/day
MW-0609-S1	Downgradient Plume Area	RFI Report (2010)	133 ft/day
MW-0611-S1	Downgradient Plume Area	RFI Report (2010)	93 ft/day
HPT-1 (16.1 to 17.4 ft bgs)	ISCO Pilot Test Area	This report	36 ft/day
HPT-1 (17.4 to 18.7 ft bgs)	ISCO Pilot Test Area	This report	72 ft/day
HPT-1 (18.7 to 20 ft bgs)	ISCO Pilot Test Area	This report	73 ft/day
HPT-2 (44.7 to 46 ft bgs)	ISCO Pilot Test Area	This report	309 ft/day

The average of these hydraulic conductivity estimates is 103 ft/day. This value is quite similar to the United States Geological Survey reported average of 200 ft/day (Smith 1985) based on data from 54 test wells located in glacial outwash units across Howard County (i.e., not specifically the S1 Unit). It is also notable that the range of slug-test estimates of hydraulic conductivity is generally consistent with the range of values and variability suggested by the HPT logs.

While the observed range of hydraulic conductivity estimates demonstrates internal heterogeneity of the S1 Unit, this range is actually relatively limited for geologic media, particularly deposits in dynamic environments such as braided outwash. The absence of significant beds of lower permeability is noteworthy because of its influences on the vertical anisotropy of the unit. Where density-driven flow may be a consideration (e.g., for ISCO injections), the bedding of the S1 Unit does not offer significant resistance to downward vertical migration. It is also noteworthy that there is no material difference in the range of hydraulic conductivity estimates from tests completed in the “downgradient plume area”, where the S1 Unit thins to less than 5 feet thick, relative to tests in the ISCO Pilot Test area where the thickness of the S1 Unit may be greater than 30 feet.

Groundwater flow velocities may be estimated using the estimates of hydraulic conductivity above, the S1 Unit hydraulic gradient, and an estimate of mobile porosity. Hydraulic gradients with the S1 Unit in the northwest portion of the Site vary moderately depending on the measuring event, but average approximately 0.001 ft/ft. (Note that the gradient is as much as five times faster in the southeast portion of the Site, where the S1 Unit is thinner.) Assuming an average hydraulic conductivity of 103 ft/day, a gradient of 0.001 ft/ft and a mobile porosity of 0.20, the linear velocity of groundwater flow would be 0.5 ft/day. In

zones of the highest hydraulic conductivity (e.g., 309 ft/day), the velocity would be 1.5 ft/day. In zones of the lowest hydraulic conductivity (e.g., 14 ft/day), the velocity would be 0.7 ft/day.

2.3 Nature and Extent of Groundwater Impacts

As reported in the RFI Report (ARCADIS 2010), CVOC concentrations believed to be associated with the Site have been detected in the P1, S1, I2, S2, and B1 Units. However, based on the risk assessment conducted during the RFI, no unacceptable risks associated with the groundwater were identified. Though the U.S. Environmental Protection Agency (USEPA) concurred with the conclusions of the risk assessment, they requested that RACER undertake remedial actions in the S1 Unit (where impacts are highest), to reduce the timeframe of the project and to facilitate aquifer restoration.

The principal contaminant of concern for groundwater in the S1 Unit at the Site is TCE. While TCE daughter products (cis-1,2-DCE and vinyl chloride), and other CVOCs (e.g., 1,1,1-tricloroethane and 1,1-dichloroethane) are also found in Site groundwater, TCE is the most widespread compound, and the compound most commonly found at concentrations higher than MCLs in the groundwater. TCE, therefore, is the compound of primary concern with respect to potential exposure pathways and remediation. As described in detail in the RFI Report (ARCADIS 2010):

- None of the areas investigated during the RFI pose a potentially significant risk under current land use and groundwater use conditions.

- CVOCs in the Upper Confining Unit were investigated in detail in the former North and South Manufacturing Building Areas. The bulk of the mass was identified in the former North Manufacturing Building (SB-0746, SB-0749, SB-0756, SB-0757, and SB-0775). Based on the findings and conclusions of the human health risk assessment completed during the RFI, none of the areas investigated during the RFI pose a potentially significant risk under future land use and groundwater use, except via potential future vapor intrusion at the sub-areas around locations SB-0746, SB-0749, SB-0756, SB-0757, and SB-0775 at the Site.

- As described in the Current Conditions Report (ARCADIS 2005), no information was available to GM regarding the facility during its operation; therefore, a specific source event or location could not be identified.

- Off-site sources of tetrachloroethene (PCE) and other CVOCs have been identified associated with the Midwest Plating Corporation, located adjacent to and south of the Site. Off-site groundwater plumes in the S2 and B1 Units are interpreted to be commingled or primarily stem from off-site sources associated with the former Midwest Plating Corporation.

The extent of VOC impacts to groundwater at the Site is shown by the distribution of TCE in the S1 Unit. Drawings 10 to 13 illustrate the approximate extent of the TCE concentrations higher than 5 micrograms per liter (µg/L) from 2006 through 2014. These iso-concentration figures illustrate several points:

- The TCE groundwater plume originates in the northwest portion of the Site, coincident with the known areas of TCE impact in the upper confining unit, directly above the S1 Unit.
- As mentioned previously, the source of the CVOCs in the former North Manufacturing Building is unknown; however, it appears that the former Hazardous Waste Storage Area may be a secondary source of groundwater impacts.
- The TCE plume extends east-to-southeast in a direction generally consistent with the hydraulic gradient in the S1 Unit. Horizontal anisotropy and thinning of the S1 Unit are interpreted to bias the plume slightly east of the perceived hydraulic gradient.
- While the TCE plume extends off site, the extent of impacts is delineated in all directions by S1 monitoring wells with no detectable concentrations of TCE.
- Based on a review of groundwater analytical data over a period of nine years, the isoconcentration contours (see Drawing 10 through 13) would suggest that TCE plume is not expanding.

In the northwest portion of the plume, where the S1 Unit is thickest, groundwater concentrations within the S1 Unit are highly stratified. TCE concentrations are greatest in the shallow zones of the S1 Unit, and decline rapidly with depth in the unit (see Drawing 4). This trend appears to reflect VOC mass loading from above in the soil source areas. As the S1 Unit thins in the downgradient direction, groundwater flow paths converge vertically, and the CVOC distribution becomes more uniform across the vertical section.

2.4 Solute Transport

The migration of TCE within the S1 aquifer is influenced by the several factors:

- The principal source of dissolved TCE in the S1 aquifer is interpreted to be residual TCE mass stored in the Upper Confining Unit in the northwest area of the Site. While isolated beds of finer grained soils exist within the S1 Unit itself, even the least permeable beds are highly transmissive relative to the till, and are unlikely to constitute significant zones of CVOC mass storage.
- The limited vertical extent of dissolved TCE impacts in the S1 Unit near the source areas suggests that no separate-phase TCE has entered the unit. The limited degree to which TCE impacts have migrated

vertically below the till (e.g., as observed in the high-resolution soil sampling of the ISCO Pilot Test area) is consistent with primarily horizontal advective transport.

- The high bulk permeability and general absence of fines in the S1 Unit suggest that horizontal transport in the unit should be minimally retarded. These characteristics would promote rapid flushing of solutes, and limit diffusive storage of mass held in low-mobility porosity. This suggests that the aquifer would attenuate rapidly once the VOC source loading is eliminated (e.g., by remediation of the Shallow Confining Unit).

- The irregular shape of the S1 Unit likely introduces greater macroscopic tortuosity in flow paths than would be expected in an aquifer of uniform thickness. At Site scale, the S1 Unit thins moving from northwest to southeast, a geometry that will force vertical flow convergence. Because the contacts between the S1 Unit and the confining units are erosional, they also have finer-scale irregularities that will drive groundwater flow paths to deviate from straight lines.

3. References

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Scott, Robert A., 2008. Indiana Department of Natural Resources, Division of Water, Resource Assessment Section. Unconsolidated Aquifer Systems of Howard County, Indiana. July.

Smith, Barry S., 1985. Water Resources of Wildcat Creek and Deer Creek Basins, Howard and Parts of Adjacent Counties, Indiana, 1979-82.

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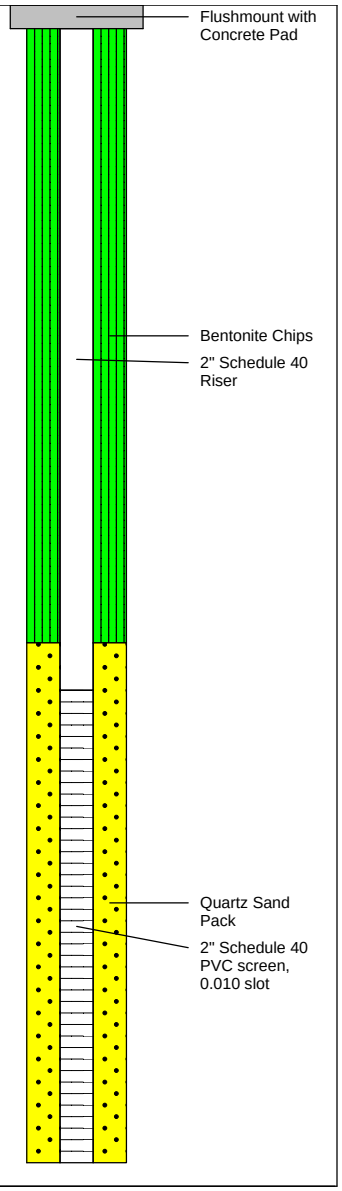
Appendix B

Soil Boring and Well Construction Logs

Date Start/Finish: 11/25/13 **Drilling Company:** Major **Driller's Name:** Jeremy **Drilling Method:** Roto-Sonic **Sampling Method:** Roto-Sonic **Rig Type:** Mini-Sonic	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 25.0 ft bgs **Surface Elevation:** **Descriptions By:** Tim Porter	**Well/Boring ID:** **DR-1301-S1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample Interval	Recovery	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	1	0-5	NM	5.3		SILTY CLAY LOAM (TOPSOIL), slightly plastic, slightly moist, dark brown (10YR 3/3)
					0.1		SILTY CLAY, slighly moist, brown (10YR 5/3), commmon yellowish brown (10YR 5/6) and light grey (10YR 7/1) iron concentrations and depletions
5	-5	2	5-10	NM	6.6		CLAYEY SILT (weathered TILL), slightly plastic, few coarse sands, slightly moist, greyish brown (10YR 5/2)
					12.3		
					116		
10	-10	3	10-15	NM	375		
					289		
15	-15	4	15-20	NM	93.0		SAND and GRAVEL, medium to coarse, moist to wet, loose, greyish brown (10YR 5/2) 15.0' - Wet
					111.1		
					103.6		
20	-20	5	20-25	NM	52.5		20.0' - color change to grey (10YR 5/1)
					9.6		
25	-25				2.3		End of boring

Well/Boring Construction



Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/4/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 73.0 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	16.7			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					7.3			SILT and SAND, trace clays, dry, loose, soe gravels, small to very large, angular to rounded pebbles, yellowish brown (10YR 5/4)	
5	-5	2	5-8	3.5	1.5			CLAY and SILT, trace sands, moist, no to low plasticity, soft to medium stiff, mottled color, yellowish brown (10YR 5/4) 3.0' - increase clay, medium to high plasticity, trace small pebbles, angular 3.5' - tacky 5.0' - some pebbles, angular to rounded, moist, medium stiff 8.5' - dry, friable, very stiff 11.0' - color change to grey (10YR 4/1)	
					6.8				
10	-10	3	8-13	5.0	11.1				
					17.1				
15	-15	4	13-18	3.6	22.5			SAND, trace silts, poorly sorted, medium grained to very large angular to subrounded pebbles, wet, saturated, brown (10YR 5/3)	
					6.7				
20	-20	5	18-23	4.0	7.1			SAND and GRAVEL, poorly sorted, coarse grained to very large angular to rounded pebbles, saturated, dark greyish brown (10YR 4/2), loose	
					0.0				
					0.0				
25	-25	6	23-28	4.0	0.0				
					0.0				
30	-30	7	28-33	4.0	0.0				
					0.0				
					0.0				
35	-35	8	33-38	2.5	0.0				
					0.0				
40	-40	9	38-43	0.0	NR			38.5-43.5' - no recovery, suspect till unit was displaced by cobble in cutting shoe	
					NR				
					NR				
45	-45	10	43-48	1.9	0.0				
					0.0				
50	-50	11	48-53	5.0	0.0			49.0' - increase silts; sand, some gravel, trace silts, medium grained to large pebbles	
					0.0			SAND, some silt, well sorted, fine grained, saturated, rapid dilatency, brown (10YR 4/3)	
					0.0				
55	-55	12	53-58	4.0	0.0			SAND, some gravel, poorly sorted, trace silts, medium grained to very large pebbles, wet, dark greyish brown (10YR 3/2) 56.6-56.7' - clay lense, medium plasticity, very stiff 58.7-58.73' - clay lense, high plasticity, moist 59.6-60.0' - clay leanse, some silt, high plasticity	
					0.0				
60	-60	13	58-63	5.0	0.0				
					0.0				
					0.0				
65	-65	14	63-68	2.0	0.0				
					0.0			67.0' - increase gravels, small cobbles present, wet	
70	-70	15	68-73	4.7	0.0			SILT and SAND, trace clay, trace gravels, angular to round, low plasticity, wet, soft, dark greyish brown (10YR 4/2)	
					0.0				
					0.0				
75	-75							73.0' - End of boring -- refusal	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/8/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 38 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-10** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.0			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					0.0			SILT and SAND, some gravels, trace clay, small to medium pebbles, no plasticity, dry, very stiff to stiff, friable, yellowish brown (10YR 5/6) 3.5' - increase clays	
5	-5	2	5-8	3.5	0.0			CLAY, some silt, trace sand, medium to low plasticity, moist to dry, stiff to medium stiff, dark greyish brown (10YR 4/2)	
					0.0			7.2-8.2' - increase sands, trace pebbles, high plasticity, wet, very soft, yellowish brown (10YR 5/8) 8.3' - increase pebbles, trace samll to very large, becoming very stiff	
10	-10	3	8-13	5.0	0.0				
					0.1			11.5' - till, no plasticity, some pebbles, small to very large, rounded to subangular, dry, very stiff, friable	
					0.1			13.5' - color change, dark grey (10YR 4/1)	
15	-15	4	13-18	5.0	0.0				
					0.1				
20	-20	5	18-23	4.2	0.3				
					26.3				
					27.3			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded pebbles, poorly sorted, wet, loose, dark greish brown (10YR 4/2)	
25	-25	6	23-28	4.3	4.6			SAND, medium to fine, well sorted, medium dense	
					0.1			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded pebbles, poorly sorted, wet, loose, dark greish brown (10YR 4/2) 27.5-28.5' - increase medium to fine grains, poorly sorted	
30	-30	7	28-33	1.0	0.0				
					3.1			CLAY (TILL), some silt, trace sand and pebbles, rounded to subrounded, no to low plasticity, dry, very sitff, dark grey (10YR 4/1)	
35	-35	8	33-38	2.0	0.0				
					0.0				
					0.0				
40	-40							38' - end of boring	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/8/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 32 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-11** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.0			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					0.0			SILT and SAND, some pebbles, trace clays, small to medium pebbles, rounded to angular, no plasticity, dry, very stiff, friable, yellowish brown (10YR 5/4)	
5	-5	2	5-8	3.5	0.0			CLAY, some silt, trace sand, medium to low plasticity, dry, very stiff, mottled color, brown (10YR 4/3) 5.5' - medium to high plasticity, moist, stiff to medium stiff	
					0.0			6.0' - till, increase pebbles to small to very large, rounded to subrounded, very stiff, dark yellowish brown (10YR 4/4)	
10	-10	3	8-13	5.0	0.0			8.5-9.5' - high plasticity, medium stiff to soft	
					0.0			11.0' - low to no plasticity, very stiff	
					0.0			12.7' - color change, dark grey (10YR 4/1)	
15	-15	4	13-18	5.0	0.0			SAND and GRAVEL, trace silts, trace clays, moist to wet, dark grey (10YR 4/1)	
					0.0			CLAY, some silt, trace sand, medium to low plasticity, dry, very stiff, mottled color, brown (10YR 4/3)	
20	-20	5	18-23	5.0	0.0			SAND, medium to fine, well sorted, medium dense	
					0.0			CLAY, some silt, trace sand, medium to low plasticity, dry, very stiff, mottled color, brown (10YR 4/3)	
25	-25	6	23-28	0.5	0.0			SAND and GRAVEL, trace silts, medium grained to very large pebbles, poorly sorted, loose, dark greyish brown (10YR 4/2) 22.8' - saturated, water table	
					0.0				
30	-30	7	28-32	1.5	0.0			28.5' - heavy cobble zone 30.8' - heavy rock fragments	
					0.0			CLAY (TILL), some silt, trace sand and pebbles, small to very large, rounded to subrounded, no to low plasticity, very stiff, dark grey (10YR 4/1)	
								32' - end of boring	
35	-35								
40	-40								

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/4/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 73.5 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-2** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	2.7			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					1.4			SILT and SAND, some small to very large pebbles, angular to rounded, dry, loose, yellowish brown (10YR 5/4)	
5	-5	2	5-8	2.2	4.7 4.3 6.7			CLAY and SILT, low plasticity, trace small pebbles, moist to dry, medium stiff to stiff, mottled color, dark yellowish brown (10YR 4/6) 3.5' - increase clays, medium plasticity, soft 5.0' - low to no plasticity, very stif, dark yellowish brown (10YR 4/4) 7.5' - trace fine sands, medium plasticity	
10	-10	3	8-13	4.5	8.1				
					63.1			SAND, medium to coarse grained, trace silt, trace gravel, small to large pebbles, poorly sorted, moist to wet, brown (10YR 5/3)	
15	-15	4	13-18	3.0	27.6 33.1			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, wet, saturated, loose, brown (10YR 4/3) 16.9-17.3' - sand lense, fine to medium grained, well sorted 17.8-18.8' - sand lense, medium to coarse grained, well sorted 18.5' - increase pebble size to very large to small cobble, dark greyish brown (10YR 4/2)	
20	-20	5	18-23	3.6	23.4 11.1				
					2.0				
25	-25	6	23-28	3.6	0.6 0.9				
					0.9				
30	-30	7	28-33	2.0	0.7				
					1.0				
35	-35	8	33-38	1.7	0.8 0.8				
					0.9				
40	-40	9	38-43	2.5	0.4				
					1.0				
45	-45	10	43-48	3.5	1.3 1.3			CLAY (TILL), some silt, low plasticity, trace sands and gravels, rounded to subrounded, moist to dry, very stiff, friable, dark grey (10YR 4/1)	
					0.0				
50	-50	11	48-53	4.5	0.7			SAND, trace silts and gravels, fine grained to medium pebble, poorly sorted, saturated, loose, dark greyish brown (10YR 4/2)	
					0.0				
55	-55	12	53-58	5.0	0.0 0.0			SAND and SILT, very fine, trace clay, no plasticity, well sorted, rapid dilatency, wet, grey (10YR 5/1)	
					0.0				
60	-60	13	58-63	5.0	0.0 0.0			SAND and GRAVEL, some interbedded lcays, very fine to very large pebbles, angular to rounded, poorly sorted, wet, loose, dark greyish brown (10YR 4/2) 58.5' - decrease clays -- no clay, trace silt, medium grained to very large pebbles	
					0.0				
65	-65	14	63-68	3.7	0.0 0.0				
					0.0			68.0' - trace small cobbles	
70	-70	15	68-73.5	3.6	0.0 0.0			CLAY (TILL), some silt and clay, little small to medium rounded to subangular pebbles, low plasticity, moist to dr, very stiff to stiff, dark grey (10YR 4/1)	
75	-75							73.5' - End of boring	

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Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

Saturated soil samples analyzed for VOCs 8260

Date Start/Finish: 8/5/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 47.5 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-3** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	1.1			TOPSOIL, grass, roots, organics	Backfilled with Portland Cement Grout
					3.7			SILT and SAND, trace clay and gravels, no plasticity, dry, friable, yellowish brown (10YR 5/4)	
5	-5				0.0			FILL, cinders, brick debris, large gravel	
		2	5-8	3.5	0.9			CLAY, some silt, medium plasticity, trace sands, moist, medium stiff to stiff, brown (10YR 4/3) 6.2' - color change -- mottled color, pale brown (10YR 6/3), oxidation staining 6.9-7.8' - silt and sand and clay lense, high plasticity, wet, very soft, yellowish brown (10YR 5/6) 8.0' - trace rounded to angular pebbles 8.5' - TILL, little small to medium pebbles, moist to dry, very stiff to stiff, dark yellowish brown (10YR 4/6)	
10	-10	3	8-13	4.7	19.2				
					33.1				
					66.2				
15	-15	4	13-18	4.0	49.7			SAND, some gravel, trace silts, medium grained to large pebbles, angular to rounded, poorly sorted, saturated, loose, yellowish brown (10YR 5/8) 14.0' - wet, water table 15.0-16.4' - sand, some silt, fine grained, well sorted, rapid dilatency 18.0' - color change, brown (10YR 4/3)	
					29.2				
20	-20	5	18-23	3.6	7.7				
					3.9			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, wet, loose, brown (10YR 4/3) 23.5' - color change, dark greyish brown (10YR 4/2) 26.4-26.6' - sand and silt lense, very fine grained, well sorted, wet 26.6-26.7' - silt, some clay and sand, medium to high plasticity, well sorted 26.7-27.0' - sand lense, some silt, fine grained, well sorted, wet 28.1-28.5' - sand lense, medium grained, well sorted, wet	
25	-25	6	23-28	3.5	1.2				
					0.4				
					0.7				
30	-30	7	28-33	3.5	0.0				
					0.1				
					0.1				
35	-35	8	33-38	3.3	0.0				
					0.3				
40	-40	9	38-43	3.8	0.1				
					0.1				
					0.2				
45	-45	10	43-47.5	4.0	0.3			CLAY (TILL), some silt, trace sand and small pebbles, rounded to subangular, no to low plasticity, dry, very stiff, friable, dark greyish brown (10YR 4/2)	
					0.0				
50	-50							47.5' - End of boring	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/5/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 47.5 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-4** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.0			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					0.0			SILT and SAND, trace clays and gravels, small to medium rounded to angular, no plasticity, dry, loose, friable, yellowish brown (10YR 5/4)	
5	-5				0.0			CLAY, some silt, trace sand, no to low plasticity, dry, very stiff, friable, brown (10YR 4/3) 4.0' - small cobble, color change, mottled color, dark yellowish brown (10YR 4/6)	
		2	5-8	3.5	0.3			6.0-7.5' - high plasticity, moist, soft to very soft	
					11.1			8.0' - till, increase gravels, small to very large pebbles, low to no plasticity, very stiff, friable	
10	-10	3	8-13	5.0	3.9				
					4.7			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, wet, loose, dark yellowish brown (10YR 4/4)	
15	-15	4	13-18	3.0	0.9				
					1.0				
					0.0			18.5' - color change to brown (10YR 4/3)	
20	-20	5	18-23	3.0	0.0				
					0.0			23.5' - coarse grained to very large pebble	
25	-25	6	23-28	3.0	0.0				
					0.0				
					0.0				
30	-30	7	28-33	3.2	0.0				
					0.0				
35	-35	8	33-38	3.5	0.0				
					0.0			38.0' - medium grained to very large pebble	
40	-40	9	38-43	5.0	0.0				
					0.0				
45	-45	10	43-47.8	4.0	0.0			CLAY (TILL), some silt, trace sands and small to medium rounded to subangular pebbles, no to low plasticity, dry, very stiff, friable, dark grey (10YR 4/1)	
50	-50							47.8' - End of boring	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/6/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 48 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-5** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.5			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					8.2			SILT and SAND, trace clay and gravels, small to medium, angular to rounded, no plasticity, dry, friable, yellowish brown (10YR 5/4)	
5	-5				8.3			CLAY, some silt, trace sands, medium plasticity, stiff to very stiff, dark greyish brown (10YR 4/2) 5.0' - mottled color, oxidation staining 5.5' - high plasticity, moist to wet, very soft, dark yellowish brown (10YR 4/4) 7.0' - till, increase to trace small to large rounded to subangular gravels, dry, stiff to very stiff, friable	
		2	5-8	3.5	41.3				
					123.8				
10	-10	3	8-13	5.0	81.2			12.5' - decrease stiffness, increase sands, fine grained	
					34.7			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, moist, loose, yellowish brown (10YR 5/4)	
15	-15	4	13-18	3.2	33.1			13.5' - wet	
					10.9				
					2.1			SAND, trace silt, medium to coarse grained, well sorted, wet, medium dense, brown (10YR 4/3)	
20	-20	5	18-23	3.5	0.7				
					4.6			SAND and GRAVEL, medium grained to very large pebbles, rounded to angular, poorly sorted, wet, loose, brown (10Y R 4/3)	
25	-25	6	23-28	2.6	1.0			23.5' - coarse grained to vrey large pebble	
					0.8				
					0.3			28.5-33.5' - poor recovery	
30	-30	7	28-33	0.3	0.3				
					0.2				
35	-35	8	33-38	0.7	0.1				
					0.1				
					0.0				
40	-40	9	38-43	1.0	0.0				
					0.0			43.0' - trace small cobbles	
45	-45	10	43-48	3.8	0.1				
					0.0			CLAY (TILL), some silt, trace sands and pebbles, rounded to subangular, low to no plasticity, dry, very stiff, friable, dark grey (10YR 4/1)	
50	-50							48.0' - End of boring	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/6/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 48 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-6** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.1			TOPSOIL, grass, roots	
					0.3			SILT and SAND, trace clays and small to medium rounded to angular pebbles, no plasticity, dry, very stiff, friable, dark yellowish brown (10YR 4/4)	
5	-5				0.5			CLAY, some silt and sand, no to low plasticity, stiff, mottled color, dark yellowish brown (10YR 4/4) 5.9-6.2' - high plasticity, moist to wet, soft to medium stiff 6.2' - increase gravels to some rounded medium to large pebbles, medium stiff, yellowish brown (10YR 5/4)	
		2	5-8	3.5	4.4				
					61.2			8.5' - till, medium to low plasticity, very sitff, brown (10YR 4/3)	
10	-10	3	8-13	5.0	64.8				
					99.5			12.5' - increase sands, fining down sequence, dark greyish brown (10YR 4/2)	
15	-15	4	13-18	4.0	17.2			13.5' - increasing sands, decreasing stiffness	
					23.5			SAND, some GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, wet, brown (10YR 4/3) 18.5' - increase sand and gravel, dark greyish brown (10YR 4/2)	
					8.8				
20	-20	5	18-23	3.6	0.7				
					1.5				
25	-25	6	23-28	3.7	0.7				Backfilled with Portland Cement Grout
					0.8				
					0.5				
30	-30	7	28-33	3.5	0.0				
					0.0			33.0' - trace small cobbles	
35	-35	8	33-38	3.1	0.0				
					0.0				
					0.1				
40	-40	9	38-43	4.0	0.0				
					0.0				
45	-45	10	43-48	3.5	0.0				
					0.0			CLAY (TILL), some silt, trace sand and gravels, small to meidum pebbles, rounded to subrounded, no to low plasticity, dry, very stiff, friable, dark grey (10YR 4/1)	
50	-50							SAND, some gravel, medium to very large pebbles, rounded to angular gravels, poorly sorted, wet, loose, dark greyish brown (10YR 4/2) 48.0' - End of boring	

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/6/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 43 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-7** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.0			TOPSOIL, grass, roots	
					0.0			SILT and SAND, trace clay and gravel, rounded to angular, no plasticity, dry, very stiff, friable, yellowish brown (10YR 5/6)	
5	-5				0.0			CLAY, some silt, trace sand, low plasticity, dry, very stiff to stiff, brown (10YR 4/3)	
		2	5-8	3.5	2.6			SILT and SAND, medium plasticity, very fine grained, slow dilatency, wet, medium dense, yellowish brown (10YR 5/6)	
		3	8-13	5.0	9.6			CLAY, some silt, trace sand, high plasticity, moist, very soft, yellowish brown (10YR 5/6) 7.5' - sandy lense 7.7' - till, increase gravels to trace small to large, rounded to angular, stiff to very stiff 8.5-9.0' - sandy, silty lense, wet 9.0' - color change, brown (10YR 4/3) 13.0' - color change, dark greyish brown (10YR 4/2)	
10	-10				12.6				
					7.6				
15	-15	4	13-18	5.0	0.0				
					0.0				
20	-20	5	18-23	4.0	0.0				
					0.0			SAND and GRAVEL, medium grained to very large pebbles, rounded to angular, poorly sorted, wet, loose, dark greyish brown (10YR 4/2)	Backfilled with Portland Cement Grout
25	-25	6	23-28	3.3	0.0				
					0.0				
30	-30	7	28-33	2.3	0.0				
					0.0				
					0.0			32.2'- cobble zone, very large pebbles to small cobbles	
35	-35	8	33-38	4.5	0.0				
					0.0				
40	-40	9	38-43	3.7	0.0				
					0.0			CLAY (TILL), some silt, trace sands and pebbles, small to medium, rounded to subangular pebbles, no plasticity, dry, very stiff, dark grey (10YR 4/1)	
					0.0			43.0' - end of boring	
45	-45								
50	-50								

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/6/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 53 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-8** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0				--			Blank drilled to 33.0'	
					--				
5	-5				--				
					--				
					--				
10	-10				--				
					--				
15	-15				--				
					--				
20	-20				--				
					--				
25	-25				--				
					--				
30	-30				--				
					--				
35	-35	1	33-38	2.4	0.0			SAND and GRAVEL, medium grained to very large pebbles, angular to rounded, poorly sorted, wet, loose, dark greyish brown (10YR 4/2)	
					0.0				
40	-40	2	38-43	1.5	0.0				
					0.0				
					0.0				
45	-45	3	43-48	1.0	0.0				
					0.0				
50	-50	4	48-53	5.0	0.0			48.5' - cobbles present, small cobble stuck in shoe believe 1' of lost recovery could be till unit. 50.0' - becoming slightly more sorted	
					0.0				
					0.0			53.0' - end of boring	
55	-55								

Backfilled with Portland Cement Grout

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Date Start/Finish: 8/7/14 **Drilling Company:** Geoserv **Driller's Name:** Dean Govan **Drilling Method:** Direct Push **Sampling Method:** Dual Tube **Rig Type:** Geoprobe 8040	**Borehole Depth:** 35.5 ft bgs **Descriptions By:** Wes Kuhn	**Well/Boring ID:** **ISCO-9** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	5.0	0.0			TOPSOIL, grass, roots	Backfilled with Portland Cement Grout
					0.0			SILT and SAND, trace clay, trace small pebbles, no plasticity, dry, very stiff, friable, yellowish brown (10YR 5/6)	
5	-5	2	5-8	3.5	0.0			CLAY, some silt, trace sand, medium to low plasticity, dry, very stiff, dark yellowish brown (10YR 4/4) 4.0' - increase small pebbles, high plasticity, moist, soft, down sequence	
					0.0			7.0' - till, increase small to medium pebbles, rounded to subangular, stiff to very stiff	
10	-10	3	8-13	5.0	0.0			8.5' - color change, dark greyish brown (10YR 4/2)	
					0.1			11.5' - low to no plasticity, dry, friable, dark grey (10YR 4/1)	
					0.1				
15	-15	4	13-18	3.2	0.0			SAND and GRAVEL, medium grained to very large pebbles, rounded to angular, poorly sorted, wet, loose, dark greyish brown (10YR 4/2)	
					0.1			16.5-16.7' - clay (till) lense 17.0-17.7' - clay (till) lense	
20	-20	5	18-23	3.6	0.3				
					26.3				
					27.3			23.5-24.0' - slightly more sorted lense	
25	-25	6	23-28	2.1	4.6				
					0.1				
30	-30	7	28-33	3.5	0.0				
					3.1				
					0.0			CLAY (TILL), some silt, trace sand and small to large pebbles, rounded to subrounded, dry, very sitff, friable, dark grey (10YR 4/1)	
35	-35	8	33-35.5	2.0	0.0				
					0.0			35.5' - end of boring	
40	-40								

Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

ARCADIS
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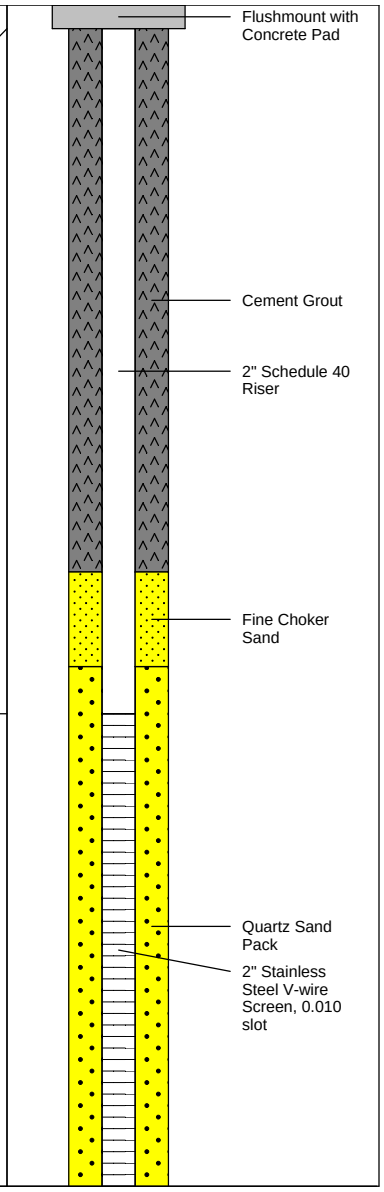
Date Start/Finish: 11/25/13 **Drilling Company:** Major **Driller's Name:** Jeremy **Drilling Method:** Roto-Sonic **Sampling Method:** Roto-Sonic **Rig Type:** Mini-Sonic	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 25.0 ft bgs **Surface Elevation:** **Descriptions By:** Meryl Stuckey	**Well/Boring ID:** **IW-1301-S1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample Interval	Recovery	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						TOPSOIL, organics
					3.5		CLAY, high plasticity, some silt, little sand, coarse, little granules to large pebbles, moist, medium stiff, dark brown with grey mottling
		1	0-5	100%	21.3		
					15.5		
5	-5						
					24.2		
		2	5-10	100%			
					44.9		
10	-10						
					108.4		10.5' - dark yellowish brown (TILL)
		3	10-15	100%	352.6		
					429.3		14.8-14.83' - fine to medium sand lense, moist SAND, fine to very coarse, some pebbles, granules to medium, trace large pebbles, poorly sorted, wet, brown
15	-15						
					83.5		17.4-18.0' - very fine to fine sand
		4	15-20	100%			
					83.8		
20	-20						
					53.4		21.1-22.2' - very fine to fine sand with little coarse sand to granules
		5	20-25	100%	6.4		22.2' - increase pebble size to granules to very large, subrounded
					1.0		End of boring
25	-25						

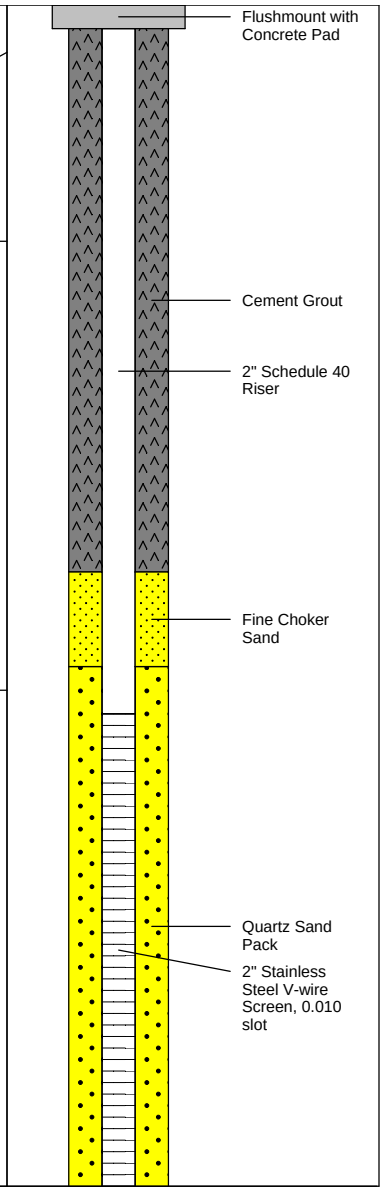


Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

ARCADIS
Infrastructure · Water · Environment · Buildings

Date Start/Finish: 11/25/13 **Drilling Company:** Major **Driller's Name:** Jeremy **Drilling Method:** Roto-Sonic **Sampling Method:** Roto-Sonic **Rig Type:** Mini-Sonic	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 25.0 ft bgs **Surface Elevation:** **Descriptions By:** Tim Porter	**Well/Boring ID:** **PM-1301-S1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample Interval	Recovery	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						SILTY CLAY LOAM (TOPSOIL), slightly plastic, slightly moist, dark brown (10YR 3/3)
					0.2		SILTY CLAY, slighly moist, brown (10YR 5/3), commmon yellowish brown (10YR 5/6) and light grey (10YR 7/1), iron concentration and depletions
		1	0-5	NM	0.4		
5	-5				1.8		CLAYEY SILT (weathered TILL), slightly plastic, few coarse sands, slightly moist, greyish brown (10YR 5/2)
		2	5-10	NM	26.7		
					92.6		
10	-10				156		
		3	10-15	NM	49.7		13.0-14.5' - color change to grey (10YR 5/1)
15	-15				14.4		SAND and GRAVEL, medium to coarse, moist to wet, loose, greyish brown (10YR 5/2) 15.0' - Wet
		4	15-20	NM	70.5		
					42.5		
20	-20				80.9		21.5' - color change to grey (10YR 5/1)
		5	20-25	NM	21.0		
25	-25				1.9		End of boring



Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

Sieve Analysis collected: PM-1301-S1(14.5-24.5)

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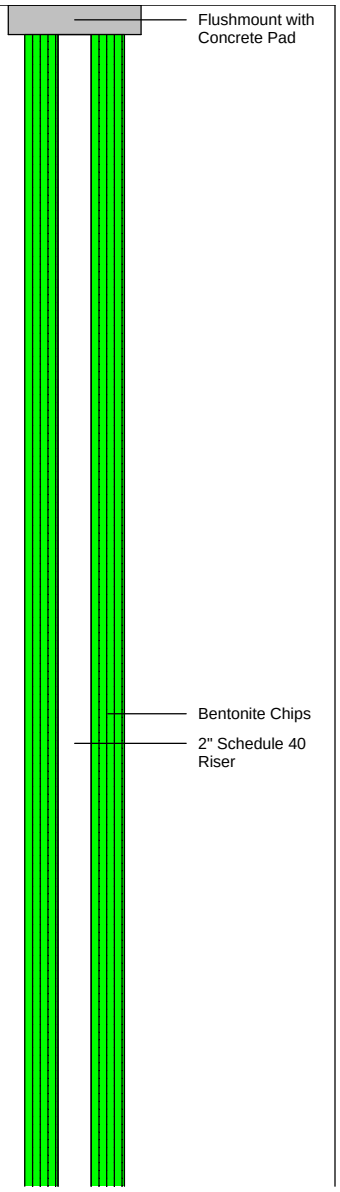
Date Start/Finish: 11/25/13 **Drilling Company:** Major **Driller's Name:** Jeremy **Drilling Method:** Roto-Sonic **Sampling Method:** Roto-Sonic **Rig Type:** Mini-Sonic	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 40.0 ft bgs **Surface Elevation:** **Descriptions By:** Tim Porter	**Well/Boring ID:** **PM-1302-S1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample Interval	Recovery	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						SILTY CLAY LOAM (TOPSOIL), slightly plastic, common roots, dark brown (10YR 3/3)
					0.1		SILTY CLAY, slighly moist, brown, commmon yellowish brown (10YR 5/6) and light grey (10YR 7/1), iron concentration and depletions
		1	0-5	NM	1.1		
5	-5				2.9		CLAYEY SILT (weathered TILL), slightly plastic, few coarse sands, slightly moist, greyish brown (10YR 5/2)
		2	5-10	NM	3.2		
					94.2		
10	-10						
					96.8		
		3	10-15	NM	52.5		
15	-15				87.4		SAND and GRAVEL, medium to coarse, moist, loose, greyish brown (10YR 5/2) 15.5' - Wet, color change to grey (10YR 5/1)
					70.3		
		4	15-20	NM			
					4.7		
20	-20						

Well/Boring Construction



Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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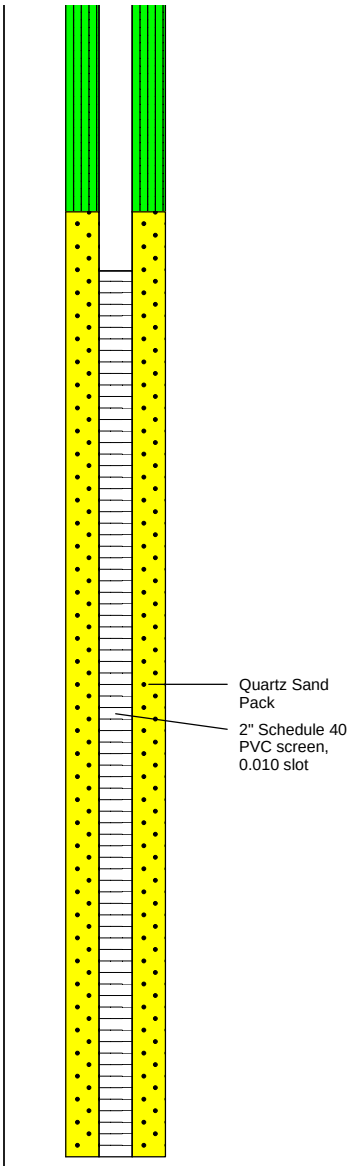
Date Start/Finish: 11/25/13 **Drilling Company:** Major **Driller's Name:** Jeremy **Drilling Method:** Roto-Sonic **Sampling Method:** Roto-Sonic **Rig Type:** Mini-Sonic	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 40.0 ft bgs **Surface Elevation:** **Descriptions By:** Tim Porter	**Well/Boring ID:** **PM-1302-S1** **Client:** RACER Trust (Former Delco Plant 5) **Location:** Kokomo, Indiana

DEPTH	ELEVATION	Sample Run Number	Sample Interval	Recovery	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	-20							
		5	20-25	NM	38.5			
					15.3			
25	-25				5.3			
		6	25-30	NM	2.4			
					0.8			
30	-30				0.6			
		7	30-35	NM	0.7			
35	-35				1.3			
		8	35-40	NM	1.4			
					1.4		End of boring	
40	-40							



Remarks: Abbreviations: ft bgs = feet below ground surface, PID = photoionization detector; ppm = parts per million

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Appendix C

Sieve Analysis Report

Alt & Witzig Engineering, Inc.

