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Bristol-Myers Squibb Company

HIGH VACUUM EXTRACTION PILOT TEST SUMMARY REPORT

Site #C734138

BMS Syracuse North Campus Restoration Area

Thompson Road, East Syracuse, New York

March 2020

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I, *Christopher Davern, certify that I am currently a New York State registered Professional Engineer and that this High Vacuum Extraction Pilot Test Summary Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).*

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis of New York, Inc.
BDA	Brownfield Development Area
bgs	below ground surface
BMS	Bristol-Myers Squibb
CO_2	carbon dioxide
COC	constituent(s)-of-concern
DUSR	Data Usability Summary Report
eV	electron volt
FSAP	Field Sampling and Analysis Plan
gpm	gallons per minute
inHg	inches of mercury
inWC	inches of water column
lb/day	pounds per day
LEL	lower explosive limit
LRP	liquid ring pump
MeCl	methylene chloride
mg/kg	milligrams per kilogram
NYSDEC	New York State Department of Environmental Conservation
O_2	oxygen
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
scfm	standard cubic feet per minute
site	BMS Syracuse North Campus Restoration Area NYSDEC BDA (Site No. C734138)
SVOC	semi-volatile organic compound(s)
TCLP	toxicity characteristic leaching procedure
TIC	tentatively identified compound(s)
µg/L	micrograms per liter

µg/m^3	micrograms per cubic meter
USEPA	United States Environmental Protection Agency
VGAC	vapor-phase granular activated carbon
VOC	volatile organic compound(s)
Work Plan	*High Vacuum Extraction Pilot Test Work Plan*

1 INTRODUCTION

This *High Vacuum Extraction Pilot Test Summary Report* (Report) has been prepared for the Bristol-Myers Squibb (BMS) Syracuse North Campus Restoration Area (New York State Department of Environmental Conservation [NYSDEC] Brownfield Development Area [BDA] Site No. C734138) that is part of the BMS Facility located at 6000 Thompson Road in East Syracuse, New York (site). The pilot test was performed to evaluate whether high vacuum extraction is a viable technology to address volatile organic compounds present in the glacial till beneath the BDA-10 well cluster area of the site. Pilot testing was completed in accordance with the *Revised High Vacuum Extraction Pilot Test Work Plan* (Work Plan) (Arcadis 2019a), as modified to address supplemental comments from the NYSDEC in an email dated October 16, 2019, and as responded to in an email from Arcadis of New York, Inc. (Arcadis) on behalf of BMS dated October 16, 2019. Modifications to pilot test methodology relative to the Work Plan are summarized in this Report.

1.1 Site Description

The BMS Facility is an approximately 90-acre biologic drug substance manufacturing facility located within a mixed industrial/residential area in an urban setting (**Figure 1**). Most of the BMS Facility is covered with buildings, paved parking lots, mowed lawns, and access roads. The BDA occupies approximately 24 acres of the BMS Facility. A site transformation project was implemented in the BDA, resulting in the demolition of numerous buildings and the conversion of much of the BDA to green space. Former site features, existing site features, and site monitoring wells are shown on **Figure 2**.

The overall topography of the BMS Facility slopes downward to the east-northeast, toward the local valley, which is drained by the South Branch of Ley Creek (referred to herein as Ley Creek). Ley Creek originates off-site to the south, runs along the eastern perimeter of the BMS operating facility, passes through a culvert beneath the adjacent CSX Corporation railroad tracks, and continues to the northwest. An open channel drainage ditch (known as Headson's Brook) intermittently flows parallel to the railroad tracks and discharges to Ley Creek adjacent to the BMS property.

The BDA-10 well cluster area, within the footprint of former Building 62, was selected for the pilot study because methylene chloride (MeCl) has been detected at elevated concentrations in the till and in the groundwater within the underlying shallow bedrock at this location.

1.2 Hydrogeology

The site stratigraphy for the pilot test area is summarized in **Table 1** (below). Hydraulic conductivity values presented in **Table 1** are general site-wide estimates and are not specific to the pilot test area.

Table 1. Pilot Test Area Stratigraphy

Lithologic Unit	Description	Thickness (feet)	Hydraulic Conductivity (feet per day)[1]
Fill	Gravel with variable debris, sand, silt, and clay	5 to 7	Range: 0.12 to 27 Geometric Mean: 1.1
Till	Very dense silt with variable gravel, sand, and clay	27 to 31	Range: 0.025 to 6.7 Geometric Mean: 0.14
Weathered Bedrock	Very dense silty clay with angular pieces of shale and intervals of competent shale several feet thick	2.5 to 3	Range: 0.037 to 13 Geometric Mean: 0.32
Competent Bedrock	Vernon Shale – Sparsely fractured shale with thin beds and veins of selenite (gypsum) and dolomite	NA	Range: 0.034 to 0.97 Geometric Mean: 0.16

As discussed in footnote 1, site monitoring data indicate that the till unit has a very low permeability beneath the pilot test area. The hydraulic gradient at the site is to the east-northeast, toward Ley Creek. The water table within this area of the BDA typically occurs in the unconsolidated overburden deposits near the fill/till interface and is recharged principally by infiltration of precipitation on and upgradient of the site. Groundwater flow in the overburden is interpreted to be principally horizontal due to the lower hydraulic conductivity of underlying units. However, there is a downward hydraulic gradient through the till into the bedrock across most of the site. Groundwater movement in the weathered and competent bedrock is focused along discrete, interconnected zones of relatively higher hydraulic conductivity associated with relict fractures in weathered bedrock and transmissive fractures in competent bedrock. Groundwater movement in the till is believed to occur along thin interconnected lenses/laminations of higher conductivity material present within the clay matrix.

1.3 Nature and Extent of Constituents-of-Concern within the Pilot Test Area

Results from previous site investigations, which included installation of the BDA-10 monitoring well cluster (BDA-10DT, BDA-1-MT, and BDA-10RX) and monitoring well CHP43RX, indicate MeCl is the primary constituent-of-concern (COC) present in soil and groundwater beneath the pilot test area. Other COC are also present but at much lower concentrations than MeCl.

[1] Hydraulic conductivity estimated based on drawdown observed in monitoring wells during low-flow sampling. A subset of monitoring wells screened in the till and competent bedrock did not achieve steady state drawdown during sampling or had insufficient recharge for low-flow sampling. Thus, the actual hydraulic conductivity of these units is inferred to be considerably lower than the calculated geometric mean values presented here.

2 PILOT TEST WELL INSTALLATION

2.1 Utility Clearance

The following utility clearance activities were performed prior to drilling in accordance with the Work Plan.

- Contacted Dig Safely New York to mark buried public utilities entering the property.
- Performed ground-penetrating radar and electromagnetic induction to identify and mark buried utilities in the vicinity of the proposed pilot test wells.
- Reviewed known utility maps provided by BMS.
- Obtained excavation permit from the BMS Facilities and Engineering Department.

2.2 Community Air Monitoring During Well Installation

Community air monitoring was performed during drilling of the pilot test wells as specified in the Work Plan. Consistent with prior BDA drilling activities, worker breathing zone air was monitored for dust and volatile organic compounds (VOC), and ambient air around the perimeter of the work area was monitored for VOC only. Dust was monitored using a particulate monitor and VOC were monitored using a photoionization detector (PID) equipped with an 11.7 electron volt (eV) lamp. Perimeter air was measured at dedicated upwind and downwind stations, based on prevailing wind direction. This approach was consistent with the Community Air Monitoring Plan (OBG, 2013a) for the project, with dust monitoring modification previously approved by the NYSDEC based on the lack of perimeter dust exceedances during site transformation activities, and the limited extent of intrusive activities to be conducted.

There were no exceedances of community air monitoring action levels during well installation activities. Community air monitoring data are included as **Appendix A**.

2.3 Pilot Test Well Installation

One new extraction well (EW-1) and eight new observation wells (OW-1S/1D, OW-2S/2D, OW-3S/3D, and OW-4S/4D) were installed between August 28 and August 30, 2019, for the pilot test at the locations shown on **Figure 3**. Wells were installed by a track-mounted roto-sonic drill rig. Drilling work was supervised by an Arcadis field geologist.

Soil cores were collected continuously from each boring during drilling. Lithology of these soil cores was logged in the field, and representative soil samples were collected and screened in the field for total VOC using the sample bag headspace method and a PID equipped with an 11.7 eV lamp, as described in Section 5.2 of the Field Sampling and Analysis Plan (FSAP) (OBG 2013b).

The pilot test observation wells were installed as nested shallow/deep well clusters (in the same borehole). As illustrated on **Figure 3**, the four observation well clusters were installed at an approximately 90-degree spacing around the extraction well. The observation well clusters were installed at the following distances from the extraction well.

- OW-1S/D – 4 feet from EW-1
- OW-2S/D – 10 feet from EW-1
- OW-3S/D – 11 feet from EW-1
- OW-4S/D – 15 feet from EW-1

Pilot test well screen intervals and basic construction details are summarized below.

- Extraction well EW-1 – 4-inch-diameter, stainless steel, with a 10-foot-long, 20-slot screen installed from approximately 21 to 31 feet below ground surface (bgs).
- Shallow observation wells OW-1S, OW-3S, and OW-4S – 2-inch-diameter, stainless steel, with a 5-foot-long, 10-slot screen installed from approximately 10 to 15 feet bgs, completely below the fill/till interface.
- Shallow observation well OW-2S – 2-inch-diameter, stainless steel, with a 10-foot-long, 10-slot screen installed from approximately 5 to 15 feet bgs, such that the screen extends a minimum of 1-foot above the static water table elevation and approximately 3.5 feet above the fill/till interface, to allow monitoring for vacuum influence that might develop within that unit.
- Deep observation wells OW-1D, OW-2D, OW-3D, and OW-4D – 2-inch-diameter, stainless steel, with a 10-foot-long, 10-slot screen installed from approximately 21 to 31 feet bgs, across the same subsurface interval as the extraction well.

The extraction well screen interval was selected to intersect the zone of highest apparent soil impacts within the till, observed at a depth of approximately 24 to 28 feet bgs beneath the pilot test area.

Additional pilot test well construction details are provided in the boring logs, which are provided in **Appendix B**.

Following installation Arcadis personnel developed the pilot extraction and observation wells to the extent possible/practical given the slow groundwater recharge rate for the till unit. Well development was conducted in accordance with the procedures in Section 6.2 of the FSAP (OBG 2013b). Well development logs are also provided in **Appendix B**.

Pilot test well elevations and locations were survey to the North American Vertical Datum of 1988 and North American Datum by a New York State-licensed surveyor. Survey data is provided on the boring logs in **Appendix B**.

2.4 Pilot Test Well Sampling

2.4.1 Soil Sampling

Two soil samples were collected for laboratory analysis during the installation of extraction well EW-1. One sample was collected from the 23- to 25-foot depth interval, where the highest PID readings were measured. The other sample was collected from the 27- to 29-foot depth interval where an odor was reported from the recovered soil core. A duplicate sample was also collected for analysis from the 27- to 29-foot depth interval. Soil samples were submitted to Eurofins Lancaster Environmental Laboratories in

Lancaster, PA for the following analyses in accordance with the Quality Assurance Project Plan (QAPP) (OBG 2013c) and the following United States Environmental Protection Agency (USEPA) SW-846 Methods.

- VOC (including top 10 tentatively identified compounds [TIC]) – 8260C
- Semi-volatile organic compounds (including top 20 TIC) – 8270D
- Glycols and alcohols – 8015C/8015D
- Formaldehyde, glutaraldehyde, and acetaldehyde – 8315A

MeCl was detected at a concentration of 180 milligrams per kilogram (mg/kg) in the 23- to 25-foot depth interval sample, and at a concentration of 2 mg/kg in the 27- to 29-foot depth interval sample. Extraction well soil sample results are summarized in **Table 2** and the laboratory analytical report is included in **Appendix C**.

2.4.2 Vapor Headspace/Groundwater Sampling

Arcadis collected one vapor sample from the extraction well headspace to confirm pilot test off-gas treatment controls. The sample was collected through tubing extended to a depth of approximately one foot above the groundwater surface within the well. The sample was collected in a Summa® canister directly from the wellhead, which was sealed to prevent inflow of atmospheric air to the casing during sampling. The sample was sent to Eurofins Air Toxics, Inc. laboratories in Folsom, CA to be analyzed for the location-specific VOC list in accordance with USEPA Method TO-15. The headspace vapor sample results were used to update the DAR-1 air dispersion model for the pilot test and confirm that the selected vapor-phase carbon off-gas treatment would be appropriate. A summary of the DAR-1 air dispersion modelling analysis was provided to NYSDEC as part of the Work Plan submittal. The analysis determined that uncontrolled emissions during the pilot test would be in compliance with DAR-1 requirements.

Arcadis also sampled groundwater from the new extraction well following low-flow sampling methodology in accordance with the FSAP (OBG 2013a). The groundwater sample, a field duplicate sample, and a trip blank were sent to Eurofins Lancaster Environmental Laboratories in Lancaster, PA to be analyzed for VOC in accordance with USEPA Method 8260C.

The extraction well headspace vapor sample and groundwater sample results are summarized in **Table 3** and **Table 4**, respectively. Laboratory analytical reports for the extraction well headspace vapor sample and extraction well groundwater sample are included in **Appendix C**.

3 PILOT TEST METHODOLOGY

3.1 Community Air Monitoring During Pilot Test

Since the pilot test implementation did not involve intrusive activities with the potential for fugitive dust generation, community air monitoring performed during the pilot test consisted of monitoring ambient air around the perimeter of the work area for VOC only. VOC were monitored using a PID equipped with an 11.7 eV lamp. Perimeter air was measured at dedicated upwind and downwind stations, based on prevailing wind direction.

There were no exceedances of community air monitoring action levels during pilot test implementation. Community air monitoring data are included as **Appendix A**.

3.2 Pilot Test Setup and Equipment

A mobile multi-phase extraction pilot system platform was mobilized to the site and set up at the pilot test area. The pilot system platform was mounted inside a box truck and powered by the truck engine, similar to a vacuum truck; therefore, an electrical power drop or generator was not required. The unit operated in two-phase extraction mode in which groundwater and soil vapor were recovered under high vacuum applied through a drop tube inserted into the extraction well at the targeted depth interval. Vacuum was applied to the well using a liquid ring pump (LRP). The system included a manual dilution valve to allow for the adjustment of applied vacuum. Recovered groundwater was separated out from the vapor stream via a vapor liquid separator (knock-out) tank, then transferred into 55-gallon steel drums staged on secondary containment outside the pilot system truck. Exhaust from the LRP was conveyed through an oil separator drum (to remove any oil blow-through from the LRP), a heat exchanger, and two 175-pound vapor-phase granular activated carbon (VGAC) vessels arranged in series to remove MeCl and any other VOC prior to discharging to the atmosphere. Treated vapor was discharged to atmosphere at a height of 10 feet above ground surface via a 2-inch-diameter schedule 40 polyvinyl chloride (PVC) pipe mounted to the pilot system truck.

The drop tube was inserted into the extraction well and connected to the pilot system manifold using a combination of PVC piping/fittings, flexible rubber fittings, and 2-inch-diameter flexible hose. Since the formation extraction air flow rate was low, a makeup air assembly was installed at the extraction wellhead to allow additional ambient air to flow into the well to assist lifting groundwater up the drop tube and out of the well. Due to sub-freezing ambient air temperatures that prevailed at the site for the duration of the test, the 2-inch-diameter flexible hose between the extraction well and the pilot system platform inside the truck was fit with self-regulating heating cable to keep the recovered groundwater from freezing in the lines.

3.3 Pilot Test Procedure

The pilot test was performed between November 11 and November 15, 2019. The pilot test was generally performed in accordance with the Work Plan. Deviations from the Work Plan were discussed with NYSDEC and are identified below. The following field measurements were omitted from the pilot test performance monitoring schedule after it was determined that the data would not be either relevant, or

useful in the evaluation of pilot test results or for full-scale system design, if this technology were selected for the full-scale remedy.

- Headspace carbon dioxide (CO_2) and oxygen (O_2) levels at the observation wells – these data are useful during testing of an enhanced bioremediation technology such as bioventing but are not useful for evaluating a high vacuum remedy, where volatilization and physical recovery are the dominant mass removal mechanisms.
- Headspace VOC screening at the observation wells – these data are useful for evaluating vacuum influence during a combined air sparge/soil vapor extraction pilot test but are not necessary or helpful for high vacuum pilot test data evaluation.
- Baseline wellhead pressure/vacuum measurements at the observation and extraction wells – these data are unnecessary; all readings were zero because no vacuum applied to subsurface at baseline.
- Baseline VOC/lower explosive limit (LEL) measurements at pre-existing monitoring wells used as observation points during the pilot test – these data are unnecessary; located too far from the extraction well to dewater to expose screens and develop pneumatic influence during the pilot test.

3.3.1 Baseline Monitoring

After the pilot system setup was complete, pre-test baseline water level and well headspace PID and LEL readings were measured at the extraction well and observation wells. These baseline readings are presented on **Table 8**.

3.3.2 Vacuum Step Testing

Upon completion of baseline monitoring, vacuum was applied to the drop tube to dewater the extraction well. During this process, the drop tube was gradually lowered until the well was dewatered to the initial setpoint of 28.5 feet bgs, exposing the targeted 24 to 28 feet bgs depth interval. Vacuum then was applied to the extraction well in a series of three increasing steps to evaluate the response of the formation. Applied vacuum at the extraction well drop tube and vapor extraction flow rate for the three vacuum steps were as follows.

- Vacuum Step #1 – 5 to 6 standard cubic feet per minute (scfm) at 15 inches of mercury (inHg) vacuum
- Vacuum Step #2 – 5 to 6 scfm at 17.5 inHg vacuum
- Vacuum Step #3 – 6 to 8 scfm at 22.5 inHg vacuum

As shown in **Table 8**, the pilot system liquid ring pump was operated at its maximum vacuum setting of 26.5 – 27 inHg during vacuum Step 3 and the extended phase test. The applied vacuum measured at the extraction wellhead during this time ranged from 22 to 23.5 inHg, with an average of 22.5 inHg.

Due to the inclement weather and soft ground surface conditions at the pilot test location, much of the first day of the pilot test (November 11, 2019) was spent mobilizing and setting up the pilot test equipment to operate properly in freezing temperatures. The pilot system was operated for several hours at Vacuum Step #1 at the end of the first day, then shut down for the night as a precaution after the field team

decided that additional winterization measures should be put in place before allowing the system to operate unattended in the sub-freezing temperatures. Vacuum step testing resumed on the morning of November 12, 2019, with the system beginning operation at Vacuum Step #1.

The following performance monitoring data were collected during step testing.

Pilot test observation wells

- Water level
- Wellhead vacuum

Extraction well and system

- Vacuum at the wellhead and blower
- Air flow rates at the following locations:
  - Wellhead dilution
  - System influent, upstream from the system dilution airline (when open)
  - System effluent, downstream from carbon vessels
- Pre-carbon air temperature
- VOC readings (field-measured by 11.7 eV lamp PID) at the carbon influent, mid-effluent (i.e., in between the two VGAC vessels), and effluent locations
- System influent vapor recovery stream LEL
- Total groundwater recovery volume

Vacuum Steps #1 and #2 were operated for approximately three hours each, during which the above measurements were collected three times. The blower was operated at Vacuum Step #3 for two hours (two sets of measurements), after which it was determined that the system would operate at this setting for the remainder of the pilot test, as discussed below.

3.3.3 Extended Phase Test

In consideration of the real-time assessment of step testing performance data, it was agreed with NYSDEC that the system would operate at the Vacuum Step #3 settings for the remainder of the test. The extended phase of the test lasted 3 days (approximately 70 hours), during which time the system operated continuously except for a few brief shutdowns for maintenance (e.g., re-priming liquid transfer pump). The same performance monitoring data were collected during the extended phase testing as were collected during the step-testing portion of the pilot test. Additionally, Draeger® tubes were used to measure MeCl concentrations at the vapor-phase influent, mid-fluent, and effluent locations. Draeger® tube measurements, along with PID screening, were used to assess the vapor-phase mass removal efficiency across the lead VGAC vessel and determine if/when VGAC vessel changeouts were needed.

During the extended phase portion of the test, the following adjustments were made to the pilot test procedure described in the Work Plan to optimize performance.

- On November 13, 2019, approximately 21 hours after the start of the extended phase test, the drop tube was lowered from approximately 28.5 feet bgs to 30.0 feet bgs. The adjustment was made to increase drawdown in the extraction well and potentially expose additional lenses of permeable material within the till matrix that might establish additional hydraulic/pneumatic connections at other pilot test observation wells.
- On November 14, 2019, approximately 38 hours after the start of the extended phase test, the field team began manually purging the observation wells (via bailer) to expose the well screens. It was thought that this might expedite dewatering of the formation and development of pneumatic influence at other observation wells.

3.4 Pilot Test Sampling

3.4.1 Vapor Sampling

The influent vapor stream was sampled twice during the extended phase test; once approximately two hours after the start of the extended phase test, and a second time approximately two hours prior to the end of the extended phase test. Both influent air samples were collected in Summa® canisters connected to a sample port located directly upstream from the lead VGAC vessel. One effluent vapor sample was collected at the end of the extended phase test. This sample was collected in a Tedlar Bag as the canister planned for the final effluent sample had mistakenly been expended on an unplanned effluent sample collected toward the beginning of the extended phase test. The use of a Tedlar Bag to collect the final effluent sample from the system could have resulted in analytical results which underestimated the total VOC concentrations in the effluent sample as compared to a sample collected with a Summa® canister.

All vapor samples were sent to Eurofins Air Toxics, Inc. laboratories in Folsom, CA and analyzed for the project-specific list of VOC in accordance with USEPA Method TO-15. Pilot test vapor sample results are summarized in **Table 6**, and the associated laboratory analytical report is included in **Appendix C**. A NYSDEC Analytical Services Protocol Category B deliverables package and electronic data deliverable in the site-specific EQuIS format will be submitted electronically to NYSDEC. Data validation was completed in accordance with NYSDEC and USEPA guidance. A Data Usability Summary Report (DUSR) has been prepared based on the data review and is included in **Appendix C**.

3.4.2 Groundwater Sampling

The groundwater recovered from the extraction well during the pilot test was sampled, sent to Eurofins Lancaster Environmental Laboratories in Lancaster, PA, and analyzed for VOC by USEPA Method 8260C. VOC results for the pilot test groundwater sample are summarized in **Table 5**. The laboratory analytical report for the groundwater extracted during the pilot test is included in **Appendix C**.

3.5 Waste Management

The following waste streams generated during the pilot test activities were managed in accordance with Section 12.3 (Management of Investigation-Derived Waste) of the FSAP (OBG 2013a).

- Approximately 2,800 pounds (4 drums) of soil cuttings from pilot test well installation were disposed as hazardous waste at Clean Harbors Environmental Services (CHES) facility in El Dorado, Arkansas.
- Approximately 750 gallons (15 drums) of purge water, development water and decontamination water from pilot test well installation were disposed of as hazardous waste at CHES facility in El Dorado, Arkansas.
- Approximately 325 gallons (7 drums) of groundwater extracted during the pilot test (203 gallons extracted by pilot system and the remainder extracted via manual bailing) were disposed of as hazardous waste at CHES facility in El Dorado, Arkansas.
- Approximately 350 pounds of used VGAC was characterized non-hazardous and will be disposed of via reactivation by Carbon Service and Equipment Company located in Eighty-Four, PA.

Samples were collected to characterize these waste streams for disposal as follows. All analyses were performed by Eurofins Lancaster Environmental Laboratories in Lancaster, PA, unless otherwise noted.

- Representative samples were collected from the development and decontamination water generated during the well drilling activities. These samples were analyzed for metals, VOC, semi-volatile organic compounds (SVOC), alcohols, glycols, pH, and reactivity.
- Representative samples were collected from the groundwater extracted during the pilot test and analyzed for SVOC, metals, alcohols, glycols, flashpoint, pH, and corrosivity.
- Representative samples were collected from the two VGAC vessels used for vapor treatment during the pilot test and sent to Eurofins to be analyzed for a full toxicity characteristic leaching procedure (TCLP) suite of analyses. Additional VGAC material was also sent to the carbon vendor (Carbon Service and Equipment Company) for testing to evaluate suitability of the material for reactivation at their facility.

Laboratory analytical reports for waste characterization sampling and other documentation for pilot test waste streams that have been disposed of as of the Pilot Test Summary Report submittal date are included in **Appendix D**.

4 RESULTS

Performance monitoring data collected during pilot test implementation are summarized in **Table 7** and **Table 8**.

4.1 Extraction Air Flow Rate and Applied Vacuum

During the first several hours of the extended phase portion of the test, applied vacuum and vapor extraction flow rate from the formation were similar to those measured during Step #3 of the initial vacuum step testing (6 to 8 scfm at 22.5 inHg vacuum). After the drop tube was lowered from 28.5 ft bgs to 30 ft bgs in the extraction well the applied vacuum remained constant (22 – 23.5 inHg); but the vapor extraction flow rate from the formation decreased slightly (3 – 6 scfm) for the remainder of the test. The slight decrease in formation air flow is likely attributable to an increase in energy expended to lift the extracted groundwater from a greater depth and did not impact pilot test performance.

4.2 Water Table Drawdown and Vacuum Influence

The water level in extraction well EW-1 was lowered by approximately 22 feet during the test to the final depth of the drop tube which was set at approximately 30 feet bgs. Drawdown of the water table surface was observed at several of the observation wells during the test. The most significant drawdown occurred at intermediate till observation wells OW-1D and OW-3D, located at distances of approximately 4 and 11 feet from the extraction well, respectively. Limited dewatering was also observed at intermediate till observation well OW-4D, located 15 feet from EW-1, and at shallow observation wells OW-1S and OW-4S, located 4 feet and 15 feet from EW-1, respectively. Water table fluctuations observed at other observation wells during the pilot test are variable and/or minimal, and do not appear related to the application of vacuum at EW-1. Plots showing water level drawdown during the pilot test at the observation wells where it was observed are provided as **Figures 4** and **5**. The discussion of pilot test-related water table drawdown focuses on the data observed during the first three days of the pilot test, before the field team began manually bailing water from the observation wells in an effort to establish pneumatic influence at more observation wells.

Observation of significant drawdown at several of the observation wells screened within the intermediate till during the pilot test indicates that there are interconnected lenses of transmissive permeable material present within the intermediate till. These preferential pathways would likely function as conduits for the migration of dissolved-phase MeCl through the intermediate till. The boring logs and soil sample results for the pilot test wells and other pre-existing monitoring wells in the pilot test area suggest that these permeable lenses are concentrated in the 20 to 30 ft bgs depth range, as this is where the highest field-measured PID readings and soil concentrations are observed. Observation of drawdown at some of the observation wells and not at others (e.g., OW-3D and OW-2D, both located 10 feet from the extraction well but in different directions) indicates that the hydraulic connection between lenses is likely not continuous across the entire pilot test area.

Strong vacuum influence was measured at observation well OW-1D, screened within the intermediate till four feet from the extraction well. The vacuum influence at OW-1D increased steadily over the course of the pilot test to a maximum of 38 inches of water column (inWC) on the final day. Vacuum influence was

not observed at the other observation wells monitored during the test. Negative wellhead pressure was recorded sporadically at the other observation wells, but well screens were occluded by groundwater when these measurements were taken; so these readings are likely attributable to falling water level in the wells or some other form of interference, and not vacuum influence from the extraction well.

As discussed above, the observation wells closest to the extraction well were manually purged to promote development of vacuum influence by exposing the well screens. Attempts to produce vacuum influence at other observation wells by manually purging to expose the screens were unsuccessful. Although the field team was able to dewater the screens, vacuum influence still did not develop at the wells. This suggests that the permeable lenses in the surrounding till matrix may not have sufficiently dewatered to allow for a pneumatic connection to develop with the extraction well. It is likely that pneumatic influence would have developed at several of the observation wells eventually after the screens and the lenses in the surrounding formation had dewatered completely.

4.3 Groundwater Extraction Rate and Mass Recovery

The volume of groundwater extracted from EW-1 during the pilot test was approximately 203 gallons. The groundwater recovery rate ranged from 0.03 gallons per minute (gpm) at the beginning of the extended test phase to 0.04 gpm at the end. These numbers reflect only the volume of groundwater recovered by extraction well EW-1 during the extended phase of the test and do not incorporate groundwater recovered during manual purging of the observation wells on the final two days of the test. Groundwater recovery rate calculations are presented in **Appendix E**.

As shown in **Table 5**, MeCl was detected at a concentration of 23,000 micrograms per liter (µg/L) in the sample collected from groundwater extracted during the pilot test. This corresponds to an estimated dissolved phase MeCl mass recovery rate of approximately 0.01 pounds per day (lb/day). Dissolved phase mass recovery rate calculations are presented in **Appendix E**. Other VOC were detected in the extracted groundwater sample, but they were not included in the calculation since the sample composition is greater than 90% MeCl.

4.4 Vapor Monitoring and Mass Recovery

PID readings measured from the influent vapor stream (i.e., pre-carbon) ranged from 50 parts per million (ppm) to 9 ppm, with readings generally decreasing over the course of the test. Effluent (i.e., post-carbon) PID readings ranged from 0 to 1.5 ppm. Influent (i.e., pre-carbon) Draeger® tube readings never exceeded the lowest value indicated on the tubes (20 ppm). Based on air screening conducted during the pilot test, no changeout of VGAC vessels was required. Readings consistently indicated contaminant removal efficiency across the lead VGAC vessel in excess of 50%, below which would have triggered vessel changeout.

As shown in **Table 6**, vapor-phase MeCl concentrations detected in influent samples (i.e., pre-carbon) ranged from 310,000 micrograms per cubic meter (µg/m^3) at the beginning of the pilot test extended phase to 250,000 µg/m^3 at the end. These results include makeup air introduced at the extraction wellhead, so the actual concentration of MeCl in the vapor extracted from the formation would be higher. The MeCl concentration in the second sample is considered more representative of the vapor recovery stream in a potential full-scale high vacuum application. Utilizing the results of the second influent sample

and the vapor flow rate measured at the sample locations at the time of collection of the second influent sample, the vapor phase MeCl mass recovery rate is estimated to be approximately 0.2 lb/day. Vapor-phase mass recovery rate calculations are presented in **Appendix E**. Other VOC were detected in the influent vapor sample, but these were not included in the mass recovery rate calculation since the vapor constituents within the sample is greater than 99% MeCl.

5 CONCLUSIONS

The pilot test results demonstrate that high vacuum extraction could potentially be a viable technology to address MeCl impacts present in the intermediate till in the BDA-10 well cluster vicinity, and should be included in a comparative evaluation of potential remedies for this area of the site. The data suggest that thin lenses of permeable material exist within the clay matrix of the intermediate till zone, which are transmissive and at least partially interconnected. The pilot test results show that these lenses can be targeted by applying high vacuum to recover MeCl mass in groundwater and soil vapor. The limited extent of the vacuum influence and water table drawdown observed in the formation surrounding the extraction well during the test suggest that a potential full-scale high vacuum application would require a densely spaced network of extraction wells. The vapor-phase and dissolved-phase mass recovery rates observed during the test would also need to be considered when comparing high vacuum extraction with other potential remedial alternatives.

6 REFERENCES

Arcadis. 2019a. *Revised High Vacuum Extraction Pilot Test Work Plan*. October 2019. As modified to address supplemental comments from the NYSDEC in an email dated October 16, 2019, and as responded to in an email from Arcadis on behalf of BMS dated October 16, 2019.

O'Brien and Gere Engineers (OBG). 2013a. *Community Air Monitoring Plan: BMS Syracuse North Campus Restoration Area, Site No. C734138*. March.

OBG. 2013b. *Field Sampling and Analysis Plan: BMS Syracuse North Campus Restoration Area Site No. C734138*. March.

OBG. 2013c. *Quality Assurance Project Plan: BMS Syracuse North Campus Restoration Area Site No. C734138*. March.

TABLES

Table 2
Extraction Well Soil Sample Results

ARCADIS Design & Consultancy for natural and built assets

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	EW-1 23 - 25 08/28/19 EW-1(23-25) 08282019	EW-1 27 - 29 08/28/19 EW-1(27-29) 08282019
Volatile Organic Compounds			
1,1,1-Trichloroethane	µg/kg	210 U [180 U]	3 U
1,1,2,2-Tetrachloroethane	µg/kg	210 U [180 U]	3 U
1,1,2-trichloro-1,2,2-trifluoroethane	µg/kg	430 U [360 U]	7 U
1,1,2-Trichloroethane	µg/kg	210 U [180 U]	3 U
1,1-Dichloroethane	µg/kg	210 U [180 U]	3 U
1,1-Dichloroethene	µg/kg	210 U [180 U]	1 J
1,2,3-Trichlorobenzene	µg/kg	430 U [360 U]	7 U
1,2,4-Trichlorobenzene	µg/kg	430 U [360 U]	7 U
1,2,4-Trimethylbenzene	µg/kg	210 U [180 U]	3 U
1,2-Dibromo-3-chloropropane	µg/kg	210 U [180 U]	3 U
1,2-Dibromoethane	µg/kg	210 U [180 U]	3 U
1,2-Dichlorobenzene	µg/kg	23 J [180 U]	3 U
1,2-Dichloroethane	µg/kg	210 U [180 U]	3 U
1,2-Dichloropropane	µg/kg	210 U [180 U]	3 U
1,3,5-Trimethylbenzene	µg/kg	210 U [180 U]	3 U
1,3-Dichlorobenzene	µg/kg	210 U [180 U]	3 U
1,4-Dichlorobenzene	µg/kg	210 U [180 U]	3 U
1,4-Dioxane	µg/kg	11,000 U [9,000 U]	170 U
2-Hexanone	µg/kg	430 U [360 U]	7 U
2-Nitropropane	µg/kg	430 U [360 U]	7 U
Acetone	µg/kg	860 U [720 U]	10 J
Acetonitrile	µg/kg	4,300 U [3,600 U]	69 U
Benzene	µg/kg	210 U [180 U]	3 U
Bromochloromethane	µg/kg	210 U [180 U]	3 U
Bromodichloromethane	µg/kg	210 U [180 U]	3 U
Bromoform	µg/kg	430 U [360 U]	7 U
Bromomethane	µg/kg	210 U [180 U]	3 U
Carbon Disulfide	µg/kg	210 U [22 J]	3 J
Carbon Tetrachloride	µg/kg	210 U [180 U]	3 U
Chlorobenzene	µg/kg	210 U [180 U]	3 U
Chlorodifluoromethane	µg/kg	430 U [360 U]	7 U
Chloroethane	µg/kg	210 U [180 U]	3 U
Chloroform	µg/kg	210 U [180 U]	3 U
Chloromethane	µg/kg	210 U [180 U]	3 U
cis-1,2-Dichloroethene	µg/kg	210 U [180 U]	3 U
cis-1,3-Dichloropropene	µg/kg	210 U [180 U]	3 U
Cyclohexane	µg/kg	210 U [180 U]	3 U
Cyclohexanone	µg/kg	11,000 U [9,000 U]	170 U
Dibromochloromethane	µg/kg	210 U [180 U]	3 U
Dichlorodifluoromethane	µg/kg	210 U [180 U]	3 U
Ethyl acetate	µg/kg	210 U [180 U]	3 U
Ethyl ether	µg/kg	210 U [180 U]	3 U
Ethylbenzene	µg/kg	210 U [180 U]	3 U
Isobutanol	µg/kg	11,000 U [9,000 U]	170 U
Isopropylbenzene	µg/kg	210 U [180 U]	3 U
m,p-Xylene	µg/kg	210 U [180 U]	3 U
Methyl acetate	µg/kg	210 U [180 U]	3 U
Methyl ethyl ketone (MEK, 2-butanone)	µg/kg	430 U [360 U]	7 U
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	µg/kg	430 U [360 U]	7 U
Methyl tert-butyl ether	µg/kg	210 U [180 U]	3 U
Methylcyclohexane	µg/kg	210 U [180 U]	3 U

See Notes on Page 2.

Table 2
Extraction Well Soil Sample Results

ARCADIS Design & Consultancy for natural and built assets

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	EW-1 23 - 25 08/28/19 EW-1(23-25) 08282019	EW-1 27 - 29 08/28/19 EW-1(27-29) 08282019
Volatile Organic Compounds			
Methylene Chloride	µg/kg	180,000 [150,000]	2,000
Naphthalene	µg/kg	210 U [180 U]	3 U
n-Butanol	µg/kg	11,000 U [9,000 U]	170 U
n-Butylbenzene	µg/kg	340 U [290 U]	6 U
N-Heptane	µg/kg	340 U [290 U]	6 U
n-Hexane	µg/kg	150 J [110 J]	3 U
o-Xylene	µg/kg	210 U [180 U]	3 U
p-Isopropyltoluene	µg/kg	210 U [180 U]	3 U
sec-Butylbenzene	µg/kg	210 U [180 U]	3 U
Styrene	µg/kg	210 U [180 U]	3 U
tert-Butylbenzene	µg/kg	210 U [180 U]	3 U
Tertiary butyl alcohol	µg/kg	880 J [3,600 U]	69 U
Tetrachloroethene	µg/kg	75 J [61 J]	3 U
Tetrahydrofuran	µg/kg	340 U [290 U]	6 U
Toluene	µg/kg	210 U [180 U]	3 U
trans-1,2-Dichloroethene	µg/kg	210 U [180 U]	0.6 J
trans-1,3-Dichloropropene	µg/kg	210 U [180 U]	3 U
Trichloroethene	µg/kg	210 U [180 U]	0.4 J
Trichlorofluoromethane	µg/kg	210 U [180 U]	3 U
Vinyl Chloride	µg/kg	210 U [180 U]	3 U
Xylenes (total)	µg/kg	430 U [360 U]	7 U

Notes:

1. Qualifier definitions:
   J = Indicates an estimated value.
   U = The compound was analyzed for but not detected. The associated value is the compound quantification limit.
2. Results for detected analytes are shown in black font. Results for analytes not detected are shown in gray font.
3. Field duplicate results are presented in brackets, [ ].
4. Abbreviations:
   µg/kg = micrograms per kilogram

Table 3
Extraction Well Headspace Vapor Sample Results

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	EW-1 09/23/19 EW-1 09232019
Volatile Organic Compounds		
1,1-Dichloroethane	µg/m^3	280 U
1,1-Dichloroethene	µg/m^3	280 U
Acetone	µg/m^3	660 U
Benzene	µg/m^3	220 U
Carbon Disulfide	µg/m^3	860 U
Chlorodifluoromethane	µg/m^3	990 U
Chloroethane	µg/m^3	730 U
Chloromethane	µg/m^3	150 J
cis-1,2-Dichloroethene	µg/m^3	280 U
Cyclohexane	µg/m^3	120 J
Methyl ethyl ketone (MEK, 2-butanone)	µg/m^3	820 U
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	µg/m^3	280 U
Methylene Chloride	µg/m^3	1,500,000
Tertiary butyl alcohol	µg/m^3	840 U
trans-1,2-Dichloroethene	µg/m^3	280 U
Trichloroethene	µg/m^3	370 U
Vinyl Chloride	µg/m^3	180 U

Notes:

1. Qualifier definitions:
   J = Indicates an estimated value.
   U = The compound was analyzed for but not detected. The associated value is the compound quantification limit.
2. Results for detected analytes are shown in black font. Results for analytes not detected are shown in gray font.
3. Abbreviations:
   µg/m^3 = micrograms per cubic meter

Table 4
Extraction Well Groundwater Sample Results

ARCADIS Design & Consultancy for natural and built assets

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	EW-1 09/20/19 EW-1 09202019
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	500 U [500 U]
1,1,2,2-Tetrachloroethane	µg/L	500 U [500 U]
1,1,2-trichloro-1,2,2-trifluoroethane	µg/L	5,000 U [5,000 U]
1,1,2-Trichloroethane	µg/L	500 U [500 U]
1,1-Dichloroethane	µg/L	500 U [500 U]
1,1-Dichloroethene	µg/L	500 U [500 U]
1,2,3-Trichlorobenzene	µg/L	2,500 U [2,500 U]
1,2,4-Trichlorobenzene	µg/L	2,500 U [2,500 U]
1,2,4-Trimethylbenzene	µg/L	2,500 U [2,500 U]
1,2-Dibromo-3-chloropropane	µg/L	2,500 U [2,500 U]
1,2-Dibromoethane	µg/L	500 U [500 U]
1,2-Dichlorobenzene	µg/L	2,500 U [2,500 U]
1,2-Dichloroethane	µg/L	500 U [500 U]
1,2-Dichloropropane	µg/L	500 U [500 U]
1,3,5-Trimethylbenzene	µg/L	2,500 U [2,500 U]
1,3-Dichlorobenzene	µg/L	2,500 U [2,500 U]
1,4-Dichlorobenzene	µg/L	2,500 U [2,500 U]
1,4-Dioxane	µg/L	130,000 U [130,000 U]
2-Hexanone	µg/L	5,000 U [5,000 U]
2-Nitropropane	µg/L	5,000 U [5,000 U]
Acetone	µg/L	10,000 U [10,000 U]
Acetonitrile	µg/L	50,000 U [50,000 U]
Benzene	µg/L	500 U [500 U]
Bromochloromethane	µg/L	2,500 U [2,500 U]
Bromodichloromethane	µg/L	500 U [500 U]
Bromoform	µg/L	2,000 U [2,000 U]
Bromomethane	µg/L	500 U [500 U]
Carbon Disulfide	µg/L	2,500 U [2,500 U]
Carbon Tetrachloride	µg/L	500 U [500 U]
Chlorobenzene	µg/L	500 U [500 U]
Chlorodifluoromethane	µg/L	2,500 U [2,500 U]
Chloroethane	µg/L	500 U [500 U]
Chloroform	µg/L	500 U [500 U]
Chloromethane	µg/L	500 U [500 U]
cis-1,2-Dichloroethene	µg/L	500 U [500 U]
cis-1,3-Dichloropropene	µg/L	500 U [500 U]
Cyclohexane	µg/L	2,500 U [2,500 U]
Cyclohexanone	µg/L	50,000 U [50,000 U]
Dibromochloromethane	µg/L	500 U [500 U]
Dichlorodifluoromethane	µg/L	500 U [500 U]
Ethyl acetate	µg/L	2,500 U [2,500 U]
Ethyl ether	µg/L	2,500 U [2,500 U]
Ethylbenzene	µg/L	500 U [500 U]
Isobutanol	µg/L	130,000 U [130,000 U]
Isopropylbenzene	µg/L	2,500 U [2,500 U]
m,p-Xylene	µg/L	2,500 U [2,500 U]
Methyl acetate	µg/L	2,500 U [2,500 U]
Methyl ethyl ketone (MEK, 2-butanone)	µg/L	5,000 U [5,000 U]
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	µg/L	5,000 U [5,000 U]
Methyl tert-butyl ether	µg/L	500 U [500 U]
Methylcyclohexane	µg/L	2,500 U [2,500 U]
Methylene Chloride	µg/L	510,000 [410,000]

See Notes on Page 2.