4105 West 99th Street · Carmel, Indiana 46032
Phone (317) 875-7040 · Fax (317) 870-0314

Project: Racer Kokomo
Client: Arcadis Construction
Sample ID: PM-1301-51 (14.5 – 24.5)

Date received: 11/26/13
A&W Proj. #: TZ3114

SIEVE SIZE	PASSING (%)	
2” (50.0 mm)	100	
1 ½" (37.5 mm)	98	
1" (25.0 mm)	97	
3/4" (19.0 mm)	95	
1/2" (12.5 mm)	92	
3/8” (9.5 mm)	88	
No. 4 (4.75 mm)	77	
No. 8 (2.36 mm)	62	
No. 16 (1.18 mm)	47	
No. 30 (0.6 mm)	31	
No. 50 (0.3 mm)	13	
No. 100 (0.15 mm)	4	
No. 200 (0.075 mm)	1.7	

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Appendix D

Low Flow Logs

ARCADIS Groundwater Sampling Form

Page ____ of ____

Project No. ____ Well ID PM-1301-S1 Date 12/10/2013

Project Name/Location FACEZ KOKOMO Weather 18° CLEAR

Measuring Pt. Description TOC Screen Setting (ft-bmp) 15-25' Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 14.53 Total Depth (ft-bmp) 24.53 Water Column/ Gallons in Well ____ Sample Collection Notes:

MP Elevation ____ Pump Intake (ft-bmp) 20.5 Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ____ Volumes Purged ____ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ____ No

Time Started: 14:50 QA/QC Samples - (time)

Time Sampled: ____ Field Duplicate: ____

Time Completed: ____ Equipment Blank: ____ ( )

Sample Name: ____ MS/MSD: ____ Sampled by: W KUHN

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
16:50	0		14.54		7.23	0.943	-8	1.33	974	13.29		
16:55	5		14.55		7.29	0.916	-12	1.57	533	13.63		
17:00	10		14.53		7.24	0.922	-29	1.01	457	13.47		
17:05	15		14.54		7.25	0.911	-36	0.94	248	14.12		
17:10	20		14.54		7.25	0.918	-38	0.86	155	13.88		
17:15	25		14.54		7.25	0.914	-39	0.84	102	13.42		
1720	30		14.54		7.24	0.908	-39	0.83	80.0	14.15		
1725	35		14.54		7.24	0.905	-40	0.82	82.8	14.17		
1730	40		14.54		7.24	0.903	-41	0.80	80.4	14.45		
1735	45		14.54		7.24	0.905	-41	0.78	80.2	14.35		

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL AMBER	3	HCl
ALKALINITY	250 mL	1	———
METALS, TOTAL	250 mL	1	HNO3
METALS, DISSOLVED	250 mL	1	HNO3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ____ Well Locked at Arrival: Yes / No

Condition of Well: ____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page ___ of ___

Project No. _____ Well ID PM-1302-S1 Date 12/16/2013

Project Name/Location RAGER - KOKOMO Weather 20's OVERCAST

Measuring Pt. Description TOC Screen Setting (ft-bmp) 25-40' Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 14.59 Total Depth (ft-bmp) 39.21 Water Column/ Gallons in Well _____ Sample Collection Notes:

MP Elevation _____ Pump Intake (ft-bmp) 31.5' Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off _____ Volumes Purged _____ Water Quality Instrument: AQUABAT Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 15:15

Time Sampled: 1640

Time Completed:

Sample Name: PM-1302-S1(121613)

QA/QC Samples - (time)

Field Duplicate: ——

Equipment Blank: —— ( )

MS/MSD: ——

Sampled by: W KUHN

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
1518	3	300	14.62		7.28	0.975	-17	4.06	>5000	10.05	TURBID	NO
1523	8		14.59		7.23	0.946	-35	1.59	>5000	13.65		
1528	13		14.60		7.23	0.942	-44	1.39	772	13.97		
1533	18		14.60		7.25	0.938	-51	1.16	403	13.39		
1538	23		14.60		7.25	0.938	-58	1.10	232	13.51		
1543	28		14.60		7.32	0.936	-29	2.38	286	13.43		
1548	33		14.59		7.36	0.944	-44	1.46	280	13.59		
1553	38		14.60		7.36	0.939	-55	1.16	190	14.01	CLEAR	
1558	43		14.60		7.36	0.942	-60	1.06	102	13.71		
1603	48		14.60		7.37	0.942	-64	1.01	64.8	13.31		
1608	53		14.60		7.35	0.940	-69	0.96	55.5	14.25		
1613	58		14.60		7.37	0.938	-71	0.94	55.6	13.80		
1618	63		14.60		7.37	0.940	-73	0.92	44.2	13.63		
1623	68		14.60		7.37	0.945	-76	0.92	31.2	13.67		
1628	73		14.60	10 gal	7.37	0.950	-79	0.91	26.7	13.46		

* DEAD BATTERY

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL	3	HCl
ALKALINITY	250 mL	1	NA
METALS, TOTAL	250 mL	1	HNO_3
METALS, DISSOLVED	250 mL	1	HNO_3

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: (Flush Mount) / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page 1 of ____

Project No. ____ Well ID DR-1301-S1 Date 12-16-13

Project Name/Location RALER TRUST Weather CLOUDY, 20's

Measuring Pt. Description TOC Screen Setting (ft-bmp) ____ Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 14.70 Total Depth (ft-bmp) 24.83' Water Column/ Gallons in Well ____ Sample Collection Notes:

MP Elevation ____ Pump Intake (ft-bmp) 20.00' Pump Type SS MONSOON Field Filtered X Yes ___ No

Pump On/Off 1358 Volumes Purged ____ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 1400 QA/QC Samples - (time)

Time Sampled: 1500 Field Duplicate: ____

Time Completed: ____ Equipment Blank: ____ (____) Sampled by:

Sample Name: DR-1301-S1(121613) MS/MSD: ____ WESLEY KUHN

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
1400	2	300	14.74'		7.31	0.858	-26	3.50	636	11.72	TURBID	NO
1405	7	↓	14.74'		7.27	0.864	-40	1.84	550	12.41	↓	↓
1410	12	↓	14.74'		7.28	0.855	-53	1.50	431	12.76	↓	↓
1415	17	↓	14.74'		7.29	0.852	-61	1.37	311	12.74	↓	↓
1420	22	↓	14.74'		7.29	0.850	-63	1.31	240	12.80	↓	↓
1425	27	↓	14.74'		7.29	0.848	-64	1.30	167	12.82	↓	↓
1430	32	↓	14.74'		7.29	0.845	-63	1.29	105	13.01	↓	↓
1435	37	↓	14.74'		7.29	0.843	-63	1.23	68.4	13.14	SL. TURBID	↓
1440	42	↓	14.74'		7.29	0.844	-62	1.23	45.1	13.09	↓	↓
1445	47	↓	14.74'		7.29	0.841	-61	1.16	32.4	13.00	CLEAR	↓
1450	52	↓	14.74'		7.30	0.844	-61	1.14	32.3	12.75	↓	↓
1455	57	↓	14.74'	6 gal	7.30	0.841	-61	1.13	33.8	13.01	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs	40mL	3	HCl
ALKALINITY	250mL	1	—
METALS TOTAL	"	1	HNO_3
METALS DISSOLVED	"	1	HNO_3

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ____ Well Locked at Arrival: Yes / No

Condition of Well: ____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page 1 of ____

Project No. ____ Well ID ~~DR-01~~ IW-1301-S1 WK Date 12/16/2013

Project Name/Location RACER TRUST Weather 20's OVERCAST

Measuring Pt. Description ____ Screen Setting (ft-bmp) ____ Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 14.61 Total Depth (ft-bmp) 23.91 Water Column/ Gallons in Well ____ Sample Collection Notes:

MP Elevation ____ Pump Intake (ft-bmp) 19.00 Pump Type SS MONSOON Field Filtered X Yes ___ No

Pump On/Off 1207 Volumes Purged ____ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 1210

Time Sampled: 1355

Time Completed: ____

Sample Name: IW-1301-S1(121613)

QA/QC Samples - (time)

Field Duplicate: ____

Equipment Blank: ____

MS/MSD: ____

Sampled by: ~~S MACLETT~~ WK Wesley Kuhn

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
1210	3	300	14.61		6.48	1.05	-16	7.30	85.7	12.04	SL. TURBID	NO
1215	8		14.61		6.97	1.06	-10	4.58	64.3	13.41		
1220	13		14.61		6.97	1.06	-10	4.21	55.5	13.63		
1225	18		14.61		6.97	1.06	-13	3.84	36.7	13.09		
1230	23		14.61		6.95	1.07	-18	3.62	17.4	13.47	Clear	
1235	28		14.61		6.95	1.07	-30	3.60	8.2	13.39	Clear	
1240					HORIBA QUIT WORKING, REPLACE + TRY AGAIN							
1250	~~88~~ 43					RE-CALIBRATE HORIBA						
1305	58		14.61		6.85	0.808	37	3.95	55.1	13.03	CLEAR	NO
1310	63		14.61		7.02	0.813	25	3.57	49.3	13.40		
1315	68		14.61		7.08	0.817	21	3.27	45.4	13.40		
1320	73		14.61		7.13	0.818	17	2.31	32.1	13.44		
1325	78		14.61		7.15	0.812	14	2.02	25.6	13.89		
1330	83		14.61		7.17	0.819	11	1.79	19.4	13.88		
1335	88		14.61		7.18	0.821	10	1.63	8.6	13.73		
1340	93		14.61		7.18	0.818	9	1.52	5.7	13.86		
1345	98		14.61	10 gal	7.18	0.819	9	1.50	4.4	13.86		

Constituents Sampled	Container	Number	Preservative
VOC's	40mL	3	HCl
ALKALINITY	250 mL PLASTIC	1	—
METALS, TOTAL	"	1	HNO_3
METALS, DISSOLVED	"	1	HNO_3

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ____ Well Locked at Arrival: Yes / No

Condition of Well: GOOD Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: ____

ARCADIS Groundwater Sampling Form

Page ___ of ___

Project No. RACER

Well ID MW-062051

Date 12/16/2013

Project Name/Location RACER TRUST

Weather 20s OVERCAST

Measuring Pt. Description ___

Screen Setting (ft-bmp) ___

Casing Diameter (in.) 2"

Well Material ___ PVC ___ SS

Static Water Level (ft-bmp) 14.54

Total Depth (ft-bmp) 18.54

Water Column/ Gallons in Well ___

Sample Collection Notes:

MP Elevation ___

Pump Intake (ft-bmp) 16.50

Pump Type ___

Field Filtered ___ Yes ___ No

Pump On/Off ___

Volumes Purged ___

Water Quality Instrument: HORIBA

Calibrated Properly X Yes ___ No

Additional Comments:

Time Started: 10:37

Time Sampled: 1150

Time Completed:

Sample Name: MW-0620-S1 (121613)

QA/QC Samples - (time)

Field Duplicate: —

Equipment Blank: — ( )

MS/MSD: —

Sampled by: W. KUHN

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
10:40		300	14.85		6.71	0.929	52	11.47	589	10.16	SL TURBID	NO
10:45			14.78		6.80	0.954	-37	~~14.18~~	182	14.49		
10:50			~~15.00~~ 14.76		6.90	0.977	-72	~~15.05~~	97.9	15.08		
10:55			14.78		6.90	0.985	-81	~~15.26~~	38.5	15.26		
11:00			14.78		6.91	0.988	-85	~~15.~~	14.4	15.37	CLEAR	NO
11:05			14.78		6.91	0.995	-88	4.25	0.0	15.31		
11:10			14.78		6.92	0.995	-89	4.31	0.0	15.14		
11:15			14.81		6.89	0.996	-90	3.90	0.0	15.77		
11:20			14.81		6.89	0.995	-89	3.88	0.0	15.40		
11:25			14.81		6.90	0.995	-89	3.81	0.0	15.30		
11:30			14.76		6.90	1.000	-90	3.77	0.0	15.08		
11:35			14.75		6.89	0.995	-90	3.63	0.0	15.61		
11:40			14.80	7gal	6.90	0.999	-89	3.65	0.0	15.71		

4.31

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL VOA	3	HCl
ALKALINITY	250 mL PLASTIC	1	—
METALS, TOTAL	250 mL PLASTIC	1	HNO_3
METALS, DISSOLVED	250 mL PLASTIC	1	HNO_3

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___

Condition of Well: ___

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well:

ARCADIS Groundwater Sampling Form

Project No. IN000884.2013 Well ID PM-1301-S1 Date 1/30/2014

Project Name/Location RACER - KOKOMO Weather 12° CLOUDY/WINDY

Measuring Pt. Description TOC Screen Setting (ft-bmp) 14-24' Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 13.72 Total Depth (ft-bmp) 24.18 Water Column/ Gallons in Well ___ Sample Collection Notes:

MP Elevation ___ Pump Intake (ft-bmp) 19 Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ___ Volumes Purged 4.0 Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 10:20

Time Sampled: 11:20

Time Completed:

Sample Name: PM-1301-S1 (013014)

QA/QC Samples - (time)

Field Duplicate:

Equipment Blank: ( )

MS/MSD:

Sampled by: A. OPPELT

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
10:25	5	100	13.71		9.38	1.34	-9	10.42	0.0	9.67		
10:30	10	100	13.71		4.68	1.23	-22	10.07	836	7.96		
10:35	15	100	13.71		4.65	1.25	-24	8.40	784	7.66		
10:40	20	100	13.71		4.62	1.26	-25	7.42	556	7.94		
10:45	25	100	13.71		4.62	1.27	-26	7.22	474	8.13		
10:50	30	100	13.71		4.60	1.26	-26	6.67	387	7.98		
10:55	35	100	13.70		4.94	1.26	-44	6.04	339	8.00		
11:00	40	100	13.69		4.96	1.25	-45	5.67	296	8.11		
11:05	45	100	13.70		4.92	1.26	-45	5.00	215	7.60		
11:10	50	100	13.70		4.63	1.26	-42	4.61	178	7.40		
11:15	55	100	13.69		4.86	1.27	-41	4.31	143	7.30		

Constituents Sampled	Container	Number	Preservative
VOCs	40mL VOAs	3	HCl
Alkalinity	100 mL	1	NONE
METALS	250 mL	1	HNO_3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___ Well Locked at Arrival: Yes / No

Condition of Well: ___ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Project No. IN000384.2013 Well ID PM-1302-S2 Date 1/30/2014

Project Name/Location RACER - KOKOMO Weather 12° CLOUDY / WINDY

Measuring Pt. Description TOC Screen Setting (ft-bmp) 24-39 ~~10-25~~ Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 13.78 Total Depth (ft-bmp) 39.10 Water Column/ Gallons in Well ___ Sample Collection Notes:

MP Elevation ___ Pump Intake (ft-bmp) 32' Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ___ Volumes Purged ___ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 11:30 QA/QC Samples - (time)

Time Sampled: 12:20 Field Duplicate: ___

Time Completed: ___ Equipment Blank: ___ (___)

Sample Name: PM-1302-S1(013014) MS/MSD: ___ Sampled by: A. OPPECT

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
11:35	5	100	13.75		4.26	0.004	-3	11.21	175	3.96		
11:40	10	100	13.75		4.28	0.003	4	11.20	176	3.67		
11:45	15	100	13.75		4.28	0.003	7	11.20	230	3.56		
11:50	20	100	13.75		4.24	0.004	16	11.15	216	3.31		
11:55	25	100	13.75		4.27	0.003	21	11.13	216	3.05		
12:00	30	100	13.75		4.13	0.003	25	11.11	230	2.88		
12:05	35	100	13.74		4.22	0.003	11	11.07	231	2.77		
12:10	40	100	13.74		4.27	0.004	16	11.03	238	2.72		
12:15	45	100	13.74		4.28	0.003	19	10.97	240	2.70		

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL VOA	3	HCl
ALKALINITY	100 mL	1	NONE
METALS	250 mL	1	HNO_3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.25" = 0.06 1.5" = 0.09 2" = 0.16 2.5" = 0.26 3" = 0.37 3.5" = 0.50 4" = 0.65 6" = 1.47

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___ Well Locked at Arrival: Yes / No

Condition of Well: ___ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page 1 of 1

Project No. IN000884.2013 Well ID MW-0620-S1 Date 1/30/2014

Project Name/Location RACER - YOKOMO Weather 20° WINDY

Measuring Pt. Description TOC Screen Setting (ft-bmp) 8-18 Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 13.71 Total Depth (ft-bmp) 18.35 Water Column/ Gallons in Well ___ Sample Collection Notes:

MP Elevation ___ Pump Intake (ft-bmp) 16.00 Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ___ Volumes Purged ___ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 12:40 QA/QC Samples - (time)

Time Sampled: 13:15 Field Duplicate: ___

Time Completed: ___ Equipment Blank: ___ (___) Sampled by:

Sample Name: MW-0620-S1 (013014) MS/MSD: ___ A. OPPERT

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
12:45	5	100	13.96		4.95	0.777	-2	4.11	57.3	8.37		
12:50	10	100	13.98		4.92	0.786	14	2.51	21.2	9.56		
12:55	15	100	13.98		4.91	0.788	19	2.14	12.1	9.85		
13:00	20	100	13.96		4.96	0.797	25	1.72	0.0	9.88		
13:05	25	100	13.96		4.98	0.804	29	1.64	0.0	10.02		
13:10	30	100	13.96		4.98	0.808	30	1.58	0.0	10.09		

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL VOAs	3	HCl
ALKALINITY	100 mL	1	NONE
METALS.	250 mL	1	HNO_3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___ Well Locked at Arrival: Yes / No

Condition of Well: ___ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page ___ of ___

Project No. IN000884.2013 Well ID DR-1301-S1 Date 1/30/2014

Project Name/Location PACER - KOKOMO Weather 20° VERY WINDY

Measuring Pt. Description TOC Screen Setting (ft-bmp) 14-24' Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 13.89 Total Depth (ft-bmp) 24.65 Water Column/ Gallons in Well ___ Sample Collection Notes:

MP Elevation ___ Pump Intake (ft-bmp) 24' Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ___ Volumes Purged ___ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 13:40 QA/QC Samples - (time)

Time Sampled: ~~13~~ Field Duplicate:

Time Completed: Equipment Blank: ( )

Sample Name: DR-1301-S1 (013014) MS/MSD: Sampled by: A. OPPELT

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
13:45	5	100	13.81		5.05	1.17	-56	1.01	0.0	10.57	CLOUDY	
13:50	10	100	13.81		4.91	1.18	-55	0.97	0.0	10.16	CLOUDY	
13:55	15	100	13.81		4.98	1.18	-72	1.01	0.0	9.24	CLOUDY	
14:00	20	100	13.81		4.97	1.18	-78	1.18	0.0	8.86	CLOUDY	
14:05	25	100	13.81		4.96	1.18	-81	1.18	0.0	10.07	CLOUDY	
14:10	30	100	13.81		4.90	1.18	-83	1.07	1000	9.79	"	
14:15	35	100	13.81		4.89	1.18	-85	1.00	970	8.72	"	
14:20	40	100	13.81		4.91	1.17	-87	0.91	603	8.35	"	
14:25	45	100	13.81		4.91	1.17	-88	0.68	573	7.12	"	
14:30	50	100	13.81		4.87	1.19	-92	1.01	646	9.14	"	
14:35	55	100	13.81		4.90	1.18	-94	0.99	593	8.68	"	
14:40	60	100	13.81		4.90	1.20	-96	0.92	568	8.48	"	
14:45	65	100	13.81		4.90	1.19	-98	0.89	594	8.07		

Constituents Sampled	Container	Number	Preservative
VOCs	40mL VOAs	3	HCl
ALKALINITY	100 mL	1	NONE
METALS	250 mL	1	HNO3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___ Well Locked at Arrival: Yes / No

Condition of Well: ___ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

ARCADIS Groundwater Sampling Form

Page ___ of ___

Project No. IN000894.2013 Well ID IW-1301-Si Date 1/30/2014

Project Name/Location RACER - KOKOMO Weather 20° VERY WINDY

Measuring Pt. Description TOC Screen Setting (ft-bmp) 14-24 Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-bmp) 13.81 Total Depth (ft-bmp) 23.90 Water Column/ Gallons in Well ___ Sample Collection Notes:

MP Elevation ___ Pump Intake (ft-bmp) 19 Pump Type MONSOON Field Filtered ___ Yes ___ No

Pump On/Off ___ Volumes Purged ___ Water Quality Instrument: HORIBA Additional Comments:

Calibrated Properly X Yes ___ No

Time Started: 15:05

Time Sampled: 15:35

Time Completed: ___

Sample Name: IW-1301-Si (013014)

QA/QC Samples - (time)

Field Duplicate: ___

Equipment Blank: ___ (___)

MS/MSD: ___

Sampled by: A. OPPELT

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Specific Cond. (µS/cm) (mS/cm)	ORP (mV)	Dissolved Oxygen (mg/L) ((µg/L)	Turbidity (NTU)	Temp. (°C) (°F)	Appearance Color	Appearance Odor
15:10	5	100	13.72		4.86	1.55	468	7.36	71.0	11.26		
15:15	10	100	13.71		4.89	1.55	470	6.35	74.0	11.63		
15:20	15	100	13.71		4.91	1.55	491	5.61	67.3	11.64		
15:25	20	100	13.71		4.92	1.56	511	4.98	60.3	11.75		
15:30	25	100	13.71		4.92	1.56	533	4.12	49.	11.87		

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL VOA	3	HCl
ALKALINITY	500mL	1	NONE
METALS	250 mL	1	HNO_3

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Helpful Conversions

1 Gallon = 3.7854 L = 3785.4 mL
1 µg = 0.001mg = 0.000001 g
1 mg/L = 1 ppm; 1µg/L = 1 ppb

Well Information

Well Location: ___ Well Locked at Arrival: Yes / No

Condition of Well: ___ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: ___

ARCADIS

Appendix E

Laboratory Analytical Reports

Pace Analytical Services, Inc.
Not NELAP Accredited
1233 Dublin Road
Columbus, OH 43215
(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

January 02, 2014

Mr. Nick Welte
Arcadis
132 E. Washington Street
Suite 600
Indianapolis, IN 46204

RE: Project: Racer Kokomo
Pace Project No.: 5091432

Dear Mr. Welte:
Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kelly Jones for
Donna Spyker
donna.spyker@pacelabs.com
Project Manager

Enclosures

CERTIFICATIONS

Project: Racer Kokomo
Pace Project No.: 5091432

Indiana Certification IDs
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky Certification #: 0042
Louisiana/NELAC Certification #: 04076
Ohio VAP Certification #: 101170-0
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Pace Analytical Services, Inc.
Not NELAP Accredited
1233 Dublin Road
Columbus, OH 43215
(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SAMPLE SUMMARY

Project: Racer Kokomo
Pace Project No.: 5091432

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5091432001	**MW-0620-S1(121613)**	Water	12/16/13 11:50	12/17/13 07:39
5091432002	**IW-1301-S1(121613)**	Water	12/16/13 13:55	12/17/13 07:39
5091432003	**TB-01(121613)-WR**	Water	12/16/13 09:00	12/17/13 07:39
5091432004	**DR-1301-S1(121613)**	Water	12/16/13 15:00	12/17/13 07:39
5091432005	**PM-1302-S1(121613)**	Water	12/16/13 16:40	12/17/13 07:39
5091432006	**PM-1301-S1(121613)**	Water	12/16/13 17:35	12/17/13 07:39

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SAMPLE ANALYTE COUNT

Project: Racer Kokomo
Pace Project No.: 5091432

Lab ID	Sample ID	Method	Analysts	Analytes Reported
5091432001	**MW-0620-S1(121613)**	EPA 6010	LLB	2
		EPA 6010	LLB	2
		EPA 8260	DAE	51
		SM 2320B	SLB	3
5091432002	**IW-1301-S1(121613)**	EPA 6010	LLB	2
		EPA 6010	LLB	2
		EPA 8260	DAE	51
		SM 2320B	SLB	3
5091432003	**TB-01(121613)-WR**	EPA 8260	DAE	51
5091432004	**DR-1301-S1(121613)**	EPA 6010	LLB	2
		EPA 6010	LLB	2
		EPA 8260	DAE	51
		SM 2320B	SLB	3
5091432005	**PM-1302-S1(121613)**	EPA 6010	LLB	2
		EPA 6010	LLB	2
		EPA 8260	DAE	51
		SM 2320B	SLB	3
5091432006	**PM-1301-S1(121613)**	EPA 6010	LLB	2
		EPA 6010	LLB	2
		EPA 8260	DAE	51
		SM 2320B	SLB	3

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: MW-0620-S1(121613) **Lab ID: 5091432001** Collected: 12/16/13 11:50 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**328**	ug/L	10.0	1	12/24/13 16:10	12/26/13 14:52	7439-96-5	
Sodium	**38100**	ug/L	1000	1	12/24/13 16:10	12/26/13 14:52	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**324**	ug/L	10.0	1	12/19/13 14:56	12/20/13 16:15	7439-96-5	
Sodium, Dissolved	**39400**	ug/L	1000	1	12/19/13 14:56	12/20/13 16:15	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 07:51	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 07:51	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 07:51	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 07:51	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 07:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 07:51	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 07:51	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 07:51	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 07:51	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 07:51	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 07:51	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 07:51	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 07:51	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 07:51	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 07:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 07:51	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 07:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 07:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 07:51	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 07:51	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 07:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 07:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 07:51	75-35-4	
cis-1,2-Dichloroethene	**1930**	ug/L	100	20		12/30/13 13:17	156-59-2	
trans-1,2-Dichloroethene	**17.8**	ug/L	5.0	1		12/28/13 07:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 07:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 07:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 07:51	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 07:51	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 07:51	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 07:51	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 07:51	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 07:51	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 07:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 07:51	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 07:51	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 07:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 07:51	79-34-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: MW-0620-S1(121613) **Lab ID: 5091432001** Collected: 12/16/13 11:50 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 07:51	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 07:51	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 07:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 07:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 07:51	79-00-5	
Trichloroethene	**2520**	ug/L	100	20		12/30/13 13:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 07:51	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 07:51	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		12/28/13 07:51	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 07:51	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	79-116	1		12/28/13 07:51	1868-53-7	
4-Bromofluorobenzene (S)	94	%.	80-114	1		12/28/13 07:51	460-00-4	
Toluene-d8 (S)	100	%.	81-110	1		12/28/13 07:51	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**370**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Bicarbonate (CaCO3)	**370**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		12/20/13 09:46		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: IW-1301-S1(121613) **Lab ID: 5091432002** Collected: 12/16/13 13:55 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**295**	ug/L	10.0	1	12/24/13 16:10	12/26/13 14:55	7439-96-5	
Sodium	**45600**	ug/L	1000	1	12/24/13 16:10	12/26/13 14:55	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**296**	ug/L	10.0	1	12/19/13 14:56	12/20/13 16:17	7439-96-5	
Sodium, Dissolved	**48000**	ug/L	1000	1	12/19/13 14:56	12/20/13 16:17	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 08:24	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 08:24	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 08:24	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 08:24	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 08:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 08:24	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 08:24	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 08:24	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 08:24	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 08:24	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 08:24	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 08:24	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 08:24	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 08:24	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 08:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 08:24	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:24	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 08:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 08:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 08:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 08:24	75-35-4	
cis-1,2-Dichloroethene	**29.0**	ug/L	5.0	1		12/28/13 08:24	156-59-2	
trans-1,2-Dichloroethene	**6.8**	ug/L	5.0	1		12/28/13 08:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 08:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 08:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 08:24	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 08:24	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 08:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 08:24	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 08:24	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 08:24	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 08:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 08:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 08:24	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 08:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 08:24	79-34-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: IW-1301-S1(121613) **Lab ID: 5091432002** Collected: 12/16/13 13:55 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 08:24	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 08:24	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 08:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 08:24	79-00-5	
Trichloroethene	**560**	ug/L	50.0	10		12/30/13 13:50	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 08:24	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 08:24	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		12/28/13 08:24	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 08:24	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	79-116	1		12/28/13 08:24	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	80-114	1		12/28/13 08:24	460-00-4	
Toluene-d8 (S)	97	%.	81-110	1		12/28/13 08:24	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**372**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Bicarbonate (CaCO3)	**372**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		12/20/13 09:46		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: TB-01(121613)-WR **Lab ID: 5091432003** Collected: 12/16/13 09:00 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 02:21	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 02:21	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 02:21	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 02:21	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 02:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 02:21	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 02:21	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 02:21	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 02:21	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 02:21	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 02:21	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 02:21	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 02:21	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 02:21	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 02:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 02:21	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 02:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 02:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 02:21	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 02:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 02:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 02:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 02:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		12/28/13 02:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		12/28/13 02:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 02:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 02:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 02:21	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 02:21	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 02:21	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 02:21	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 02:21	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 02:21	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 02:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 02:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 02:21	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 02:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 02:21	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 02:21	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 02:21	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 02:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 02:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 02:21	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		12/28/13 02:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 02:21	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 02:21	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		12/28/13 02:21	75-01-4	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: TB-01(121613)-WR **Lab ID: 5091432003** Collected: 12/16/13 09:00 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 02:21	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	111	%.	79-116	1		12/28/13 02:21	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	80-114	1		12/28/13 02:21	460-00-4	
Toluene-d8 (S)	95	%.	81-110	1		12/28/13 02:21	2037-26-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: DR-1301-S1(121613) **Lab ID: 5091432004** Collected: 12/16/13 15:00 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**343**	ug/L	10.0	1	12/24/13 16:10	12/26/13 14:58	7439-96-5	
Sodium	**43500**	ug/L	1000	1	12/24/13 16:10	12/26/13 14:58	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**334**	ug/L	10.0	1	12/19/13 14:56	12/20/13 16:20	7439-96-5	
Sodium, Dissolved	**44700**	ug/L	1000	1	12/19/13 14:56	12/20/13 16:20	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 08:57	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 08:57	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 08:57	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 08:57	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 08:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 08:57	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 08:57	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 08:57	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 08:57	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 08:57	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 08:57	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 08:57	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 08:57	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 08:57	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 08:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 08:57	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:57	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 08:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 08:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 08:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 08:57	75-35-4	
cis-1,2-Dichloroethene	**51.9**	ug/L	5.0	1		12/28/13 08:57	156-59-2	
trans-1,2-Dichloroethene	**20.7**	ug/L	5.0	1		12/28/13 08:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 08:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 08:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 08:57	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 08:57	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 08:57	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 08:57	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 08:57	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 08:57	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 08:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 08:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 08:57	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 08:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 08:57	79-34-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: DR-1301-S1(121613) **Lab ID: 5091432004** Collected: 12/16/13 15:00 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 08:57	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 08:57	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 08:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 08:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 08:57	79-00-5	
Trichloroethene	**1940**	ug/L	100	20		12/30/13 14:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 08:57	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 08:57	76-13-1	
Vinyl chloride	**3.3**	ug/L	2.0	1		12/28/13 08:57	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 08:57	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	102	%.	79-116	1		12/28/13 08:57	1868-53-7	
4-Bromofluorobenzene (S)	95	%.	80-114	1		12/28/13 08:57	460-00-4	
Toluene-d8 (S)	98	%.	81-110	1		12/28/13 08:57	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**386**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Bicarbonate (CaCO3)	**386**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		12/20/13 09:46		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: PM-1302-S1(121613) **Lab ID: 5091432005** Collected: 12/16/13 16:40 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**210**	ug/L	10.0	1	12/24/13 16:10	12/26/13 15:00	7439-96-5	
Sodium	**54200**	ug/L	1000	1	12/24/13 16:10	12/26/13 15:00	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**208**	ug/L	10.0	1	12/19/13 14:56	12/20/13 16:09	7439-96-5	
Sodium, Dissolved	**57300**	ug/L	1000	1	12/19/13 14:56	12/20/13 16:09	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 09:30	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 09:30	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 09:30	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 09:30	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 09:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 09:30	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 09:30	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 09:30	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 09:30	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 09:30	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 09:30	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 09:30	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 09:30	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 09:30	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 09:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 09:30	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 09:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 09:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 09:30	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 09:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 09:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 09:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 09:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		12/28/13 09:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		12/28/13 09:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 09:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 09:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 09:30	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 09:30	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 09:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 09:30	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 09:30	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 09:30	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 09:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 09:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 09:30	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 09:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 09:30	79-34-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: PM-1302-S1(121613) **Lab ID: 5091432005** Collected: 12/16/13 16:40 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 09:30	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 09:30	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 09:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 09:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 09:30	79-00-5	
Trichloroethene	**75.8**	ug/L	5.0	1		12/28/13 09:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 09:30	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 09:30	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		12/28/13 09:30	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 09:30	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	109	%.	79-116	1		12/28/13 09:30	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	80-114	1		12/28/13 09:30	460-00-4	
Toluene-d8 (S)	95	%.	81-110	1		12/28/13 09:30	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**374**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Bicarbonate (CaCO3)	**374**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		12/20/13 09:46		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: PM-1301-S1(121613) **Lab ID: 5091432006** Collected: 12/16/13 17:35 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**372**	ug/L	10.0	1	12/24/13 16:10	12/26/13 15:03	7439-96-5	
Sodium	**53700**	ug/L	1000	1	12/24/13 16:10	12/26/13 15:03	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**349**	ug/L	10.0	1	12/19/13 14:56	12/20/13 16:12	7439-96-5	
Sodium, Dissolved	**55600**	ug/L	1000	1	12/19/13 14:56	12/20/13 16:12	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		12/28/13 10:03	67-64-1	
Benzene	ND	ug/L	5.0	1		12/28/13 10:03	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		12/28/13 10:03	75-27-4	
Bromoform	ND	ug/L	5.0	1		12/28/13 10:03	75-25-2	
Bromomethane	ND	ug/L	5.0	1		12/28/13 10:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		12/28/13 10:03	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		12/28/13 10:03	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		12/28/13 10:03	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		12/28/13 10:03	108-90-7	
Chloroethane	ND	ug/L	5.0	1		12/28/13 10:03	75-00-3	
Chloroform	ND	ug/L	5.0	1		12/28/13 10:03	67-66-3	
Chloromethane	ND	ug/L	5.0	1		12/28/13 10:03	74-87-3	
Cyclohexane	ND	ug/L	100	1		12/28/13 10:03	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		12/28/13 10:03	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		12/28/13 10:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		12/28/13 10:03	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 10:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 10:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		12/28/13 10:03	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		12/28/13 10:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		12/28/13 10:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		12/28/13 10:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		12/28/13 10:03	75-35-4	
cis-1,2-Dichloroethene	**15.1**	ug/L	5.0	1		12/28/13 10:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		12/28/13 10:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		12/28/13 10:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 10:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		12/28/13 10:03	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		12/28/13 10:03	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		12/28/13 10:03	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/28/13 10:03	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		12/28/13 10:03	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		12/28/13 10:03	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		12/28/13 10:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		12/28/13 10:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		12/28/13 10:03	1634-04-4	
Styrene	ND	ug/L	5.0	1		12/28/13 10:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		12/28/13 10:03	79-34-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5091432

Sample: PM-1301-S1(121613) **Lab ID: 5091432006** Collected: 12/16/13 17:35 Received: 12/17/13 07:39 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Tetrachloroethene	ND	ug/L	5.0	1		12/28/13 10:03	127-18-4	
Toluene	ND	ug/L	5.0	1		12/28/13 10:03	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		12/28/13 10:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		12/28/13 10:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		12/28/13 10:03	79-00-5	
Trichloroethene	**801**	ug/L	50.0	10		12/30/13 16:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		12/28/13 10:03	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		12/28/13 10:03	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		12/28/13 10:03	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		12/28/13 10:03	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	104	%.	79-116	1		12/28/13 10:03	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	80-114	1		12/28/13 10:03	460-00-4	
Toluene-d8 (S)	96	%.	81-110	1		12/28/13 10:03	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**378**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Bicarbonate (CaCO3)	**378**	mg/L	2.0	1		12/20/13 09:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		12/20/13 09:46		

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

QC Batch: MPRP/12672 — Analysis Method: EPA 6010
QC Batch Method: EPA 3010 — Analysis Description: 6010 MET
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

METHOD BLANK: 1031317 — Matrix: Water
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese	ug/L	ND	10.0	12/26/13 14:47	
Sodium	ug/L	ND	1000	12/26/13 14:47	

LABORATORY CONTROL SAMPLE: 1031318

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese	ug/L	1000	945	95	80-120	
Sodium	ug/L	10000	9760	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1031319 1031320

Parameter	Units	5091604001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese	ug/L	316	1000	1000	1270	1260	96	94	75-125	1	20	
Sodium	ug/L	39200	10000	10000	48700	47800	95	86	75-125	2	20	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

QC Batch: MPRP/12665 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

METHOD BLANK: 1030496 Matrix: Water
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	10.0	12/20/13 12:58	
Sodium, Dissolved	ug/L	ND	1000	12/20/13 12:58	

LABORATORY CONTROL SAMPLE: 1030497

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	958	96	80-120	
Sodium, Dissolved	ug/L	10000	10000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1030498 1030499

Parameter	Units	5091165013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	471	1000	1000	1440	1400	97	93	75-125	3	20	
Sodium, Dissolved	ug/L	51200	10000	10000	60400	58200	92	70	75-125	4	20	P6

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

QC Batch: MSV/60641 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 5091432001, 5091432002, 5091432003, 5091432004, 5091432005, 5091432006

METHOD BLANK: 1033984 Matrix: Water
Associated Lab Samples: 5091432001, 5091432002, 5091432003, 5091432004, 5091432005, 5091432006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	5.0	12/28/13 01:14	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	12/28/13 01:14	
1,1,2-Trichloroethane	ug/L	ND	5.0	12/28/13 01:14	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	5.0	12/28/13 01:14	
1,1-Dichloroethane	ug/L	ND	5.0	12/28/13 01:14	
1,1-Dichloroethene	ug/L	ND	5.0	12/28/13 01:14	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	12/28/13 01:14	
1,2-Dibromo-3-chloropropane	ug/L	ND	10.0	12/28/13 01:14	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	12/28/13 01:14	
1,2-Dichlorobenzene	ug/L	ND	5.0	12/28/13 01:14	
1,2-Dichloroethane	ug/L	ND	5.0	12/28/13 01:14	
1,2-Dichloropropane	ug/L	ND	5.0	12/28/13 01:14	
1,3-Dichlorobenzene	ug/L	ND	5.0	12/28/13 01:14	
1,4-Dichlorobenzene	ug/L	ND	5.0	12/28/13 01:14	
2-Butanone (MEK)	ug/L	ND	25.0	12/28/13 01:14	
2-Hexanone	ug/L	ND	25.0	12/28/13 01:14	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	12/28/13 01:14	
Acetone	ug/L	ND	100	12/28/13 01:14	
Benzene	ug/L	ND	5.0	12/28/13 01:14	
Bromodichloromethane	ug/L	ND	5.0	12/28/13 01:14	
Bromoform	ug/L	ND	5.0	12/28/13 01:14	
Bromomethane	ug/L	ND	5.0	12/28/13 01:14	
Carbon disulfide	ug/L	ND	10.0	12/28/13 01:14	
Carbon tetrachloride	ug/L	ND	5.0	12/28/13 01:14	
Chlorobenzene	ug/L	ND	5.0	12/28/13 01:14	
Chloroethane	ug/L	ND	5.0	12/28/13 01:14	
Chloroform	ug/L	ND	5.0	12/28/13 01:14	
Chloromethane	ug/L	ND	5.0	12/28/13 01:14	
cis-1,2-Dichloroethene	ug/L	ND	5.0	12/28/13 01:14	
cis-1,3-Dichloropropene	ug/L	ND	5.0	12/28/13 01:14	
Cyclohexane	ug/L	ND	100	12/28/13 01:14	N2
Dibromochloromethane	ug/L	ND	5.0	12/28/13 01:14	
Dichlorodifluoromethane	ug/L	ND	5.0	12/28/13 01:14	
Ethylbenzene	ug/L	ND	5.0	12/28/13 01:14	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	12/28/13 01:14	
Methyl acetate	ug/L	ND	50.0	12/28/13 01:14	N2
Methyl-tert-butyl ether	ug/L	ND	4.0	12/28/13 01:14	
Methylcyclohexane	ug/L	ND	50.0	12/28/13 01:14	N2
Methylene Chloride	ug/L	ND	5.0	12/28/13 01:14	
Styrene	ug/L	ND	5.0	12/28/13 01:14	
Tetrachloroethene	ug/L	ND	5.0	12/28/13 01:14	
Toluene	ug/L	ND	5.0	12/28/13 01:14	
trans-1,2-Dichloroethene	ug/L	ND	5.0	12/28/13 01:14	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

METHOD BLANK: 1033984 Matrix: Water

Associated Lab Samples: 5091432001, 5091432002, 5091432003, 5091432004, 5091432005, 5091432006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	5.0	12/28/13 01:14	
Trichloroethene	ug/L	ND	5.0	12/28/13 01:14	
Trichlorofluoromethane	ug/L	ND	5.0	12/28/13 01:14	
Vinyl chloride	ug/L	ND	2.0	12/28/13 01:14	
Xylene (Total)	ug/L	ND	10.0	12/28/13 01:14	
4-Bromofluorobenzene (S)	%.	94	80-114	12/28/13 01:14	
Dibromofluoromethane (S)	%.	109	79-116	12/28/13 01:14	
Toluene-d8 (S)	%.	95	81-110	12/28/13 01:14	

LABORATORY CONTROL SAMPLE: 1033985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.8	102	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	43.3	87	66-126	
1,1,2-Trichloroethane	ug/L	50	50.3	101	77-130	
1,1,2-Trichlorotrifluoroethane	ug/L	50	49.3	99	68-139	
1,1-Dichloroethane	ug/L	50	45.3	91	75-130	
1,1-Dichloroethene	ug/L	50	47.8	96	68-127	
1,2,4-Trichlorobenzene	ug/L	50	48.9	98	68-131	
1,2-Dibromo-3-chloropropane	ug/L	50	47.7	95	64-124	
1,2-Dibromoethane (EDB)	ug/L	50	51.5	103	76-125	
1,2-Dichlorobenzene	ug/L	50	49.1	98	75-123	
1,2-Dichloroethane	ug/L	50	46.4	93	75-128	
1,2-Dichloropropane	ug/L	50	46.6	93	74-121	
1,3-Dichlorobenzene	ug/L	50	47.1	94	74-122	
1,4-Dichlorobenzene	ug/L	50	47.1	94	76-120	
2-Butanone (MEK)	ug/L	250	227	91	58-139	
2-Hexanone	ug/L	250	222	89	54-140	
4-Methyl-2-pentanone (MIBK)	ug/L	250	215	86	58-138	
Acetone	ug/L	250	280	112	49-150	
Benzene	ug/L	50	47.0	94	74-122	
Bromodichloromethane	ug/L	50	55.6	111	62-136	
Bromoform	ug/L	50	57.0	114	44-134	
Bromomethane	ug/L	50	40.8	82	22-181	
Carbon disulfide	ug/L	100	102	102	59-132	
Carbon tetrachloride	ug/L	50	55.6	111	56-137	
Chlorobenzene	ug/L	50	50.4	101	78-123	
Chloroethane	ug/L	50	61.7	123	60-144	
Chloroform	ug/L	50	51.0	102	78-126	
Chloromethane	ug/L	50	49.8	100	42-134	
cis-1,2-Dichloroethene	ug/L	50	48.3	97	75-122	
cis-1,3-Dichloropropene	ug/L	50	51.0	102	64-126	
Cyclohexane	ug/L	50	ND	97	62-119	N2
Dibromochloromethane	ug/L	50	56.9	114	58-128	
Dichlorodifluoromethane	ug/L	50	55.9	112	35-181	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

LABORATORY CONTROL SAMPLE: 1033985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/L	50	49.1	98	66-133	
Isopropylbenzene (Cumene)	ug/L	50	54.0	108	69-124	
Methyl acetate	ug/L	50	ND	67	10-142	N2
Methyl-tert-butyl ether	ug/L	100	85.8	86	69-122	
Methylcyclohexane	ug/L	50	ND	93	63-130	N2
Methylene Chloride	ug/L	50	53.7	107	68-132	
Styrene	ug/L	50	53.9	108	74-126	
Tetrachloroethene	ug/L	50	53.3	107	69-130	
Toluene	ug/L	50	48.7	97	72-122	
trans-1,2-Dichloroethene	ug/L	50	47.2	94	72-124	
trans-1,3-Dichloropropene	ug/L	50	55.5	111	64-121	
Trichloroethene	ug/L	50	48.5	97	76-126	
Trichlorofluoromethane	ug/L	50	57.9	116	76-149	
Vinyl chloride	ug/L	50	59.2	118	59-126	
Xylene (Total)	ug/L	150	156	104	70-124	
4-Bromofluorobenzene (S)	%.			98	80-114	
Dibromofluoromethane (S)	%.			99	79-116	
Toluene-d8 (S)	%.			96	81-110	

MATRIX SPIKE SAMPLE: 1033986

Parameter	Units	5091390006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	50	51.9	104	60-138	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	44.8	90	55-128	
1,1,2-Trichloroethane	ug/L	ND	50	49.3	99	61-139	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	50	52.9	106	55-151	
1,1-Dichloroethane	ug/L	ND	50	45.2	90	57-147	
1,1-Dichloroethene	ug/L	ND	50	50.9	102	55-145	
1,2,4-Trichlorobenzene	ug/L	ND	50	47.5	95	25-143	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	52.7	105	37-130	
1,2-Dibromoethane (EDB)	ug/L	ND	50	51.0	102	63-129	
1,2-Dichlorobenzene	ug/L	ND	50	48.1	96	38-136	
1,2-Dichloroethane	ug/L	ND	50	44.4	89	62-138	
1,2-Dichloropropane	ug/L	ND	50	46.4	93	59-130	
1,3-Dichlorobenzene	ug/L	ND	50	46.6	93	28-141	
1,4-Dichlorobenzene	ug/L	ND	50	47.3	95	30-139	
2-Butanone (MEK)	ug/L	ND	250	212	85	37-156	
2-Hexanone	ug/L	ND	250	220	88	44-143	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	222	89	46-144	
Acetone	ug/L	ND	250	238	95	39-156	
Benzene	ug/L	ND	50	49.1	96	62-129	
Bromodichloromethane	ug/L	ND	50	54.1	108	50-142	
Bromoform	ug/L	ND	50	55.4	111	36-125	
Bromomethane	ug/L	ND	50	30.5	61	13-179	
Carbon disulfide	ug/L	ND	100	110	110	45-142	
Carbon tetrachloride	ug/L	ND	50	55.8	112	46-142	
Chlorobenzene	ug/L	ND	50	50.1	100	49-136	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

MATRIX SPIKE SAMPLE: 1033986

Parameter	Units	5091390006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloroethane	ug/L	ND	50	62.8	126	47-160	
Chloroform	ug/L	ND	50	49.8	100	54-150	
Chloromethane	ug/L	ND	50	49.7	99	30-148	
cis-1,2-Dichloroethene	ug/L	ND	50	48.2	96	60-135	
cis-1,3-Dichloropropene	ug/L	ND	50	48.9	98	52-123	
Cyclohexane	ug/L	ND	50	50.3J	101	43-135	N2
Dibromochloromethane	ug/L	ND	50	54.9	110	48-125	
Dichlorodifluoromethane	ug/L	ND	50	59.3	119	24-197	
Ethylbenzene	ug/L	ND	50	48.6	96	28-153	
Isopropylbenzene (Cumene)	ug/L	ND	50	54.7	109	18-152	
Methyl acetate	ug/L	ND	50	ND	54	10-125	N2
Methyl-tert-butyl ether	ug/L	ND	100	85.8	86	63-130	
Methylcyclohexane	ug/L	ND	50	ND	95	32-155	N2
Methylene Chloride	ug/L	ND	50	55.9	112	45-156	
Styrene	ug/L	ND	50	53.7	107	36-139	
Tetrachloroethene	ug/L	ND	50	52.8	106	33-151	
Toluene	ug/L	ND	50	49.8	99	50-132	
trans-1,2-Dichloroethene	ug/L	ND	50	48.8	98	40-153	
trans-1,3-Dichloropropene	ug/L	ND	50	51.6	103	48-122	
Trichloroethene	ug/L	ND	50	47.8	96	50-143	
Trichlorofluoromethane	ug/L	ND	50	59.2	118	60-175	
Vinyl chloride	ug/L	ND	50	64.9	130	44-145	
Xylene (Total)	ug/L	ND	150	157	105	29-145	
4-Bromofluorobenzene (S)	%.				98	80-114	
Dibromofluoromethane (S)	%.				99	79-116	
Toluene-d8 (S)	%.				99	81-110	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5091432

QC Batch: WET/14182 — Analysis Method: SM 2320B
QC Batch Method: SM 2320B — Analysis Description: 2320B Alkalinity
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

METHOD BLANK: 1030871 — Matrix: Water
Associated Lab Samples: 5091432001, 5091432002, 5091432004, 5091432005, 5091432006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	2.0	12/20/13 09:46	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	12/20/13 09:46	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	2.0	12/20/13 09:46	

LABORATORY CONTROL SAMPLE: 1030872

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	48.7	97	90-110	
Alkalinity,Bicarbonate (CaCO3)	mg/L	50	48.7	97	90-110	
Alkalinity,Carbonate (CaCO3)	mg/L		ND			

SAMPLE DUPLICATE: 1030873

Parameter	Units	5091432004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	386	379	2	20	
Alkalinity,Bicarbonate (CaCO3)	mg/L	386	379	2	20	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 1030874

Parameter	Units	5091523016 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	434	435	0	20	
Alkalinity,Bicarbonate (CaCO3)	mg/L	434	435	0	20	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	ND		20	

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QUALIFIERS

Project: Racer Kokomo
Pace Project No.: 5091432

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2	The lab does not hold TNI accreditation for this parameter.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Racer Kokomo
Pace Project No.: 5091432

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5091432001	**MW-0620-S1(121613)**	EPA 3010	MPRP/12672	EPA 6010	ICP/14188
5091432002	**IW-1301-S1(121613)**	EPA 3010	MPRP/12672	EPA 6010	ICP/14188
5091432004	**DR-1301-S1(121613)**	EPA 3010	MPRP/12672	EPA 6010	ICP/14188
5091432005	**PM-1302-S1(121613)**	EPA 3010	MPRP/12672	EPA 6010	ICP/14188
5091432006	**PM-1301-S1(121613)**	EPA 3010	MPRP/12672	EPA 6010	ICP/14188
5091432001	**MW-0620-S1(121613)**	EPA 3010	MPRP/12665	EPA 6010	ICP/14178
5091432002	**IW-1301-S1(121613)**	EPA 3010	MPRP/12665	EPA 6010	ICP/14178
5091432004	**DR-1301-S1(121613)**	EPA 3010	MPRP/12665	EPA 6010	ICP/14178
5091432005	**PM-1302-S1(121613)**	EPA 3010	MPRP/12665	EPA 6010	ICP/14178
5091432006	**PM-1301-S1(121613)**	EPA 3010	MPRP/12665	EPA 6010	ICP/14178
5091432001	**MW-0620-S1(121613)**	EPA 8260	MSV/60641		
5091432002	**IW-1301-S1(121613)**	EPA 8260	MSV/60641		
5091432003	**TB-01(121613)-WR**	EPA 8260	MSV/60641		
5091432004	**DR-1301-S1(121613)**	EPA 8260	MSV/60641		
5091432005	**PM-1302-S1(121613)**	EPA 8260	MSV/60641		
5091432006	**PM-1301-S1(121613)**	EPA 8260	MSV/60641		
5091432001	**MW-0620-S1(121613)**	SM 2320B	WET/14182		
5091432002	**IW-1301-S1(121613)**	SM 2320B	WET/14182		
5091432004	**DR-1301-S1(121613)**	SM 2320B	WET/14182		
5091432005	**PM-1302-S1(121613)**	SM 2320B	WET/14182		
5091432006	**PM-1301-S1(121613)**	SM 2320B	WET/14182		

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Chain-of-Custody / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

✓ TMS

Page: 1 of 1

1739719

Section A Required Client Information:

Company: ARCADIS
Address: 132 E WASHINGTON ST SUITE 600 INDPLS, IN 46204
Email To: NICHOLAS.WELTE@ARCADIS-US.COM
Phone: (317) 231-6500 Fax: (317) 231-6514
Requested Due Date/TAT:

Section B Required Project Information:

Report To: NICK WELTE
Copy To:
Purchase Order No.:
Project Name: PACER - KOKOMO
Project Number: IN000884.2013.00005

Section C Invoice Information:

Attention: NICK WELTE
Company Name: ARCADIS
Address: 132 E WASHINGTON ST SUITE 600
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IN

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): VOCs; ALKALINITY; METALS, TOTAL; METALS, FILTERED

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	VOCs	ALKALINITY	METALS, TOTAL	METALS, FILTERED	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-0620-S1 (121613)	WT	G	12/16	—	12/16	11:50		6	X		X	X					X	X	X	X		001
2	IW-1301-S1 (121613)	WT	G	—	—	12/16	13:55		6	X		X	X					X	X	X	X		002
3	TB-01 (121613)-WP	WT	G	—	—	12/16	9:00		3				X					X					LAB SUPPLIED 003
4	DP-1301-S1 (121613)	WT	G	—	—	12/16	15:00		6	X		X	X					X	X	X	X		004
5	PM-1302-S1 (121613)	WT	G	—	—	12/16	16:40		6	X		X	X					X	X	X	X		005
6	PM-1301-S1 (121613)	WT	G	—	—	12/16	17:35		6	X		X	X					X	X	X	X		006
7																							
8																							
9																							
10																							
11																							
12																							

432
6091 ~~423~~ 12/19/13 TMS
PRESERVED ON ICE

SWK 12/17

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Wesley Kuhn / ARCADIS	12/17/13	7:39.	Zehra Tech	12/17/13	7:39.	3.5°	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Wesley Kuhn
SIGNATURE of SAMPLER: Wesley Kuhn
DATE Signed (MM/DD/YY): 12/17/13

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Client ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: _____ Project # 509142~~3~~ 32

12/19/13 TMS

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Date/Time 5035A kits placed in freezer _____

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other foam trays.

Thermometer Used 1 2 3 4 6 A B C D (E) Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Corrected, if applicable) 3.5°C Ice Visible in Sample Containers: ☐ yes ☐ no

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/17/13 TM

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☑N/A	5.
Rush Turn Around Time Requested:	☐Yes ☐No ☑N/A	6.
Containers Intact:	☑Yes ☐No ☐N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	☑Yes ☐No ☐N/A Water.	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	☑Yes ☐No ☐N/A	9. (Circle) HNO3 H2SO4 NaOH HCl 2 250ml HNO3 ice-visible. PM-1301-S1 (12/16/13)
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	10. 1 voa vial broken. PM-1301-S1 (12/16/13) (Frozen.
Trip Blank Present:	☑Yes ☐No ☐N/A	11.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Project Manager Review		
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	12.
Sufficient Volume:	☑Yes ☐No ☐N/A	13.
Correct Containers Used:	☑Yes ☐No ☐N/A	14.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Nick Welte Date/Time: 12/17/13 8:30

Comments/ Resolution:

metals are Na Mn

report tot, carb, bicarb Alkalinity

Project Manager Review: _____ **Date:** 12/17/13

Form F-IN-Q-290-rev.05, 10Sep2013

Sample Container Count

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CLIENT: Arcadis.

COC PAGE 1 of 1
COC ID# 1739719.

Project # 509142~~3~~ 32 12/9/13 TMS

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	____	____	pH <2	pH>12	Comments
1	3									2	1								
2	3									2	1								
3	3									-	-								
4	3									2	1								
5	3									2	1								
6	2									2	1								1 Broken frozen.
7																			
8																			
9																			
10																			
11																			
12																			

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

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(317)228-3100

February 06, 2014

Mr. Nick Welte
Arcadis
132 E. Washington Street
Suite 600
Indianapolis, IN 46204

RE: Project: Racer Kokomo
Pace Project No.: 5092874

Dear Mr. Welte:
Enclosed are the analytical results for sample(s) received by the laboratory on January 30, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Donna S. Spyker

Donna Spyker
donna.spyker@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

CERTIFICATIONS

Project:	Racer Kokomo
Pace Project No.:	5092874

Indiana Certification IDs
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042
Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

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SAMPLE SUMMARY

Project: Racer Kokomo
Pace Project No.: 5092874

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5092874001	**PM-1301-S1(013014)**	Water	01/30/14 11:20	01/30/14 17:46
5092874002	**PM-1302-S1(013014)**	Water	01/30/14 12:20	01/30/14 17:46
5092874003	**MW-0620-S1(013014)**	Water	01/30/14 13:15	01/30/14 17:46
5092874004	**DR-1301-S1(013014)**	Water	01/30/14 14:50	01/30/14 17:46
5092874005	**IW-1301-S1(013014)**	Water	01/30/14 15:35	01/30/14 17:46

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SAMPLE ANALYTE COUNT

Project: Racer Kokomo
Pace Project No.: 5092874

Lab ID	Sample ID	Method	Analysts	Analytes Reported
5092874001	**PM-1301-S1(013014)**	EPA 6010	LLB	2
		EPA 8260	JLZ	51
		SM 2320B	SLB	3
5092874002	**PM-1302-S1(013014)**	EPA 6010	LLB	2
		EPA 8260	JLZ	51
		SM 2320B	SLB	3
5092874003	**MW-0620-S1(013014)**	EPA 6010	LLB	2
		EPA 8260	JLZ	51
		SM 2320B	SLB	3
5092874004	**DR-1301-S1(013014)**	EPA 6010	LLB	2
		EPA 8260	JLZ	51
		SM 2320B	SLB	3
5092874005	**IW-1301-S1(013014)**	EPA 6010	LLB	2
		EPA 8260	JLZ	51
		SM 2320B	SLB	3

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: PM-1301-S1(013014) **Lab ID: 5092874001** Collected: 01/30/14 11:20 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**421**	ug/L	10.0	1	02/04/14 13:54	02/05/14 12:25	7439-96-5	
Sodium	**49700**	ug/L	1000	1	02/04/14 13:54	02/05/14 12:25	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		01/31/14 15:30	67-64-1	
Benzene	ND	ug/L	5.0	1		01/31/14 15:30	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		01/31/14 15:30	75-27-4	
Bromoform	ND	ug/L	5.0	1		01/31/14 15:30	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/31/14 15:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		01/31/14 15:30	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		01/31/14 15:30	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		01/31/14 15:30	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		01/31/14 15:30	108-90-7	
Chloroethane	ND	ug/L	5.0	1		01/31/14 15:30	75-00-3	
Chloroform	ND	ug/L	5.0	1		01/31/14 15:30	67-66-3	
Chloromethane	ND	ug/L	5.0	1		01/31/14 15:30	74-87-3	
Cyclohexane	ND	ug/L	100	1		01/31/14 15:30	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		01/31/14 15:30	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		01/31/14 15:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		01/31/14 15:30	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 15:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 15:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 15:30	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		01/31/14 15:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		01/31/14 15:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		01/31/14 15:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		01/31/14 15:30	75-35-4	
cis-1,2-Dichloroethene	**16.8**	ug/L	5.0	1		01/31/14 15:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		01/31/14 15:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		01/31/14 15:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 15:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 15:30	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		01/31/14 15:30	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		01/31/14 15:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/31/14 15:30	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		01/31/14 15:30	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		01/31/14 15:30	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		01/31/14 15:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		01/31/14 15:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		01/31/14 15:30	1634-04-4	
Styrene	ND	ug/L	5.0	1		01/31/14 15:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		01/31/14 15:30	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		01/31/14 15:30	127-18-4	
Toluene	ND	ug/L	5.0	1		01/31/14 15:30	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		01/31/14 15:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		01/31/14 15:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		01/31/14 15:30	79-00-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: PM-1301-S1(013014) **Lab ID: 5092874001** Collected: 01/30/14 11:20 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Trichloroethene	**891**	ug/L	100	20		01/31/14 16:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		01/31/14 15:30	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		01/31/14 15:30	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		01/31/14 15:30	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		01/31/14 15:30	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100	%.	79-116	1		01/31/14 15:30	1868-53-7	
4-Bromofluorobenzene (S)	95	%.	80-114	1		01/31/14 15:30	460-00-4	
Toluene-d8 (S)	96	%.	81-110	1		01/31/14 15:30	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**394**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Bicarbonate (CaCO3)	**394**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		02/04/14 10:47		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: PM-1302-S1(013014) **Lab ID: 5092874002** Collected: 01/30/14 12:20 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**413**	ug/L	10.0	1	02/04/14 13:54	02/05/14 12:28	7439-96-5	
Sodium	**59500**	ug/L	1000	1	02/04/14 13:54	02/05/14 12:28	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		01/31/14 16:35	67-64-1	
Benzene	ND	ug/L	5.0	1		01/31/14 16:35	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		01/31/14 16:35	75-27-4	
Bromoform	ND	ug/L	5.0	1		01/31/14 16:35	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/31/14 16:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		01/31/14 16:35	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		01/31/14 16:35	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		01/31/14 16:35	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		01/31/14 16:35	108-90-7	
Chloroethane	ND	ug/L	5.0	1		01/31/14 16:35	75-00-3	
Chloroform	ND	ug/L	5.0	1		01/31/14 16:35	67-66-3	
Chloromethane	ND	ug/L	5.0	1		01/31/14 16:35	74-87-3	
Cyclohexane	ND	ug/L	100	1		01/31/14 16:35	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		01/31/14 16:35	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		01/31/14 16:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		01/31/14 16:35	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 16:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 16:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 16:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		01/31/14 16:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		01/31/14 16:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		01/31/14 16:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		01/31/14 16:35	75-35-4	
cis-1,2-Dichloroethene	**6.4**	ug/L	5.0	1		01/31/14 16:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		01/31/14 16:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		01/31/14 16:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 16:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 16:35	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		01/31/14 16:35	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		01/31/14 16:35	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/31/14 16:35	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		01/31/14 16:35	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		01/31/14 16:35	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		01/31/14 16:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		01/31/14 16:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		01/31/14 16:35	1634-04-4	
Styrene	ND	ug/L	5.0	1		01/31/14 16:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		01/31/14 16:35	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		01/31/14 16:35	127-18-4	
Toluene	ND	ug/L	5.0	1		01/31/14 16:35	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		01/31/14 16:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		01/31/14 16:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		01/31/14 16:35	79-00-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: PM-1302-S1(013014) **Lab ID: 5092874002** Collected: 01/30/14 12:20 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Trichloroethene	**24.9**	ug/L	5.0	1		01/31/14 16:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		01/31/14 16:35	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		01/31/14 16:35	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		01/31/14 16:35	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		01/31/14 16:35	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100	%.	79-116	1		01/31/14 16:35	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	80-114	1		01/31/14 16:35	460-00-4	
Toluene-d8 (S)	97	%.	81-110	1		01/31/14 16:35	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**386**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Bicarbonate (CaCO3)	**386**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		02/04/14 10:47		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: MW-0620-S1(013014) **Lab ID: 5092874003** Collected: 01/30/14 13:15 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**69.0**	ug/L	10.0	1	02/04/14 13:54	02/05/14 12:30	7439-96-5	
Sodium	**10100**	ug/L	1000	1	02/04/14 13:54	02/05/14 12:30	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		01/31/14 17:41	67-64-1	
Benzene	ND	ug/L	5.0	1		01/31/14 17:41	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		01/31/14 17:41	75-27-4	
Bromoform	ND	ug/L	5.0	1		01/31/14 17:41	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/31/14 17:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		01/31/14 17:41	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		01/31/14 17:41	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		01/31/14 17:41	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		01/31/14 17:41	108-90-7	
Chloroethane	ND	ug/L	5.0	1		01/31/14 17:41	75-00-3	
Chloroform	**9.2**	ug/L	5.0	1		01/31/14 17:41	67-66-3	
Chloromethane	ND	ug/L	5.0	1		01/31/14 17:41	74-87-3	
Cyclohexane	ND	ug/L	100	1		01/31/14 17:41	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		01/31/14 17:41	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		01/31/14 17:41	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		01/31/14 17:41	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 17:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 17:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 17:41	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		01/31/14 17:41	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		01/31/14 17:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		01/31/14 17:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		01/31/14 17:41	75-35-4	
cis-1,2-Dichloroethene	**39.8**	ug/L	5.0	1		01/31/14 17:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		01/31/14 17:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		01/31/14 17:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 17:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 17:41	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		01/31/14 17:41	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		01/31/14 17:41	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/31/14 17:41	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		01/31/14 17:41	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		01/31/14 17:41	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		01/31/14 17:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		01/31/14 17:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		01/31/14 17:41	1634-04-4	
Styrene	ND	ug/L	5.0	1		01/31/14 17:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		01/31/14 17:41	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		01/31/14 17:41	127-18-4	
Toluene	ND	ug/L	5.0	1		01/31/14 17:41	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		01/31/14 17:41	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		01/31/14 17:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		01/31/14 17:41	79-00-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: MW-0620-S1(013014) **Lab ID: 5092874003** Collected: 01/30/14 13:15 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Trichloroethene	**10200**	ug/L	1000	200		02/03/14 23:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		01/31/14 17:41	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		01/31/14 17:41	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		01/31/14 17:41	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		01/31/14 17:41	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100	%.	79-116	1		01/31/14 17:41	1868-53-7	
4-Bromofluorobenzene (S)	92	%.	80-114	1		01/31/14 17:41	460-00-4	
Toluene-d8 (S)	98	%.	81-110	1		01/31/14 17:41	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**336**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Bicarbonate (CaCO3)	**336**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		02/04/14 10:47		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: DR-1301-S1(013014) **Lab ID: 5092874004** Collected: 01/30/14 14:50 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**2000**	ug/L	10.0	1	02/04/14 13:54	02/05/14 12:33	7439-96-5	
Sodium	**45700**	ug/L	1000	1	02/04/14 13:54	02/05/14 12:33	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		01/31/14 18:47	67-64-1	
Benzene	ND	ug/L	5.0	1		01/31/14 18:47	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		01/31/14 18:47	75-27-4	
Bromoform	ND	ug/L	5.0	1		01/31/14 18:47	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/31/14 18:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		01/31/14 18:47	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		01/31/14 18:47	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		01/31/14 18:47	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		01/31/14 18:47	108-90-7	
Chloroethane	ND	ug/L	5.0	1		01/31/14 18:47	75-00-3	
Chloroform	ND	ug/L	5.0	1		01/31/14 18:47	67-66-3	
Chloromethane	ND	ug/L	5.0	1		01/31/14 18:47	74-87-3	
Cyclohexane	ND	ug/L	100	1		01/31/14 18:47	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		01/31/14 18:47	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		01/31/14 18:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		01/31/14 18:47	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 18:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 18:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 18:47	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		01/31/14 18:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		01/31/14 18:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		01/31/14 18:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		01/31/14 18:47	75-35-4	
cis-1,2-Dichloroethene	**70.3**	ug/L	5.0	1		01/31/14 18:47	156-59-2	
trans-1,2-Dichloroethene	**14.6**	ug/L	5.0	1		01/31/14 18:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		01/31/14 18:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 18:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 18:47	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		01/31/14 18:47	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		01/31/14 18:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/31/14 18:47	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		01/31/14 18:47	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		01/31/14 18:47	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		01/31/14 18:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		01/31/14 18:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		01/31/14 18:47	1634-04-4	
Styrene	ND	ug/L	5.0	1		01/31/14 18:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		01/31/14 18:47	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		01/31/14 18:47	127-18-4	
Toluene	ND	ug/L	5.0	1		01/31/14 18:47	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		01/31/14 18:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		01/31/14 18:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		01/31/14 18:47	79-00-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: DR-1301-S1(013014) **Lab ID: 5092874004** Collected: 01/30/14 14:50 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Trichloroethene	**1100**	ug/L	100	20		01/31/14 19:20	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		01/31/14 18:47	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		01/31/14 18:47	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		01/31/14 18:47	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		01/31/14 18:47	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	103	%.	79-116	1		01/31/14 18:47	1868-53-7	
4-Bromofluorobenzene (S)	94	%.	80-114	1		01/31/14 18:47	460-00-4	
Toluene-d8 (S)	98	%.	81-110	1		01/31/14 18:47	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**377**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Bicarbonate (CaCO3)	**377**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		02/04/14 10:47		

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: IW-1301-S1(013014) **Lab ID: 5092874005** Collected: 01/30/14 15:35 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese	**10500**	ug/L	10.0	1	02/04/14 13:54	02/05/14 12:44	7439-96-5	
Sodium	**84200**	ug/L	1000	1	02/04/14 13:54	02/05/14 12:44	7440-23-5	
8260 MSV	Analytical Method: EPA 8260							
Acetone	ND	ug/L	100	1		01/31/14 19:53	67-64-1	
Benzene	ND	ug/L	5.0	1		01/31/14 19:53	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	1		01/31/14 19:53	75-27-4	
Bromoform	ND	ug/L	5.0	1		01/31/14 19:53	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/31/14 19:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		01/31/14 19:53	78-93-3	
Carbon disulfide	ND	ug/L	10.0	1		01/31/14 19:53	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		01/31/14 19:53	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		01/31/14 19:53	108-90-7	
Chloroethane	ND	ug/L	5.0	1		01/31/14 19:53	75-00-3	
Chloroform	ND	ug/L	5.0	1		01/31/14 19:53	67-66-3	
Chloromethane	ND	ug/L	5.0	1		01/31/14 19:53	74-87-3	
Cyclohexane	ND	ug/L	100	1		01/31/14 19:53	110-82-7	N2
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		01/31/14 19:53	96-12-8	
Dibromochloromethane	ND	ug/L	5.0	1		01/31/14 19:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		01/31/14 19:53	106-93-4	
1,2-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 19:53	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 19:53	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		01/31/14 19:53	106-46-7	
Dichlorodifluoromethane	ND	ug/L	5.0	1		01/31/14 19:53	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		01/31/14 19:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		01/31/14 19:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		01/31/14 19:53	75-35-4	
cis-1,2-Dichloroethene	**10.9**	ug/L	5.0	1		01/31/14 19:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		01/31/14 19:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		01/31/14 19:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 19:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		01/31/14 19:53	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		01/31/14 19:53	100-41-4	
2-Hexanone	ND	ug/L	25.0	1		01/31/14 19:53	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/31/14 19:53	98-82-8	
Methyl acetate	ND	ug/L	50.0	1		01/31/14 19:53	79-20-9	N2
Methylcyclohexane	ND	ug/L	50.0	1		01/31/14 19:53	108-87-2	N2
Methylene Chloride	ND	ug/L	5.0	1		01/31/14 19:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		01/31/14 19:53	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		01/31/14 19:53	1634-04-4	
Styrene	ND	ug/L	5.0	1		01/31/14 19:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		01/31/14 19:53	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		01/31/14 19:53	127-18-4	
Toluene	ND	ug/L	5.0	1		01/31/14 19:53	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		01/31/14 19:53	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		01/31/14 19:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		01/31/14 19:53	79-00-5	

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ANALYTICAL RESULTS

Project: Racer Kokomo
Pace Project No.: 5092874

Sample: IW-1301-S1(013014) **Lab ID: 5092874005** Collected: 01/30/14 15:35 Received: 01/30/14 17:46 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Trichloroethene	**679**	ug/L	100	20		01/31/14 20:26	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		01/31/14 19:53	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	1		01/31/14 19:53	76-13-1	
Vinyl chloride	ND	ug/L	2.0	1		01/31/14 19:53	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		01/31/14 19:53	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	101	%.	79-116	1		01/31/14 19:53	1868-53-7	
4-Bromofluorobenzene (S)	92	%.	80-114	1		01/31/14 19:53	460-00-4	
Toluene-d8 (S)	98	%.	81-110	1		01/31/14 19:53	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**470**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Bicarbonate (CaCO3)	**470**	mg/L	2.0	1		02/04/14 10:47		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	2.0	1		02/04/14 10:47		

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5092874

QC Batch: MPRP/12818 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

METHOD BLANK: 1044977 Matrix: Water
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese	ug/L	ND	10.0	02/05/14 11:40	
Sodium	ug/L	ND	1000	02/05/14 11:40	

LABORATORY CONTROL SAMPLE: 1044978

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese	ug/L	1000	990	99	80-120	
Sodium	ug/L	10000	9710	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1044979 1044980

Parameter	Units	5092908002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese	ug/L	0.46 mg/L	1000	1000	1380	1400	92	94	75-125	1	20	
Sodium	ug/L	43.0 mg/L	10000	10000	51400	50700	84	77	75-125	1	20	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5092874

QC Batch: MSV/61426 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

METHOD BLANK: 1044312 Matrix: Water
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	5.0	01/31/14 11:38	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	01/31/14 11:38	
1,1,2-Trichloroethane	ug/L	ND	5.0	01/31/14 11:38	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	5.0	01/31/14 11:38	
1,1-Dichloroethane	ug/L	ND	5.0	01/31/14 11:38	
1,1-Dichloroethene	ug/L	ND	5.0	01/31/14 11:38	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	01/31/14 11:38	
1,2-Dibromo-3-chloropropane	ug/L	ND	10.0	01/31/14 11:38	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	01/31/14 11:38	
1,2-Dichlorobenzene	ug/L	ND	5.0	01/31/14 11:38	
1,2-Dichloroethane	ug/L	ND	5.0	01/31/14 11:38	
1,2-Dichloropropane	ug/L	ND	5.0	01/31/14 11:38	
1,3-Dichlorobenzene	ug/L	ND	5.0	01/31/14 11:38	
1,4-Dichlorobenzene	ug/L	ND	5.0	01/31/14 11:38	
2-Butanone (MEK)	ug/L	ND	25.0	01/31/14 11:38	
2-Hexanone	ug/L	ND	25.0	01/31/14 11:38	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	01/31/14 11:38	
Acetone	ug/L	ND	100	01/31/14 11:38	
Benzene	ug/L	ND	5.0	01/31/14 11:38	
Bromodichloromethane	ug/L	ND	5.0	01/31/14 11:38	
Bromoform	ug/L	ND	5.0	01/31/14 11:38	
Bromomethane	ug/L	ND	5.0	01/31/14 11:38	
Carbon disulfide	ug/L	ND	10.0	01/31/14 11:38	
Carbon tetrachloride	ug/L	ND	5.0	01/31/14 11:38	
Chlorobenzene	ug/L	ND	5.0	01/31/14 11:38	
Chloroethane	ug/L	ND	5.0	01/31/14 11:38	
Chloroform	ug/L	ND	5.0	01/31/14 11:38	
Chloromethane	ug/L	ND	5.0	01/31/14 11:38	
cis-1,2-Dichloroethene	ug/L	ND	5.0	01/31/14 11:38	
cis-1,3-Dichloropropene	ug/L	ND	5.0	01/31/14 11:38	
Cyclohexane	ug/L	ND	100	01/31/14 11:38	N2
Dibromochloromethane	ug/L	ND	5.0	01/31/14 11:38	
Dichlorodifluoromethane	ug/L	ND	5.0	01/31/14 11:38	
Ethylbenzene	ug/L	ND	5.0	01/31/14 11:38	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	01/31/14 11:38	
Methyl acetate	ug/L	ND	50.0	01/31/14 11:38	N2
Methyl-tert-butyl ether	ug/L	ND	4.0	01/31/14 11:38	
Methylcyclohexane	ug/L	ND	50.0	01/31/14 11:38	N2
Methylene Chloride	ug/L	ND	5.0	01/31/14 11:38	
Styrene	ug/L	ND	5.0	01/31/14 11:38	
Tetrachloroethene	ug/L	ND	5.0	01/31/14 11:38	
Toluene	ug/L	ND	5.0	01/31/14 11:38	
trans-1,2-Dichloroethene	ug/L	ND	5.0	01/31/14 11:38	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5092874

METHOD BLANK: 1044312 Matrix: Water
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	5.0	01/31/14 11:38	
Trichloroethene	ug/L	ND	5.0	01/31/14 11:38	
Trichlorofluoromethane	ug/L	ND	5.0	01/31/14 11:38	
Vinyl chloride	ug/L	ND	2.0	01/31/14 11:38	
Xylene (Total)	ug/L	ND	10.0	01/31/14 11:38	
4-Bromofluorobenzene (S)	%.	96	80-114	01/31/14 11:38	
Dibromofluoromethane (S)	%.	99	79-116	01/31/14 11:38	
Toluene-d8 (S)	%.	97	81-110	01/31/14 11:38	

LABORATORY CONTROL SAMPLE: 1044313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.0	100	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	43.8	88	66-126	
1,1,2-Trichloroethane	ug/L	50	45.7	91	77-130	
1,1,2-Trichlorotrifluoroethane	ug/L	50	55.5	111	68-139	
1,1-Dichloroethane	ug/L	50	48.8	98	75-130	
1,1-Dichloroethene	ug/L	50	51.2	102	68-127	
1,2,4-Trichlorobenzene	ug/L	50	51.6	103	68-131	
1,2-Dibromo-3-chloropropane	ug/L	50	42.9	86	64-124	
1,2-Dibromoethane (EDB)	ug/L	50	49.3	99	76-125	
1,2-Dichlorobenzene	ug/L	50	49.2	98	75-123	
1,2-Dichloroethane	ug/L	50	50.7	101	75-128	
1,2-Dichloropropane	ug/L	50	47.7	95	74-121	
1,3-Dichlorobenzene	ug/L	50	49.7	99	74-122	
1,4-Dichlorobenzene	ug/L	50	49.8	100	76-120	
2-Butanone (MEK)	ug/L	250	200	80	58-139	
2-Hexanone	ug/L	250	190	76	54-140	
4-Methyl-2-pentanone (MIBK)	ug/L	250	190	76	58-138	
Acetone	ug/L	250	153	61	49-150	
Benzene	ug/L	50	51.2	102	74-122	
Bromodichloromethane	ug/L	50	48.0	96	62-136	
Bromoform	ug/L	50	42.1	84	44-134	
Bromomethane	ug/L	50	39.6	79	22-181	
Carbon disulfide	ug/L	100	104	104	59-132	
Carbon tetrachloride	ug/L	50	51.2	102	56-137	
Chlorobenzene	ug/L	50	49.3	99	78-123	
Chloroethane	ug/L	50	45.1	90	60-144	
Chloroform	ug/L	50	51.8	104	78-126	
Chloromethane	ug/L	50	39.9	80	42-134	
cis-1,2-Dichloroethene	ug/L	50	50.6	101	75-122	
cis-1,3-Dichloropropene	ug/L	50	43.0	86	64-126	
Cyclohexane	ug/L	50	57.1J	114	62-119	N2
Dibromochloromethane	ug/L	50	45.5	91	58-128	
Dichlorodifluoromethane	ug/L	50	38.5	77	35-181	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5092874

LABORATORY CONTROL SAMPLE: 1044313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/L	50	48.9	98	66-133	
Isopropylbenzene (Cumene)	ug/L	50	49.4	99	69-124	
Methyl acetate	ug/L	50	ND	68	10-142	N2
Methyl-tert-butyl ether	ug/L	100	96.4	96	69-122	
Methylcyclohexane	ug/L	50	52.6	105	63-130	N2
Methylene Chloride	ug/L	50	38.0	76	68-132	
Styrene	ug/L	50	48.7	97	74-126	
Tetrachloroethene	ug/L	50	53.2	106	69-130	
Toluene	ug/L	50	45.0	90	72-122	
trans-1,2-Dichloroethene	ug/L	50	50.9	102	72-124	
trans-1,3-Dichloropropene	ug/L	50	43.7	87	64-121	
Trichloroethene	ug/L	50	52.6	105	76-126	
Trichlorofluoromethane	ug/L	50	53.0	106	76-149	
Vinyl chloride	ug/L	50	49.0	98	59-126	
Xylene (Total)	ug/L	150	146	98	70-124	
4-Bromofluorobenzene (S)	%.			99	80-114	
Dibromofluoromethane (S)	%.			102	79-116	
Toluene-d8 (S)	%.			95	81-110	

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QUALITY CONTROL DATA

Project: Racer Kokomo
Pace Project No.: 5092874

QC Batch: WET/14550 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

METHOD BLANK: 1045162 Matrix: Water
Associated Lab Samples: 5092874001, 5092874002, 5092874003, 5092874004, 5092874005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	2.0	02/04/14 10:47	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	02/04/14 10:47	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	2.0	02/04/14 10:47	

LABORATORY CONTROL SAMPLE: 1045163

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	47.5	95	90-110	
Alkalinity,Bicarbonate (CaCO3)	mg/L	50	47.5	95	90-110	
Alkalinity,Carbonate (CaCO3)	mg/L		ND			

SAMPLE DUPLICATE: 1045164

Parameter	Units	5092879002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	278	284	2	20	
Alkalinity,Bicarbonate (CaCO3)	mg/L	278	284	2	20	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	ND		20	

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QUALIFIERS

Project: Racer Kokomo
Pace Project No.: 5092874

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Racer Kokomo
Pace Project No.: 5092874

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5092874001	**PM-1301-S1(013014)**	EPA 3010	MPRP/12818	EPA 6010	ICP/14484
5092874002	**PM-1302-S1(013014)**	EPA 3010	MPRP/12818	EPA 6010	ICP/14484
5092874003	**MW-0620-S1(013014)**	EPA 3010	MPRP/12818	EPA 6010	ICP/14484
5092874004	**DR-1301-S1(013014)**	EPA 3010	MPRP/12818	EPA 6010	ICP/14484
5092874005	**IW-1301-S1(013014)**	EPA 3010	MPRP/12818	EPA 6010	ICP/14484
5092874001	**PM-1301-S1(013014)**	EPA 8260	MSV/61426		
5092874002	**PM-1302-S1(013014)**	EPA 8260	MSV/61426		
5092874003	**MW-0620-S1(013014)**	EPA 8260	MSV/61426		
5092874004	**DR-1301-S1(013014)**	EPA 8260	MSV/61426		
5092874005	**IW-1301-S1(013014)**	EPA 8260	MSV/61426		
5092874001	**PM-1301-S1(013014)**	SM 2320B	WET/14550		
5092874002	**PM-1302-S1(013014)**	SM 2320B	WET/14550		
5092874003	**MW-0620-S1(013014)**	SM 2320B	WET/14550		
5092874004	**DR-1301-S1(013014)**	SM 2320B	WET/14550		
5092874005	**IW-1301-S1(013014)**	SM 2320B	WET/14550		

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Chain-of-Custody / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1599571

Section A Required Client Information:

Company: ARCADIS
Address: 132 E WASHINGTON ST SUITE 1000 INDIANAPOLIS IN 46204
Email To: NICHOLAS.WELTE@ARCADIS-US.COM
Phone: 317-366-2556 Fax:
Requested Due Date/TAT: STD.

Section B Required Project Information:

Report To: NICK WELTE
Copy To:
Purchase Order No.:
Project Name: RACER-KOKOMO
Project Number: IN000884.2013

Section C Invoice Information:

Attention: NICK WELTE
Company Name: ARCADIS
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IN

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): N

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: VOCs	Metals, total	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PM-1301-S1 (013014)	WT	G			1/30/14	11:20		5	X		X	X					X	X	X		001
2	PM-1302-S1 (013014)	WT	G			1/30/14	12:20		5	X		X	X					X	X	X		002
3	MW-0620-S1 (013014)	WT	G			1/30/14	13:15		5	X		X	X					X	X	X		003
4	DR-1301-S1 (013014)	WT	G			1/30/14	14:50		5	X		X	X					X	X	X		004
5	IW-1301-S1 (013014)	WT	G			1/30/14	15:35		5	X		X	X					X	X	X		005
6																						
7																						
8																						
9																						
10																						
11																						
12																						

5092874

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Alexandra Oppelt	1/30/14	1746	Colette Weaver / PACE	013014	1746	3.8c	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ALEXANDRA OPPELT

SIGNATURE of SAMPLER: Alexandra Oppelt DATE Signed (MM/DD/YY): 01/30/2014

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: Arcadis Project # 0072874

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☐ no

Date/Time 5035A kits placed in freezer _____

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other foam voa holder

Thermometer Used 1 2 (3) 4 6 A B C D E Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Corrected, if applicable) 3.8c Ice Visible in Sample Containers: ☐ yes ☑ no

Temp should be above freezing to 6°C

Date and initials of person examining contents: 01/30/14 CW

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	5.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	6.
Containers Intact:	☑Yes ☐No ☐N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	☑Yes ☐No ☐N/A	8.
All containers needing acid/base pres. have been checked? exceptions: (VOA) coliform, TOC, O&G All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	☑Yes ☐No ☐N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	10.
Trip Blank Present:	☐Yes ☑No ☐N/A	11.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Project Manager Review		
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	12.
Sufficient Volume:	☑Yes ☐No ☐N/A	13.
Correct Containers Used:	☑Yes ☐No ☐N/A	14.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Nick Date/Time: 1/31/14 9:30

Comments/ Resolution: email Na, Mn

Project Manager Review: [signature] **Date:** 1/31/14

Form F-IN-Q-290-rev.05, 10Sep2013

Sample Container Count

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CLIENT: Arcadis

COC PAGE 1 of 1
COC ID# 1599571

Project # 5092874

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R 4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H			pH <2	pH>12	Comments
1	3								1	3						✓		
2	↓								↓	↓						✓		
3	↓								↓	↓						✓		
4	↓								↓	1						✓		
5	3						1		1							✓		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plasti	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

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(317)228-3100

August 20, 2014

Mr. Matt Griles
Arcadis U.S., Inc.
132 E. Washington
Suite 600
Indianapolis, IN 46204

RE: Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Dear Mr. Griles:
Enclosed are the analytical results for sample(s) received by the laboratory on August 05, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Donna S. Spyker

Donna Spyker
donna.spyker@pacelabs.com
Project Manager

Enclosures

CERTIFICATIONS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Indiana Certification IDs
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042
Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
West Virginia Certification #: 330

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SAMPLE SUMMARY

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50101872001	**TRIP BLANK**	Solid	08/05/14 08:00	08/05/14 17:34
50101872002	**ISCO-2(13-15)**	Solid	08/05/14 07:40	08/05/14 17:34
50101872003	**ISCO-2(15-17)**	Solid	08/05/14 07:43	08/05/14 17:34
50101872004	**ISCO-2(17-19)**	Solid	08/05/14 07:45	08/05/14 17:34
50101872005	**ISCO-2(19-21)**	Solid	08/05/14 07:46	08/05/14 17:34
50101872006	**ISCO-2(21-23)**	Solid	08/05/14 07:47	08/05/14 17:34
50101872007	**ISCO-2(23-25)**	Solid	08/05/14 07:49	08/05/14 17:34
50101872008	**ISCO-2(25-27)**	Solid	08/05/14 07:53	08/05/14 17:34
50101872009	**ISCO-2(27-29)**	Solid	08/05/14 07:55	08/05/14 17:34
50101872010	**ISCO-2(29-31)**	Solid	08/05/14 07:58	08/05/14 17:34
50101872011	**ISCO-2(31-33)**	Solid	08/05/14 08:00	08/05/14 17:34
50101872012	**ISCO-2(33-35)**	Solid	08/05/14 08:22	08/05/14 17:34
50101872013	**ISCO-2(35-37)**	Solid	08/05/14 08:24	08/05/14 17:34
50101872014	**ISCO-2(37-39)**	Solid	08/05/14 08:26	08/05/14 17:34
50101872015	**ISCO-2(39-41)**	Solid	08/05/14 08:30	08/05/14 17:34
50101872016	**ISCO-2(41-43)**	Solid	08/05/14 08:32	08/05/14 17:34
50101872017	**ISCO-2(43-45)**	Solid	08/05/14 08:40	08/05/14 17:34
50101872018	**ISCO-2(45-47)**	Solid	08/05/14 08:42	08/05/14 17:34
50101872019	**TRIP BLANK-02**	Solid	08/05/14 08:00	08/05/14 17:34
50101872020	**ISCO-3(14-16)**	Solid	08/05/14 14:01	08/05/14 17:34
50101872021	**ISCO-3(16-18)**	Solid	08/05/14 14:03	08/05/14 17:34
50101872022	**ISCO-3(18-20)**	Solid	08/05/14 14:05	08/05/14 17:34
50101872023	**ISCO-3(20-22)**	Solid	08/05/14 14:15	08/05/14 17:34
50101872024	**ISCO-3(22-24)**	Solid	08/05/14 14:18	08/05/14 17:34
50101872025	**ISCO-3(24-26)**	Solid	08/05/14 14:20	08/05/14 17:34
50101872026	**ISCO-3(26-28)**	Solid	08/05/14 14:22	08/05/14 17:34
50101872027	**ISCO-3(28-30)**	Solid	08/05/14 14:24	08/05/14 17:34
50101872028	**ISCO-3(30-32)**	Solid	08/05/14 14:27	08/05/14 17:34
50101872029	**ISCO-3(32-34)**	Solid	08/05/14 14:29	08/05/14 17:34
50101872030	**ISCO-3(34-36)**	Solid	08/05/14 14:35	08/05/14 17:34
50101872031	**ISCO-3(36-38)**	Solid	08/05/14 14:37	08/05/14 17:34
50101872032	**ISCO-3(38-40)**	Solid	08/05/14 14:39	08/05/14 17:34
50101872033	**ISCO-3(40-42)**	Solid	08/05/14 14:42	08/05/14 17:34
50101872034	**ISCO-3(42-44)**	Solid	08/05/14 14:44	08/05/14 17:34
50101872035	**ISCO-3(44-45)**	Solid	08/05/14 14:58	08/05/14 17:34

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SAMPLE ANALYTE COUNT

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50101872001	**TRIP BLANK**	EPA 8260	BJG	50
50101872002	**ISCO-2(13-15)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872003	**ISCO-2(15-17)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872004	**ISCO-2(17-19)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872005	**ISCO-2(19-21)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872006	**ISCO-2(21-23)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872007	**ISCO-2(23-25)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872008	**ISCO-2(25-27)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872009	**ISCO-2(27-29)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872010	**ISCO-2(29-31)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872011	**ISCO-2(31-33)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872012	**ISCO-2(33-35)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872013	**ISCO-2(35-37)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872014	**ISCO-2(37-39)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872015	**ISCO-2(39-41)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872016	**ISCO-2(41-43)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872017	**ISCO-2(43-45)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872018	**ISCO-2(45-47)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872019	**TRIP BLANK-02**	EPA 8260	BJG	50
50101872020	**ISCO-3(14-16)**	EPA 8260	BJG	50

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SAMPLE ANALYTE COUNT

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		ASTM D2974-87	WDB	1
50101872021	**ISCO-3(16-18)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872022	**ISCO-3(18-20)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872023	**ISCO-3(20-22)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872024	**ISCO-3(22-24)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872025	**ISCO-3(24-26)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872026	**ISCO-3(26-28)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872027	**ISCO-3(28-30)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872028	**ISCO-3(30-32)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872029	**ISCO-3(32-34)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872030	**ISCO-3(34-36)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872031	**ISCO-3(36-38)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872032	**ISCO-3(38-40)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872033	**ISCO-3(40-42)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872034	**ISCO-3(42-44)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1
50101872035	**ISCO-3(44-45)**	EPA 8260	BJG	50
		ASTM D2974-87	WDB	1