Table 4
Extraction Well Groundwater Sample Results

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	EW-1 09/20/19 EW-1 09202019
Volatile Organic Compounds		
Naphthalene	µg/L	2,500 U [2,500 U]
n-Butanol	µg/L	130,000 U [130,000 U]
n-Butylbenzene	µg/L	2,500 U [2,500 U]
N-Heptane	µg/L	2,500 U [2,500 U]
n-Hexane	µg/L	2,500 U [2,500 U]
o-Xylene	µg/L	500 U [500 U]
p-Isopropyltoluene	µg/L	2,500 U [2,500 U]
sec-Butylbenzene	µg/L	2,500 U [2,500 U]
Styrene	µg/L	2,500 U [2,500 U]
tert-Butylbenzene	µg/L	2,500 U [2,500 U]
Tertiary butyl alcohol	µg/L	25,000 U [25,000 U]
Tetrachloroethene	µg/L	500 U [500 U]
Tetrahydrofuran	µg/L	5,000 U [5,000 U]
Toluene	µg/L	500 U [500 U]
trans-1,2-Dichloroethene	µg/L	500 U [500 U]
trans-1,3-Dichloropropene	µg/L	500 U [500 U]
Trichloroethene	µg/L	500 U [500 U]
Trichlorofluoromethane	µg/L	500 U [500 U]
Vinyl Chloride	µg/L	500 U [500 U]
Xylenes (total)	µg/L	3,000 U [3,000 U]

Notes:

1. Qualifier definitions:
   J = Indicates an estimated value.
   U = The compound was analyzed for but not detected. The associated value is the compound quantification limit.
2. Results for detected analytes are shown in black font. Results for analytes not detected are shown in gray font.
3. Abbreviations:
   µg/L = micrograms per liter

Table 5
Pilot Test Extracted Groundwater Sample Results

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	EW-1 11/19/19 EW-1 (PURGE WATER) 11192019
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	50 U
1,1,2,2-Tetrachloroethane	µg/L	50 U
1,1,2-trichloro-1,2,2-trifluoroethane	µg/L	500 U
1,1,2-Trichloroethane	µg/L	50 U
1,1-Dichloroethane	µg/L	50 U
1,1-Dichloroethene	µg/L	50 U
1,2,3-Trichlorobenzene	µg/L	250 U
1,2,4-Trichlorobenzene	µg/L	250 U
1,2,4-Trimethylbenzene	µg/L	280
1,2-Dibromo-3-chloropropane	µg/L	250 U
1,2-Dibromoethane	µg/L	50 U
1,2-Dichlorobenzene	µg/L	250 U
1,2-Dichloroethane	µg/L	50 U
1,2-Dichloropropane	µg/L	50 U
1,3,5-Trimethylbenzene	µg/L	90 J
1,3-Dichlorobenzene	µg/L	250 U
1,4-Dichlorobenzene	µg/L	250 U
1,4-Dioxane	µg/L	13,000 U
2-Hexanone	µg/L	500 U
2-Nitropropane	µg/L	500 U
Acetone	µg/L	1,000 U
Acetonitrile	µg/L	5,000 U
Benzene	µg/L	55
Bromochloromethane	µg/L	250 U
Bromodichloromethane	µg/L	50 U
Bromoform	µg/L	200 U
Bromomethane	µg/L	50 U
Carbon Disulfide	µg/L	250 U
Carbon Tetrachloride	µg/L	50 U
Chlorobenzene	µg/L	50 U
Chlorodifluoromethane	µg/L	250 U
Chloroethane	µg/L	50 U
Chloroform	µg/L	50 U
Chloromethane	µg/L	50 U
cis-1,2-Dichloroethene	µg/L	50 U
cis-1,3-Dichloropropene	µg/L	50 U
Cyclohexane	µg/L	250 U
Cyclohexanone	µg/L	5,000 U
Dibromochloromethane	µg/L	50 U
Dichlorodifluoromethane	µg/L	50 U
Ethyl acetate	µg/L	250 U
Ethyl ether	µg/L	250 U
Ethylbenzene	µg/L	120
Isobutanol	µg/L	13,000 U
Isopropylbenzene	µg/L	16 J
m,p-Xylene	µg/L	620
Methyl acetate	µg/L	250 U
Methyl ethyl ketone (MEK, 2-butanone)	µg/L	500 U
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	µg/L	500 U
Methyl tert-butyl ether	µg/L	50 U
Methylcyclohexane	µg/L	56 J
Methylene Chloride	µg/L	23,000

See Notes on Page 2.

Table 5
Pilot Test Extracted Groundwater Sample Results

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	EW-1 11/19/19 EW-1 (PURGE WATER) 11192019
Volatile Organic Compounds		
Naphthalene	µg/L	71 J
n-Butanol	µg/L	13,000 U
n-Butylbenzene	µg/L	250 U
N-Heptane	µg/L	250 U
n-Hexane	µg/L	250 U
o-Xylene	µg/L	220
p-Isopropyltoluene	µg/L	250 U
sec-Butylbenzene	µg/L	250 U
Styrene	µg/L	250 U
tert-Butylbenzene	µg/L	250 U
Tertiary butyl alcohol	µg/L	2,500 U
Tetrachloroethene	µg/L	50 U
Tetrahydrofuran	µg/L	500 U
Toluene	µg/L	200
trans-1,2-Dichloroethene	µg/L	50 U
trans-1,3-Dichloropropene	µg/L	50 U
Trichloroethene	µg/L	50 U
Trichlorofluoromethane	µg/L	50 U
Vinyl Chloride	µg/L	50 U
Xylenes (total)	µg/L	840

Notes:

1. Qualifier definitions:
   J = Indicates an estimated value.
   U = The compound was analyzed for but not detected. The associated value is the compound quantification limit.
2. Results for detected analytes are shown in black font. Results for analytes not detected are shown in gray font.
3. Abbreviations:
   µg/L = micrograms per liter

Table 6
Pilot Test Vapor Sample Results

ARCADIS Design & Consultancy for natural and built assets

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Location ID: Date Collected: Sample Name:	Units	HVP_INF_01 11/12/19 HIGH VAC PILOT INFLUENT-01 11122019	HVP_INF_02 11/15/19 HIGH VAC PILOT INFLUENT-02 11152019	HVP_EFF_02 11/15/19 HIGH VAC PILOT EFFLUENT-02 11152019
Volatile Organic Compounds				
1,1-Dichloroethane	µg/m^3	360 U	280 U [280 U]	20 U
1,1-Dichloroethene	µg/m^3	350 U	280 U [270 U]	20 U
Acetone	µg/m^3	840 U	660 U [650 U]	130
Benzene	µg/m^3	98 J	43 J [220 U]	4.8 J
Carbon Disulfide	µg/m^3	1,100 U	860 U [850 U]	62 U
Chlorodifluoromethane	µg/m^3	1,300 U	990 U [960 U]	71 U
Chloroethane	µg/m^3	940 U	730 U [720 U]	53 U
Chloromethane	µg/m^3	740 U	570 U [560 U]	41 U
cis-1,2-Dichloroethene	µg/m^3	350 U	280 U [270 U]	20 U
Cyclohexane	µg/m^3	340	97 J [73 J]	17 U
Methyl ethyl ketone (MEK, 2-butanone)	µg/m^3	1,000 U	820 U [800 U]	55 J
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	µg/m^3	360 U	280 U [280 U]	20 U
Methylene Chloride	µg/m^3	310,000	250,000 [240,000]	13 J
Tertiary butyl alcohol	µg/m^3	1,100 U	840 U [820 U]	61 U
trans-1,2-Dichloroethene	µg/m^3	350 U	280 U [270 U]	20 U
Trichloroethene	µg/m^3	480 U	370 U [360 U]	27 U
Vinyl Chloride	µg/m^3	230 U	180 U [170 U]	13 U

Notes:

1. Qualifier definitions:
   J = Indicates an estimated value.
   U = The compound was analyzed for but not detected. The associated value is the compound quantification limit.
2. Results for detected analytes are shown in black font. Results for analytes not detected are shown in gray font.
3. Field duplicate results are presented in brackets, [ ].
4. Vapor samples were analyzed by Eurofins Air Toxics, Inc. for the project-specific list of VOC in accordance with USEPA Method TO-15.
5. Vapor sample HVP_EFF_02 was collected using a Tedlar Bag sampler while the other vapor samples collected with Summa® canisters.
6. Abbreviations:
   µg/m^3 = micrograms per cubic meter

Table 7
Pilot Test Performance Monitoring Data - Extraction Well and System

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

		Extraction Well Parameters					System Parameters					Air Screening						
		Applied Vacuum (inHg) [2]		Vapor Extraction Flow Rate (scfm) [3]	Wellhead Makeup Air Flow Rate (scfm) [4]	Depth to Bottom of Drop Tube (ft bgs)	LRP Vacuum (inHg)	Pre-Dilution Flow Rate (scfm) [4]	Pre-Carbon Temp. (°F)	Effluent Flow Rate (scfm) [4]	Cumulative Groundwater Recovered by System (gal)	PID (ppm)			Methylene Chloride Draeger Tubes (ppm)			LEL (%)
Date	Time	Inside Drop Tube	Outside Drop Tube									Pre-Carbon	Mid-Carbon	Effluent	Pre-Carbon	Mid-Carbon	Effluent	Pre-Carbon
11/11/19	15:25	**Turn system ON. Operating at Vacuum Step #1**																
11/11/19	16:15	15.0		-	-	27.5	19.5	12.5	33	53.0	24	50	16	0.0	-	-	-	4.0
11/11/19	17:00	**Turn system OFF**																
11/12/19	9:00	**Turn system ON. Operating at Vacuum Step #1**																
11/12/19	10:15	15.0		5.1	7.0	27.5	19.5	12.1	34	55.0	-	45	0.1	0.3	-	-	-	0.0
11/12/19	11:00	15.0		5.1	7.0	27.5	20.0	12.1	36	55.0	-	36	0.7	1.0	-	-	-	4.0
11/12/19	11:45	15.0		5.1	7.0	27.5	19.0	12.1	36	51.1	-	20	0.4	0.2	-	-	-	4.0
11/12/19	12:00	**Turned liquid ring pump up to Vacuum Step #2**																
11/12/19	13:03	18.0		5.3	7.2	27.5	22.5	12.5	34	25.8	-	31	1.0	0.8	-	-	-	0.0
11/12/19	13:50	17.0		5.4	7.2	27.5	22.5	12.6	33	38.5	-	24	0.6	0.5	-	-	-	4.0
11/12/19	14:18	17.5		5.3	7.2	27.5	22.5	12.5	31	-	-	20	0.0	0.0	-	-	-	0.0
11/12/19	15:06	**Turned liquid ring pump up to Vacuum Step #3**																
11/12/19	15:45	22.5		6.7	7.5	27.5	26.5	[5]	31	14.2	53	59	1.1	1.1	-	-	-	4.0
11/12/19	17:00	22.5		7.7	8.0	27.5	26.5	[5]	-	15.7	63	45	1.1	1.1	< 20	< 20	< 20	-
11/12/19	17:30	**Begin Extended Phase Test (at Vacuum Step #3)**																
11/13/19	8:00	23.0	21.0	6.7	8.3	27.5	26.5	[5]	40	15.0	91	37	1.0	1.0	< 20	< 20	< 20	0.0
11/13/19	10:00	23.0	21.0	7.1	8.8	27.5	26.5	[5]	41	15.9	-	43	1.6	1.5	-	-	-	0.0
11/13/19	11:50	22.5	21.0	7.1	9.4	27.5	27.0	[5]	-	16.5	-	45	1.8	1.5	-	-	-	0.0
11/13/19	14:40	**Lowered drop tube 1.5 feet**																
11/13/19	16:00	22.0	19.5	4.7	9.9	29.0	27.0	[5]	34	14.6	114	19	0.7	0.8	< 20	< 20	< 20	0.0
11/14/19	7:00	22.5	20.0	5.6	9.0	29.0	27.0	[5]	33	14.6	137	13	0.7	0.5	-	-	-	0.0
11/14/19	9:30	**Purged water from observation wells**																
11/14/19	10:30	23.0	20.5	4.0	8.8	29.0	27.0	[5]	35	12.8	-	13	0.7	0.0	-	-	-	0.0
11/14/19	11:00	**Purged water from observation wells**																
11/14/19	11:45	23.0	20.5	4.2	8.8	29.0	27.0	[5]	37	13.0	-	14	0.3	0.0	-	-	-	0.0
11/14/19	14:40	23.0	21.0	4.0	9.1	29.0	27.0	[5]	39	13.1	-	13	0.3	0.0	< 20	< 20	< 20	0.0
11/14/19	16:30	22.0	21.0	4.8	8.5	29.0	27.0	[5]	38	13.3	165	9	0.2	0.0	< 20	< 20	< 20	0.0
11/15/19	7:30	23.0	21.0	3.4	8.5	29.0	27.0	[5]	44	11.9	184	13	0.4	0.0	< 20	< 20	< 20	0.0
11/15/19	9:00	**Purged water from observation wells**																
11/15/19	10:10	23.0	21.0	4.5	8.7	29.0	27.0	[5]	51	13.2	-	16	0.2	0.1	< 20	< 20	< 20	0.0
11/15/19	12:00	23.5	21.0	4.8	8.7	29.0	27.0	[5]	47	13.5	203	17	0.3	0.0	< 20	< 20	< 20	0.0

Notes:

1. Utilized liquid ring pump Travaini TRO160V for pilot test.
2. Applied vacuum at extraction well measured from inside the drop tube.
3. Vapor extraction flow rate at extraction well estimated by subtracting wellhead makeup air from pre-dilution system flow rate.
4. Handheld anemometer used to measure wellhead makeup air and effluent flow rates. Pipe-mounted anemometer used to measure pre-dilution flow rate inside pilot system. Flow rates converted from acfm to scfm using in-pipe temperature and pressure.
5. Pre-dilution flow rate in system not shown for Vacuum Step #3 because system dilution valve closed and effluent flow rate reading is equivalent.
6. Abbreviations:

"-" = not measured
acfm = actual cubic feet per minute
bgs = below ground surface
°F = degrees Fahrenheit
ft = feet
gal = gallons
inHg = inches of mercury
LEL = lower explosive limit
LRP = liquid ring pump
PID = photoionization detector
ppm = parts per million
scfm = standard cubic feet per minute

Table 8
Pilot Test Performance Monitoring Data - Observation Wells

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

Date	Time	Extraction Well EW-1		Observation Wells											
				Well ID	OW-1S		OW-2S		OW-3S		OW-4S		OW-1D		OW-2D	
				Screen Interval	10 - 15 ft bgs		5 - 15 ft bgs		10 - 15 ft bgs		10 - 15 ft bgs		21 - 31 ft bgs		21 - 31 ft bgs	
		Applied Vacuum (inHg) [1]	Depth to Bottom of Drop Tube (ft bgs)	Distance from EW-1	4 ft		10 ft		11 ft		15 ft		4 ft		10 ft	
					DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)
11/11/19	14:45	**Baseline readings**			8.64	-	8.48	-	8.50	-	8.02	-	10.05	-	8.56	-
		DTW (ft bmp)	**PID (ppm)**		**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**
		9.71	88		1.8	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0
11/11/19	15:25	**Turn system ON. Operating at Vacuum Step #1**														
11/11/19	16:15	15.0	27.5		8.63	0.000	8.53	0.000	8.52	0.050	8.04	0.170	12.79	-0.030	8.59	0.030
11/11/19	17:00	**Turn system OFF**														
11/12/19	9:00	**Turn system ON. Operating at Vacuum Step #1**														
11/12/19	10:15	15.0	27.5		8.66	0.001	8.50	0.003	8.51	0.310	8.09	0.017	17.09	-0.015	8.62	0.093
11/12/19	11:00	15.0	27.5		8.67	0.008	8.51	0.004	8.53	0.064	8.10	0.020	23.65	-0.550	8.61	-0.036
11/12/19	11:45	15.0	27.5		8.67	0.001	8.51	0.006	8.55	-0.003	8.13	-0.001	23.65	-0.355	8.61	0.003
11/12/19	12:00	**Turned liquid ring pump up to Vacuum Step #2**														
11/12/19	13:03	18.0	27.5		8.68	0.011	8.50	0.007	8.57	0.003	8.13	0.010	23.72	-2.251	8.63	0.035
11/12/19	13:50	17.0	27.5		8.69	0.010	8.50	0.015	8.53	0.020	8.13	-0.060	23.73	-2.869	8.63	0.001
11/12/19	14:18	17.5	27.5		8.70	0.002	8.51	-0.006	8.53	0.022	8.15	0.010	23.83	-3.545	8.64	-0.003
11/12/19	15:06	**Turned liquid ring pump up to Vacuum Step #3**														
11/12/19	15:45	22.5	27.5		8.68	-0.003	8.48	0.002	8.52	-0.056	8.15	0.011	24.04	-6.800	8.61	-0.062
11/12/19	17:00	22.5	27.5		8.74	0.009	8.48	0.005	8.51	-0.023	8.16	0.012	24.90	-3.538	8.64	-0.033
11/12/19	17:30	**Begin Extended Phase Test (at Vacuum Step #3)**														
11/13/19	8:00	23.0	27.5		9.20	-0.002	8.47	0.002	8.51	0.230	8.33	0.022	26.14	-35.000	8.73	-2.212
11/13/19	10:00	23.0	27.5		9.22	0.007	8.48	0.005	8.50	0.129	8.36	0.026	26.57	-29.000	8.69	0.163
11/13/19	11:50	22.5	27.5		9.20	-0.011	8.48	0.003	8.49	0.028	8.36	0.010	26.87	-29.000	8.69	0.026
11/13/19	14:40	**Lowered drop tube 1.5 feet**														
11/13/19	16:00	22.0	29.0		9.17	-0.002	8.48	0.000	8.48	-1.100	8.45	-0.031	27.52	-27.500	8.69	-0.018
11/14/19	7:00	22.5	29.0		8.98	-0.004	8.46	0.000	8.47	0.032	8.55	14.100	27.81	-30.800	8.70	0.004
11/14/19	9:30	**Purged water from observation wells**			***Purge 4 gallons***		***Purge 10 gallons***		***Purge 7.5 gallons***		***Purge 7.5 gallons***		***Purge 3 gallons***		***Purge 10 gallons***	
11/14/19	10:30		29.0		14.48	0.600	8.65	-0.002	8.83	3.500	13.65	-0.860	29.55	-28.300	26.59	2.500
11/14/19	11:00	**Purged water from observation wells**			***Purge 4 gallons***		-		***Purge 5 gallons***		***Purge 1 gallon***		-		***Purge 10 gallons***	
11/14/19	11:45	23.0	29.0		13.15	1.488	8.61	0.000	8.64	1.242	13.69	0.015	28.96	-35.500	18.00	6.000
11/14/19	14:40	23.0	29.0		14.93	0.978	8.60	0.000	8.56	0.032	13.52	0.290	28.36	-30.080	12.60	6.000
11/14/19	16:30	22.0	29.0		15.80	0.580	8.55	0.003	8.56	0.02	13.52	0.075	28.24	-33.300	10.30	6.000
11/15/19	7:30	23.0	29.0		9.16	0.006	8.50	0.002	8.53	0.001	13.84	0.000	27.57	-31.900	8.71	0.159
11/15/19	9:00	**Purged water from observation wells**			***Purge 1.5 gallons***		-		-		-		-		***Purge 4 gallons***	
11/15/19	10:10	23.0	29.0		16.59	1.020	8.56	0.001	8.53	0.001	13.75	0.030	27.45	-36.700	11.26	6.000
11/15/19	12:00	23.5	29.0		14.27	1.000	8.54	0.004	8.54	0.135	13.8	0.005	27.52	-38.600	8.74	0.153

See Notes on Page 2.

Table 8
Pilot Test Performance Monitoring Data - Observation Wells

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse North Campus Restoration Area

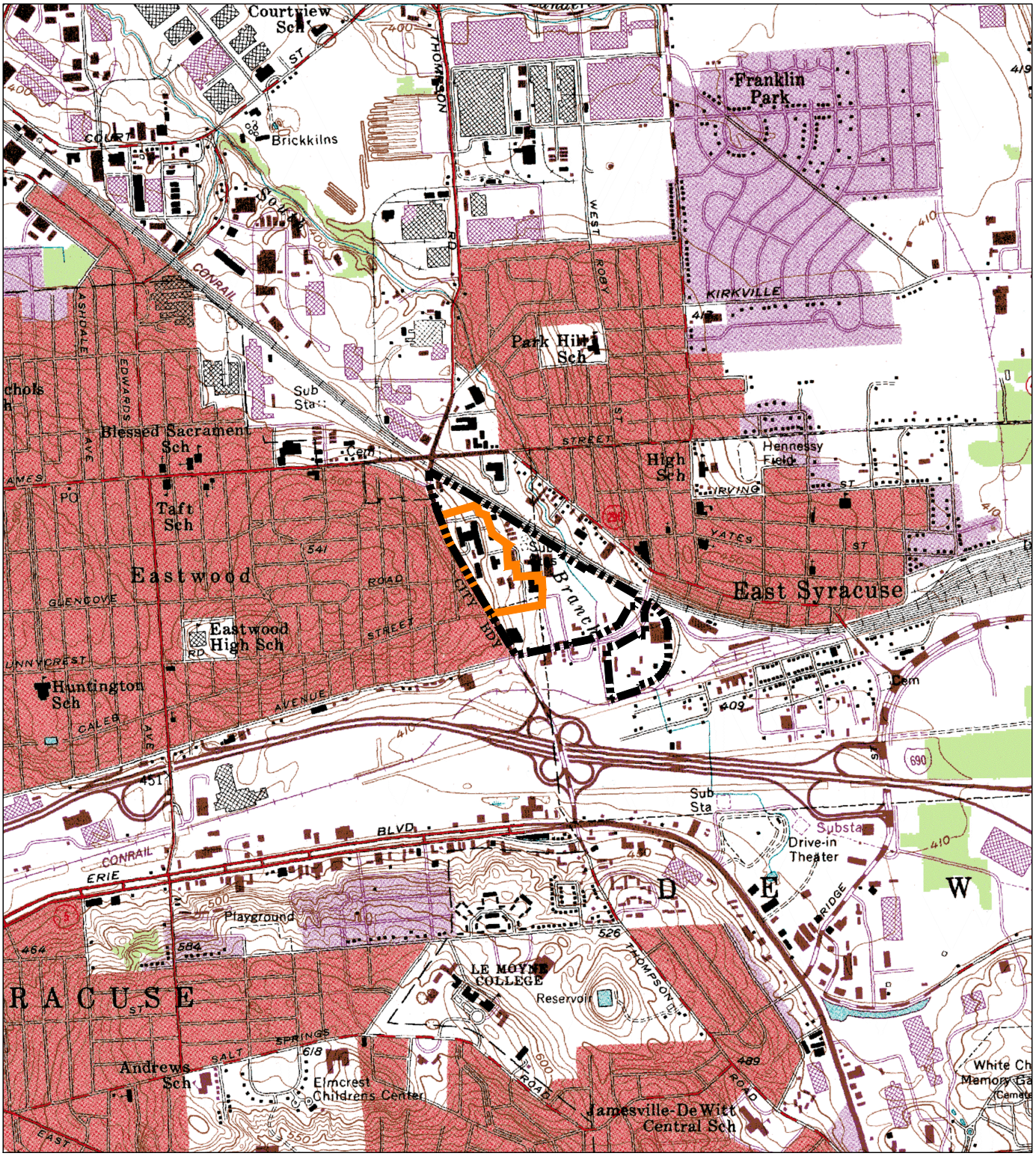
Date	Time	Extraction Well EW-1		Observation Wells												
				Well ID	OW-3D		OW-4D		BDA-10DT		BDA-10MT		BDA-10RX		CHP43RX	
				Screen Interval	21 - 31 ft bgs		21 - 31 ft bgs		32 - 37 ft bgs		18 - 28 ft bgs		73 - 83 ft bgs		44 - 54 ft bgs	
		Applied Vacuum (inHg) [1]	Depth to Bottom of Drop Tube (ft bgs)	Distance from EW-1	11 ft		15 ft		32 ft		29 ft		21 ft		29 ft	
					DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)	DTW (ft bmp)	Pressure (inWC)
11/11/19	14:45	**Baseline readings**			11.09	-	8.01	-	17.52	-	8.41	-	20.49	-	25.10	-
		DTW (ft bmp)	**PID (ppm)**		**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**	**PID (ppm)**	**LEL (%)**
		9.71	88		0.00	3.5	3.5	0	-	-	-	-	-	-	-	-
11/11/19	15:25	**Turn system ON. Operating at Vacuum Step #1**														
11/11/19	16:15	15.0	27.5		11.54	0.890	8.04	0.000	-	-	-	-	-	-	-	-
11/11/19	17:00	**Turn system OFF**														
11/12/19	9:00	**Turn system ON. Operating at Vacuum Step #1**														
11/12/19	10:15	15.0	27.5		11.14	-0.076	8.13	0.019	17.61	0.034	8.44	5.430	20.54	0.001	25.14	0.005
11/12/19	11:00	15.0	27.5		11.37	-0.677	8.14	0.095	17.61	0.055	8.43	0.000	20.55	0.135	25.14	0.062
11/12/19	11:45	15.0	27.5		11.58	-1.041	8.14	0.023	17.61	0.005	8.44	0.000	20.55	0.065	25.14	
11/12/19	12:00	**Turned liquid ring pump up to Vacuum Step #2**														
11/12/19	13:03	18.0	27.5		12.01	-0.739	8.15	-0.016								
11/12/19	13:50	17.0	27.5		12.14	-0.846	8.16	0.020	17.81	-0.007	8.46	0.000	20.55	-0.002	25.13	-
11/12/19	14:18	17.5	27.5		12.34	-0.845	8.17	-0.088								
11/12/19	15:06	**Turned liquid ring pump up to Vacuum Step #3**														
11/12/19	15:45	22.5	27.5		12.73	-0.180	8.15	-0.048	17.60	-0.020	8.48	0.004	20.52	-0.104	25.15	0.003
11/12/19	17:00	22.5	27.5		13.11	0.578	8.17	-0.100					20.53	-0.189	25.15	0.025
11/12/19	17:30	**Begin Extended Phase Test (at Vacuum Step #3)**														
11/13/19	8:00	23.0	27.5		15.32	9.700	8.35	0.095	17.64	0.002	8.77	0.009	20.52	-0.158	25.13	-0.147
11/13/19	10:00	23.0	27.5		15.60	-0.278	8.38	0.130	17.69	0.008	8.80	0.000	20.57	0.130	25.13	-0.054
11/13/19	11:50	22.5	27.5		15.78	-0.326	8.42	0.490	17.64	0.026	8.83	0.003	20.59	0.097	25.13	0.109
11/13/19	14:40	**Lowered drop tube 1.5 feet**														
11/13/19	16:00	22.0	29.0		16.01	-0.313	8.41	-0.854	17.65	-0.023	8.77	0.002	20.57	0.077	25.13	0.017
11/14/19	7:00	22.5	29.0		16.48	-0.026	8.58	-0.035	17.64	0.005	8.67	0.001	20.59	0.641	25.10	-0.020
11/14/19	9:30	**Purged water from observation wells**			***Purge 8.5 gallons***		***Purge 3 gallons***		-		***Purge 14 gallons***		-		-	
11/14/19	10:30		29.0		27.11	1.800	31.35	0.050	20.62	1.100	18.87	1.120	20.76	0.005	25.09	0.001
11/14/19	11:00	**Purged water from observation wells**			***Purge 2.5 gallons***		-		-		***Purge 16 gallons***		-		-	
11/14/19	11:45	23.0	29.0		26.07	4.000	30.95	0.229	18.63	0.300	22.11	1.342	-	-	-	-
11/14/19	14:40	23.0	29.0		24.93	5.000	30.85	4.346	17.96	0.054	18.86	0.285	20.59	0.234	25.08	0.013
11/14/19	16:30	22.0	29.0		26.5	0.700	30.68	4.334	17.88	0.135	22.73	1.570	20.61	0.532	25.08	0.000
11/15/19	7:30	23.0	29.0		19.68	0.569	28.37	0.002	17.69	0.003	18.89	0.021	20.57	0.597	25.06	0.014
11/15/19	9:00	**Purged water from observation wells**			***Purge 3 gallons***		***Purge 2 gallons***		***Purge 4 gallons***		-		-		-	
11/15/19	10:10	23.0	29.0		25.36	9.200	30.97	1.037	17.68	-0.008	18.81	1.466	20.59	0.761	25.05	0.346
11/15/19	12:00	23.5	29.0		24.42	7.000	30.63	0.007	17.68	0.003	15.10	0.890	20.55	0.391	25.04	0.003

Notes:

1. Baseline DTW measured in extraction well EW-1 of 9.71 ft bmp.
2. Applied vacuum at extraction well measured from inside the drop tube.
3. Abbreviations:

"-" = not measured	inHg = inches of mercury
bgs = below ground surface	inWC = inches of water column
bmp = below measuring point	LEL = lower explosive limit
DTW = depth to water	PID = photoionization detector
ft = feet	ppm = parts per million

FIGURES



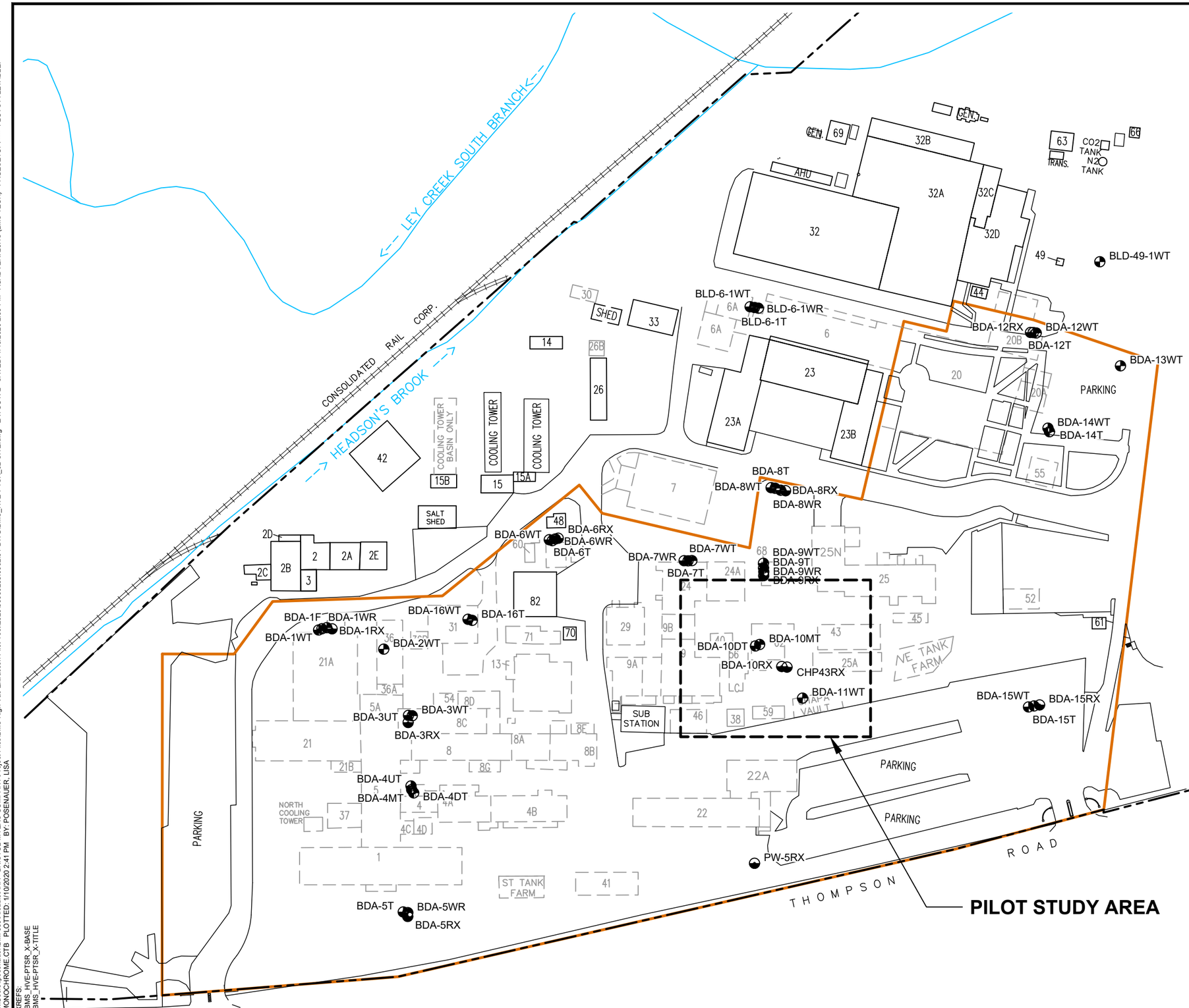
REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., SYRACUSE EAST, NEW YORK, 1957, PHOTOREVISED 1978.

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY
HIGH VACUUM PILOT TEST SUMMARY REPORT

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1



LEGEND:

- APPROXIMATE BROWNFIELD DEVELOPMENT AREA (BDA) BOUNDARY
- APPROXIMATE BRISTOL-MYERS SQUIBB PROPERTY LINE
- DEMOLISHED BUILDINGS
- EXISTING RAILROAD
- OVERBURDEN MONITORING WELL
- BEDROCK MONITORING WELL

NOTES:

1. BASEMAP SOURCE: MAP TITLED "BRISTOL-MYERS SQUIBB PART OF LOT 41 - TOWN OF DEWITT AND PART OF THE VILLAGE OF EAST SYRACUSE ONONDAGA COUNTY NEW YORK", DATED MARCH 25, 2010 PREPARED BY COTTRELL LAND SURVEYORS, P.C.. UPDATED BASED ON SUBSEQUENT AERIAL IMAGERY AND SITE VISITS AND SURVEY WITHIN THE BDA BY CT MALE ASSOCIATES, SYRACUSE, NY.
2. ABBREVIATIONS:
   BMS = BRISTOL-MYERS SQUIBB COMPANY
   PDI = PRE-DESIGN INVESTIGATION

0 160' 320'

GRAPHIC SCALE

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

HIGH VACUUM PILOT TEST SUMMARY REPORT

SITE LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB/LD: L.POSENAUER PM/TM: B.MCCUNE LYR: ON=*;OFF=REF; (FRZ)
C:\Users\lposenauer\BIM 360\Arcadis\ANA - BRISTOL-MYERS COMPANY\Project Files\BMS High Vac Extraction Pilot Test\2020\03\030238.0002\01-DWG\BMS_HVE-PTSR_02-SITE.dwg LAYOUT: 2 SAVED: 1/10/2020 2:35 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE:
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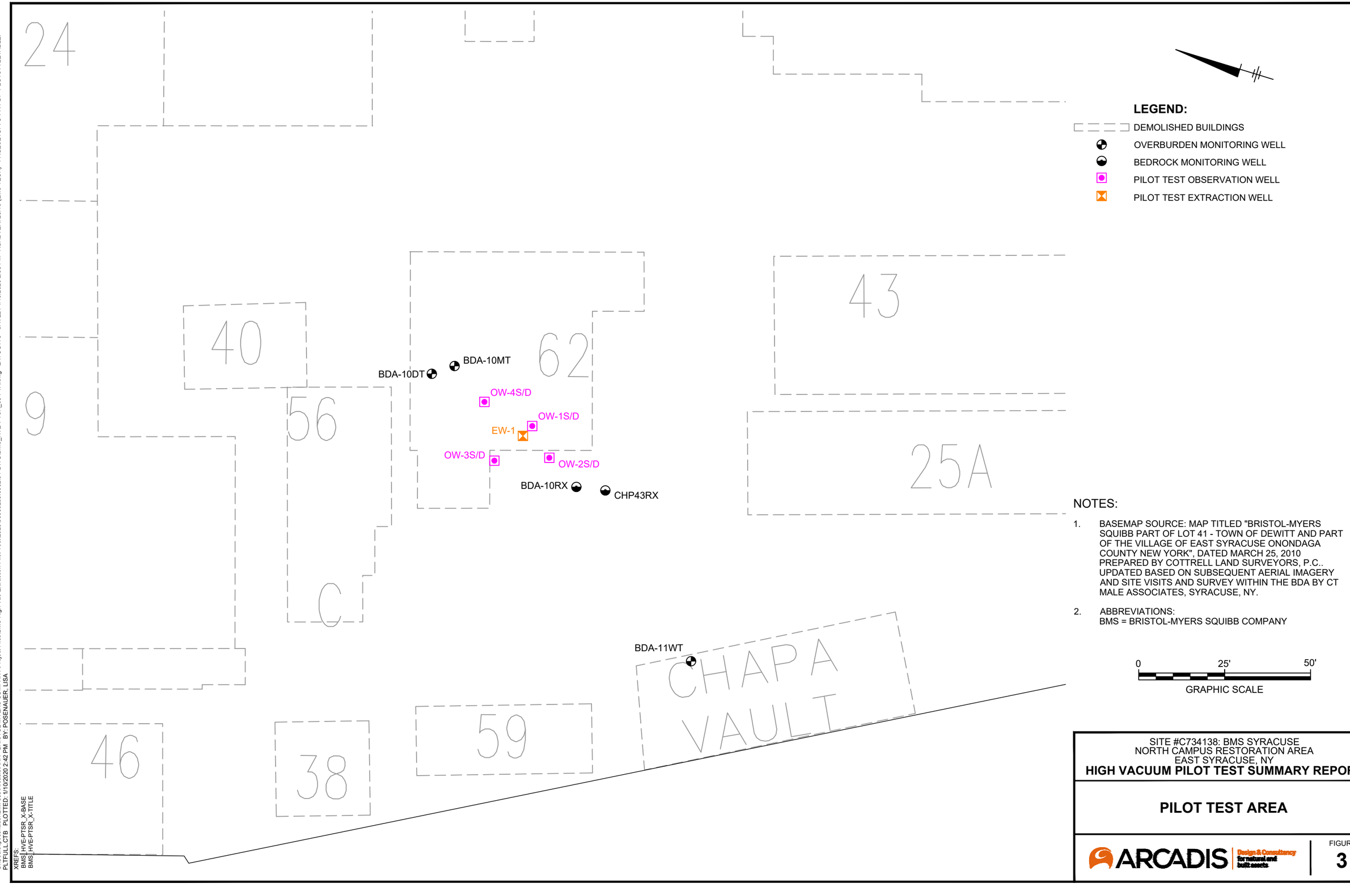
BMS_HVE-PTSR_X-TITLE



NOTES:

1. BASEMAP SOURCE: MAP TITLED "BRISTOL-MYERS SQUIBB PART OF LOT 41 - TOWN OF DEWITT AND PART OF THE VILLAGE OF EAST SYRACUSE ONONDAGA COUNTY NEW YORK", DATED MARCH 25, 2010 PREPARED BY COTTRELL LAND SURVEYORS, P.C.. UPDATED BASED ON SUBSEQUENT AERIAL IMAGERY AND SITE VISITS AND SURVEY WITHIN THE BDA BY CT MALE ASSOCIATES, SYRACUSE, NY.
2. ABBREVIATIONS:
   BMS = BRISTOL-MYERS SQUIBB COMPANY

0 25' 50'

GRAPHIC SCALE

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

HIGH VACUUM PILOT TEST SUMMARY REPORT

PILOT TEST AREA

ARCADIS Design & Consultancy for natural and built assets

FIGURE 3

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB/LD: L.POSENAUER PM/TM: B.MCCUNE LYR: ON=*;OFF=REF, (FRZ)
C:\Users\lposenauer\BIM 360\Arcadis\ANA - BRISTOL-MYERS COMPANY\Project Files\BMS High Vac Extraction Pilot Test\2020\30030238.0002\01-DWG\BMS_HVE-PTSR_04-05-CHARTS.dwg LAYOUT: 4 SAVED: 1/13/2020 2:35 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: C-LA-PDF
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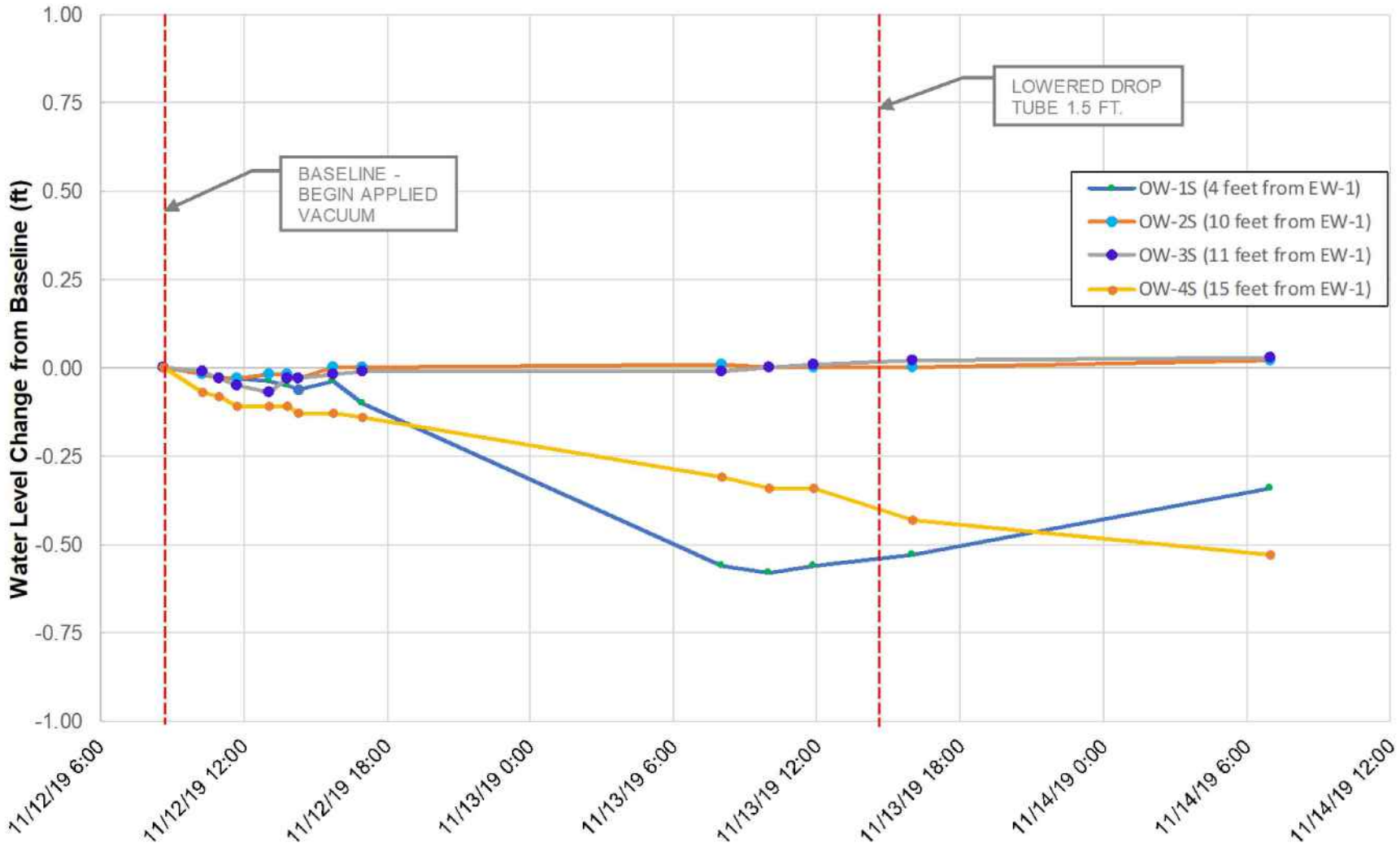


SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

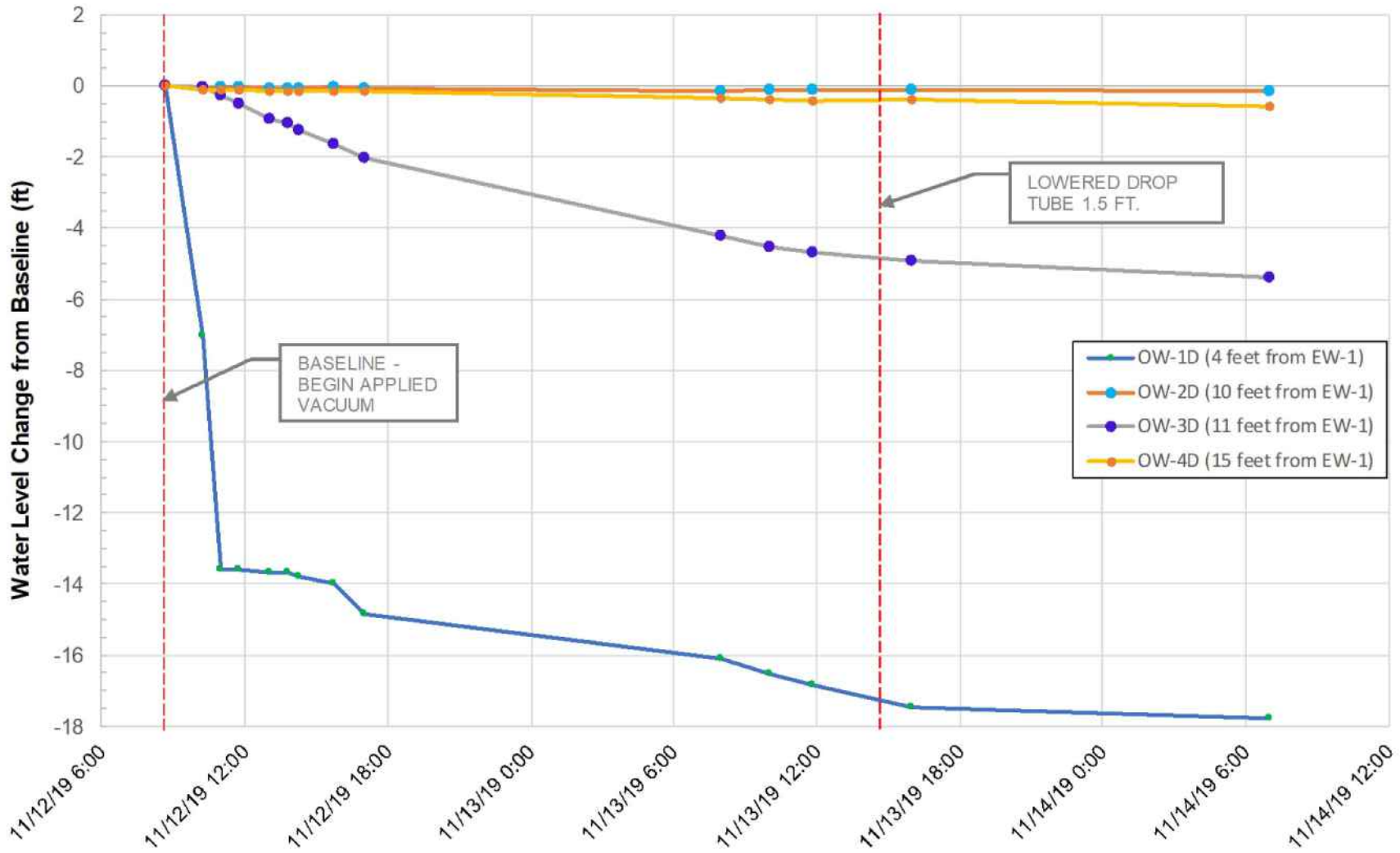
HIGH VACUUM PILOT TEST SUMMARY REPORT

WATER LEVEL CHANGE FROM BASELINE (SHALLOW WELLS)

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB/LD: L.POSENAUER PM/TM: B.MCCUNE LYR: ON=*;OFF=REF, (FRZ)
C:\Users\lposenauer\BIM 360\Arcadis\ANA - BRISTOL-MYERS COMPANY\Project Files\BMS High Vac Extraction Pilot Test\2020\30030238.0002\01-DWG\BMS_HVE-PTSR_04-05-CHARTS.dwg LAYOUT: 5 SAVED: 1/13/2020 2:35 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: C-LA-PDF
PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/13/2020 3:21 PM BY: POSENAUER, LISA



SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

HIGH VACUUM PILOT TEST SUMMARY REPORT

WATER LEVEL CHANGE FROM BASELINE (INTERMEDIATE TILL WELLS)

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

APPENDIX A

Community Air Monitoring Data

Anne Locke
Associate Manager, Environmental Protection
Environmental, Health and Safety Department
Bristol-Myers Squibb
P.O. Box 4755
Syracuse, NY 13221

Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Tel 315 446 9120
Fax 315 449 0017
www.arcadis.com

Environmental North

Subject:
Community Air Monitoring During Phase II RI Well Installations Bristol-Myers Squibb Syracuse Facility – East Syracuse, New York 13057

Date:
August 28, 2019

Contact:
William McCune

Phone:
315-671-9172

Email:
William.McCune@arcadis.com

Our ref:
B0087363.0037

Dear Ms. Locke:

The following is a summary of the community air monitoring plan (CAMP) provided by Arcadis U.S., Inc. (Arcadis) during High Vacuum Extraction Pilot Study drilling activities conducted at the Bristol-Myers Squibb (BMS) Syracuse North Campus, East Syracuse, NY on August 28, 2019.

August 28, 2019: Parratt-Wolff Inc. (Parratt-Wolff) completed sonic drilling activities at EW-1 and began at OW-2, drilling from 10:30 AM to 5:00 PM. CAMP monitoring included photo ionization detectors at upwind and downwind locations and a DustTrak at a breathing zone location. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

CAMP Station Locations	Serial Number
Breathing Zone DustTrak	#8533151804
Upwind PID	#592-914273
Downwind PID	#592-905549

Please contact us with any questions or comments pertaining to this project.

Sincerely,

Arcadis U.S., Inc.

William McCune
Principal Geologist

Attachments

1 CAMP Data Logs
2 Site Sketches/Notes

==========

19/08/28 07:38

****

Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-903549

Unit Firmware Ver V2.20A

Running Mode Hygiene Mode

Datalog Mode Auto

Diagnostic Mode No

Stop Reason Power Down

Site ID 00000000

User ID 00000001

Begin 8/28/2019 07:38:39

End 8/28/2019 20:08:14

Sample Period(s) 60

Number of Records 749

Sensor PID(ppm)

Sensor SN S023030154V7

Measure Type Min; Avg; Max; Real

Span 100.0

Span 2 1000.0

Low Alarm 50.0

High Alarm 100.0

Over Alarm 2000.0

STEL Alarm 10025.0

TWA Alarm 10.0

Measurement Gas Isobutylene

Calibration Time 8/28/2019 07:38

Peak 1.0

Min 0.0

Average 0.2

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	8/28/2019 07:39:39	0.0	0.1	0.2	0.2	
002	8/28/2019 07:40:39	0.0	0.1	0.3	0.1	
003	8/28/2019 07:41:39	0.0	0.0	0.1	0.0	
004	8/28/2019 07:42:39	0.0	0.0	0.1	0.0	
005	8/28/2019 07:43:39	0.0	0.0	0.1	0.0	
006	8/28/2019 07:44:39	0.0	0.0	0.0	0.0	
007	8/28/2019 07:45:39	0.0	0.0	0.0	0.0	
008	8/28/2019 07:46:39	0.0	0.0	0.0	0.0	
009	8/28/2019 07:47:39	0.0	0.0	0.0	0.0	
010	8/28/2019 07:48:39	0.0	0.0	0.0	0.0	
011	8/28/2019 07:49:39	0.0	0.0	0.0	0.0	
012	8/28/2019 07:50:39	0.0	0.0	0.1	0.0	
013	8/28/2019 07:51:39	0.0	0.0	0.0	0.0	
014	8/28/2019 07:52:39	0.0	0.0	0.0	0.0	
015	8/28/2019 07:53:39	0.0	0.0	0.0	0.0	
016	8/28/2019 07:54:39	0.0	0.0	0.0	0.0	
017	8/28/2019 07:55:39	0.0	0.0	0.0	0.0	
018	8/28/2019 07:56:39	0.0	0.0	0.0	0.0	
019	8/28/2019 07:57:39	0.0	0.0	0.0	0.0	
020	8/28/2019 07:58:39	0.0	0.0	0.0	0.0	
021	8/28/2019 07:59:39	0.0	0.0	0.0	0.0	
022	8/28/2019 08:00:39	0.0	0.0	0.0	0.0	

023	8/28/2019 08:01:39	0.0	0.0	0.0	0.0
024	8/28/2019 08:02:39	0.0	0.0	0.0	0.0
025	8/28/2019 08:03:39	0.0	0.0	0.0	0.0
026	8/28/2019 08:04:39	0.0	0.0	0.0	0.0
027	8/28/2019 08:05:39	0.0	0.0	0.0	0.0
028	8/28/2019 08:06:39	0.0	0.0	0.0	0.0
029	8/28/2019 08:07:39	0.0	0.0	0.0	0.0
030	8/28/2019 08:08:39	0.0	0.0	0.0	0.0
031	8/28/2019 08:09:39	0.0	0.0	0.0	0.0
032	8/28/2019 08:10:39	0.0	0.0	0.0	0.0
033	8/28/2019 08:11:39	0.0	0.0	0.0	0.0
034	8/28/2019 08:12:39	0.0	0.0	0.0	0.0
035	8/28/2019 08:13:39	0.0	0.0	0.0	0.0
036	8/28/2019 08:14:39	0.0	0.0	0.0	0.0
037	8/28/2019 08:15:39	0.0	0.0	0.0	0.0
038	8/28/2019 08:16:39	0.0	0.0	0.0	0.0
039	8/28/2019 08:17:39	0.0	0.0	0.0	0.0
040	8/28/2019 08:18:39	0.0	0.0	0.0	0.0
041	8/28/2019 08:19:39	0.0	0.0	0.0	0.0
042	8/28/2019 08:20:39	0.0	0.0	0.0	0.0
043	8/28/2019 08:21:39	0.0	0.0	0.0	0.0
044	8/28/2019 08:22:39	0.0	0.0	0.0	0.0
045	8/28/2019 08:23:39	0.0	0.0	0.0	0.0
046	8/28/2019 08:24:39	0.0	0.0	0.0	0.0
047	8/28/2019 08:25:39	0.0	0.0	0.0	0.0
048	8/28/2019 08:26:39	0.0	0.0	0.0	0.0
049	8/28/2019 08:27:39	0.0	0.0	0.0	0.0
050	8/28/2019 08:28:39	0.0	0.0	0.0	0.0
051	8/28/2019 08:29:39	0.0	0.0	0.0	0.0
052	8/28/2019 08:30:39	0.0	0.0	0.0	0.0
053	8/28/2019 08:31:39	0.0	0.0	0.0	0.0
054	8/28/2019 08:32:39	0.0	0.0	0.0	0.0

055	8/28/2019 08:33:39	0.0	0.0	0.0	0.0
056	8/28/2019 08:34:39	0.0	0.0	0.0	0.0
057	8/28/2019 08:35:39	0.0	0.0	0.0	0.0
058	8/28/2019 08:36:39	0.0	0.0	0.0	0.0
059	8/28/2019 08:37:39	0.0	0.0	0.0	0.0
060	8/28/2019 08:38:39	0.0	0.0	0.0	0.0
061	8/28/2019 08:39:39	0.0	0.0	0.0	0.0
062	8/28/2019 08:40:39	0.0	0.0	0.0	0.0
063	8/28/2019 08:41:39	0.0	0.0	0.0	0.0
064	8/28/2019 08:42:39	0.0	0.0	0.0	0.0
065	8/28/2019 08:43:39	0.0	0.0	0.0	0.0
066	8/28/2019 08:44:39	0.0	0.0	0.0	0.0
067	8/28/2019 08:45:39	0.0	0.0	0.0	0.0
068	8/28/2019 08:46:39	0.0	0.0	0.0	0.0
069	8/28/2019 08:47:39	0.0	0.0	0.0	0.0
070	8/28/2019 08:48:39	0.0	0.0	0.0	0.0
071	8/28/2019 08:49:39	0.0	0.0	0.0	0.0
072	8/28/2019 08:50:39	0.0	0.0	0.0	0.0
073	8/28/2019 08:51:39	0.0	0.0	0.0	0.0
074	8/28/2019 08:52:39	0.0	0.0	0.0	0.0
075	8/28/2019 08:53:39	0.0	0.0	0.0	0.0
076	8/28/2019 08:54:39	0.0	0.0	0.0	0.0
077	8/28/2019 08:55:39	0.0	0.0	0.0	0.0
078	8/28/2019 08:56:39	0.0	0.0	0.0	0.0
079	8/28/2019 08:57:39	0.0	0.0	0.0	0.0
080	8/28/2019 08:58:39	0.0	0.0	0.0	0.0
081	8/28/2019 08:59:39	0.0	0.0	0.0	0.0
082	8/28/2019 09:00:39	0.0	0.0	0.0	0.0
083	8/28/2019 09:01:39	0.0	0.0	0.0	0.0
084	8/28/2019 09:02:39	0.0	0.0	0.0	0.0
085	8/28/2019 09:03:39	0.0	0.0	0.0	0.0
086	8/28/2019 09:04:39	0.0	0.0	0.0	0.0

087	8/28/2019 09:05:39	0.0	0.0	0.0	0.0
088	8/28/2019 09:06:39	0.0	0.0	0.0	0.0
089	8/28/2019 09:07:39	0.0	0.0	0.0	0.0
090	8/28/2019 09:08:39	0.0	0.0	0.0	0.0
091	8/28/2019 09:09:39	0.0	0.0	0.0	0.0
092	8/28/2019 09:10:39	0.0	0.0	0.0	0.0
093	8/28/2019 09:11:39	0.0	0.0	0.0	0.0
094	8/28/2019 09:12:39	0.0	0.0	0.0	0.0
095	8/28/2019 09:13:39	0.0	0.0	0.0	0.0
096	8/28/2019 09:14:39	0.0	0.0	0.0	0.0
097	8/28/2019 09:15:39	0.0	0.0	0.0	0.0
098	8/28/2019 09:16:39	0.0	0.0	0.0	0.0
099	8/28/2019 09:17:39	0.0	0.0	0.0	0.0
100	8/28/2019 09:18:39	0.0	0.0	0.0	0.0
101	8/28/2019 09:19:39	0.0	0.0	0.0	0.0
102	8/28/2019 09:20:39	0.0	0.0	0.1	0.1
103	8/28/2019 09:21:39	0.0	0.0	0.1	0.0
104	8/28/2019 09:22:39	0.0	0.0	0.0	0.0
105	8/28/2019 09:23:39	0.0	0.0	0.0	0.0
106	8/28/2019 09:24:39	0.0	0.0	0.0	0.0
107	8/28/2019 09:25:39	0.0	0.0	0.0	0.0
108	8/28/2019 09:26:39	0.0	0.0	0.0	0.0
109	8/28/2019 09:27:39	0.0	0.0	0.0	0.0
110	8/28/2019 09:28:39	0.0	0.0	0.0	0.0
111	8/28/2019 09:29:39	0.0	0.0	0.0	0.0
112	8/28/2019 09:30:39	0.0	0.0	0.0	0.0
113	8/28/2019 09:31:39	0.0	0.0	0.0	0.0
114	8/28/2019 09:32:39	0.0	0.0	0.0	0.0
115	8/28/2019 09:33:39	0.0	0.0	0.0	0.0
116	8/28/2019 09:34:39	0.0	0.0	0.0	0.0
117	8/28/2019 09:35:39	0.0	0.0	0.0	0.0
118	8/28/2019 09:36:39	0.0	0.0	0.0	0.0

119	8/28/2019 09:37:39	0.0	0.0	0.0	0.0
120	8/28/2019 09:38:39	0.0	0.0	0.0	0.0
121	8/28/2019 09:39:39	0.0	0.0	0.0	0.0
122	8/28/2019 09:40:39	0.0	0.0	0.0	0.0
123	8/28/2019 09:41:39	0.0	0.0	0.0	0.0
124	8/28/2019 09:42:39	0.0	0.0	0.0	0.0
125	8/28/2019 09:43:39	0.0	0.0	0.0	0.0
126	8/28/2019 09:44:39	0.0	0.0	0.0	0.0
127	8/28/2019 09:45:39	0.0	0.0	0.0	0.0
128	8/28/2019 09:46:39	0.0	0.0	0.0	0.0
129	8/28/2019 09:47:39	0.0	0.0	0.0	0.0
130	8/28/2019 09:48:39	0.0	0.0	0.0	0.0
131	8/28/2019 09:49:39	0.0	0.0	0.0	0.0
132	8/28/2019 09:50:39	0.0	0.0	0.0	0.0
133	8/28/2019 09:51:39	0.0	0.0	0.0	0.0
134	8/28/2019 09:52:39	0.0	0.0	0.0	0.0
135	8/28/2019 09:53:39	0.0	0.0	0.0	0.0
136	8/28/2019 09:54:39	0.0	0.0	0.0	0.0
137	8/28/2019 09:55:39	0.0	0.0	0.0	0.0
138	8/28/2019 09:56:39	0.0	0.0	0.0	0.0
139	8/28/2019 09:57:39	0.0	0.0	0.0	0.0
140	8/28/2019 09:58:39	0.0	0.0	0.0	0.0
141	8/28/2019 09:59:39	0.0	0.0	0.0	0.0
142	8/28/2019 10:00:39	0.0	0.0	0.0	0.0
143	8/28/2019 10:01:39	0.0	0.0	0.0	0.0
144	8/28/2019 10:02:39	0.0	0.0	0.0	0.0
145	8/28/2019 10:03:39	0.0	0.0	0.0	0.0
146	8/28/2019 10:04:39	0.0	0.0	0.0	0.0
147	8/28/2019 10:05:39	0.0	0.0	0.0	0.0
148	8/28/2019 10:06:39	0.0	0.0	0.0	0.0
149	8/28/2019 10:07:39	0.0	0.0	0.0	0.0
150	8/28/2019 10:08:39	0.0	0.0	0.0	0.0

151	8/28/2019 10:09:39	0.0	0.0	0.0	0.0
152	8/28/2019 10:10:39	0.0	0.0	0.0	0.0
153	8/28/2019 10:11:39	0.0	0.0	0.0	0.0
154	8/28/2019 10:12:39	0.0	0.0	0.0	0.0
155	8/28/2019 10:13:39	0.0	0.0	0.0	0.0
156	8/28/2019 10:14:39	0.0	0.0	0.0	0.0
157	8/28/2019 10:15:39	0.0	0.0	0.0	0.0
158	8/28/2019 10:16:39	0.0	0.0	0.0	0.0
159	8/28/2019 10:17:39	0.0	0.0	0.0	0.0
160	8/28/2019 10:18:39	0.0	0.0	0.0	0.0
161	8/28/2019 10:19:39	0.0	0.0	0.0	0.0
162	8/28/2019 10:20:39	0.0	0.0	0.0	0.0
163	8/28/2019 10:21:39	0.0	0.0	0.0	0.0
164	8/28/2019 10:22:39	0.0	0.0	0.0	0.0
165	8/28/2019 10:23:39	0.0	0.0	0.0	0.0
166	8/28/2019 10:24:39	0.0	0.0	0.0	0.0
167	8/28/2019 10:25:39	0.0	0.0	0.0	0.0
168	8/28/2019 10:26:39	0.0	0.0	0.0	0.0
169	8/28/2019 10:27:39	0.0	0.0	0.0	0.0
170	8/28/2019 10:28:39	0.0	0.0	0.0	0.0
171	8/28/2019 10:29:39	0.0	0.0	0.0	0.0
172	8/28/2019 10:30:39	0.0	0.0	0.0	0.0
173	8/28/2019 10:31:39	0.0	0.0	0.0	0.0
174	8/28/2019 10:32:39	0.0	0.0	0.0	0.0
175	8/28/2019 10:33:39	0.0	0.0	0.0	0.0
176	8/28/2019 10:34:39	0.0	0.0	0.0	0.0
177	8/28/2019 10:35:39	0.0	0.0	0.0	0.0
178	8/28/2019 10:36:39	0.0	0.0	0.0	0.0
179	8/28/2019 10:37:39	0.0	0.0	0.0	0.0
180	8/28/2019 10:38:39	0.0	0.0	0.0	0.0
181	8/28/2019 10:39:39	0.0	0.0	0.0	0.0
182	8/28/2019 10:40:39	0.0	0.0	0.0	0.0

183	8/28/2019 10:41:39	0.0	0.0	0.0	0.0
184	8/28/2019 10:42:39	0.0	0.0	0.0	0.0
185	8/28/2019 10:43:39	0.0	0.0	0.0	0.0
186	8/28/2019 10:44:39	0.0	0.0	0.0	0.0
187	8/28/2019 10:45:39	0.0	0.0	0.0	0.0
188	8/28/2019 10:46:39	0.0	0.0	0.0	0.0
189	8/28/2019 10:47:39	0.0	0.0	0.0	0.0
190	8/28/2019 10:48:39	0.0	0.0	0.0	0.0
191	8/28/2019 10:49:39	0.0	0.0	0.0	0.0
192	8/28/2019 10:50:39	0.0	0.0	0.0	0.0
193	8/28/2019 10:51:39	0.0	0.0	0.0	0.0
194	8/28/2019 10:52:39	0.0	0.0	0.0	0.0
195	8/28/2019 10:53:39	0.0	0.0	0.0	0.0
196	8/28/2019 10:54:39	0.0	0.0	0.0	0.0
197	8/28/2019 10:55:39	0.0	0.0	0.0	0.0
198	8/28/2019 10:56:39	0.0	0.0	0.0	0.0
199	8/28/2019 10:57:39	0.0	0.0	0.0	0.0
200	8/28/2019 10:58:39	0.0	0.0	0.0	0.0
201	8/28/2019 10:59:39	0.0	0.0	0.0	0.0
202	8/28/2019 11:00:39	0.0	0.0	0.0	0.0
203	8/28/2019 11:01:39	0.0	0.0	0.0	0.0
204	8/28/2019 11:02:39	0.0	0.0	0.0	0.0
205	8/28/2019 11:03:39	0.0	0.0	0.0	0.0
206	8/28/2019 11:04:39	0.0	0.0	0.0	0.0
207	8/28/2019 11:05:39	0.0	0.0	0.0	0.0
208	8/28/2019 11:06:39	0.0	0.0	0.0	0.0
209	8/28/2019 11:07:39	0.0	0.0	0.0	0.0
210	8/28/2019 11:08:39	0.0	0.0	0.0	0.0
211	8/28/2019 11:09:39	0.0	0.0	0.0	0.0
212	8/28/2019 11:10:39	0.0	0.0	0.0	0.0
213	8/28/2019 11:11:39	0.0	0.0	0.0	0.0
214	8/28/2019 11:12:39	0.0	0.0	0.0	0.0

215	8/28/2019 11:13:39	0.0	0.0	0.0	0.0
216	8/28/2019 11:14:39	0.0	0.0	0.0	0.0
217	8/28/2019 11:15:39	0.0	0.0	0.0	0.0
218	8/28/2019 11:16:39	0.0	0.0	0.0	0.0
219	8/28/2019 11:17:39	0.0	0.0	0.0	0.0
220	8/28/2019 11:18:39	0.0	0.0	0.0	0.0
221	8/28/2019 11:19:39	0.0	0.0	0.0	0.0
222	8/28/2019 11:20:39	0.0	0.0	0.0	0.0
223	8/28/2019 11:21:39	0.0	0.0	0.0	0.0
224	8/28/2019 11:22:39	0.0	0.0	0.0	0.0
225	8/28/2019 11:23:39	0.0	0.0	0.0	0.0
226	8/28/2019 11:24:39	0.0	0.0	0.0	0.0
227	8/28/2019 11:25:39	0.0	0.0	0.0	0.0
228	8/28/2019 11:26:39	0.0	0.0	0.0	0.0
229	8/28/2019 11:27:39	0.0	0.0	0.0	0.0
230	8/28/2019 11:28:39	0.0	0.0	0.0	0.0
231	8/28/2019 11:29:39	0.0	0.0	0.0	0.0
232	8/28/2019 11:30:39	0.0	0.0	0.0	0.0
233	8/28/2019 11:31:39	0.0	0.0	0.0	0.0
234	8/28/2019 11:32:39	0.0	0.0	0.0	0.0
235	8/28/2019 11:33:39	0.0	0.0	0.0	0.0
236	8/28/2019 11:34:39	0.0	0.0	0.0	0.0
237	8/28/2019 11:35:39	0.0	0.0	0.0	0.0
238	8/28/2019 11:36:39	0.0	0.0	0.0	0.0
239	8/28/2019 11:37:39	0.0	0.0	0.0	0.0
240	8/28/2019 11:38:39	0.0	0.0	0.0	0.0
241	8/28/2019 11:39:39	0.0	0.0	0.0	0.0
242	8/28/2019 11:40:39	0.0	0.0	0.0	0.0
243	8/28/2019 11:41:39	0.0	0.0	0.0	0.0
244	8/28/2019 11:42:39	0.0	0.0	0.0	0.0
245	8/28/2019 11:43:39	0.0	0.0	0.0	0.0
246	8/28/2019 11:44:39	0.0	0.0	0.0	0.0

247	8/28/2019 11:45:39	0.0	0.0	0.0	0.0
248	8/28/2019 11:46:39	0.0	0.0	0.0	0.0
249	8/28/2019 11:47:39	0.0	0.0	0.0	0.0
250	8/28/2019 11:48:39	0.0	0.0	0.0	0.0
251	8/28/2019 11:49:39	0.0	0.0	0.0	0.0
252	8/28/2019 11:50:39	0.0	0.0	0.0	0.0
253	8/28/2019 11:51:39	0.0	0.0	0.0	0.0
254	8/28/2019 11:52:39	0.0	0.0	0.0	0.0
255	8/28/2019 11:53:39	0.0	0.0	0.0	0.0
256	8/28/2019 11:54:39	0.0	0.0	0.0	0.0
257	8/28/2019 11:55:39	0.0	0.0	0.0	0.0
258	8/28/2019 11:56:39	0.0	0.0	0.0	0.0
259	8/28/2019 11:57:39	0.0	0.0	0.0	0.0
260	8/28/2019 11:58:39	0.0	0.0	0.0	0.0
261	8/28/2019 11:59:39	0.0	0.0	0.0	0.0
262	8/28/2019 12:00:39	0.0	0.0	0.0	0.0
263	8/28/2019 12:01:39	0.0	0.0	0.0	0.0
264	8/28/2019 12:02:39	0.0	0.0	0.0	0.0
265	8/28/2019 12:03:39	0.0	0.0	0.0	0.0
266	8/28/2019 12:04:39	0.0	0.0	0.0	0.0
267	8/28/2019 12:05:39	0.0	0.0	0.0	0.0
268	8/28/2019 12:06:39	0.0	0.0	0.0	0.0
269	8/28/2019 12:07:39	0.0	0.0	0.0	0.0
270	8/28/2019 12:08:39	0.0	0.0	0.0	0.0
271	8/28/2019 12:09:39	0.0	0.0	0.0	0.0
272	8/28/2019 12:10:39	0.0	0.0	0.0	0.0
273	8/28/2019 12:11:39	0.0	0.0	0.0	0.0
274	8/28/2019 12:12:39	0.0	0.0	0.0	0.0
275	8/28/2019 12:13:39	0.0	0.0	0.0	0.0
276	8/28/2019 12:14:39	0.0	0.0	0.0	0.0
277	8/28/2019 12:15:39	0.0	0.0	0.0	0.0
278	8/28/2019 12:16:39	0.0	0.0	0.0	0.0

279	8/28/2019 12:17:39	0.0	0.0	0.0	0.0
280	8/28/2019 12:18:39	0.0	0.0	0.0	0.0
281	8/28/2019 12:19:39	0.0	0.0	0.0	0.0
282	8/28/2019 12:20:39	0.0	0.0	0.0	0.0
283	8/28/2019 12:21:39	0.0	0.0	0.0	0.0
284	8/28/2019 12:22:39	0.0	0.0	0.0	0.0
285	8/28/2019 12:23:39	0.0	0.0	0.0	0.0
286	8/28/2019 12:24:39	0.0	0.0	0.0	0.0
287	8/28/2019 12:25:39	0.0	0.0	0.0	0.0
288	8/28/2019 12:26:39	0.0	0.0	0.0	0.0
289	8/28/2019 12:27:39	0.0	0.0	0.0	0.0
290	8/28/2019 12:28:39	0.0	0.0	0.0	0.0
291	8/28/2019 12:29:39	0.0	0.0	0.0	0.0
292	8/28/2019 12:30:39	0.0	0.0	0.0	0.0
293	8/28/2019 12:31:39	0.0	0.0	0.0	0.0
294	8/28/2019 12:32:39	0.0	0.0	0.0	0.0
295	8/28/2019 12:33:39	0.0	0.0	0.0	0.0
296	8/28/2019 12:34:39	0.0	0.0	0.0	0.0
297	8/28/2019 12:35:39	0.0	0.0	0.0	0.0
298	8/28/2019 12:36:39	0.0	0.0	0.0	0.0
299	8/28/2019 12:37:39	0.0	0.0	0.0	0.0
300	8/28/2019 12:38:39	0.0	0.0	0.0	0.0
301	8/28/2019 12:39:39	0.0	0.0	0.0	0.0
302	8/28/2019 12:40:39	0.0	0.0	0.0	0.0
303	8/28/2019 12:41:39	0.0	0.0	0.0	0.0
304	8/28/2019 12:42:39	0.0	0.0	0.0	0.0
305	8/28/2019 12:43:39	0.0	0.0	0.0	0.0
306	8/28/2019 12:44:39	0.0	0.0	0.0	0.0
307	8/28/2019 12:45:39	0.0	0.0	0.0	0.0
308	8/28/2019 12:46:39	0.0	0.0	0.0	0.0
309	8/28/2019 12:47:39	0.0	0.0	0.0	0.0
310	8/28/2019 12:48:39	0.0	0.0	0.0	0.0

311	8/28/2019 12:49:39	0.0	0.0	0.0	0.0
312	8/28/2019 12:50:39	0.0	0.0	0.0	0.0
313	8/28/2019 12:51:39	0.0	0.0	0.0	0.0
314	8/28/2019 12:52:39	0.0	0.0	0.0	0.0
315	8/28/2019 12:53:39	0.0	0.0	0.0	0.0
316	8/28/2019 12:54:39	0.0	0.0	0.0	0.0
317	8/28/2019 12:55:39	0.0	0.0	0.0	0.0
318	8/28/2019 12:56:39	0.0	0.1	0.5	0.0
319	8/28/2019 12:57:39	0.0	0.1	0.3	0.1
320	8/28/2019 12:58:39	0.1	0.4	0.9	0.7
321	8/28/2019 12:59:39	0.0	0.1	0.6	0.0
322	8/28/2019 13:00:39	0.0	0.0	0.1	0.1
323	8/28/2019 13:01:39	0.0	0.0	0.0	0.0
324	8/28/2019 13:02:39	0.0	0.0	0.0	0.0
325	8/28/2019 13:03:39	0.0	0.0	0.0	0.0
326	8/28/2019 13:04:39	0.0	0.0	0.0	0.0
327	8/28/2019 13:05:39	0.0	0.0	0.0	0.0
328	8/28/2019 13:06:39	0.0	0.0	0.1	0.0
329	8/28/2019 13:07:39	0.0	0.0	0.0	0.0
330	8/28/2019 13:08:39	0.0	0.0	0.0	0.0
331	8/28/2019 13:09:39	0.0	0.0	0.0	0.0
332	8/28/2019 13:10:39	0.0	0.0	0.0	0.0
333	8/28/2019 13:11:39	0.0	0.0	0.0	0.0
334	8/28/2019 13:12:39	0.0	0.0	0.0	0.0
335	8/28/2019 13:13:39	0.0	0.0	0.0	0.0
336	8/28/2019 13:14:39	0.0	0.0	0.0	0.0
337	8/28/2019 13:15:39	0.0	0.0	0.0	0.0
338	8/28/2019 13:16:39	0.0	0.0	0.0	0.0
339	8/28/2019 13:17:39	0.0	0.0	0.0	0.0
340	8/28/2019 13:18:39	0.0	0.0	0.0	0.0
341	8/28/2019 13:19:39	0.0	0.0	0.0	0.0
342	8/28/2019 13:20:39	0.0	0.0	0.0	0.0

343	8/28/2019 13:21:39	0.0	0.0	0.0	0.0
344	8/28/2019 13:22:39	0.0	0.0	0.0	0.0
345	8/28/2019 13:23:39	0.0	0.0	0.0	0.0
346	8/28/2019 13:24:39	0.0	0.0	0.0	0.0
347	8/28/2019 13:25:39	0.0	0.0	0.0	0.0
348	8/28/2019 13:26:39	0.0	0.0	0.0	0.0
349	8/28/2019 13:27:39	0.0	0.0	0.0	0.0
350	8/28/2019 13:28:39	0.0	0.0	0.0	0.0
351	8/28/2019 13:29:39	0.0	0.0	0.0	0.0
352	8/28/2019 13:30:39	0.0	0.0	0.0	0.0
353	8/28/2019 13:31:39	0.0	0.0	0.0	0.0
354	8/28/2019 13:32:39	0.0	0.0	0.0	0.0
355	8/28/2019 13:33:39	0.0	0.0	0.0	0.0
356	8/28/2019 13:34:39	0.0	0.0	0.0	0.0
357	8/28/2019 13:35:39	0.0	0.0	0.0	0.0
358	8/28/2019 13:36:39	0.0	0.0	0.0	0.0
359	8/28/2019 13:37:39	0.0	0.0	0.0	0.0
360	8/28/2019 13:38:39	0.0	0.0	0.0	0.0
361	8/28/2019 13:39:39	0.0	0.0	0.0	0.0
362	8/28/2019 13:40:39	0.0	0.0	0.0	0.0
363	8/28/2019 13:41:39	0.0	0.0	0.0	0.0
364	8/28/2019 13:42:39	0.0	0.0	0.0	0.0
365	8/28/2019 13:43:39	0.0	0.0	0.0	0.0
366	8/28/2019 13:44:39	0.0	0.0	0.0	0.0
367	8/28/2019 13:45:39	0.0	0.0	0.0	0.0
368	8/28/2019 13:46:39	0.0	0.0	0.0	0.0
369	8/28/2019 13:47:39	0.0	0.0	0.0	0.0
370	8/28/2019 13:48:39	0.0	0.0	0.0	0.0
371	8/28/2019 13:49:39	0.0	0.0	0.0	0.0
372	8/28/2019 13:50:39	0.0	0.0	0.0	0.0
373	8/28/2019 13:51:39	0.0	0.0	0.0	0.0
374	8/28/2019 13:52:39	0.0	0.0	0.0	0.0

375	8/28/2019 13:53:39	0.0	0.0	0.0	0.0
376	8/28/2019 13:54:39	0.0	0.0	0.0	0.0
377	8/28/2019 13:55:39	0.0	0.0	0.0	0.0
378	8/28/2019 13:56:39	0.0	0.0	0.0	0.0
379	8/28/2019 13:57:39	0.0	0.0	0.0	0.0
380	8/28/2019 13:58:39	0.0	0.0	0.0	0.0
381	8/28/2019 13:59:39	0.0	0.0	0.0	0.0
382	8/28/2019 14:00:39	0.0	0.0	0.0	0.0
383	8/28/2019 14:01:39	0.0	0.0	0.0	0.0
384	8/28/2019 14:02:39	0.0	0.0	0.0	0.0
385	8/28/2019 14:03:39	0.0	0.0	0.0	0.0
386	8/28/2019 14:04:39	0.0	0.0	0.0	0.0
387	8/28/2019 14:05:39	0.0	0.0	0.0	0.0
388	8/28/2019 14:06:39	0.0	0.0	0.0	0.0
389	8/28/2019 14:07:39	0.0	0.0	0.0	0.0
390	8/28/2019 14:08:39	0.0	0.0	0.0	0.0
391	8/28/2019 14:09:39	0.0	0.0	0.0	0.0
392	8/28/2019 14:10:39	0.0	0.0	0.0	0.0
393	8/28/2019 14:11:39	0.0	0.0	0.0	0.0
394	8/28/2019 14:12:39	0.0	0.0	0.0	0.0
395	8/28/2019 14:13:39	0.0	0.0	0.0	0.0
396	8/28/2019 14:14:39	0.0	0.0	0.0	0.0
397	8/28/2019 14:15:39	0.0	0.0	0.0	0.0
398	8/28/2019 14:16:39	0.0	0.0	0.0	0.0
399	8/28/2019 14:17:39	0.0	0.0	0.0	0.0
400	8/28/2019 14:18:39	0.0	0.0	0.0	0.0
401	8/28/2019 14:19:39	0.0	0.0	0.0	0.0
402	8/28/2019 14:20:39	0.0	0.0	0.0	0.0
403	8/28/2019 14:21:39	0.0	0.0	0.0	0.0
404	8/28/2019 14:22:39	0.0	0.0	0.0	0.0
405	8/28/2019 14:23:39	0.0	0.0	0.0	0.0
406	8/28/2019 14:24:39	0.0	0.0	0.0	0.0

407	8/28/2019 14:25:39	0.0	0.0	0.0	0.0
408	8/28/2019 14:26:39	0.0	0.0	0.0	0.0
409	8/28/2019 14:27:39	0.0	0.0	0.0	0.0
410	8/28/2019 14:28:39	0.0	0.0	0.0	0.0
411	8/28/2019 14:29:39	0.0	0.0	0.0	0.0
412	8/28/2019 14:30:39	0.0	0.0	0.0	0.0
413	8/28/2019 14:31:39	0.0	0.0	0.0	0.0
414	8/28/2019 14:32:39	0.0	0.0	0.0	0.0
415	8/28/2019 14:33:39	0.0	0.0	0.0	0.0
416	8/28/2019 14:34:39	0.0	0.0	0.0	0.0
417	8/28/2019 14:35:39	0.0	0.0	0.0	0.0
418	8/28/2019 14:36:39	0.0	0.0	0.0	0.0
419	8/28/2019 14:37:39	0.0	0.0	0.0	0.0
420	8/28/2019 14:38:39	0.0	0.0	0.0	0.0
421	8/28/2019 14:39:39	0.0	0.0	0.0	0.0
422	8/28/2019 14:40:39	0.0	0.0	0.0	0.0
423	8/28/2019 14:41:39	0.0	0.0	0.0	0.0
424	8/28/2019 14:42:39	0.0	0.0	0.0	0.0
425	8/28/2019 14:43:39	0.0	0.0	0.0	0.0
426	8/28/2019 14:44:39	0.0	0.0	0.0	0.0
427	8/28/2019 14:45:39	0.0	0.0	0.0	0.0
428	8/28/2019 14:46:39	0.0	0.0	0.0	0.0
429	8/28/2019 14:47:39	0.0	0.0	0.0	0.0
430	8/28/2019 14:48:39	0.0	0.0	0.0	0.0
431	8/28/2019 14:49:39	0.0	0.0	0.0	0.0
432	8/28/2019 14:50:39	0.0	0.0	0.0	0.0
433	8/28/2019 14:51:39	0.0	0.0	0.0	0.0
434	8/28/2019 14:52:39	0.0	0.0	0.0	0.0
435	8/28/2019 14:53:39	0.0	0.0	0.0	0.0
436	8/28/2019 14:54:39	0.0	0.0	0.0	0.0
437	8/28/2019 14:55:39	0.0	0.0	0.0	0.0
438	8/28/2019 14:56:39	0.0	0.0	0.0	0.0

439	8/28/2019 14:57:39	0.0	0.0	0.0	0.0
440	8/28/2019 14:58:39	0.0	0.0	0.0	0.0
441	8/28/2019 14:59:39	0.0	0.0	0.0	0.0
442	8/28/2019 15:00:39	0.0	0.0	0.0	0.0
443	8/28/2019 15:01:39	0.0	0.0	0.0	0.0
444	8/28/2019 15:02:39	0.0	0.0	0.0	0.0
445	8/28/2019 15:03:39	0.0	0.0	0.0	0.0
446	8/28/2019 15:04:39	0.0	0.0	0.0	0.0
447	8/28/2019 15:05:39	0.0	0.0	0.0	0.0
448	8/28/2019 15:06:39	0.0	0.0	0.0	0.0
449	8/28/2019 15:07:39	0.0	0.0	0.0	0.0
450	8/28/2019 15:08:39	0.0	0.0	0.0	0.0
451	8/28/2019 15:09:39	0.0	0.0	0.0	0.0
452	8/28/2019 15:10:39	0.0	0.0	0.0	0.0
453	8/28/2019 15:11:39	0.0	0.0	0.0	0.0
454	8/28/2019 15:12:39	0.0	0.0	0.0	0.0
455	8/28/2019 15:13:39	0.0	0.0	0.0	0.0
456	8/28/2019 15:14:39	0.0	0.0	0.0	0.0
457	8/28/2019 15:15:39	0.0	0.0	0.0	0.0
458	8/28/2019 15:16:39	0.0	0.0	0.0	0.0
459	8/28/2019 15:17:39	0.0	0.0	0.0	0.0
460	8/28/2019 15:18:39	0.0	0.0	0.0	0.0
461	8/28/2019 15:19:39	0.0	0.0	0.0	0.0
462	8/28/2019 15:20:39	0.0	0.0	0.0	0.0
463	8/28/2019 15:21:39	0.0	0.0	0.0	0.0
464	8/28/2019 15:22:39	0.0	0.0	0.0	0.0
465	8/28/2019 15:23:39	0.0	0.0	0.0	0.0
466	8/28/2019 15:24:39	0.0	0.0	0.0	0.0
467	8/28/2019 15:25:39	0.0	0.0	0.0	0.0
468	8/28/2019 15:26:39	0.0	0.0	0.0	0.0
469	8/28/2019 15:27:39	0.0	0.0	0.0	0.0
470	8/28/2019 15:28:39	0.0	0.0	0.0	0.0

471	8/28/2019 15:29:39	0.0	0.0	0.0	0.0
472	8/28/2019 15:30:39	0.0	0.0	0.0	0.0
473	8/28/2019 15:31:39	0.0	0.0	0.0	0.0
474	8/28/2019 15:32:39	0.0	0.0	0.0	0.0
475	8/28/2019 15:33:39	0.0	0.0	0.0	0.0
476	8/28/2019 15:34:39	0.0	0.0	0.0	0.0
477	8/28/2019 15:35:39	0.0	0.0	0.0	0.0
478	8/28/2019 15:36:39	0.0	0.0	0.0	0.0
479	8/28/2019 15:37:39	0.0	0.0	0.0	0.0
480	8/28/2019 15:38:39	0.0	0.0	0.0	0.0
481	8/28/2019 15:39:39	0.0	0.0	0.0	0.0
482	8/28/2019 15:40:39	0.0	0.0	0.0	0.0
483	8/28/2019 15:41:39	0.0	0.0	0.0	0.0
484	8/28/2019 15:42:39	0.0	0.0	0.0	0.0
485	8/28/2019 15:43:39	0.0	0.0	0.0	0.0
486	8/28/2019 15:44:39	0.0	0.0	0.0	0.0
487	8/28/2019 15:45:39	0.0	0.0	0.0	0.0
488	8/28/2019 15:46:39	0.0	0.0	0.0	0.0
489	8/28/2019 15:47:39	0.0	0.0	0.0	0.0
490	8/28/2019 15:48:39	0.0	0.0	0.0	0.0
491	8/28/2019 15:49:39	0.0	0.0	0.0	0.0
492	8/28/2019 15:50:39	0.0	0.0	0.0	0.0
493	8/28/2019 15:51:39	0.0	0.0	0.0	0.0
494	8/28/2019 15:52:39	0.0	0.0	0.0	0.0
495	8/28/2019 15:53:39	0.0	0.0	0.0	0.0
496	8/28/2019 15:54:39	0.0	0.0	0.0	0.0
497	8/28/2019 15:55:39	0.0	0.0	0.0	0.0
498	8/28/2019 15:56:39	0.0	0.0	0.0	0.0
499	8/28/2019 15:57:39	0.0	0.0	0.0	0.0
500	8/28/2019 15:58:39	0.0	0.0	0.0	0.0
501	8/28/2019 15:59:39	0.0	0.0	0.0	0.0
502	8/28/2019 16:00:39	0.0	0.0	0.0	0.0

503	8/28/2019 16:01:39	0.0	0.0	0.0	0.0
504	8/28/2019 16:02:39	0.0	0.0	0.0	0.0
505	8/28/2019 16:03:39	0.0	0.0	0.0	0.0
506	8/28/2019 16:04:39	0.0	0.0	0.0	0.0
507	8/28/2019 16:05:39	0.0	0.0	0.0	0.0
508	8/28/2019 16:06:39	0.0	0.0	0.0	0.0
509	8/28/2019 16:07:39	0.0	0.0	0.0	0.0
510	8/28/2019 16:08:39	0.0	0.0	0.0	0.0
511	8/28/2019 16:09:39	0.0	0.0	0.0	0.0
512	8/28/2019 16:10:39	0.0	0.0	0.0	0.0
513	8/28/2019 16:11:39	0.0	0.0	0.0	0.0
514	8/28/2019 16:12:39	0.0	0.0	0.0	0.0
515	8/28/2019 16:13:39	0.0	0.0	0.0	0.0
516	8/28/2019 16:14:39	0.0	0.0	0.0	0.0
517	8/28/2019 16:15:39	0.0	0.0	0.0	0.0
518	8/28/2019 16:16:39	0.0	0.0	0.0	0.0
519	8/28/2019 16:17:39	0.0	0.0	0.0	0.0
520	8/28/2019 16:18:39	0.0	0.0	0.0	0.0
521	8/28/2019 16:19:39	0.0	0.0	0.0	0.0
522	8/28/2019 16:20:39	0.0	0.0	0.0	0.0
523	8/28/2019 16:21:39	0.0	0.0	0.0	0.0
524	8/28/2019 16:22:39	0.0	0.0	0.0	0.0
525	8/28/2019 16:23:39	0.0	0.0	0.0	0.0
526	8/28/2019 16:24:39	0.0	0.0	0.0	0.0
527	8/28/2019 16:25:39	0.0	0.0	0.0	0.0
528	8/28/2019 16:26:39	0.0	0.0	0.0	0.0
529	8/28/2019 16:27:39	0.0	0.0	0.0	0.0
530	8/28/2019 16:28:39	0.0	0.0	0.0	0.0
531	8/28/2019 16:29:39	0.0	0.0	0.0	0.0
532	8/28/2019 16:30:39	0.0	0.0	0.0	0.0
533	8/28/2019 16:31:39	0.0	0.0	0.0	0.0
534	8/28/2019 16:32:39	0.0	0.0	0.0	0.0

535	8/28/2019 16:33:39	0.0	0.0	0.0	0.0
536	8/28/2019 16:34:39	0.0	0.0	0.0	0.0
537	8/28/2019 16:35:39	0.0	0.0	0.0	0.0
538	8/28/2019 16:36:39	0.0	0.0	0.0	0.0
539	8/28/2019 16:37:39	0.0	0.0	0.0	0.0
540	8/28/2019 16:38:39	0.0	0.0	0.0	0.0
541	8/28/2019 16:39:39	0.0	0.0	0.0	0.0
542	8/28/2019 16:40:39	0.0	0.0	0.0	0.0
543	8/28/2019 16:41:39	0.0	0.0	0.0	0.0
544	8/28/2019 16:42:39	0.0	0.0	0.0	0.0
545	8/28/2019 16:43:39	0.0	0.0	0.0	0.0
546	8/28/2019 16:44:39	0.0	0.0	0.0	0.0
547	8/28/2019 16:45:39	0.0	0.0	0.0	0.0
548	8/28/2019 16:46:39	0.0	0.0	0.0	0.0
549	8/28/2019 16:47:39	0.0	0.0	0.0	0.0
550	8/28/2019 16:48:39	0.0	0.0	0.0	0.0
551	8/28/2019 16:49:39	0.0	0.0	0.0	0.0
552	8/28/2019 16:50:39	0.0	0.0	0.0	0.0
553	8/28/2019 16:51:39	0.0	0.0	0.0	0.0
554	8/28/2019 16:52:39	0.0	0.0	0.0	0.0
555	8/28/2019 16:53:39	0.0	0.0	0.0	0.0
556	8/28/2019 16:54:39	0.0	0.0	0.0	0.0
557	8/28/2019 16:55:39	0.0	0.0	0.0	0.0
558	8/28/2019 16:56:39	0.0	0.0	0.0	0.0
559	8/28/2019 16:57:39	0.0	0.0	0.0	0.0
560	8/28/2019 16:58:39	0.0	0.0	0.0	0.0
561	8/28/2019 16:59:39	0.0	0.0	0.0	0.0
562	8/28/2019 17:00:39	0.0	0.0	0.0	0.0
563	8/28/2019 17:01:39	0.0	0.0	0.0	0.0
564	8/28/2019 17:02:39	0.0	0.0	0.0	0.0
565	8/28/2019 17:03:39	0.0	0.0	0.0	0.0
566	8/28/2019 17:04:39	0.0	0.0	0.0	0.0