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: TRIP BLANK **Lab ID: 50101872001** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**85.9J**	ug/kg	100	1		08/16/14 12:05	67-64-1	
Benzene	ND	ug/kg	5.0	1		08/16/14 12:05	71-43-2	
Bromodichloromethane	ND	ug/kg	5.0	1		08/16/14 12:05	75-27-4	
Bromoform	ND	ug/kg	5.0	1		08/16/14 12:05	75-25-2	
Bromomethane	ND	ug/kg	5.0	1		08/16/14 12:05	74-83-9	
2-Butanone (MEK)	ND	ug/kg	25.0	1		08/16/14 12:05	78-93-3	
Carbon disulfide	ND	ug/kg	10.0	1		08/16/14 12:05	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.0	1		08/16/14 12:05	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	1		08/16/14 12:05	108-90-7	
Chloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	75-00-3	
Chloroform	ND	ug/kg	5.0	1		08/16/14 12:05	67-66-3	
Chloromethane	ND	ug/kg	5.0	1		08/16/14 12:05	74-87-3	
Cyclohexane	ND	ug/kg	100	1		08/16/14 12:05	110-82-7	
Dibromochloromethane	ND	ug/kg	5.0	1		08/16/14 12:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.0	1		08/16/14 12:05	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	5.0	1		08/16/14 12:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.0	1		08/16/14 12:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.0	1		08/16/14 12:05	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.0	1		08/16/14 12:05	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	1		08/16/14 12:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	1		08/16/14 12:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	1		08/16/14 12:05	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	1		08/16/14 12:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	1		08/16/14 12:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	1		08/16/14 12:05	10061-02-6	
Ethylbenzene	ND	ug/kg	5.0	1		08/16/14 12:05	100-41-4	
2-Hexanone	ND	ug/kg	100	1		08/16/14 12:05	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.0	1		08/16/14 12:05	98-82-8	
Methyl acetate	ND	ug/kg	5.0	1		08/16/14 12:05	79-20-9	
Methylcyclohexane	ND	ug/kg	5.0	1		08/16/14 12:05	108-87-2	
Methylene Chloride	ND	ug/kg	20.0	1		08/16/14 12:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	25.0	1		08/16/14 12:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1		08/16/14 12:05	1634-04-4	
Styrene	ND	ug/kg	5.0	1		08/16/14 12:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	1		08/16/14 12:05	127-18-4	
Toluene	ND	ug/kg	5.0	1		08/16/14 12:05	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	5.0	1		08/16/14 12:05	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	1		08/16/14 12:05	79-00-5	
Trichloroethene	ND	ug/kg	5.0	1		08/16/14 12:05	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.0	1		08/16/14 12:05	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.0	1		08/16/14 12:05	76-13-1	
Vinyl chloride	ND	ug/kg	5.0	1		08/16/14 12:05	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: TRIP BLANK **Lab ID: 50101872001** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	10.0	1		08/16/14 12:05	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	124	%.	85-118	1		08/16/14 12:05	1868-53-7	S3
Toluene-d8 (S)	91	%.	71-128	1		08/16/14 12:05	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	56-144	1		08/16/14 12:05	460-00-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(13-15) **Lab ID: 50101872002** Collected: 08/05/14 07:40 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**9450**	ug/kg	4860	50		08/15/14 08:07	67-64-1	B,C9,CC
Benzene	ND	ug/kg	243	50		08/15/14 08:07	71-43-2	1d
Bromodichloromethane	ND	ug/kg	243	50		08/15/14 08:07	75-27-4	
Bromoform	ND	ug/kg	243	50		08/15/14 08:07	75-25-2	
Bromomethane	ND	ug/kg	243	50		08/15/14 08:07	74-83-9	
2-Butanone (MEK)	ND	ug/kg	1220	50		08/15/14 08:07	78-93-3	
Carbon disulfide	ND	ug/kg	486	50		08/15/14 08:07	75-15-0	
Carbon tetrachloride	ND	ug/kg	243	50		08/15/14 08:07	56-23-5	
Chlorobenzene	ND	ug/kg	243	50		08/15/14 08:07	108-90-7	
Chloroethane	ND	ug/kg	243	50		08/15/14 08:07	75-00-3	
Chloroform	ND	ug/kg	243	50		08/15/14 08:07	67-66-3	
Chloromethane	ND	ug/kg	243	50		08/15/14 08:07	74-87-3	
Cyclohexane	ND	ug/kg	4860	50		08/15/14 08:07	110-82-7	
Dibromochloromethane	ND	ug/kg	243	50		08/15/14 08:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	243	50		08/15/14 08:07	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	243	50		08/15/14 08:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	243	50		08/15/14 08:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	243	50		08/15/14 08:07	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	243	50		08/15/14 08:07	75-71-8	
1,1-Dichloroethane	ND	ug/kg	243	50		08/15/14 08:07	75-34-3	
1,2-Dichloroethane	ND	ug/kg	243	50		08/15/14 08:07	107-06-2	
1,1-Dichloroethene	ND	ug/kg	243	50		08/15/14 08:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	243	50		08/15/14 08:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	243	50		08/15/14 08:07	156-60-5	
1,2-Dichloropropane	ND	ug/kg	243	50		08/15/14 08:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	243	50		08/15/14 08:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	243	50		08/15/14 08:07	10061-02-6	
Ethylbenzene	ND	ug/kg	243	50		08/15/14 08:07	100-41-4	
2-Hexanone	ND	ug/kg	4860	50		08/15/14 08:07	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	243	50		08/15/14 08:07	98-82-8	
Methyl acetate	ND	ug/kg	243	50		08/15/14 08:07	79-20-9	
Methylcyclohexane	ND	ug/kg	243	50		08/15/14 08:07	108-87-2	
Methylene Chloride	ND	ug/kg	972	50		08/15/14 08:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1220	50		08/15/14 08:07	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	243	50		08/15/14 08:07	1634-04-4	3d
Styrene	ND	ug/kg	243	50		08/15/14 08:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	243	50		08/15/14 08:07	79-34-5	
Tetrachloroethene	ND	ug/kg	243	50		08/15/14 08:07	127-18-4	
Toluene	ND	ug/kg	243	50		08/15/14 08:07	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	243	50		08/15/14 08:07	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	243	50		08/15/14 08:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	243	50		08/15/14 08:07	79-00-5	
Trichloroethene	**18700**	ug/kg	2430	500		08/15/14 08:46	79-01-6	
Trichlorofluoromethane	ND	ug/kg	243	50		08/15/14 08:07	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	243	50		08/15/14 08:07	76-13-1	
Vinyl chloride	ND	ug/kg	243	50		08/15/14 08:07	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(13-15) **Lab ID: 50101872002** Collected: 08/05/14 07:40 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	486	50		08/15/14 08:07	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100	%.	85-118	50		08/15/14 08:07	1868-53-7	
Toluene-d8 (S)	101	%.	71-128	50		08/15/14 08:07	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	56-144	50		08/15/14 08:07	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.9**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(15-17) **Lab ID: 50101872003** Collected: 08/05/14 07:43 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**4230**	ug/kg	2230	25		08/15/14 09:26	67-64-1	B,C9,CC
Benzene	ND	ug/kg	111	25		08/15/14 09:26	71-43-2	1d
Bromodichloromethane	ND	ug/kg	111	25		08/15/14 09:26	75-27-4	
Bromoform	ND	ug/kg	111	25		08/15/14 09:26	75-25-2	
Bromomethane	ND	ug/kg	111	25		08/15/14 09:26	74-83-9	
2-Butanone (MEK)	ND	ug/kg	557	25		08/15/14 09:26	78-93-3	
Carbon disulfide	ND	ug/kg	223	25		08/15/14 09:26	75-15-0	
Carbon tetrachloride	ND	ug/kg	111	25		08/15/14 09:26	56-23-5	
Chlorobenzene	ND	ug/kg	111	25		08/15/14 09:26	108-90-7	
Chloroethane	ND	ug/kg	111	25		08/15/14 09:26	75-00-3	
Chloroform	ND	ug/kg	111	25		08/15/14 09:26	67-66-3	
Chloromethane	ND	ug/kg	111	25		08/15/14 09:26	74-87-3	
Cyclohexane	ND	ug/kg	2230	25		08/15/14 09:26	110-82-7	
Dibromochloromethane	ND	ug/kg	111	25		08/15/14 09:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	111	25		08/15/14 09:26	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	111	25		08/15/14 09:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	111	25		08/15/14 09:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	111	25		08/15/14 09:26	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	111	25		08/15/14 09:26	75-71-8	
1,1-Dichloroethane	ND	ug/kg	111	25		08/15/14 09:26	75-34-3	
1,2-Dichloroethane	ND	ug/kg	111	25		08/15/14 09:26	107-06-2	
1,1-Dichloroethene	ND	ug/kg	111	25		08/15/14 09:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	111	25		08/15/14 09:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	111	25		08/15/14 09:26	156-60-5	
1,2-Dichloropropane	ND	ug/kg	111	25		08/15/14 09:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	111	25		08/15/14 09:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	111	25		08/15/14 09:26	10061-02-6	
Ethylbenzene	ND	ug/kg	111	25		08/15/14 09:26	100-41-4	
2-Hexanone	ND	ug/kg	2230	25		08/15/14 09:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	111	25		08/15/14 09:26	98-82-8	
Methyl acetate	ND	ug/kg	111	25		08/15/14 09:26	79-20-9	
Methylcyclohexane	ND	ug/kg	111	25		08/15/14 09:26	108-87-2	
Methylene Chloride	ND	ug/kg	446	25		08/15/14 09:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	557	25		08/15/14 09:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	111	25		08/15/14 09:26	1634-04-4	
Styrene	ND	ug/kg	111	25		08/15/14 09:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	111	25		08/15/14 09:26	79-34-5	
Tetrachloroethene	ND	ug/kg	111	25		08/15/14 09:26	127-18-4	
Toluene	ND	ug/kg	111	25		08/15/14 09:26	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	111	25		08/15/14 09:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	111	25		08/15/14 09:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	111	25		08/15/14 09:26	79-00-5	
Trichloroethene	**20300**	ug/kg	892	200		08/15/14 10:05	79-01-6	
Trichlorofluoromethane	ND	ug/kg	111	25		08/15/14 09:26	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	111	25		08/15/14 09:26	76-13-1	
Vinyl chloride	ND	ug/kg	111	25		08/15/14 09:26	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(15-17) **Lab ID: 50101872003** Collected: 08/05/14 07:43 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	223	25		08/15/14 09:26	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	104	%.	85-118	25		08/15/14 09:26	1868-53-7	
Toluene-d8 (S)	100	%.	71-128	25		08/15/14 09:26	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	56-144	25		08/15/14 09:26	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.9**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(17-19) **Lab ID: 50101872004** Collected: 08/05/14 07:45 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**71.9J**	ug/kg	91.2	1		08/15/14 10:44	67-64-1	
Benzene	ND	ug/kg	4.6	1		08/15/14 10:44	71-43-2	
Bromodichloromethane	ND	ug/kg	4.6	1		08/15/14 10:44	75-27-4	
Bromoform	ND	ug/kg	4.6	1		08/15/14 10:44	75-25-2	
Bromomethane	ND	ug/kg	4.6	1		08/15/14 10:44	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.8	1		08/15/14 10:44	78-93-3	
Carbon disulfide	ND	ug/kg	9.1	1		08/15/14 10:44	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.6	1		08/15/14 10:44	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1		08/15/14 10:44	108-90-7	
Chloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	75-00-3	
Chloroform	ND	ug/kg	4.6	1		08/15/14 10:44	67-66-3	
Chloromethane	ND	ug/kg	4.6	1		08/15/14 10:44	74-87-3	
Cyclohexane	ND	ug/kg	91.2	1		08/15/14 10:44	110-82-7	
Dibromochloromethane	ND	ug/kg	4.6	1		08/15/14 10:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1		08/15/14 10:44	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 10:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 10:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 10:44	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.6	1		08/15/14 10:44	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1		08/15/14 10:44	75-35-4	
cis-1,2-Dichloroethene	**3.3J**	ug/kg	4.6	1		08/15/14 10:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1		08/15/14 10:44	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1		08/15/14 10:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/15/14 10:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/15/14 10:44	10061-02-6	
Ethylbenzene	ND	ug/kg	4.6	1		08/15/14 10:44	100-41-4	
2-Hexanone	ND	ug/kg	91.2	1		08/15/14 10:44	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1		08/15/14 10:44	98-82-8	
Methyl acetate	ND	ug/kg	4.6	1		08/15/14 10:44	79-20-9	
Methylcyclohexane	ND	ug/kg	4.6	1		08/15/14 10:44	108-87-2	
Methylene Chloride	ND	ug/kg	18.2	1		08/15/14 10:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.8	1		08/15/14 10:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		08/15/14 10:44	1634-04-4	
Styrene	ND	ug/kg	4.6	1		08/15/14 10:44	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1		08/15/14 10:44	127-18-4	
Toluene	ND	ug/kg	4.6	1		08/15/14 10:44	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1		08/15/14 10:44	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1		08/15/14 10:44	79-00-5	
Trichloroethene	**20800**	ug/kg	2100	500		08/15/14 19:17	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	1		08/15/14 10:44	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.6	1		08/15/14 10:44	76-13-1	
Vinyl chloride	ND	ug/kg	4.6	1		08/15/14 10:44	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(17-19) **Lab ID: 50101872004** Collected: 08/05/14 07:45 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.1	1		08/15/14 10:44	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/15/14 10:44	1868-53-7	
Toluene-d8 (S)	109	%.	71-128	1		08/15/14 10:44	2037-26-5	
4-Bromofluorobenzene (S)	79	%.	56-144	1		08/15/14 10:44	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.6**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(19-21) **Lab ID: 50101872005** Collected: 08/05/14 07:46 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**66.9J**	ug/kg	77.6	1		08/15/14 11:24	67-64-1	
Benzene	ND	ug/kg	3.9	1		08/15/14 11:24	71-43-2	
Bromodichloromethane	ND	ug/kg	3.9	1		08/15/14 11:24	75-27-4	
Bromoform	ND	ug/kg	3.9	1		08/15/14 11:24	75-25-2	
Bromomethane	ND	ug/kg	3.9	1		08/15/14 11:24	74-83-9	
2-Butanone (MEK)	ND	ug/kg	19.4	1		08/15/14 11:24	78-93-3	
Carbon disulfide	ND	ug/kg	7.8	1		08/15/14 11:24	75-15-0	
Carbon tetrachloride	ND	ug/kg	3.9	1		08/15/14 11:24	56-23-5	
Chlorobenzene	ND	ug/kg	3.9	1		08/15/14 11:24	108-90-7	
Chloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	75-00-3	
Chloroform	ND	ug/kg	3.9	1		08/15/14 11:24	67-66-3	
Chloromethane	ND	ug/kg	3.9	1		08/15/14 11:24	74-87-3	
Cyclohexane	ND	ug/kg	77.6	1		08/15/14 11:24	110-82-7	
Dibromochloromethane	ND	ug/kg	3.9	1		08/15/14 11:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.9	1		08/15/14 11:24	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	3.9	1		08/15/14 11:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.9	1		08/15/14 11:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.9	1		08/15/14 11:24	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	3.9	1		08/15/14 11:24	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	107-06-2	
1,1-Dichloroethene	ND	ug/kg	3.9	1		08/15/14 11:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.9	1		08/15/14 11:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.9	1		08/15/14 11:24	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.9	1		08/15/14 11:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	3.9	1		08/15/14 11:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.9	1		08/15/14 11:24	10061-02-6	
Ethylbenzene	ND	ug/kg	3.9	1		08/15/14 11:24	100-41-4	
2-Hexanone	ND	ug/kg	77.6	1		08/15/14 11:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	3.9	1		08/15/14 11:24	98-82-8	
Methyl acetate	ND	ug/kg	3.9	1		08/15/14 11:24	79-20-9	
Methylcyclohexane	ND	ug/kg	3.9	1		08/15/14 11:24	108-87-2	
Methylene Chloride	ND	ug/kg	15.5	1		08/15/14 11:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	19.4	1		08/15/14 11:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.9	1		08/15/14 11:24	1634-04-4	
Styrene	ND	ug/kg	3.9	1		08/15/14 11:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	79-34-5	
Tetrachloroethene	ND	ug/kg	3.9	1		08/15/14 11:24	127-18-4	
Toluene	ND	ug/kg	3.9	1		08/15/14 11:24	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	3.9	1		08/15/14 11:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.9	1		08/15/14 11:24	79-00-5	
Trichloroethene	**9970**	ug/kg	405	100		08/15/14 19:57	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.9	1		08/15/14 11:24	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	3.9	1		08/15/14 11:24	76-13-1	
Vinyl chloride	ND	ug/kg	3.9	1		08/15/14 11:24	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(19-21) **Lab ID: 50101872005** Collected: 08/05/14 07:46 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	7.8	1		08/15/14 11:24	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	85-118	1		08/15/14 11:24	1868-53-7	
Toluene-d8 (S)	106	%.	71-128	1		08/15/14 11:24	2037-26-5	
4-Bromofluorobenzene (S)	81	%.	56-144	1		08/15/14 11:24	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**11.3**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(21-23) **Lab ID: 50101872006** Collected: 08/05/14 07:47 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**76.5J**	ug/kg	83.1	1		08/15/14 12:03	67-64-1	
Benzene	ND	ug/kg	4.2	1		08/15/14 12:03	71-43-2	
Bromodichloromethane	ND	ug/kg	4.2	1		08/15/14 12:03	75-27-4	
Bromoform	ND	ug/kg	4.2	1		08/15/14 12:03	75-25-2	
Bromomethane	ND	ug/kg	4.2	1		08/15/14 12:03	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.8	1		08/15/14 12:03	78-93-3	
Carbon disulfide	ND	ug/kg	8.3	1		08/15/14 12:03	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.2	1		08/15/14 12:03	56-23-5	
Chlorobenzene	ND	ug/kg	4.2	1		08/15/14 12:03	108-90-7	
Chloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	75-00-3	
Chloroform	ND	ug/kg	4.2	1		08/15/14 12:03	67-66-3	
Chloromethane	ND	ug/kg	4.2	1		08/15/14 12:03	74-87-3	
Cyclohexane	ND	ug/kg	83.1	1		08/15/14 12:03	110-82-7	
Dibromochloromethane	ND	ug/kg	4.2	1		08/15/14 12:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.2	1		08/15/14 12:03	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.2	1		08/15/14 12:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.2	1		08/15/14 12:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.2	1		08/15/14 12:03	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.2	1		08/15/14 12:03	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.2	1		08/15/14 12:03	75-35-4	
cis-1,2-Dichloroethene	**3.6J**	ug/kg	4.2	1		08/15/14 12:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.2	1		08/15/14 12:03	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.2	1		08/15/14 12:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/15/14 12:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/15/14 12:03	10061-02-6	
Ethylbenzene	ND	ug/kg	4.2	1		08/15/14 12:03	100-41-4	
2-Hexanone	ND	ug/kg	83.1	1		08/15/14 12:03	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.2	1		08/15/14 12:03	98-82-8	
Methyl acetate	ND	ug/kg	4.2	1		08/15/14 12:03	79-20-9	
Methylcyclohexane	ND	ug/kg	4.2	1		08/15/14 12:03	108-87-2	
Methylene Chloride	ND	ug/kg	16.6	1		08/15/14 12:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.8	1		08/15/14 12:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		08/15/14 12:03	1634-04-4	
Styrene	ND	ug/kg	4.2	1		08/15/14 12:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	79-34-5	
Tetrachloroethene	ND	ug/kg	4.2	1		08/15/14 12:03	127-18-4	
Toluene	ND	ug/kg	4.2	1		08/15/14 12:03	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.2	1		08/15/14 12:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.2	1		08/15/14 12:03	79-00-5	
Trichloroethene	**228**	ug/kg	4.2	1		08/15/14 12:03	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.2	1		08/15/14 12:03	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.2	1		08/15/14 12:03	76-13-1	
Vinyl chloride	ND	ug/kg	4.2	1		08/15/14 12:03	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(21-23) **Lab ID: 50101872006** Collected: 08/05/14 07:47 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.3	1		08/15/14 12:03	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	109	%.	85-118	1		08/15/14 12:03	1868-53-7	
Toluene-d8 (S)	107	%.	71-128	1		08/15/14 12:03	2037-26-5	
4-Bromofluorobenzene (S)	80	%.	56-144	1		08/15/14 12:03	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.1**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(23-25) **Lab ID: 50101872007** Collected: 08/05/14 07:49 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**83.9J**	ug/kg	86.6	1		08/15/14 12:43	67-64-1	
Benzene	ND	ug/kg	4.3	1		08/15/14 12:43	71-43-2	
Bromodichloromethane	ND	ug/kg	4.3	1		08/15/14 12:43	75-27-4	
Bromoform	ND	ug/kg	4.3	1		08/15/14 12:43	75-25-2	
Bromomethane	ND	ug/kg	4.3	1		08/15/14 12:43	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.6	1		08/15/14 12:43	78-93-3	
Carbon disulfide	ND	ug/kg	8.7	1		08/15/14 12:43	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.3	1		08/15/14 12:43	56-23-5	
Chlorobenzene	ND	ug/kg	4.3	1		08/15/14 12:43	108-90-7	
Chloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	75-00-3	
Chloroform	ND	ug/kg	4.3	1		08/15/14 12:43	67-66-3	
Chloromethane	ND	ug/kg	4.3	1		08/15/14 12:43	74-87-3	
Cyclohexane	ND	ug/kg	86.6	1		08/15/14 12:43	110-82-7	
Dibromochloromethane	ND	ug/kg	4.3	1		08/15/14 12:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.3	1		08/15/14 12:43	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 12:43	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 12:43	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 12:43	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.3	1		08/15/14 12:43	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.3	1		08/15/14 12:43	75-35-4	
cis-1,2-Dichloroethene	**4.7**	ug/kg	4.3	1		08/15/14 12:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.3	1		08/15/14 12:43	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.3	1		08/15/14 12:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/15/14 12:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/15/14 12:43	10061-02-6	
Ethylbenzene	ND	ug/kg	4.3	1		08/15/14 12:43	100-41-4	
2-Hexanone	ND	ug/kg	86.6	1		08/15/14 12:43	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1		08/15/14 12:43	98-82-8	
Methyl acetate	ND	ug/kg	4.3	1		08/15/14 12:43	79-20-9	
Methylcyclohexane	ND	ug/kg	4.3	1		08/15/14 12:43	108-87-2	
Methylene Chloride	ND	ug/kg	17.3	1		08/15/14 12:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.6	1		08/15/14 12:43	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.3	1		08/15/14 12:43	1634-04-4	
Styrene	ND	ug/kg	4.3	1		08/15/14 12:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	79-34-5	
Tetrachloroethene	ND	ug/kg	4.3	1		08/15/14 12:43	127-18-4	
Toluene	ND	ug/kg	4.3	1		08/15/14 12:43	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.3	1		08/15/14 12:43	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.3	1		08/15/14 12:43	79-00-5	
Trichloroethene	**11.2**	ug/kg	4.3	1		08/15/14 12:43	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.3	1		08/15/14 12:43	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.3	1		08/15/14 12:43	76-13-1	
Vinyl chloride	ND	ug/kg	4.3	1		08/15/14 12:43	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(23-25) **Lab ID: 50101872007** Collected: 08/05/14 07:49 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.7	1		08/15/14 12:43	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	109	%.	85-118	1		08/15/14 12:43	1868-53-7	
Toluene-d8 (S)	103	%.	71-128	1		08/15/14 12:43	2037-26-5	
4-Bromofluorobenzene (S)	81	%.	56-144	1		08/15/14 12:43	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.8**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(25-27) **Lab ID: 50101872008** Collected: 08/05/14 07:53 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**106**	ug/kg	81.6	1		08/15/14 17:38	67-64-1	B,C9,CC
Benzene	ND	ug/kg	4.1	1		08/15/14 17:38	71-43-2	
Bromodichloromethane	ND	ug/kg	4.1	1		08/15/14 17:38	75-27-4	
Bromoform	ND	ug/kg	4.1	1		08/15/14 17:38	75-25-2	
Bromomethane	ND	ug/kg	4.1	1		08/15/14 17:38	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.4	1		08/15/14 17:38	78-93-3	
Carbon disulfide	ND	ug/kg	8.2	1		08/15/14 17:38	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.1	1		08/15/14 17:38	56-23-5	
Chlorobenzene	ND	ug/kg	4.1	1		08/15/14 17:38	108-90-7	
Chloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	75-00-3	
Chloroform	ND	ug/kg	4.1	1		08/15/14 17:38	67-66-3	
Chloromethane	ND	ug/kg	4.1	1		08/15/14 17:38	74-87-3	
Cyclohexane	ND	ug/kg	81.6	1		08/15/14 17:38	110-82-7	
Dibromochloromethane	ND	ug/kg	4.1	1		08/15/14 17:38	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.1	1		08/15/14 17:38	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 17:38	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 17:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 17:38	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.1	1		08/15/14 17:38	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 17:38	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 17:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 17:38	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.1	1		08/15/14 17:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/15/14 17:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/15/14 17:38	10061-02-6	
Ethylbenzene	ND	ug/kg	4.1	1		08/15/14 17:38	100-41-4	
2-Hexanone	ND	ug/kg	81.6	1		08/15/14 17:38	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		08/15/14 17:38	98-82-8	
Methyl acetate	ND	ug/kg	4.1	1		08/15/14 17:38	79-20-9	
Methylcyclohexane	ND	ug/kg	4.1	1		08/15/14 17:38	108-87-2	
Methylene Chloride	ND	ug/kg	16.3	1		08/15/14 17:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.4	1		08/15/14 17:38	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		08/15/14 17:38	1634-04-4	
Styrene	ND	ug/kg	4.1	1		08/15/14 17:38	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	79-34-5	
Tetrachloroethene	ND	ug/kg	4.1	1		08/15/14 17:38	127-18-4	
Toluene	ND	ug/kg	4.1	1		08/15/14 17:38	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.1	1		08/15/14 17:38	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.1	1		08/15/14 17:38	79-00-5	
Trichloroethene	**3.1J**	ug/kg	4.1	1		08/15/14 17:38	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.1	1		08/15/14 17:38	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.1	1		08/15/14 17:38	76-13-1	
Vinyl chloride	ND	ug/kg	4.1	1		08/15/14 17:38	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(25-27) **Lab ID: 50101872008** Collected: 08/05/14 07:53 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.2	1		08/15/14 17:38	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	117	%.	85-118	1		08/15/14 17:38	1868-53-7	
Toluene-d8 (S)	99	%.	71-128	1		08/15/14 17:38	2037-26-5	
4-Bromofluorobenzene (S)	88	%.	56-144	1		08/15/14 17:38	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.3**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(27-29) **Lab ID: 50101872009** Collected: 08/05/14 07:55 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**115**	ug/kg	90.9	1		08/15/14 18:18	67-64-1	B,C9,CC
Benzene	ND	ug/kg	4.5	1		08/15/14 18:18	71-43-2	
Bromodichloromethane	ND	ug/kg	4.5	1		08/15/14 18:18	75-27-4	
Bromoform	ND	ug/kg	4.5	1		08/15/14 18:18	75-25-2	
Bromomethane	ND	ug/kg	4.5	1		08/15/14 18:18	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.7	1		08/15/14 18:18	78-93-3	
Carbon disulfide	ND	ug/kg	9.1	1		08/15/14 18:18	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.5	1		08/15/14 18:18	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	1		08/15/14 18:18	108-90-7	
Chloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	75-00-3	
Chloroform	ND	ug/kg	4.5	1		08/15/14 18:18	67-66-3	
Chloromethane	ND	ug/kg	4.5	1		08/15/14 18:18	74-87-3	
Cyclohexane	ND	ug/kg	90.9	1		08/15/14 18:18	110-82-7	
Dibromochloromethane	ND	ug/kg	4.5	1		08/15/14 18:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.5	1		08/15/14 18:18	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.5	1		08/15/14 18:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.5	1		08/15/14 18:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.5	1		08/15/14 18:18	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.5	1		08/15/14 18:18	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	1		08/15/14 18:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/15/14 18:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/15/14 18:18	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	1		08/15/14 18:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/15/14 18:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/15/14 18:18	10061-02-6	
Ethylbenzene	ND	ug/kg	4.5	1		08/15/14 18:18	100-41-4	
2-Hexanone	ND	ug/kg	90.9	1		08/15/14 18:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.5	1		08/15/14 18:18	98-82-8	
Methyl acetate	ND	ug/kg	4.5	1		08/15/14 18:18	79-20-9	
Methylcyclohexane	ND	ug/kg	4.5	1		08/15/14 18:18	108-87-2	
Methylene Chloride	ND	ug/kg	18.2	1		08/15/14 18:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.7	1		08/15/14 18:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.5	1		08/15/14 18:18	1634-04-4	
Styrene	ND	ug/kg	4.5	1		08/15/14 18:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	1		08/15/14 18:18	127-18-4	
Toluene	ND	ug/kg	4.5	1		08/15/14 18:18	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.5	1		08/15/14 18:18	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	1		08/15/14 18:18	79-00-5	
Trichloroethene	**9.9**	ug/kg	4.5	1		08/15/14 18:18	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.5	1		08/15/14 18:18	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.5	1		08/15/14 18:18	76-13-1	
Vinyl chloride	ND	ug/kg	4.5	1		08/15/14 18:18	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(27-29) **Lab ID: 50101872009** Collected: 08/05/14 07:55 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.1	1		08/15/14 18:18	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	117	%.	85-118	1		08/15/14 18:18	1868-53-7	
Toluene-d8 (S)	102	%.	71-128	1		08/15/14 18:18	2037-26-5	
4-Bromofluorobenzene (S)	88	%.	56-144	1		08/15/14 18:18	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.7**	%	0.10	1		08/07/14 11:45		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(29-31) **Lab ID: 50101872010** Collected: 08/05/14 07:58 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**72.9J**	ug/kg	82.6	1		08/15/14 18:57	67-64-1	
Benzene	ND	ug/kg	4.1	1		08/15/14 18:57	71-43-2	
Bromodichloromethane	ND	ug/kg	4.1	1		08/15/14 18:57	75-27-4	
Bromoform	ND	ug/kg	4.1	1		08/15/14 18:57	75-25-2	
Bromomethane	ND	ug/kg	4.1	1		08/15/14 18:57	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.6	1		08/15/14 18:57	78-93-3	
Carbon disulfide	ND	ug/kg	8.3	1		08/15/14 18:57	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.1	1		08/15/14 18:57	56-23-5	
Chlorobenzene	ND	ug/kg	4.1	1		08/15/14 18:57	108-90-7	
Chloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	75-00-3	
Chloroform	ND	ug/kg	4.1	1		08/15/14 18:57	67-66-3	
Chloromethane	ND	ug/kg	4.1	1		08/15/14 18:57	74-87-3	
Cyclohexane	ND	ug/kg	82.6	1		08/15/14 18:57	110-82-7	
Dibromochloromethane	ND	ug/kg	4.1	1		08/15/14 18:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.1	1		08/15/14 18:57	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 18:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 18:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.1	1		08/15/14 18:57	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.1	1		08/15/14 18:57	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 18:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 18:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/15/14 18:57	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.1	1		08/15/14 18:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/15/14 18:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/15/14 18:57	10061-02-6	
Ethylbenzene	ND	ug/kg	4.1	1		08/15/14 18:57	100-41-4	
2-Hexanone	ND	ug/kg	82.6	1		08/15/14 18:57	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		08/15/14 18:57	98-82-8	
Methyl acetate	ND	ug/kg	4.1	1		08/15/14 18:57	79-20-9	
Methylcyclohexane	ND	ug/kg	4.1	1		08/15/14 18:57	108-87-2	
Methylene Chloride	ND	ug/kg	16.5	1		08/15/14 18:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.6	1		08/15/14 18:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		08/15/14 18:57	1634-04-4	
Styrene	ND	ug/kg	4.1	1		08/15/14 18:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	79-34-5	
Tetrachloroethene	ND	ug/kg	4.1	1		08/15/14 18:57	127-18-4	
Toluene	ND	ug/kg	4.1	1		08/15/14 18:57	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.1	1		08/15/14 18:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.1	1		08/15/14 18:57	79-00-5	
Trichloroethene	**3.3J**	ug/kg	4.1	1		08/15/14 18:57	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.1	1		08/15/14 18:57	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.1	1		08/15/14 18:57	76-13-1	
Vinyl chloride	ND	ug/kg	4.1	1		08/15/14 18:57	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(29-31) **Lab ID: 50101872010** Collected: 08/05/14 07:58 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.3	1		08/15/14 18:57	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	115	%.	85-118	1		08/15/14 18:57	1868-53-7	
Toluene-d8 (S)	102	%.	71-128	1		08/15/14 18:57	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	56-144	1		08/15/14 18:57	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.0**	%	0.10	1		08/07/14 11:46		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(31-33) **Lab ID: 50101872011** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**124**	ug/kg	92.0	1		08/15/14 19:37	67-64-1	B,C9,CC
Benzene	ND	ug/kg	4.6	1		08/15/14 19:37	71-43-2	
Bromodichloromethane	ND	ug/kg	4.6	1		08/15/14 19:37	75-27-4	
Bromoform	ND	ug/kg	4.6	1		08/15/14 19:37	75-25-2	
Bromomethane	ND	ug/kg	4.6	1		08/15/14 19:37	74-83-9	
2-Butanone (MEK)	ND	ug/kg	23.0	1		08/15/14 19:37	78-93-3	
Carbon disulfide	ND	ug/kg	9.2	1		08/15/14 19:37	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.6	1		08/15/14 19:37	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1		08/15/14 19:37	108-90-7	
Chloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	75-00-3	
Chloroform	ND	ug/kg	4.6	1		08/15/14 19:37	67-66-3	
Chloromethane	ND	ug/kg	4.6	1		08/15/14 19:37	74-87-3	
Cyclohexane	ND	ug/kg	92.0	1		08/15/14 19:37	110-82-7	
Dibromochloromethane	ND	ug/kg	4.6	1		08/15/14 19:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1		08/15/14 19:37	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 19:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 19:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1		08/15/14 19:37	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.6	1		08/15/14 19:37	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1		08/15/14 19:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.6	1		08/15/14 19:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1		08/15/14 19:37	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1		08/15/14 19:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/15/14 19:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/15/14 19:37	10061-02-6	
Ethylbenzene	ND	ug/kg	4.6	1		08/15/14 19:37	100-41-4	
2-Hexanone	ND	ug/kg	92.0	1		08/15/14 19:37	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1		08/15/14 19:37	98-82-8	
Methyl acetate	ND	ug/kg	4.6	1		08/15/14 19:37	79-20-9	
Methylcyclohexane	ND	ug/kg	4.6	1		08/15/14 19:37	108-87-2	
Methylene Chloride	ND	ug/kg	18.4	1		08/15/14 19:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	23.0	1		08/15/14 19:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		08/15/14 19:37	1634-04-4	
Styrene	ND	ug/kg	4.6	1		08/15/14 19:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1		08/15/14 19:37	127-18-4	
Toluene	ND	ug/kg	4.6	1		08/15/14 19:37	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1		08/15/14 19:37	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1		08/15/14 19:37	79-00-5	
Trichloroethene	**2.2J**	ug/kg	4.6	1		08/15/14 19:37	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	1		08/15/14 19:37	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.6	1		08/15/14 19:37	76-13-1	
Vinyl chloride	ND	ug/kg	4.6	1		08/15/14 19:37	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(31-33) **Lab ID: 50101872011** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.2	1		08/15/14 19:37	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	118	%.	85-118	1		08/15/14 19:37	1868-53-7	
Toluene-d8 (S)	99	%.	71-128	1		08/15/14 19:37	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	56-144	1		08/15/14 19:37	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.7**	%	0.10	1		08/07/14 11:46		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(33-35) **Lab ID: 50101872012** Collected: 08/05/14 08:22 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	87.9	1		08/17/14 00:11	67-64-1	
Benzene	ND	ug/kg	4.4	1		08/17/14 00:11	71-43-2	
Bromodichloromethane	ND	ug/kg	4.4	1		08/17/14 00:11	75-27-4	
Bromoform	ND	ug/kg	4.4	1		08/17/14 00:11	75-25-2	
Bromomethane	ND	ug/kg	4.4	1		08/17/14 00:11	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.0	1		08/17/14 00:11	78-93-3	
Carbon disulfide	ND	ug/kg	8.8	1		08/17/14 00:11	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.4	1		08/17/14 00:11	56-23-5	
Chlorobenzene	ND	ug/kg	4.4	1		08/17/14 00:11	108-90-7	
Chloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	75-00-3	
Chloroform	ND	ug/kg	4.4	1		08/17/14 00:11	67-66-3	
Chloromethane	ND	ug/kg	4.4	1		08/17/14 00:11	74-87-3	
Cyclohexane	ND	ug/kg	87.9	1		08/17/14 00:11	110-82-7	
Dibromochloromethane	ND	ug/kg	4.4	1		08/17/14 00:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.4	1		08/17/14 00:11	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 00:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 00:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 00:11	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.4	1		08/17/14 00:11	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 00:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 00:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 00:11	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.4	1		08/17/14 00:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 00:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 00:11	10061-02-6	
Ethylbenzene	ND	ug/kg	4.4	1		08/17/14 00:11	100-41-4	
2-Hexanone	ND	ug/kg	87.9	1		08/17/14 00:11	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.4	1		08/17/14 00:11	98-82-8	
Methyl acetate	ND	ug/kg	4.4	1		08/17/14 00:11	79-20-9	
Methylcyclohexane	ND	ug/kg	4.4	1		08/17/14 00:11	108-87-2	
Methylene Chloride	ND	ug/kg	17.6	1		08/17/14 00:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.0	1		08/17/14 00:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.4	1		08/17/14 00:11	1634-04-4	
Styrene	ND	ug/kg	4.4	1		08/17/14 00:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	79-34-5	
Tetrachloroethene	ND	ug/kg	4.4	1		08/17/14 00:11	127-18-4	
Toluene	ND	ug/kg	4.4	1		08/17/14 00:11	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.4	1		08/17/14 00:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 00:11	79-00-5	
Trichloroethene	**6.0**	ug/kg	4.4	1		08/17/14 00:11	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.4	1		08/17/14 00:11	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.4	1		08/17/14 00:11	76-13-1	
Vinyl chloride	ND	ug/kg	4.4	1		08/17/14 00:11	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(33-35) **Lab ID: 50101872012** Collected: 08/05/14 08:22 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.8	1		08/17/14 00:11	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/17/14 00:11	1868-53-7	H7
Toluene-d8 (S)	107	%.	71-128	1		08/17/14 00:11	2037-26-5	
4-Bromofluorobenzene (S)	88	%.	56-144	1		08/17/14 00:11	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**10.2**	%	0.10	1		08/07/14 12:17		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(35-37) **Lab ID: 50101872013** Collected: 08/05/14 08:24 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	81.4	1		08/17/14 00:50	67-64-1	
Benzene	ND	ug/kg	4.1	1		08/17/14 00:50	71-43-2	
Bromodichloromethane	ND	ug/kg	4.1	1		08/17/14 00:50	75-27-4	
Bromoform	ND	ug/kg	4.1	1		08/17/14 00:50	75-25-2	
Bromomethane	ND	ug/kg	4.1	1		08/17/14 00:50	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.4	1		08/17/14 00:50	78-93-3	
Carbon disulfide	ND	ug/kg	8.1	1		08/17/14 00:50	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.1	1		08/17/14 00:50	56-23-5	
Chlorobenzene	ND	ug/kg	4.1	1		08/17/14 00:50	108-90-7	
Chloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	75-00-3	
Chloroform	ND	ug/kg	4.1	1		08/17/14 00:50	67-66-3	
Chloromethane	ND	ug/kg	4.1	1		08/17/14 00:50	74-87-3	
Cyclohexane	ND	ug/kg	81.4	1		08/17/14 00:50	110-82-7	
Dibromochloromethane	ND	ug/kg	4.1	1		08/17/14 00:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.1	1		08/17/14 00:50	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.1	1		08/17/14 00:50	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.1	1		08/17/14 00:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.1	1		08/17/14 00:50	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.1	1		08/17/14 00:50	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.1	1		08/17/14 00:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/17/14 00:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/17/14 00:50	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.1	1		08/17/14 00:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/17/14 00:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/17/14 00:50	10061-02-6	
Ethylbenzene	ND	ug/kg	4.1	1		08/17/14 00:50	100-41-4	
2-Hexanone	ND	ug/kg	81.4	1		08/17/14 00:50	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		08/17/14 00:50	98-82-8	
Methyl acetate	ND	ug/kg	4.1	1		08/17/14 00:50	79-20-9	
Methylcyclohexane	ND	ug/kg	4.1	1		08/17/14 00:50	108-87-2	
Methylene Chloride	ND	ug/kg	16.3	1		08/17/14 00:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.4	1		08/17/14 00:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		08/17/14 00:50	1634-04-4	
Styrene	ND	ug/kg	4.1	1		08/17/14 00:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	79-34-5	
Tetrachloroethene	ND	ug/kg	4.1	1		08/17/14 00:50	127-18-4	
Toluene	ND	ug/kg	4.1	1		08/17/14 00:50	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.1	1		08/17/14 00:50	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.1	1		08/17/14 00:50	79-00-5	
Trichloroethene	ND	ug/kg	4.1	1		08/17/14 00:50	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.1	1		08/17/14 00:50	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.1	1		08/17/14 00:50	76-13-1	
Vinyl chloride	ND	ug/kg	4.1	1		08/17/14 00:50	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(35-37) **Lab ID: 50101872013** Collected: 08/05/14 08:24 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.1	1		08/17/14 00:50	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/17/14 00:50	1868-53-7	H7
Toluene-d8 (S)	102	%.	71-128	1		08/17/14 00:50	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	56-144	1		08/17/14 00:50	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.8**	%	0.10	1		08/07/14 12:17		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(37-39) **Lab ID: 50101872014** Collected: 08/05/14 08:26 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	84.1	1		08/17/14 01:30	67-64-1	
Benzene	ND	ug/kg	4.2	1		08/17/14 01:30	71-43-2	
Bromodichloromethane	ND	ug/kg	4.2	1		08/17/14 01:30	75-27-4	
Bromoform	ND	ug/kg	4.2	1		08/17/14 01:30	75-25-2	
Bromomethane	ND	ug/kg	4.2	1		08/17/14 01:30	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.0	1		08/17/14 01:30	78-93-3	
Carbon disulfide	ND	ug/kg	8.4	1		08/17/14 01:30	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.2	1		08/17/14 01:30	56-23-5	
Chlorobenzene	ND	ug/kg	4.2	1		08/17/14 01:30	108-90-7	
Chloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	75-00-3	
Chloroform	ND	ug/kg	4.2	1		08/17/14 01:30	67-66-3	
Chloromethane	ND	ug/kg	4.2	1		08/17/14 01:30	74-87-3	
Cyclohexane	ND	ug/kg	84.1	1		08/17/14 01:30	110-82-7	
Dibromochloromethane	ND	ug/kg	4.2	1		08/17/14 01:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.2	1		08/17/14 01:30	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 01:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 01:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 01:30	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.2	1		08/17/14 01:30	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.2	1		08/17/14 01:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.2	1		08/17/14 01:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.2	1		08/17/14 01:30	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.2	1		08/17/14 01:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/17/14 01:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/17/14 01:30	10061-02-6	
Ethylbenzene	ND	ug/kg	4.2	1		08/17/14 01:30	100-41-4	
2-Hexanone	ND	ug/kg	84.1	1		08/17/14 01:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.2	1		08/17/14 01:30	98-82-8	
Methyl acetate	ND	ug/kg	4.2	1		08/17/14 01:30	79-20-9	
Methylcyclohexane	ND	ug/kg	4.2	1		08/17/14 01:30	108-87-2	
Methylene Chloride	**10.5J**	ug/kg	16.8	1		08/17/14 01:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.0	1		08/17/14 01:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		08/17/14 01:30	1634-04-4	
Styrene	ND	ug/kg	4.2	1		08/17/14 01:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	79-34-5	
Tetrachloroethene	ND	ug/kg	4.2	1		08/17/14 01:30	127-18-4	
Toluene	ND	ug/kg	4.2	1		08/17/14 01:30	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.2	1		08/17/14 01:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.2	1		08/17/14 01:30	79-00-5	
Trichloroethene	**2.0J**	ug/kg	4.2	1		08/17/14 01:30	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.2	1		08/17/14 01:30	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.2	1		08/17/14 01:30	76-13-1	
Vinyl chloride	ND	ug/kg	4.2	1		08/17/14 01:30	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(37-39) **Lab ID: 50101872014** Collected: 08/05/14 08:26 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.4	1		08/17/14 01:30	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	109	%.	85-118	1		08/17/14 01:30	1868-53-7	H7
Toluene-d8 (S)	110	%.	71-128	1		08/17/14 01:30	2037-26-5	
4-Bromofluorobenzene (S)	85	%.	56-144	1		08/17/14 01:30	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**10**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(39-41) **Lab ID: 50101872015** Collected: 08/05/14 08:30 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**95.8**	ug/kg	85.2	1		08/15/14 22:15	67-64-1	B,C9,CC
Benzene	ND	ug/kg	4.3	1		08/15/14 22:15	71-43-2	
Bromodichloromethane	ND	ug/kg	4.3	1		08/15/14 22:15	75-27-4	
Bromoform	ND	ug/kg	4.3	1		08/15/14 22:15	75-25-2	
Bromomethane	ND	ug/kg	4.3	1		08/15/14 22:15	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.3	1		08/15/14 22:15	78-93-3	
Carbon disulfide	ND	ug/kg	8.5	1		08/15/14 22:15	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.3	1		08/15/14 22:15	56-23-5	
Chlorobenzene	ND	ug/kg	4.3	1		08/15/14 22:15	108-90-7	
Chloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	75-00-3	
Chloroform	ND	ug/kg	4.3	1		08/15/14 22:15	67-66-3	
Chloromethane	ND	ug/kg	4.3	1		08/15/14 22:15	74-87-3	
Cyclohexane	ND	ug/kg	85.2	1		08/15/14 22:15	110-82-7	
Dibromochloromethane	ND	ug/kg	4.3	1		08/15/14 22:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.3	1		08/15/14 22:15	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 22:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 22:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.3	1		08/15/14 22:15	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.3	1		08/15/14 22:15	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.3	1		08/15/14 22:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.3	1		08/15/14 22:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.3	1		08/15/14 22:15	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.3	1		08/15/14 22:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/15/14 22:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/15/14 22:15	10061-02-6	
Ethylbenzene	ND	ug/kg	4.3	1		08/15/14 22:15	100-41-4	
2-Hexanone	ND	ug/kg	85.2	1		08/15/14 22:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1		08/15/14 22:15	98-82-8	
Methyl acetate	ND	ug/kg	4.3	1		08/15/14 22:15	79-20-9	
Methylcyclohexane	ND	ug/kg	4.3	1		08/15/14 22:15	108-87-2	
Methylene Chloride	ND	ug/kg	17.0	1		08/15/14 22:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.3	1		08/15/14 22:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.3	1		08/15/14 22:15	1634-04-4	
Styrene	ND	ug/kg	4.3	1		08/15/14 22:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	79-34-5	
Tetrachloroethene	ND	ug/kg	4.3	1		08/15/14 22:15	127-18-4	
Toluene	ND	ug/kg	4.3	1		08/15/14 22:15	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.3	1		08/15/14 22:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.3	1		08/15/14 22:15	79-00-5	
Trichloroethene	ND	ug/kg	4.3	1		08/15/14 22:15	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.3	1		08/15/14 22:15	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.3	1		08/15/14 22:15	76-13-1	
Vinyl chloride	ND	ug/kg	4.3	1		08/15/14 22:15	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(39-41) **Lab ID: 50101872015** Collected: 08/05/14 08:30 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.5	1		08/15/14 22:15	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	118	%.	85-118	1		08/15/14 22:15	1868-53-7	
Toluene-d8 (S)	101	%.	71-128	1		08/15/14 22:15	2037-26-5	
4-Bromofluorobenzene (S)	82	%.	56-144	1		08/15/14 22:15	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.5**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(41-43) **Lab ID: 50101872016** Collected: 08/05/14 08:32 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	89.1	1		08/17/14 02:10	67-64-1	
Benzene	ND	ug/kg	4.5	1		08/17/14 02:10	71-43-2	
Bromodichloromethane	ND	ug/kg	4.5	1		08/17/14 02:10	75-27-4	
Bromoform	ND	ug/kg	4.5	1		08/17/14 02:10	75-25-2	
Bromomethane	ND	ug/kg	4.5	1		08/17/14 02:10	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.3	1		08/17/14 02:10	78-93-3	
Carbon disulfide	ND	ug/kg	8.9	1		08/17/14 02:10	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.5	1		08/17/14 02:10	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	1		08/17/14 02:10	108-90-7	
Chloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	75-00-3	
Chloroform	ND	ug/kg	4.5	1		08/17/14 02:10	67-66-3	
Chloromethane	ND	ug/kg	4.5	1		08/17/14 02:10	74-87-3	
Cyclohexane	ND	ug/kg	89.1	1		08/17/14 02:10	110-82-7	
Dibromochloromethane	ND	ug/kg	4.5	1		08/17/14 02:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.5	1		08/17/14 02:10	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 02:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 02:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 02:10	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.5	1		08/17/14 02:10	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 02:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 02:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 02:10	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	1		08/17/14 02:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/17/14 02:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/17/14 02:10	10061-02-6	
Ethylbenzene	ND	ug/kg	4.5	1		08/17/14 02:10	100-41-4	
2-Hexanone	ND	ug/kg	89.1	1		08/17/14 02:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.5	1		08/17/14 02:10	98-82-8	
Methyl acetate	ND	ug/kg	4.5	1		08/17/14 02:10	79-20-9	
Methylcyclohexane	ND	ug/kg	4.5	1		08/17/14 02:10	108-87-2	
Methylene Chloride	ND	ug/kg	17.8	1		08/17/14 02:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.3	1		08/17/14 02:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.5	1		08/17/14 02:10	1634-04-4	
Styrene	ND	ug/kg	4.5	1		08/17/14 02:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	1		08/17/14 02:10	127-18-4	
Toluene	ND	ug/kg	4.5	1		08/17/14 02:10	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.5	1		08/17/14 02:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	1		08/17/14 02:10	79-00-5	
Trichloroethene	ND	ug/kg	4.5	1		08/17/14 02:10	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.5	1		08/17/14 02:10	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.5	1		08/17/14 02:10	76-13-1	
Vinyl chloride	ND	ug/kg	4.5	1		08/17/14 02:10	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(41-43) **Lab ID: 50101872016** Collected: 08/05/14 08:32 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.9	1		08/17/14 02:10	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	109	%.	85-118	1		08/17/14 02:10	1868-53-7	H7
Toluene-d8 (S)	101	%.	71-128	1		08/17/14 02:10	2037-26-5	
4-Bromofluorobenzene (S)	88	%.	56-144	1		08/17/14 02:10	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**5.7**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(43-45) **Lab ID: 50101872017** Collected: 08/05/14 08:40 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	72.0	1		08/17/14 02:49	67-64-1	
Benzene	ND	ug/kg	3.6	1		08/17/14 02:49	71-43-2	
Bromodichloromethane	ND	ug/kg	3.6	1		08/17/14 02:49	75-27-4	
Bromoform	ND	ug/kg	3.6	1		08/17/14 02:49	75-25-2	
Bromomethane	ND	ug/kg	3.6	1		08/17/14 02:49	74-83-9	
2-Butanone (MEK)	ND	ug/kg	18.0	1		08/17/14 02:49	78-93-3	
Carbon disulfide	ND	ug/kg	7.2	1		08/17/14 02:49	75-15-0	
Carbon tetrachloride	ND	ug/kg	3.6	1		08/17/14 02:49	56-23-5	
Chlorobenzene	ND	ug/kg	3.6	1		08/17/14 02:49	108-90-7	
Chloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	75-00-3	
Chloroform	ND	ug/kg	3.6	1		08/17/14 02:49	67-66-3	
Chloromethane	ND	ug/kg	3.6	1		08/17/14 02:49	74-87-3	
Cyclohexane	ND	ug/kg	72.0	1		08/17/14 02:49	110-82-7	
Dibromochloromethane	ND	ug/kg	3.6	1		08/17/14 02:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.6	1		08/17/14 02:49	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	3.6	1		08/17/14 02:49	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.6	1		08/17/14 02:49	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.6	1		08/17/14 02:49	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	3.6	1		08/17/14 02:49	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	107-06-2	
1,1-Dichloroethene	ND	ug/kg	3.6	1		08/17/14 02:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.6	1		08/17/14 02:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.6	1		08/17/14 02:49	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.6	1		08/17/14 02:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	3.6	1		08/17/14 02:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.6	1		08/17/14 02:49	10061-02-6	
Ethylbenzene	ND	ug/kg	3.6	1		08/17/14 02:49	100-41-4	
2-Hexanone	ND	ug/kg	72.0	1		08/17/14 02:49	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	3.6	1		08/17/14 02:49	98-82-8	
Methyl acetate	ND	ug/kg	3.6	1		08/17/14 02:49	79-20-9	
Methylcyclohexane	ND	ug/kg	3.6	1		08/17/14 02:49	108-87-2	
Methylene Chloride	ND	ug/kg	14.4	1		08/17/14 02:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	18.0	1		08/17/14 02:49	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.6	1		08/17/14 02:49	1634-04-4	
Styrene	ND	ug/kg	3.6	1		08/17/14 02:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	79-34-5	
Tetrachloroethene	ND	ug/kg	3.6	1		08/17/14 02:49	127-18-4	
Toluene	ND	ug/kg	3.6	1		08/17/14 02:49	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	3.6	1		08/17/14 02:49	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.6	1		08/17/14 02:49	79-00-5	
Trichloroethene	ND	ug/kg	3.6	1		08/17/14 02:49	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.6	1		08/17/14 02:49	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	3.6	1		08/17/14 02:49	76-13-1	
Vinyl chloride	ND	ug/kg	3.6	1		08/17/14 02:49	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(43-45) **Lab ID: 50101872017** Collected: 08/05/14 08:40 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	7.2	1		08/17/14 02:49	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	111	%.	85-118	1		08/17/14 02:49	1868-53-7	H7
Toluene-d8 (S)	111	%.	71-128	1		08/17/14 02:49	2037-26-5	
4-Bromofluorobenzene (S)	80	%.	56-144	1		08/17/14 02:49	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.3**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(45-47) **Lab ID: 50101872018** Collected: 08/05/14 08:42 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	91.0	1		08/17/14 03:29	67-64-1	
Benzene	ND	ug/kg	4.5	1		08/17/14 03:29	71-43-2	
Bromodichloromethane	ND	ug/kg	4.5	1		08/17/14 03:29	75-27-4	
Bromoform	ND	ug/kg	4.5	1		08/17/14 03:29	75-25-2	
Bromomethane	ND	ug/kg	4.5	1		08/17/14 03:29	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.7	1		08/17/14 03:29	78-93-3	
Carbon disulfide	ND	ug/kg	9.1	1		08/17/14 03:29	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.5	1		08/17/14 03:29	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	1		08/17/14 03:29	108-90-7	
Chloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	75-00-3	
Chloroform	ND	ug/kg	4.5	1		08/17/14 03:29	67-66-3	
Chloromethane	ND	ug/kg	4.5	1		08/17/14 03:29	74-87-3	
Cyclohexane	ND	ug/kg	91.0	1		08/17/14 03:29	110-82-7	
Dibromochloromethane	ND	ug/kg	4.5	1		08/17/14 03:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.5	1		08/17/14 03:29	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 03:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 03:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.5	1		08/17/14 03:29	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.5	1		08/17/14 03:29	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 03:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 03:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	1		08/17/14 03:29	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	1		08/17/14 03:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/17/14 03:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	1		08/17/14 03:29	10061-02-6	
Ethylbenzene	ND	ug/kg	4.5	1		08/17/14 03:29	100-41-4	
2-Hexanone	ND	ug/kg	91.0	1		08/17/14 03:29	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.5	1		08/17/14 03:29	98-82-8	
Methyl acetate	ND	ug/kg	4.5	1		08/17/14 03:29	79-20-9	
Methylcyclohexane	ND	ug/kg	4.5	1		08/17/14 03:29	108-87-2	
Methylene Chloride	ND	ug/kg	18.2	1		08/17/14 03:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.7	1		08/17/14 03:29	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.5	1		08/17/14 03:29	1634-04-4	
Styrene	ND	ug/kg	4.5	1		08/17/14 03:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	1		08/17/14 03:29	127-18-4	
Toluene	ND	ug/kg	4.5	1		08/17/14 03:29	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.5	1		08/17/14 03:29	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	1		08/17/14 03:29	79-00-5	
Trichloroethene	ND	ug/kg	4.5	1		08/17/14 03:29	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.5	1		08/17/14 03:29	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.5	1		08/17/14 03:29	76-13-1	
Vinyl chloride	ND	ug/kg	4.5	1		08/17/14 03:29	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-2(45-47) **Lab ID: 50101872018** Collected: 08/05/14 08:42 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.1	1		08/17/14 03:29	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/17/14 03:29	1868-53-7	H7
Toluene-d8 (S)	100	%.	71-128	1		08/17/14 03:29	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	56-144	1		08/17/14 03:29	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**5.8**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: TRIP BLANK-02 **Lab ID: 50101872019** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	100	1		08/17/14 04:08	67-64-1	
Benzene	ND	ug/kg	5.0	1		08/17/14 04:08	71-43-2	
Bromodichloromethane	ND	ug/kg	5.0	1		08/17/14 04:08	75-27-4	
Bromoform	ND	ug/kg	5.0	1		08/17/14 04:08	75-25-2	
Bromomethane	ND	ug/kg	5.0	1		08/17/14 04:08	74-83-9	
2-Butanone (MEK)	ND	ug/kg	25.0	1		08/17/14 04:08	78-93-3	
Carbon disulfide	ND	ug/kg	10.0	1		08/17/14 04:08	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.0	1		08/17/14 04:08	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	1		08/17/14 04:08	108-90-7	
Chloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	75-00-3	
Chloroform	ND	ug/kg	5.0	1		08/17/14 04:08	67-66-3	
Chloromethane	ND	ug/kg	5.0	1		08/17/14 04:08	74-87-3	
Cyclohexane	ND	ug/kg	100	1		08/17/14 04:08	110-82-7	
Dibromochloromethane	ND	ug/kg	5.0	1		08/17/14 04:08	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.0	1		08/17/14 04:08	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	5.0	1		08/17/14 04:08	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.0	1		08/17/14 04:08	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.0	1		08/17/14 04:08	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.0	1		08/17/14 04:08	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	1		08/17/14 04:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	1		08/17/14 04:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	1		08/17/14 04:08	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	1		08/17/14 04:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	1		08/17/14 04:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	1		08/17/14 04:08	10061-02-6	
Ethylbenzene	ND	ug/kg	5.0	1		08/17/14 04:08	100-41-4	
2-Hexanone	ND	ug/kg	100	1		08/17/14 04:08	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.0	1		08/17/14 04:08	98-82-8	
Methyl acetate	ND	ug/kg	5.0	1		08/17/14 04:08	79-20-9	
Methylcyclohexane	ND	ug/kg	5.0	1		08/17/14 04:08	108-87-2	
Methylene Chloride	ND	ug/kg	20.0	1		08/17/14 04:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	25.0	1		08/17/14 04:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1		08/17/14 04:08	1634-04-4	
Styrene	ND	ug/kg	5.0	1		08/17/14 04:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	1		08/17/14 04:08	127-18-4	
Toluene	ND	ug/kg	5.0	1		08/17/14 04:08	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	5.0	1		08/17/14 04:08	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	1		08/17/14 04:08	79-00-5	
Trichloroethene	ND	ug/kg	5.0	1		08/17/14 04:08	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.0	1		08/17/14 04:08	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.0	1		08/17/14 04:08	76-13-1	
Vinyl chloride	ND	ug/kg	5.0	1		08/17/14 04:08	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: TRIP BLANK-02 **Lab ID: 50101872019** Collected: 08/05/14 08:00 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	10.0	1		08/17/14 04:08	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	108	%.	85-118	1		08/17/14 04:08	1868-53-7	H7
Toluene-d8 (S)	94	%.	71-128	1		08/17/14 04:08	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	56-144	1		08/17/14 04:08	460-00-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(14-16) **Lab ID: 50101872020** Collected: 08/05/14 14:01 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**97.0**	ug/kg	83.6	1		08/16/14 01:33	67-64-1	B,C9,CC
Benzene	ND	ug/kg	4.2	1		08/16/14 01:33	71-43-2	
Bromodichloromethane	ND	ug/kg	4.2	1		08/16/14 01:33	75-27-4	
Bromoform	ND	ug/kg	4.2	1		08/16/14 01:33	75-25-2	
Bromomethane	ND	ug/kg	4.2	1		08/16/14 01:33	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.9	1		08/16/14 01:33	78-93-3	
Carbon disulfide	ND	ug/kg	8.4	1		08/16/14 01:33	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.2	1		08/16/14 01:33	56-23-5	
Chlorobenzene	ND	ug/kg	4.2	1		08/16/14 01:33	108-90-7	
Chloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	75-00-3	
Chloroform	ND	ug/kg	4.2	1		08/16/14 01:33	67-66-3	
Chloromethane	ND	ug/kg	4.2	1		08/16/14 01:33	74-87-3	
Cyclohexane	ND	ug/kg	83.6	1		08/16/14 01:33	110-82-7	
Dibromochloromethane	ND	ug/kg	4.2	1		08/16/14 01:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.2	1		08/16/14 01:33	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.2	1		08/16/14 01:33	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.2	1		08/16/14 01:33	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.2	1		08/16/14 01:33	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.2	1		08/16/14 01:33	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.2	1		08/16/14 01:33	75-35-4	
cis-1,2-Dichloroethene	**24.4**	ug/kg	4.2	1		08/16/14 01:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.2	1		08/16/14 01:33	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.2	1		08/16/14 01:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/16/14 01:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/16/14 01:33	10061-02-6	
Ethylbenzene	ND	ug/kg	4.2	1		08/16/14 01:33	100-41-4	
2-Hexanone	ND	ug/kg	83.6	1		08/16/14 01:33	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.2	1		08/16/14 01:33	98-82-8	
Methyl acetate	ND	ug/kg	4.2	1		08/16/14 01:33	79-20-9	
Methylcyclohexane	ND	ug/kg	4.2	1		08/16/14 01:33	108-87-2	
Methylene Chloride	**9.0J**	ug/kg	16.7	1		08/16/14 01:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.9	1		08/16/14 01:33	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		08/16/14 01:33	1634-04-4	
Styrene	ND	ug/kg	4.2	1		08/16/14 01:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	79-34-5	
Tetrachloroethene	**3.4J**	ug/kg	4.2	1		08/16/14 01:33	127-18-4	
Toluene	ND	ug/kg	4.2	1		08/16/14 01:33	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.2	1		08/16/14 01:33	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.2	1		08/16/14 01:33	79-00-5	
Trichloroethene	**72900**	ug/kg	4480	1000		08/17/14 01:50	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.2	1		08/16/14 01:33	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.2	1		08/16/14 01:33	76-13-1	
Vinyl chloride	ND	ug/kg	4.2	1		08/16/14 01:33	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(14-16) **Lab ID: 50101872020** Collected: 08/05/14 14:01 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.4	1		08/16/14 01:33	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	115	%.	85-118	1		08/16/14 01:33	1868-53-7	
Toluene-d8 (S)	112	%.	71-128	1		08/16/14 01:33	2037-26-5	
4-Bromofluorobenzene (S)	66	%.	56-144	1		08/16/14 01:33	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**14.0**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(16-18) **Lab ID: 50101872021** Collected: 08/05/14 14:03 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**5030**	ug/kg	2240	25		08/15/14 13:22	67-64-1	B,C9,CC
Benzene	ND	ug/kg	112	25		08/15/14 13:22	71-43-2	1d
Bromodichloromethane	ND	ug/kg	112	25		08/15/14 13:22	75-27-4	
Bromoform	ND	ug/kg	112	25		08/15/14 13:22	75-25-2	
Bromomethane	ND	ug/kg	112	25		08/15/14 13:22	74-83-9	
2-Butanone (MEK)	ND	ug/kg	560	25		08/15/14 13:22	78-93-3	
Carbon disulfide	ND	ug/kg	224	25		08/15/14 13:22	75-15-0	
Carbon tetrachloride	ND	ug/kg	112	25		08/15/14 13:22	56-23-5	
Chlorobenzene	ND	ug/kg	112	25		08/15/14 13:22	108-90-7	
Chloroethane	ND	ug/kg	112	25		08/15/14 13:22	75-00-3	
Chloroform	ND	ug/kg	112	25		08/15/14 13:22	67-66-3	
Chloromethane	ND	ug/kg	112	25		08/15/14 13:22	74-87-3	
Cyclohexane	ND	ug/kg	2240	25		08/15/14 13:22	110-82-7	
Dibromochloromethane	ND	ug/kg	112	25		08/15/14 13:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	112	25		08/15/14 13:22	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	112	25		08/15/14 13:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	112	25		08/15/14 13:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	112	25		08/15/14 13:22	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	112	25		08/15/14 13:22	75-71-8	
1,1-Dichloroethane	ND	ug/kg	112	25		08/15/14 13:22	75-34-3	
1,2-Dichloroethane	ND	ug/kg	112	25		08/15/14 13:22	107-06-2	
1,1-Dichloroethene	ND	ug/kg	112	25		08/15/14 13:22	75-35-4	
cis-1,2-Dichloroethene	**181**	ug/kg	112	25		08/15/14 13:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	112	25		08/15/14 13:22	156-60-5	
1,2-Dichloropropane	ND	ug/kg	112	25		08/15/14 13:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	112	25		08/15/14 13:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	112	25		08/15/14 13:22	10061-02-6	
Ethylbenzene	ND	ug/kg	112	25		08/15/14 13:22	100-41-4	
2-Hexanone	ND	ug/kg	2240	25		08/15/14 13:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	112	25		08/15/14 13:22	98-82-8	
Methyl acetate	ND	ug/kg	112	25		08/15/14 13:22	79-20-9	
Methylcyclohexane	ND	ug/kg	112	25		08/15/14 13:22	108-87-2	
Methylene Chloride	ND	ug/kg	448	25		08/15/14 13:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	560	25		08/15/14 13:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	112	25		08/15/14 13:22	1634-04-4	
Styrene	ND	ug/kg	112	25		08/15/14 13:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	112	25		08/15/14 13:22	79-34-5	
Tetrachloroethene	**55.3J**	ug/kg	112	25		08/15/14 13:22	127-18-4	
Toluene	ND	ug/kg	112	25		08/15/14 13:22	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	112	25		08/15/14 13:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	112	25		08/15/14 13:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	112	25		08/15/14 13:22	79-00-5	
Trichloroethene	**67500**	ug/kg	8960	2000		08/15/14 20:36	79-01-6	
Trichlorofluoromethane	ND	ug/kg	112	25		08/15/14 13:22	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	112	25		08/15/14 13:22	76-13-1	
Vinyl chloride	ND	ug/kg	112	25		08/15/14 13:22	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(16-18) **Lab ID: 50101872021** Collected: 08/05/14 14:03 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	224	25		08/15/14 13:22	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	25		08/15/14 13:22	1868-53-7	
Toluene-d8 (S)	98	%.	71-128	25		08/15/14 13:22	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	56-144	25		08/15/14 13:22	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.6**	%	0.10	1		08/07/14 12:18		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(18-20) **Lab ID: 50101872022** Collected: 08/05/14 14:05 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	4430	50		08/17/14 05:47	67-64-1	
Benzene	ND	ug/kg	222	50		08/17/14 05:47	71-43-2	2d
Bromodichloromethane	ND	ug/kg	222	50		08/17/14 05:47	75-27-4	
Bromoform	ND	ug/kg	222	50		08/17/14 05:47	75-25-2	
Bromomethane	ND	ug/kg	222	50		08/17/14 05:47	74-83-9	
2-Butanone (MEK)	ND	ug/kg	1110	50		08/17/14 05:47	78-93-3	
Carbon disulfide	ND	ug/kg	443	50		08/17/14 05:47	75-15-0	
Carbon tetrachloride	ND	ug/kg	222	50		08/17/14 05:47	56-23-5	
Chlorobenzene	ND	ug/kg	222	50		08/17/14 05:47	108-90-7	
Chloroethane	ND	ug/kg	222	50		08/17/14 05:47	75-00-3	
Chloroform	ND	ug/kg	222	50		08/17/14 05:47	67-66-3	
Chloromethane	ND	ug/kg	222	50		08/17/14 05:47	74-87-3	
Cyclohexane	ND	ug/kg	4430	50		08/17/14 05:47	110-82-7	
Dibromochloromethane	ND	ug/kg	222	50		08/17/14 05:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	222	50		08/17/14 05:47	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	222	50		08/17/14 05:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	222	50		08/17/14 05:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	222	50		08/17/14 05:47	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	222	50		08/17/14 05:47	75-71-8	
1,1-Dichloroethane	ND	ug/kg	222	50		08/17/14 05:47	75-34-3	
1,2-Dichloroethane	ND	ug/kg	222	50		08/17/14 05:47	107-06-2	
1,1-Dichloroethene	ND	ug/kg	222	50		08/17/14 05:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	222	50		08/17/14 05:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	222	50		08/17/14 05:47	156-60-5	
1,2-Dichloropropane	ND	ug/kg	222	50		08/17/14 05:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	222	50		08/17/14 05:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	222	50		08/17/14 05:47	10061-02-6	
Ethylbenzene	ND	ug/kg	222	50		08/17/14 05:47	100-41-4	
2-Hexanone	ND	ug/kg	4430	50		08/17/14 05:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	222	50		08/17/14 05:47	98-82-8	
Methyl acetate	ND	ug/kg	222	50		08/17/14 05:47	79-20-9	
Methylcyclohexane	ND	ug/kg	222	50		08/17/14 05:47	108-87-2	
Methylene Chloride	ND	ug/kg	887	50		08/17/14 05:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1110	50		08/17/14 05:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	222	50		08/17/14 05:47	1634-04-4	4d
Styrene	ND	ug/kg	222	50		08/17/14 05:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	222	50		08/17/14 05:47	79-34-5	
Tetrachloroethene	ND	ug/kg	222	50		08/17/14 05:47	127-18-4	
Toluene	ND	ug/kg	222	50		08/17/14 05:47	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	222	50		08/17/14 05:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	222	50		08/17/14 05:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	222	50		08/17/14 05:47	79-00-5	
Trichloroethene	**27200**	ug/kg	4430	1000		08/17/14 06:26	79-01-6	
Trichlorofluoromethane	ND	ug/kg	222	50		08/17/14 05:47	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	222	50		08/17/14 05:47	76-13-1	
Vinyl chloride	ND	ug/kg	222	50		08/17/14 05:47	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(18-20) **Lab ID: 50101872022** Collected: 08/05/14 14:05 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	443	50		08/17/14 05:47	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	102	%.	85-118	50		08/17/14 05:47	1868-53-7	D4
Toluene-d8 (S)	97	%.	71-128	50		08/17/14 05:47	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	56-144	50		08/17/14 05:47	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.4**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(20-22) **Lab ID: 50101872023** Collected: 08/05/14 14:15 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	3910	50		08/17/14 07:05	67-64-1	
Benzene	ND	ug/kg	195	50		08/17/14 07:05	71-43-2	2d
Bromodichloromethane	ND	ug/kg	195	50		08/17/14 07:05	75-27-4	
Bromoform	ND	ug/kg	195	50		08/17/14 07:05	75-25-2	
Bromomethane	ND	ug/kg	195	50		08/17/14 07:05	74-83-9	
2-Butanone (MEK)	ND	ug/kg	977	50		08/17/14 07:05	78-93-3	
Carbon disulfide	ND	ug/kg	391	50		08/17/14 07:05	75-15-0	
Carbon tetrachloride	ND	ug/kg	195	50		08/17/14 07:05	56-23-5	
Chlorobenzene	ND	ug/kg	195	50		08/17/14 07:05	108-90-7	
Chloroethane	ND	ug/kg	195	50		08/17/14 07:05	75-00-3	
Chloroform	ND	ug/kg	195	50		08/17/14 07:05	67-66-3	
Chloromethane	ND	ug/kg	195	50		08/17/14 07:05	74-87-3	
Cyclohexane	ND	ug/kg	3910	50		08/17/14 07:05	110-82-7	
Dibromochloromethane	ND	ug/kg	195	50		08/17/14 07:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	195	50		08/17/14 07:05	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	195	50		08/17/14 07:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	195	50		08/17/14 07:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	195	50		08/17/14 07:05	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	195	50		08/17/14 07:05	75-71-8	
1,1-Dichloroethane	ND	ug/kg	195	50		08/17/14 07:05	75-34-3	
1,2-Dichloroethane	ND	ug/kg	195	50		08/17/14 07:05	107-06-2	
1,1-Dichloroethene	ND	ug/kg	195	50		08/17/14 07:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	195	50		08/17/14 07:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	195	50		08/17/14 07:05	156-60-5	
1,2-Dichloropropane	ND	ug/kg	195	50		08/17/14 07:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	195	50		08/17/14 07:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	195	50		08/17/14 07:05	10061-02-6	
Ethylbenzene	ND	ug/kg	195	50		08/17/14 07:05	100-41-4	
2-Hexanone	ND	ug/kg	3910	50		08/17/14 07:05	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	195	50		08/17/14 07:05	98-82-8	
Methyl acetate	ND	ug/kg	195	50		08/17/14 07:05	79-20-9	
Methylcyclohexane	ND	ug/kg	195	50		08/17/14 07:05	108-87-2	
Methylene Chloride	ND	ug/kg	782	50		08/17/14 07:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	977	50		08/17/14 07:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	195	50		08/17/14 07:05	1634-04-4	4d
Styrene	ND	ug/kg	195	50		08/17/14 07:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	195	50		08/17/14 07:05	79-34-5	
Tetrachloroethene	ND	ug/kg	195	50		08/17/14 07:05	127-18-4	
Toluene	ND	ug/kg	195	50		08/17/14 07:05	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	195	50		08/17/14 07:05	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	195	50		08/17/14 07:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	195	50		08/17/14 07:05	79-00-5	
Trichloroethene	**7450**	ug/kg	195	50		08/17/14 07:05	79-01-6	
Trichlorofluoromethane	ND	ug/kg	195	50		08/17/14 07:05	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	195	50		08/17/14 07:05	76-13-1	
Vinyl chloride	ND	ug/kg	195	50		08/17/14 07:05	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(20-22) **Lab ID: 50101872023** Collected: 08/05/14 14:15 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	391	50		08/17/14 07:05	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	85-118	50		08/17/14 07:05	1868-53-7	D4
Toluene-d8 (S)	94	%.	71-128	50		08/17/14 07:05	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	56-144	50		08/17/14 07:05	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**6.9**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(22-24) **Lab ID: 50101872024** Collected: 08/05/14 14:18 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	80.0	1		08/17/14 04:47	67-64-1	
Benzene	ND	ug/kg	4.0	1		08/17/14 04:47	71-43-2	
Bromodichloromethane	ND	ug/kg	4.0	1		08/17/14 04:47	75-27-4	
Bromoform	ND	ug/kg	4.0	1		08/17/14 04:47	75-25-2	
Bromomethane	ND	ug/kg	4.0	1		08/17/14 04:47	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.0	1		08/17/14 04:47	78-93-3	
Carbon disulfide	ND	ug/kg	8.0	1		08/17/14 04:47	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.0	1		08/17/14 04:47	56-23-5	
Chlorobenzene	ND	ug/kg	4.0	1		08/17/14 04:47	108-90-7	
Chloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	75-00-3	
Chloroform	ND	ug/kg	4.0	1		08/17/14 04:47	67-66-3	
Chloromethane	ND	ug/kg	4.0	1		08/17/14 04:47	74-87-3	
Cyclohexane	ND	ug/kg	80.0	1		08/17/14 04:47	110-82-7	
Dibromochloromethane	ND	ug/kg	4.0	1		08/17/14 04:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.0	1		08/17/14 04:47	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.0	1		08/17/14 04:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.0	1		08/17/14 04:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.0	1		08/17/14 04:47	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.0	1		08/17/14 04:47	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.0	1		08/17/14 04:47	75-35-4	
cis-1,2-Dichloroethene	**10.1**	ug/kg	4.0	1		08/17/14 04:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.0	1		08/17/14 04:47	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.0	1		08/17/14 04:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.0	1		08/17/14 04:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.0	1		08/17/14 04:47	10061-02-6	
Ethylbenzene	ND	ug/kg	4.0	1		08/17/14 04:47	100-41-4	
2-Hexanone	ND	ug/kg	80.0	1		08/17/14 04:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.0	1		08/17/14 04:47	98-82-8	
Methyl acetate	ND	ug/kg	4.0	1		08/17/14 04:47	79-20-9	
Methylcyclohexane	ND	ug/kg	4.0	1		08/17/14 04:47	108-87-2	
Methylene Chloride	ND	ug/kg	16.0	1		08/17/14 04:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.0	1		08/17/14 04:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.0	1		08/17/14 04:47	1634-04-4	
Styrene	ND	ug/kg	4.0	1		08/17/14 04:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	79-34-5	
Tetrachloroethene	ND	ug/kg	4.0	1		08/17/14 04:47	127-18-4	
Toluene	ND	ug/kg	4.0	1		08/17/14 04:47	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.0	1		08/17/14 04:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.0	1		08/17/14 04:47	79-00-5	
Trichloroethene	**2670**	ug/kg	219	50		08/19/14 01:43	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.0	1		08/17/14 04:47	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.0	1		08/17/14 04:47	76-13-1	
Vinyl chloride	ND	ug/kg	4.0	1		08/17/14 04:47	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(22-24) **Lab ID: 50101872024** Collected: 08/05/14 14:18 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.0	1		08/17/14 04:47	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/17/14 04:47	1868-53-7	
Toluene-d8 (S)	106	%.	71-128	1		08/17/14 04:47	2037-26-5	
4-Bromofluorobenzene (S)	82	%.	56-144	1		08/17/14 04:47	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.7**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(24-26) **Lab ID: 50101872025** Collected: 08/05/14 14:20 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	87.2	1		08/17/14 05:27	67-64-1	
Benzene	ND	ug/kg	4.4	1		08/17/14 05:27	71-43-2	
Bromodichloromethane	ND	ug/kg	4.4	1		08/17/14 05:27	75-27-4	
Bromoform	ND	ug/kg	4.4	1		08/17/14 05:27	75-25-2	
Bromomethane	ND	ug/kg	4.4	1		08/17/14 05:27	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.8	1		08/17/14 05:27	78-93-3	
Carbon disulfide	ND	ug/kg	8.7	1		08/17/14 05:27	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.4	1		08/17/14 05:27	56-23-5	
Chlorobenzene	ND	ug/kg	4.4	1		08/17/14 05:27	108-90-7	
Chloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	75-00-3	
Chloroform	ND	ug/kg	4.4	1		08/17/14 05:27	67-66-3	
Chloromethane	ND	ug/kg	4.4	1		08/17/14 05:27	74-87-3	
Cyclohexane	ND	ug/kg	87.2	1		08/17/14 05:27	110-82-7	
Dibromochloromethane	ND	ug/kg	4.4	1		08/17/14 05:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.4	1		08/17/14 05:27	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 05:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 05:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 05:27	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.4	1		08/17/14 05:27	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 05:27	75-35-4	
cis-1,2-Dichloroethene	**6.5**	ug/kg	4.4	1		08/17/14 05:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 05:27	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.4	1		08/17/14 05:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 05:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 05:27	10061-02-6	
Ethylbenzene	ND	ug/kg	4.4	1		08/17/14 05:27	100-41-4	
2-Hexanone	ND	ug/kg	87.2	1		08/17/14 05:27	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.4	1		08/17/14 05:27	98-82-8	
Methyl acetate	ND	ug/kg	4.4	1		08/17/14 05:27	79-20-9	
Methylcyclohexane	ND	ug/kg	4.4	1		08/17/14 05:27	108-87-2	
Methylene Chloride	ND	ug/kg	17.4	1		08/17/14 05:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.8	1		08/17/14 05:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.4	1		08/17/14 05:27	1634-04-4	
Styrene	ND	ug/kg	4.4	1		08/17/14 05:27	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	79-34-5	
Tetrachloroethene	ND	ug/kg	4.4	1		08/17/14 05:27	127-18-4	
Toluene	ND	ug/kg	4.4	1		08/17/14 05:27	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.4	1		08/17/14 05:27	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 05:27	79-00-5	
Trichloroethene	**38.1**	ug/kg	4.4	1		08/17/14 05:27	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.4	1		08/17/14 05:27	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.4	1		08/17/14 05:27	76-13-1	
Vinyl chloride	ND	ug/kg	4.4	1		08/17/14 05:27	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(24-26) **Lab ID: 50101872025** Collected: 08/05/14 14:20 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.7	1		08/17/14 05:27	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	117	%.	85-118	1		08/17/14 05:27	1868-53-7	H7
Toluene-d8 (S)	100	%.	71-128	1		08/17/14 05:27	2037-26-5	
4-Bromofluorobenzene (S)	87	%.	56-144	1		08/17/14 05:27	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**7.7**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(26-28) **Lab ID: 50101872026** Collected: 08/05/14 14:22 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	4000	50		08/17/14 08:24	67-64-1	
Benzene	ND	ug/kg	200	50		08/17/14 08:24	71-43-2	2d
Bromodichloromethane	ND	ug/kg	200	50		08/17/14 08:24	75-27-4	
Bromoform	ND	ug/kg	200	50		08/17/14 08:24	75-25-2	
Bromomethane	ND	ug/kg	200	50		08/17/14 08:24	74-83-9	
2-Butanone (MEK)	ND	ug/kg	999	50		08/17/14 08:24	78-93-3	
Carbon disulfide	ND	ug/kg	400	50		08/17/14 08:24	75-15-0	
Carbon tetrachloride	ND	ug/kg	200	50		08/17/14 08:24	56-23-5	
Chlorobenzene	ND	ug/kg	200	50		08/17/14 08:24	108-90-7	
Chloroethane	ND	ug/kg	200	50		08/17/14 08:24	75-00-3	
Chloroform	ND	ug/kg	200	50		08/17/14 08:24	67-66-3	
Chloromethane	ND	ug/kg	200	50		08/17/14 08:24	74-87-3	
Cyclohexane	ND	ug/kg	4000	50		08/17/14 08:24	110-82-7	
Dibromochloromethane	ND	ug/kg	200	50		08/17/14 08:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	200	50		08/17/14 08:24	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	200	50		08/17/14 08:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	200	50		08/17/14 08:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	200	50		08/17/14 08:24	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	200	50		08/17/14 08:24	75-71-8	
1,1-Dichloroethane	ND	ug/kg	200	50		08/17/14 08:24	75-34-3	
1,2-Dichloroethane	ND	ug/kg	200	50		08/17/14 08:24	107-06-2	
1,1-Dichloroethene	ND	ug/kg	200	50		08/17/14 08:24	75-35-4	
cis-1,2-Dichloroethene	**155J**	ug/kg	200	50		08/17/14 08:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	200	50		08/17/14 08:24	156-60-5	
1,2-Dichloropropane	ND	ug/kg	200	50		08/17/14 08:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	200	50		08/17/14 08:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	200	50		08/17/14 08:24	10061-02-6	
Ethylbenzene	ND	ug/kg	200	50		08/17/14 08:24	100-41-4	
2-Hexanone	ND	ug/kg	4000	50		08/17/14 08:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	200	50		08/17/14 08:24	98-82-8	
Methyl acetate	ND	ug/kg	200	50		08/17/14 08:24	79-20-9	
Methylcyclohexane	ND	ug/kg	200	50		08/17/14 08:24	108-87-2	
Methylene Chloride	ND	ug/kg	799	50		08/17/14 08:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	999	50		08/17/14 08:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	200	50		08/17/14 08:24	1634-04-4	4d
Styrene	ND	ug/kg	200	50		08/17/14 08:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	200	50		08/17/14 08:24	79-34-5	
Tetrachloroethene	ND	ug/kg	200	50		08/17/14 08:24	127-18-4	
Toluene	ND	ug/kg	200	50		08/17/14 08:24	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	200	50		08/17/14 08:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	200	50		08/17/14 08:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	200	50		08/17/14 08:24	79-00-5	
Trichloroethene	**4080**	ug/kg	200	50		08/17/14 08:24	79-01-6	
Trichlorofluoromethane	ND	ug/kg	200	50		08/17/14 08:24	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	200	50		08/17/14 08:24	76-13-1	
Vinyl chloride	ND	ug/kg	200	50		08/17/14 08:24	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(26-28) **Lab ID: 50101872026** Collected: 08/05/14 14:22 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	400	50		08/17/14 08:24	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	85-118	50		08/17/14 08:24	1868-53-7	D4
Toluene-d8 (S)	95	%.	71-128	50		08/17/14 08:24	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	56-144	50		08/17/14 08:24	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**10.8**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(28-30) **Lab ID: 50101872027** Collected: 08/05/14 14:24 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	89.0	1		08/17/14 06:06	67-64-1	
Benzene	ND	ug/kg	4.4	1		08/17/14 06:06	71-43-2	
Bromodichloromethane	ND	ug/kg	4.4	1		08/17/14 06:06	75-27-4	
Bromoform	ND	ug/kg	4.4	1		08/17/14 06:06	75-25-2	
Bromomethane	ND	ug/kg	4.4	1		08/17/14 06:06	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22.2	1		08/17/14 06:06	78-93-3	
Carbon disulfide	ND	ug/kg	8.9	1		08/17/14 06:06	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.4	1		08/17/14 06:06	56-23-5	
Chlorobenzene	ND	ug/kg	4.4	1		08/17/14 06:06	108-90-7	
Chloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	75-00-3	
Chloroform	ND	ug/kg	4.4	1		08/17/14 06:06	67-66-3	
Chloromethane	ND	ug/kg	4.4	1		08/17/14 06:06	74-87-3	
Cyclohexane	ND	ug/kg	89.0	1		08/17/14 06:06	110-82-7	
Dibromochloromethane	ND	ug/kg	4.4	1		08/17/14 06:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.4	1		08/17/14 06:06	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 06:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 06:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.4	1		08/17/14 06:06	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.4	1		08/17/14 06:06	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 06:06	75-35-4	
cis-1,2-Dichloroethene	**6.3**	ug/kg	4.4	1		08/17/14 06:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.4	1		08/17/14 06:06	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.4	1		08/17/14 06:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 06:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.4	1		08/17/14 06:06	10061-02-6	
Ethylbenzene	ND	ug/kg	4.4	1		08/17/14 06:06	100-41-4	
2-Hexanone	ND	ug/kg	89.0	1		08/17/14 06:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.4	1		08/17/14 06:06	98-82-8	
Methyl acetate	ND	ug/kg	4.4	1		08/17/14 06:06	79-20-9	
Methylcyclohexane	ND	ug/kg	4.4	1		08/17/14 06:06	108-87-2	
Methylene Chloride	ND	ug/kg	17.8	1		08/17/14 06:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	22.2	1		08/17/14 06:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.4	1		08/17/14 06:06	1634-04-4	
Styrene	ND	ug/kg	4.4	1		08/17/14 06:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	79-34-5	
Tetrachloroethene	ND	ug/kg	4.4	1		08/17/14 06:06	127-18-4	
Toluene	ND	ug/kg	4.4	1		08/17/14 06:06	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.4	1		08/17/14 06:06	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.4	1		08/17/14 06:06	79-00-5	
Trichloroethene	**7.5**	ug/kg	4.4	1		08/17/14 06:06	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.4	1		08/17/14 06:06	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.4	1		08/17/14 06:06	76-13-1	
Vinyl chloride	ND	ug/kg	4.4	1		08/17/14 06:06	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(28-30) **Lab ID: 50101872027** Collected: 08/05/14 14:24 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.9	1		08/17/14 06:06	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	114	%.	85-118	1		08/17/14 06:06	1868-53-7	H7
Toluene-d8 (S)	95	%.	71-128	1		08/17/14 06:06	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	56-144	1		08/17/14 06:06	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.2**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(30-32) **Lab ID: 50101872028** Collected: 08/05/14 14:27 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	83.9	1		08/17/14 06:46	67-64-1	
Benzene	ND	ug/kg	4.2	1		08/17/14 06:46	71-43-2	
Bromodichloromethane	ND	ug/kg	4.2	1		08/17/14 06:46	75-27-4	
Bromoform	ND	ug/kg	4.2	1		08/17/14 06:46	75-25-2	
Bromomethane	ND	ug/kg	4.2	1		08/17/14 06:46	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.0	1		08/17/14 06:46	78-93-3	
Carbon disulfide	ND	ug/kg	8.4	1		08/17/14 06:46	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.2	1		08/17/14 06:46	56-23-5	
Chlorobenzene	ND	ug/kg	4.2	1		08/17/14 06:46	108-90-7	
Chloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	75-00-3	
Chloroform	ND	ug/kg	4.2	1		08/17/14 06:46	67-66-3	
Chloromethane	ND	ug/kg	4.2	1		08/17/14 06:46	74-87-3	
Cyclohexane	ND	ug/kg	83.9	1		08/17/14 06:46	110-82-7	
Dibromochloromethane	ND	ug/kg	4.2	1		08/17/14 06:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.2	1		08/17/14 06:46	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 06:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 06:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.2	1		08/17/14 06:46	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.2	1		08/17/14 06:46	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.2	1		08/17/14 06:46	75-35-4	
cis-1,2-Dichloroethene	**5.3**	ug/kg	4.2	1		08/17/14 06:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.2	1		08/17/14 06:46	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.2	1		08/17/14 06:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/17/14 06:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.2	1		08/17/14 06:46	10061-02-6	
Ethylbenzene	ND	ug/kg	4.2	1		08/17/14 06:46	100-41-4	
2-Hexanone	ND	ug/kg	83.9	1		08/17/14 06:46	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.2	1		08/17/14 06:46	98-82-8	
Methyl acetate	ND	ug/kg	4.2	1		08/17/14 06:46	79-20-9	
Methylcyclohexane	ND	ug/kg	4.2	1		08/17/14 06:46	108-87-2	
Methylene Chloride	ND	ug/kg	16.8	1		08/17/14 06:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.0	1		08/17/14 06:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		08/17/14 06:46	1634-04-4	
Styrene	ND	ug/kg	4.2	1		08/17/14 06:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	79-34-5	
Tetrachloroethene	ND	ug/kg	4.2	1		08/17/14 06:46	127-18-4	
Toluene	ND	ug/kg	4.2	1		08/17/14 06:46	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.2	1		08/17/14 06:46	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.2	1		08/17/14 06:46	79-00-5	
Trichloroethene	**10.5**	ug/kg	4.2	1		08/17/14 06:46	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.2	1		08/17/14 06:46	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.2	1		08/17/14 06:46	76-13-1	
Vinyl chloride	ND	ug/kg	4.2	1		08/17/14 06:46	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(30-32) **Lab ID: 50101872028** Collected: 08/05/14 14:27 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.4	1		08/17/14 06:46	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	115	%.	85-118	1		08/17/14 06:46	1868-53-7	H7
Toluene-d8 (S)	100	%.	71-128	1		08/17/14 06:46	2037-26-5	
4-Bromofluorobenzene (S)	85	%.	56-144	1		08/17/14 06:46	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.2**	%	0.10	1		08/07/14 12:19		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(32-34) **Lab ID: 50101872029** Collected: 08/05/14 14:29 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**95.8J**	ug/kg	103	1		08/16/14 10:26	67-64-1	
Benzene	ND	ug/kg	5.1	1		08/16/14 10:26	71-43-2	
Bromodichloromethane	ND	ug/kg	5.1	1		08/16/14 10:26	75-27-4	
Bromoform	ND	ug/kg	5.1	1		08/16/14 10:26	75-25-2	
Bromomethane	ND	ug/kg	5.1	1		08/16/14 10:26	74-83-9	
2-Butanone (MEK)	ND	ug/kg	25.7	1		08/16/14 10:26	78-93-3	
Carbon disulfide	ND	ug/kg	10.3	1		08/16/14 10:26	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.1	1		08/16/14 10:26	56-23-5	
Chlorobenzene	ND	ug/kg	5.1	1		08/16/14 10:26	108-90-7	
Chloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	75-00-3	
Chloroform	ND	ug/kg	5.1	1		08/16/14 10:26	67-66-3	
Chloromethane	ND	ug/kg	5.1	1		08/16/14 10:26	74-87-3	
Cyclohexane	ND	ug/kg	103	1		08/16/14 10:26	110-82-7	
Dibromochloromethane	ND	ug/kg	5.1	1		08/16/14 10:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.1	1		08/16/14 10:26	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	5.1	1		08/16/14 10:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.1	1		08/16/14 10:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.1	1		08/16/14 10:26	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.1	1		08/16/14 10:26	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.1	1		08/16/14 10:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.1	1		08/16/14 10:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.1	1		08/16/14 10:26	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.1	1		08/16/14 10:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.1	1		08/16/14 10:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.1	1		08/16/14 10:26	10061-02-6	
Ethylbenzene	ND	ug/kg	5.1	1		08/16/14 10:26	100-41-4	
2-Hexanone	ND	ug/kg	103	1		08/16/14 10:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.1	1		08/16/14 10:26	98-82-8	
Methyl acetate	ND	ug/kg	5.1	1		08/16/14 10:26	79-20-9	
Methylcyclohexane	ND	ug/kg	5.1	1		08/16/14 10:26	108-87-2	
Methylene Chloride	ND	ug/kg	20.5	1		08/16/14 10:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	25.7	1		08/16/14 10:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.1	1		08/16/14 10:26	1634-04-4	
Styrene	ND	ug/kg	5.1	1		08/16/14 10:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	79-34-5	
Tetrachloroethene	ND	ug/kg	5.1	1		08/16/14 10:26	127-18-4	
Toluene	ND	ug/kg	5.1	1		08/16/14 10:26	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	5.1	1		08/16/14 10:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.1	1		08/16/14 10:26	79-00-5	
Trichloroethene	**4.7J**	ug/kg	5.1	1		08/16/14 10:26	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.1	1		08/16/14 10:26	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.1	1		08/16/14 10:26	76-13-1	
Vinyl chloride	ND	ug/kg	5.1	1		08/16/14 10:26	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(32-34) **Lab ID: 50101872029** Collected: 08/05/14 14:29 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	10.3	1		08/16/14 10:26	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	119	%.	85-118	1		08/16/14 10:26	1868-53-7	S3
Toluene-d8 (S)	95	%.	71-128	1		08/16/14 10:26	2037-26-5	
4-Bromofluorobenzene (S)	84	%.	56-144	1		08/16/14 10:26	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.8**	%	0.10	1		08/07/14 12:20		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(34-36) **Lab ID: 50101872030** Collected: 08/05/14 14:35 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**89.0J**	ug/kg	92.6	1		08/16/14 11:06	67-64-1	
Benzene	ND	ug/kg	4.6	1		08/16/14 11:06	71-43-2	
Bromodichloromethane	ND	ug/kg	4.6	1		08/16/14 11:06	75-27-4	
Bromoform	ND	ug/kg	4.6	1		08/16/14 11:06	75-25-2	
Bromomethane	ND	ug/kg	4.6	1		08/16/14 11:06	74-83-9	
2-Butanone (MEK)	ND	ug/kg	23.2	1		08/16/14 11:06	78-93-3	
Carbon disulfide	ND	ug/kg	9.3	1		08/16/14 11:06	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.6	1		08/16/14 11:06	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1		08/16/14 11:06	108-90-7	
Chloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	75-00-3	
Chloroform	ND	ug/kg	4.6	1		08/16/14 11:06	67-66-3	
Chloromethane	ND	ug/kg	4.6	1		08/16/14 11:06	74-87-3	
Cyclohexane	ND	ug/kg	92.6	1		08/16/14 11:06	110-82-7	
Dibromochloromethane	ND	ug/kg	4.6	1		08/16/14 11:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1		08/16/14 11:06	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1		08/16/14 11:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1		08/16/14 11:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1		08/16/14 11:06	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.6	1		08/16/14 11:06	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1		08/16/14 11:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.6	1		08/16/14 11:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1		08/16/14 11:06	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1		08/16/14 11:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/16/14 11:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1		08/16/14 11:06	10061-02-6	
Ethylbenzene	ND	ug/kg	4.6	1		08/16/14 11:06	100-41-4	
2-Hexanone	ND	ug/kg	92.6	1		08/16/14 11:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1		08/16/14 11:06	98-82-8	
Methyl acetate	ND	ug/kg	4.6	1		08/16/14 11:06	79-20-9	
Methylcyclohexane	ND	ug/kg	4.6	1		08/16/14 11:06	108-87-2	
Methylene Chloride	ND	ug/kg	18.5	1		08/16/14 11:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	23.2	1		08/16/14 11:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		08/16/14 11:06	1634-04-4	
Styrene	ND	ug/kg	4.6	1		08/16/14 11:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1		08/16/14 11:06	127-18-4	
Toluene	ND	ug/kg	4.6	1		08/16/14 11:06	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1		08/16/14 11:06	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1		08/16/14 11:06	79-00-5	
Trichloroethene	**1.2J**	ug/kg	4.6	1		08/16/14 11:06	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	1		08/16/14 11:06	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.6	1		08/16/14 11:06	76-13-1	
Vinyl chloride	ND	ug/kg	4.6	1		08/16/14 11:06	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(34-36) **Lab ID: 50101872030** Collected: 08/05/14 14:35 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.3	1		08/16/14 11:06	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	117	%.	85-118	1		08/16/14 11:06	1868-53-7	
Toluene-d8 (S)	95	%.	71-128	1		08/16/14 11:06	2037-26-5	
4-Bromofluorobenzene (S)	84	%.	56-144	1		08/16/14 11:06	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.8**	%	0.10	1		08/07/14 12:20		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(36-38) **Lab ID: 50101872031** Collected: 08/05/14 14:37 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**71.4J**	ug/kg	82.8	1		08/16/14 11:45	67-64-1	
Benzene	ND	ug/kg	4.1	1		08/16/14 11:45	71-43-2	
Bromodichloromethane	ND	ug/kg	4.1	1		08/16/14 11:45	75-27-4	
Bromoform	ND	ug/kg	4.1	1		08/16/14 11:45	75-25-2	
Bromomethane	ND	ug/kg	4.1	1		08/16/14 11:45	74-83-9	
2-Butanone (MEK)	ND	ug/kg	20.7	1		08/16/14 11:45	78-93-3	
Carbon disulfide	ND	ug/kg	8.3	1		08/16/14 11:45	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.1	1		08/16/14 11:45	56-23-5	
Chlorobenzene	ND	ug/kg	4.1	1		08/16/14 11:45	108-90-7	
Chloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	75-00-3	
Chloroform	ND	ug/kg	4.1	1		08/16/14 11:45	67-66-3	
Chloromethane	ND	ug/kg	4.1	1		08/16/14 11:45	74-87-3	
Cyclohexane	ND	ug/kg	82.8	1		08/16/14 11:45	110-82-7	
Dibromochloromethane	ND	ug/kg	4.1	1		08/16/14 11:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.1	1		08/16/14 11:45	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.1	1		08/16/14 11:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.1	1		08/16/14 11:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.1	1		08/16/14 11:45	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.1	1		08/16/14 11:45	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.1	1		08/16/14 11:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/16/14 11:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.1	1		08/16/14 11:45	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.1	1		08/16/14 11:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/16/14 11:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.1	1		08/16/14 11:45	10061-02-6	
Ethylbenzene	ND	ug/kg	4.1	1		08/16/14 11:45	100-41-4	
2-Hexanone	ND	ug/kg	82.8	1		08/16/14 11:45	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		08/16/14 11:45	98-82-8	
Methyl acetate	ND	ug/kg	4.1	1		08/16/14 11:45	79-20-9	
Methylcyclohexane	ND	ug/kg	4.1	1		08/16/14 11:45	108-87-2	
Methylene Chloride	ND	ug/kg	16.6	1		08/16/14 11:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	20.7	1		08/16/14 11:45	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		08/16/14 11:45	1634-04-4	
Styrene	ND	ug/kg	4.1	1		08/16/14 11:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	79-34-5	
Tetrachloroethene	ND	ug/kg	4.1	1		08/16/14 11:45	127-18-4	
Toluene	ND	ug/kg	4.1	1		08/16/14 11:45	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.1	1		08/16/14 11:45	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.1	1		08/16/14 11:45	79-00-5	
Trichloroethene	ND	ug/kg	4.1	1		08/16/14 11:45	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.1	1		08/16/14 11:45	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.1	1		08/16/14 11:45	76-13-1	
Vinyl chloride	ND	ug/kg	4.1	1		08/16/14 11:45	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(36-38) **Lab ID: 50101872031** Collected: 08/05/14 14:37 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.3	1		08/16/14 11:45	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	115	%.	85-118	1		08/16/14 11:45	1868-53-7	
Toluene-d8 (S)	100	%.	71-128	1		08/16/14 11:45	2037-26-5	
4-Bromofluorobenzene (S)	79	%.	56-144	1		08/16/14 11:45	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**6.4**	%	0.10	1		08/07/14 12:20		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(38-40) **Lab ID: 50101872032** Collected: 08/05/14 14:39 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	**81.4J**	ug/kg	85.4	1		08/16/14 12:24	67-64-1	
Benzene	ND	ug/kg	4.3	1		08/16/14 12:24	71-43-2	
Bromodichloromethane	ND	ug/kg	4.3	1		08/16/14 12:24	75-27-4	
Bromoform	ND	ug/kg	4.3	1		08/16/14 12:24	75-25-2	
Bromomethane	ND	ug/kg	4.3	1		08/16/14 12:24	74-83-9	
2-Butanone (MEK)	ND	ug/kg	21.4	1		08/16/14 12:24	78-93-3	
Carbon disulfide	ND	ug/kg	8.5	1		08/16/14 12:24	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.3	1		08/16/14 12:24	56-23-5	
Chlorobenzene	ND	ug/kg	4.3	1		08/16/14 12:24	108-90-7	
Chloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	75-00-3	
Chloroform	ND	ug/kg	4.3	1		08/16/14 12:24	67-66-3	
Chloromethane	ND	ug/kg	4.3	1		08/16/14 12:24	74-87-3	
Cyclohexane	ND	ug/kg	85.4	1		08/16/14 12:24	110-82-7	
Dibromochloromethane	ND	ug/kg	4.3	1		08/16/14 12:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.3	1		08/16/14 12:24	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.3	1		08/16/14 12:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.3	1		08/16/14 12:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.3	1		08/16/14 12:24	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.3	1		08/16/14 12:24	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.3	1		08/16/14 12:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.3	1		08/16/14 12:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.3	1		08/16/14 12:24	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.3	1		08/16/14 12:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/16/14 12:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.3	1		08/16/14 12:24	10061-02-6	
Ethylbenzene	ND	ug/kg	4.3	1		08/16/14 12:24	100-41-4	
2-Hexanone	ND	ug/kg	85.4	1		08/16/14 12:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1		08/16/14 12:24	98-82-8	
Methyl acetate	ND	ug/kg	4.3	1		08/16/14 12:24	79-20-9	
Methylcyclohexane	ND	ug/kg	4.3	1		08/16/14 12:24	108-87-2	
Methylene Chloride	ND	ug/kg	17.1	1		08/16/14 12:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	21.4	1		08/16/14 12:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.3	1		08/16/14 12:24	1634-04-4	
Styrene	ND	ug/kg	4.3	1		08/16/14 12:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	79-34-5	
Tetrachloroethene	ND	ug/kg	4.3	1		08/16/14 12:24	127-18-4	
Toluene	ND	ug/kg	4.3	1		08/16/14 12:24	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.3	1		08/16/14 12:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.3	1		08/16/14 12:24	79-00-5	
Trichloroethene	**3.2J**	ug/kg	4.3	1		08/16/14 12:24	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.3	1		08/16/14 12:24	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.3	1		08/16/14 12:24	76-13-1	
Vinyl chloride	ND	ug/kg	4.3	1		08/16/14 12:24	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(38-40) **Lab ID: 50101872032** Collected: 08/05/14 14:39 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	8.5	1		08/16/14 12:24	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	118	%.	85-118	1		08/16/14 12:24	1868-53-7	
Toluene-d8 (S)	100	%.	71-128	1		08/16/14 12:24	2037-26-5	
4-Bromofluorobenzene (S)	79	%.	56-144	1		08/16/14 12:24	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**4.8**	%	0.10	1		08/07/14 12:20		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(40-42) **Lab ID: 50101872033** Collected: 08/05/14 14:42 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	94.9	1		08/18/14 19:28	67-64-1	
Benzene	ND	ug/kg	4.7	1		08/18/14 19:28	71-43-2	
Bromodichloromethane	ND	ug/kg	4.7	1		08/18/14 19:28	75-27-4	
Bromoform	ND	ug/kg	4.7	1		08/18/14 19:28	75-25-2	
Bromomethane	ND	ug/kg	4.7	1		08/18/14 19:28	74-83-9	
2-Butanone (MEK)	ND	ug/kg	23.7	1		08/18/14 19:28	78-93-3	
Carbon disulfide	ND	ug/kg	9.5	1		08/18/14 19:28	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.7	1		08/18/14 19:28	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	1		08/18/14 19:28	108-90-7	
Chloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	75-00-3	
Chloroform	ND	ug/kg	4.7	1		08/18/14 19:28	67-66-3	
Chloromethane	ND	ug/kg	4.7	1		08/18/14 19:28	74-87-3	
Cyclohexane	ND	ug/kg	94.9	1		08/18/14 19:28	110-82-7	
Dibromochloromethane	ND	ug/kg	4.7	1		08/18/14 19:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.7	1		08/18/14 19:28	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	4.7	1		08/18/14 19:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.7	1		08/18/14 19:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.7	1		08/18/14 19:28	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	4.7	1		08/18/14 19:28	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	1		08/18/14 19:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	1		08/18/14 19:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	1		08/18/14 19:28	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	1		08/18/14 19:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	1		08/18/14 19:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	1		08/18/14 19:28	10061-02-6	
Ethylbenzene	ND	ug/kg	4.7	1		08/18/14 19:28	100-41-4	
2-Hexanone	ND	ug/kg	94.9	1		08/18/14 19:28	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.7	1		08/18/14 19:28	98-82-8	
Methyl acetate	ND	ug/kg	4.7	1		08/18/14 19:28	79-20-9	
Methylcyclohexane	ND	ug/kg	4.7	1		08/18/14 19:28	108-87-2	
Methylene Chloride	ND	ug/kg	19.0	1		08/18/14 19:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	23.7	1		08/18/14 19:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.7	1		08/18/14 19:28	1634-04-4	
Styrene	ND	ug/kg	4.7	1		08/18/14 19:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	1		08/18/14 19:28	127-18-4	
Toluene	ND	ug/kg	4.7	1		08/18/14 19:28	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	4.7	1		08/18/14 19:28	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	1		08/18/14 19:28	79-00-5	
Trichloroethene	ND	ug/kg	4.7	1		08/18/14 19:28	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.7	1		08/18/14 19:28	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	4.7	1		08/18/14 19:28	76-13-1	
Vinyl chloride	ND	ug/kg	4.7	1		08/18/14 19:28	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(40-42) **Lab ID: 50101872033** Collected: 08/05/14 14:42 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	9.5	1		08/18/14 19:28	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	100	%.	85-118	1		08/18/14 19:28	1868-53-7	
Toluene-d8 (S)	101	%.	71-128	1		08/18/14 19:28	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	56-144	1		08/18/14 19:28	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.5**	%	0.10	1		08/07/14 14:13		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(42-44) **Lab ID: 50101872034** Collected: 08/05/14 14:44 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	105	1		08/17/14 07:25	67-64-1	
Benzene	ND	ug/kg	5.3	1		08/17/14 07:25	71-43-2	
Bromodichloromethane	ND	ug/kg	5.3	1		08/17/14 07:25	75-27-4	
Bromoform	ND	ug/kg	5.3	1		08/17/14 07:25	75-25-2	
Bromomethane	ND	ug/kg	5.3	1		08/17/14 07:25	74-83-9	
2-Butanone (MEK)	ND	ug/kg	26.3	1		08/17/14 07:25	78-93-3	
Carbon disulfide	ND	ug/kg	10.5	1		08/17/14 07:25	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.3	1		08/17/14 07:25	56-23-5	
Chlorobenzene	ND	ug/kg	5.3	1		08/17/14 07:25	108-90-7	
Chloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	75-00-3	
Chloroform	ND	ug/kg	5.3	1		08/17/14 07:25	67-66-3	
Chloromethane	ND	ug/kg	5.3	1		08/17/14 07:25	74-87-3	
Cyclohexane	ND	ug/kg	105	1		08/17/14 07:25	110-82-7	
Dibromochloromethane	ND	ug/kg	5.3	1		08/17/14 07:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.3	1		08/17/14 07:25	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	5.3	1		08/17/14 07:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.3	1		08/17/14 07:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.3	1		08/17/14 07:25	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.3	1		08/17/14 07:25	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.3	1		08/17/14 07:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.3	1		08/17/14 07:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.3	1		08/17/14 07:25	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.3	1		08/17/14 07:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.3	1		08/17/14 07:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.3	1		08/17/14 07:25	10061-02-6	
Ethylbenzene	ND	ug/kg	5.3	1		08/17/14 07:25	100-41-4	
2-Hexanone	ND	ug/kg	105	1		08/17/14 07:25	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.3	1		08/17/14 07:25	98-82-8	
Methyl acetate	ND	ug/kg	5.3	1		08/17/14 07:25	79-20-9	
Methylcyclohexane	ND	ug/kg	5.3	1		08/17/14 07:25	108-87-2	
Methylene Chloride	ND	ug/kg	21.0	1		08/17/14 07:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	26.3	1		08/17/14 07:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.3	1		08/17/14 07:25	1634-04-4	
Styrene	ND	ug/kg	5.3	1		08/17/14 07:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	79-34-5	
Tetrachloroethene	ND	ug/kg	5.3	1		08/17/14 07:25	127-18-4	
Toluene	ND	ug/kg	5.3	1		08/17/14 07:25	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	5.3	1		08/17/14 07:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.3	1		08/17/14 07:25	79-00-5	
Trichloroethene	ND	ug/kg	5.3	1		08/17/14 07:25	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.3	1		08/17/14 07:25	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.3	1		08/17/14 07:25	76-13-1	
Vinyl chloride	ND	ug/kg	5.3	1		08/17/14 07:25	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(42-44) **Lab ID: 50101872034** Collected: 08/05/14 14:44 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	10.5	1		08/17/14 07:25	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	105	%.	85-118	1		08/17/14 07:25	1868-53-7	H7
Toluene-d8 (S)	96	%.	71-128	1		08/17/14 07:25	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	56-144	1		08/17/14 07:25	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**4.8**	%	0.10	1		08/07/14 14:13		