567	8/28/2019 17:05:39	0.0	0.0	0.0	0.0
568	8/28/2019 17:06:39	0.0	0.0	0.0	0.0
569	8/28/2019 17:07:39	0.0	0.0	0.0	0.0
570	8/28/2019 17:08:39	0.0	0.0	0.0	0.0
571	8/28/2019 17:09:39	0.0	0.0	0.0	0.0
572	8/28/2019 17:10:39	0.0	0.0	0.0	0.0
573	8/28/2019 17:11:39	0.0	0.0	0.0	0.0
574	8/28/2019 17:12:39	0.0	0.0	0.0	0.0
575	8/28/2019 17:13:39	0.0	0.0	0.0	0.0
576	8/28/2019 17:14:39	0.0	0.0	0.0	0.0
577	8/28/2019 17:15:39	0.0	0.1	0.1	0.1
578	8/28/2019 17:16:39	0.1	0.2	0.3	0.3
579	8/28/2019 17:17:39	0.2	0.3	0.3	0.3
580	8/28/2019 17:18:39	0.3	0.4	0.4	0.4
581	8/28/2019 17:19:39	0.3	0.3	0.4	0.4
582	8/28/2019 17:20:39	0.4	0.4	0.4	0.4
583	8/28/2019 17:21:39	0.4	0.5	0.6	0.6
584	8/28/2019 17:22:39	0.5	0.6	0.6	0.6
585	8/28/2019 17:23:39	0.5	0.6	0.6	0.6
586	8/28/2019 17:24:39	0.6	0.6	0.6	0.6
587	8/28/2019 17:25:39	0.5	0.6	0.6	0.5
588	8/28/2019 17:26:39	0.5	0.5	0.6	0.5
589	8/28/2019 17:27:39	0.5	0.5	0.6	0.5
590	8/28/2019 17:28:39	0.5	0.5	0.6	0.5
591	8/28/2019 17:29:39	0.5	0.5	0.5	0.5
592	8/28/2019 17:30:39	0.5	0.5	0.5	0.5
593	8/28/2019 17:31:39	0.4	0.5	0.5	0.5
594	8/28/2019 17:32:39	0.5	0.5	0.5	0.5
595	8/28/2019 17:33:39	0.5	0.5	0.6	0.6
596	8/28/2019 17:34:39	0.5	0.5	0.6	0.5
597	8/28/2019 17:35:39	0.5	0.5	0.6	0.5
598	8/28/2019 17:36:39	0.5	0.5	0.6	0.6

599	8/28/2019 17:37:39	0.5	0.5	0.6	0.5
600	8/28/2019 17:38:39	0.4	0.5	0.5	0.5
601	8/28/2019 17:39:39	0.4	0.4	0.5	0.5
602	8/28/2019 17:40:39	0.4	0.5	0.5	0.4
603	8/28/2019 17:41:39	0.4	0.4	0.4	0.4
604	8/28/2019 17:42:39	0.4	0.4	0.4	0.4
605	8/28/2019 17:43:39	0.4	0.4	0.4	0.4
606	8/28/2019 17:44:39	0.4	0.4	0.4	0.4
607	8/28/2019 17:45:39	0.4	0.4	0.5	0.4
608	8/28/2019 17:46:39	0.4	0.4	0.4	0.4
609	8/28/2019 17:47:39	0.4	0.4	0.5	0.5
610	8/28/2019 17:48:39	0.4	0.4	0.5	0.4
611	8/28/2019 17:49:39	0.4	0.5	0.5	0.5
612	8/28/2019 17:50:39	0.4	0.5	0.5	0.5
613	8/28/2019 17:51:39	0.4	0.5	0.5	0.5
614	8/28/2019 17:52:39	0.5	0.5	0.5	0.5
615	8/28/2019 17:53:39	0.5	0.5	0.5	0.5
616	8/28/2019 17:54:39	0.5	0.5	0.5	0.5
617	8/28/2019 17:55:39	0.4	0.5	0.5	0.5
618	8/28/2019 17:56:39	0.4	0.5	0.5	0.4
619	8/28/2019 17:57:39	0.4	0.4	0.5	0.5
620	8/28/2019 17:58:39	0.4	0.5	0.5	0.5
621	8/28/2019 17:59:39	0.4	0.5	0.5	0.4
622	8/28/2019 18:00:39	0.4	0.5	0.5	0.5
623	8/28/2019 18:01:39	0.4	0.5	0.5	0.5
624	8/28/2019 18:02:39	0.5	0.5	0.5	0.5
625	8/28/2019 18:03:39	0.5	0.5	0.5	0.5
626	8/28/2019 18:04:39	0.5	0.5	0.5	0.5
627	8/28/2019 18:05:39	0.5	0.5	0.5	0.5
628	8/28/2019 18:06:39	0.5	0.5	0.6	0.6
629	8/28/2019 18:07:39	0.5	0.5	0.6	0.5
630	8/28/2019 18:08:39	0.5	0.6	0.6	0.6

631	8/28/2019 18:09:39	0.5	0.6	0.6	0.6
632	8/28/2019 18:10:39	0.6	0.6	0.6	0.6
633	8/28/2019 18:11:39	0.6	0.6	0.7	0.6
634	8/28/2019 18:12:39	0.6	0.6	0.7	0.6
635	8/28/2019 18:13:39	0.6	0.7	0.7	0.6
636	8/28/2019 18:14:39	0.6	0.7	0.7	0.7
637	8/28/2019 18:15:39	0.7	0.7	0.7	0.7
638	8/28/2019 18:16:39	0.6	0.7	0.7	0.7
639	8/28/2019 18:17:39	0.7	0.7	0.7	0.7
640	8/28/2019 18:18:39	0.7	0.7	0.8	0.7
641	8/28/2019 18:19:39	0.7	0.7	0.8	0.8
642	8/28/2019 18:20:39	0.7	0.8	0.8	0.8
643	8/28/2019 18:21:39	0.7	0.8	0.8	0.8
644	8/28/2019 18:22:39	0.7	0.8	0.8	0.8
645	8/28/2019 18:23:39	0.8	0.8	0.8	0.8
646	8/28/2019 18:24:39	0.7	0.8	0.8	0.8
647	8/28/2019 18:25:39	0.8	0.8	0.9	0.8
648	8/28/2019 18:26:39	0.8	0.8	0.9	0.8
649	8/28/2019 18:27:39	0.8	0.9	0.9	0.9
650	8/28/2019 18:28:39	0.8	0.9	0.9	0.9
651	8/28/2019 18:29:39	0.8	0.9	0.9	0.9
652	8/28/2019 18:30:39	0.8	0.9	0.9	0.9
653	8/28/2019 18:31:39	0.8	0.9	0.9	0.9
654	8/28/2019 18:32:39	0.8	0.9	0.9	0.9
655	8/28/2019 18:33:39	0.8	0.9	0.9	0.9
656	8/28/2019 18:34:39	0.8	0.9	0.9	0.9
657	8/28/2019 18:35:39	0.9	0.9	0.9	0.9
658	8/28/2019 18:36:39	0.9	0.9	0.9	0.9
659	8/28/2019 18:37:39	0.9	0.9	1.0	0.9
660	8/28/2019 18:38:39	0.9	0.9	1.0	1.0
661	8/28/2019 18:39:39	0.9	0.9	1.0	0.9
662	8/28/2019 18:40:39	0.9	0.9	1.0	0.9

663	8/28/2019 18:41:39	0.8	0.9	0.9	0.9
664	8/28/2019 18:42:39	0.8	0.9	0.9	0.9
665	8/28/2019 18:43:39	0.8	0.9	0.9	0.9
666	8/28/2019 18:44:39	0.8	0.9	0.9	0.9
667	8/28/2019 18:45:39	0.8	0.9	0.9	0.9
668	8/28/2019 18:46:39	0.8	0.9	0.9	0.9
669	8/28/2019 18:47:39	0.8	0.9	0.9	0.9
670	8/28/2019 18:48:39	0.8	0.9	0.9	0.9
671	8/28/2019 18:49:39	0.8	0.8	0.9	0.8
672	8/28/2019 18:50:39	0.8	0.9	0.9	0.8
673	8/28/2019 18:51:39	0.8	0.8	0.9	0.8
674	8/28/2019 18:52:39	0.8	0.8	0.9	0.9
675	8/28/2019 18:53:39	0.8	0.8	0.9	0.9
676	8/28/2019 18:54:39	0.8	0.8	0.9	0.8
677	8/28/2019 18:55:39	0.8	0.8	0.9	0.8
678	8/28/2019 18:56:39	0.8	0.8	0.9	0.8
679	8/28/2019 18:57:39	0.8	0.8	0.9	0.8
680	8/28/2019 18:58:39	0.7	0.8	0.8	0.8
681	8/28/2019 18:59:39	0.7	0.8	0.8	0.8
682	8/28/2019 19:00:39	0.8	0.8	0.9	0.9
683	8/28/2019 19:01:39	0.8	0.8	1.0	0.8
684	8/28/2019 19:02:39	0.8	0.8	0.9	0.8
685	8/28/2019 19:03:39	0.7	0.8	0.8	0.7
686	8/28/2019 19:04:39	0.7	0.7	0.8	0.7
687	8/28/2019 19:05:39	0.5	0.6	0.7	0.5
688	8/28/2019 19:06:39	0.5	0.6	0.6	0.6
689	8/28/2019 19:07:39	0.5	0.6	0.6	0.6
690	8/28/2019 19:08:39	0.5	0.5	0.6	0.6
691	8/28/2019 19:09:39	0.5	0.5	0.5	0.5
692	8/28/2019 19:10:39	0.5	0.5	0.5	0.5
693	8/28/2019 19:11:39	0.5	0.5	0.5	0.5
694	8/28/2019 19:12:39	0.5	0.5	0.5	0.5

695	8/28/2019 19:13:39	0.5	0.5	0.5	0.5
696	8/28/2019 19:14:39	0.4	0.5	0.5	0.5
697	8/28/2019 19:15:39	0.5	0.5	0.5	0.5
698	8/28/2019 19:16:39	0.5	0.5	0.5	0.5
699	8/28/2019 19:17:39	0.5	0.5	0.5	0.5
700	8/28/2019 19:18:39	0.5	0.5	0.5	0.5
701	8/28/2019 19:19:39	0.5	0.5	0.5	0.5
702	8/28/2019 19:20:39	0.5	0.5	0.5	0.5
703	8/28/2019 19:21:39	0.5	0.5	0.5	0.5
704	8/28/2019 19:22:39	0.5	0.5	0.6	0.5
705	8/28/2019 19:23:39	0.5	0.5	0.6	0.6
706	8/28/2019 19:24:39	0.5	0.6	0.6	0.6
707	8/28/2019 19:25:39	0.5	0.6	0.6	0.6
708	8/28/2019 19:26:39	0.5	0.6	0.6	0.6
709	8/28/2019 19:27:39	0.5	0.6	0.6	0.6
710	8/28/2019 19:28:39	0.5	0.6	0.6	0.6
711	8/28/2019 19:29:39	0.5	0.6	0.6	0.6
712	8/28/2019 19:30:39	0.5	0.6	0.6	0.6
713	8/28/2019 19:31:39	0.6	0.6	0.6	0.6
714	8/28/2019 19:32:39	0.6	0.6	0.7	0.7
715	8/28/2019 19:33:39	0.6	0.6	0.7	0.6
716	8/28/2019 19:34:39	0.6	0.6	0.7	0.7
717	8/28/2019 19:35:39	0.6	0.7	0.7	0.7
718	8/28/2019 19:36:39	0.6	0.7	0.7	0.7
719	8/28/2019 19:37:39	0.6	0.7	0.7	0.7
720	8/28/2019 19:38:39	0.6	0.7	0.7	0.7
721	8/28/2019 19:39:39	0.6	0.7	0.7	0.7
722	8/28/2019 19:40:39	0.7	0.7	0.7	0.7
723	8/28/2019 19:41:39	0.7	0.7	0.8	0.8
724	8/28/2019 19:42:39	0.7	0.7	0.8	0.7
725	8/28/2019 19:43:39	0.7	0.7	0.8	0.8
726	8/28/2019 19:44:39	0.7	0.7	0.8	0.8

727	8/28/2019 19:45:39	0.7	0.7	0.8	0.7
728	8/28/2019 19:46:39	0.7	0.7	0.8	0.8
729	8/28/2019 19:47:39	0.7	0.8	0.8	0.8
730	8/28/2019 19:48:39	0.7	0.8	0.8	0.8
731	8/28/2019 19:49:39	0.7	0.8	0.8	0.8
732	8/28/2019 19:50:39	0.7	0.8	0.8	0.8
733	8/28/2019 19:51:39	0.7	0.8	0.8	0.8
734	8/28/2019 19:52:39	0.7	0.8	0.8	0.7
735	8/28/2019 19:53:39	0.7	0.8	0.8	0.8
736	8/28/2019 19:54:39	0.7	0.8	0.8	0.8
737	8/28/2019 19:55:39	0.7	0.8	0.8	0.8
738	8/28/2019 19:56:39	0.7	0.8	0.8	0.8
739	8/28/2019 19:57:39	0.7	0.8	0.8	0.8
740	8/28/2019 19:58:39	0.7	0.8	0.8	0.8
741	8/28/2019 19:59:39	0.7	0.8	0.8	0.8
742	8/28/2019 20:00:39	0.7	0.8	0.8	0.8
743	8/28/2019 20:01:39	0.7	0.8	0.8	0.7
744	8/28/2019 20:02:39	0.7	0.8	0.8	0.8
745	8/28/2019 20:03:39	0.7	0.8	0.8	0.8
746	8/28/2019 20:04:39	0.7	0.8	0.8	0.7
747	8/28/2019 20:05:39	0.1	0.3	0.7	0.1
748	8/28/2019 20:06:39	0.0	0.1	0.1	0.1
749	8/28/2019 20:07:39	0.1	0.1	0.2	0.2
Peak	0.9	0.9	1.0	1.0	
Min	0.0	0.0	0.0	0.0	
Average	0.1	0.1	0.2	0.2	

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	8/28/2019 07:39:39		0.0	---

002	8/28/2019 07:40:39	0.0	---
003	8/28/2019 07:41:39	0.0	---
004	8/28/2019 07:42:39	0.0	---
005	8/28/2019 07:43:39	0.0	---
006	8/28/2019 07:44:39	0.0	---
007	8/28/2019 07:45:39	0.0	---
008	8/28/2019 07:46:39	0.0	---
009	8/28/2019 07:47:39	0.0	---
010	8/28/2019 07:48:39	0.0	---
011	8/28/2019 07:49:39	0.0	---
012	8/28/2019 07:50:39	0.0	---
013	8/28/2019 07:51:39	0.0	---
014	8/28/2019 07:52:39	0.0	---
015	8/28/2019 07:53:39	0.0	0.0
016	8/28/2019 07:54:39	0.0	0.0
017	8/28/2019 07:55:39	0.0	0.0
018	8/28/2019 07:56:39	0.0	0.0
019	8/28/2019 07:57:39	0.0	0.0
020	8/28/2019 07:58:39	0.0	0.0
021	8/28/2019 07:59:39	0.0	0.0
022	8/28/2019 08:00:39	0.0	0.0
023	8/28/2019 08:01:39	0.0	0.0
024	8/28/2019 08:02:39	0.0	0.0
025	8/28/2019 08:03:39	0.0	0.0
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394	8/28/2019 14:12:39	0.0	0.0
395	8/28/2019 14:13:39	0.0	0.0
396	8/28/2019 14:14:39	0.0	0.0
397	8/28/2019 14:15:39	0.0	0.0
398	8/28/2019 14:16:39	0.0	0.0
399	8/28/2019 14:17:39	0.0	0.0
400	8/28/2019 14:18:39	0.0	0.0
401	8/28/2019 14:19:39	0.0	0.0
402	8/28/2019 14:20:39	0.0	0.0
403	8/28/2019 14:21:39	0.0	0.0
404	8/28/2019 14:22:39	0.0	0.0
405	8/28/2019 14:23:39	0.0	0.0
406	8/28/2019 14:24:39	0.0	0.0
407	8/28/2019 14:25:39	0.0	0.0
408	8/28/2019 14:26:39	0.0	0.0
409	8/28/2019 14:27:39	0.0	0.0
410	8/28/2019 14:28:39	0.0	0.0
411	8/28/2019 14:29:39	0.0	0.0
412	8/28/2019 14:30:39	0.0	0.0
413	8/28/2019 14:31:39	0.0	0.0
414	8/28/2019 14:32:39	0.0	0.0
415	8/28/2019 14:33:39	0.0	0.0
416	8/28/2019 14:34:39	0.0	0.0
417	8/28/2019 14:35:39	0.0	0.0

418	8/28/2019 14:36:39	0.0	0.0
419	8/28/2019 14:37:39	0.0	0.0
420	8/28/2019 14:38:39	0.0	0.0
421	8/28/2019 14:39:39	0.0	0.0
422	8/28/2019 14:40:39	0.0	0.0
423	8/28/2019 14:41:39	0.0	0.0
424	8/28/2019 14:42:39	0.0	0.0
425	8/28/2019 14:43:39	0.0	0.0
426	8/28/2019 14:44:39	0.0	0.0
427	8/28/2019 14:45:39	0.0	0.0
428	8/28/2019 14:46:39	0.0	0.0
429	8/28/2019 14:47:39	0.0	0.0
430	8/28/2019 14:48:39	0.0	0.0
431	8/28/2019 14:49:39	0.0	0.0
432	8/28/2019 14:50:39	0.0	0.0
433	8/28/2019 14:51:39	0.0	0.0
434	8/28/2019 14:52:39	0.0	0.0
435	8/28/2019 14:53:39	0.0	0.0
436	8/28/2019 14:54:39	0.0	0.0
437	8/28/2019 14:55:39	0.0	0.0
438	8/28/2019 14:56:39	0.0	0.0
439	8/28/2019 14:57:39	0.0	0.0
440	8/28/2019 14:58:39	0.0	0.0
441	8/28/2019 14:59:39	0.0	0.0
442	8/28/2019 15:00:39	0.0	0.0
443	8/28/2019 15:01:39	0.0	0.0
444	8/28/2019 15:02:39	0.0	0.0
445	8/28/2019 15:03:39	0.0	0.0
446	8/28/2019 15:04:39	0.0	0.0
447	8/28/2019 15:05:39	0.0	0.0
448	8/28/2019 15:06:39	0.0	0.0
449	8/28/2019 15:07:39	0.0	0.0

450	8/28/2019 15:08:39	0.0	0.0
451	8/28/2019 15:09:39	0.0	0.0
452	8/28/2019 15:10:39	0.0	0.0
453	8/28/2019 15:11:39	0.0	0.0
454	8/28/2019 15:12:39	0.0	0.0
455	8/28/2019 15:13:39	0.0	0.0
456	8/28/2019 15:14:39	0.0	0.0
457	8/28/2019 15:15:39	0.0	0.0
458	8/28/2019 15:16:39	0.0	0.0
459	8/28/2019 15:17:39	0.0	0.0
460	8/28/2019 15:18:39	0.0	0.0
461	8/28/2019 15:19:39	0.0	0.0
462	8/28/2019 15:20:39	0.0	0.0
463	8/28/2019 15:21:39	0.0	0.0
464	8/28/2019 15:22:39	0.0	0.0
465	8/28/2019 15:23:39	0.0	0.0
466	8/28/2019 15:24:39	0.0	0.0
467	8/28/2019 15:25:39	0.0	0.0
468	8/28/2019 15:26:39	0.0	0.0
469	8/28/2019 15:27:39	0.0	0.0
470	8/28/2019 15:28:39	0.0	0.0
471	8/28/2019 15:29:39	0.0	0.0
472	8/28/2019 15:30:39	0.0	0.0
473	8/28/2019 15:31:39	0.0	0.0
474	8/28/2019 15:32:39	0.0	0.0
475	8/28/2019 15:33:39	0.0	0.0
476	8/28/2019 15:34:39	0.0	0.0
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478	8/28/2019 15:36:39	0.0	0.0
479	8/28/2019 15:37:39	0.0	0.0
480	8/28/2019 15:38:39	0.0	0.0
481	8/28/2019 15:39:39	0.0	0.0

482	8/28/2019 15:40:39	0.0	0.0
483	8/28/2019 15:41:39	0.0	0.0
484	8/28/2019 15:42:39	0.0	0.0
485	8/28/2019 15:43:39	0.0	0.0
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490	8/28/2019 15:48:39	0.0	0.0
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495	8/28/2019 15:53:39	0.0	0.0
496	8/28/2019 15:54:39	0.0	0.0
497	8/28/2019 15:55:39	0.0	0.0
498	8/28/2019 15:56:39	0.0	0.0
499	8/28/2019 15:57:39	0.0	0.0
500	8/28/2019 15:58:39	0.0	0.0
501	8/28/2019 15:59:39	0.0	0.0
502	8/28/2019 16:00:39	0.0	0.0
503	8/28/2019 16:01:39	0.0	0.0
504	8/28/2019 16:02:39	0.0	0.0
505	8/28/2019 16:03:39	0.0	0.0
506	8/28/2019 16:04:39	0.0	0.0
507	8/28/2019 16:05:39	0.0	0.0
508	8/28/2019 16:06:39	0.0	0.0
509	8/28/2019 16:07:39	0.0	0.0
510	8/28/2019 16:08:39	0.0	0.0
511	8/28/2019 16:09:39	0.0	0.0
512	8/28/2019 16:10:39	0.0	0.0
513	8/28/2019 16:11:39	0.0	0.0

514	8/28/2019 16:12:39	0.0	0.0
515	8/28/2019 16:13:39	0.0	0.0
516	8/28/2019 16:14:39	0.0	0.0
517	8/28/2019 16:15:39	0.0	0.0
518	8/28/2019 16:16:39	0.0	0.0
519	8/28/2019 16:17:39	0.0	0.0
520	8/28/2019 16:18:39	0.0	0.0
521	8/28/2019 16:19:39	0.0	0.0
522	8/28/2019 16:20:39	0.0	0.0
523	8/28/2019 16:21:39	0.0	0.0
524	8/28/2019 16:22:39	0.0	0.0
525	8/28/2019 16:23:39	0.0	0.0
526	8/28/2019 16:24:39	0.0	0.0
527	8/28/2019 16:25:39	0.0	0.0
528	8/28/2019 16:26:39	0.0	0.0
529	8/28/2019 16:27:39	0.0	0.0
530	8/28/2019 16:28:39	0.0	0.0
531	8/28/2019 16:29:39	0.0	0.0
532	8/28/2019 16:30:39	0.0	0.0
533	8/28/2019 16:31:39	0.0	0.0
534	8/28/2019 16:32:39	0.0	0.0
535	8/28/2019 16:33:39	0.0	0.0
536	8/28/2019 16:34:39	0.0	0.0
537	8/28/2019 16:35:39	0.0	0.0
538	8/28/2019 16:36:39	0.0	0.0
539	8/28/2019 16:37:39	0.0	0.0
540	8/28/2019 16:38:39	0.0	0.0
541	8/28/2019 16:39:39	0.0	0.0
542	8/28/2019 16:40:39	0.0	0.0
543	8/28/2019 16:41:39	0.0	0.0
544	8/28/2019 16:42:39	0.0	0.0
545	8/28/2019 16:43:39	0.0	0.0

546	8/28/2019 16:44:39	0.0	0.0
547	8/28/2019 16:45:39	0.0	0.0
548	8/28/2019 16:46:39	0.0	0.0
549	8/28/2019 16:47:39	0.0	0.0
550	8/28/2019 16:48:39	0.0	0.0
551	8/28/2019 16:49:39	0.0	0.0
552	8/28/2019 16:50:39	0.0	0.0
553	8/28/2019 16:51:39	0.0	0.0
554	8/28/2019 16:52:39	0.0	0.0
555	8/28/2019 16:53:39	0.0	0.0
556	8/28/2019 16:54:39	0.0	0.0
557	8/28/2019 16:55:39	0.0	0.0
558	8/28/2019 16:56:39	0.0	0.0
559	8/28/2019 16:57:39	0.0	0.0
560	8/28/2019 16:58:39	0.0	0.0
561	8/28/2019 16:59:39	0.0	0.0
562	8/28/2019 17:00:39	0.0	0.0
563	8/28/2019 17:01:39	0.0	0.0
564	8/28/2019 17:02:39	0.0	0.0
565	8/28/2019 17:03:39	0.0	0.0
566	8/28/2019 17:04:39	0.0	0.0
567	8/28/2019 17:05:39	0.0	0.0
568	8/28/2019 17:06:39	0.0	0.0
569	8/28/2019 17:07:39	0.0	0.0
570	8/28/2019 17:08:39	0.0	0.0
571	8/28/2019 17:09:39	0.0	0.0
572	8/28/2019 17:10:39	0.0	0.0
573	8/28/2019 17:11:39	0.0	0.0
574	8/28/2019 17:12:39	0.0	0.0
575	8/28/2019 17:13:39	0.0	0.0
576	8/28/2019 17:14:39	0.0	0.0
577	8/28/2019 17:15:39	0.0	0.0

578	8/28/2019 17:16:39	0.0	0.0
579	8/28/2019 17:17:39	0.0	0.0
580	8/28/2019 17:18:39	0.0	0.1
581	8/28/2019 17:19:39	0.0	0.1
582	8/28/2019 17:20:39	0.0	0.1
583	8/28/2019 17:21:39	0.0	0.2
584	8/28/2019 17:22:39	0.0	0.2
585	8/28/2019 17:23:39	0.0	0.2
586	8/28/2019 17:24:39	0.0	0.3
587	8/28/2019 17:25:39	0.0	0.3
588	8/28/2019 17:26:39	0.0	0.4
589	8/28/2019 17:27:39	0.0	0.4
590	8/28/2019 17:28:39	0.0	0.4
591	8/28/2019 17:29:39	0.0	0.5
592	8/28/2019 17:30:39	0.0	0.5
593	8/28/2019 17:31:39	0.0	0.5
594	8/28/2019 17:32:39	0.0	0.5
595	8/28/2019 17:33:39	0.0	0.5
596	8/28/2019 17:34:39	0.0	0.6
597	8/28/2019 17:35:39	0.0	0.6
598	8/28/2019 17:36:39	0.0	0.6
599	8/28/2019 17:37:39	0.0	0.6
600	8/28/2019 17:38:39	0.0	0.6
601	8/28/2019 17:39:39	0.0	0.6
602	8/28/2019 17:40:39	0.0	0.5
603	8/28/2019 17:41:39	0.0	0.5
604	8/28/2019 17:42:39	0.0	0.5
605	8/28/2019 17:43:39	0.0	0.5
606	8/28/2019 17:44:39	0.0	0.5
607	8/28/2019 17:45:39	0.0	0.5
608	8/28/2019 17:46:39	0.0	0.5
609	8/28/2019 17:47:39	0.0	0.5

610	8/28/2019 17:48:39	0.0	0.5
611	8/28/2019 17:49:39	0.0	0.5
612	8/28/2019 17:50:39	0.0	0.5
613	8/28/2019 17:51:39	0.0	0.5
614	8/28/2019 17:52:39	0.0	0.5
615	8/28/2019 17:53:39	0.0	0.5
616	8/28/2019 17:54:39	0.0	0.5
617	8/28/2019 17:55:39	0.0	0.5
618	8/28/2019 17:56:39	0.0	0.5
619	8/28/2019 17:57:39	0.0	0.5
620	8/28/2019 17:58:39	0.0	0.5
621	8/28/2019 17:59:39	0.0	0.5
622	8/28/2019 18:00:39	0.0	0.5
623	8/28/2019 18:01:39	0.0	0.5
624	8/28/2019 18:02:39	0.0	0.5
625	8/28/2019 18:03:39	0.1	0.5
626	8/28/2019 18:04:39	0.1	0.5
627	8/28/2019 18:05:39	0.1	0.5
628	8/28/2019 18:06:39	0.1	0.5
629	8/28/2019 18:07:39	0.1	0.5
630	8/28/2019 18:08:39	0.1	0.5
631	8/28/2019 18:09:39	0.1	0.5
632	8/28/2019 18:10:39	0.1	0.5
633	8/28/2019 18:11:39	0.1	0.6
634	8/28/2019 18:12:39	0.1	0.6
635	8/28/2019 18:13:39	0.1	0.6
636	8/28/2019 18:14:39	0.1	0.6
637	8/28/2019 18:15:39	0.1	0.6
638	8/28/2019 18:16:39	0.1	0.6
639	8/28/2019 18:17:39	0.1	0.6
640	8/28/2019 18:18:39	0.1	0.6
641	8/28/2019 18:19:39	0.1	0.7

642	8/28/2019 18:20:39	0.1	0.7
643	8/28/2019 18:21:39	0.1	0.7
644	8/28/2019 18:22:39	0.1	0.7
645	8/28/2019 18:23:39	0.1	0.7
646	8/28/2019 18:24:39	0.1	0.8
647	8/28/2019 18:25:39	0.1	0.8
648	8/28/2019 18:26:39	0.1	0.8
649	8/28/2019 18:27:39	0.1	0.8
650	8/28/2019 18:28:39	0.1	0.8
651	8/28/2019 18:29:39	0.1	0.8
652	8/28/2019 18:30:39	0.1	0.9
653	8/28/2019 18:31:39	0.1	0.9
654	8/28/2019 18:32:39	0.1	0.9
655	8/28/2019 18:33:39	0.1	0.9
656	8/28/2019 18:34:39	0.1	0.9
657	8/28/2019 18:35:39	0.1	0.9
658	8/28/2019 18:36:39	0.1	0.9
659	8/28/2019 18:37:39	0.1	0.9
660	8/28/2019 18:38:39	0.1	0.9
661	8/28/2019 18:39:39	0.1	0.9
662	8/28/2019 18:40:39	0.1	1.0
663	8/28/2019 18:41:39	0.1	1.0
664	8/28/2019 18:42:39	0.1	1.0
665	8/28/2019 18:43:39	0.1	1.0
666	8/28/2019 18:44:39	0.1	1.0
667	8/28/2019 18:45:39	0.1	1.0
668	8/28/2019 18:46:39	0.1	1.0
669	8/28/2019 18:47:39	0.1	1.0
670	8/28/2019 18:48:39	0.1	1.0
671	8/28/2019 18:49:39	0.1	1.0
672	8/28/2019 18:50:39	0.1	1.0
673	8/28/2019 18:51:39	0.1	0.9

674	8/28/2019 18:52:39	0.1	0.9
675	8/28/2019 18:53:39	0.1	0.9
676	8/28/2019 18:54:39	0.1	0.9
677	8/28/2019 18:55:39	0.1	0.9
678	8/28/2019 18:56:39	0.1	0.9
679	8/28/2019 18:57:39	0.1	0.9
680	8/28/2019 18:58:39	0.1	0.9
681	8/28/2019 18:59:39	0.1	0.9
682	8/28/2019 19:00:39	0.1	0.9
683	8/28/2019 19:01:39	0.1	0.9
684	8/28/2019 19:02:39	0.1	0.9
685	8/28/2019 19:03:39	0.2	0.9
686	8/28/2019 19:04:39	0.2	0.9
687	8/28/2019 19:05:39	0.2	0.8
688	8/28/2019 19:06:39	0.2	0.8
689	8/28/2019 19:07:39	0.2	0.8
690	8/28/2019 19:08:39	0.2	0.8
691	8/28/2019 19:09:39	0.2	0.8
692	8/28/2019 19:10:39	0.2	0.7
693	8/28/2019 19:11:39	0.2	0.7
694	8/28/2019 19:12:39	0.2	0.7
695	8/28/2019 19:13:39	0.2	0.7
696	8/28/2019 19:14:39	0.2	0.7
697	8/28/2019 19:15:39	0.2	0.6
698	8/28/2019 19:16:39	0.2	0.6
699	8/28/2019 19:17:39	0.2	0.6
700	8/28/2019 19:18:39	0.2	0.6
701	8/28/2019 19:19:39	0.2	0.6
702	8/28/2019 19:20:39	0.2	0.6
703	8/28/2019 19:21:39	0.2	0.6
704	8/28/2019 19:22:39	0.2	0.5
705	8/28/2019 19:23:39	0.2	0.5

706	8/28/2019 19:24:39	0.2	0.5
707	8/28/2019 19:25:39	0.2	0.6
708	8/28/2019 19:26:39	0.2	0.6
709	8/28/2019 19:27:39	0.2	0.6
710	8/28/2019 19:28:39	0.2	0.6
711	8/28/2019 19:29:39	0.2	0.6
712	8/28/2019 19:30:39	0.2	0.6
713	8/28/2019 19:31:39	0.2	0.6
714	8/28/2019 19:32:39	0.2	0.6
715	8/28/2019 19:33:39	0.2	0.6
716	8/28/2019 19:34:39	0.2	0.6
717	8/28/2019 19:35:39	0.2	0.6
718	8/28/2019 19:36:39	0.2	0.7
719	8/28/2019 19:37:39	0.2	0.7
720	8/28/2019 19:38:39	0.2	0.7
721	8/28/2019 19:39:39	0.2	0.7
722	8/28/2019 19:40:39	0.2	0.7
723	8/28/2019 19:41:39	0.2	0.7
724	8/28/2019 19:42:39	0.2	0.7
725	8/28/2019 19:43:39	0.2	0.7
726	8/28/2019 19:44:39	0.2	0.7
727	8/28/2019 19:45:39	0.2	0.7
728	8/28/2019 19:46:39	0.2	0.8
729	8/28/2019 19:47:39	0.2	0.8
730	8/28/2019 19:48:39	0.2	0.8
731	8/28/2019 19:49:39	0.2	0.8
732	8/28/2019 19:50:39	0.2	0.8
733	8/28/2019 19:51:39	0.2	0.8
734	8/28/2019 19:52:39	0.2	0.8
735	8/28/2019 19:53:39	0.2	0.8
736	8/28/2019 19:54:39	0.2	0.8
737	8/28/2019 19:55:39	0.2	0.8

738	8/28/2019 19:56:39	0.2	0.8
739	8/28/2019 19:57:39	0.2	0.8
740	8/28/2019 19:58:39	0.2	0.8
741	8/28/2019 19:59:39	0.2	0.8
742	8/28/2019 20:00:39	0.2	0.8
743	8/28/2019 20:01:39	0.2	0.8
744	8/28/2019 20:02:39	0.2	0.8
745	8/28/2019 20:03:39	0.2	0.8
746	8/28/2019 20:04:39	0.2	0.8
747	8/28/2019 20:05:39	0.2	0.8
748	8/28/2019 20:06:39	0.2	0.7
749	8/28/2019 20:07:39	0.2	0.7

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19/08/28 07:45

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-914273

Unit Firmware Ver V1.20A

Running Mode Hygiene Mode

Measure Type Min; Avg; Max; Real

Datalog Mode Continuous

Datalog Type Manual

Diagnostic Mode No

Stop Reason Power Down

Anne Locke
Bristol-Myers Squibb
August 28, 2019

Site ID RAE00005

User ID 00000001

Begin 8/28/2019 07:45:05

End 8/28/2019 17:03:57

Sample Period(s) 60

Number of Records 558

Sensor VOC(ppm)

Span 100.000

Span 2 N/A

Low Alarm 50.000

High Alarm 100.000

Over Alarm 2000.000

STEL Alarm 25.000

TWA Alarm 10.000

Measurement Gas Isobutylene

Calibration Time 8/28/2019 07:35

Peak 452984.832

Min 0.000

Average 2285.132

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Datalog

Index	Date/Time	VOC(ppm) (Min)	VOC(ppm) (Avg)	VOC(ppm) (Max)	VOC(ppm) (Real)	VOC(ppm)
001	8/28/2019 07:46:05	0.000	0.000	0.000	0.000	
002	8/28/2019 07:47:05	0.000	0.000	0.000	0.000	
003	8/28/2019 07:48:05	0.000	0.000	0.000	0.000	
004	8/28/2019 07:49:05	0.000	0.000	0.000	0.000	
005	8/28/2019 07:50:05	0.000	0.000	0.000	0.000	
006	8/28/2019 07:51:05	0.000	0.000	0.000	0.000	
007	8/28/2019 07:52:05	0.000	0.000	0.000	0.000	
008	8/28/2019 07:53:05	0.000	0.000	0.000	0.000	
009	8/28/2019 07:54:05	0.000	0.000	0.000	0.000	
010	8/28/2019 07:55:05	0.000	0.000	0.000	0.000	
011	8/28/2019 07:56:05	0.000	0.000	0.000	0.000	
012	8/28/2019 07:57:05	0.000	0.000	0.000	0.000	
013	8/28/2019 07:58:05	0.000	0.000	0.000	0.000	
014	8/28/2019 07:59:05	0.000	0.000	0.000	0.000	
015	8/28/2019 08:00:05	0.000	0.000	0.000	0.000	
016	8/28/2019 08:01:05	0.000	0.000	0.000	0.000	
017	8/28/2019 08:02:05	0.000	0.000	0.000	0.000	
018	8/28/2019 08:03:05	0.000	0.000	0.000	0.000	
019	8/28/2019 08:04:05	0.000	0.000	0.000	0.000	
020	8/28/2019 08:05:05	0.000	0.000	0.000	0.000	
021	8/28/2019 08:06:05	0.000	0.000	0.000	0.000	

022	8/28/2019 08:07:05	0.000	0.000	0.000	0.000
023	8/28/2019 08:08:05	0.000	0.000	0.000	0.000
024	8/28/2019 08:09:05	0.000	0.000	0.000	0.000
025	8/28/2019 08:10:05	0.000	0.000	0.000	0.000
026	8/28/2019 08:11:05	0.000	0.000	0.000	0.000
027	8/28/2019 08:12:05	0.000	0.000	0.000	0.000
028	8/28/2019 08:13:05	0.000	0.000	0.000	0.000
029	8/28/2019 08:14:05	0.000	0.000	0.000	0.000
030	8/28/2019 08:15:05	0.000	0.000	0.000	0.000
031	8/28/2019 08:16:05	0.000	0.000	0.000	0.000
032	8/28/2019 08:17:05	0.000	0.000	0.000	0.000
033	8/28/2019 08:18:05	0.000	0.000	0.000	0.000
034	8/28/2019 08:19:05	0.000	0.000	0.000	0.000
035	8/28/2019 08:20:05	0.000	0.000	0.000	0.000
036	8/28/2019 08:21:05	0.000	0.000	0.000	0.000
037	8/28/2019 08:22:05	0.000	0.000	0.000	0.000
038	8/28/2019 08:23:05	0.000	0.000	0.000	0.000
039	8/28/2019 08:24:05	0.000	0.000	0.000	0.000
040	8/28/2019 08:25:05	0.000	0.000	0.001	0.001
041	8/28/2019 08:26:05	0.000	0.001	0.002	0.001
042	8/28/2019 08:27:05	0.000	0.001	0.003	0.003
043	8/28/2019 08:28:05	0.002	0.004	0.007	0.007
044	8/28/2019 08:29:05	0.007	0.008	0.010	0.010
045	8/28/2019 08:30:05	0.008	0.009	0.000	402653.184

046	8/28/2019 08:31:05	385875.968		352321.536		385875.968	419430.400
047	8/28/2019 08:32:05	402653.184		352321.536		385875.968	452984.832
048	8/28/2019 08:33:05	0.016	0.020	0.024	0.023		
049	8/28/2019 08:34:05	0.021	0.023	0.025	0.024		
050	8/28/2019 08:35:05	0.021	0.023	0.027	0.024		
051	8/28/2019 08:36:05	0.022	0.026	0.033	0.028		
052	8/28/2019 08:37:05	0.024	0.027	0.031	0.028		
053	8/28/2019 08:38:05	0.026	0.030	0.035	0.031		
054	8/28/2019 08:39:05	0.032	0.035	0.038	0.034		
055	8/28/2019 08:40:05	0.033	0.035	0.038	0.036		
056	8/28/2019 08:41:05	0.033	0.038	0.042	0.038		
057	8/28/2019 08:42:05	0.036	0.039	0.043	0.042		
058	8/28/2019 08:43:05	0.036	0.041	0.047	0.046		
059	8/28/2019 08:44:05	0.040	0.043	0.049	0.049		
060	8/28/2019 08:45:05	0.046	0.048	0.052	0.049		
061	8/28/2019 08:46:05	0.046	0.049	0.053	0.051		
062	8/28/2019 08:47:05	0.050	0.053	0.056	0.056		
063	8/28/2019 08:48:05	0.053	0.055	0.058	0.057		
064	8/28/2019 08:49:05	0.055	0.057	0.060	0.056		
065	8/28/2019 08:50:05	0.055	0.057	0.059	0.057		
066	8/28/2019 08:51:05	0.056	0.057	0.058	0.057		
067	8/28/2019 08:52:05	0.054	0.057	0.060	0.059		
068	8/28/2019 08:53:05	0.059	0.060	0.061	0.061		
069	8/28/2019 08:54:05	0.059	0.060	0.062	0.062		

070	8/28/2019 08:55:05	0.060	0.062	0.064	0.063
071	8/28/2019 08:56:05	0.062	0.064	0.066	0.065
072	8/28/2019 08:57:05	0.062	0.064	0.066	0.065
073	8/28/2019 08:58:05	0.063	0.065	0.067	0.066
074	8/28/2019 08:59:05	0.065	0.066	0.068	0.067
075	8/28/2019 09:00:05	0.064	0.066	0.069	0.068
076	8/28/2019 09:01:05	0.067	0.069	0.072	0.069
077	8/28/2019 09:02:05	0.068	0.070	0.073	0.071
078	8/28/2019 09:03:05	0.069	0.071	0.074	0.072
079	8/28/2019 09:04:05	0.069	0.071	0.074	0.071
080	8/28/2019 09:05:05	0.072	0.073	0.076	0.076
081	8/28/2019 09:06:05	0.071	0.073	0.076	0.072
082	8/28/2019 09:07:05	0.072	0.073	0.076	0.075
083	8/28/2019 09:08:05	0.074	0.075	0.078	0.076
084	8/28/2019 09:09:05	0.075	0.077	0.080	0.076
085	8/28/2019 09:10:05	0.076	0.078	0.082	0.082
086	8/28/2019 09:11:05	0.077	0.079	0.082	0.078
087	8/28/2019 09:12:05	0.077	0.079	0.082	0.082
088	8/28/2019 09:13:05	0.078	0.080	0.082	0.079
089	8/28/2019 09:14:05	0.078	0.079	0.082	0.079
090	8/28/2019 09:15:05	0.078	0.079	0.081	0.080
091	8/28/2019 09:16:05	0.077	0.079	0.083	0.080
092	8/28/2019 09:17:05	0.080	0.081	0.083	0.083
093	8/28/2019 09:18:05	0.080	0.082	0.085	0.082

094	8/28/2019 09:19:05	0.081	0.082	0.084	0.082
095	8/28/2019 09:20:05	0.080	0.083	0.085	0.082
096	8/28/2019 09:21:05	0.081	0.083	0.087	0.086
097	8/28/2019 09:22:05	0.084	0.086	0.088	0.085
098	8/28/2019 09:23:05	0.085	0.087	0.090	0.087
099	8/28/2019 09:24:05	0.085	0.086	0.088	0.087
100	8/28/2019 09:25:05	0.085	0.086	0.088	0.087
101	8/28/2019 09:26:05	0.086	0.087	0.090	0.088
102	8/28/2019 09:27:05	0.086	0.088	0.090	0.087
103	8/28/2019 09:28:05	0.085	0.087	0.089	0.089
104	8/28/2019 09:29:05	0.084	0.086	0.089	0.085
105	8/28/2019 09:30:05	0.084	0.086	0.089	0.087
106	8/28/2019 09:31:05	0.082	0.086	0.089	0.088
107	8/28/2019 09:32:05	0.086	0.088	0.092	0.087
108	8/28/2019 09:33:05	0.086	0.088	0.090	0.089
109	8/28/2019 09:34:05	0.089	0.090	0.092	0.089
110	8/28/2019 09:35:05	0.089	0.090	0.092	0.091
111	8/28/2019 09:36:05	0.089	0.091	0.093	0.089
112	8/28/2019 09:37:05	0.088	0.090	0.092	0.090
113	8/28/2019 09:38:05	0.083	0.085	0.087	0.084
114	8/28/2019 09:39:05	0.083	0.084	0.085	0.083
115	8/28/2019 09:40:05	0.083	0.084	0.085	0.084
116	8/28/2019 09:41:05	0.081	0.083	0.085	0.083
117	8/28/2019 09:42:05	0.081	0.083	0.086	0.082

118	8/28/2019 09:43:05	0.082	0.084	0.086	0.084
119	8/28/2019 09:44:05	0.082	0.083	0.085	0.083
120	8/28/2019 09:45:05	0.086	0.087	0.089	0.089
121	8/28/2019 09:46:05	0.085	0.086	0.089	0.086
122	8/28/2019 09:47:05	0.083	0.085	0.087	0.084
123	8/28/2019 09:48:05	0.083	0.084	0.085	0.083
124	8/28/2019 09:49:05	0.083	0.084	0.085	0.084
125	8/28/2019 09:50:05	0.081	0.083	0.085	0.083
126	8/28/2019 09:51:05	0.081	0.083	0.086	0.082
127	8/28/2019 09:52:05	0.082	0.084	0.086	0.084
128	8/28/2019 09:53:05	0.082	0.083	0.085	0.083
129	8/28/2019 09:54:05	0.081	0.083	0.085	0.083
130	8/28/2019 09:55:05	0.081	0.083	0.085	0.085
131	8/28/2019 09:56:05	0.083	0.084	0.085	0.085
132	8/28/2019 09:57:05	0.082	0.083	0.085	0.083
133	8/28/2019 09:58:05	0.082	0.084	0.086	0.083
134	8/28/2019 09:59:05	0.080	0.082	0.084	0.083
135	8/28/2019 10:00:05	0.080	0.082	0.084	0.081
136	8/28/2019 10:01:05	0.081	0.083	0.085	0.084
137	8/28/2019 10:02:05	0.082	0.083	0.085	0.083
138	8/28/2019 10:03:05	0.081	0.082	0.084	0.082
139	8/28/2019 10:04:05	0.080	0.082	0.084	0.083
140	8/28/2019 10:05:05	0.082	0.083	0.085	0.083
141	8/28/2019 10:06:05	0.083	0.083	0.085	0.084

142	8/28/2019 10:07:05	0.081	0.083	0.085	0.081
143	8/28/2019 10:08:05	0.080	0.082	0.084	0.083
144	8/28/2019 10:09:05	0.081	0.082	0.084	0.082
145	8/28/2019 10:10:05	0.080	0.081	0.084	0.081
146	8/28/2019 10:11:05	0.078	0.080	0.082	0.081
147	8/28/2019 10:12:05	0.079	0.080	0.083	0.082
148	8/28/2019 10:13:05	0.078	0.080	0.082	0.079
149	8/28/2019 10:14:05	0.079	0.082	0.085	0.082
150	8/28/2019 10:15:05	0.080	0.081	0.084	0.084
151	8/28/2019 10:16:05	0.079	0.081	0.084	0.081
152	8/28/2019 10:17:05	0.079	0.080	0.083	0.081
153	8/28/2019 10:18:05	0.078	0.080	0.084	0.082
154	8/28/2019 10:19:05	0.071	0.078	0.082	0.077
155	8/28/2019 10:20:05	0.067	0.073	0.079	0.077
156	8/28/2019 10:21:05	0.067	0.072	0.077	0.068
157	8/28/2019 10:22:05	0.067	0.070	0.075	0.072
158	8/28/2019 10:23:05	0.065	0.070	0.075	0.070
159	8/28/2019 10:24:05	0.063	0.070	0.074	0.068
160	8/28/2019 10:25:05	0.056	0.066	0.075	0.056
161	8/28/2019 10:26:05	0.047	0.062	0.069	0.048
162	8/28/2019 10:27:05	0.028	0.048	0.066	0.054
163	8/28/2019 10:28:05	0.039	0.052	0.060	0.052
164	8/28/2019 10:29:05	0.044	0.052	0.059	0.052
165	8/28/2019 10:30:05	0.045	0.051	0.059	0.047

166	8/28/2019 10:31:05	0.038	0.048	0.056	0.038
167	8/28/2019 10:32:05	0.036	0.042	0.060	0.041
168	8/28/2019 10:33:05	0.038	0.041	0.045	0.044
169	8/28/2019 10:34:05	0.044	0.049	0.053	0.053
170	8/28/2019 10:35:05	0.052	0.053	0.055	0.055
171	8/28/2019 10:36:05	0.052	0.053	0.055	0.054
172	8/28/2019 10:37:05	0.051	0.053	0.056	0.052
173	8/28/2019 10:38:05	0.053	0.053	0.055	0.054
174	8/28/2019 10:39:05	0.052	0.053	0.055	0.052
175	8/28/2019 10:40:05	0.051	0.052	0.054	0.051
176	8/28/2019 10:41:05	0.050	0.052	0.054	0.054
177	8/28/2019 10:42:05	0.052	0.053	0.055	0.054
178	8/28/2019 10:43:05	0.051	0.052	0.055	0.051
179	8/28/2019 10:44:05	0.050	0.052	0.055	0.053
180	8/28/2019 10:45:05	0.052	0.054	0.057	0.056
181	8/28/2019 10:46:05	0.053	0.054	0.056	0.053
182	8/28/2019 10:47:05	0.052	0.053	0.055	0.055
183	8/28/2019 10:48:05	0.053	0.054	0.057	0.054
184	8/28/2019 10:49:05	0.053	0.054	0.056	0.055
185	8/28/2019 10:50:05	0.053	0.054	0.055	0.055
186	8/28/2019 10:51:05	0.052	0.053	0.056	0.053
187	8/28/2019 10:52:05	0.053	0.053	0.055	0.055
188	8/28/2019 10:53:05	0.053	0.054	0.055	0.055
189	8/28/2019 10:54:05	0.053	0.054	0.056	0.054

190	8/28/2019 10:55:05	0.052	0.054	0.056	0.053
191	8/28/2019 10:56:05	0.050	0.051	0.054	0.051
192	8/28/2019 10:57:05	0.049	0.049	0.052	0.050
193	8/28/2019 10:58:05	0.048	0.050	0.054	0.051
194	8/28/2019 10:59:05	0.050	0.052	0.054	0.054
195	8/28/2019 11:00:05	0.052	0.053	0.055	0.054
196	8/28/2019 11:01:05	0.051	0.052	0.055	0.051
197	8/28/2019 11:02:05	0.050	0.052	0.055	0.053
198	8/28/2019 11:03:05	0.052	0.054	0.057	0.056
199	8/28/2019 11:04:05	0.050	0.051	0.052	0.051
200	8/28/2019 11:05:05	0.051	0.052	0.054	0.054
201	8/28/2019 11:06:05	0.051	0.052	0.054	0.052
202	8/28/2019 11:07:05	0.050	0.051	0.052	0.051
203	8/28/2019 11:08:05	0.049	0.050	0.052	0.051
204	8/28/2019 11:09:05	0.048	0.050	0.052	0.052
205	8/28/2019 11:10:05	0.047	0.049	0.052	0.047
206	8/28/2019 11:11:05	0.046	0.047	0.049	0.048
207	8/28/2019 11:12:05	0.047	0.048	0.051	0.049
208	8/28/2019 11:13:05	0.048	0.049	0.051	0.050
209	8/28/2019 11:14:05	0.047	0.049	0.051	0.050
210	8/28/2019 11:15:05	0.048	0.050	0.053	0.051
211	8/28/2019 11:16:05	0.049	0.051	0.055	0.054
212	8/28/2019 11:17:05	0.050	0.051	0.054	0.051
213	8/28/2019 11:18:05	0.050	0.052	0.055	0.053

214	8/28/2019 11:19:05	0.050	0.051	0.055	0.050
215	8/28/2019 11:20:05	0.049	0.051	0.053	0.052
216	8/28/2019 11:21:05	0.049	0.051	0.053	0.051
217	8/28/2019 11:22:05	0.049	0.051	0.053	0.051
218	8/28/2019 11:23:05	0.049	0.050	0.052	0.051
219	8/28/2019 11:24:05	0.048	0.050	0.053	0.052
220	8/28/2019 11:25:05	0.052	0.053	0.055	0.054
221	8/28/2019 11:26:05	0.053	0.054	0.057	0.057
222	8/28/2019 11:27:05	0.055	0.057	0.060	0.057
223	8/28/2019 11:28:05	0.056	0.059	0.061	0.060
224	8/28/2019 11:29:05	0.056	0.058	0.060	0.057
225	8/28/2019 11:30:05	0.057	0.058	0.060	0.057
226	8/28/2019 11:31:05	0.056	0.058	0.062	0.059
227	8/28/2019 11:32:05	0.057	0.059	0.062	0.062
228	8/28/2019 11:33:05	0.060	0.062	0.064	0.062
229	8/28/2019 11:34:05	0.058	0.061	0.064	0.064
230	8/28/2019 11:35:05	0.058	0.060	0.064	0.061
231	8/28/2019 11:36:05	0.059	0.060	0.062	0.059
232	8/28/2019 11:37:05	0.058	0.060	0.062	0.061
233	8/28/2019 11:38:05	0.059	0.060	0.062	0.061
234	8/28/2019 11:39:05	0.059	0.060	0.062	0.061
235	8/28/2019 11:40:05	0.060	0.061	0.064	0.062
236	8/28/2019 11:41:05	0.059	0.060	0.062	0.059
237	8/28/2019 11:42:05	0.057	0.059	0.061	0.060

238	8/28/2019 11:43:05	0.059	0.060	0.063	0.062
239	8/28/2019 11:44:05	0.058	0.061	0.063	0.060
240	8/28/2019 11:45:05	0.060	0.063	0.066	0.066
241	8/28/2019 11:46:05	0.062	0.064	0.066	0.064
242	8/28/2019 11:47:05	0.061	0.064	0.069	0.062
243	8/28/2019 11:48:05	0.060	0.061	0.063	0.061
244	8/28/2019 11:49:05	0.058	0.060	0.065	0.060
245	8/28/2019 11:50:05	0.058	0.060	0.062	0.059
246	8/28/2019 11:51:05	0.058	0.059	0.062	0.060
247	8/28/2019 11:52:05	0.057	0.059	0.061	0.060
248	8/28/2019 11:53:05	0.057	0.058	0.061	0.058
249	8/28/2019 11:54:05	0.056	0.058	0.060	0.060
250	8/28/2019 11:55:05	0.057	0.058	0.060	0.057
251	8/28/2019 11:56:05	0.057	0.057	0.059	0.059
252	8/28/2019 11:57:05	0.054	0.057	0.060	0.057
253	8/28/2019 11:58:05	0.055	0.057	0.059	0.058
254	8/28/2019 11:59:05	0.055	0.057	0.061	0.061
255	8/28/2019 12:00:05	0.057	0.058	0.061	0.058
256	8/28/2019 12:01:05	0.057	0.057	0.060	0.060
257	8/28/2019 12:02:05	0.056	0.057	0.060	0.059
258	8/28/2019 12:03:05	0.056	0.057	0.059	0.056
259	8/28/2019 12:04:05	0.056	0.057	0.059	0.056
260	8/28/2019 12:05:05	0.053	0.055	0.058	0.056
261	8/28/2019 12:06:05	0.056	0.057	0.059	0.056

262	8/28/2019 12:07:05	0.056	0.057	0.059	0.056
263	8/28/2019 12:08:05	0.052	0.055	0.058	0.057
264	8/28/2019 12:09:05	0.055	0.056	0.059	0.056
265	8/28/2019 12:10:05	0.054	0.056	0.058	0.058
266	8/28/2019 12:11:05	0.055	0.056	0.059	0.055
267	8/28/2019 12:12:05	0.051	0.055	0.058	0.052
268	8/28/2019 12:13:05	0.052	0.055	0.059	0.059
269	8/28/2019 12:14:05	0.056	0.059	0.063	0.062
270	8/28/2019 12:15:05	0.059	0.061	0.063	0.063
271	8/28/2019 12:16:05	0.056	0.059	0.063	0.060
272	8/28/2019 12:17:05	0.060	0.061	0.063	0.062
273	8/28/2019 12:18:05	0.059	0.060	0.062	0.061
274	8/28/2019 12:19:05	0.058	0.059	0.061	0.060
275	8/28/2019 12:20:05	0.057	0.058	0.060	0.058
276	8/28/2019 12:21:05	0.057	0.058	0.060	0.057
277	8/28/2019 12:22:05	0.053	0.056	0.059	0.056
278	8/28/2019 12:23:05	0.054	0.056	0.059	0.055
279	8/28/2019 12:24:05	0.054	0.057	0.061	0.059
280	8/28/2019 12:25:05	0.057	0.059	0.061	0.057
281	8/28/2019 12:26:05	0.056	0.058	0.060	0.057
282	8/28/2019 12:27:05	0.056	0.058	0.061	0.060
283	8/28/2019 12:28:05	0.057	0.059	0.062	0.060
284	8/28/2019 12:29:05	0.058	0.059	0.062	0.058
285	8/28/2019 12:30:05	0.058	0.059	0.063	0.059

286	8/28/2019 12:31:05	0.056	0.059	0.062	0.060
287	8/28/2019 12:32:05	0.059	0.060	0.063	0.061
288	8/28/2019 12:33:05	0.060	0.063	0.067	0.064
289	8/28/2019 12:34:05	0.063	0.066	0.074	0.070
290	8/28/2019 12:35:05	0.068	0.074	0.091	0.069
291	8/28/2019 12:36:05	0.064	0.067	0.069	0.067
292	8/28/2019 12:37:05	0.064	0.067	0.071	0.071
293	8/28/2019 12:38:05	0.065	0.070	0.073	0.068
294	8/28/2019 12:39:05	0.065	0.068	0.070	0.069
295	8/28/2019 12:40:05	0.066	0.068	0.070	0.070
296	8/28/2019 12:41:05	0.068	0.069	0.071	0.071
297	8/28/2019 12:42:05	0.069	0.070	0.072	0.071
298	8/28/2019 12:43:05	0.064	0.067	0.070	0.068
299	8/28/2019 12:44:05	0.066	0.067	0.069	0.069
300	8/28/2019 12:45:05	0.068	0.069	0.072	0.070
301	8/28/2019 12:46:05	0.068	0.069	0.071	0.070
302	8/28/2019 12:47:05	0.067	0.069	0.072	0.068
303	8/28/2019 12:48:05	0.066	0.067	0.069	0.067
304	8/28/2019 12:49:05	0.063	0.065	0.068	0.066
305	8/28/2019 12:50:05	0.067	0.071	0.083	0.069
306	8/28/2019 12:51:05	0.068	0.069	0.071	0.069
307	8/28/2019 12:52:05	0.069	0.070	0.072	0.069
308	8/28/2019 12:53:05	0.068	0.070	0.073	0.071
309	8/28/2019 12:54:05	0.066	0.068	0.071	0.070

310	8/28/2019 12:55:05	0.068	0.070	0.072	0.071
311	8/28/2019 12:56:05	0.067	0.069	0.072	0.069
312	8/28/2019 12:57:05	0.065	0.070	0.074	0.073
313	8/28/2019 12:58:05	0.071	0.073	0.076	0.075
314	8/28/2019 12:59:05	0.071	0.072	0.075	0.073
315	8/28/2019 13:00:05	0.071	0.074	0.077	0.074
316	8/28/2019 13:01:05	0.071	0.073	0.076	0.075
317	8/28/2019 13:02:05	0.070	0.073	0.078	0.073
318	8/28/2019 13:03:05	0.070	0.073	0.076	0.071
319	8/28/2019 13:04:05	0.070	0.073	0.077	0.075
320	8/28/2019 13:05:05	0.069	0.073	0.078	0.071
321	8/28/2019 13:06:05	0.070	0.073	0.078	0.075
322	8/28/2019 13:07:05	0.070	0.072	0.077	0.072
323	8/28/2019 13:08:05	0.070	0.073	0.077	0.071
324	8/28/2019 13:09:05	0.070	0.074	0.078	0.073
325	8/28/2019 13:10:05	0.070	0.074	0.079	0.074
326	8/28/2019 13:11:05	0.073	0.076	0.081	0.081
327	8/28/2019 13:12:05	0.073	0.077	0.082	0.080
328	8/28/2019 13:13:05	0.073	0.077	0.083	0.078
329	8/28/2019 13:14:05	0.073	0.078	0.083	0.078
330	8/28/2019 13:15:05	0.076	0.080	0.085	0.085
331	8/28/2019 13:16:05	0.074	0.079	0.084	0.083
332	8/28/2019 13:17:05	0.075	0.079	0.084	0.084
333	8/28/2019 13:18:05	0.075	0.079	0.085	0.077

334	8/28/2019 13:19:05	0.077	0.080	0.085	0.085
335	8/28/2019 13:20:05	0.077	0.081	0.087	0.078
336	8/28/2019 13:21:05	0.077	0.081	0.088	0.079
337	8/28/2019 13:22:05	0.077	0.081	0.086	0.079
338	8/28/2019 13:23:05	0.077	0.081	0.087	0.079
339	8/28/2019 13:24:05	0.078	0.081	0.086	0.079
340	8/28/2019 13:25:05	0.076	0.080	0.086	0.085
341	8/28/2019 13:26:05	0.078	0.081	0.086	0.084
342	8/28/2019 13:27:05	0.079	0.082	0.087	0.079
343	8/28/2019 13:28:05	0.078	0.082	0.088	0.079
344	8/28/2019 13:29:05	0.078	0.082	0.088	0.080
345	8/28/2019 13:30:05	0.078	0.082	0.087	0.079
346	8/28/2019 13:31:05	0.075	0.080	0.086	0.086
347	8/28/2019 13:32:05	0.077	0.081	0.087	0.079
348	8/28/2019 13:33:05	0.077	0.081	0.086	0.082
349	8/28/2019 13:34:05	0.077	0.081	0.087	0.080
350	8/28/2019 13:35:05	0.079	0.083	0.089	0.088
351	8/28/2019 13:36:05	0.081	0.085	0.090	0.083
352	8/28/2019 13:37:05	0.080	0.085	0.090	0.086
353	8/28/2019 13:38:05	0.081	0.084	0.089	0.082
354	8/28/2019 13:39:05	0.082	0.085	0.092	0.092
355	8/28/2019 13:40:05	0.082	0.087	0.093	0.085
356	8/28/2019 13:41:05	0.083	0.085	0.089	0.089
357	8/28/2019 13:42:05	0.085	0.088	0.094	0.086

358	8/28/2019 13:43:05	0.084	0.087	0.092	0.090
359	8/28/2019 13:44:05	0.083	0.086	0.090	0.088
360	8/28/2019 13:45:05	0.084	0.088	0.093	0.087
361	8/28/2019 13:46:05	0.085	0.089	0.095	0.086
362	8/28/2019 13:47:05	0.087	0.091	0.098	0.089
363	8/28/2019 13:48:05	0.085	0.089	0.094	0.088
364	8/28/2019 13:49:05	0.088	0.092	0.102	0.093
365	8/28/2019 13:50:05	0.090	0.093	0.099	0.096
366	8/28/2019 13:51:05	0.087	0.092	0.100	0.093
367	8/28/2019 13:52:05	0.086	0.091	0.097	0.092
368	8/28/2019 13:53:05	0.089	0.093	0.098	0.089
369	8/28/2019 13:54:05	0.088	0.095	0.151	0.133
370	8/28/2019 13:55:05	0.086	0.097	0.128	0.100
371	8/28/2019 13:56:05	0.086	0.089	0.098	0.094
372	8/28/2019 13:57:05	0.088	0.091	0.097	0.096
373	8/28/2019 13:58:05	0.088	0.091	0.098	0.089
374	8/28/2019 13:59:05	0.089	0.092	0.098	0.095
375	8/28/2019 14:00:05	0.087	0.091	0.097	0.087
376	8/28/2019 14:01:05	0.085	0.089	0.094	0.093
377	8/28/2019 14:02:05	0.085	0.089	0.093	0.092
378	8/28/2019 14:03:05	0.084	0.089	0.096	0.094
379	8/28/2019 14:04:05	0.087	0.091	0.095	0.094
380	8/28/2019 14:05:05	0.086	0.090	0.095	0.094
381	8/28/2019 14:06:05	0.086	0.090	0.095	0.089

382	8/28/2019 14:07:05	0.086	0.090	0.095	0.091
383	8/28/2019 14:08:05	0.087	0.091	0.095	0.088
384	8/28/2019 14:09:05	0.086	0.091	0.096	0.096
385	8/28/2019 14:10:05	0.089	0.093	0.098	0.094
386	8/28/2019 14:11:05	0.091	0.094	0.099	0.094
387	8/28/2019 14:12:05	0.091	0.096	0.101	0.091
388	8/28/2019 14:13:05	0.090	0.093	0.098	0.091
389	8/28/2019 14:14:05	0.089	0.095	0.120	0.120
390	8/28/2019 14:15:05	0.087	0.096	0.138	0.087
391	8/28/2019 14:16:05	0.085	0.089	0.095	0.087
392	8/28/2019 14:17:05	0.086	0.093	0.104	0.097
393	8/28/2019 14:18:05	0.088	0.099	0.135	0.122
394	8/28/2019 14:19:05	0.081	0.091	0.110	0.084
395	8/28/2019 14:20:05	0.081	0.085	0.091	0.085
396	8/28/2019 14:21:05	0.083	0.091	0.100	0.094
397	8/28/2019 14:22:05	0.086	0.096	0.158	0.095
398	8/28/2019 14:23:05	0.084	0.090	0.099	0.091
399	8/28/2019 14:24:05	0.084	0.088	0.094	0.088
400	8/28/2019 14:25:05	0.086	0.089	0.095	0.088
401	8/28/2019 14:26:05	0.087	0.092	0.099	0.091
402	8/28/2019 14:27:05	0.088	0.092	0.098	0.093
403	8/28/2019 14:28:05	0.087	0.092	0.098	0.097
404	8/28/2019 14:29:05	0.086	0.092	0.098	0.086
405	8/28/2019 14:30:05	0.087	0.090	0.095	0.091

406	8/28/2019 14:31:05	0.088	0.092	0.097	0.088
407	8/28/2019 14:32:05	0.088	0.091	0.096	0.090
408	8/28/2019 14:33:05	0.087	0.092	0.097	0.091
409	8/28/2019 14:34:05	0.087	0.091	0.098	0.093
410	8/28/2019 14:35:05	0.089	0.092	0.097	0.095
411	8/28/2019 14:36:05	0.087	0.090	0.096	0.088
412	8/28/2019 14:37:05	0.088	0.091	0.097	0.090
413	8/28/2019 14:38:05	0.088	0.091	0.098	0.095
414	8/28/2019 14:39:05	0.087	0.090	0.096	0.092
415	8/28/2019 14:40:05	0.088	0.092	0.098	0.093
416	8/28/2019 14:41:05	0.087	0.094	0.129	0.118
417	8/28/2019 14:42:05	0.087	0.094	0.113	0.094
418	8/28/2019 14:43:05	0.083	0.086	0.093	0.084
419	8/28/2019 14:44:05	0.084	0.087	0.091	0.091
420	8/28/2019 14:45:05	0.089	0.091	0.095	0.094
421	8/28/2019 14:46:05	0.090	0.093	0.096	0.090
422	8/28/2019 14:47:05	0.085	0.087	0.091	0.087
423	8/28/2019 14:48:05	0.084	0.087	0.092	0.086
424	8/28/2019 14:49:05	0.083	0.086	0.091	0.085
425	8/28/2019 14:50:05	0.083	0.087	0.092	0.086
426	8/28/2019 14:51:05	0.084	0.088	0.093	0.084
427	8/28/2019 14:52:05	0.082	0.086	0.092	0.082
428	8/28/2019 14:53:05	0.079	0.083	0.089	0.079
429	8/28/2019 14:54:05	0.079	0.083	0.088	0.086

430	8/28/2019 14:55:05	0.078	0.081	0.086	0.081
431	8/28/2019 14:56:05	0.077	0.082	0.087	0.087
432	8/28/2019 14:57:05	0.075	0.080	0.087	0.078
433	8/28/2019 14:58:05	0.077	0.081	0.087	0.082
434	8/28/2019 14:59:05	0.078	0.082	0.087	0.086
435	8/28/2019 15:00:05	0.079	0.083	0.088	0.081
436	8/28/2019 15:01:05	0.080	0.084	0.088	0.088
437	8/28/2019 15:02:05	0.080	0.083	0.087	0.081
438	8/28/2019 15:03:05	0.077	0.079	0.083	0.083
439	8/28/2019 15:04:05	0.076	0.079	0.084	0.077
440	8/28/2019 15:05:05	0.074	0.077	0.082	0.074
441	8/28/2019 15:06:05	0.070	0.074	0.080	0.070
442	8/28/2019 15:07:05	0.069	0.072	0.076	0.075
443	8/28/2019 15:08:05	0.068	0.072	0.076	0.073
444	8/28/2019 15:09:05	0.071	0.073	0.077	0.071
445	8/28/2019 15:10:05	0.069	0.072	0.077	0.070
446	8/28/2019 15:11:05	0.068	0.072	0.076	0.070
447	8/28/2019 15:12:05	0.066	0.069	0.073	0.072
448	8/28/2019 15:13:05	0.068	0.072	0.075	0.075
449	8/28/2019 15:14:05	0.070	0.072	0.075	0.073
450	8/28/2019 15:15:05	0.068	0.072	0.076	0.074
451	8/28/2019 15:16:05	0.068	0.071	0.074	0.070
452	8/28/2019 15:17:05	0.068	0.071	0.074	0.071
453	8/28/2019 15:18:05	0.068	0.070	0.073	0.068

454	8/28/2019 15:19:05	0.066	0.068	0.072	0.066
455	8/28/2019 15:20:05	0.063	0.066	0.070	0.066
456	8/28/2019 15:21:05	0.064	0.066	0.069	0.066
457	8/28/2019 15:22:05	0.063	0.066	0.070	0.070
458	8/28/2019 15:23:05	0.064	0.068	0.071	0.069
459	8/28/2019 15:24:05	0.064	0.067	0.071	0.068
460	8/28/2019 15:25:05	0.065	0.068	0.071	0.065
461	8/28/2019 15:26:05	0.065	0.066	0.069	0.068
462	8/28/2019 15:27:05	0.066	0.068	0.071	0.070
463	8/28/2019 15:28:05	0.062	0.066	0.069	0.066
464	8/28/2019 15:29:05	0.064	0.066	0.069	0.068
465	8/28/2019 15:30:05	0.065	0.066	0.068	0.067
466	8/28/2019 15:31:05	0.065	0.066	0.069	0.068
467	8/28/2019 15:32:05	0.064	0.066	0.069	0.067
468	8/28/2019 15:33:05	0.064	0.066	0.069	0.064
469	8/28/2019 15:34:05	0.064	0.065	0.067	0.065
470	8/28/2019 15:35:05	0.062	0.063	0.066	0.064
471	8/28/2019 15:36:05	0.062	0.064	0.066	0.065
472	8/28/2019 15:37:05	0.062	0.063	0.066	0.062
473	8/28/2019 15:38:05	0.059	0.061	0.063	0.061
474	8/28/2019 15:39:05	0.059	0.061	0.062	0.061
475	8/28/2019 15:40:05	0.059	0.061	0.064	0.061
476	8/28/2019 15:41:05	0.060	0.062	0.063	0.061
477	8/28/2019 15:42:05	0.059	0.060	0.062	0.062

478	8/28/2019 15:43:05	0.059	0.060	0.062	0.061
479	8/28/2019 15:44:05	0.059	0.060	0.063	0.060
480	8/28/2019 15:45:05	0.058	0.059	0.061	0.059
481	8/28/2019 15:46:05	0.057	0.058	0.060	0.058
482	8/28/2019 15:47:05	0.057	0.059	0.062	0.060
483	8/28/2019 15:48:05	0.056	0.058	0.062	0.061
484	8/28/2019 15:49:05	0.058	0.060	0.062	0.061
485	8/28/2019 15:50:05	0.057	0.059	0.062	0.057
486	8/28/2019 15:51:05	0.057	0.060	0.062	0.061
487	8/28/2019 15:52:05	0.057	0.060	0.062	0.061
488	8/28/2019 15:53:05	0.060	0.060	0.062	0.061
489	8/28/2019 15:54:05	0.060	0.062	0.065	0.063
490	8/28/2019 15:55:05	0.061	0.062	0.065	0.063
491	8/28/2019 15:56:05	0.061	0.062	0.066	0.062
492	8/28/2019 15:57:05	0.059	0.062	0.065	0.062
493	8/28/2019 15:58:05	0.059	0.061	0.064	0.062
494	8/28/2019 15:59:05	0.060	0.061	0.064	0.062
495	8/28/2019 16:00:05	0.059	0.061	0.064	0.061
496	8/28/2019 16:01:05	0.059	0.061	0.065	0.064
497	8/28/2019 16:02:05	0.059	0.062	0.065	0.062
498	8/28/2019 16:03:05	0.058	0.060	0.063	0.059
499	8/28/2019 16:04:05	0.059	0.061	0.064	0.064
500	8/28/2019 16:05:05	0.060	0.063	0.065	0.065
501	8/28/2019 16:06:05	0.060	0.063	0.067	0.063

502	8/28/2019 16:07:05	0.059	0.061	0.064	0.059
503	8/28/2019 16:08:05	0.057	0.059	0.062	0.057
504	8/28/2019 16:09:05	0.056	0.057	0.060	0.059
505	8/28/2019 16:10:05	0.058	0.060	0.063	0.060
506	8/28/2019 16:11:05	0.059	0.060	0.063	0.063
507	8/28/2019 16:12:05	0.060	0.062	0.064	0.062
508	8/28/2019 16:13:05	0.059	0.061	0.064	0.063
509	8/28/2019 16:14:05	0.060	0.062	0.065	0.060
510	8/28/2019 16:15:05	0.059	0.062	0.065	0.060
511	8/28/2019 16:16:05	0.060	0.061	0.063	0.061
512	8/28/2019 16:17:05	0.060	0.061	0.064	0.061
513	8/28/2019 16:18:05	0.058	0.060	0.063	0.060
514	8/28/2019 16:19:05	0.060	0.061	0.064	0.063
515	8/28/2019 16:20:05	0.060	0.061	0.064	0.061
516	8/28/2019 16:21:05	0.060	0.062	0.064	0.063
517	8/28/2019 16:22:05	0.060	0.062	0.065	0.061
518	8/28/2019 16:23:05	0.059	0.061	0.063	0.063
519	8/28/2019 16:24:05	0.059	0.062	0.065	0.063
520	8/28/2019 16:25:05	0.060	0.061	0.064	0.064
521	8/28/2019 16:26:05	0.059	0.061	0.064	0.060
522	8/28/2019 16:27:05	0.057	0.058	0.060	0.058
523	8/28/2019 16:28:05	0.054	0.058	0.063	0.054
524	8/28/2019 16:29:05	0.053	0.056	0.058	0.055
525	8/28/2019 16:30:05	0.054	0.056	0.058	0.056

526	8/28/2019 16:31:05	0.055	0.057	0.060	0.058
527	8/28/2019 16:32:05	0.054	0.057	0.061	0.056
528	8/28/2019 16:33:05	0.055	0.056	0.058	0.057
529	8/28/2019 16:34:05	0.057	0.058	0.061	0.060
530	8/28/2019 16:35:05	0.057	0.059	0.062	0.060
531	8/28/2019 16:36:05	0.058	0.060	0.062	0.058
532	8/28/2019 16:37:05	0.055	0.057	0.060	0.057
533	8/28/2019 16:38:05	0.055	0.056	0.058	0.058
534	8/28/2019 16:39:05	0.054	0.057	0.061	0.057
535	8/28/2019 16:40:05	0.056	0.058	0.060	0.060
536	8/28/2019 16:41:05	0.057	0.058	0.060	0.060
537	8/28/2019 16:42:05	0.055	0.058	0.062	0.056
538	8/28/2019 16:43:05	0.055	0.057	0.059	0.059
539	8/28/2019 16:44:05	0.054	0.055	0.058	0.054
540	8/28/2019 16:45:05	0.053	0.054	0.057	0.056
541	8/28/2019 16:46:05	0.054	0.055	0.057	0.054
542	8/28/2019 16:47:05	0.051	0.052	0.054	0.052
543	8/28/2019 16:48:05	0.052	0.054	0.056	0.054
544	8/28/2019 16:49:05	0.051	0.052	0.056	0.051
545	8/28/2019 16:50:05	0.050	0.052	0.054	0.052
546	8/28/2019 16:51:05	0.050	0.051	0.053	0.052
547	8/28/2019 16:52:05	0.050	0.051	0.053	0.050
548	8/28/2019 16:53:05	0.049	0.050	0.053	0.050
549	8/28/2019 16:54:05	0.048	0.050	0.053	0.048

550	8/28/2019 16:55:05	0.049	0.052	0.053	0.052
551	8/28/2019 16:56:05	0.050	0.052	0.055	0.053
552	8/28/2019 16:57:05	0.050	0.052	0.054	0.054
553	8/28/2019 16:58:05	0.050	0.052	0.054	0.050
554	8/28/2019 16:59:05	0.050	0.051	0.053	0.050
555	8/28/2019 17:00:05	0.050	0.051	0.054	0.051
556	8/28/2019 17:01:05	0.049	0.051	0.054	0.052
557	8/28/2019 17:02:05	0.051	0.053	0.057	0.055
558	8/28/2019 17:03:05	0.050	0.053	0.058	0.052
Peak	402653.184	352321.536	385875.968	452984.832	
Min	0.000	0.000	0.000	0.000	
Average	1413.195	1262.864	1383.135	2285.132	

****

TWA/STEL

Index	Date/Time	VOC(ppm) (TWA)	VOC(ppm) (STEL)
001	8/28/2019 07:46:05	0.000	---
002	8/28/2019 07:47:05	0.000	---
003	8/28/2019 07:48:05	0.000	---
004	8/28/2019 07:49:05	0.000	---
005	8/28/2019 07:50:05	0.000	---
006	8/28/2019 07:51:05	0.000	---
007	8/28/2019 07:52:05	0.000	---

008	8/28/2019 07:53:05	0.000	---
009	8/28/2019 07:54:05	0.000	---
010	8/28/2019 07:55:05	0.000	---
011	8/28/2019 07:56:05	0.000	---
012	8/28/2019 07:57:05	0.000	---
013	8/28/2019 07:58:05	0.000	---
014	8/28/2019 07:59:05	0.000	---
015	8/28/2019 08:00:05	0.000	0.000
016	8/28/2019 08:01:05	0.000	0.000
017	8/28/2019 08:02:05	0.000	0.000
018	8/28/2019 08:03:05	0.000	0.000
019	8/28/2019 08:04:05	0.000	0.000
020	8/28/2019 08:05:05	0.000	0.000
021	8/28/2019 08:06:05	0.000	0.000
022	8/28/2019 08:07:05	0.000	0.000
023	8/28/2019 08:08:05	0.000	0.000
024	8/28/2019 08:09:05	0.000	0.000
025	8/28/2019 08:10:05	0.000	0.000
026	8/28/2019 08:11:05	0.000	0.000
027	8/28/2019 08:12:05	0.000	0.000
028	8/28/2019 08:13:05	0.000	0.000
029	8/28/2019 08:14:05	0.000	0.000
030	8/28/2019 08:15:05	0.000	0.000
031	8/28/2019 08:16:05	0.000	0.000

032	8/28/2019 08:17:05	0.000	0.000	
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034	8/28/2019 08:19:05	0.000	0.000	
035	8/28/2019 08:20:05	0.000	0.000	
036	8/28/2019 08:21:05	0.000	0.000	
037	8/28/2019 08:22:05	0.000	0.000	
038	8/28/2019 08:23:05	0.000	0.000	
039	8/28/2019 08:24:05	0.000	0.000	
040	8/28/2019 08:25:05	0.000	0.000	
041	8/28/2019 08:26:05	0.000	0.000	
042	8/28/2019 08:27:05	0.000	0.000	
043	8/28/2019 08:28:05	0.000	0.001	
044	8/28/2019 08:29:05	0.000	0.001	
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046	8/28/2019 08:31:05	1712.674		54805.574
047	8/28/2019 08:32:05	2656.393		85004.563
048	8/28/2019 08:33:05	2656.393		85004.564
049	8/28/2019 08:34:05	2656.393		85004.566
050	8/28/2019 08:35:05	2656.393		85004.567
051	8/28/2019 08:36:05	2656.393		85004.569
052	8/28/2019 08:37:05	2656.393		85004.571
053	8/28/2019 08:38:05	2656.393		85004.573
054	8/28/2019 08:39:05	2656.393		85004.575
055	8/28/2019 08:40:05	2656.393		85004.578

056	8/28/2019 08:41:05	2656.393	85004.580
057	8/28/2019 08:42:05	2656.393	85004.583
058	8/28/2019 08:43:05	2656.393	85004.586
059	8/28/2019 08:44:05	2656.393	85004.589
060	8/28/2019 08:45:05	2656.394	85004.591
061	8/28/2019 08:46:05	2656.394	58161.049
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063	8/28/2019 08:48:05	2656.394	0.041
064	8/28/2019 08:49:05	2656.394	0.043
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078	8/28/2019 09:03:05	2656.396	0.068
079	8/28/2019 09:04:05	2656.396	0.069

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084	8/28/2019 09:09:05	2656.397	0.074
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090	8/28/2019 09:15:05	2656.398	0.080
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092	8/28/2019 09:17:05	2656.398	0.082
093	8/28/2019 09:18:05	2656.398	0.083
094	8/28/2019 09:19:05	2656.398	0.084
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096	8/28/2019 09:21:05	2656.399	0.085
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099	8/28/2019 09:24:05	2656.399	0.087
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111	8/28/2019 09:36:05	2656.402	0.093
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311	8/28/2019 12:56:05	2656.428	0.074
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322	8/28/2019 13:07:05	2656.430	0.077
323	8/28/2019 13:08:05	2656.430	0.077
324	8/28/2019 13:09:05	2656.430	0.077
325	8/28/2019 13:10:05	2656.430	0.078
326	8/28/2019 13:11:05	2656.430	0.078
327	8/28/2019 13:12:05	2656.430	0.079
328	8/28/2019 13:13:05	2656.431	0.079
329	8/28/2019 13:14:05	2656.431	0.080
330	8/28/2019 13:15:05	2656.431	0.080
331	8/28/2019 13:16:05	2656.431	0.081
332	8/28/2019 13:17:05	2656.431	0.082
333	8/28/2019 13:18:05	2656.431	0.082
334	8/28/2019 13:19:05	2656.432	0.083
335	8/28/2019 13:20:05	2656.432	0.083
336	8/28/2019 13:21:05	2656.432	0.084
337	8/28/2019 13:22:05	2656.432	0.084
338	8/28/2019 13:23:05	2656.432	0.084
339	8/28/2019 13:24:05	2656.432	0.085
340	8/28/2019 13:25:05	2656.433	0.086
341	8/28/2019 13:26:05	2656.433	0.086
342	8/28/2019 13:27:05	2656.433	0.086
343	8/28/2019 13:28:05	2656.433	0.086

344	8/28/2019 13:29:05	2656.433	0.086
345	8/28/2019 13:30:05	2656.434	0.086
346	8/28/2019 13:31:05	2656.434	0.086
347	8/28/2019 13:32:05	2656.434	0.086
348	8/28/2019 13:33:05	2656.434	0.086
349	8/28/2019 13:34:05	2656.434	0.086
350	8/28/2019 13:35:05	2656.434	0.086
351	8/28/2019 13:36:05	2656.435	0.087
352	8/28/2019 13:37:05	2656.435	0.087
353	8/28/2019 13:38:05	2656.435	0.087
354	8/28/2019 13:39:05	2656.435	0.088
355	8/28/2019 13:40:05	2656.435	0.089
356	8/28/2019 13:41:05	2656.435	0.089
357	8/28/2019 13:42:05	2656.436	0.089
358	8/28/2019 13:43:05	2656.436	0.090
359	8/28/2019 13:44:05	2656.436	0.090
360	8/28/2019 13:45:05	2656.436	0.091
361	8/28/2019 13:46:05	2656.436	0.091
362	8/28/2019 13:47:05	2656.437	0.091
363	8/28/2019 13:48:05	2656.437	0.092
364	8/28/2019 13:49:05	2656.437	0.093
365	8/28/2019 13:50:05	2656.437	0.094
366	8/28/2019 13:51:05	2656.437	0.094
367	8/28/2019 13:52:05	2656.438	0.095

368	8/28/2019 13:53:05	2656.438	0.095
369	8/28/2019 13:54:05	2656.438	0.098
370	8/28/2019 13:55:05	2656.438	0.099
371	8/28/2019 13:56:05	2656.438	0.100
372	8/28/2019 13:57:05	2656.439	0.100
373	8/28/2019 13:58:05	2656.439	0.100
374	8/28/2019 13:59:05	2656.439	0.101
375	8/28/2019 14:00:05	2656.439	0.100
376	8/28/2019 14:01:05	2656.439	0.101
377	8/28/2019 14:02:05	2656.440	0.101
378	8/28/2019 14:03:05	2656.440	0.102
379	8/28/2019 14:04:05	2656.440	0.102
380	8/28/2019 14:05:05	2656.440	0.102
381	8/28/2019 14:06:05	2656.440	0.102
382	8/28/2019 14:07:05	2656.440	0.101
383	8/28/2019 14:08:05	2656.441	0.101
384	8/28/2019 14:09:05	2656.441	0.102
385	8/28/2019 14:10:05	2656.441	0.099
386	8/28/2019 14:11:05	2656.441	0.099
387	8/28/2019 14:12:05	2656.441	0.098
388	8/28/2019 14:13:05	2656.442	0.098
389	8/28/2019 14:14:05	2656.442	0.100
390	8/28/2019 14:15:05	2656.442	0.100
391	8/28/2019 14:16:05	2656.442	0.100

392	8/28/2019 14:17:05	2656.442	0.100
393	8/28/2019 14:18:05	2656.443	0.102
394	8/28/2019 14:19:05	2656.443	0.101
395	8/28/2019 14:20:05	2656.443	0.101
396	8/28/2019 14:21:05	2656.443	0.101
397	8/28/2019 14:22:05	2656.443	0.101
398	8/28/2019 14:23:05	2656.444	0.101
399	8/28/2019 14:24:05	2656.444	0.101
400	8/28/2019 14:25:05	2656.444	0.101
401	8/28/2019 14:26:05	2656.444	0.100
402	8/28/2019 14:27:05	2656.444	0.100
403	8/28/2019 14:28:05	2656.445	0.101
404	8/28/2019 14:29:05	2656.445	0.100
405	8/28/2019 14:30:05	2656.445	0.098
406	8/28/2019 14:31:05	2656.445	0.098
407	8/28/2019 14:32:05	2656.445	0.099
408	8/28/2019 14:33:05	2656.446	0.098
409	8/28/2019 14:34:05	2656.446	0.096
410	8/28/2019 14:35:05	2656.446	0.097
411	8/28/2019 14:36:05	2656.446	0.097
412	8/28/2019 14:37:05	2656.446	0.097
413	8/28/2019 14:38:05	2656.446	0.097
414	8/28/2019 14:39:05	2656.447	0.097
415	8/28/2019 14:40:05	2656.447	0.097

416	8/28/2019 14:41:05	2656.447	0.099
417	8/28/2019 14:42:05	2656.447	0.100
418	8/28/2019 14:43:05	2656.447	0.099
419	8/28/2019 14:44:05	2656.448	0.099
420	8/28/2019 14:45:05	2656.448	0.099
421	8/28/2019 14:46:05	2656.448	0.099
422	8/28/2019 14:47:05	2656.448	0.099
423	8/28/2019 14:48:05	2656.448	0.099
424	8/28/2019 14:49:05	2656.449	0.098
425	8/28/2019 14:50:05	2656.449	0.098
426	8/28/2019 14:51:05	2656.449	0.097
427	8/28/2019 14:52:05	2656.449	0.097
428	8/28/2019 14:53:05	2656.449	0.096
429	8/28/2019 14:54:05	2656.449	0.095
430	8/28/2019 14:55:05	2656.450	0.095
431	8/28/2019 14:56:05	2656.450	0.094
432	8/28/2019 14:57:05	2656.450	0.092
433	8/28/2019 14:58:05	2656.450	0.091
434	8/28/2019 14:59:05	2656.450	0.091
435	8/28/2019 15:00:05	2656.450	0.090
436	8/28/2019 15:01:05	2656.451	0.090
437	8/28/2019 15:02:05	2656.451	0.089
438	8/28/2019 15:03:05	2656.451	0.089
439	8/28/2019 15:04:05	2656.451	0.088