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(44-45) **Lab ID: 50101872035** Collected: 08/05/14 14:58 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	107	1		08/17/14 08:05	67-64-1	
Benzene	ND	ug/kg	5.4	1		08/17/14 08:05	71-43-2	
Bromodichloromethane	ND	ug/kg	5.4	1		08/17/14 08:05	75-27-4	
Bromoform	ND	ug/kg	5.4	1		08/17/14 08:05	75-25-2	
Bromomethane	ND	ug/kg	5.4	1		08/17/14 08:05	74-83-9	
2-Butanone (MEK)	ND	ug/kg	26.8	1		08/17/14 08:05	78-93-3	
Carbon disulfide	ND	ug/kg	10.7	1		08/17/14 08:05	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.4	1		08/17/14 08:05	56-23-5	
Chlorobenzene	ND	ug/kg	5.4	1		08/17/14 08:05	108-90-7	
Chloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	75-00-3	
Chloroform	ND	ug/kg	5.4	1		08/17/14 08:05	67-66-3	
Chloromethane	ND	ug/kg	5.4	1		08/17/14 08:05	74-87-3	
Cyclohexane	ND	ug/kg	107	1		08/17/14 08:05	110-82-7	
Dibromochloromethane	ND	ug/kg	5.4	1		08/17/14 08:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.4	1		08/17/14 08:05	106-93-4	
1,2-Dichlorobenzene	ND	ug/kg	5.4	1		08/17/14 08:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.4	1		08/17/14 08:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.4	1		08/17/14 08:05	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.4	1		08/17/14 08:05	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.4	1		08/17/14 08:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.4	1		08/17/14 08:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.4	1		08/17/14 08:05	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.4	1		08/17/14 08:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.4	1		08/17/14 08:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.4	1		08/17/14 08:05	10061-02-6	
Ethylbenzene	ND	ug/kg	5.4	1		08/17/14 08:05	100-41-4	
2-Hexanone	ND	ug/kg	107	1		08/17/14 08:05	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.4	1		08/17/14 08:05	98-82-8	
Methyl acetate	ND	ug/kg	5.4	1		08/17/14 08:05	79-20-9	
Methylcyclohexane	ND	ug/kg	5.4	1		08/17/14 08:05	108-87-2	
Methylene Chloride	ND	ug/kg	21.4	1		08/17/14 08:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	26.8	1		08/17/14 08:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.4	1		08/17/14 08:05	1634-04-4	
Styrene	ND	ug/kg	5.4	1		08/17/14 08:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	79-34-5	
Tetrachloroethene	ND	ug/kg	5.4	1		08/17/14 08:05	127-18-4	
Toluene	ND	ug/kg	5.4	1		08/17/14 08:05	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/kg	5.4	1		08/17/14 08:05	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.4	1		08/17/14 08:05	79-00-5	
Trichloroethene	ND	ug/kg	5.4	1		08/17/14 08:05	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.4	1		08/17/14 08:05	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.4	1		08/17/14 08:05	76-13-1	
Vinyl chloride	ND	ug/kg	5.4	1		08/17/14 08:05	75-01-4	

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ANALYTICAL RESULTS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Sample: ISCO-3(44-45) **Lab ID: 50101872035** Collected: 08/05/14 14:58 Received: 08/05/14 17:34 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Xylene (Total)	ND	ug/kg	10.7	1		08/17/14 08:05	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107	%.	85-118	1		08/17/14 08:05	1868-53-7	H7
Toluene-d8 (S)	102	%.	71-128	1		08/17/14 08:05	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	56-144	1		08/17/14 08:05	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**6.6**	%	0.10	1		08/07/14 14:13		

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67832 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872002, 50101872003, 50101872004, 50101872005, 50101872006, 50101872007, 50101872021

METHOD BLANK: 1142686 Matrix: Solid
Associated Lab Samples: 50101872002, 50101872003, 50101872004, 50101872005, 50101872006, 50101872007, 50101872021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,1-Dichloroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,1-Dichloroethene	ug/kg	ND	5.0	08/15/14 05:29	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/15/14 05:29	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/15/14 05:29	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 05:29	
1,2-Dichloroethane	ug/kg	ND	5.0	08/15/14 05:29	
1,2-Dichloropropane	ug/kg	ND	5.0	08/15/14 05:29	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 05:29	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 05:29	
2-Butanone (MEK)	ug/kg	ND	25.0	08/15/14 05:29	
2-Hexanone	ug/kg	ND	100	08/15/14 05:29	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/15/14 05:29	
Acetone	ug/kg	149	100	08/15/14 05:29	C9,CC
Benzene	ug/kg	ND	5.0	08/15/14 05:29	
Bromodichloromethane	ug/kg	ND	5.0	08/15/14 05:29	
Bromoform	ug/kg	ND	5.0	08/15/14 05:29	
Bromomethane	ug/kg	ND	5.0	08/15/14 05:29	
Carbon disulfide	ug/kg	ND	10.0	08/15/14 05:29	
Carbon tetrachloride	ug/kg	ND	5.0	08/15/14 05:29	
Chlorobenzene	ug/kg	ND	5.0	08/15/14 05:29	
Chloroethane	ug/kg	ND	5.0	08/15/14 05:29	
Chloroform	ug/kg	ND	5.0	08/15/14 05:29	
Chloromethane	ug/kg	ND	5.0	08/15/14 05:29	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/15/14 05:29	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/15/14 05:29	
Cyclohexane	ug/kg	ND	100	08/15/14 05:29	
Dibromochloromethane	ug/kg	ND	5.0	08/15/14 05:29	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/15/14 05:29	
Ethylbenzene	ug/kg	ND	5.0	08/15/14 05:29	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/15/14 05:29	
Methyl acetate	ug/kg	ND	5.0	08/15/14 05:29	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/15/14 05:29	
Methylcyclohexane	ug/kg	ND	5.0	08/15/14 05:29	
Methylene Chloride	ug/kg	10.5J	20.0	08/15/14 05:29	
Styrene	ug/kg	ND	5.0	08/15/14 05:29	
Tetrachloroethene	ug/kg	ND	5.0	08/15/14 05:29	
Toluene	ug/kg	ND	5.0	08/15/14 05:29	

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Pace Analytical Services, Inc.
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(317)228-3100

QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1142686 Matrix: Solid
Associated Lab Samples: 50101872002, 50101872003, 50101872004, 50101872005, 50101872006, 50101872007, 50101872021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/15/14 05:29	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/15/14 05:29	
Trichloroethene	ug/kg	ND	5.0	08/15/14 05:29	
Trichlorofluoromethane	ug/kg	ND	5.0	08/15/14 05:29	
Vinyl chloride	ug/kg	ND	5.0	08/15/14 05:29	
Xylene (Total)	ug/kg	ND	10.0	08/15/14 05:29	
4-Bromofluorobenzene (S)	%.	87	56-144	08/15/14 05:29	
Dibromofluoromethane (S)	%.	107	85-118	08/15/14 05:29	
Toluene-d8 (S)	%.	102	71-128	08/15/14 05:29	

LABORATORY CONTROL SAMPLE: 1142687

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	49.5	99	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	50.7	101	65-124	
1,1-Dichloroethene	ug/kg	50	54.4	109	66-126	
1,2-Dichloropropane	ug/kg	50	52.2	104	75-118	
Benzene	ug/kg	50	50.0	100	74-119	
Chlorobenzene	ug/kg	50	50.6	101	77-122	
Chloroform	ug/kg	50	52.3	105	75-124	
Ethylbenzene	ug/kg	50	47.9	96	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	48.5	97	65-123	
Methyl-tert-butyl ether	ug/kg	100	97.2	97	68-120	
Tetrachloroethene	ug/kg	50	48.1	96	72-126	
Toluene	ug/kg	50	49.4	99	71-121	
Trichloroethene	ug/kg	50	51.5	103	74-123	
Vinyl chloride	ug/kg	50	50.1	100	55-128	
Xylene (Total)	ug/kg	150	142	95	66-124	
4-Bromofluorobenzene (S)	%.			94	56-144	
Dibromofluoromethane (S)	%.			106	85-118	
Toluene-d8 (S)	%.			105	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67866 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872008, 50101872009, 50101872010, 50101872011, 50101872015, 50101872020

METHOD BLANK: 1143312 Matrix: Solid
Associated Lab Samples: 50101872008, 50101872009, 50101872010, 50101872011, 50101872015, 50101872020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,1-Dichloroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,1-Dichloroethene	ug/kg	ND	5.0	08/15/14 16:58	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/15/14 16:58	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/15/14 16:58	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 16:58	
1,2-Dichloroethane	ug/kg	ND	5.0	08/15/14 16:58	
1,2-Dichloropropane	ug/kg	ND	5.0	08/15/14 16:58	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 16:58	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/15/14 16:58	
2-Butanone (MEK)	ug/kg	ND	25.0	08/15/14 16:58	
2-Hexanone	ug/kg	ND	100	08/15/14 16:58	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/15/14 16:58	
Acetone	ug/kg	174	100	08/15/14 16:58	C9,CC
Benzene	ug/kg	ND	5.0	08/15/14 16:58	
Bromodichloromethane	ug/kg	ND	5.0	08/15/14 16:58	
Bromoform	ug/kg	ND	5.0	08/15/14 16:58	
Bromomethane	ug/kg	ND	5.0	08/15/14 16:58	
Carbon disulfide	ug/kg	ND	10.0	08/15/14 16:58	
Carbon tetrachloride	ug/kg	ND	5.0	08/15/14 16:58	
Chlorobenzene	ug/kg	ND	5.0	08/15/14 16:58	
Chloroethane	ug/kg	ND	5.0	08/15/14 16:58	
Chloroform	ug/kg	ND	5.0	08/15/14 16:58	
Chloromethane	ug/kg	ND	5.0	08/15/14 16:58	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/15/14 16:58	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/15/14 16:58	
Cyclohexane	ug/kg	ND	100	08/15/14 16:58	
Dibromochloromethane	ug/kg	ND	5.0	08/15/14 16:58	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/15/14 16:58	
Ethylbenzene	ug/kg	ND	5.0	08/15/14 16:58	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/15/14 16:58	
Methyl acetate	ug/kg	ND	5.0	08/15/14 16:58	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/15/14 16:58	
Methylcyclohexane	ug/kg	ND	5.0	08/15/14 16:58	
Methylene Chloride	ug/kg	24.8	20.0	08/15/14 16:58	
Styrene	ug/kg	ND	5.0	08/15/14 16:58	
Tetrachloroethene	ug/kg	ND	5.0	08/15/14 16:58	
Toluene	ug/kg	ND	5.0	08/15/14 16:58	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143312 Matrix: Solid
Associated Lab Samples: 50101872008, 50101872009, 50101872010, 50101872011, 50101872015, 50101872020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/15/14 16:58	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/15/14 16:58	
Trichloroethene	ug/kg	ND	5.0	08/15/14 16:58	
Trichlorofluoromethane	ug/kg	ND	5.0	08/15/14 16:58	
Vinyl chloride	ug/kg	ND	5.0	08/15/14 16:58	
Xylene (Total)	ug/kg	ND	10.0	08/15/14 16:58	
4-Bromofluorobenzene (S)	%.	92	56-144	08/15/14 16:58	
Dibromofluoromethane (S)	%.	113	85-118	08/15/14 16:58	
Toluene-d8 (S)	%.	97	71-128	08/15/14 16:58	

LABORATORY CONTROL SAMPLE: 1143313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	46.2	92	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	47.0	94	65-124	
1,1-Dichloroethene	ug/kg	50	50.4	101	66-126	
1,2-Dichloropropane	ug/kg	50	47.7	95	75-118	
Benzene	ug/kg	50	47.6	95	74-119	
Chlorobenzene	ug/kg	50	49.6	99	77-122	
Chloroform	ug/kg	50	48.6	97	75-124	
Ethylbenzene	ug/kg	50	46.1	92	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	47.1	94	65-123	
Methyl-tert-butyl ether	ug/kg	100	88.8	89	68-120	
Tetrachloroethene	ug/kg	50	46.1	92	72-126	
Toluene	ug/kg	50	45.7	91	71-121	
Trichloroethene	ug/kg	50	46.7	93	74-123	
Vinyl chloride	ug/kg	50	39.9	80	55-128	
Xylene (Total)	ug/kg	150	140	93	66-124	
4-Bromofluorobenzene (S)	%.			96	56-144	
Dibromofluoromethane (S)	%.			106	85-118	
Toluene-d8 (S)	%.			101	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67871 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872029, 50101872030, 50101872031, 50101872032

METHOD BLANK: 1143397 Matrix: Solid
Associated Lab Samples: 50101872029, 50101872030, 50101872031, 50101872032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,1-Dichloroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,1-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:11	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/16/14 05:11	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/16/14 05:11	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:11	
1,2-Dichloroethane	ug/kg	ND	5.0	08/16/14 05:11	
1,2-Dichloropropane	ug/kg	ND	5.0	08/16/14 05:11	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:11	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:11	
2-Butanone (MEK)	ug/kg	ND	25.0	08/16/14 05:11	
2-Hexanone	ug/kg	ND	100	08/16/14 05:11	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/16/14 05:11	
Acetone	ug/kg	129	100	08/16/14 05:11	
Benzene	ug/kg	ND	5.0	08/16/14 05:11	
Bromodichloromethane	ug/kg	ND	5.0	08/16/14 05:11	
Bromoform	ug/kg	ND	5.0	08/16/14 05:11	
Bromomethane	ug/kg	ND	5.0	08/16/14 05:11	
Carbon disulfide	ug/kg	ND	10.0	08/16/14 05:11	
Carbon tetrachloride	ug/kg	ND	5.0	08/16/14 05:11	
Chlorobenzene	ug/kg	ND	5.0	08/16/14 05:11	
Chloroethane	ug/kg	ND	5.0	08/16/14 05:11	
Chloroform	ug/kg	ND	5.0	08/16/14 05:11	
Chloromethane	ug/kg	ND	5.0	08/16/14 05:11	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:11	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 05:11	
Cyclohexane	ug/kg	ND	100	08/16/14 05:11	
Dibromochloromethane	ug/kg	ND	5.0	08/16/14 05:11	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/16/14 05:11	
Ethylbenzene	ug/kg	ND	5.0	08/16/14 05:11	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/16/14 05:11	
Methyl acetate	ug/kg	ND	5.0	08/16/14 05:11	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/16/14 05:11	
Methylcyclohexane	ug/kg	ND	5.0	08/16/14 05:11	
Methylene Chloride	ug/kg	19.8J	20.0	08/16/14 05:11	
Styrene	ug/kg	ND	5.0	08/16/14 05:11	
Tetrachloroethene	ug/kg	ND	5.0	08/16/14 05:11	
Toluene	ug/kg	ND	5.0	08/16/14 05:11	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143397 Matrix: Solid
Associated Lab Samples: 50101872029, 50101872030, 50101872031, 50101872032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:11	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 05:11	
Trichloroethene	ug/kg	ND	5.0	08/16/14 05:11	
Trichlorofluoromethane	ug/kg	ND	5.0	08/16/14 05:11	
Vinyl chloride	ug/kg	ND	5.0	08/16/14 05:11	
Xylene (Total)	ug/kg	ND	10.0	08/16/14 05:11	
4-Bromofluorobenzene (S)	%.	88	56-144	08/16/14 05:11	
Dibromofluoromethane (S)	%.	109	85-118	08/16/14 05:11	
Toluene-d8 (S)	%.	95	71-128	08/16/14 05:11	

LABORATORY CONTROL SAMPLE: 1143398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	45.7	91	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	42.6	85	65-124	
1,1-Dichloroethene	ug/kg	50	46.2	92	66-126	
1,2-Dichloropropane	ug/kg	50	45.3	91	75-118	
Benzene	ug/kg	50	43.8	88	74-119	
Chlorobenzene	ug/kg	50	46.8	94	77-122	
Chloroform	ug/kg	50	47.3	95	75-124	
Ethylbenzene	ug/kg	50	45.8	92	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	47.8	96	65-123	
Methyl-tert-butyl ether	ug/kg	100	72.9	73	68-120	
Tetrachloroethene	ug/kg	50	46.7	93	72-126	
Toluene	ug/kg	50	42.9	86	71-121	
Trichloroethene	ug/kg	50	46.5	93	74-123	
Vinyl chloride	ug/kg	50	39.9	80	55-128	
Xylene (Total)	ug/kg	150	137	91	66-124	
4-Bromofluorobenzene (S)	%.			100	56-144	
Dibromofluoromethane (S)	%.			111	85-118	
Toluene-d8 (S)	%.			97	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67873 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872001

METHOD BLANK: 1143401 | Matrix: Solid
Associated Lab Samples: 50101872001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,1-Dichloroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,1-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:30	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/16/14 05:30	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/16/14 05:30	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:30	
1,2-Dichloroethane	ug/kg	ND	5.0	08/16/14 05:30	
1,2-Dichloropropane	ug/kg	ND	5.0	08/16/14 05:30	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:30	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 05:30	
2-Butanone (MEK)	ug/kg	ND	25.0	08/16/14 05:30	
2-Hexanone	ug/kg	ND	100	08/16/14 05:30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/16/14 05:30	
Acetone	ug/kg	117	100	08/16/14 05:30	
Benzene	ug/kg	ND	5.0	08/16/14 05:30	
Bromodichloromethane	ug/kg	ND	5.0	08/16/14 05:30	
Bromoform	ug/kg	ND	5.0	08/16/14 05:30	
Bromomethane	ug/kg	ND	5.0	08/16/14 05:30	
Carbon disulfide	ug/kg	ND	10.0	08/16/14 05:30	
Carbon tetrachloride	ug/kg	ND	5.0	08/16/14 05:30	
Chlorobenzene	ug/kg	ND	5.0	08/16/14 05:30	
Chloroethane	ug/kg	ND	5.0	08/16/14 05:30	
Chloroform	ug/kg	ND	5.0	08/16/14 05:30	
Chloromethane	ug/kg	ND	5.0	08/16/14 05:30	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:30	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 05:30	
Cyclohexane	ug/kg	ND	100	08/16/14 05:30	
Dibromochloromethane	ug/kg	ND	5.0	08/16/14 05:30	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/16/14 05:30	
Ethylbenzene	ug/kg	ND	5.0	08/16/14 05:30	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/16/14 05:30	
Methyl acetate	ug/kg	ND	5.0	08/16/14 05:30	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/16/14 05:30	
Methylcyclohexane	ug/kg	ND	5.0	08/16/14 05:30	
Methylene Chloride	ug/kg	ND	20.0	08/16/14 05:30	
Styrene	ug/kg	ND	5.0	08/16/14 05:30	
Tetrachloroethene	ug/kg	ND	5.0	08/16/14 05:30	
Toluene	ug/kg	ND	5.0	08/16/14 05:30	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143401 Matrix: Solid
Associated Lab Samples: 50101872001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 05:30	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 05:30	
Trichloroethene	ug/kg	ND	5.0	08/16/14 05:30	
Trichlorofluoromethane	ug/kg	ND	5.0	08/16/14 05:30	
Vinyl chloride	ug/kg	ND	5.0	08/16/14 05:30	
Xylene (Total)	ug/kg	ND	10.0	08/16/14 05:30	
4-Bromofluorobenzene (S)	%.	92	56-144	08/16/14 05:30	
Dibromofluoromethane (S)	%.	123	85-118	08/16/14 05:30	S0
Toluene-d8 (S)	%.	92	71-128	08/16/14 05:30	

LABORATORY CONTROL SAMPLE: 1143402

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	44.4	89	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	40.3	81	65-124	
1,1-Dichloroethene	ug/kg	50	48.2	96	66-126	
1,2-Dichloropropane	ug/kg	50	44.7	89	75-118	
Benzene	ug/kg	50	44.0	88	74-119	
Chlorobenzene	ug/kg	50	46.3	93	77-122	
Chloroform	ug/kg	50	46.5	93	75-124	
Ethylbenzene	ug/kg	50	43.5	87	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	45.2	90	65-123	
Methyl-tert-butyl ether	ug/kg	100	75.0	75	68-120	
Tetrachloroethene	ug/kg	50	43.3	87	72-126	
Toluene	ug/kg	50	43.3	87	71-121	
Trichloroethene	ug/kg	50	45.6	91	74-123	
Vinyl chloride	ug/kg	50	38.5	77	55-128	
Xylene (Total)	ug/kg	150	135	90	66-124	
4-Bromofluorobenzene (S)	%.			94	56-144	
Dibromofluoromethane (S)	%.			106	85-118	
Toluene-d8 (S)	%.			99	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67887 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872022, 50101872023, 50101872026

METHOD BLANK: 1143619 Matrix: Solid
Associated Lab Samples: 50101872022, 50101872023, 50101872026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,1-Dichloroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,1-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:51	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/16/14 23:51	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/16/14 23:51	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:51	
1,2-Dichloroethane	ug/kg	ND	5.0	08/16/14 23:51	
1,2-Dichloropropane	ug/kg	ND	5.0	08/16/14 23:51	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:51	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:51	
2-Butanone (MEK)	ug/kg	ND	25.0	08/16/14 23:51	
2-Hexanone	ug/kg	ND	100	08/16/14 23:51	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/16/14 23:51	
Acetone	ug/kg	ND	100	08/16/14 23:51	
Benzene	ug/kg	ND	5.0	08/16/14 23:51	
Bromodichloromethane	ug/kg	ND	5.0	08/16/14 23:51	
Bromoform	ug/kg	ND	5.0	08/16/14 23:51	
Bromomethane	ug/kg	ND	5.0	08/16/14 23:51	
Carbon disulfide	ug/kg	ND	10.0	08/16/14 23:51	
Carbon tetrachloride	ug/kg	ND	5.0	08/16/14 23:51	
Chlorobenzene	ug/kg	ND	5.0	08/16/14 23:51	
Chloroethane	ug/kg	ND	5.0	08/16/14 23:51	
Chloroform	ug/kg	ND	5.0	08/16/14 23:51	
Chloromethane	ug/kg	ND	5.0	08/16/14 23:51	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:51	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 23:51	
Cyclohexane	ug/kg	ND	100	08/16/14 23:51	
Dibromochloromethane	ug/kg	ND	5.0	08/16/14 23:51	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/16/14 23:51	
Ethylbenzene	ug/kg	ND	5.0	08/16/14 23:51	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/16/14 23:51	
Methyl acetate	ug/kg	ND	5.0	08/16/14 23:51	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/16/14 23:51	
Methylcyclohexane	ug/kg	ND	5.0	08/16/14 23:51	
Methylene Chloride	ug/kg	ND	20.0	08/16/14 23:51	
Styrene	ug/kg	ND	5.0	08/16/14 23:51	
Tetrachloroethene	ug/kg	ND	5.0	08/16/14 23:51	
Toluene	ug/kg	ND	5.0	08/16/14 23:51	

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(317)228-3100

QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143619 Matrix: Solid
Associated Lab Samples: 50101872022, 50101872023, 50101872026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:51	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 23:51	
Trichloroethene	ug/kg	ND	5.0	08/16/14 23:51	
Trichlorofluoromethane	ug/kg	ND	5.0	08/16/14 23:51	
Vinyl chloride	ug/kg	ND	5.0	08/16/14 23:51	
Xylene (Total)	ug/kg	ND	10.0	08/16/14 23:51	
4-Bromofluorobenzene (S)	%.	98	56-144	08/16/14 23:51	
Dibromofluoromethane (S)	%.	98	85-118	08/16/14 23:51	
Toluene-d8 (S)	%.	98	71-128	08/16/14 23:51	

LABORATORY CONTROL SAMPLE: 1143620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	42.6	85	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	39.7	79	65-124	
1,1-Dichloroethene	ug/kg	50	39.9	80	66-126	
1,2-Dichloropropane	ug/kg	50	42.4	85	75-118	
Benzene	ug/kg	50	40.6	81	74-119	
Chlorobenzene	ug/kg	50	38.0	76	77-122	L0
Chloroform	ug/kg	50	43.6	87	75-124	
Ethylbenzene	ug/kg	50	40.8	82	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	41.6	83	65-123	
Methyl-tert-butyl ether	ug/kg	100	87.7	88	68-120	
Tetrachloroethene	ug/kg	50	37.7	75	72-126	
Toluene	ug/kg	50	38.7	77	71-121	
Trichloroethene	ug/kg	50	40.7	81	74-123	
Vinyl chloride	ug/kg	50	50.0	100	55-128	
Xylene (Total)	ug/kg	150	123	82	66-124	
4-Bromofluorobenzene (S)	%.			103	56-144	
Dibromofluoromethane (S)	%.			96	85-118	
Toluene-d8 (S)	%.			99	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67888 — Analysis Method: EPA 8260
QC Batch Method: EPA 8260 — Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872012, 50101872013, 50101872014, 50101872016, 50101872017, 50101872018, 50101872019, 50101872024, 50101872025, 50101872027, 50101872028, 50101872034, 50101872035

METHOD BLANK: 1143621 — Matrix: Solid
Associated Lab Samples: 50101872012, 50101872013, 50101872014, 50101872016, 50101872017, 50101872018, 50101872019, 50101872024, 50101872025, 50101872027, 50101872028, 50101872034, 50101872035

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,1-Dichloroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,1-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:31	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/16/14 23:31	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/16/14 23:31	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:31	
1,2-Dichloroethane	ug/kg	ND	5.0	08/16/14 23:31	
1,2-Dichloropropane	ug/kg	ND	5.0	08/16/14 23:31	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:31	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/16/14 23:31	
2-Butanone (MEK)	ug/kg	ND	25.0	08/16/14 23:31	
2-Hexanone	ug/kg	ND	100	08/16/14 23:31	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/16/14 23:31	
Acetone	ug/kg	ND	100	08/16/14 23:31	
Benzene	ug/kg	ND	5.0	08/16/14 23:31	
Bromodichloromethane	ug/kg	ND	5.0	08/16/14 23:31	
Bromoform	ug/kg	ND	5.0	08/16/14 23:31	
Bromomethane	ug/kg	ND	5.0	08/16/14 23:31	
Carbon disulfide	ug/kg	ND	10.0	08/16/14 23:31	
Carbon tetrachloride	ug/kg	ND	5.0	08/16/14 23:31	
Chlorobenzene	ug/kg	ND	5.0	08/16/14 23:31	
Chloroethane	ug/kg	ND	5.0	08/16/14 23:31	
Chloroform	ug/kg	ND	5.0	08/16/14 23:31	
Chloromethane	ug/kg	ND	5.0	08/16/14 23:31	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:31	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 23:31	
Cyclohexane	ug/kg	ND	100	08/16/14 23:31	
Dibromochloromethane	ug/kg	ND	5.0	08/16/14 23:31	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/16/14 23:31	
Ethylbenzene	ug/kg	ND	5.0	08/16/14 23:31	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/16/14 23:31	
Methyl acetate	ug/kg	ND	5.0	08/16/14 23:31	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/16/14 23:31	
Methylcyclohexane	ug/kg	ND	5.0	08/16/14 23:31	
Methylene Chloride	ug/kg	ND	20.0	08/16/14 23:31	
Styrene	ug/kg	ND	5.0	08/16/14 23:31	
Tetrachloroethene	ug/kg	ND	5.0	08/16/14 23:31	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143621 Matrix: Solid

Associated Lab Samples: 50101872012, 50101872013, 50101872014, 50101872016, 50101872017, 50101872018, 50101872019, 50101872024, 50101872025, 50101872027, 50101872028, 50101872034, 50101872035

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Toluene	ug/kg	ND	5.0	08/16/14 23:31	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/16/14 23:31	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/16/14 23:31	
Trichloroethene	ug/kg	ND	5.0	08/16/14 23:31	
Trichlorofluoromethane	ug/kg	ND	5.0	08/16/14 23:31	
Vinyl chloride	ug/kg	ND	5.0	08/16/14 23:31	
Xylene (Total)	ug/kg	ND	10.0	08/16/14 23:31	
4-Bromofluorobenzene (S)	%.	97	56-144	08/16/14 23:31	
Dibromofluoromethane (S)	%.	106	85-118	08/16/14 23:31	
Toluene-d8 (S)	%.	96	71-128	08/16/14 23:31	

LABORATORY CONTROL SAMPLE: 1143622

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	36.6	73	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	38.0	76	65-124	
1,1-Dichloroethene	ug/kg	50	36.4	73	66-126	
1,2-Dichloropropane	ug/kg	50	38.3	77	75-118	
Benzene	ug/kg	50	37.2	74	74-119	
Chlorobenzene	ug/kg	50	36.4	73	77-122	L0
Chloroform	ug/kg	50	38.2	76	75-124	
Ethylbenzene	ug/kg	50	37.2	74	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	40.4	81	65-123	
Methyl-tert-butyl ether	ug/kg	100	81.5	81	68-120	
Tetrachloroethene	ug/kg	50	32.7	65	72-126	L0
Toluene	ug/kg	50	36.4	73	71-121	
Trichloroethene	ug/kg	50	38.2	76	74-123	
Vinyl chloride	ug/kg	50	45.1	90	55-128	
Xylene (Total)	ug/kg	150	115	76	66-124	
4-Bromofluorobenzene (S)	%.			100	56-144	
Dibromofluoromethane (S)	%.			95	85-118	
Toluene-d8 (S)	%.			100	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: MSV/67904
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 50101872033

METHOD BLANK: 1143970
Matrix: Solid
Associated Lab Samples: 50101872033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,1-Dichloroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,1-Dichloroethene	ug/kg	ND	5.0	08/18/14 18:48	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	08/18/14 18:48	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	08/18/14 18:48	
1,2-Dichlorobenzene	ug/kg	ND	5.0	08/18/14 18:48	
1,2-Dichloroethane	ug/kg	ND	5.0	08/18/14 18:48	
1,2-Dichloropropane	ug/kg	ND	5.0	08/18/14 18:48	
1,3-Dichlorobenzene	ug/kg	ND	5.0	08/18/14 18:48	
1,4-Dichlorobenzene	ug/kg	ND	5.0	08/18/14 18:48	
2-Butanone (MEK)	ug/kg	ND	25.0	08/18/14 18:48	
2-Hexanone	ug/kg	ND	100	08/18/14 18:48	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	25.0	08/18/14 18:48	
Acetone	ug/kg	ND	100	08/18/14 18:48	
Benzene	ug/kg	ND	5.0	08/18/14 18:48	
Bromodichloromethane	ug/kg	ND	5.0	08/18/14 18:48	
Bromoform	ug/kg	ND	5.0	08/18/14 18:48	
Bromomethane	ug/kg	ND	5.0	08/18/14 18:48	
Carbon disulfide	ug/kg	ND	10.0	08/18/14 18:48	
Carbon tetrachloride	ug/kg	ND	5.0	08/18/14 18:48	
Chlorobenzene	ug/kg	ND	5.0	08/18/14 18:48	
Chloroethane	ug/kg	ND	5.0	08/18/14 18:48	
Chloroform	ug/kg	ND	5.0	08/18/14 18:48	
Chloromethane	ug/kg	ND	5.0	08/18/14 18:48	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/18/14 18:48	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/18/14 18:48	
Cyclohexane	ug/kg	ND	100	08/18/14 18:48	
Dibromochloromethane	ug/kg	ND	5.0	08/18/14 18:48	
Dichlorodifluoromethane	ug/kg	ND	5.0	08/18/14 18:48	
Ethylbenzene	ug/kg	ND	5.0	08/18/14 18:48	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	08/18/14 18:48	
Methyl acetate	ug/kg	ND	5.0	08/18/14 18:48	
Methyl-tert-butyl ether	ug/kg	ND	5.0	08/18/14 18:48	
Methylcyclohexane	ug/kg	ND	5.0	08/18/14 18:48	
Methylene Chloride	ug/kg	ND	20.0	08/18/14 18:48	
Styrene	ug/kg	ND	5.0	08/18/14 18:48	
Tetrachloroethene	ug/kg	ND	5.0	08/18/14 18:48	
Toluene	ug/kg	ND	5.0	08/18/14 18:48	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

METHOD BLANK: 1143970 Matrix: Solid
Associated Lab Samples: 50101872033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/18/14 18:48	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/18/14 18:48	
Trichloroethene	ug/kg	ND	5.0	08/18/14 18:48	
Trichlorofluoromethane	ug/kg	ND	5.0	08/18/14 18:48	
Vinyl chloride	ug/kg	ND	5.0	08/18/14 18:48	
Xylene (Total)	ug/kg	ND	10.0	08/18/14 18:48	
4-Bromofluorobenzene (S)	%.	92	56-144	08/18/14 18:48	
Dibromofluoromethane (S)	%.	98	85-118	08/18/14 18:48	
Toluene-d8 (S)	%.	99	71-128	08/18/14 18:48	

LABORATORY CONTROL SAMPLE: 1143971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	42.6	85	70-123	
1,1,2,2-Tetrachloroethane	ug/kg	50	43.9	88	65-124	
1,1-Dichloroethene	ug/kg	50	42.0	84	66-126	
1,2-Dichloropropane	ug/kg	50	42.7	85	75-118	
Benzene	ug/kg	50	44.3	89	74-119	
Chlorobenzene	ug/kg	50	41.3	83	77-122	
Chloroform	ug/kg	50	41.8	84	75-124	
Ethylbenzene	ug/kg	50	42.4	85	72-123	
Isopropylbenzene (Cumene)	ug/kg	50	44.2	88	65-123	
Methyl-tert-butyl ether	ug/kg	100	95.7	96	68-120	
Tetrachloroethene	ug/kg	50	40.3	81	72-126	
Toluene	ug/kg	50	44.0	88	71-121	
Trichloroethene	ug/kg	50	41.5	83	74-123	
Vinyl chloride	ug/kg	50	50.2	100	55-128	
Xylene (Total)	ug/kg	150	121	80	66-124	
4-Bromofluorobenzene (S)	%.			102	56-144	
Dibromofluoromethane (S)	%.			99	85-118	
Toluene-d8 (S)	%.			100	71-128	

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QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: PMST/9768 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50101872002, 50101872003, 50101872004, 50101872005, 50101872006, 50101872007, 50101872008, 50101872009, 50101872010, 50101872011

SAMPLE DUPLICATE: 1138959

Parameter	Units	50101826008 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.8	9.0	2	5	

SAMPLE DUPLICATE: 1139037

Parameter	Units	50101898001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	0.50	0.45	11	5	R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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1233 Dublin Road
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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

QC Batch: PMST/9770 | Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 | Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50101872033, 50101872034, 50101872035

SAMPLE DUPLICATE: 1139255

Parameter	Units	50101914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.0	15.0	0	5	

SAMPLE DUPLICATE: 1139256

Parameter	Units	50101840002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.4	8.0	8	5	R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1d	Benzene ND at an estimated RL of 34 ug/kg, based on the MDL. BJG 08-15-14.
2d	Benzene ND at an estimated RL of 34 ug/kg, based on the MDL. BJG 08-18-14.
3d	MTBE ND at an estimated RL of 180 ug/kg, based on the MDL. BJG 08-15-14.
4d	MTBE ND at an estimated RL of 180 ug/kg, based on the MDL. BJG 08-18-14.
B	Analyte was detected in the associated method blank.
C9	Common Laboratory Contaminant.
CC	The continuing calibration for this compound is outside of method control limits. The result is estimated.
D4	Sample was diluted due to the presence of high levels of target analytes.
H7	Re-extraction or re-analysis could not be performed within method holding time.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50101872001	**TRIP BLANK**	EPA 8260	MSV/67873		
50101872002	**ISCO-2(13-15)**	EPA 8260	MSV/67832		
50101872003	**ISCO-2(15-17)**	EPA 8260	MSV/67832		
50101872004	**ISCO-2(17-19)**	EPA 8260	MSV/67832		
50101872005	**ISCO-2(19-21)**	EPA 8260	MSV/67832		
50101872006	**ISCO-2(21-23)**	EPA 8260	MSV/67832		
50101872007	**ISCO-2(23-25)**	EPA 8260	MSV/67832		
50101872008	**ISCO-2(25-27)**	EPA 8260	MSV/67866		
50101872009	**ISCO-2(27-29)**	EPA 8260	MSV/67866		
50101872010	**ISCO-2(29-31)**	EPA 8260	MSV/67866		
50101872011	**ISCO-2(31-33)**	EPA 8260	MSV/67866		
50101872012	**ISCO-2(33-35)**	EPA 8260	MSV/67888		
50101872013	**ISCO-2(35-37)**	EPA 8260	MSV/67888		
50101872014	**ISCO-2(37-39)**	EPA 8260	MSV/67888		
50101872015	**ISCO-2(39-41)**	EPA 8260	MSV/67866		
50101872016	**ISCO-2(41-43)**	EPA 8260	MSV/67888		
50101872017	**ISCO-2(43-45)**	EPA 8260	MSV/67888		
50101872018	**ISCO-2(45-47)**	EPA 8260	MSV/67888		
50101872019	**TRIP BLANK-02**	EPA 8260	MSV/67888		
50101872020	**ISCO-3(14-16)**	EPA 8260	MSV/67866		
50101872021	**ISCO-3(16-18)**	EPA 8260	MSV/67832		
50101872022	**ISCO-3(18-20)**	EPA 8260	MSV/67887		
50101872023	**ISCO-3(20-22)**	EPA 8260	MSV/67887		
50101872024	**ISCO-3(22-24)**	EPA 8260	MSV/67888		
50101872025	**ISCO-3(24-26)**	EPA 8260	MSV/67888		
50101872026	**ISCO-3(26-28)**	EPA 8260	MSV/67887		
50101872027	**ISCO-3(28-30)**	EPA 8260	MSV/67888		
50101872028	**ISCO-3(30-32)**	EPA 8260	MSV/67888		
50101872029	**ISCO-3(32-34)**	EPA 8260	MSV/67871		
50101872030	**ISCO-3(34-36)**	EPA 8260	MSV/67871		
50101872031	**ISCO-3(36-38)**	EPA 8260	MSV/67871		
50101872032	**ISCO-3(38-40)**	EPA 8260	MSV/67871		
50101872033	**ISCO-3(40-42)**	EPA 8260	MSV/67904		
50101872034	**ISCO-3(42-44)**	EPA 8260	MSV/67888		
50101872035	**ISCO-3(44-45)**	EPA 8260	MSV/67888		
50101872002	**ISCO-2(13-15)**	ASTM D2974-87	PMST/9768		
50101872003	**ISCO-2(15-17)**	ASTM D2974-87	PMST/9768		
50101872004	**ISCO-2(17-19)**	ASTM D2974-87	PMST/9768		
50101872005	**ISCO-2(19-21)**	ASTM D2974-87	PMST/9768		
50101872006	**ISCO-2(21-23)**	ASTM D2974-87	PMST/9768		
50101872007	**ISCO-2(23-25)**	ASTM D2974-87	PMST/9768		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Former GM Delco Plant 5
Pace Project No.: 50101872

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50101872008	**ISCO-2(25-27)**	ASTM D2974-87	PMST/9768		
50101872009	**ISCO-2(27-29)**	ASTM D2974-87	PMST/9768		
50101872010	**ISCO-2(29-31)**	ASTM D2974-87	PMST/9768		
50101872011	**ISCO-2(31-33)**	ASTM D2974-87	PMST/9768		
50101872012	**ISCO-2(33-35)**	ASTM D2974-87	PMST/9769		
50101872013	**ISCO-2(35-37)**	ASTM D2974-87	PMST/9769		
50101872014	**ISCO-2(37-39)**	ASTM D2974-87	PMST/9769		
50101872015	**ISCO-2(39-41)**	ASTM D2974-87	PMST/9769		
50101872016	**ISCO-2(41-43)**	ASTM D2974-87	PMST/9769		
50101872017	**ISCO-2(43-45)**	ASTM D2974-87	PMST/9769		
50101872018	**ISCO-2(45-47)**	ASTM D2974-87	PMST/9769		
50101872020	**ISCO-3(14-16)**	ASTM D2974-87	PMST/9769		
50101872021	**ISCO-3(16-18)**	ASTM D2974-87	PMST/9769		
50101872022	**ISCO-3(18-20)**	ASTM D2974-87	PMST/9769		
50101872023	**ISCO-3(20-22)**	ASTM D2974-87	PMST/9769		
50101872024	**ISCO-3(22-24)**	ASTM D2974-87	PMST/9769		
50101872025	**ISCO-3(24-26)**	ASTM D2974-87	PMST/9769		
50101872026	**ISCO-3(26-28)**	ASTM D2974-87	PMST/9769		
50101872027	**ISCO-3(28-30)**	ASTM D2974-87	PMST/9769		
50101872028	**ISCO-3(30-32)**	ASTM D2974-87	PMST/9769		
50101872029	**ISCO-3(32-34)**	ASTM D2974-87	PMST/9769		
50101872030	**ISCO-3(34-36)**	ASTM D2974-87	PMST/9769		
50101872031	**ISCO-3(36-38)**	ASTM D2974-87	PMST/9769		
50101872032	**ISCO-3(38-40)**	ASTM D2974-87	PMST/9769		
50101872033	**ISCO-3(40-42)**	ASTM D2974-87	PMST/9770		
50101872034	**ISCO-3(42-44)**	ASTM D2974-87	PMST/9770		
50101872035	**ISCO-3(44-45)**	ASTM D2974-87	PMST/9770		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

✓ TMS

Page: 1 of 3

1761201

Section A Required Client Information:

Company: ARCADIS-US
Address: 132 E. Washington St. Indianapolis, IN 46204
Email To: Matthew.griles@arcadis-us
Phone: 3172316500 Fax: 3172316514
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: Matt Griles
Copy To:
Purchase Order No.:
Project Name: Former GM Delco Plant 5
Project Number: IN000884.2014.00005

Section C Invoice Information:

Attention: Accts. Payable
Company Name: ARCADIS
Address: Highlands Ranch, CO
Pace Quote Reference:
Pace Project Manager: Donna Spyker
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IN

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other DI Water	Analysis Test: VOCs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60101872
1	TRIPBLANK	✓	—	—	—	—	—		3							X	X	X		Lab Supplied 001
2	ISCO-2 (13-15)	SL	G	—	—	080514	0740		4	X						X	X	X		002
3	ISCO-2 (15-17)	SL	G	—	—	↓	0743		4	X						X	X	X		003
4	ISCO-2 (17-19)	SL	G	—	—		0745		4	X						X	X	X		004
5	ISCO-2 (19-21)	SL	G	—	—		0746		4	X						X	X	X		005
6	ISCO-2 (21-23)	SL	G	—	—		0747		4	X						X	X	X		006
7	ISCO-2 (23-25)	SL	G	—	—		0749		4	X						X	X	X		007
8	ISCO-2 (25-27)	SL	G	—	—		0753		4	X						X	X	X		008
9	ISCO-2 (27-29)	SL	G	—	—		0755		4	X						X	X	X		009
10	ISCO-2 (29-31)	SL	G	—	—		0758		4	X						X	X	X		010
11	ISCO-2 (31-33)	SL	G	—	—		0800		4	X						X	X	X		011
12	ISCO-2 (33-35)	SL	G	—	—	↓	0822		4	X						X	X	X		012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Meryl A. Stuckey / ARCADIS	080514	1734	[illegible]	8/5/14	1734	1.4 / 3.2	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Meryl A. Stuckey

SIGNATURE of SAMPLER: Meryl A. Stuckey

DATE Signed (MM/DD/YY): 08/05/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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CHAIN-OF-CUSTODY / Analytical Request Document

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1761202

Section A Required Client Information:

Company: ARCADIS
Address: 132 E. Washington St. Indianapolis, IN 46204
Email To: matthew.gniles@arcadis-us
Phone: 3172316000 Fax: 3172316514
Requested Due Date/TAT: standard

Section B Required Project Information:

Report To: Matt Griles
Copy To:
Purchase Order No.:
Project Name: Former GM Delco Plant 5
Project Number: IN000884.2014.00005

Section C Invoice Information:

Attention: Accts. Payable
Company Name: ARCADIS
Address: Highlands Ranch, CO
Pace Quote Reference:
Pace Project Manager: Donna Spyker
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IN

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other DI Water	Analysis Test: VOCs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	ISCO-2 (35-37)	SL	G			080514	0824		4	X						X	X	X		013
2	ISCO-2 (37-39)	SL	G				0826		4	X						X	X	X		014
3	ISCO-2 (39-41)	SL	G				0830		4	X						X	X	X		015
4	ISCO-2 (41-43)	SL	G				0832		4	X						X	X	X		016
5	ISCO-2 (43-45)	SL	G				0840		4	X						X	X	X		017
6	ISCO-2 (45-47)	SL	G				0842		4	X						X	X	X		018
7	TRIPBLANK-02	—	—						3							X	X	X		Lab supplied 019
8	ISCO-3 (14-16)	SL	G			080514	1401		4	X						X	X	X		020
9	ISCO-3 (16-18)	SL	G				1403		4	X						X	X	X		021
10	ISCO-3 (18-20)	SL	G				1405		4	X						X	X	X		022
11	ISCO-3 (20-22)	SL	G				1415		4	X						X	X	X		023
12	ISCO-3 (22-24)	SL	G				1418		4	X						X	X	X		024

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Meryl A. Stuckey / ARCADIS	080514	1734	James Jones	8/5/14	1734	1.1 / 2.2 X ~ X

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Meryl Stuckey
SIGNATURE of SAMPLER: Meryl A. Stuckey
DATE Signed (MM/DD/YY): 08/05/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

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CHAIN-OF-CUSTODY / Analytical Request Document

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1761199

Section A Required Client Information:

Company:	ARCADIS
Address:	132 E Washington St. Indpls, IN 46204
Email To:	Matthew.grules@arcadis-us
Phone:	3172316500
Fax:	3172316514
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Matt Grules
Copy To:	
Purchase Order No.:	
Project Name:	Former GM Delco Plant 5
Project Number:	IN000884.2014.00005

Section C Invoice Information:

Attention:	Accts Payable
Company Name:	ARCADIS
Address:	Highland Ranch, CO
Pace Quote Reference:	
Pace Project Manager:	Donna Spyker
Pace Profile #:	

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IN

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: VOCs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 50101872
1	SCO-3 (24-26)	SL	G	—	—	080514	1420		4	X						X	X	X		025
2	SCO-3 (26-28)	SL	G	—	—		1422		4	X						X	X	X		026
3	SCO-3 (28-30)	SL	G	—	—		1424		4	X						X	X	X		027
4	SCO-3 (30-32)	SL	G	—	—		1427		4	X						X	X	X		028
5	SCO-3 (32-34)	SL	G	—	—		1429		4	X						X	X	X		029
6	SCO-3 (34-36)	SL	G	—	—		1435		4	X						X	X	X		030
7	SCO-3 (36-38)	SL	G	—	—		1437		4	X						X	X	X		031
8	SCO-3 (38-40)	SL	G	—	—		1439		4	X						X	X	X		032
9	SCO-3 (40-42)	SL	G	—	—		1442		4	X						X	X	X		033
10	SCO-3 (42-44)	SL	G	—	—		1444		4	X						X	X	X		034
11	SCO-3 (44-45.3)	SL	G	—	—		1458		4	X						X	X	X		035
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Meryl Stuckey / ARCADIS	080514	1434	James Jones	8/5/14	1434	1.4	X	N	Y
							2.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Meryl Stuckey

SIGNATURE of SAMPLER: Meryl A. Stuckey

DATE Signed (MM/DD/YY): 08/05/14

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical™ Client Name: Arcadis Project # 50101872

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Date/Time 5035A kits placed in freezer SSS