440	8/28/2019 15:05:05	2656.451	0.088
441	8/28/2019 15:06:05	2656.451	0.087
442	8/28/2019 15:07:05	2656.452	0.086
443	8/28/2019 15:08:05	2656.452	0.085
444	8/28/2019 15:09:05	2656.452	0.085
445	8/28/2019 15:10:05	2656.452	0.084
446	8/28/2019 15:11:05	2656.452	0.083
447	8/28/2019 15:12:05	2656.452	0.082
448	8/28/2019 15:13:05	2656.453	0.082
449	8/28/2019 15:14:05	2656.453	0.081
450	8/28/2019 15:15:05	2656.453	0.080
451	8/28/2019 15:16:05	2656.453	0.080
452	8/28/2019 15:17:05	2656.453	0.079
453	8/28/2019 15:18:05	2656.453	0.078
454	8/28/2019 15:19:05	2656.453	0.077
455	8/28/2019 15:20:05	2656.454	0.076
456	8/28/2019 15:21:05	2656.454	0.075
457	8/28/2019 15:22:05	2656.454	0.075
458	8/28/2019 15:23:05	2656.454	0.075
459	8/28/2019 15:24:05	2656.454	0.075
460	8/28/2019 15:25:05	2656.454	0.074
461	8/28/2019 15:26:05	2656.454	0.074
462	8/28/2019 15:27:05	2656.455	0.074
463	8/28/2019 15:28:05	2656.455	0.074

464	8/28/2019 15:29:05	2656.455	0.073
465	8/28/2019 15:30:05	2656.455	0.073
466	8/28/2019 15:31:05	2656.455	0.072
467	8/28/2019 15:32:05	2656.455	0.072
468	8/28/2019 15:33:05	2656.455	0.072
469	8/28/2019 15:34:05	2656.456	0.072
470	8/28/2019 15:35:05	2656.456	0.071
471	8/28/2019 15:36:05	2656.456	0.071
472	8/28/2019 15:37:05	2656.456	0.071
473	8/28/2019 15:38:05	2656.456	0.070
474	8/28/2019 15:39:05	2656.456	0.070
475	8/28/2019 15:40:05	2656.456	0.069
476	8/28/2019 15:41:05	2656.456	0.069
477	8/28/2019 15:42:05	2656.457	0.069
478	8/28/2019 15:43:05	2656.457	0.068
479	8/28/2019 15:44:05	2656.457	0.068
480	8/28/2019 15:45:05	2656.457	0.067
481	8/28/2019 15:46:05	2656.457	0.067
482	8/28/2019 15:47:05	2656.457	0.066
483	8/28/2019 15:48:05	2656.457	0.066
484	8/28/2019 15:49:05	2656.457	0.065
485	8/28/2019 15:50:05	2656.458	0.065
486	8/28/2019 15:51:05	2656.458	0.065
487	8/28/2019 15:52:05	2656.458	0.064

488	8/28/2019 15:53:05	2656.458	0.064
489	8/28/2019 15:54:05	2656.458	0.065
490	8/28/2019 15:55:05	2656.458	0.065
491	8/28/2019 15:56:05	2656.458	0.065
492	8/28/2019 15:57:05	2656.458	0.065
493	8/28/2019 15:58:05	2656.459	0.065
494	8/28/2019 15:59:05	2656.459	0.065
495	8/28/2019 16:00:05	2656.459	0.065
496	8/28/2019 16:01:05	2656.459	0.065
497	8/28/2019 16:02:05	2656.459	0.066
498	8/28/2019 16:03:05	2656.459	0.065
499	8/28/2019 16:04:05	2656.459	0.066
500	8/28/2019 16:05:05	2656.459	0.066
501	8/28/2019 16:06:05	2656.460	0.066
502	8/28/2019 16:07:05	2656.460	0.066
503	8/28/2019 16:08:05	2656.460	0.066
504	8/28/2019 16:09:05	2656.460	0.066
505	8/28/2019 16:10:05	2656.460	0.066
506	8/28/2019 16:11:05	2656.460	0.066
507	8/28/2019 16:12:05	2656.460	0.066
508	8/28/2019 16:13:05	2656.460	0.066
509	8/28/2019 16:14:05	2656.461	0.066
510	8/28/2019 16:15:05	2656.461	0.065
511	8/28/2019 16:16:05	2656.461	0.065

512	8/28/2019 16:17:05	2656.461	0.065
513	8/28/2019 16:18:05	2656.461	0.065
514	8/28/2019 16:19:05	2656.461	0.065
515	8/28/2019 16:20:05	2656.461	0.065
516	8/28/2019 16:21:05	2656.462	0.065
517	8/28/2019 16:22:05	2656.462	0.065
518	8/28/2019 16:23:05	2656.462	0.065
519	8/28/2019 16:24:05	2656.462	0.066
520	8/28/2019 16:25:05	2656.462	0.066
521	8/28/2019 16:26:05	2656.462	0.066
522	8/28/2019 16:27:05	2656.462	0.066
523	8/28/2019 16:28:05	2656.462	0.065
524	8/28/2019 16:29:05	2656.463	0.064
525	8/28/2019 16:30:05	2656.463	0.064
526	8/28/2019 16:31:05	2656.463	0.064
527	8/28/2019 16:32:05	2656.463	0.064
528	8/28/2019 16:33:05	2656.463	0.063
529	8/28/2019 16:34:05	2656.463	0.063
530	8/28/2019 16:35:05	2656.463	0.063
531	8/28/2019 16:36:05	2656.463	0.063
532	8/28/2019 16:37:05	2656.463	0.063
533	8/28/2019 16:38:05	2656.464	0.062
534	8/28/2019 16:39:05	2656.464	0.062
535	8/28/2019 16:40:05	2656.464	0.062

536	8/28/2019 16:41:05	2656.464	0.062
537	8/28/2019 16:42:05	2656.464	0.061
538	8/28/2019 16:43:05	2656.464	0.061
539	8/28/2019 16:44:05	2656.464	0.061
540	8/28/2019 16:45:05	2656.464	0.061
541	8/28/2019 16:46:05	2656.465	0.061
542	8/28/2019 16:47:05	2656.465	0.061
543	8/28/2019 16:48:05	2656.465	0.061
544	8/28/2019 16:49:05	2656.465	0.060
545	8/28/2019 16:50:05	2656.465	0.060
546	8/28/2019 16:51:05	2656.465	0.059
547	8/28/2019 16:52:05	2656.465	0.059
548	8/28/2019 16:53:05	2656.465	0.058
549	8/28/2019 16:54:05	2656.465	0.058
550	8/28/2019 16:55:05	2656.466	0.057
551	8/28/2019 16:56:05	2656.466	0.057
552	8/28/2019 16:57:05	2656.466	0.056
553	8/28/2019 16:58:05	2656.466	0.056
554	8/28/2019 16:59:05	2656.466	0.055
555	8/28/2019 17:00:05	2656.466	0.055
556	8/28/2019 17:01:05	2656.466	0.055
557	8/28/2019 17:02:05	2656.466	0.055
558	8/28/2019 17:03:05	2656.466	0.055

Test 013

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	08/28/2019
Instrument S/N	8533151804	Start Time	10:16:53
		Stop Date	08/28/2019
		Stop Time	16:46:53
		Total Time	0:06:30:00
		Logging Interval	900 seconds

Test Data

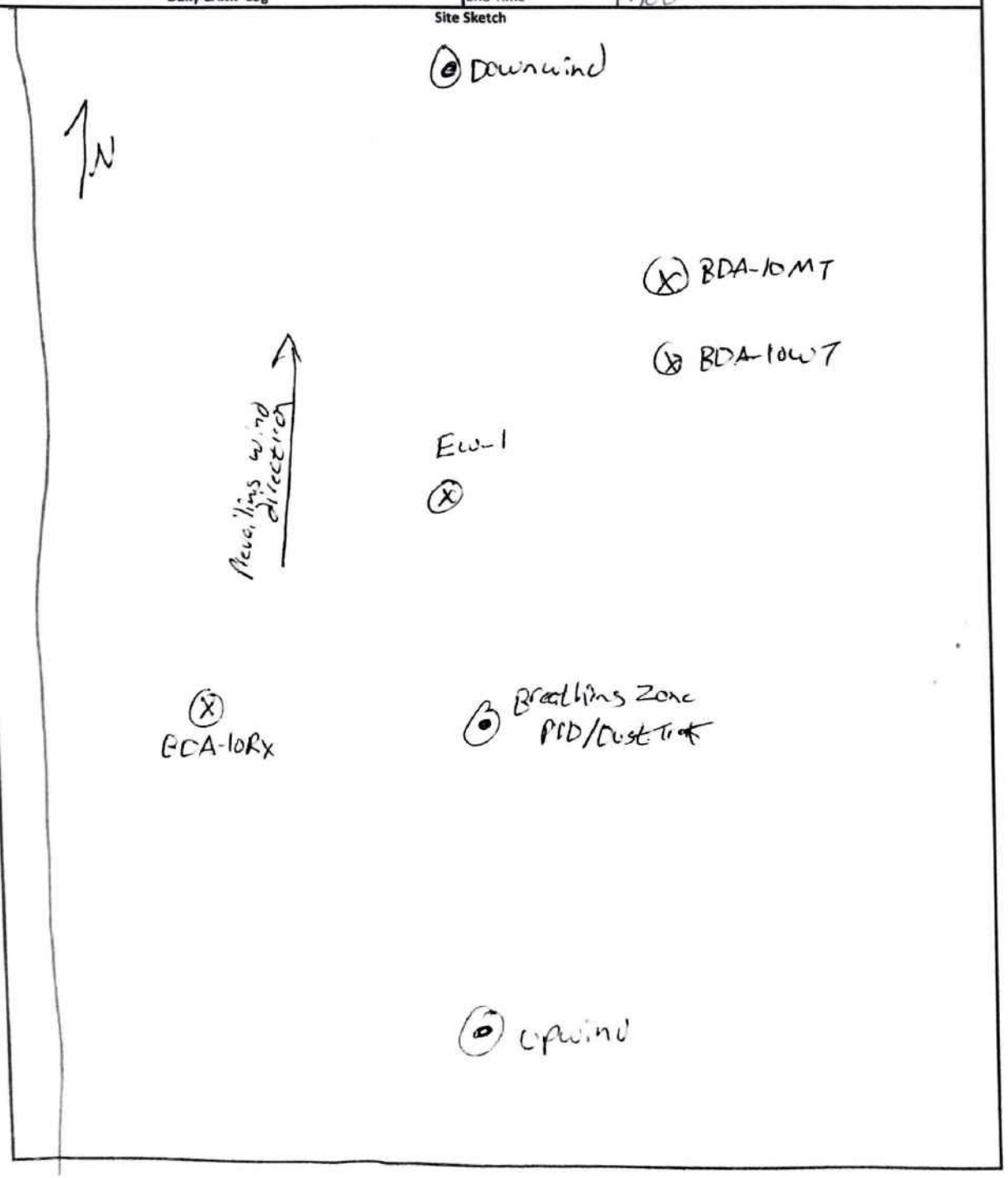
Data Point	Date	Time	PM1 mg/m^3	PM2.5 mg/m^3	RESP mg/m^3	PM10 mg/m^3	TOTAL mg/m^3
1	08/28/2019	10:31:53	0.014	0.015	0.015	0.016	0.016
2	08/28/2019	10:46:53	0.013	0.014	0.014	0.015	0.015
3	08/28/2019	11:01:53	0.016	0.017	0.017	0.019	0.020
4	08/28/2019	11:16:53	0.017	0.018	0.019	0.020	0.021
5	08/28/2019	11:31:53	0.019	0.020	0.021	0.024	0.025
6	08/28/2019	11:46:53	0.022	0.025	0.028	0.033	0.038
7	08/28/2019	12:01:53	0.018	0.019	0.019	0.021	0.021
8	08/28/2019	12:16:53	0.019	0.020	0.021	0.021	0.022
9	08/28/2019	12:31:53	0.020	0.022	0.023	0.024	0.024
10	08/28/2019	12:46:53	0.020	0.021	0.022	0.022	0.023
11	08/28/2019	13:01:53	0.018	0.019	0.020	0.020	0.020
12	08/28/2019	13:16:53	0.017	0.018	0.018	0.018	0.019
13	08/28/2019	13:31:53	0.015	0.016	0.016	0.017	0.018
14	08/28/2019	13:46:53	0.013	0.013	0.013	0.014	0.014
15	08/28/2019	14:01:53	0.009	0.010	0.010	0.010	0.010
16	08/28/2019	14:16:53	0.010	0.010	0.011	0.012	0.012
17	08/28/2019	14:31:53	0.008	0.008	0.008	0.009	0.009
18	08/28/2019	14:46:53	0.007	0.008	0.008	0.008	0.008
19	08/28/2019	15:01:53	0.007	0.007	0.007	0.007	0.007
20	08/28/2019	15:16:53	0.006	0.007	0.007	0.007	0.007
21	08/28/2019	15:31:53	0.008	0.009	0.009	0.010	0.010
22	08/28/2019	15:46:53	0.009	0.010	0.010	0.011	0.012
23	08/28/2019	16:01:53	0.008	0.008	0.009	0.010	0.012
24	08/28/2019	16:16:53	0.007	0.007	0.007	0.009	0.010
25	08/28/2019	16:31:53	0.006	0.006	0.007	0.007	0.008
26	08/28/2019	16:46:53	0.006	0.006	0.007	0.007	0.008

ARCADIS Design & Consultancy for natural and built assets

Daily CAMP Log

Project	Phase 2 Groundwater RI
Location	East Syracuse, NY
Date	4/25/19
Weather Conditions	70's raining
Upwind Monitor	542-90354
Downwind Monitor	542-91427
Start Time	1030
End Time	1700

Site Sketch



Anne Locke
Associate Manager, Environmental Protection
Environmental, Health and Safety Department
Bristol-Myers Squibb
P.O. Box 4755
Syracuse, NY 13221

Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Tel 315 446 9120
Fax 315 449 0017
www.arcadis.com

Environmental North

Subject:
Community Air Monitoring During Phase II RI Well Installations Bristol-Myers Squibb Syracuse Facility – East Syracuse, New York 13057

Date:
August 29, 2019

Contact:
William McCune

Phone:
315-671-9172

Email:
William.McCune@arcadis.com

Our ref:
B0087363.0037

Dear Ms. Locke:

The following is a summary of the community air monitoring plan (CAMP) provided by Arcadis U.S., Inc. (Arcadis) during High Vacuum Extraction Pilot Study drilling activities conducted at the Bristol-Myers Squibb (BMS) Syracuse North Campus, East Syracuse, NY on August 29, 2019.

August 28, 2019: Parratt-Wolff Inc. (Parratt-Wolff) completed sonic drilling activities at OW-2 and OW-1, and began drilling at OW-3 drilling from 8:30 AM to 5:45 PM. CAMP monitoring included photo ionization detectors at upwind and downwind locations and a DustTrak at a breathing zone location. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

CAMP Station Locations	Serial Number
Breathing Zone DustTrak	#8533151804
Upwind PID	#592-914273
Downwind PID	#592-914376

Anne Locke
Bristol-Myers Squibb
August 28, 2019

Please contact us with any questions or comments pertaining to this project.

Sincerely,

Arcadis U.S., Inc.

William McCune
Principal Geologist

Attachments

1 CAMP Data Logs
2 Site Sketches/Notes

==========

19/08/29 09:28

****

Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-914376

Unit Firmware Ver V2.14

Running Mode Hygiene Mode

Datalog Mode Auto

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 8/29/2019 09:28:30

End 8/29/2019 11:57:51

Sample Period(s) 60

Number of Records 149

Sensor PID(ppm)

Sensor SN	S023030126S2
Measure Type	Min; Avg; Max; Real
Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	8/29/2019 07:34
Peak	0.3
Min	0.0
Average	0.0

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	8/29/2019 09:29:30	0.0	0.0	0.2	0.0	
002	8/29/2019 09:30:30	0.0	0.0	0.3	0.0	
003	8/29/2019 09:31:30	0.0	0.0	0.0	0.0	
004	8/29/2019 09:32:30	0.0	0.0	0.0	0.0	
005	8/29/2019 09:33:30	0.0	0.0	0.0	0.0	

006	8/29/2019 09:34:30	0.0	0.0	0.0	0.0
007	8/29/2019 09:35:30	0.0	0.0	0.0	0.0
008	8/29/2019 09:36:30	0.0	0.0	0.3	0.0
009	8/29/2019 09:37:30	0.0	0.0	0.0	0.0
010	8/29/2019 09:38:30	0.0	0.0	0.0	0.0
011	8/29/2019 09:39:30	0.0	0.0	0.0	0.0
012	8/29/2019 09:40:30	0.0	0.0	0.3	0.2
013	8/29/2019 09:41:30	0.0	0.2	0.6	0.0
014	8/29/2019 09:42:30	0.0	0.0	0.3	0.0
015	8/29/2019 09:43:30	0.0	0.0	0.0	0.0
016	8/29/2019 09:44:30	0.0	0.0	0.0	0.0
017	8/29/2019 09:45:30	0.0	0.1	0.4	0.0
018	8/29/2019 09:46:30	0.0	0.0	0.1	0.0
019	8/29/2019 09:47:30	0.0	0.0	0.0	0.0
020	8/29/2019 09:48:30	0.0	0.0	0.0	0.0
021	8/29/2019 09:49:30	0.0	0.0	0.0	0.0
022	8/29/2019 09:50:30	0.0	0.0	0.0	0.0
023	8/29/2019 09:51:30	0.0	0.0	0.0	0.0
024	8/29/2019 09:52:30	0.0	0.0	0.0	0.0
025	8/29/2019 09:53:30	0.0	0.0	0.3	0.3
026	8/29/2019 09:54:30	0.0	0.0	0.3	0.0
027	8/29/2019 09:55:30	0.0	0.0	0.0	0.0
028	8/29/2019 09:56:30	0.0	0.0	0.0	0.0
029	8/29/2019 09:57:30	0.0	0.0	0.0	0.0

030	8/29/2019 09:58:30	0.0	0.0	0.0	0.0
031	8/29/2019 09:59:30	0.0	0.0	0.2	0.0
032	8/29/2019 10:00:30	0.0	0.0	0.2	0.0
033	8/29/2019 10:01:30	0.0	0.0	0.0	0.0
034	8/29/2019 10:02:30	0.0	0.0	0.0	0.0
035	8/29/2019 10:03:30	0.0	0.0	0.0	0.0
036	8/29/2019 10:04:30	0.0	0.0	0.0	0.0
037	8/29/2019 10:05:30	0.0	0.0	0.0	0.0
038	8/29/2019 10:06:30	0.0	0.0	0.0	0.0
039	8/29/2019 10:07:30	0.0	0.0	0.0	0.0
040	8/29/2019 10:08:30	0.0	0.0	0.0	0.0
041	8/29/2019 10:09:30	0.0	0.0	0.0	0.0
042	8/29/2019 10:10:30	0.0	0.0	0.0	0.0
043	8/29/2019 10:11:30	0.0	0.0	0.0	0.0
044	8/29/2019 10:12:30	0.0	0.0	0.0	0.0
045	8/29/2019 10:13:30	0.0	0.0	0.0	0.0
046	8/29/2019 10:14:30	0.0	0.1	0.6	0.0
047	8/29/2019 10:15:30	0.0	0.0	0.0	0.0
048	8/29/2019 10:16:30	0.0	0.0	0.0	0.0
049	8/29/2019 10:17:30	0.0	0.0	0.1	0.0
050	8/29/2019 10:18:30	0.0	0.0	0.0	0.0
051	8/29/2019 10:19:30	0.0	0.0	0.1	0.0
052	8/29/2019 10:20:30	0.0	0.0	0.0	0.0
053	8/29/2019 10:21:30	0.0	0.0	0.1	0.0

054	8/29/2019 10:22:30	0.0	0.0	0.3	0.0
055	8/29/2019 10:23:30	0.0	0.0	0.0	0.0
056	8/29/2019 10:24:30	0.0	0.0	0.0	0.0
057	8/29/2019 10:25:30	0.0	0.0	0.0	0.0
058	8/29/2019 10:26:30	0.0	0.0	0.1	0.1
059	8/29/2019 10:27:30	0.0	0.5	3.7	0.0
060	8/29/2019 10:28:30	0.0	0.0	0.0	0.0
061	8/29/2019 10:29:30	0.0	0.0	0.0	0.0
062	8/29/2019 10:30:30	0.0	0.0	0.0	0.0
063	8/29/2019 10:31:30	0.0	0.0	0.0	0.0
064	8/29/2019 10:32:30	0.0	0.0	0.0	0.0
065	8/29/2019 10:33:30	0.0	0.0	0.1	0.0
066	8/29/2019 10:34:30	0.0	0.0	0.1	0.0
067	8/29/2019 10:35:30	0.0	0.0	0.0	0.0
068	8/29/2019 10:36:30	0.0	0.0	0.0	0.0
069	8/29/2019 10:37:30	0.0	0.0	0.0	0.0
070	8/29/2019 10:38:30	0.0	0.0	0.0	0.0
071	8/29/2019 10:39:30	0.0	0.0	0.1	0.0
072	8/29/2019 10:40:30	0.0	0.0	0.0	0.0
073	8/29/2019 10:41:30	0.0	0.0	0.0	0.0
074	8/29/2019 10:42:30	0.0	0.0	0.0	0.0
075	8/29/2019 10:43:30	0.0	0.0	0.0	0.0
076	8/29/2019 10:44:30	0.0	0.0	0.3	0.0
077	8/29/2019 10:45:30	0.0	0.0	0.0	0.0

078	8/29/2019 10:46:30	0.0	0.0	0.0	0.0
079	8/29/2019 10:47:30	0.0	0.0	0.2	0.0
080	8/29/2019 10:48:30	0.0	0.0	0.0	0.0
081	8/29/2019 10:49:30	0.0	0.0	0.0	0.0
082	8/29/2019 10:50:30	0.0	0.0	0.2	0.0
083	8/29/2019 10:51:30	0.0	0.0	0.0	0.0
084	8/29/2019 10:52:30	0.0	0.0	0.0	0.0
085	8/29/2019 10:53:30	0.0	0.0	0.0	0.0
086	8/29/2019 10:54:30	0.0	0.0	0.0	0.0
087	8/29/2019 10:55:30	0.0	0.0	0.0	0.0
088	8/29/2019 10:56:30	0.0	0.0	0.2	0.0
089	8/29/2019 10:57:30	0.0	0.0	0.0	0.0
090	8/29/2019 10:58:30	0.0	0.0	0.0	0.0
091	8/29/2019 10:59:30	0.0	0.0	0.0	0.0
092	8/29/2019 11:00:30	0.0	0.0	0.0	0.0
093	8/29/2019 11:01:30	0.0	0.0	0.0	0.0
094	8/29/2019 11:02:30	0.0	0.0	0.0	0.0
095	8/29/2019 11:03:30	0.0	0.0	0.0	0.0
096	8/29/2019 11:04:30	0.0	0.0	0.1	0.0
097	8/29/2019 11:05:30	0.0	0.0	0.1	0.0
098	8/29/2019 11:06:30	0.0	0.0	0.0	0.0
099	8/29/2019 11:07:30	0.0	0.0	0.0	0.0
100	8/29/2019 11:08:30	0.0	0.0	0.2	0.0
101	8/29/2019 11:09:30	0.0	0.0	0.0	0.0

102	8/29/2019 11:10:30	0.0	0.0	0.0	0.0
103	8/29/2019 11:11:30	0.0	0.0	0.0	0.0
104	8/29/2019 11:12:30	0.0	0.0	0.1	0.0
105	8/29/2019 11:13:30	0.0	0.0	0.0	0.0
106	8/29/2019 11:14:30	0.0	0.0	0.1	0.0
107	8/29/2019 11:15:30	0.0	0.0	0.1	0.0
108	8/29/2019 11:16:30	0.0	0.0	0.2	0.1
109	8/29/2019 11:17:30	0.0	0.0	0.2	0.0
110	8/29/2019 11:18:30	0.0	0.0	0.0	0.0
111	8/29/2019 11:19:30	0.0	0.1	0.4	0.0
112	8/29/2019 11:20:30	0.0	0.0	0.0	0.0
113	8/29/2019 11:21:30	0.0	0.1	0.3	0.0
114	8/29/2019 11:22:30	0.0	0.0	0.1	0.0
115	8/29/2019 11:23:30	0.0	0.0	0.0	0.0
116	8/29/2019 11:24:30	0.0	0.0	0.0	0.0
117	8/29/2019 11:25:30	0.0	0.0	0.2	0.0
118	8/29/2019 11:26:30	0.0	0.0	0.2	0.2
119	8/29/2019 11:27:30	0.0	0.1	1.0	0.0
120	8/29/2019 11:28:30	0.0	0.0	0.3	0.0
121	8/29/2019 11:29:30	0.0	0.0	0.0	0.0
122	8/29/2019 11:30:30	0.0	0.1	0.5	0.0
123	8/29/2019 11:31:30	0.0	0.0	0.2	0.0
124	8/29/2019 11:32:30	0.0	0.0	0.0	0.0
125	8/29/2019 11:33:30	0.0	0.0	0.0	0.0

126	8/29/2019 11:34:30	0.0	0.0	0.1	0.0
127	8/29/2019 11:35:30	0.0	0.0	0.0	0.0
128	8/29/2019 11:36:30	0.0	0.0	0.0	0.0
129	8/29/2019 11:37:30	0.0	0.0	0.0	0.0
130	8/29/2019 11:38:30	0.0	0.0	0.1	0.0
131	8/29/2019 11:39:30	0.0	0.0	0.0	0.0
132	8/29/2019 11:40:30	0.0	0.0	0.1	0.1
133	8/29/2019 11:41:30	0.0	0.0	0.0	0.0
134	8/29/2019 11:42:30	0.0	0.0	0.0	0.0
135	8/29/2019 11:43:30	0.0	0.0	0.2	0.0
136	8/29/2019 11:44:30	0.0	0.0	0.0	0.0
137	8/29/2019 11:45:30	0.0	0.0	0.0	0.0
138	8/29/2019 11:46:30	0.0	0.0	0.0	0.0
139	8/29/2019 11:47:30	0.0	0.0	0.0	0.0
140	8/29/2019 11:48:30	0.0	0.0	0.0	0.0
141	8/29/2019 11:49:30	0.0	0.0	0.0	0.0
142	8/29/2019 11:50:30	0.0	0.0	0.4	0.2
143	8/29/2019 11:51:30	0.0	0.0	0.6	0.0
144	8/29/2019 11:52:30	0.0	0.1	0.5	0.0
145	8/29/2019 11:53:30	0.0	0.0	0.2	0.0
146	8/29/2019 11:54:30	0.0	0.0	0.1	0.0
147	8/29/2019 11:55:30	0.0	0.1	0.4	0.1
148	8/29/2019 11:56:30	0.0	0.0	0.0	0.0
149	8/29/2019 11:57:30	0.0	0.1	0.6	0.0

Peak	0.0	0.5	3.7	0.3	
Min	0.0	0.0	0.0	0.0	
Average		0.0	0.0	0.1	0.0

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	8/29/2019 09:29:30	0.0	---	
002	8/29/2019 09:30:30	0.0	---	
003	8/29/2019 09:31:30	0.0	---	
004	8/29/2019 09:32:30	0.0	---	
005	8/29/2019 09:33:30	0.0	---	
006	8/29/2019 09:34:30	0.0	---	
007	8/29/2019 09:35:30	0.0	---	
008	8/29/2019 09:36:30	0.0	---	
009	8/29/2019 09:37:30	0.0	---	
010	8/29/2019 09:38:30	0.0	---	
011	8/29/2019 09:39:30	0.0	---	
012	8/29/2019 09:40:30	0.0	---	
013	8/29/2019 09:41:30	0.0	---	
014	8/29/2019 09:42:30	0.0	---	
015	8/29/2019 09:43:30	0.0	0.0	
016	8/29/2019 09:44:30	0.0	0.0	

017	8/29/2019 09:45:30	0.0	0.0
018	8/29/2019 09:46:30	0.0	0.0
019	8/29/2019 09:47:30	0.0	0.0
020	8/29/2019 09:48:30	0.0	0.0
021	8/29/2019 09:49:30	0.0	0.0
022	8/29/2019 09:50:30	0.0	0.0
023	8/29/2019 09:51:30	0.0	0.0
024	8/29/2019 09:52:30	0.0	0.0
025	8/29/2019 09:53:30	0.0	0.0
026	8/29/2019 09:54:30	0.0	0.0
027	8/29/2019 09:55:30	0.0	0.0
028	8/29/2019 09:56:30	0.0	0.0
029	8/29/2019 09:57:30	0.0	0.0
030	8/29/2019 09:58:30	0.0	0.0
031	8/29/2019 09:59:30	0.0	0.0
032	8/29/2019 10:00:30	0.0	0.0
033	8/29/2019 10:01:30	0.0	0.0
034	8/29/2019 10:02:30	0.0	0.0
035	8/29/2019 10:03:30	0.0	0.0
036	8/29/2019 10:04:30	0.0	0.0
037	8/29/2019 10:05:30	0.0	0.0
038	8/29/2019 10:06:30	0.0	0.0
039	8/29/2019 10:07:30	0.0	0.0
040	8/29/2019 10:08:30	0.0	0.0

041	8/29/2019 10:09:30	0.0	0.0
042	8/29/2019 10:10:30	0.0	0.0
043	8/29/2019 10:11:30	0.0	0.0
044	8/29/2019 10:12:30	0.0	0.0
045	8/29/2019 10:13:30	0.0	0.0
046	8/29/2019 10:14:30	0.0	0.0
047	8/29/2019 10:15:30	0.0	0.0
048	8/29/2019 10:16:30	0.0	0.0
049	8/29/2019 10:17:30	0.0	0.0
050	8/29/2019 10:18:30	0.0	0.0
051	8/29/2019 10:19:30	0.0	0.0
052	8/29/2019 10:20:30	0.0	0.0
053	8/29/2019 10:21:30	0.0	0.0
054	8/29/2019 10:22:30	0.0	0.0
055	8/29/2019 10:23:30	0.0	0.0
056	8/29/2019 10:24:30	0.0	0.0
057	8/29/2019 10:25:30	0.0	0.0
058	8/29/2019 10:26:30	0.0	0.0
059	8/29/2019 10:27:30	0.0	0.0
060	8/29/2019 10:28:30	0.0	0.0
061	8/29/2019 10:29:30	0.0	0.0
062	8/29/2019 10:30:30	0.0	0.0
063	8/29/2019 10:31:30	0.0	0.0
064	8/29/2019 10:32:30	0.0	0.0

065	8/29/2019 10:33:30	0.0	0.0
066	8/29/2019 10:34:30	0.0	0.0
067	8/29/2019 10:35:30	0.0	0.0
068	8/29/2019 10:36:30	0.0	0.0
069	8/29/2019 10:37:30	0.0	0.0
070	8/29/2019 10:38:30	0.0	0.0
071	8/29/2019 10:39:30	0.0	0.0
072	8/29/2019 10:40:30	0.0	0.0
073	8/29/2019 10:41:30	0.0	0.0
074	8/29/2019 10:42:30	0.0	0.0
075	8/29/2019 10:43:30	0.0	0.0
076	8/29/2019 10:44:30	0.0	0.0
077	8/29/2019 10:45:30	0.0	0.0
078	8/29/2019 10:46:30	0.0	0.0
079	8/29/2019 10:47:30	0.0	0.0
080	8/29/2019 10:48:30	0.0	0.0
081	8/29/2019 10:49:30	0.0	0.0
082	8/29/2019 10:50:30	0.0	0.0
083	8/29/2019 10:51:30	0.0	0.0
084	8/29/2019 10:52:30	0.0	0.0
085	8/29/2019 10:53:30	0.0	0.0
086	8/29/2019 10:54:30	0.0	0.0
087	8/29/2019 10:55:30	0.0	0.0
088	8/29/2019 10:56:30	0.0	0.0

089	8/29/2019 10:57:30	0.0	0.0
090	8/29/2019 10:58:30	0.0	0.0
091	8/29/2019 10:59:30	0.0	0.0
092	8/29/2019 11:00:30	0.0	0.0
093	8/29/2019 11:01:30	0.0	0.0
094	8/29/2019 11:02:30	0.0	0.0
095	8/29/2019 11:03:30	0.0	0.0
096	8/29/2019 11:04:30	0.0	0.0
097	8/29/2019 11:05:30	0.0	0.0
098	8/29/2019 11:06:30	0.0	0.0
099	8/29/2019 11:07:30	0.0	0.0
100	8/29/2019 11:08:30	0.0	0.0
101	8/29/2019 11:09:30	0.0	0.0
102	8/29/2019 11:10:30	0.0	0.0
103	8/29/2019 11:11:30	0.0	0.0
104	8/29/2019 11:12:30	0.0	0.0
105	8/29/2019 11:13:30	0.0	0.0
106	8/29/2019 11:14:30	0.0	0.0
107	8/29/2019 11:15:30	0.0	0.0
108	8/29/2019 11:16:30	0.0	0.0
109	8/29/2019 11:17:30	0.0	0.0
110	8/29/2019 11:18:30	0.0	0.0
111	8/29/2019 11:19:30	0.0	0.0
112	8/29/2019 11:20:30	0.0	0.0

113	8/29/2019 11:21:30	0.0	0.0
114	8/29/2019 11:22:30	0.0	0.0
115	8/29/2019 11:23:30	0.0	0.0
116	8/29/2019 11:24:30	0.0	0.0
117	8/29/2019 11:25:30	0.0	0.0
118	8/29/2019 11:26:30	0.0	0.0
119	8/29/2019 11:27:30	0.0	0.0
120	8/29/2019 11:28:30	0.0	0.0
121	8/29/2019 11:29:30	0.0	0.0
122	8/29/2019 11:30:30	0.0	0.0
123	8/29/2019 11:31:30	0.0	0.0
124	8/29/2019 11:32:30	0.0	0.0
125	8/29/2019 11:33:30	0.0	0.0
126	8/29/2019 11:34:30	0.0	0.0
127	8/29/2019 11:35:30	0.0	0.0
128	8/29/2019 11:36:30	0.0	0.0
129	8/29/2019 11:37:30	0.0	0.0
130	8/29/2019 11:38:30	0.0	0.0
131	8/29/2019 11:39:30	0.0	0.0
132	8/29/2019 11:40:30	0.0	0.0
133	8/29/2019 11:41:30	0.0	0.0
134	8/29/2019 11:42:30	0.0	0.0
135	8/29/2019 11:43:30	0.0	0.0
136	8/29/2019 11:44:30	0.0	0.0

137	8/29/2019 11:45:30	0.0	0.0
138	8/29/2019 11:46:30	0.0	0.0
139	8/29/2019 11:47:30	0.0	0.0
140	8/29/2019 11:48:30	0.0	0.0
141	8/29/2019 11:49:30	0.0	0.0
142	8/29/2019 11:50:30	0.0	0.0
143	8/29/2019 11:51:30	0.0	0.0
144	8/29/2019 11:52:30	0.0	0.0
145	8/29/2019 11:53:30	0.0	0.0
146	8/29/2019 11:54:30	0.0	0.0
147	8/29/2019 11:55:30	0.0	0.0
148	8/29/2019 11:56:30	0.0	0.0
149	8/29/2019 11:57:30	0.0	0.0

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19/08/29 13:04

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-914376

Unit Firmware Ver V2.14

Running Mode Hygiene Mode

Datalog Mode Auto

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 8/29/2019 13:04:38

End 8/29/2019 17:19:51

Sample Period(s) 60

Number of Records 255

Sensor PID(ppm)

Sensor SN S023030126S2

Measure Type Min; Avg; Max; Real

Span 100.0

Span 2 1000.0

Low Alarm 50.0

High Alarm 100.0

Over Alarm 2000.0

STEL Alarm 25.0

TWA Alarm 10.0

Measurement Gas Isobutylene

Calibration Time 8/29/2019 07:34

Peak 0.0

Min 0.0

Average 0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	8/29/2019 13:05:38	0.0	0.0	0.1	0.0	
002	8/29/2019 13:06:38	0.0	0.0	0.0	0.0	
003	8/29/2019 13:07:38	0.0	0.0	0.0	0.0	
004	8/29/2019 13:08:38	0.0	0.0	0.1	0.0	
005	8/29/2019 13:09:38	0.0	0.0	0.0	0.0	
006	8/29/2019 13:10:38	0.0	0.0	0.0	0.0	
007	8/29/2019 13:11:38	0.0	0.0	0.0	0.0	
008	8/29/2019 13:12:38	0.0	0.0	0.0	0.0	
009	8/29/2019 13:13:38	0.0	0.0	0.0	0.0	
010	8/29/2019 13:14:38	0.0	0.0	0.0	0.0	
011	8/29/2019 13:15:38	0.0	0.0	0.0	0.0	
012	8/29/2019 13:16:38	0.0	0.0	0.0	0.0	
013	8/29/2019 13:17:38	0.0	0.0	0.0	0.0	
014	8/29/2019 13:18:38	0.0	0.0	0.0	0.0	
015	8/29/2019 13:19:38	0.0	0.0	0.0	0.0	
016	8/29/2019 13:20:38	0.0	0.0	0.0	0.0	
017	8/29/2019 13:21:38	0.0	0.0	0.0	0.0	

018	8/29/2019 13:22:38	0.0	0.0	0.0	0.0
019	8/29/2019 13:23:38	0.0	0.0	0.0	0.0
020	8/29/2019 13:24:38	0.0	0.0	0.0	0.0
021	8/29/2019 13:25:38	0.0	0.0	0.0	0.0
022	8/29/2019 13:26:38	0.0	0.0	0.0	0.0
023	8/29/2019 13:27:38	0.0	0.0	0.0	0.0
024	8/29/2019 13:28:38	0.0	0.0	0.0	0.0
025	8/29/2019 13:29:38	0.0	0.0	0.0	0.0
026	8/29/2019 13:30:38	0.0	0.0	0.0	0.0
027	8/29/2019 13:31:38	0.0	0.0	0.0	0.0
028	8/29/2019 13:32:38	0.0	0.0	0.0	0.0
029	8/29/2019 13:33:38	0.0	0.0	0.0	0.0
030	8/29/2019 13:34:38	0.0	0.0	0.0	0.0
031	8/29/2019 13:35:38	0.0	0.0	0.0	0.0
032	8/29/2019 13:36:38	0.0	0.0	0.0	0.0
033	8/29/2019 13:37:38	0.0	0.0	0.0	0.0
034	8/29/2019 13:38:38	0.0	0.0	0.0	0.0
035	8/29/2019 13:39:38	0.0	0.0	0.0	0.0
036	8/29/2019 13:40:38	0.0	0.0	0.0	0.0
037	8/29/2019 13:41:38	0.0	0.0	0.0	0.0
038	8/29/2019 13:42:38	0.0	0.0	0.0	0.0
039	8/29/2019 13:43:38	0.0	0.0	0.0	0.0
040	8/29/2019 13:44:38	0.0	0.0	0.0	0.0
041	8/29/2019 13:45:38	0.0	0.0	0.0	0.0

042	8/29/2019 13:46:38	0.0	0.0	0.0	0.0
043	8/29/2019 13:47:38	0.0	0.0	0.0	0.0
044	8/29/2019 13:48:38	0.0	0.0	0.0	0.0
045	8/29/2019 13:49:38	0.0	0.0	0.0	0.0
046	8/29/2019 13:50:38	0.0	0.0	0.0	0.0
047	8/29/2019 13:51:38	0.0	0.0	0.0	0.0
048	8/29/2019 13:52:38	0.0	0.0	0.0	0.0
049	8/29/2019 13:53:38	0.0	0.0	0.0	0.0
050	8/29/2019 13:54:38	0.0	0.0	0.0	0.0
051	8/29/2019 13:55:38	0.0	0.0	0.0	0.0
052	8/29/2019 13:56:38	0.0	0.0	0.0	0.0
053	8/29/2019 13:57:38	0.0	0.0	0.0	0.0
054	8/29/2019 13:58:38	0.0	0.0	0.0	0.0
055	8/29/2019 13:59:38	0.0	0.0	0.0	0.0
056	8/29/2019 14:00:38	0.0	0.0	0.0	0.0
057	8/29/2019 14:01:38	0.0	0.0	0.0	0.0
058	8/29/2019 14:02:38	0.0	0.0	0.0	0.0
059	8/29/2019 14:03:38	0.0	0.0	0.0	0.0
060	8/29/2019 14:04:38	0.0	0.0	0.0	0.0
061	8/29/2019 14:05:38	0.0	0.0	0.0	0.0
062	8/29/2019 14:06:38	0.0	0.0	0.0	0.0
063	8/29/2019 14:07:38	0.0	0.0	0.0	0.0
064	8/29/2019 14:08:38	0.0	0.0	0.0	0.0
065	8/29/2019 14:09:38	0.0	0.0	0.0	0.0

066	8/29/2019 14:10:38	0.0	0.0	0.0	0.0
067	8/29/2019 14:11:38	0.0	0.0	0.0	0.0
068	8/29/2019 14:12:38	0.0	0.0	0.0	0.0
069	8/29/2019 14:13:38	0.0	0.0	0.0	0.0
070	8/29/2019 14:14:38	0.0	0.0	0.0	0.0
071	8/29/2019 14:15:38	0.0	0.0	0.0	0.0
072	8/29/2019 14:16:38	0.0	0.0	0.0	0.0
073	8/29/2019 14:17:38	0.0	0.0	0.0	0.0
074	8/29/2019 14:18:38	0.0	0.0	0.0	0.0
075	8/29/2019 14:19:38	0.0	0.0	0.0	0.0
076	8/29/2019 14:20:38	0.0	0.0	0.0	0.0
077	8/29/2019 14:21:38	0.0	0.0	0.0	0.0
078	8/29/2019 14:22:38	0.0	0.0	0.0	0.0
079	8/29/2019 14:23:38	0.0	0.0	0.0	0.0
080	8/29/2019 14:24:38	0.0	0.0	0.0	0.0
081	8/29/2019 14:25:38	0.0	0.0	0.0	0.0
082	8/29/2019 14:26:38	0.0	0.0	0.0	0.0
083	8/29/2019 14:27:38	0.0	0.0	0.0	0.0
084	8/29/2019 14:28:38	0.0	0.0	0.0	0.0
085	8/29/2019 14:29:38	0.0	0.0	0.0	0.0
086	8/29/2019 14:30:38	0.0	0.0	0.0	0.0
087	8/29/2019 14:31:38	0.0	0.0	0.0	0.0
088	8/29/2019 14:32:38	0.0	0.0	0.0	0.0
089	8/29/2019 14:33:38	0.0	0.0	0.0	0.0

090	8/29/2019 14:34:38	0.0	0.0	0.0	0.0
091	8/29/2019 14:35:38	0.0	0.0	0.0	0.0
092	8/29/2019 14:36:38	0.0	0.0	0.0	0.0
093	8/29/2019 14:37:38	0.0	0.0	0.0	0.0
094	8/29/2019 14:38:38	0.0	0.0	0.0	0.0
095	8/29/2019 14:39:38	0.0	0.0	0.0	0.0
096	8/29/2019 14:40:38	0.0	0.0	0.0	0.0
097	8/29/2019 14:41:38	0.0	0.0	0.0	0.0
098	8/29/2019 14:42:38	0.0	0.0	0.0	0.0
099	8/29/2019 14:43:38	0.0	0.0	0.0	0.0
100	8/29/2019 14:44:38	0.0	0.0	0.0	0.0
101	8/29/2019 14:45:38	0.0	0.0	0.0	0.0
102	8/29/2019 14:46:38	0.0	0.0	0.0	0.0
103	8/29/2019 14:47:38	0.0	0.0	0.0	0.0
104	8/29/2019 14:48:38	0.0	0.0	0.0	0.0
105	8/29/2019 14:49:38	0.0	0.0	0.0	0.0
106	8/29/2019 14:50:38	0.0	0.0	0.0	0.0
107	8/29/2019 14:51:38	0.0	0.0	0.0	0.0
108	8/29/2019 14:52:38	0.0	0.0	0.0	0.0
109	8/29/2019 14:53:38	0.0	0.0	0.0	0.0
110	8/29/2019 14:54:38	0.0	0.0	0.0	0.0
111	8/29/2019 14:55:38	0.0	0.0	0.0	0.0
112	8/29/2019 14:56:38	0.0	0.0	0.0	0.0
113	8/29/2019 14:57:38	0.0	0.0	0.0	0.0