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other

Thermometer Used 1 2 3 4 6 ~~A~~ ~~B~~ C D E **Type of Ice:** ☑ Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.4, 2.2 **Ice Visible in Sample Containers:** ☐ yes ☑ no
(Corrected, if applicable)

Temp should be above freezing to 6°C

Date and initials of person examining contents: 8/5/14 JJ

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	5.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	6.
Containers Intact:	☑Yes ☐No ☐N/A	7.
Sample Labels match COC: -includes date/time/ID/Analysis	☐Yes ☑No ☐N/A	8. ISCO-2 (39-41) has a time of 840 on the coc say < 830
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	☐Yes ☐No ☑N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	10.
Trip Blank Present:	☑Yes ☐No ~~☐N/A~~	11. 5-14-JJ
Trip Blank Custody Seals Present	☐Yes ☑No ☐N/A	
Project Manager Review		
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	12.
Sufficient Volume:	☑Yes ☐No ☐N/A	13.
Correct Containers Used:	☑Yes ☐No ☐N/A	14.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:** 8/6/14

Form F-IN-Q-290-rev.05, 10Sep2013

Pace Analytical
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CLIENT: Arcadis

COC PAGE 1 of 3

COC ID#

Project # 60101872

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4 / 6 (kit)	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SPST		pH <2	pH>12	Comments
1						3															
2						4															
3						4															
4						4															
5						4															
6						4															
7						4															
8						4															
9						4															
10						4															
11						4															
12						4															

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber g	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved **amber** vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved **clear** vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

F-IN-Q-270-rev.04,13Mar2014

Sample Container Count

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CLIENT: Arcadis

COC PAGE 2 of 3

COC ID#

Project # 50101872

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4 / 6 (kL)	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SPST	____	pH <2	pH>12	Comments
1						4															
2						4															
3						4															
4						4															
5						4															
6						4															
7						3															
8						4															
9						4															
10						4															
11						4															
12						4															

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber g	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

F-IN-Q-270-rev.04,13Mar2014

Sample Container Count

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CLIENT: Arcadis

COC PAGE 3 of 3

COC ID#

Project # 50101872

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4	6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SPST	____	pH <2	pH>12	Comments
1						4																
2						4																
3						4																
4						4																
5						4																
6						4																
7						4																
8						4																
9						4																
10						4																
11						4																
12						4																

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber g	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved **amber** vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved **clear** vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

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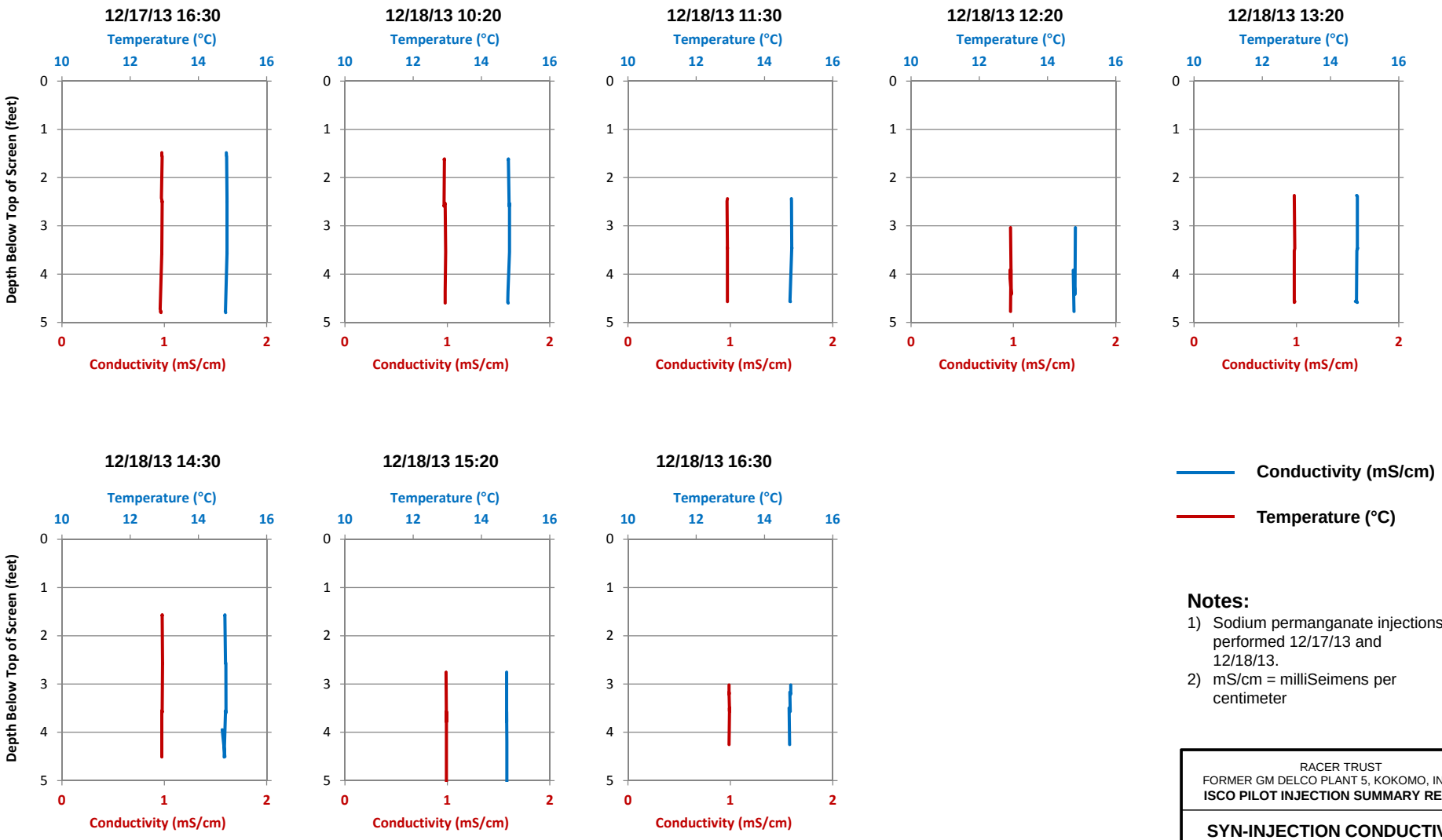
Appendix F

Injection Profile and Monitoring Charts



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

SYN-INJECTION CONDUCTIVITY PROFILING AT MW0620-S1

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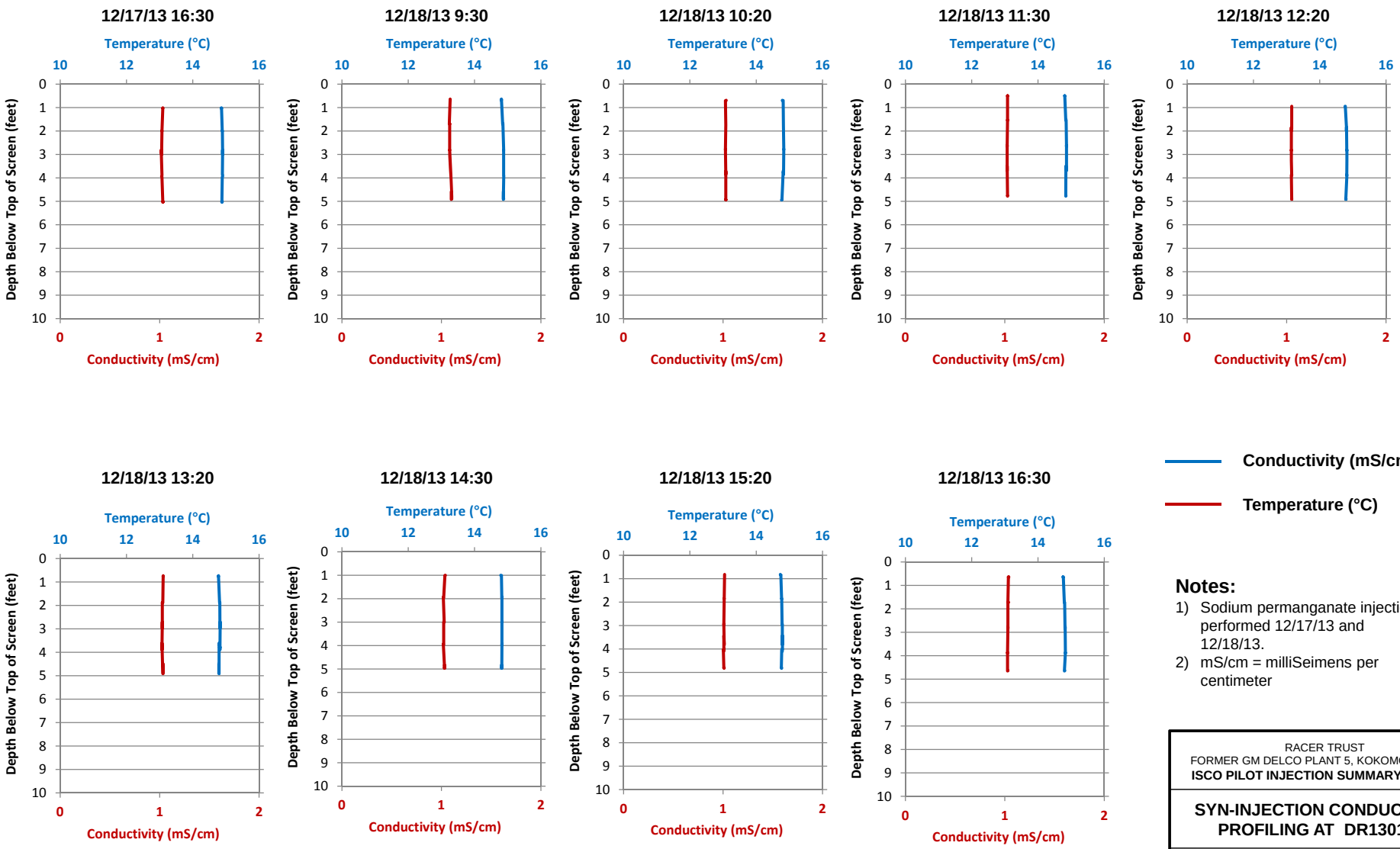
APPENDIX
F-1A



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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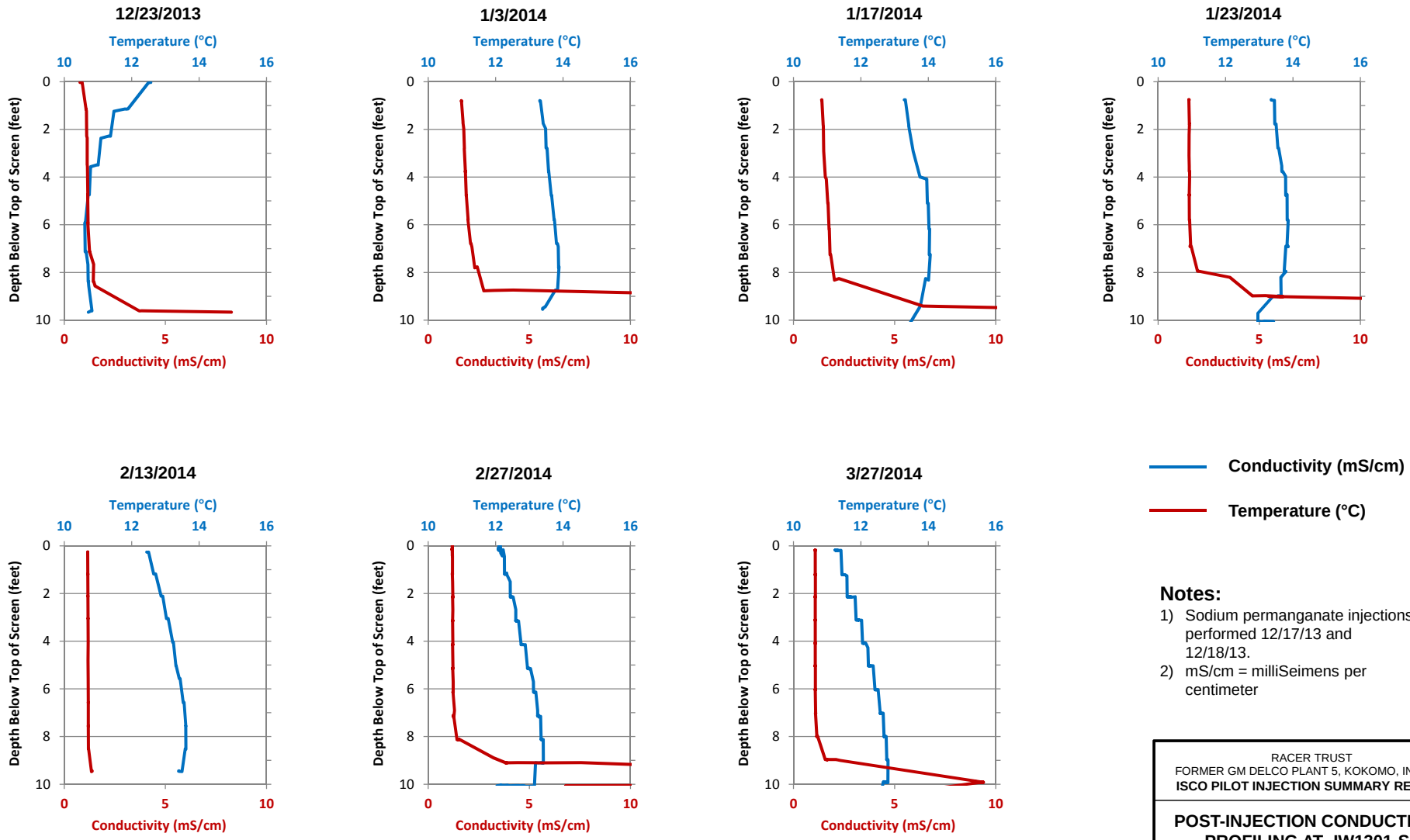
FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

SYN-INJECTION CONDUCTIVITY PROFILING AT DR1301-S1

ARCADIS

APPENDIX
F-1B



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POST-INJECTION CONDUCTIVITY PROFILING AT IW1301-S1

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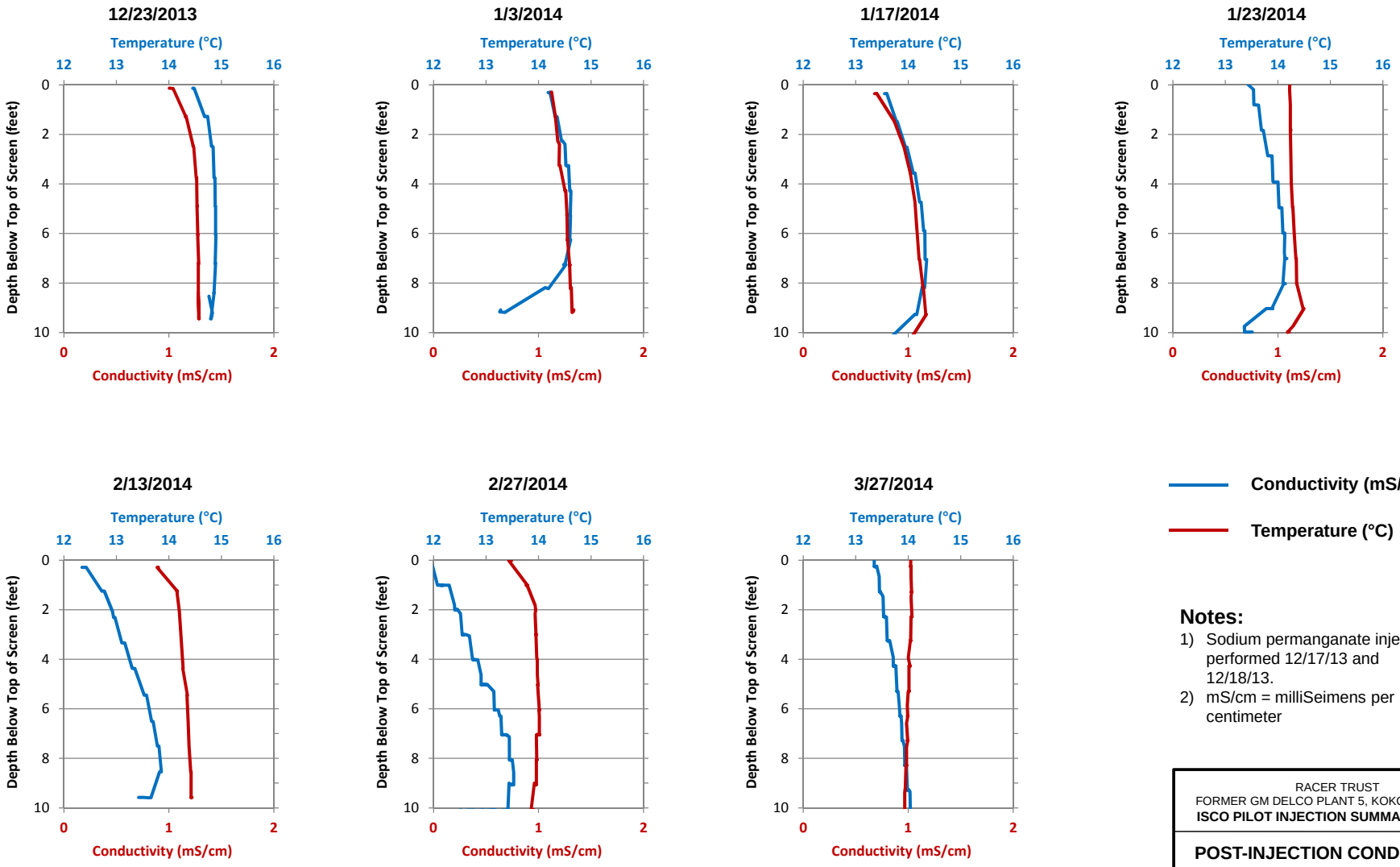
APPENDIX
F-1C



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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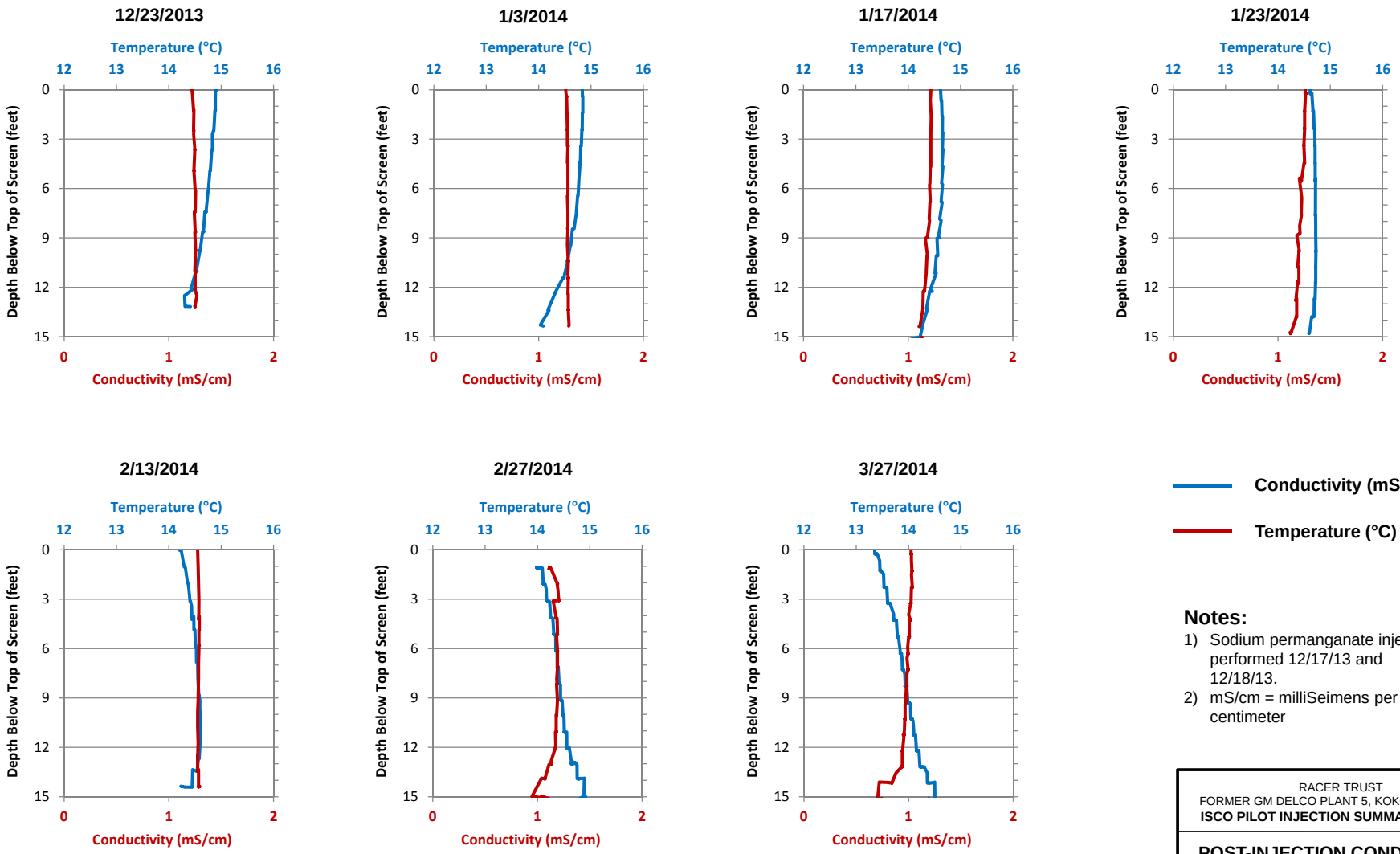
FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POST-INJECTION CONDUCTIVITY PROFILING AT PW-1301-S1

ARCADIS

APPENDIX
F-1D



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POST-INJECTION CONDUCTIVITY PROFILING AT PW-1302-S1

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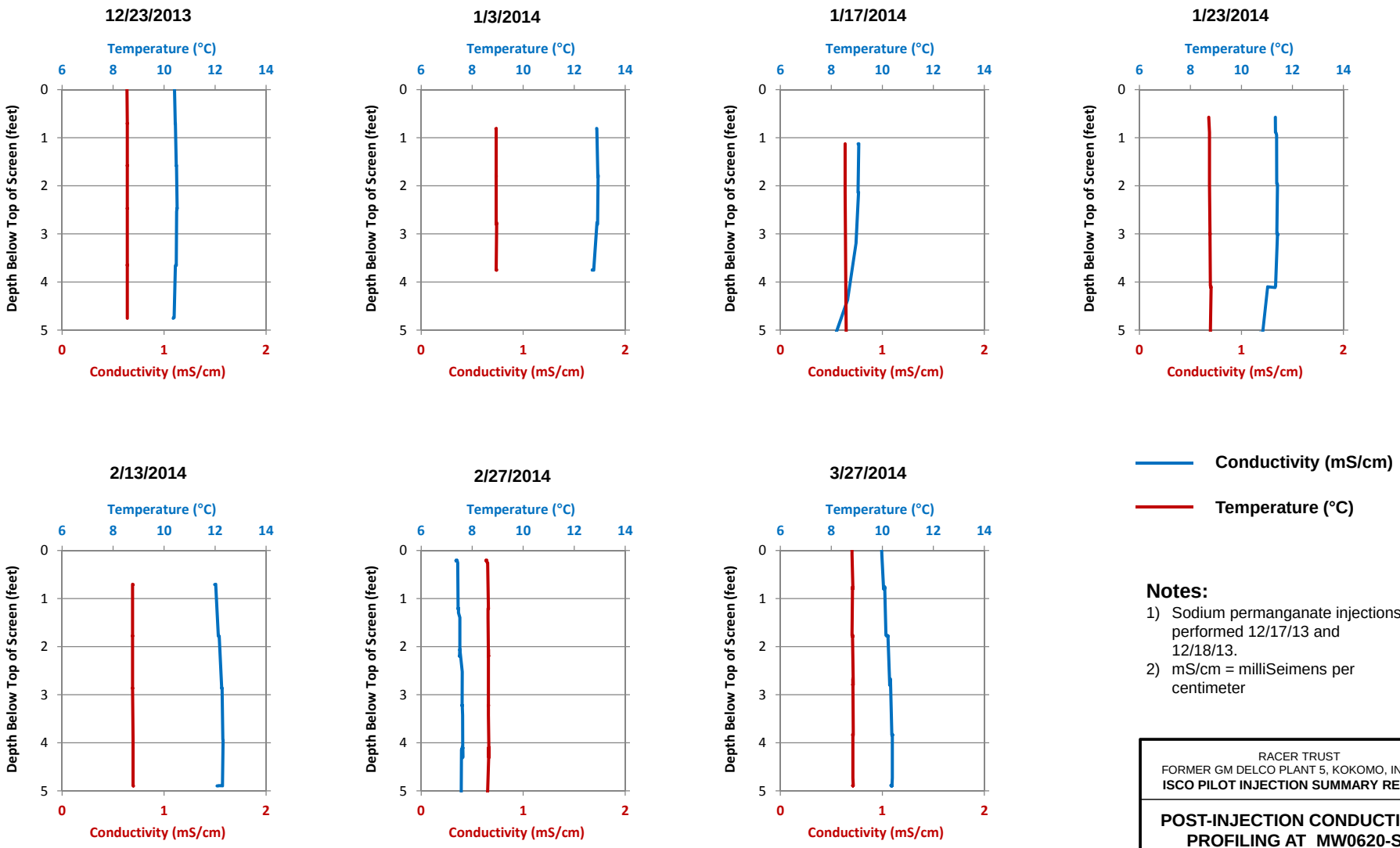
APPENDIX
F-1E



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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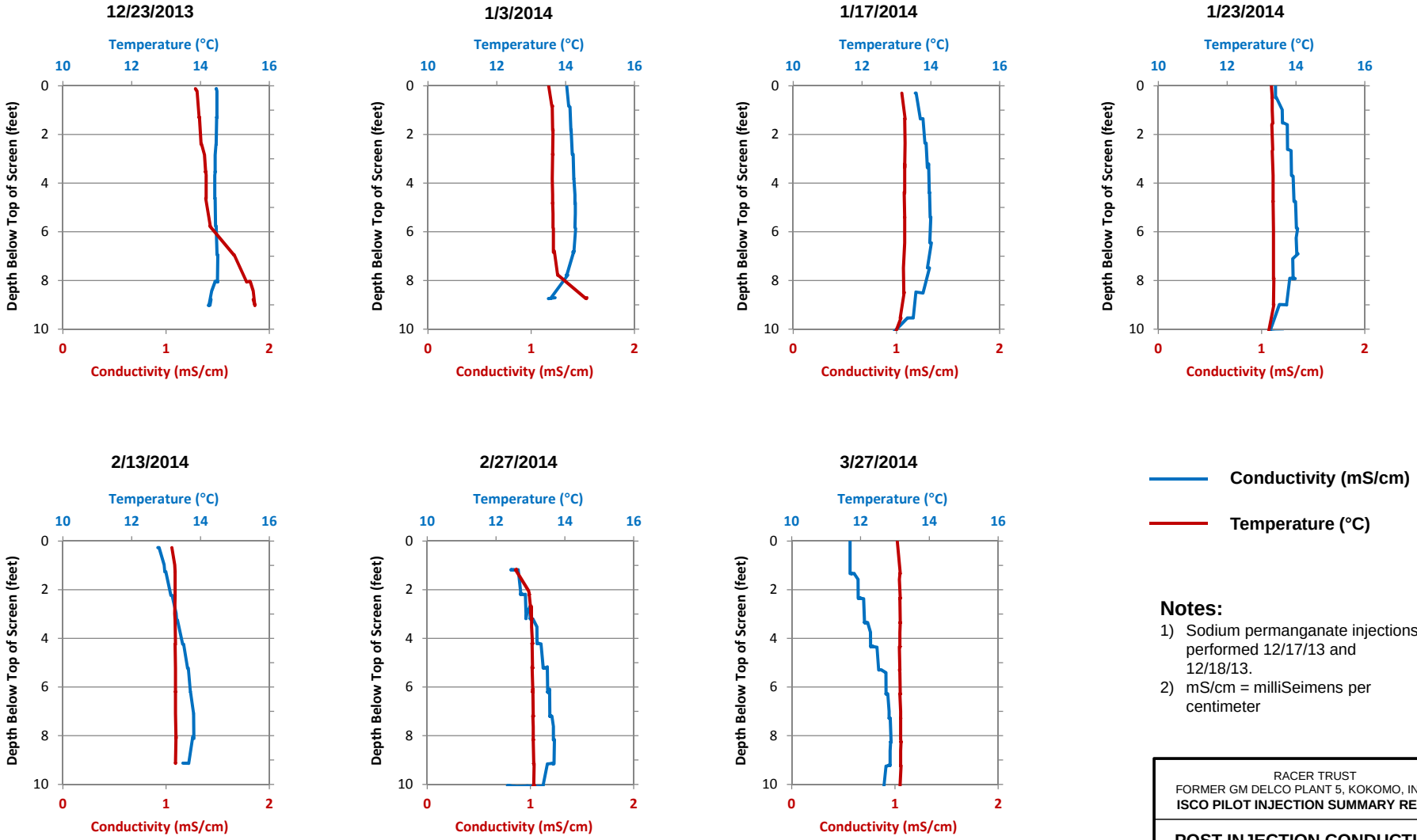
FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POST-INJECTION CONDUCTIVITY PROFILING AT MW0620-S1

ARCADIS

APPENDIX
F-1F



Notes:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) mS/cm = milliSeimens per centimeter

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FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

POST-INJECTION CONDUCTIVITY PROFILING AT DR1301-S1

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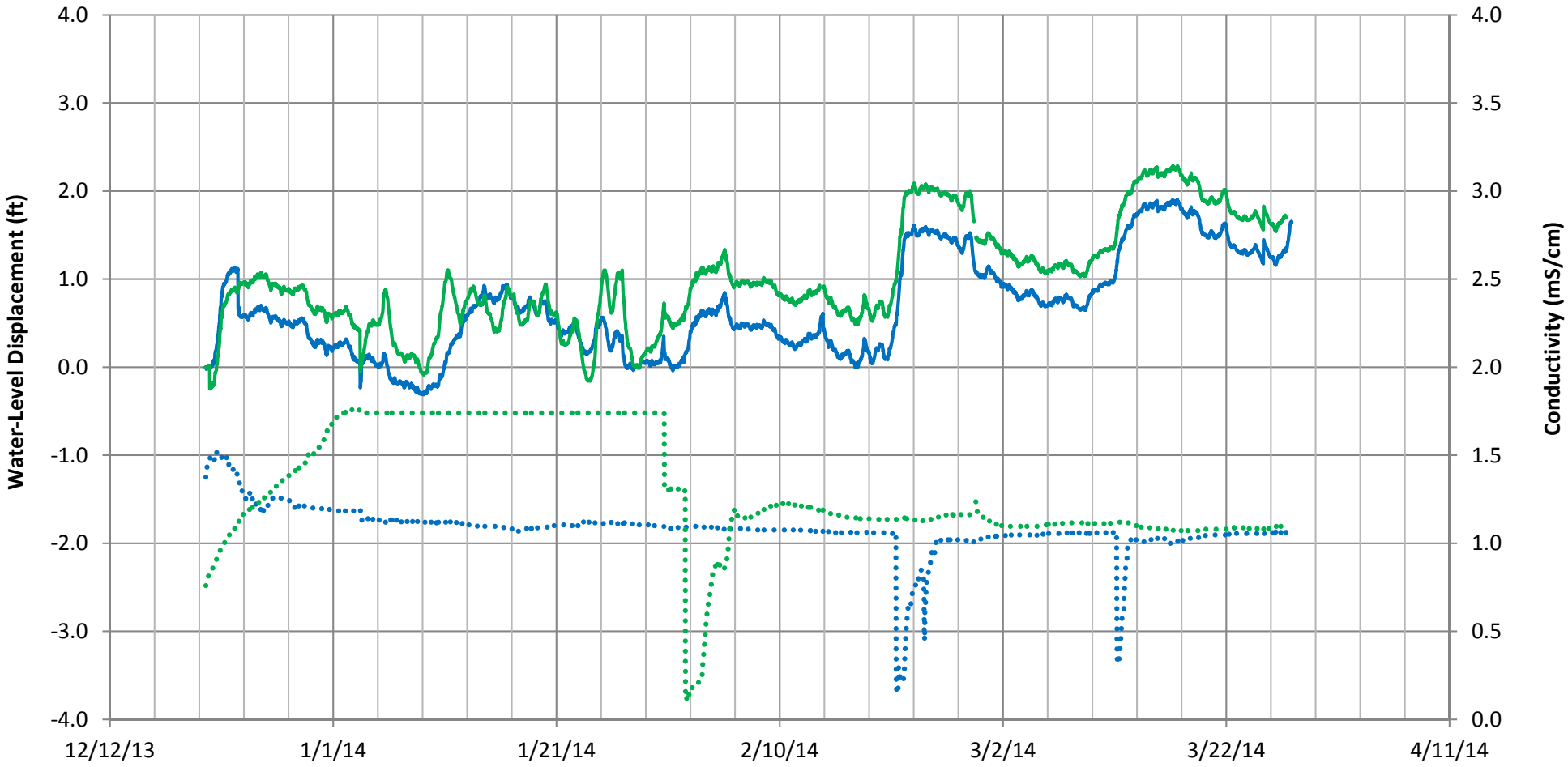
APPENDIX
F-1G



DR1301-S1 Water-Level

IW1301-S1 Water-Level

DR13001-S1 Conductivity

IW1301-S1 Conductivity

NOTES:

1) Sodium permanganate injections performed 12/17/13 and 12/18/13.
2) Water-level data shown normalized to initial level (12/20/2015 at 2:00 PM)
3) mS/cm = milliSeimens per centimeter

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FORMER GM DELCO PLANT 5, KOKOMO, INDIANA
ISCO PILOT INJECTION SUMMARY REPORT

Post-Injection Continuous Water-Level and Conductivity Monitoring Results

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APPENDIX
F-2

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Appendix G

Injection Field Measurments

Appendix G-1
Gauging Data
ISCO Investigation Report
Former GM Delco Plant 5, Kokomo, Indiana

Well	Date	Depth to Water	Depth to Bottom
PM-1301-S1	12/17/2013	14.53	--
PM-1302-S1	12/17/2013	14.59	--
DR-1301-S1	12/18/2013	14.79	--
MW-0620-S1	12/18/2013	14.62	--
DR-1301-S1	12/20/2013	14.69	--
MW-0620-S1	12/20/2013	14.50	--
PM-1301-S1	12/20/2013	14.51	24.32
PM-1302-S1	12/20/2013	14.55	39.19
DR-1301-S1	12/23/2013	13.48	24.83
MW-0620-S1	12/23/2013	12.60	18.54
PM-1301-S1	12/23/2013	13.29	24.32
PM-1302-S1	12/23/2013	13.36	39.19

Appendix G-2
Water Quality Parameters
ISCO Groundwater Investigation Report
Former GM Delco Plant 5, Kokomo, Indiana

PM-1301-S1					
Date	**Time**	**DTW ft**	**pH**	**Temp ºC**	**Specific Conductivity mS**
12/17/2013	13:50	14.53	6.39	12.27	0.925
PM-1302-S1					
Date	**Time**	**DTW ft**	**pH**	**Temp ºC**	**Specific Conductivity mS**
12/17/2013	13:50	14.59	6.36	11.25	0.848

Appendix G-3
Hach DR Test Kit Results
ISCO Investigation Report
Former GM Delco Plant 5, Kokomo, Indiana

Date	Monitoring Location				
	IW-1301-S1	MW-0620-S1	DR-1301-S1	PM-1302-S1	PM-1301-S1
12/20/14	2.2	8.1	4.2	2.4	2.8
12/23/14	4.4	3.6	0.1	1.5	0.0
01/03/14	9.0	0.5	3.5	1.0	turbid
01/17/14	3.2	0.9	0.8	0.0	0.0
01/23/14	0.0	0.6	5.4	1.5	0.9
02/13/14	4.8	0.6	1.5	0.0	0.1
02/27/14	6.7	0.8	0.9	0.6	1.0
03/13/14	4.8	0.6	1.5	0.1	0.0
03/27/14	5.8	0.0	3.4	0.8	0.1

Results reported in milligrams per liter (mg/L).

Appendix G-4
Flow Rate of Injection
ISCO Investigation Report
Former GM Delco Plant 5, Kokomo, Indiana

Batch	Date	Injection Start	Injection End	Duration min	Volume gal	Flow Rate GPM	Notes
1	12/17/2013	15:25	16:10	45	300	6.67	10wt% $NaMnO_4$ Solution
2		16:15	16:55	40	300	7.50	10wt% $NaMnO_4$ Solution
3	12/18/2013	8:20	9:05	45	300	6.67	10wt% $NaMnO_4$ Solution
4		9:15	9:55	40	300	7.50	10wt% $NaMnO_4$ Solution
5		9:55	10:40	45	300	6.67	10wt% $NaMnO_4$ Solution
6		10:40	11:20	40	300	7.50	10wt% $NaMnO_4$ Solution
7		12:00	12:40	40	300	7.50	10wt% $NaMnO_4$ Solution
8		12:40	13:25	45	300	6.67	10wt% $NaMnO_4$ Solution
9		13:25	14:05	40	300	7.50	10wt% $NaMnO_4$ Solution
10		14:05	14:50	45	300	6.67	10wt% $NaMnO_4$ Solution
11		14:50	15:30	40	300	7.50	10wt% $NaMnO_4$ Solution
12		15:30	16:15	45	300	6.67	10wt% $NaMnO_4$ Solution
13		16:15	17:15	60	250	4.17	Dilute $NaMnO_4$ Rinse Solution
14	12/19/2013	10:10	10:40	30	80	2.67	Dilute $NaMnO_4$ Rinse Solution
15		10:40	11:15	35	190	5.43	Dilute $NaMnO_4$ Rinse Solution
16		11:15	12:10	55	130	2.36	Dilute $NaMnO_4$ Rinse Solution
17		12:10	13:10	60	300	5.00	Dilute $NaMnO_4$ Rinse Solution
18		13:15	13:50	35	300	8.57	Dilute $NaMnO_4$ Rinse Solution
19		14:00	17:00	180	1880	11	From Hydrant
20	12/20/2013	8:48	11:14	146	1620	11.10	From Hydrant
21		11:31	12:37	66	700	10.61	From Hydrant

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Appendix H

HPT and Soil Boring Log Comparison

ARCADIS

Soil Boring Log

Boring No.: ISCO-2

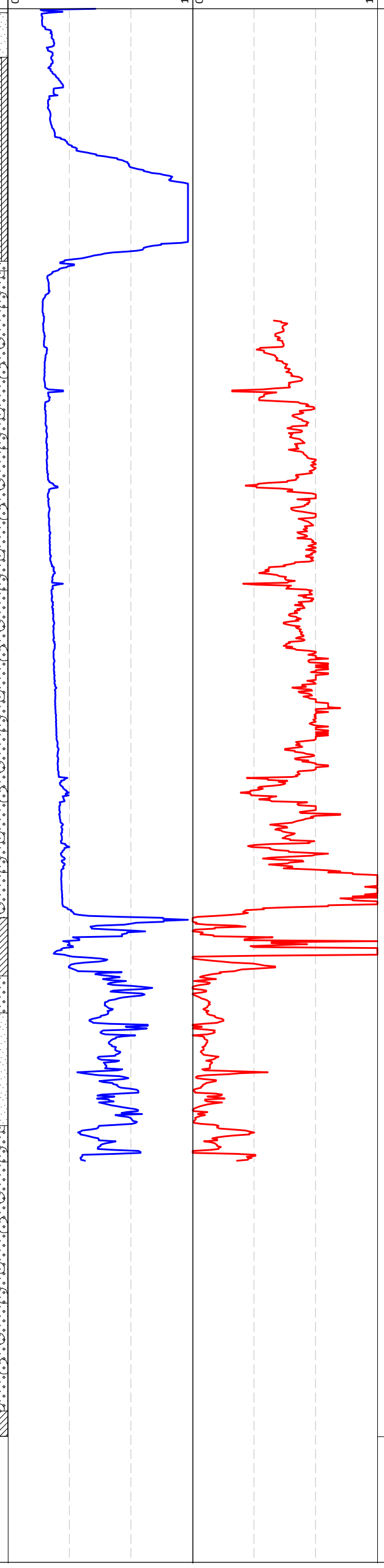
Sheet: 1 of 1

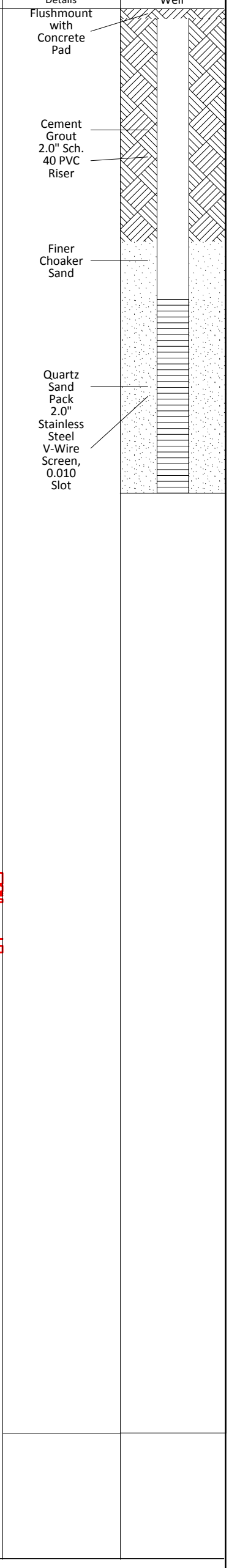
Project Name: Former GM Delco Plant 5
Project Number: IN000884.2014.00005
Project Location: Kokomo, IN

Date Started: 08/04/2014
Date Completed: 08/04/2014

Logger: M. Stuckey
Editor: I. Drost
Weather Conditions: Sunny, 76 F

Depth (feet)	Sample Interval	Recovery (in)	TCE Soil Results (ug/kg)	PID (ppm)	Description	USCS Class
1		60.0		2.7	(0.0-0.2') TOPSOIL, grass, roots.	
2					(0.2-2.5') SAND; some small to very large pebbles, angular to round; and SILT; dry; loose; yellowish brown (10YR 5/4).	
3						
4				1.4	(2.5-13.0') CLAY and SILT, low plasticity; trace small pebbles; moist to dry; medium stiff to stiff; dark yellowish brown (10YR 4/6).	
5						
6		26.4		4.7	NOTE: Mottled color.	
7				4.3	NOTE: Increase CLAY, medium plasticity; soft at 3.5' bgs.	
8				6.7	NOTE: Nonplastic to low plasticity; very stiff; dark yellowish brown (10YR 4/4) at 5.0' bgs.	
9		54.0			NOTE: Trace fine sand; medium plasticity at 7.5' bgs.	
10				8.1		
11				63.1		
12						
13				27.6		
14		36.0	18700		(13.0-13.5') SAND, medium to coarse; trace small to large pebbles; trace silt; poorly sorted; moist to wet; brown (10YR 5/3).	
15				33.1		
16			20300		(13.5-46.8') SAND, medium; and PEBBLES, small to large, angular to round; poorly sorted; saturated; loose; brown (10YR 4/3).	
17				23.4	NOTE: Lense of SAND, fine to medium; well sorted from 16.9-17.3' bgs.	
18			20800		NOTE: Lense of SAND, medium to coarse; well sorted from 17.8-18.8' bgs.	
19		43.2		11.1	NOTE: Very large pebbles to small cobbles; color change to dark grayish brown (10YR 4/2) at 18.5' bgs.	
20			9970			
21				2.0		
22			228			
23				0.6		
24		43.2	11.2			
25				0.9		
26			3.1 J			
27				0.9		
28		24.0	9.9			
29				0.7		
30			3.3 J			
31				1.0		
32			2.2 J			
33				0.8		
34		20.4	6.0			
35				0.8		
36			< 4.1 U			
37				0.9		
38		30.0	2.0 J			
39				0.4		
40			< 4.3 U			
41				1.0		
42			< 4.5 U			
43				1.3		
44		42.0	< 3.6 U			
45				1.3		
46			< 4.5 U			
47				0.0		
48					(46.8-49.8') CLAY, some silt, low plasticity; trace sand to pebbles, subround to round; moist to dry; very stiff; dark gray (10YR 4/1). NOTE: Till; friable.	
49		54.0		0.7		
50					(49.8-51.7') SAND, fine; trace small to medium pebbles, subround to round; trace silt; poorly sorted; saturated; loose; dark grayish brown (10YR 4/2).	
51				0.0		
52						
53				0.0	(51.7-57.5') SAND, very fine; and SILT, trace clay, nonplastic, rapid dilatancy; well sorted; wet; gray (10YR 5/1).	
54		60.0				
55				0.0		
56						
57				0.0		
58					(57.5-72.2') SAND, very fine; and PEBBLES, small to very large, angular to round; poorly sorted; wet; loose; dark grayish brown (10YR 4/2). NOTE: Some interbedded clays. NOTE: No clay, trace silt; medium sand to very large pebbles at 58.5' bgs.	
59		60.0		0.0		
60						
61				0.0		
62						
63				0.0		
64		44.4				
65				0.0		
66						
67				0.0		
68						
69		43.2		0.0	NOTE: Trace small cobbles at 68.0' bgs.	
70				0.0		
71						
72						
73					(72.2-73.5') CLAY, some silt, low plasticity; little small to medium pebbles, subangular to round; moist to dry; stiff; to very stiff; dark gray (10YR 4/1). NOTE: Till. End of boring at 73.5' bgs.	
74						
75						
76						
77						
78						
79						
80						





Drilling Co.: GeoServ
Driller: Dean Govan
Drilling Method: Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: Dual Tube
Sampling Interval: Continuous
Water Level Start (ft. bgs.): NA
Water Level Finish (ft. btoc.): NA
Converted to Well: ☒ Yes ☐ No
Surface Elev.:
North Coor:
East Coor:

ARCADIS

Soil Boring Log

Boring No.: ISCO-3

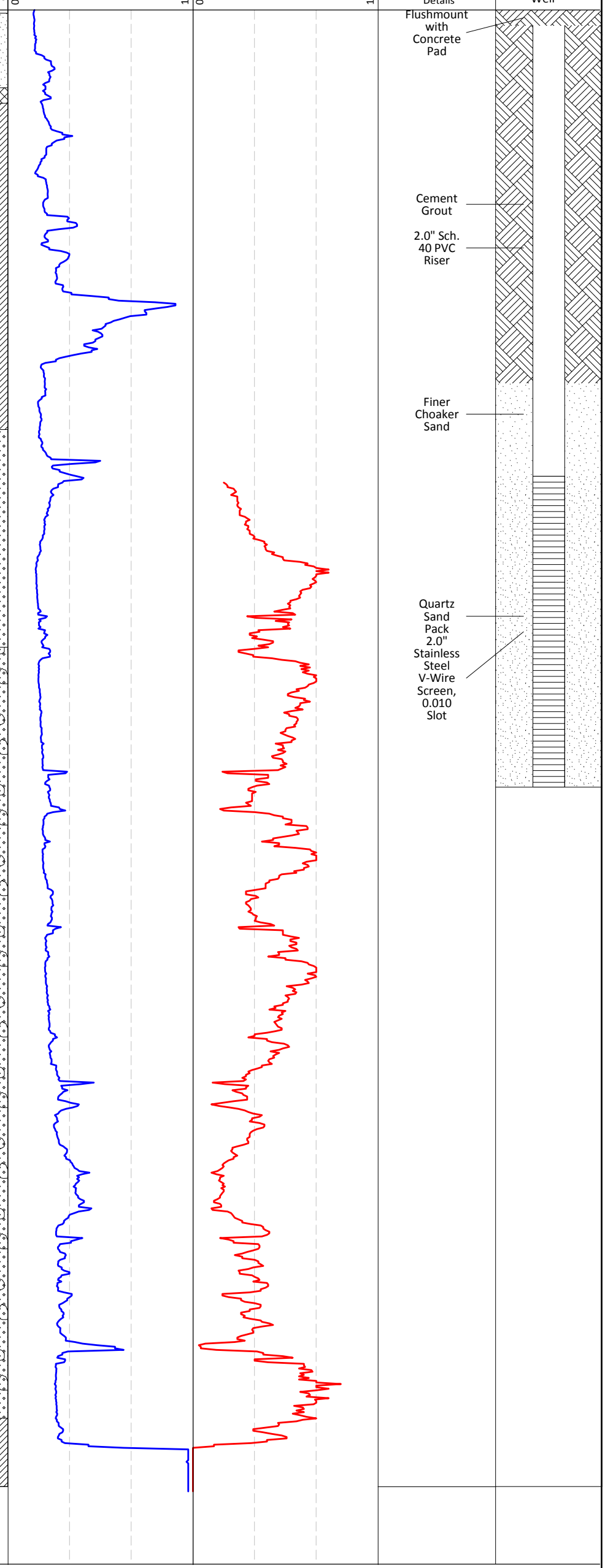
Sheet: 1 of 1

Project Name: Former GM Delco Plant 5
Project Number: IN000884.2014.00005
Project Location: Kokomo, IN