114	8/29/2019 14:58:38	0.0	0.0	0.0	0.0
115	8/29/2019 14:59:38	0.0	0.0	0.0	0.0
116	8/29/2019 15:00:38	0.0	0.0	0.0	0.0
117	8/29/2019 15:01:38	0.0	0.0	0.0	0.0
118	8/29/2019 15:02:38	0.0	0.0	0.0	0.0
119	8/29/2019 15:03:38	0.0	0.0	0.0	0.0
120	8/29/2019 15:04:38	0.0	0.0	0.0	0.0
121	8/29/2019 15:05:38	0.0	0.0	0.0	0.0
122	8/29/2019 15:06:38	0.0	0.0	0.0	0.0
123	8/29/2019 15:07:38	0.0	0.0	0.0	0.0
124	8/29/2019 15:08:38	0.0	0.0	0.0	0.0
125	8/29/2019 15:09:38	0.0	0.0	0.0	0.0
126	8/29/2019 15:10:38	0.0	0.0	0.0	0.0
127	8/29/2019 15:11:38	0.0	0.0	0.0	0.0
128	8/29/2019 15:12:38	0.0	0.0	0.0	0.0
129	8/29/2019 15:13:38	0.0	0.0	0.0	0.0
130	8/29/2019 15:14:38	0.0	0.0	0.0	0.0
131	8/29/2019 15:15:38	0.0	0.0	0.0	0.0
132	8/29/2019 15:16:38	0.0	0.0	0.0	0.0
133	8/29/2019 15:17:38	0.0	0.0	0.0	0.0
134	8/29/2019 15:18:38	0.0	0.0	0.0	0.0
135	8/29/2019 15:19:38	0.0	0.0	0.0	0.0
136	8/29/2019 15:20:38	0.0	0.0	0.0	0.0
137	8/29/2019 15:21:38	0.0	0.0	0.0	0.0

138	8/29/2019 15:22:38	0.0	0.0	0.0	0.0
139	8/29/2019 15:23:38	0.0	0.0	0.0	0.0
140	8/29/2019 15:24:38	0.0	0.0	0.0	0.0
141	8/29/2019 15:25:38	0.0	0.0	0.0	0.0
142	8/29/2019 15:26:38	0.0	0.0	0.0	0.0
143	8/29/2019 15:27:38	0.0	0.0	0.0	0.0
144	8/29/2019 15:28:38	0.0	0.0	0.0	0.0
145	8/29/2019 15:29:38	0.0	0.0	0.0	0.0
146	8/29/2019 15:30:38	0.0	0.0	0.0	0.0
147	8/29/2019 15:31:38	0.0	0.0	0.0	0.0
148	8/29/2019 15:32:38	0.0	0.0	0.0	0.0
149	8/29/2019 15:33:38	0.0	0.0	0.0	0.0
150	8/29/2019 15:34:38	0.0	0.0	0.0	0.0
151	8/29/2019 15:35:38	0.0	0.0	0.0	0.0
152	8/29/2019 15:36:38	0.0	0.0	0.0	0.0
153	8/29/2019 15:37:38	0.0	0.0	0.0	0.0
154	8/29/2019 15:38:38	0.0	0.0	0.0	0.0
155	8/29/2019 15:39:38	0.0	0.0	0.0	0.0
156	8/29/2019 15:40:38	0.0	0.0	0.0	0.0
157	8/29/2019 15:41:38	0.0	0.0	0.0	0.0
158	8/29/2019 15:42:38	0.0	0.0	0.0	0.0
159	8/29/2019 15:43:38	0.0	0.0	0.0	0.0
160	8/29/2019 15:44:38	0.0	0.0	0.0	0.0
161	8/29/2019 15:45:38	0.0	0.0	0.0	0.0

162	8/29/2019 15:46:38	0.0	0.0	0.0	0.0
163	8/29/2019 15:47:38	0.0	0.0	0.0	0.0
164	8/29/2019 15:48:38	0.0	0.0	0.0	0.0
165	8/29/2019 15:49:38	0.0	0.0	0.0	0.0
166	8/29/2019 15:50:38	0.0	0.0	0.0	0.0
167	8/29/2019 15:51:38	0.0	0.0	0.0	0.0
168	8/29/2019 15:52:38	0.0	0.0	0.0	0.0
169	8/29/2019 15:53:38	0.0	0.0	0.0	0.0
170	8/29/2019 15:54:38	0.0	0.0	0.0	0.0
171	8/29/2019 15:55:38	0.0	0.0	0.0	0.0
172	8/29/2019 15:56:38	0.0	0.0	0.0	0.0
173	8/29/2019 15:57:38	0.0	0.0	0.0	0.0
174	8/29/2019 15:58:38	0.0	0.0	0.0	0.0
175	8/29/2019 15:59:38	0.0	0.0	0.0	0.0
176	8/29/2019 16:00:38	0.0	0.0	0.0	0.0
177	8/29/2019 16:01:38	0.0	0.0	0.0	0.0
178	8/29/2019 16:02:38	0.0	0.0	0.0	0.0
179	8/29/2019 16:03:38	0.0	0.0	0.0	0.0
180	8/29/2019 16:04:38	0.0	0.0	0.0	0.0
181	8/29/2019 16:05:38	0.0	0.0	0.0	0.0
182	8/29/2019 16:06:38	0.0	0.0	0.0	0.0
183	8/29/2019 16:07:38	0.0	0.0	0.0	0.0
184	8/29/2019 16:08:38	0.0	0.0	0.0	0.0
185	8/29/2019 16:09:38	0.0	0.0	0.0	0.0

186	8/29/2019 16:10:38	0.0	0.0	0.0	0.0
187	8/29/2019 16:11:38	0.0	0.0	0.0	0.0
188	8/29/2019 16:12:38	0.0	0.0	0.0	0.0
189	8/29/2019 16:13:38	0.0	0.0	0.0	0.0
190	8/29/2019 16:14:38	0.0	0.0	0.0	0.0
191	8/29/2019 16:15:38	0.0	0.0	0.0	0.0
192	8/29/2019 16:16:38	0.0	0.0	0.0	0.0
193	8/29/2019 16:17:38	0.0	0.0	0.0	0.0
194	8/29/2019 16:18:38	0.0	0.0	0.0	0.0
195	8/29/2019 16:19:38	0.0	0.0	0.0	0.0
196	8/29/2019 16:20:38	0.0	0.0	0.0	0.0
197	8/29/2019 16:21:38	0.0	0.0	0.0	0.0
198	8/29/2019 16:22:38	0.0	0.0	0.0	0.0
199	8/29/2019 16:23:38	0.0	0.0	0.0	0.0
200	8/29/2019 16:24:38	0.0	0.0	0.0	0.0
201	8/29/2019 16:25:38	0.0	0.0	0.0	0.0
202	8/29/2019 16:26:38	0.0	0.0	0.0	0.0
203	8/29/2019 16:27:38	0.0	0.0	0.0	0.0
204	8/29/2019 16:28:38	0.0	0.0	0.0	0.0
205	8/29/2019 16:29:38	0.0	0.0	0.0	0.0
206	8/29/2019 16:30:38	0.0	0.0	0.0	0.0
207	8/29/2019 16:31:38	0.0	0.0	0.0	0.0
208	8/29/2019 16:32:38	0.0	0.0	0.0	0.0
209	8/29/2019 16:33:38	0.0	0.0	0.0	0.0

210	8/29/2019 16:34:38	0.0	0.0	0.0	0.0
211	8/29/2019 16:35:38	0.0	0.0	0.0	0.0
212	8/29/2019 16:36:38	0.0	0.0	0.0	0.0
213	8/29/2019 16:37:38	0.0	0.0	0.0	0.0
214	8/29/2019 16:38:38	0.0	0.0	0.0	0.0
215	8/29/2019 16:39:38	0.0	0.0	0.0	0.0
216	8/29/2019 16:40:38	0.0	0.0	0.0	0.0
217	8/29/2019 16:41:38	0.0	0.0	0.0	0.0
218	8/29/2019 16:42:38	0.0	0.0	0.0	0.0
219	8/29/2019 16:43:38	0.0	0.0	0.0	0.0
220	8/29/2019 16:44:38	0.0	0.0	0.0	0.0
221	8/29/2019 16:45:38	0.0	0.0	0.0	0.0
222	8/29/2019 16:46:38	0.0	0.0	0.0	0.0
223	8/29/2019 16:47:38	0.0	0.0	0.0	0.0
224	8/29/2019 16:48:38	0.0	0.0	0.0	0.0
225	8/29/2019 16:49:38	0.0	0.0	0.0	0.0
226	8/29/2019 16:50:38	0.0	0.0	0.0	0.0
227	8/29/2019 16:51:38	0.0	0.0	0.0	0.0
228	8/29/2019 16:52:38	0.0	0.0	0.0	0.0
229	8/29/2019 16:53:38	0.0	0.0	0.0	0.0
230	8/29/2019 16:54:38	0.0	0.0	0.0	0.0
231	8/29/2019 16:55:38	0.0	0.0	0.0	0.0
232	8/29/2019 16:56:38	0.0	0.0	0.0	0.0
233	8/29/2019 16:57:38	0.0	0.0	0.0	0.0

234	8/29/2019 16:58:38	0.0	0.0	0.0	0.0
235	8/29/2019 16:59:38	0.0	0.0	0.0	0.0
236	8/29/2019 17:00:38	0.0	0.0	0.0	0.0
237	8/29/2019 17:01:38	0.0	0.0	0.0	0.0
238	8/29/2019 17:02:38	0.0	0.0	0.0	0.0
239	8/29/2019 17:03:38	0.0	0.0	0.0	0.0
240	8/29/2019 17:04:38	0.0	0.0	0.0	0.0
241	8/29/2019 17:05:38	0.0	0.0	0.0	0.0
242	8/29/2019 17:06:38	0.0	0.0	0.1	0.0
243	8/29/2019 17:07:38	0.0	0.0	0.0	0.0
244	8/29/2019 17:08:38	0.0	0.0	0.0	0.0
245	8/29/2019 17:09:38	0.0	0.0	0.0	0.0
246	8/29/2019 17:10:38	0.0	0.0	0.0	0.0
247	8/29/2019 17:11:38	0.0	0.0	0.0	0.0
248	8/29/2019 17:12:38	0.0	0.0	0.0	0.0
249	8/29/2019 17:13:38	0.0	0.0	0.0	0.0
250	8/29/2019 17:14:38	0.0	0.0	0.0	0.0
251	8/29/2019 17:15:38	0.0	0.0	0.0	0.0
252	8/29/2019 17:16:38	0.0	0.0	0.0	0.0
253	8/29/2019 17:17:38	0.0	0.0	0.0	0.0
254	8/29/2019 17:18:38	0.0	0.0	0.0	0.0
255	8/29/2019 17:19:38	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.1	0.0
Min		0.0	0.0	0.0	0.0

Average	0.0	0.0	0.0	0.0

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	8/29/2019 13:05:38	0.0	---	
002	8/29/2019 13:06:38	0.0	---	
003	8/29/2019 13:07:38	0.0	---	
004	8/29/2019 13:08:38	0.0	---	
005	8/29/2019 13:09:38	0.0	---	
006	8/29/2019 13:10:38	0.0	---	
007	8/29/2019 13:11:38	0.0	---	
008	8/29/2019 13:12:38	0.0	---	
009	8/29/2019 13:13:38	0.0	---	
010	8/29/2019 13:14:38	0.0	---	
011	8/29/2019 13:15:38	0.0	---	
012	8/29/2019 13:16:38	0.0	---	
013	8/29/2019 13:17:38	0.0	---	
014	8/29/2019 13:18:38	0.0	---	
015	8/29/2019 13:19:38	0.0	0.0	
016	8/29/2019 13:20:38	0.0	0.0	
017	8/29/2019 13:21:38	0.0	0.0	
018	8/29/2019 13:22:38	0.0	0.0	

019	8/29/2019 13:23:38	0.0	0.0
020	8/29/2019 13:24:38	0.0	0.0
021	8/29/2019 13:25:38	0.0	0.0
022	8/29/2019 13:26:38	0.0	0.0
023	8/29/2019 13:27:38	0.0	0.0
024	8/29/2019 13:28:38	0.0	0.0
025	8/29/2019 13:29:38	0.0	0.0
026	8/29/2019 13:30:38	0.0	0.0
027	8/29/2019 13:31:38	0.0	0.0
028	8/29/2019 13:32:38	0.0	0.0
029	8/29/2019 13:33:38	0.0	0.0
030	8/29/2019 13:34:38	0.0	0.0
031	8/29/2019 13:35:38	0.0	0.0
032	8/29/2019 13:36:38	0.0	0.0
033	8/29/2019 13:37:38	0.0	0.0
034	8/29/2019 13:38:38	0.0	0.0
035	8/29/2019 13:39:38	0.0	0.0
036	8/29/2019 13:40:38	0.0	0.0
037	8/29/2019 13:41:38	0.0	0.0
038	8/29/2019 13:42:38	0.0	0.0
039	8/29/2019 13:43:38	0.0	0.0
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041	8/29/2019 13:45:38	0.0	0.0
042	8/29/2019 13:46:38	0.0	0.0

043	8/29/2019 13:47:38	0.0	0.0
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055	8/29/2019 13:59:38	0.0	0.0
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058	8/29/2019 14:02:38	0.0	0.0
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114	8/29/2019 14:58:38	0.0	0.0

115	8/29/2019 14:59:38	0.0	0.0
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121	8/29/2019 15:05:38	0.0	0.0
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123	8/29/2019 15:07:38	0.0	0.0
124	8/29/2019 15:08:38	0.0	0.0
125	8/29/2019 15:09:38	0.0	0.0
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155	8/29/2019 15:39:38	0.0	0.0
156	8/29/2019 15:40:38	0.0	0.0
157	8/29/2019 15:41:38	0.0	0.0
158	8/29/2019 15:42:38	0.0	0.0
159	8/29/2019 15:43:38	0.0	0.0
160	8/29/2019 15:44:38	0.0	0.0
161	8/29/2019 15:45:38	0.0	0.0
162	8/29/2019 15:46:38	0.0	0.0

163	8/29/2019 15:47:38	0.0	0.0
164	8/29/2019 15:48:38	0.0	0.0
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172	8/29/2019 15:56:38	0.0	0.0
173	8/29/2019 15:57:38	0.0	0.0
174	8/29/2019 15:58:38	0.0	0.0
175	8/29/2019 15:59:38	0.0	0.0
176	8/29/2019 16:00:38	0.0	0.0
177	8/29/2019 16:01:38	0.0	0.0
178	8/29/2019 16:02:38	0.0	0.0
179	8/29/2019 16:03:38	0.0	0.0
180	8/29/2019 16:04:38	0.0	0.0
181	8/29/2019 16:05:38	0.0	0.0
182	8/29/2019 16:06:38	0.0	0.0
183	8/29/2019 16:07:38	0.0	0.0
184	8/29/2019 16:08:38	0.0	0.0
185	8/29/2019 16:09:38	0.0	0.0
186	8/29/2019 16:10:38	0.0	0.0

187	8/29/2019 16:11:38	0.0	0.0
188	8/29/2019 16:12:38	0.0	0.0
189	8/29/2019 16:13:38	0.0	0.0
190	8/29/2019 16:14:38	0.0	0.0
191	8/29/2019 16:15:38	0.0	0.0
192	8/29/2019 16:16:38	0.0	0.0
193	8/29/2019 16:17:38	0.0	0.0
194	8/29/2019 16:18:38	0.0	0.0
195	8/29/2019 16:19:38	0.0	0.0
196	8/29/2019 16:20:38	0.0	0.0
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199	8/29/2019 16:23:38	0.0	0.0
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201	8/29/2019 16:25:38	0.0	0.0
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203	8/29/2019 16:27:38	0.0	0.0
204	8/29/2019 16:28:38	0.0	0.0
205	8/29/2019 16:29:38	0.0	0.0
206	8/29/2019 16:30:38	0.0	0.0
207	8/29/2019 16:31:38	0.0	0.0
208	8/29/2019 16:32:38	0.0	0.0
209	8/29/2019 16:33:38	0.0	0.0
210	8/29/2019 16:34:38	0.0	0.0

211	8/29/2019 16:35:38	0.0	0.0
212	8/29/2019 16:36:38	0.0	0.0
213	8/29/2019 16:37:38	0.0	0.0
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215	8/29/2019 16:39:38	0.0	0.0
216	8/29/2019 16:40:38	0.0	0.0
217	8/29/2019 16:41:38	0.0	0.0
218	8/29/2019 16:42:38	0.0	0.0
219	8/29/2019 16:43:38	0.0	0.0
220	8/29/2019 16:44:38	0.0	0.0
221	8/29/2019 16:45:38	0.0	0.0
222	8/29/2019 16:46:38	0.0	0.0
223	8/29/2019 16:47:38	0.0	0.0
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226	8/29/2019 16:50:38	0.0	0.0
227	8/29/2019 16:51:38	0.0	0.0
228	8/29/2019 16:52:38	0.0	0.0
229	8/29/2019 16:53:38	0.0	0.0
230	8/29/2019 16:54:38	0.0	0.0
231	8/29/2019 16:55:38	0.0	0.0
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233	8/29/2019 16:57:38	0.0	0.0
234	8/29/2019 16:58:38	0.0	0.0

235	8/29/2019 16:59:38	0.0	0.0
236	8/29/2019 17:00:38	0.0	0.0
237	8/29/2019 17:01:38	0.0	0.0
238	8/29/2019 17:02:38	0.0	0.0
239	8/29/2019 17:03:38	0.0	0.0
240	8/29/2019 17:04:38	0.0	0.0
241	8/29/2019 17:05:38	0.0	0.0
242	8/29/2019 17:06:38	0.0	0.0
243	8/29/2019 17:07:38	0.0	0.0
244	8/29/2019 17:08:38	0.0	0.0
245	8/29/2019 17:09:38	0.0	0.0
246	8/29/2019 17:10:38	0.0	0.0
247	8/29/2019 17:11:38	0.0	0.0
248	8/29/2019 17:12:38	0.0	0.0
249	8/29/2019 17:13:38	0.0	0.0
250	8/29/2019 17:14:38	0.0	0.0
251	8/29/2019 17:15:38	0.0	0.0
252	8/29/2019 17:16:38	0.0	0.0
253	8/29/2019 17:17:38	0.0	0.0
254	8/29/2019 17:18:38	0.0	0.0
255	8/29/2019 17:19:38	0.0	0.0

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19/08/29 07:47

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-914273

Unit Firmware Ver V1.20A

Running Mode Hygiene Mode

Measure Type Min; Avg; Max; Real

Datalog Mode Continuous

Datalog Type Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00005

User ID 00000001

Begin 8/29/2019 07:47:54

End 8/29/2019 17:16:15

Sample Period(s) 60

Number of Records 568

Sensor	VOC(ppm)
Span	100.000
Span 2	N/A
Low Alarm	50.000
High Alarm	100.000
Over Alarm	2000.000
STEL Alarm	25.000
TWA Alarm	10.000
Measurement Gas	Isobutylene
Calibration Time	8/29/2019 07:30
Peak	0.000
Min	0.000
Average	0.000

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Datalog

Index	Date/Time	VOC(ppm) (Min)	VOC(ppm) (Avg)	VOC(ppm) (Max)	VOC(ppm) (Real)	VOC(ppm)
001	8/29/2019 07:48:54	0.000	0.000	0.000	0.000	
002	8/29/2019 07:49:54	0.000	0.000	0.000	0.000	
003	8/29/2019 07:50:54	0.000	0.000	0.000	0.000	
004	8/29/2019 07:51:54	0.000	0.000	0.000	0.000	
005	8/29/2019 07:52:54	0.000	0.000	0.000	0.000	
006	8/29/2019 07:53:54	0.000	0.000	0.000	0.000	

007	8/29/2019 07:54:54	0.000	0.000	0.000	0.000
008	8/29/2019 07:55:54	0.000	0.000	0.000	0.000
009	8/29/2019 07:56:54	0.000	0.000	0.000	0.000
010	8/29/2019 07:57:54	0.000	0.000	0.000	0.000
011	8/29/2019 07:58:54	0.000	0.000	0.000	0.000
012	8/29/2019 07:59:54	0.000	0.000	0.000	0.000
013	8/29/2019 08:00:54	0.000	0.000	0.000	0.000
014	8/29/2019 08:01:54	0.000	0.000	0.000	0.000
015	8/29/2019 08:02:54	0.000	0.000	0.000	0.000
016	8/29/2019 08:03:54	0.000	0.000	0.001	0.000
017	8/29/2019 08:04:54	0.000	0.000	0.000	0.000
018	8/29/2019 08:05:54	0.000	0.000	0.000	0.000
019	8/29/2019 08:06:54	0.000	0.000	0.000	0.000
020	8/29/2019 08:07:54	0.000	0.002	0.036	0.000
021	8/29/2019 08:08:54	0.000	0.000	0.000	0.000
022	8/29/2019 08:09:54	0.000	0.000	0.000	0.000
023	8/29/2019 08:10:54	0.000	0.000	0.000	0.000
024	8/29/2019 08:11:54	0.000	0.000	0.000	0.000
025	8/29/2019 08:12:54	0.000	0.000	0.000	0.000
026	8/29/2019 08:13:54	0.000	0.000	0.000	0.000
027	8/29/2019 08:14:54	0.000	0.000	0.000	0.000
028	8/29/2019 08:15:54	0.000	0.000	0.000	0.000
029	8/29/2019 08:16:54	0.000	0.000	0.000	0.000
030	8/29/2019 08:17:54	0.000	0.000	0.000	0.000

031	8/29/2019 08:18:54	0.000	0.000	0.000	0.000
032	8/29/2019 08:19:54	0.000	0.000	0.000	0.000
033	8/29/2019 08:20:54	0.000	0.000	0.000	0.000
034	8/29/2019 08:21:54	0.000	0.000	0.000	0.000
035	8/29/2019 08:22:54	0.000	0.000	0.000	0.000
036	8/29/2019 08:23:54	0.000	0.000	0.000	0.000
037	8/29/2019 08:24:54	0.000	0.000	0.000	0.000
038	8/29/2019 08:25:54	0.000	0.000	0.000	0.000
039	8/29/2019 08:26:54	0.000	0.000	0.000	0.000
040	8/29/2019 08:27:54	0.000	0.000	0.000	0.000
041	8/29/2019 08:28:54	0.000	0.000	0.000	0.000
042	8/29/2019 08:29:54	0.000	0.000	0.000	0.000
043	8/29/2019 08:30:54	0.000	0.000	0.000	0.000
044	8/29/2019 08:31:54	0.000	0.000	0.000	0.000
045	8/29/2019 08:32:54	0.000	0.000	0.000	0.000
046	8/29/2019 08:33:54	0.000	0.000	0.000	0.000
047	8/29/2019 08:34:54	0.000	0.000	0.000	0.000
048	8/29/2019 08:35:54	0.000	0.000	0.000	0.000
049	8/29/2019 08:36:54	0.000	0.000	0.000	0.000
050	8/29/2019 08:37:54	0.000	0.000	0.000	0.000
051	8/29/2019 08:38:54	0.000	0.000	0.000	0.000
052	8/29/2019 08:39:54	0.000	0.000	0.000	0.000
053	8/29/2019 08:40:54	0.000	0.000	0.000	0.000
054	8/29/2019 08:41:54	0.000	0.000	0.000	0.000

055	8/29/2019 08:42:54	0.000	0.000	0.000	0.000
056	8/29/2019 08:43:54	0.000	0.000	0.000	0.000
057	8/29/2019 08:44:54	0.000	0.000	0.000	0.000
058	8/29/2019 08:45:54	0.000	0.000	0.000	0.000
059	8/29/2019 08:46:54	0.000	0.000	0.000	0.000
060	8/29/2019 08:47:54	0.000	0.000	0.000	0.000
061	8/29/2019 08:48:54	0.000	0.000	0.000	0.000
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063	8/29/2019 08:50:54	0.000	0.000	0.000	0.000
064	8/29/2019 08:51:54	0.000	0.000	0.000	0.000
065	8/29/2019 08:52:54	0.000	0.000	0.000	0.000
066	8/29/2019 08:53:54	0.000	0.000	0.000	0.000
067	8/29/2019 08:54:54	0.000	0.000	0.000	0.000
068	8/29/2019 08:55:54	0.000	0.000	0.000	0.000
069	8/29/2019 08:56:54	0.000	0.000	0.000	0.000
070	8/29/2019 08:57:54	0.000	0.000	0.000	0.000
071	8/29/2019 08:58:54	0.000	0.000	0.000	0.000
072	8/29/2019 08:59:54	0.000	0.000	0.000	0.000
073	8/29/2019 09:00:54	0.000	0.000	0.000	0.000
074	8/29/2019 09:01:54	0.000	0.000	0.000	0.000
075	8/29/2019 09:02:54	0.000	0.000	0.000	0.000
076	8/29/2019 09:03:54	0.000	0.000	0.000	0.000
077	8/29/2019 09:04:54	0.000	0.000	0.000	0.000
078	8/29/2019 09:05:54	0.000	0.000	0.000	0.000

079	8/29/2019 09:06:54	0.000	0.000	0.000	0.000
080	8/29/2019 09:07:54	0.000	0.000	0.000	0.000
081	8/29/2019 09:08:54	0.000	0.000	0.000	0.000
082	8/29/2019 09:09:54	0.000	0.000	0.000	0.000
083	8/29/2019 09:10:54	0.000	0.000	0.000	0.000
084	8/29/2019 09:11:54	0.000	0.000	0.000	0.000
085	8/29/2019 09:12:54	0.000	0.000	0.000	0.000
086	8/29/2019 09:13:54	0.000	0.000	0.000	0.000
087	8/29/2019 09:14:54	0.000	0.000	0.000	0.000
088	8/29/2019 09:15:54	0.000	0.000	0.000	0.000
089	8/29/2019 09:16:54	0.000	0.000	0.000	0.000
090	8/29/2019 09:17:54	0.000	0.000	0.000	0.000
091	8/29/2019 09:18:54	0.000	0.000	0.000	0.000
092	8/29/2019 09:19:54	0.000	0.000	0.000	0.000
093	8/29/2019 09:20:54	0.000	0.000	0.000	0.000
094	8/29/2019 09:21:54	0.000	0.000	0.000	0.000
095	8/29/2019 09:22:54	0.000	0.000	0.000	0.000
096	8/29/2019 09:23:54	0.000	0.000	0.000	0.000
097	8/29/2019 09:24:54	0.000	0.000	0.000	0.000
098	8/29/2019 09:25:54	0.000	0.000	0.000	0.000
099	8/29/2019 09:26:54	0.000	0.000	0.000	0.000
100	8/29/2019 09:27:54	0.000	0.000	0.000	0.000
101	8/29/2019 09:28:54	0.000	0.000	0.000	0.000
102	8/29/2019 09:29:54	0.000	0.000	0.000	0.000

103	8/29/2019 09:30:54	0.000	0.000	0.000	0.000
104	8/29/2019 09:31:54	0.000	0.000	0.000	0.000
105	8/29/2019 09:32:54	0.000	0.000	0.000	0.000
106	8/29/2019 09:33:54	0.000	0.000	0.000	0.000
107	8/29/2019 09:34:54	0.000	0.000	0.000	0.000
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109	8/29/2019 09:36:54	0.000	0.000	0.000	0.000
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112	8/29/2019 09:39:54	0.000	0.000	0.000	0.000
113	8/29/2019 09:40:54	0.000	0.000	0.000	0.000
114	8/29/2019 09:41:54	0.000	0.000	0.000	0.000
115	8/29/2019 09:42:54	0.000	0.000	0.000	0.000
116	8/29/2019 09:43:54	0.000	0.000	0.000	0.000
117	8/29/2019 09:44:54	0.000	0.000	0.000	0.000
118	8/29/2019 09:45:54	0.000	0.000	0.000	0.000
119	8/29/2019 09:46:54	0.000	0.000	0.000	0.000
120	8/29/2019 09:47:54	0.000	0.000	0.000	0.000
121	8/29/2019 09:48:54	0.000	0.000	0.000	0.000
122	8/29/2019 09:49:54	0.000	0.000	0.000	0.000
123	8/29/2019 09:50:54	0.000	0.000	0.000	0.000
124	8/29/2019 09:51:54	0.000	0.000	0.000	0.000
125	8/29/2019 09:52:54	0.000	0.000	0.000	0.000
126	8/29/2019 09:53:54	0.000	0.000	0.000	0.000

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131	8/29/2019 09:58:54	0.000	0.000	0.000	0.000
132	8/29/2019 09:59:54	0.000	0.000	0.000	0.000
133	8/29/2019 10:00:54	0.000	0.000	0.000	0.000
134	8/29/2019 10:01:54	0.000	0.000	0.000	0.000
135	8/29/2019 10:02:54	0.000	0.000	0.000	0.000
136	8/29/2019 10:03:54	0.000	0.000	0.000	0.000
137	8/29/2019 10:04:54	0.000	0.000	0.000	0.000
138	8/29/2019 10:05:54	0.000	0.000	0.000	0.000
139	8/29/2019 10:06:54	0.000	0.000	0.000	0.000
140	8/29/2019 10:07:54	0.000	0.000	0.000	0.000
141	8/29/2019 10:08:54	0.000	0.000	0.000	0.000
142	8/29/2019 10:09:54	0.000	0.000	0.000	0.000
143	8/29/2019 10:10:54	0.000	0.000	0.000	0.000
144	8/29/2019 10:11:54	0.000	0.000	0.000	0.000
145	8/29/2019 10:12:54	0.000	0.000	0.000	0.000
146	8/29/2019 10:13:54	0.000	0.000	0.000	0.000
147	8/29/2019 10:14:54	0.000	0.000	0.000	0.000
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149	8/29/2019 10:16:54	0.000	0.000	0.000	0.000
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156	8/29/2019 10:23:54	0.000	0.000	0.000	0.000
157	8/29/2019 10:24:54	0.000	0.000	0.000	0.000
158	8/29/2019 10:25:54	0.000	0.000	0.000	0.000
159	8/29/2019 10:26:54	0.000	0.000	0.000	0.000
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161	8/29/2019 10:28:54	0.000	0.000	0.000	0.000
162	8/29/2019 10:29:54	0.000	0.000	0.000	0.000
163	8/29/2019 10:30:54	0.000	0.000	0.000	0.000
164	8/29/2019 10:31:54	0.000	0.000	0.000	0.000
165	8/29/2019 10:32:54	0.000	0.000	0.000	0.000
166	8/29/2019 10:33:54	0.000	0.000	0.000	0.000
167	8/29/2019 10:34:54	0.000	0.000	0.000	0.000
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173	8/29/2019 10:40:54	0.000	0.000	0.000	0.000
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179	8/29/2019 10:46:54	0.000	0.000	0.000	0.000
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181	8/29/2019 10:48:54	0.000	0.000	0.000	0.000
182	8/29/2019 10:49:54	0.000	0.000	0.000	0.000
183	8/29/2019 10:50:54	0.000	0.000	0.000	0.000
184	8/29/2019 10:51:54	0.000	0.000	0.000	0.000
185	8/29/2019 10:52:54	0.000	0.000	0.000	0.000
186	8/29/2019 10:53:54	0.000	0.000	0.000	0.000
187	8/29/2019 10:54:54	0.000	0.000	0.000	0.000
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190	8/29/2019 10:57:54	0.000	0.000	0.000	0.000
191	8/29/2019 10:58:54	0.000	0.000	0.000	0.000
192	8/29/2019 10:59:54	0.000	0.000	0.000	0.000
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204	8/29/2019 11:11:54	0.000	0.000	0.000	0.000
205	8/29/2019 11:12:54	0.000	0.000	0.000	0.000
206	8/29/2019 11:13:54	0.000	0.000	0.000	0.000
207	8/29/2019 11:14:54	0.000	0.000	0.000	0.000
208	8/29/2019 11:15:54	0.000	0.000	0.000	0.000
209	8/29/2019 11:16:54	0.000	0.000	0.000	0.000
210	8/29/2019 11:17:54	0.000	0.000	0.000	0.000
211	8/29/2019 11:18:54	0.000	0.000	0.000	0.000
212	8/29/2019 11:19:54	0.000	0.000	0.000	0.000
213	8/29/2019 11:20:54	0.000	0.000	0.000	0.000
214	8/29/2019 11:21:54	0.000	0.000	0.000	0.000
215	8/29/2019 11:22:54	0.000	0.000	0.000	0.000
216	8/29/2019 11:23:54	0.000	0.000	0.000	0.000
217	8/29/2019 11:24:54	0.000	0.000	0.000	0.000
218	8/29/2019 11:25:54	0.000	0.000	0.000	0.000
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227	8/29/2019 11:34:54	0.000	0.000	0.000	0.000
228	8/29/2019 11:35:54	0.000	0.000	0.000	0.000
229	8/29/2019 11:36:54	0.000	0.000	0.000	0.000
230	8/29/2019 11:37:54	0.000	0.000	0.000	0.000
231	8/29/2019 11:38:54	0.000	0.000	0.000	0.000
232	8/29/2019 11:39:54	0.000	0.000	0.000	0.000
233	8/29/2019 11:40:54	0.000	0.000	0.000	0.000
234	8/29/2019 11:41:54	0.000	0.000	0.000	0.000
235	8/29/2019 11:42:54	0.000	0.000	0.000	0.000
236	8/29/2019 11:43:54	0.000	0.000	0.000	0.000
237	8/29/2019 11:44:54	0.000	0.000	0.000	0.000
238	8/29/2019 11:45:54	0.000	0.000	0.000	0.000
239	8/29/2019 11:46:54	0.000	0.000	0.000	0.000
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275	8/29/2019 12:22:54	0.000	0.000	0.000	0.000
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281	8/29/2019 12:28:54	0.000	0.000	0.000	0.000
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283	8/29/2019 12:30:54	0.000	0.000	0.000	0.000
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286	8/29/2019 12:33:54	0.000	0.000	0.000	0.000
287	8/29/2019 12:34:54	0.000	0.000	0.000	0.000
288	8/29/2019 12:35:54	0.000	0.000	0.000	0.000
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291	8/29/2019 12:38:54	0.000	0.000	0.000	0.000
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324	8/29/2019 13:11:54	0.000	0.000	0.000	0.000
325	8/29/2019 13:12:54	0.000	0.000	0.000	0.000
326	8/29/2019 13:13:54	0.000	0.000	0.000	0.000
327	8/29/2019 13:14:54	0.000	0.000	0.000	0.000
328	8/29/2019 13:15:54	0.000	0.000	0.000	0.000
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332	8/29/2019 13:19:54	0.000	0.000	0.000	0.000
333	8/29/2019 13:20:54	0.000	0.000	0.000	0.000
334	8/29/2019 13:21:54	0.000	0.000	0.000	0.000
335	8/29/2019 13:22:54	0.000	0.000	0.000	0.000
336	8/29/2019 13:23:54	0.000	0.000	0.000	0.000
337	8/29/2019 13:24:54	0.000	0.000	0.000	0.000
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347	8/29/2019 13:34:54	0.000	0.000	0.000	0.000
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350	8/29/2019 13:37:54	0.000	0.000	0.000	0.000
351	8/29/2019 13:38:54	0.000	0.000	0.000	0.000
352	8/29/2019 13:39:54	0.000	0.000	0.000	0.000
353	8/29/2019 13:40:54	0.000	0.000	0.000	0.000
354	8/29/2019 13:41:54	0.000	0.000	0.000	0.000
355	8/29/2019 13:42:54	0.000	0.000	0.000	0.000
356	8/29/2019 13:43:54	0.000	0.000	0.000	0.000
357	8/29/2019 13:44:54	0.000	0.000	0.000	0.000
358	8/29/2019 13:45:54	0.000	0.000	0.000	0.000
359	8/29/2019 13:46:54	0.000	0.000	0.000	0.000
360	8/29/2019 13:47:54	0.000	0.000	0.000	0.000
361	8/29/2019 13:48:54	0.000	0.000	0.000	0.000
362	8/29/2019 13:49:54	0.000	0.000	0.000	0.000
363	8/29/2019 13:50:54	0.000	0.000	0.000	0.000
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371	8/29/2019 13:58:54	0.000	0.000	0.000	0.000
372	8/29/2019 13:59:54	0.000	0.000	0.000	0.000
373	8/29/2019 14:00:54	0.000	0.000	0.000	0.000
374	8/29/2019 14:01:54	0.000	0.000	0.000	0.000
375	8/29/2019 14:02:54	0.000	0.000	0.000	0.000
376	8/29/2019 14:03:54	0.000	0.000	0.000	0.000
377	8/29/2019 14:04:54	0.000	0.000	0.000	0.000
378	8/29/2019 14:05:54	0.000	0.000	0.000	0.000
379	8/29/2019 14:06:54	0.000	0.000	0.000	0.000
380	8/29/2019 14:07:54	0.000	0.000	0.000	0.000
381	8/29/2019 14:08:54	0.000	0.000	0.000	0.000
382	8/29/2019 14:09:54	0.000	0.000	0.000	0.000
383	8/29/2019 14:10:54	0.000	0.000	0.000	0.000
384	8/29/2019 14:11:54	0.000	0.000	0.000	0.000
385	8/29/2019 14:12:54	0.000	0.000	0.000	0.000
386	8/29/2019 14:13:54	0.000	0.000	0.000	0.000
387	8/29/2019 14:14:54	0.000	0.000	0.000	0.000
388	8/29/2019 14:15:54	0.000	0.000	0.000	0.000
389	8/29/2019 14:16:54	0.000	0.000	0.000	0.000
390	8/29/2019 14:17:54	0.000	0.000	0.000	0.000

391	8/29/2019 14:18:54	0.000	0.000	0.000	0.000
392	8/29/2019 14:19:54	0.000	0.000	0.000	0.000
393	8/29/2019 14:20:54	0.000	0.000	0.000	0.000
394	8/29/2019 14:21:54	0.000	0.000	0.000	0.000
395	8/29/2019 14:22:54	0.000	0.000	0.000	0.000
396	8/29/2019 14:23:54	0.000	0.000	0.000	0.000
397	8/29/2019 14:24:54	0.000	0.000	0.000	0.000
398	8/29/2019 14:25:54	0.000	0.000	0.000	0.000
399	8/29/2019 14:26:54	0.000	0.000	0.000	0.000
400	8/29/2019 14:27:54	0.000	0.000	0.000	0.000
401	8/29/2019 14:28:54	0.000	0.000	0.000	0.000
402	8/29/2019 14:29:54	0.000	0.000	0.000	0.000
403	8/29/2019 14:30:54	0.000	0.000	0.000	0.000
404	8/29/2019 14:31:54	0.000	0.000	0.000	0.000
405	8/29/2019 14:32:54	0.000	0.000	0.000	0.000
406	8/29/2019 14:33:54	0.000	0.000	0.000	0.000
407	8/29/2019 14:34:54	0.000	0.000	0.000	0.000
408	8/29/2019 14:35:54	0.000	0.000	0.000	0.000
409	8/29/2019 14:36:54	0.000	0.000	0.000	0.000
410	8/29/2019 14:37:54	0.000	0.000	0.000	0.000
411	8/29/2019 14:38:54	0.000	0.000	0.000	0.000
412	8/29/2019 14:39:54	0.000	0.000	0.000	0.000
413	8/29/2019 14:40:54	0.000	0.000	0.000	0.000
414	8/29/2019 14:41:54	0.000	0.000	0.000	0.000

415	8/29/2019 14:42:54	0.000	0.000	0.000	0.000
416	8/29/2019 14:43:54	0.000	0.000	0.000	0.000
417	8/29/2019 14:44:54	0.000	0.000	0.000	0.000
418	8/29/2019 14:45:54	0.000	0.000	0.000	0.000
419	8/29/2019 14:46:54	0.000	0.000	0.000	0.000
420	8/29/2019 14:47:54	0.000	0.000	0.000	0.000
421	8/29/2019 14:48:54	0.000	0.000	0.000	0.000
422	8/29/2019 14:49:54	0.000	0.000	0.000	0.000
423	8/29/2019 14:50:54	0.000	0.000	0.000	0.000
424	8/29/2019 14:51:54	0.000	0.000	0.000	0.000
425	8/29/2019 14:52:54	0.000	0.000	0.000	0.000
426	8/29/2019 14:53:54	0.000	0.000	0.000	0.000
427	8/29/2019 14:54:54	0.000	0.000	0.000	0.000
428	8/29/2019 14:55:54	0.000	0.000	0.000	0.000
429	8/29/2019 14:56:54	0.000	0.000	0.000	0.000
430	8/29/2019 14:57:54	0.000	0.000	0.000	0.000
431	8/29/2019 14:58:54	0.000	0.000	0.000	0.000
432	8/29/2019 14:59:54	0.000	0.000	0.000	0.000
433	8/29/2019 15:00:54	0.000	0.000	0.000	0.000
434	8/29/2019 15:01:54	0.000	0.000	0.000	0.000
435	8/29/2019 15:02:54	0.000	0.000	0.000	0.000
436	8/29/2019 15:03:54	0.000	0.000	0.000	0.000
437	8/29/2019 15:04:54	0.000	0.000	0.000	0.000
438	8/29/2019 15:05:54	0.000	0.000	0.000	0.000

439	8/29/2019 15:06:54	0.000	0.000	0.000	0.000
440	8/29/2019 15:07:54	0.000	0.000	0.000	0.000
441	8/29/2019 15:08:54	0.000	0.000	0.000	0.000
442	8/29/2019 15:09:54	0.000	0.000	0.000	0.000
443	8/29/2019 15:10:54	0.000	0.000	0.000	0.000
444	8/29/2019 15:11:54	0.000	0.000	0.000	0.000
445	8/29/2019 15:12:54	0.000	0.000	0.000	0.000
446	8/29/2019 15:13:54	0.000	0.000	0.000	0.000
447	8/29/2019 15:14:54	0.000	0.000	0.000	0.000
448	8/29/2019 15:15:54	0.000	0.000	0.000	0.000
449	8/29/2019 15:16:54	0.000	0.000	0.000	0.000
450	8/29/2019 15:17:54	0.000	0.000	0.000	0.000
451	8/29/2019 15:18:54	0.000	0.000	0.000	0.000
452	8/29/2019 15:19:54	0.000	0.000	0.000	0.000
453	8/29/2019 15:20:54	0.000	0.000	0.000	0.000
454	8/29/2019 15:21:54	0.000	0.000	0.000	0.000
455	8/29/2019 15:22:54	0.000	0.000	0.000	0.000
456	8/29/2019 15:23:54	0.000	0.000	0.000	0.000
457	8/29/2019 15:24:54	0.000	0.000	0.000	0.000
458	8/29/2019 15:25:54	0.000	0.000	0.000	0.000
459	8/29/2019 15:26:54	0.000	0.000	0.000	0.000
460	8/29/2019 15:27:54	0.000	0.000	0.000	0.000
461	8/29/2019 15:28:54	0.000	0.000	0.000	0.000
462	8/29/2019 15:29:54	0.000	0.000	0.000	0.000

463	8/29/2019 15:30:54	0.000	0.000	0.000	0.000
464	8/29/2019 15:31:54	0.000	0.000	0.000	0.000
465	8/29/2019 15:32:54	0.000	0.000	0.000	0.000
466	8/29/2019 15:33:54	0.000	0.000	0.000	0.000
467	8/29/2019 15:34:54	0.000	0.000	0.000	0.000
468	8/29/2019 15:35:54	0.000	0.000	0.000	0.000
469	8/29/2019 15:36:54	0.000	0.000	0.000	0.000
470	8/29/2019 15:37:54	0.000	0.000	0.000	0.000
471	8/29/2019 15:38:54	0.000	0.000	0.000	0.000
472	8/29/2019 15:39:54	0.000	0.000	0.000	0.000
473	8/29/2019 15:40:54	0.000	0.000	0.000	0.000
474	8/29/2019 15:41:54	0.000	0.000	0.000	0.000
475	8/29/2019 15:42:54	0.000	0.000	0.000	0.000
476	8/29/2019 15:43:54	0.000	0.000	0.000	0.000
477	8/29/2019 15:44:54	0.000	0.000	0.000	0.000
478	8/29/2019 15:45:54	0.000	0.000	0.000	0.000
479	8/29/2019 15:46:54	0.000	0.000	0.000	0.000
480	8/29/2019 15:47:54	0.000	0.000	0.000	0.000
481	8/29/2019 15:48:54	0.000	0.000	0.000	0.000
482	8/29/2019 15:49:54	0.000	0.000	0.000	0.000
483	8/29/2019 15:50:54	0.000	0.000	0.000	0.000
484	8/29/2019 15:51:54	0.000	0.000	0.000	0.000
485	8/29/2019 15:52:54	0.000	0.000	0.000	0.000
486	8/29/2019 15:53:54	0.000	0.000	0.000	0.000

487	8/29/2019 15:54:54	0.000	0.000	0.000	0.000
488	8/29/2019 15:55:54	0.000	0.000	0.000	0.000
489	8/29/2019 15:56:54	0.000	0.000	0.000	0.000
490	8/29/2019 15:57:54	0.000	0.000	0.000	0.000
491	8/29/2019 15:58:54	0.000	0.000	0.000	0.000
492	8/29/2019 15:59:54	0.000	0.000	0.000	0.000
493	8/29/2019 16:00:54	0.000	0.000	0.000	0.000
494	8/29/2019 16:01:54	0.000	0.000	0.000	0.000
495	8/29/2019 16:02:54	0.000	0.000	0.000	0.000
496	8/29/2019 16:03:54	0.000	0.000	0.000	0.000
497	8/29/2019 16:04:54	0.000	0.000	0.000	0.000
498	8/29/2019 16:05:54	0.000	0.000	0.000	0.000
499	8/29/2019 16:06:54	0.000	0.000	0.000	0.000
500	8/29/2019 16:07:54	0.000	0.000	0.000	0.000
501	8/29/2019 16:08:54	0.000	0.000	0.000	0.000
502	8/29/2019 16:09:54	0.000	0.000	0.000	0.000
503	8/29/2019 16:10:54	0.000	0.000	0.000	0.000
504	8/29/2019 16:11:54	0.000	0.000	0.000	0.000
505	8/29/2019 16:12:54	0.000	0.000	0.000	0.000
506	8/29/2019 16:13:54	0.000	0.000	0.000	0.000
507	8/29/2019 16:14:54	0.000	0.000	0.000	0.000
508	8/29/2019 16:15:54	0.000	0.000	0.000	0.000
509	8/29/2019 16:16:54	0.000	0.000	0.000	0.000
510	8/29/2019 16:17:54	0.000	0.000	0.000	0.000