Date Started: 08/05/2014
Date Completed: 08/05/2014

Logger: W. Kuhn
Editor: I. Drost
Weather Conditions: Sunny. 80's

Depth (feet)	Sample Interval	Recovery (in)	TCE Soil Results (ug/kg)	PID (ppm)	Description
1		60.0		1.1	(0.0-0.1') GRASS, roots, granules. (0.1-2.5') SILT, trace clay, nonplastic; and SAND; some pebbles; dry; very stiff; yellowish brown (10YR 5/4). NOTE: Friable.
2					
3				3.7	(2.5-3.0') FILL, cinders, brick debris, large pebbles.
4					(3.0-13.5') CLAY, some silt, medium plasticity; trace sand; moist; medium stiff to stiff; brown (10YR 4/3).
5				0.0	
6		42.0			
7				0.9	NOTE: Color change to pale brown (10YR 6/3); oxidation staining at 6.2' bgs. NOTE: Lense of CLAY and SILT, high plasticity; and SAND; wet; very soft; yellowish brown (10YR 5/6) from 6.9-7.8' bgs.
8					
9		56.4		19.2	NOTE: Trace pebbles, angular to round at 8.0' bgs. NOTE: TILL; little small to medium pebbles; moist; stiff to very stiff; dark yellowish brown (10YR 4/6).
10					
11				33.1	
12					
13				66.2	
14					(13.5-20.5') SAND, medium; some small to medium pebbles, angular to round; trace silt; poorly sorted; saturated; loose; yellowish brown (10YR 5/8). NOTE: Wet at 14.0' bgs. NOTE: SAND, fine; some silt, rapid dilatancy; well sorted from 15.0-16.4' bgs.
15		48.0	72900	49.7	
16					
17			67500	29.2	
18					NOTE: Color change to brown (10YR 4/3) at 18.0' bgs.
19		43.2	27200	7.7	
20					
21			7450	3.9	(20.5-45.3') SAND, medium; and PEBBLES, small to very large, angular to round; poorly sorted; wet; loose; brown (10YR 4/3).
22					
23			2670	1.2	
24					NOTE: Color change to dark grayish brown (10YR 4/2).
25		42.0	38.1	0.4	
26					
27			4080	0.7	NOTE: Lense of SAND, fine; and SILT; well sorted; wet; from 26.4-26.6' bgs. NOTE: Lense of SILT, some clay, medium to high plasticity; and SAND; well sorted from 26.6-26.7' bgs.
28					
29		42.0	7.5	0.0	NOTE: Lense of SAND, fine; some silt; well sorted; wet from 26.7-27.0' bgs. NOTE: Lense of SAND, medium; well sorted; wet from 28.1-28.5' bgs.
30					
31			10.5	0.1	
32					
33			4.7 J	0.1	
34		39.6			
35			1.2 J	0.0	
36					
37			<4.1	0.3	
38					
39		45.6	3.2 J	0.1	
40					
41			<4.7	0.1	
42					
43			<5.3	0.2	
44					
45		48.0	<5.4	0.3	
46					(45.3-47.5') CLAY, some silt, nonplastic to low plasticity; trace sand to small pebbles, subangular to round; dry; very stiff; dark grayish brown (10YR 4/2). NOTE: Till, friable. End of boring at 47.5' bgs.
47				0.0	
48					
49					
50					



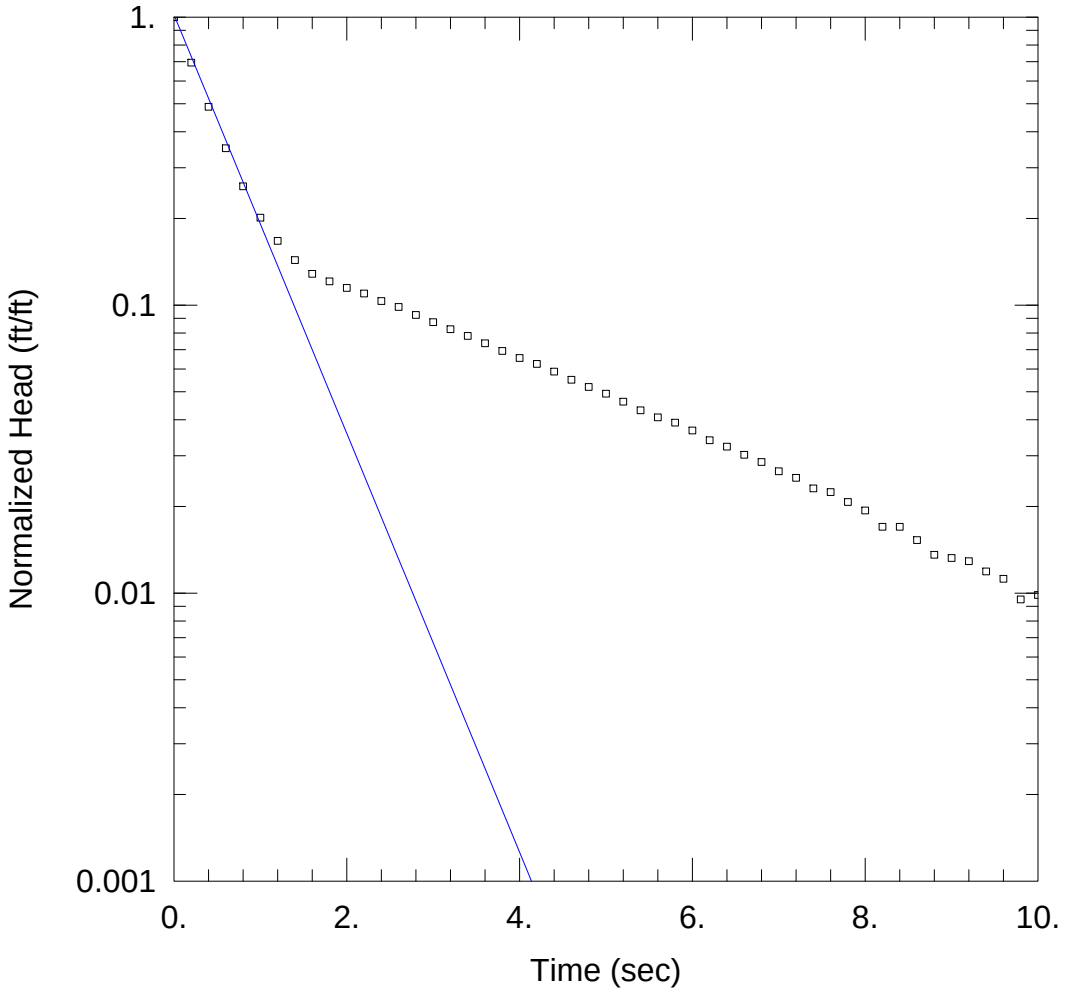
Drilling Co.: GeoServ
Driller: Dean Govan
Drilling Method: Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: Dual Tube
Sampling Interval: Continuous
Water Level Start (ft. bgs.): 14.0
Water Level Finish (ft. btoc.): NA
Converted to Well: ☒ Yes ☐ No
Surface Elev.:
North Coor:
East Coor:

ARCADIS

Appendix I

AQTESOLV Output Models



HPT-1_PST10_17.4FT

Data Set: G:\...\PST10_17.4.aqt
Date: 12/18/14 Time: 15:50:53

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

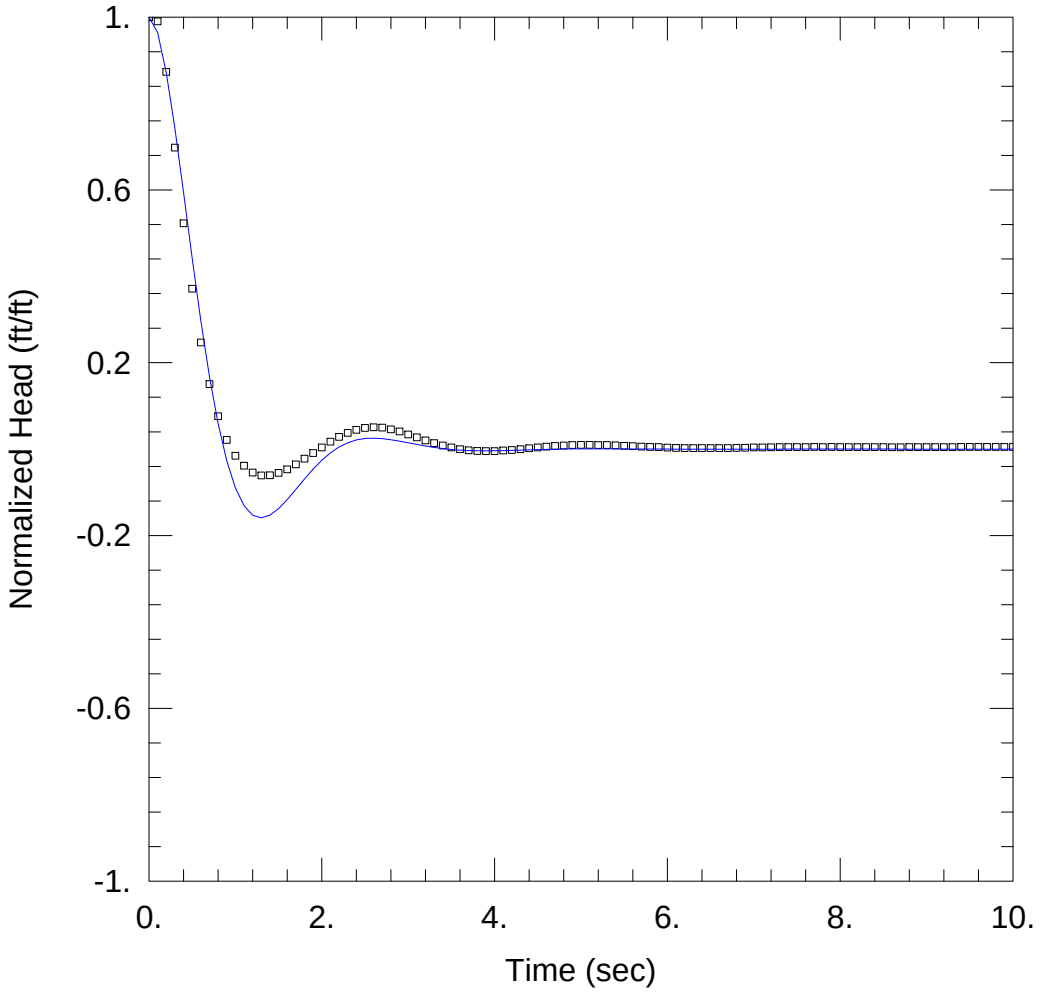
WELL DATA (HPT-1_PST10_17.4)

Initial Displacement: 2.54 ft Static Water Column Height: 1.6 ft
Total Well Penetration Depth: 1.6 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 34.59 ft/day y0 = 2.591 ft



HPT-1_PST3_20FT

Data Set: G:\...\PST3_20.aqt
Date: 12/18/14 Time: 15:39:21

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

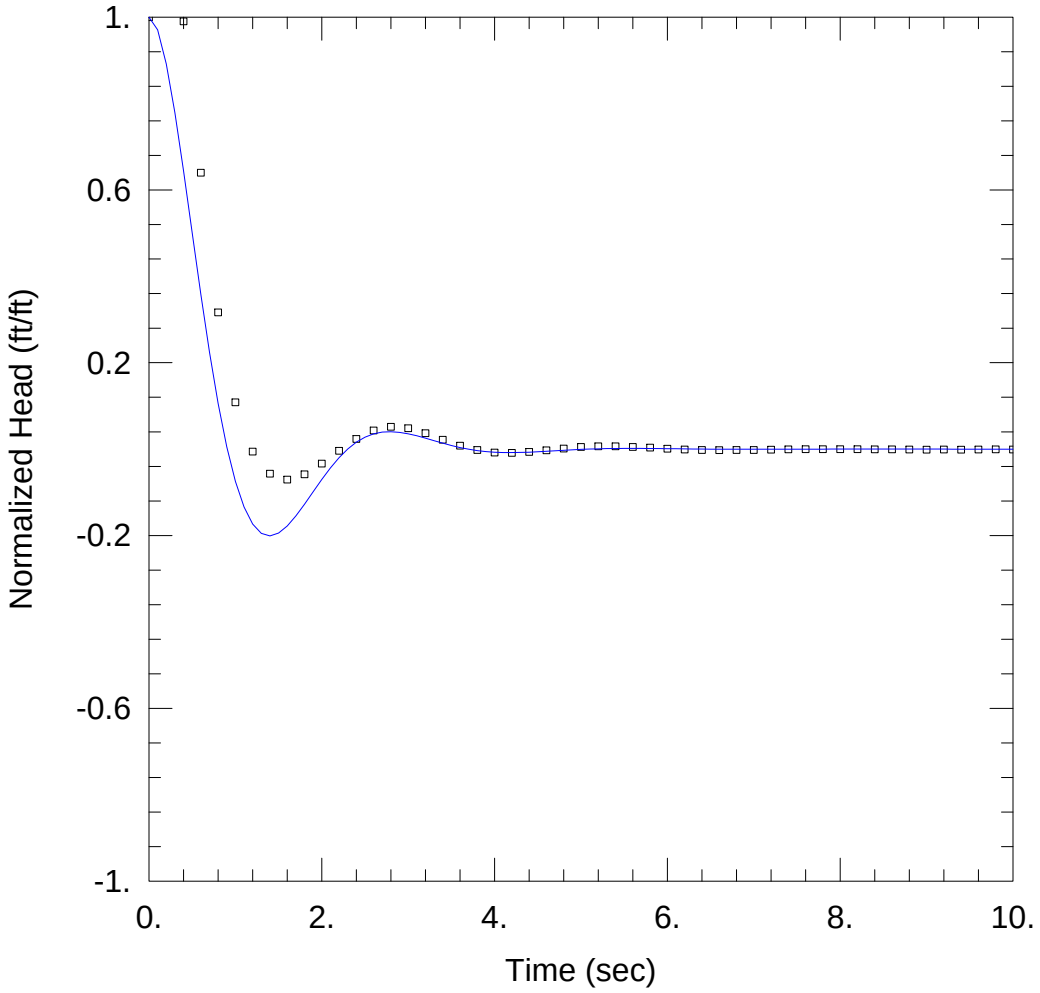
Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (HPT-1_PST3_20ft)

Initial Displacement: 2.689 ft Static Water Column Height: 4.2 ft
Total Well Penetration Depth: 4.2 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 73.41 ft/day Le = 4.072 ft



HPT-1_PST4_20FT

Data Set: G:\...\PST4_20.aqt
Date: 12/18/14 Time: 15:37:52

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

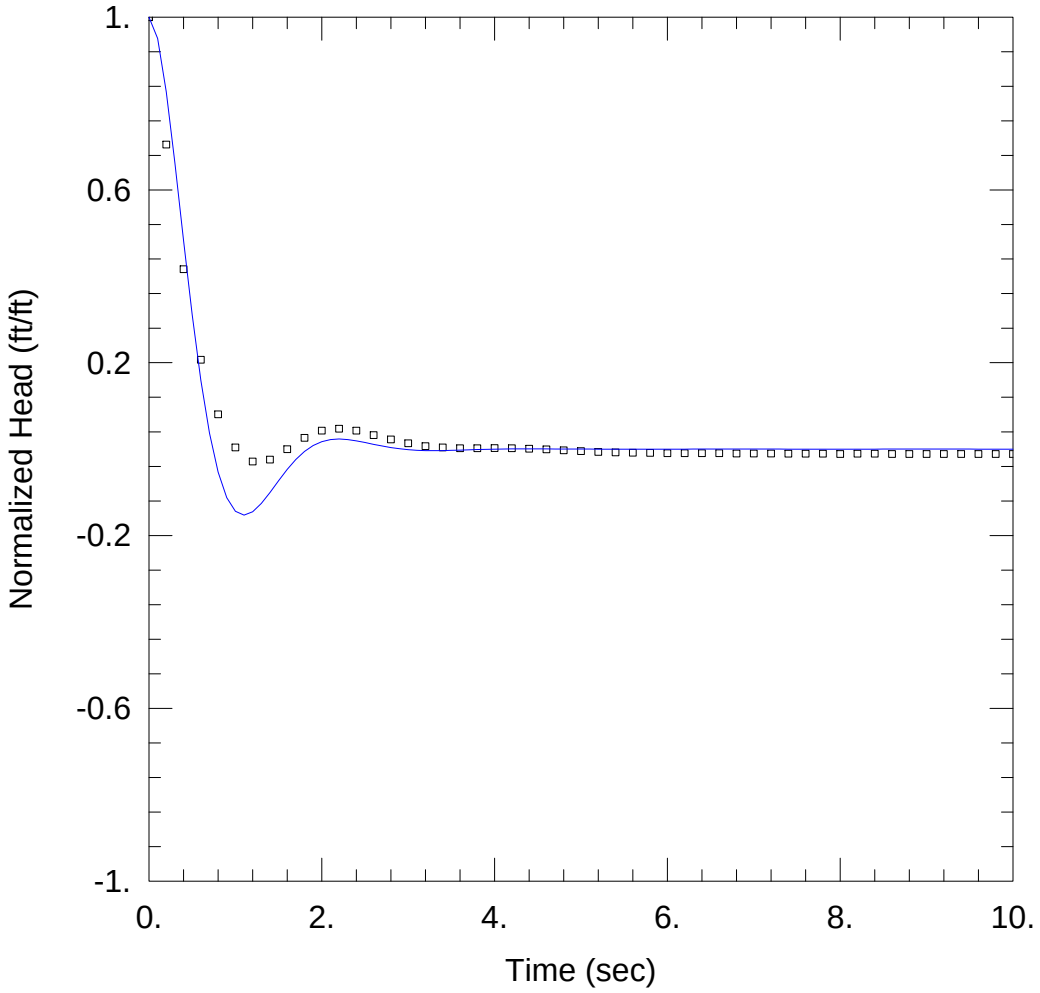
Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (HPT-1_PST4_20ft)

Initial Displacement: 2.42 ft Static Water Column Height: 4.2 ft
Total Well Penetration Depth: 4.2 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 73.39 ft/day Le = 5.019 ft



HPT-1_PST5_18.7FT

Data Set: G:\...\PST5_18.7.aqt
Date: 12/18/14 Time: 15:41:13

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

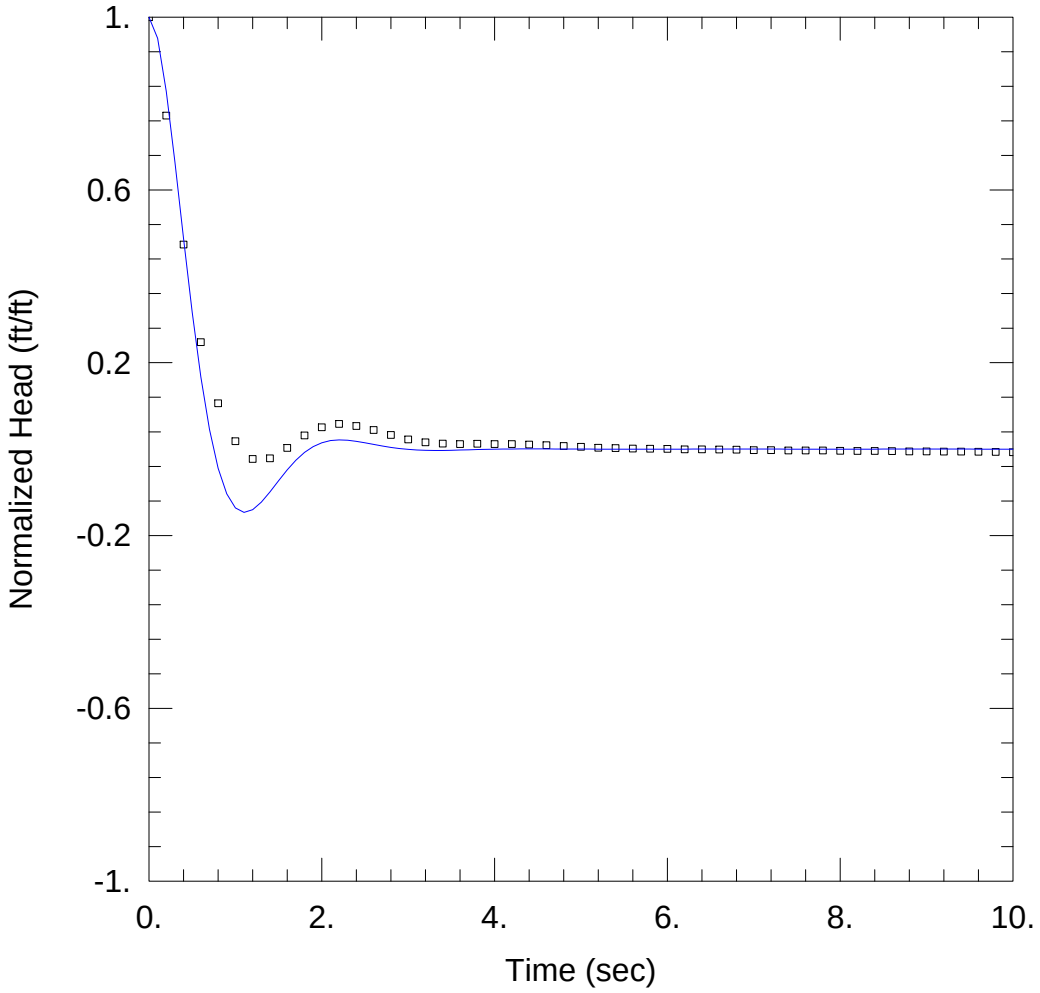
WELL DATA (HPT-1_PST5_18.7ft)

Initial Displacement: 1.86 ft Static Water Column Height: 2.9 ft
Total Well Penetration Depth: 2.9 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 78.62 ft/day Le = 2.893 ft



HPT-1_PST6_18.7FT

Data Set: G:\...\PST6_18.7.aqt
Date: 12/18/14 Time: 15:42:46

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

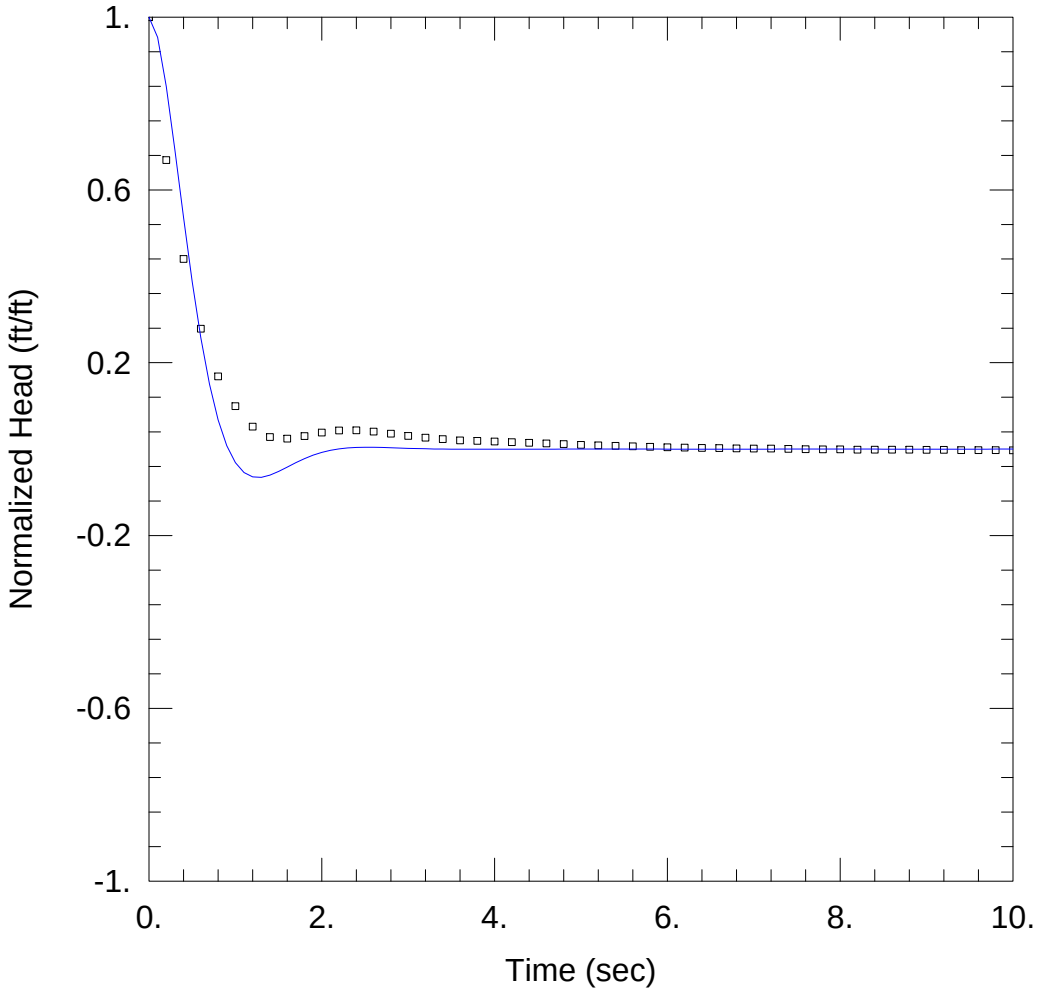
WELL DATA (HPT-1_PST6_18.7ft)

Initial Displacement: 1.82 ft Static Water Column Height: 2.9 ft
Total Well Penetration Depth: 2.9 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 77.07 ft/day Le = 2.904 ft



HPT-1_PST7_18.7FT

Data Set: G:\...\PST7_18.7.aqt
Date: 12/18/14 Time: 15:44:04

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

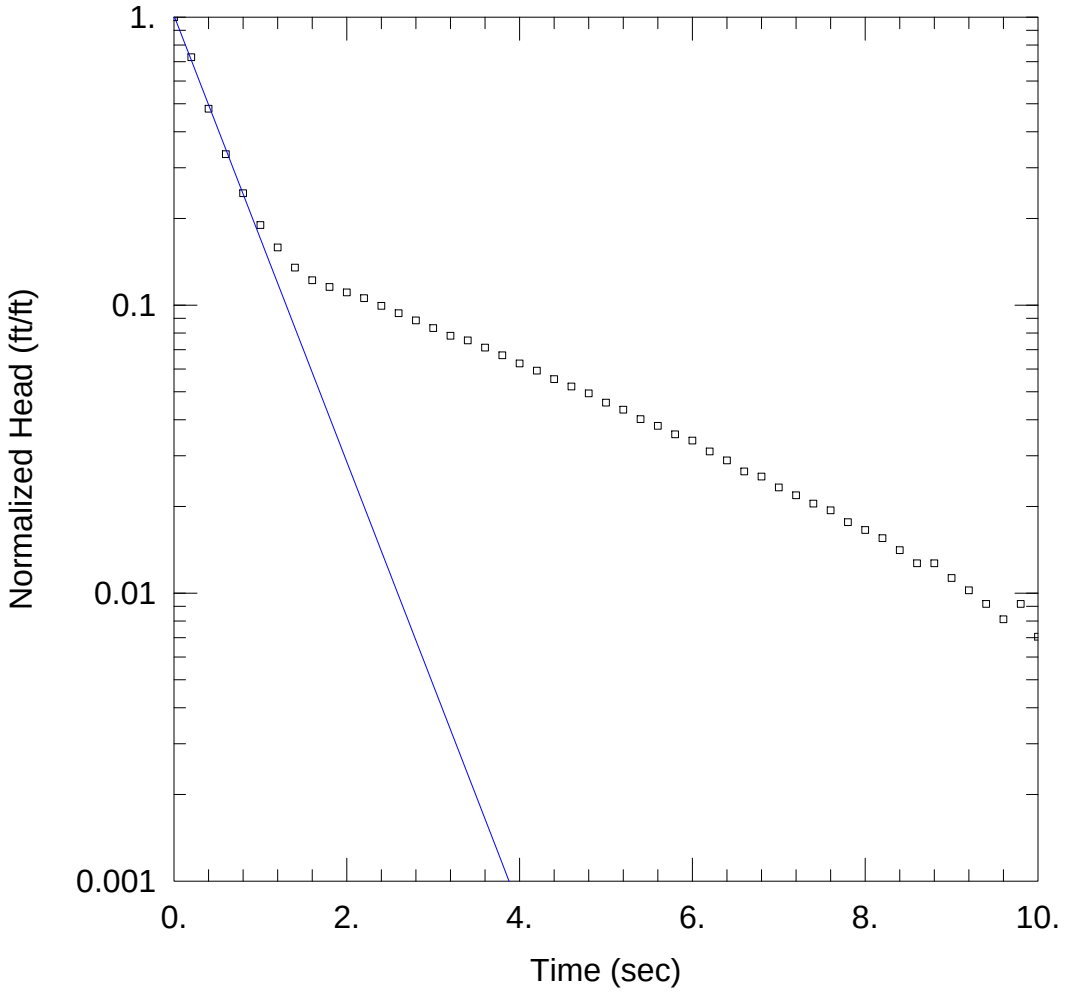
WELL DATA (HPT-1_PST7_18.7ft)

Initial Displacement: 2.985 ft Static Water Column Height: 2.9 ft
Total Well Penetration Depth: 2.9 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 60.03 ft/day Le = 2.962 ft



HPT-1_PST8_17.4FT

Data Set: G:\...\PST8_17.4.aqt
Date: 12/18/14 Time: 15:46:39

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 28. ft Anisotropy Ratio (Kz/Kr): 1.

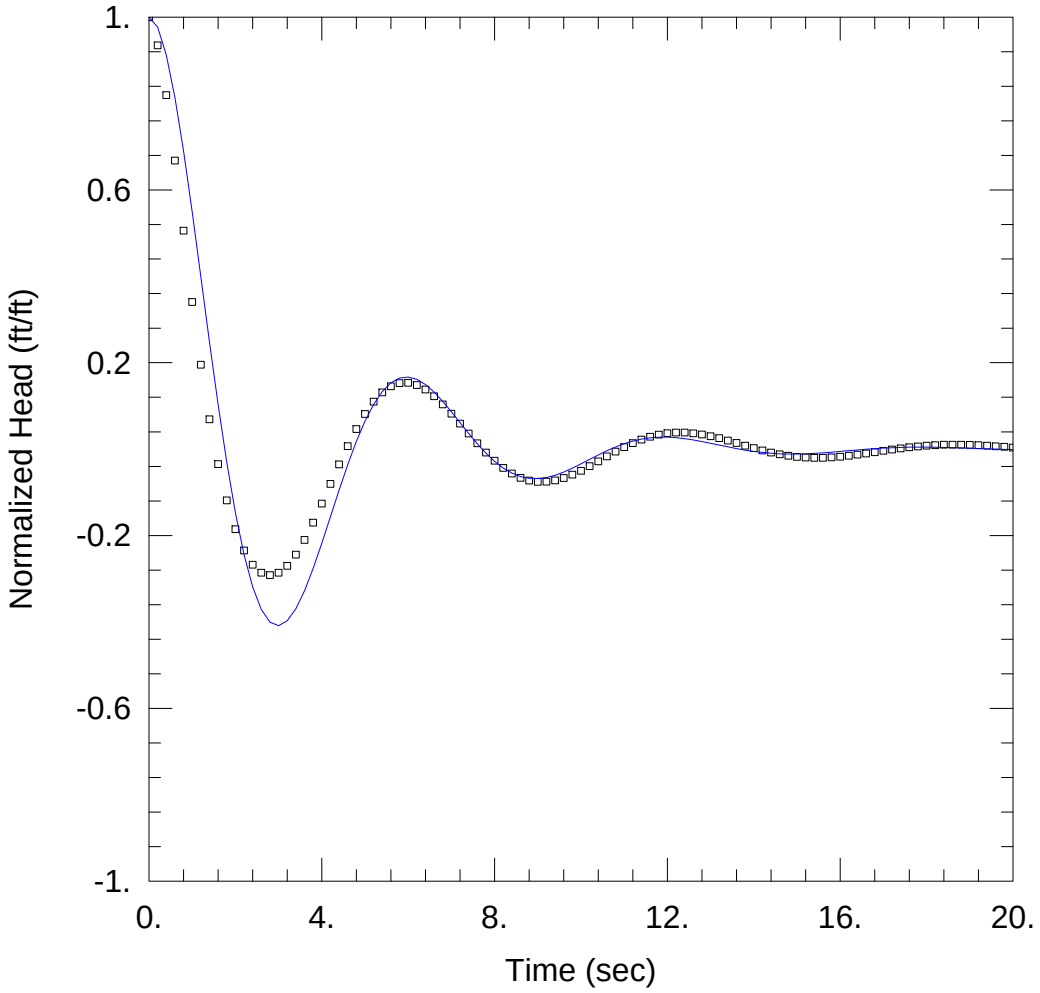
WELL DATA (HPT-1_PST8_17.4)

Initial Displacement: 2.447 ft Static Water Column Height: 1.6 ft
Total Well Penetration Depth: 1.6 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 36.87 ft/day y0 = 2.479 ft



HPT-2_PST12_46FT

Data Set: G:\...\PST12_46.aqt
Date: 12/18/14 Time: 15:53:28

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 31. ft Anisotropy Ratio (Kz/Kr): 1.

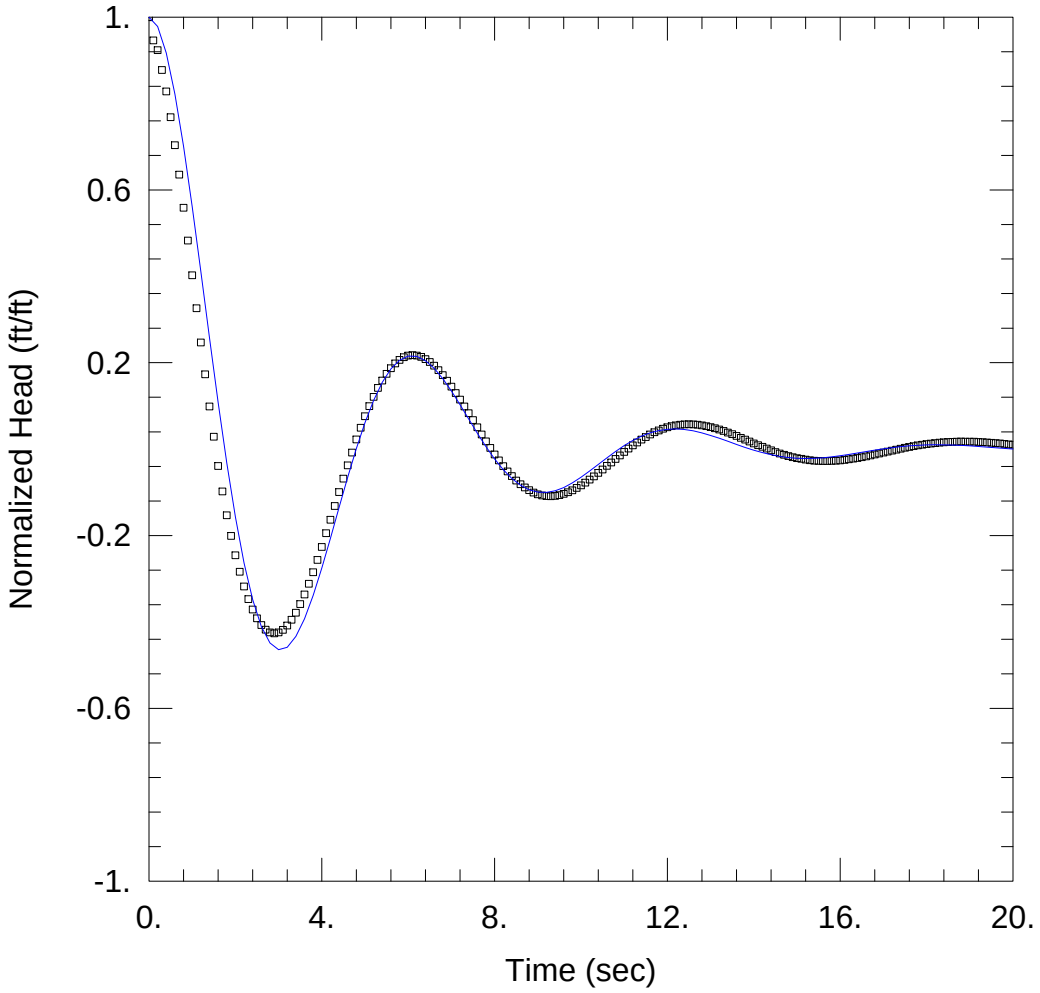
WELL DATA (HPT-2_PST12_46ft)

Initial Displacement: 9.74 ft Static Water Column Height: 31. ft
Total Well Penetration Depth: 31. ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 249.1 ft/day Le = 26.76 ft



HPT-2_PST13_46FT

Data Set: G:\...\PST13_46.aqt
Date: 12/18/14 Time: 15:55:43

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

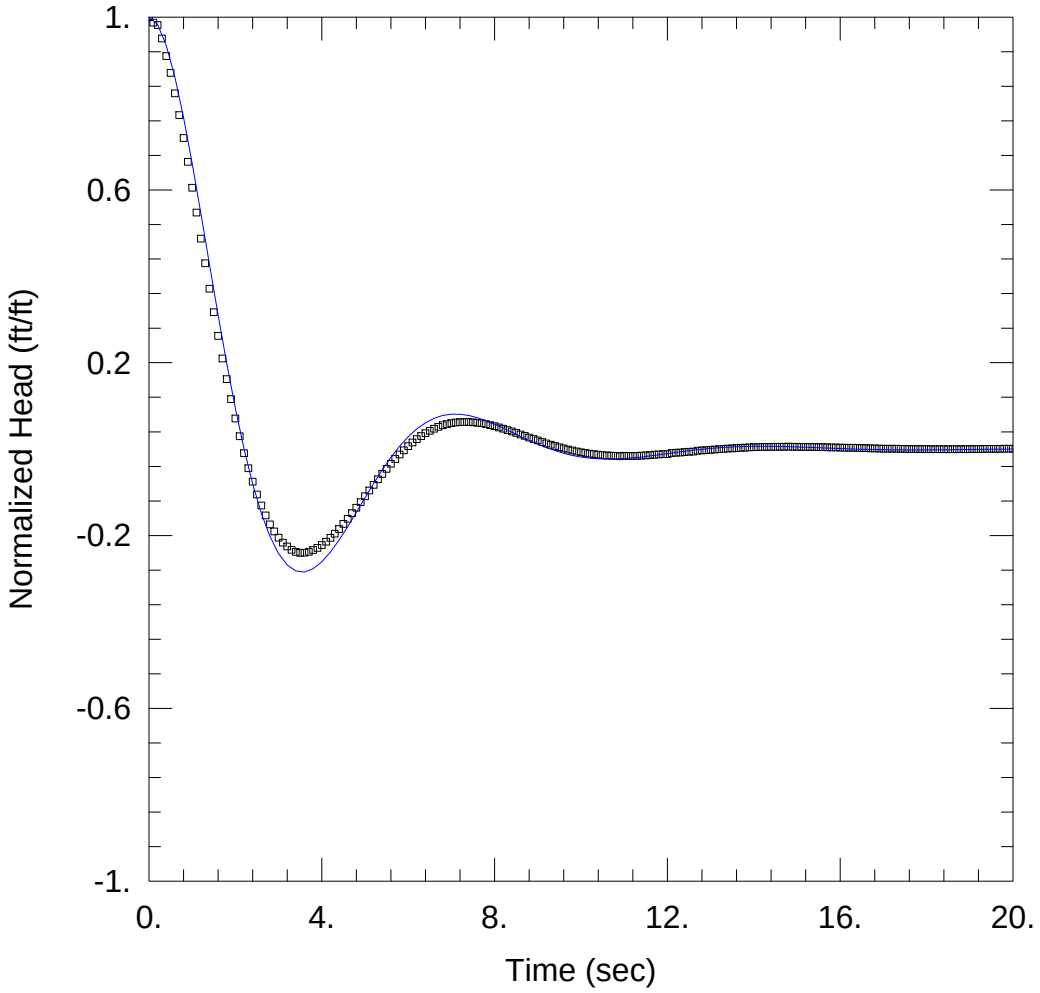
Saturated Thickness: 31. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (HPT-2_PST13_46ft)

Initial Displacement: 4.631 ft Static Water Column Height: 31. ft
Total Well Penetration Depth: 31. ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 369.6 ft/day Le = 28.49 ft



HPT-2_PST14_56FT

Data Set: G:\...\PST14_56.aqt
Date: 12/18/14 Time: 16:52:18

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 20. ft Anisotropy Ratio (Kz/Kr): 1.

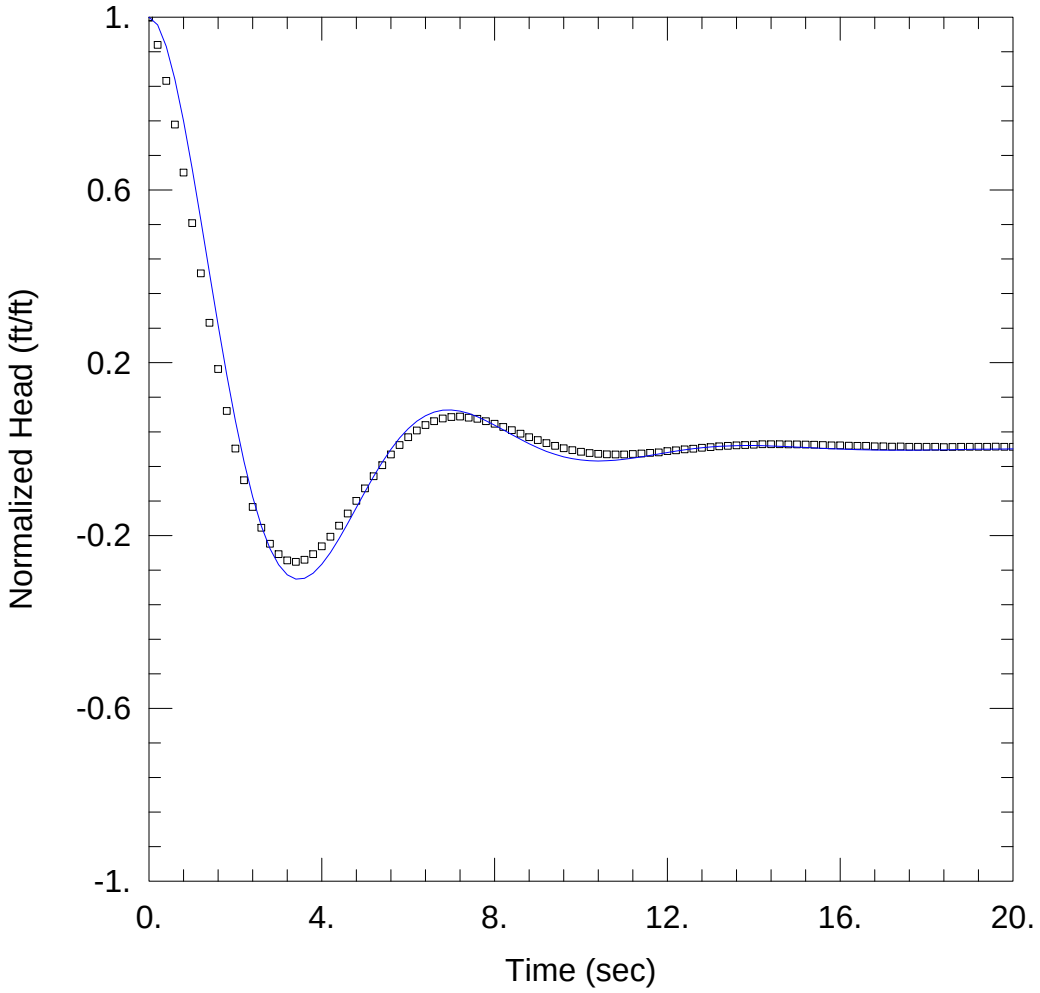
WELL DATA (HPT-2_PST14_56ft)

Initial Displacement: 4.265 ft Static Water Column Height: 37. ft
Total Well Penetration Depth: 2.3 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 86.83 ft/day Le = 35.33 ft



HPT-2_PST15_56FT

Data Set: G:\...\PST15_56.aqt
Date: 12/18/14 Time: 16:44:10

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 20. ft Anisotropy Ratio (Kz/Kr): 1.

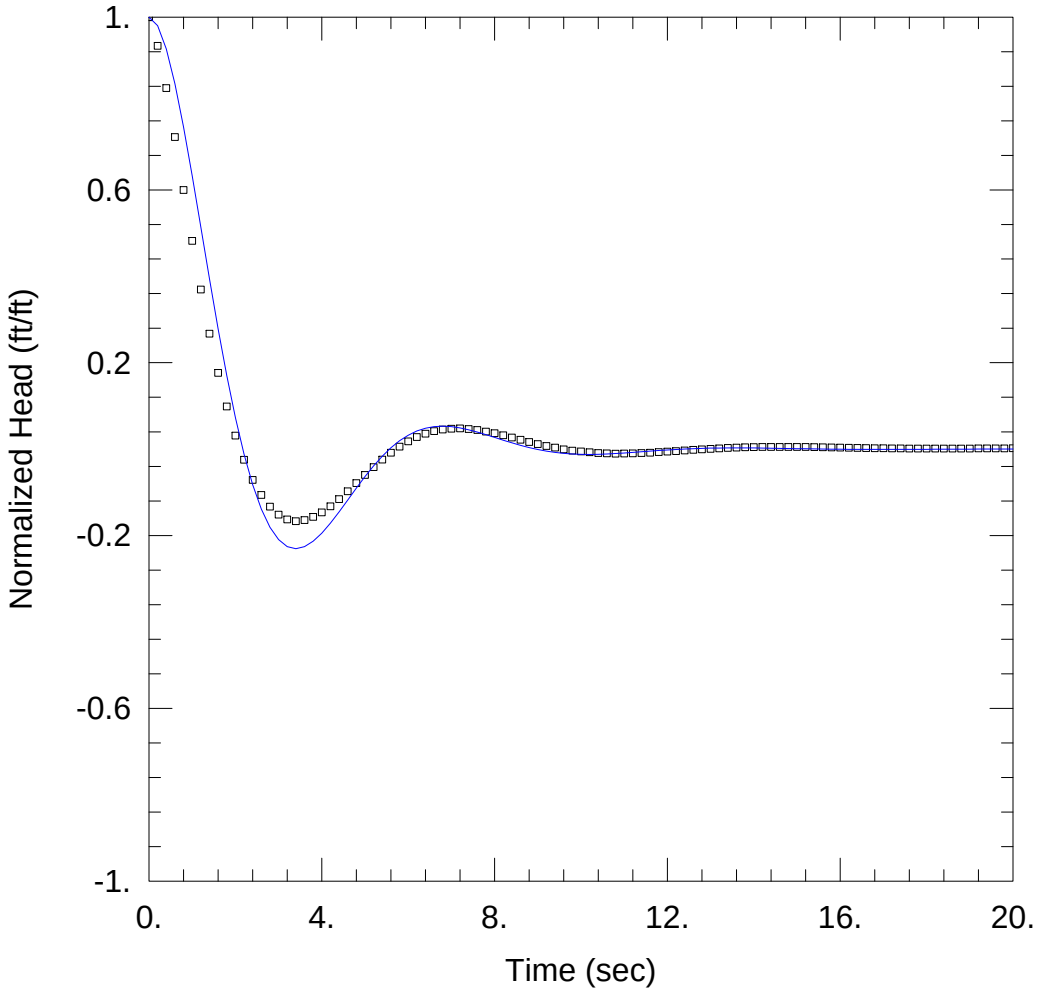
WELL DATA (HPT-2_PST15_56ft)

Initial Displacement: 2.56 ft Static Water Column Height: 37. ft
Total Well Penetration Depth: 2.3 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 97.93 ft/day Le = 34.2 ft



HPT-2_PST16_56FT

Data Set: G:\...\PST16_56.aqt
Date: 12/18/14 Time: 17:01:50

PROJECT INFORMATION

Company: ARCADIS
Client: RACER
Project: IN000884.2014
Location: Kokomo, IN
Test Date: 8/7/14

AQUIFER DATA

Saturated Thickness: 20. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (HPT-2_PST16_56ft)

Initial Displacement: 8.88 ft Static Water Column Height: 37. ft
Total Well Penetration Depth: 2.3 ft Screen Length: 1.3 ft
Casing Radius: 0.02344 ft Well Radius: 0.04167 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 76.41 ft/day Le = 30.86 ft