511	8/29/2019 16:18:54	0.000	0.000	0.000	0.000
512	8/29/2019 16:19:54	0.000	0.000	0.000	0.000
513	8/29/2019 16:20:54	0.000	0.000	0.000	0.000
514	8/29/2019 16:21:54	0.000	0.000	0.000	0.000
515	8/29/2019 16:22:54	0.000	0.000	0.000	0.000
516	8/29/2019 16:23:54	0.000	0.000	0.000	0.000
517	8/29/2019 16:24:54	0.000	0.000	0.000	0.000
518	8/29/2019 16:25:54	0.000	0.000	0.000	0.000
519	8/29/2019 16:26:54	0.000	0.000	0.000	0.000
520	8/29/2019 16:27:54	0.000	0.000	0.000	0.000
521	8/29/2019 16:28:54	0.000	0.000	0.000	0.000
522	8/29/2019 16:29:54	0.000	0.000	0.000	0.000
523	8/29/2019 16:30:54	0.000	0.000	0.000	0.000
524	8/29/2019 16:31:54	0.000	0.000	0.000	0.000
525	8/29/2019 16:32:54	0.000	0.000	0.000	0.000
526	8/29/2019 16:33:54	0.000	0.000	0.000	0.000
527	8/29/2019 16:34:54	0.000	0.000	0.000	0.000
528	8/29/2019 16:35:54	0.000	0.000	0.000	0.000
529	8/29/2019 16:36:54	0.000	0.000	0.000	0.000
530	8/29/2019 16:37:54	0.000	0.000	0.000	0.000
531	8/29/2019 16:38:54	0.000	0.000	0.000	0.000
532	8/29/2019 16:39:54	0.000	0.000	0.000	0.000
533	8/29/2019 16:40:54	0.000	0.000	0.000	0.000
534	8/29/2019 16:41:54	0.000	0.000	0.000	0.000

535	8/29/2019 16:42:54	0.000	0.000	0.000	0.000
536	8/29/2019 16:43:54	0.000	0.000	0.000	0.000
537	8/29/2019 16:44:54	0.000	0.000	0.000	0.000
538	8/29/2019 16:45:54	0.000	0.000	0.000	0.000
539	8/29/2019 16:46:54	0.000	0.000	0.000	0.000
540	8/29/2019 16:47:54	0.000	0.000	0.000	0.000
541	8/29/2019 16:48:54	0.000	0.000	0.000	0.000
542	8/29/2019 16:49:54	0.000	0.000	0.000	0.000
543	8/29/2019 16:50:54	0.000	0.000	0.000	0.000
544	8/29/2019 16:51:54	0.000	0.000	0.000	0.000
545	8/29/2019 16:52:54	0.000	0.000	0.000	0.000
546	8/29/2019 16:53:54	0.000	0.000	0.000	0.000
547	8/29/2019 16:54:54	0.000	0.000	0.000	0.000
548	8/29/2019 16:55:54	0.000	0.000	0.000	0.000
549	8/29/2019 16:56:54	0.000	0.000	0.000	0.000
550	8/29/2019 16:57:54	0.000	0.000	0.000	0.000
551	8/29/2019 16:58:54	0.000	0.000	0.000	0.000
552	8/29/2019 16:59:54	0.000	0.000	0.000	0.000
553	8/29/2019 17:00:54	0.000	0.000	0.000	0.000
554	8/29/2019 17:01:54	0.000	0.000	0.000	0.000
555	8/29/2019 17:02:54	0.000	0.000	0.000	0.000
556	8/29/2019 17:03:54	0.000	0.000	0.000	0.000
557	8/29/2019 17:04:54	0.000	0.000	0.000	0.000
558	8/29/2019 17:05:54	0.000	0.000	0.000	0.000

559	8/29/2019 17:06:54		0.000	0.000	0.000	0.000
560	8/29/2019 17:07:54		0.000	0.000	0.000	0.000
561	8/29/2019 17:08:54		0.000	0.000	0.000	0.000
562	8/29/2019 17:09:54		0.000	0.000	0.000	0.000
563	8/29/2019 17:10:54		0.000	0.000	0.000	0.000
564	8/29/2019 17:11:54		0.000	0.000	0.000	0.000
565	8/29/2019 17:12:54		0.000	0.000	0.000	0.000
566	8/29/2019 17:13:54		0.000	0.000	0.000	0.000
567	8/29/2019 17:14:54		0.000	0.000	0.000	0.000
568	8/29/2019 17:15:54		0.000	0.000	0.000	0.000
Peak		0.000	0.002	0.036	0.000	
Min		0.000	0.000	0.000	0.000	
Average			0.000	0.000	0.000	0.000

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TWA/STEL

Index	Date/Time	VOC(ppm) (TWA)	VOC(ppm) (STEL)	
001	8/29/2019 07:48:54		0.000	---
002	8/29/2019 07:49:54		0.000	---
003	8/29/2019 07:50:54		0.000	---
004	8/29/2019 07:51:54		0.000	---
005	8/29/2019 07:52:54		0.000	---
006	8/29/2019 07:53:54		0.000	---

007	8/29/2019 07:54:54	0.000	---
008	8/29/2019 07:55:54	0.000	---
009	8/29/2019 07:56:54	0.000	---
010	8/29/2019 07:57:54	0.000	---
011	8/29/2019 07:58:54	0.000	---
012	8/29/2019 07:59:54	0.000	---
013	8/29/2019 08:00:54	0.000	---
014	8/29/2019 08:01:54	0.000	---
015	8/29/2019 08:02:54	0.000	0.000
016	8/29/2019 08:03:54	0.000	0.000
017	8/29/2019 08:04:54	0.000	0.000
018	8/29/2019 08:05:54	0.000	0.000
019	8/29/2019 08:06:54	0.000	0.000
020	8/29/2019 08:07:54	0.000	0.000
021	8/29/2019 08:08:54	0.000	0.000
022	8/29/2019 08:09:54	0.000	0.000
023	8/29/2019 08:10:54	0.000	0.000
024	8/29/2019 08:11:54	0.000	0.000
025	8/29/2019 08:12:54	0.000	0.000
026	8/29/2019 08:13:54	0.000	0.000
027	8/29/2019 08:14:54	0.000	0.000
028	8/29/2019 08:15:54	0.000	0.000
029	8/29/2019 08:16:54	0.000	0.000
030	8/29/2019 08:17:54	0.000	0.000

031	8/29/2019 08:18:54	0.000	0.000
032	8/29/2019 08:19:54	0.000	0.000
033	8/29/2019 08:20:54	0.000	0.000
034	8/29/2019 08:21:54	0.000	0.000
035	8/29/2019 08:22:54	0.000	0.000
036	8/29/2019 08:23:54	0.000	0.000
037	8/29/2019 08:24:54	0.000	0.000
038	8/29/2019 08:25:54	0.000	0.000
039	8/29/2019 08:26:54	0.000	0.000
040	8/29/2019 08:27:54	0.000	0.000
041	8/29/2019 08:28:54	0.000	0.000
042	8/29/2019 08:29:54	0.000	0.000
043	8/29/2019 08:30:54	0.000	0.000
044	8/29/2019 08:31:54	0.000	0.000
045	8/29/2019 08:32:54	0.000	0.000
046	8/29/2019 08:33:54	0.000	0.000
047	8/29/2019 08:34:54	0.000	0.000
048	8/29/2019 08:35:54	0.000	0.000
049	8/29/2019 08:36:54	0.000	0.000
050	8/29/2019 08:37:54	0.000	0.000
051	8/29/2019 08:38:54	0.000	0.000
052	8/29/2019 08:39:54	0.000	0.000
053	8/29/2019 08:40:54	0.000	0.000
054	8/29/2019 08:41:54	0.000	0.000

055	8/29/2019 08:42:54	0.000	0.000
056	8/29/2019 08:43:54	0.000	0.000
057	8/29/2019 08:44:54	0.000	0.000
058	8/29/2019 08:45:54	0.000	0.000
059	8/29/2019 08:46:54	0.000	0.000
060	8/29/2019 08:47:54	0.000	0.000
061	8/29/2019 08:48:54	0.000	0.000
062	8/29/2019 08:49:54	0.000	0.000
063	8/29/2019 08:50:54	0.000	0.000
064	8/29/2019 08:51:54	0.000	0.000
065	8/29/2019 08:52:54	0.000	0.000
066	8/29/2019 08:53:54	0.000	0.000
067	8/29/2019 08:54:54	0.000	0.000
068	8/29/2019 08:55:54	0.000	0.000
069	8/29/2019 08:56:54	0.000	0.000
070	8/29/2019 08:57:54	0.000	0.000
071	8/29/2019 08:58:54	0.000	0.000
072	8/29/2019 08:59:54	0.000	0.000
073	8/29/2019 09:00:54	0.000	0.000
074	8/29/2019 09:01:54	0.000	0.000
075	8/29/2019 09:02:54	0.000	0.000
076	8/29/2019 09:03:54	0.000	0.000
077	8/29/2019 09:04:54	0.000	0.000
078	8/29/2019 09:05:54	0.000	0.000

079	8/29/2019 09:06:54	0.000	0.000
080	8/29/2019 09:07:54	0.000	0.000
081	8/29/2019 09:08:54	0.000	0.000
082	8/29/2019 09:09:54	0.000	0.000
083	8/29/2019 09:10:54	0.000	0.000
084	8/29/2019 09:11:54	0.000	0.000
085	8/29/2019 09:12:54	0.000	0.000
086	8/29/2019 09:13:54	0.000	0.000
087	8/29/2019 09:14:54	0.000	0.000
088	8/29/2019 09:15:54	0.000	0.000
089	8/29/2019 09:16:54	0.000	0.000
090	8/29/2019 09:17:54	0.000	0.000
091	8/29/2019 09:18:54	0.000	0.000
092	8/29/2019 09:19:54	0.000	0.000
093	8/29/2019 09:20:54	0.000	0.000
094	8/29/2019 09:21:54	0.000	0.000
095	8/29/2019 09:22:54	0.000	0.000
096	8/29/2019 09:23:54	0.000	0.000
097	8/29/2019 09:24:54	0.000	0.000
098	8/29/2019 09:25:54	0.000	0.000
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467	8/29/2019 15:34:54	0.000	0.000
468	8/29/2019 15:35:54	0.000	0.000
469	8/29/2019 15:36:54	0.000	0.000
470	8/29/2019 15:37:54	0.000	0.000
471	8/29/2019 15:38:54	0.000	0.000
472	8/29/2019 15:39:54	0.000	0.000
473	8/29/2019 15:40:54	0.000	0.000
474	8/29/2019 15:41:54	0.000	0.000
475	8/29/2019 15:42:54	0.000	0.000
476	8/29/2019 15:43:54	0.000	0.000
477	8/29/2019 15:44:54	0.000	0.000
478	8/29/2019 15:45:54	0.000	0.000
479	8/29/2019 15:46:54	0.000	0.000
480	8/29/2019 15:47:54	0.000	0.000
481	8/29/2019 15:48:54	0.000	0.000
482	8/29/2019 15:49:54	0.000	0.000
483	8/29/2019 15:50:54	0.000	0.000
484	8/29/2019 15:51:54	0.000	0.000
485	8/29/2019 15:52:54	0.000	0.000
486	8/29/2019 15:53:54	0.000	0.000

487	8/29/2019 15:54:54	0.000	0.000
488	8/29/2019 15:55:54	0.000	0.000
489	8/29/2019 15:56:54	0.000	0.000
490	8/29/2019 15:57:54	0.000	0.000
491	8/29/2019 15:58:54	0.000	0.000
492	8/29/2019 15:59:54	0.000	0.000
493	8/29/2019 16:00:54	0.000	0.000
494	8/29/2019 16:01:54	0.000	0.000
495	8/29/2019 16:02:54	0.000	0.000
496	8/29/2019 16:03:54	0.000	0.000
497	8/29/2019 16:04:54	0.000	0.000
498	8/29/2019 16:05:54	0.000	0.000
499	8/29/2019 16:06:54	0.000	0.000
500	8/29/2019 16:07:54	0.000	0.000
501	8/29/2019 16:08:54	0.000	0.000
502	8/29/2019 16:09:54	0.000	0.000
503	8/29/2019 16:10:54	0.000	0.000
504	8/29/2019 16:11:54	0.000	0.000
505	8/29/2019 16:12:54	0.000	0.000
506	8/29/2019 16:13:54	0.000	0.000
507	8/29/2019 16:14:54	0.000	0.000
508	8/29/2019 16:15:54	0.000	0.000
509	8/29/2019 16:16:54	0.000	0.000
510	8/29/2019 16:17:54	0.000	0.000

511	8/29/2019 16:18:54	0.000	0.000
512	8/29/2019 16:19:54	0.000	0.000
513	8/29/2019 16:20:54	0.000	0.000
514	8/29/2019 16:21:54	0.000	0.000
515	8/29/2019 16:22:54	0.000	0.000
516	8/29/2019 16:23:54	0.000	0.000
517	8/29/2019 16:24:54	0.000	0.000
518	8/29/2019 16:25:54	0.000	0.000
519	8/29/2019 16:26:54	0.000	0.000
520	8/29/2019 16:27:54	0.000	0.000
521	8/29/2019 16:28:54	0.000	0.000
522	8/29/2019 16:29:54	0.000	0.000
523	8/29/2019 16:30:54	0.000	0.000
524	8/29/2019 16:31:54	0.000	0.000
525	8/29/2019 16:32:54	0.000	0.000
526	8/29/2019 16:33:54	0.000	0.000
527	8/29/2019 16:34:54	0.000	0.000
528	8/29/2019 16:35:54	0.000	0.000
529	8/29/2019 16:36:54	0.000	0.000
530	8/29/2019 16:37:54	0.000	0.000
531	8/29/2019 16:38:54	0.000	0.000
532	8/29/2019 16:39:54	0.000	0.000
533	8/29/2019 16:40:54	0.000	0.000
534	8/29/2019 16:41:54	0.000	0.000

535	8/29/2019 16:42:54	0.000	0.000
536	8/29/2019 16:43:54	0.000	0.000
537	8/29/2019 16:44:54	0.000	0.000
538	8/29/2019 16:45:54	0.000	0.000
539	8/29/2019 16:46:54	0.000	0.000
540	8/29/2019 16:47:54	0.000	0.000
541	8/29/2019 16:48:54	0.000	0.000
542	8/29/2019 16:49:54	0.000	0.000
543	8/29/2019 16:50:54	0.000	0.000
544	8/29/2019 16:51:54	0.000	0.000
545	8/29/2019 16:52:54	0.000	0.000
546	8/29/2019 16:53:54	0.000	0.000
547	8/29/2019 16:54:54	0.000	0.000
548	8/29/2019 16:55:54	0.000	0.000
549	8/29/2019 16:56:54	0.000	0.000
550	8/29/2019 16:57:54	0.000	0.000
551	8/29/2019 16:58:54	0.000	0.000
552	8/29/2019 16:59:54	0.000	0.000
553	8/29/2019 17:00:54	0.000	0.000
554	8/29/2019 17:01:54	0.000	0.000
555	8/29/2019 17:02:54	0.000	0.000
556	8/29/2019 17:03:54	0.000	0.000
557	8/29/2019 17:04:54	0.000	0.000
558	8/29/2019 17:05:54	0.000	0.000

559	8/29/2019 17:06:54	0.000	0.000
560	8/29/2019 17:07:54	0.000	0.000
561	8/29/2019 17:08:54	0.000	0.000
562	8/29/2019 17:09:54	0.000	0.000
563	8/29/2019 17:10:54	0.000	0.000
564	8/29/2019 17:11:54	0.000	0.000
565	8/29/2019 17:12:54	0.000	0.000
566	8/29/2019 17:13:54	0.000	0.000
567	8/29/2019 17:14:54	0.000	0.000
568	8/29/2019 17:15:54	0.000	0.000

Test 014

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	08/29/2019
Instrument S/N	8533151804	Start Time	09:17:53
		Stop Date	08/29/2019
		Stop Time	17:02:53
		Total Time	0:07:45:00
		Logging Interval	900 seconds

Test Data

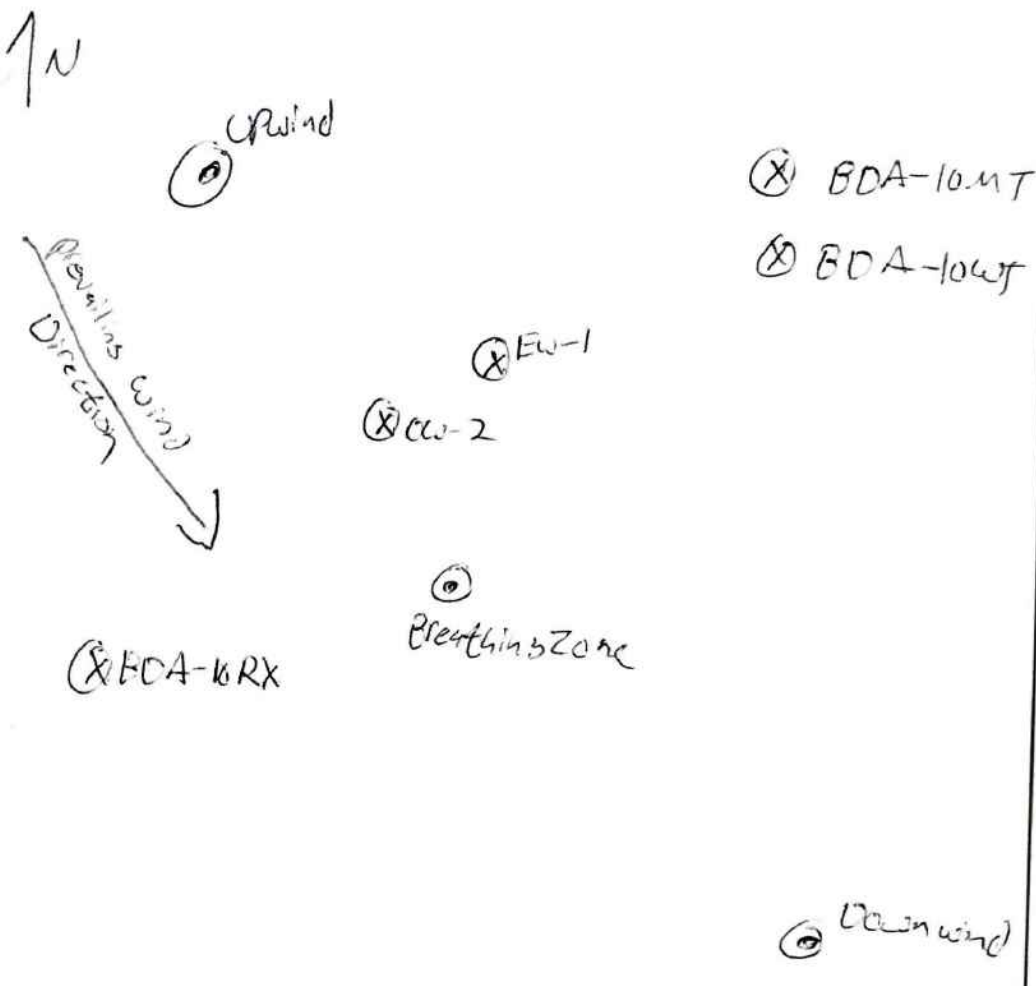
Data Point	Date	Time	PM1 mg/m^3	PM2.5 mg/m^3	RESP mg/m^3	PM10 mg/m^3	TOTAL mg/m^3
1	08/29/2019	09:32:53	0.007	0.008	0.008	0.011	0.013
2	08/29/2019	09:47:53	0.008	0.008	0.009	0.011	0.013
3	08/29/2019	10:02:53	0.008	0.009	0.009	0.012	0.015
4	08/29/2019	10:17:53	0.011	0.012	0.013	0.017	0.021
5	08/29/2019	10:32:53	0.014	0.015	0.017	0.023	0.027
6	08/29/2019	10:47:53	0.009	0.009	0.010	0.012	0.014
7	08/29/2019	11:02:53	0.009	0.009	0.010	0.013	0.016
8	08/29/2019	11:17:53	0.009	0.009	0.010	0.014	0.019
9	08/29/2019	11:32:53	0.009	0.009	0.010	0.013	0.016
10	08/29/2019	11:47:53	0.006	0.007	0.007	0.010	0.012
11	08/29/2019	12:02:53	0.005	0.005	0.006	0.007	0.007
12	08/29/2019	12:17:53	0.006	0.006	0.006	0.007	0.007
13	08/29/2019	12:32:53	0.009	0.010	0.010	0.015	0.018
14	08/29/2019	12:47:53	0.011	0.011	0.012	0.017	0.022
15	08/29/2019	13:02:53	0.007	0.007	0.007	0.009	0.010
16	08/29/2019	13:17:53	0.009	0.009	0.010	0.014	0.017
17	08/29/2019	13:32:53	0.007	0.007	0.007	0.010	0.012
18	08/29/2019	13:47:53	0.007	0.007	0.008	0.012	0.015
19	08/29/2019	14:02:53	0.006	0.006	0.006	0.008	0.008
20	08/29/2019	14:17:53	0.005	0.006	0.006	0.007	0.008
21	08/29/2019	14:32:53	0.007	0.007	0.008	0.010	0.014
22	08/29/2019	14:47:53	0.008	0.008	0.009	0.013	0.017
23	08/29/2019	15:02:53	0.005	0.006	0.006	0.007	0.008
24	08/29/2019	15:17:53	0.006	0.006	0.007	0.009	0.010
25	08/29/2019	15:32:53	0.006	0.006	0.006	0.008	0.009
26	08/29/2019	15:47:53	0.007	0.007	0.007	0.010	0.013
27	08/29/2019	16:02:53	0.007	0.007	0.007	0.010	0.012
28	08/29/2019	16:17:53	0.009	0.010	0.011	0.015	0.019
29	08/29/2019	16:32:53	0.008	0.009	0.009	0.014	0.020
30	08/29/2019	16:47:53	0.006	0.007	0.007	0.009	0.011
31	08/29/2019	17:02:53	0.007	0.007	0.007	0.010	0.013

ARCADIS Design & Consultancy for natural and built assets

Daily CAMP Log

Project	Phase 2 Groundwater RI
Location	East Syracuse, NY
Date	4/24/15
Weather Conditions	70's Partly Cloudy
Upwind Monitor	592 - 914273
Downwind Monitor	592 - 914376
Start Time	0900
End Time	1430

Site Sketch



Anne Locke
Associate Manager, Environmental Protection
Environmental, Health and Safety Department
Bristol-Myers Squibb
P.O. Box 4755
Syracuse, NY 13221

Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Tel 315 446 9120
Fax 315 449 0017
www.arcadis.com

Environmental North

Subject:
Community Air Monitoring During Phase II RI Well Installations Bristol-Myers Squibb Syracuse Facility – East Syracuse, New York 13057

Date:
August 30, 2019

Contact:
William McCune

Phone:
315-671-9172

Email:
William.McCune@arcadis.com

Our ref:
B0087363.0037

Dear Ms. Locke:

The following is a summary of the community air monitoring plan (CAMP) provided by Arcadis U.S., Inc. (Arcadis) during High Vacuum Extraction Pilot Study drilling activities conducted at the Bristol-Myers Squibb (BMS) Syracuse North Campus, East Syracuse, NY on August 230, 2019.

August 30, 2019: Parratt-Wolff Inc. (Parratt-Wolff) completed sonic drilling activities at OW-3 and OW-4, drilling from 7:30 AM to 3:00 PM. CAMP monitoring included photo ionization detectors at upwind and downwind locations and a DustTrak at a breathing zone location. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

CAMP Station Locations	Serial Number
Breathing Zone DustTrak	#8533151804
Upwind PID	#592-914273
Downwind PID	#592-914276

Please contact us with any questions or comments pertaining to this project.

Sincerely,

Arcadis U.S., Inc.

William McCune
Principal Geologist

Attachments

1 CAMP Data Logs
2 Site Sketches/Notes

==========

19/08/30 07:33

****

Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-914376

Unit Firmware Ver V2.14

Running Mode Hygiene Mode

Datalog Mode Auto

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 8/30/2019 07:33:30

End 8/30/2019 15:18:11

Sample Period(s) 60

Number of Records 464

Sensor PID(ppm)

Sensor SN S023030126S2

Measure Type	Min; Avg; Max; Real
Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	8/30/2019 07:33
Peak	0.3
Min	0.0
Average	0.1

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	8/30/2019 07:34:30	0.1	0.1	0.3	0.1	
002	8/30/2019 07:35:30	0.1	0.1	0.1	0.1	
003	8/30/2019 07:36:30	0.1	0.1	0.2	0.1	
004	8/30/2019 07:37:30	0.1	0.1	0.1	0.1	
005	8/30/2019 07:38:30	0.1	0.1	0.1	0.1	
006	8/30/2019 07:39:30	0.1	0.1	0.1	0.1	

007	8/30/2019 07:40:30	0.1	0.1	0.1	0.1
008	8/30/2019 07:41:30	0.1	0.1	0.2	0.1
009	8/30/2019 07:42:30	0.1	0.1	0.1	0.1
010	8/30/2019 07:43:30	0.1	0.1	0.1	0.1
011	8/30/2019 07:44:30	0.1	0.1	0.1	0.1
012	8/30/2019 07:45:30	0.1	0.1	0.1	0.1
013	8/30/2019 07:46:30	0.1	0.1	0.1	0.1
014	8/30/2019 07:47:30	0.1	0.1	0.1	0.1
015	8/30/2019 07:48:30	0.1	0.1	0.1	0.1
016	8/30/2019 07:49:30	0.1	0.1	0.1	0.1
017	8/30/2019 07:50:30	0.1	0.1	0.1	0.1
018	8/30/2019 07:51:30	0.1	0.1	0.1	0.1
019	8/30/2019 07:52:30	0.1	0.1	0.1	0.1
020	8/30/2019 07:53:30	0.1	0.1	0.1	0.1
021	8/30/2019 07:54:30	0.1	0.1	0.1	0.1
022	8/30/2019 07:55:30	0.1	0.1	0.1	0.1
023	8/30/2019 07:56:30	0.1	0.1	0.1	0.1
024	8/30/2019 07:57:30	0.1	0.1	0.1	0.1
025	8/30/2019 07:58:30	0.1	0.1	0.1	0.1
026	8/30/2019 07:59:30	0.1	0.1	0.1	0.1
027	8/30/2019 08:00:30	0.1	0.1	0.1	0.1
028	8/30/2019 08:01:30	0.1	0.1	0.1	0.1
029	8/30/2019 08:02:30	0.1	0.1	0.1	0.1
030	8/30/2019 08:03:30	0.1	0.1	0.1	0.1

031	8/30/2019 08:04:30	0.1	0.1	0.1	0.1
032	8/30/2019 08:05:30	0.1	0.1	0.1	0.1
033	8/30/2019 08:06:30	0.1	0.1	0.1	0.1
034	8/30/2019 08:07:30	0.1	0.1	0.1	0.1
035	8/30/2019 08:08:30	0.1	0.1	0.1	0.1
036	8/30/2019 08:09:30	0.1	0.1	0.1	0.1
037	8/30/2019 08:10:30	0.1	0.1	0.1	0.1
038	8/30/2019 08:11:30	0.1	0.1	0.1	0.1
039	8/30/2019 08:12:30	0.1	0.1	0.1	0.1
040	8/30/2019 08:13:30	0.1	0.1	0.1	0.1
041	8/30/2019 08:14:30	0.1	0.1	0.1	0.1
042	8/30/2019 08:15:30	0.1	0.1	0.1	0.1
043	8/30/2019 08:16:30	0.1	0.1	0.1	0.1
044	8/30/2019 08:17:30	0.1	0.1	0.1	0.1
045	8/30/2019 08:18:30	0.1	0.1	0.1	0.1
046	8/30/2019 08:19:30	0.1	0.1	0.1	0.1
047	8/30/2019 08:20:30	0.1	0.1	0.1	0.1
048	8/30/2019 08:21:30	0.1	0.1	0.1	0.1
049	8/30/2019 08:22:30	0.1	0.1	0.1	0.1
050	8/30/2019 08:23:30	0.1	0.1	0.3	0.2
051	8/30/2019 08:24:30	0.1	0.1	0.3	0.1
052	8/30/2019 08:25:30	0.1	0.1	0.1	0.1
053	8/30/2019 08:26:30	0.1	0.1	0.1	0.1
054	8/30/2019 08:27:30	0.1	0.1	0.2	0.1

055	8/30/2019 08:28:30	0.1	0.1	0.1	0.1
056	8/30/2019 08:29:30	0.1	0.1	0.2	0.1
057	8/30/2019 08:30:30	0.1	0.1	0.2	0.1
058	8/30/2019 08:31:30	0.1	0.1	0.1	0.1
059	8/30/2019 08:32:30	0.1	0.1	0.1	0.1
060	8/30/2019 08:33:30	0.1	0.1	0.1	0.1
061	8/30/2019 08:34:30	0.1	0.1	0.1	0.1
062	8/30/2019 08:35:30	0.1	0.1	0.2	0.1
063	8/30/2019 08:36:30	0.1	0.1	0.1	0.1
064	8/30/2019 08:37:30	0.1	0.1	0.2	0.1
065	8/30/2019 08:38:30	0.1	0.1	0.2	0.2
066	8/30/2019 08:39:30	0.1	0.1	0.1	0.1
067	8/30/2019 08:40:30	0.1	0.1	0.1	0.1
068	8/30/2019 08:41:30	0.1	0.1	0.1	0.1
069	8/30/2019 08:42:30	0.1	0.1	0.1	0.1
070	8/30/2019 08:43:30	0.1	0.1	0.1	0.1
071	8/30/2019 08:44:30	0.1	0.1	0.1	0.1
072	8/30/2019 08:45:30	0.1	0.1	0.1	0.1
073	8/30/2019 08:46:30	0.1	0.1	0.3	0.3
074	8/30/2019 08:47:30	0.1	0.1	0.3	0.1
075	8/30/2019 08:48:30	0.1	0.1	0.2	0.1
076	8/30/2019 08:49:30	0.1	0.1	0.1	0.1
077	8/30/2019 08:50:30	0.1	0.1	0.1	0.1
078	8/30/2019 08:51:30	0.1	0.1	0.1	0.1

079	8/30/2019 08:52:30	0.1	0.1	0.1	0.1
080	8/30/2019 08:53:30	0.1	0.1	0.1	0.1
081	8/30/2019 08:54:30	0.1	0.1	0.2	0.1
082	8/30/2019 08:55:30	0.1	0.1	0.1	0.1
083	8/30/2019 08:56:30	0.1	0.1	0.1	0.1
084	8/30/2019 08:57:30	0.1	0.1	0.1	0.1
085	8/30/2019 08:58:30	0.1	0.1	0.1	0.1
086	8/30/2019 08:59:30	0.1	0.1	0.1	0.1
087	8/30/2019 09:00:30	0.1	0.1	0.2	0.1
088	8/30/2019 09:01:30	0.1	0.1	0.2	0.1
089	8/30/2019 09:02:30	0.1	0.1	0.1	0.1
090	8/30/2019 09:03:30	0.1	0.1	0.2	0.1
091	8/30/2019 09:04:30	0.1	0.1	0.2	0.2
092	8/30/2019 09:05:30	0.1	0.1	0.2	0.1
093	8/30/2019 09:06:30	0.1	0.1	0.1	0.1
094	8/30/2019 09:07:30	0.1	0.1	0.1	0.1
095	8/30/2019 09:08:30	0.1	0.1	0.1	0.1
096	8/30/2019 09:09:30	0.1	0.1	0.1	0.1
097	8/30/2019 09:10:30	0.1	0.1	0.1	0.1
098	8/30/2019 09:11:30	0.1	0.1	0.1	0.1
099	8/30/2019 09:12:30	0.1	0.1	0.2	0.1
100	8/30/2019 09:13:30	0.1	0.1	0.1	0.1
101	8/30/2019 09:14:30	0.1	0.1	0.1	0.1
102	8/30/2019 09:15:30	0.1	0.1	0.1	0.1

103	8/30/2019 09:16:30	0.1	0.1	0.1	0.1
104	8/30/2019 09:17:30	0.1	0.1	0.2	0.1
105	8/30/2019 09:18:30	0.1	0.1	0.1	0.1
106	8/30/2019 09:19:30	0.1	0.1	0.2	0.1
107	8/30/2019 09:20:30	0.1	0.1	0.2	0.1
108	8/30/2019 09:21:30	0.1	0.1	0.2	0.1
109	8/30/2019 09:22:30	0.1	0.1	0.1	0.1
110	8/30/2019 09:23:30	0.1	0.1	0.1	0.1
111	8/30/2019 09:24:30	0.1	0.1	0.3	0.1
112	8/30/2019 09:25:30	0.1	0.1	0.2	0.1
113	8/30/2019 09:26:30	0.1	0.1	0.1	0.1
114	8/30/2019 09:27:30	0.1	0.1	0.1	0.1
115	8/30/2019 09:28:30	0.1	0.1	0.1	0.1
116	8/30/2019 09:29:30	0.1	0.1	0.1	0.1
117	8/30/2019 09:30:30	0.1	0.1	0.1	0.1
118	8/30/2019 09:31:30	0.1	0.1	0.1	0.1
119	8/30/2019 09:32:30	0.1	0.1	0.1	0.1
120	8/30/2019 09:33:30	0.1	0.1	0.1	0.1
121	8/30/2019 09:34:30	0.1	0.1	0.1	0.1
122	8/30/2019 09:35:30	0.1	0.1	0.2	0.1
123	8/30/2019 09:36:30	0.1	0.1	0.1	0.1
124	8/30/2019 09:37:30	0.1	0.1	0.3	0.1
125	8/30/2019 09:38:30	0.1	0.1	0.1	0.1
126	8/30/2019 09:39:30	0.1	0.1	0.1	0.1

127	8/30/2019 09:40:30	0.1	0.1	0.1	0.1
128	8/30/2019 09:41:30	0.1	0.1	0.2	0.1
129	8/30/2019 09:42:30	0.1	0.1	0.2	0.1
130	8/30/2019 09:43:30	0.1	0.1	0.2	0.1
131	8/30/2019 09:44:30	0.1	0.1	0.2	0.1
132	8/30/2019 09:45:30	0.1	0.1	0.1	0.1
133	8/30/2019 09:46:30	0.1	0.1	0.1	0.1
134	8/30/2019 09:47:30	0.1	0.1	0.2	0.1
135	8/30/2019 09:48:30	0.1	0.1	0.2	0.1
136	8/30/2019 09:49:30	0.1	0.1	0.1	0.1
137	8/30/2019 09:50:30	0.1	0.1	0.1	0.1
138	8/30/2019 09:51:30	0.1	0.1	0.1	0.1
139	8/30/2019 09:52:30	0.1	0.1	0.1	0.1
140	8/30/2019 09:53:30	0.1	0.1	0.2	0.1
141	8/30/2019 09:54:30	0.1	0.1	0.1	0.1
142	8/30/2019 09:55:30	0.1	0.1	0.2	0.2
143	8/30/2019 09:56:30	0.1	0.1	0.1	0.1
144	8/30/2019 09:57:30	0.1	0.1	0.1	0.1
145	8/30/2019 09:58:30	0.1	0.1	0.2	0.1
146	8/30/2019 09:59:30	0.1	0.1	0.2	0.1
147	8/30/2019 10:00:30	0.1	0.1	0.1	0.1
148	8/30/2019 10:01:30	0.1	0.1	0.1	0.1
149	8/30/2019 10:02:30	0.1	0.1	0.3	0.1
150	8/30/2019 10:03:30	0.1	0.1	0.1	0.1

151	8/30/2019 10:04:30	0.1	0.1	0.2	0.1
152	8/30/2019 10:05:30	0.1	0.1	0.3	0.1
153	8/30/2019 10:06:30	0.1	0.1	0.2	0.1
154	8/30/2019 10:07:30	0.1	0.1	0.1	0.1
155	8/30/2019 10:08:30	0.1	0.1	0.1	0.1
156	8/30/2019 10:09:30	0.1	0.1	0.2	0.1
157	8/30/2019 10:10:30	0.1	0.1	0.1	0.1
158	8/30/2019 10:11:30	0.1	0.1	0.1	0.1
159	8/30/2019 10:12:30	0.1	0.1	0.2	0.2
160	8/30/2019 10:13:30	0.1	0.1	0.1	0.1
161	8/30/2019 10:14:30	0.1	0.1	0.1	0.1
162	8/30/2019 10:15:30	0.1	0.1	0.1	0.1
163	8/30/2019 10:16:30	0.1	0.1	0.1	0.1
164	8/30/2019 10:17:30	0.1	0.1	0.1	0.1
165	8/30/2019 10:18:30	0.1	0.1	0.1	0.1
166	8/30/2019 10:19:30	0.1	0.1	0.1	0.1
167	8/30/2019 10:20:30	0.1	0.1	0.1	0.1
168	8/30/2019 10:21:30	0.1	0.1	0.2	0.2
169	8/30/2019 10:22:30	0.1	0.1	0.2	0.1
170	8/30/2019 10:23:30	0.1	0.1	0.1	0.1
171	8/30/2019 10:24:30	0.1	0.1	0.1	0.1
172	8/30/2019 10:25:30	0.1	0.1	0.1	0.1
173	8/30/2019 10:26:30	0.1	0.1	0.1	0.1
174	8/30/2019 10:27:30	0.1	0.1	0.1	0.1

175	8/30/2019 10:28:30	0.1	0.1	0.1	0.1
176	8/30/2019 10:29:30	0.1	0.1	0.2	0.1
177	8/30/2019 10:30:30	0.1	0.1	0.1	0.1
178	8/30/2019 10:31:30	0.1	0.1	0.1	0.1
179	8/30/2019 10:32:30	0.1	0.1	0.1	0.1
180	8/30/2019 10:33:30	0.1	0.1	0.1	0.1
181	8/30/2019 10:34:30	0.1	0.1	0.1	0.1
182	8/30/2019 10:35:30	0.1	0.1	0.2	0.1
183	8/30/2019 10:36:30	0.1	0.1	0.1	0.1
184	8/30/2019 10:37:30	0.1	0.1	0.1	0.1
185	8/30/2019 10:38:30	0.1	0.1	0.1	0.1
186	8/30/2019 10:39:30	0.1	0.1	0.1	0.1
187	8/30/2019 10:40:30	0.1	0.1	0.1	0.1
188	8/30/2019 10:41:30	0.1	0.1	0.2	0.1
189	8/30/2019 10:42:30	0.1	0.1	0.1	0.1
190	8/30/2019 10:43:30	0.1	0.1	0.1	0.1
191	8/30/2019 10:44:30	0.1	0.1	0.2	0.1
192	8/30/2019 10:45:30	0.0	0.1	0.1	0.1
193	8/30/2019 10:46:30	0.1	0.1	0.1	0.1
194	8/30/2019 10:47:30	0.1	0.1	0.2	0.1
195	8/30/2019 10:48:30	0.1	0.1	0.1	0.1
196	8/30/2019 10:49:30	0.1	0.1	0.1	0.1
197	8/30/2019 10:50:30	0.1	0.1	0.2	0.1
198	8/30/2019 10:51:30	0.1	0.1	0.1	0.1

199	8/30/2019 10:52:30	0.1	0.1	0.1	0.1
200	8/30/2019 10:53:30	0.1	0.1	0.2	0.1
201	8/30/2019 10:54:30	0.1	0.1	0.1	0.1
202	8/30/2019 10:55:30	0.0	0.1	0.1	0.1
203	8/30/2019 10:56:30	0.0	0.1	0.1	0.1
204	8/30/2019 10:57:30	0.1	0.1	0.3	0.1
205	8/30/2019 10:58:30	0.0	0.1	0.1	0.1
206	8/30/2019 10:59:30	0.1	0.1	0.2	0.1
207	8/30/2019 11:00:30	0.1	0.1	0.1	0.1
208	8/30/2019 11:01:30	0.0	0.1	0.1	0.1
209	8/30/2019 11:02:30	0.0	0.1	0.2	0.1
210	8/30/2019 11:03:30	0.0	0.1	0.5	0.1
211	8/30/2019 11:04:30	0.1	0.1	0.1	0.1
212	8/30/2019 11:05:30	0.0	0.1	0.1	0.0
213	8/30/2019 11:06:30	0.0	0.1	0.2	0.2
214	8/30/2019 11:07:30	0.0	0.1	0.2	0.1
215	8/30/2019 11:08:30	0.0	0.1	0.1	0.1
216	8/30/2019 11:09:30	0.0	0.1	0.2	0.1
217	8/30/2019 11:10:30	0.0	0.1	0.1	0.0
218	8/30/2019 11:11:30	0.0	0.1	0.2	0.1
219	8/30/2019 11:12:30	0.0	0.1	0.1	0.0
220	8/30/2019 11:13:30	0.0	0.1	0.2	0.1
221	8/30/2019 11:14:30	0.0	0.1	0.1	0.1
222	8/30/2019 11:15:30	0.0	0.1	0.1	0.0

223	8/30/2019 11:16:30	0.0	0.1	0.1	0.1
224	8/30/2019 11:17:30	0.0	0.1	0.1	0.1
225	8/30/2019 11:18:30	0.0	0.1	0.1	0.1
226	8/30/2019 11:19:30	0.0	0.1	0.1	0.1
227	8/30/2019 11:20:30	0.0	0.1	0.1	0.1
228	8/30/2019 11:21:30	0.0	0.1	0.1	0.1
229	8/30/2019 11:22:30	0.0	0.1	0.1	0.1
230	8/30/2019 11:23:30	0.0	0.1	0.1	0.1
231	8/30/2019 11:24:30	0.0	0.1	0.1	0.1
232	8/30/2019 11:25:30	0.0	0.1	0.1	0.1
233	8/30/2019 11:26:30	0.0	0.1	0.1	0.1
234	8/30/2019 11:27:30	0.0	0.1	0.1	0.1
235	8/30/2019 11:28:30	0.0	0.1	0.1	0.1
236	8/30/2019 11:29:30	0.1	0.1	0.1	0.1
237	8/30/2019 11:30:30	0.0	0.1	0.1	0.1
238	8/30/2019 11:31:30	0.0	0.1	0.1	0.1
239	8/30/2019 11:32:30	0.0	0.1	0.1	0.1
240	8/30/2019 11:33:30	0.0	0.1	0.1	0.0
241	8/30/2019 11:34:30	0.0	0.1	0.1	0.0
242	8/30/2019 11:35:30	0.0	0.1	0.2	0.0
243	8/30/2019 11:36:30	0.0	0.1	0.1	0.1
244	8/30/2019 11:37:30	0.0	0.1	0.1	0.1
245	8/30/2019 11:38:30	0.0	0.1	0.2	0.1
246	8/30/2019 11:39:30	0.0	0.1	0.1	0.1

247	8/30/2019 11:40:30	0.0	0.1	0.2	0.1
248	8/30/2019 11:41:30	0.0	0.1	0.1	0.0
249	8/30/2019 11:42:30	0.0	0.1	0.1	0.1
250	8/30/2019 11:43:30	0.0	0.1	0.1	0.1
251	8/30/2019 11:44:30	0.0	0.1	0.1	0.1
252	8/30/2019 11:45:30	0.0	0.0	0.1	0.0
253	8/30/2019 11:46:30	0.0	0.0	0.1	0.0
254	8/30/2019 11:47:30	0.0	0.0	0.1	0.0
255	8/30/2019 11:48:30	0.0	0.0	0.1	0.1
256	8/30/2019 11:49:30	0.0	0.1	0.1	0.0
257	8/30/2019 11:50:30	0.0	0.0	0.1	0.0
258	8/30/2019 11:51:30	0.0	0.1	0.1	0.1
259	8/30/2019 11:52:30	0.0	0.1	0.1	0.1
260	8/30/2019 11:53:30	0.0	0.1	0.1	0.0
261	8/30/2019 11:54:30	0.0	0.0	0.1	0.0
262	8/30/2019 11:55:30	0.0	0.0	0.1	0.1
263	8/30/2019 11:56:30	0.0	0.1	0.1	0.0
264	8/30/2019 11:57:30	0.0	0.1	0.2	0.1
265	8/30/2019 11:58:30	0.0	0.0	0.1	0.0
266	8/30/2019 11:59:30	0.0	0.0	0.1	0.1
267	8/30/2019 12:00:30	0.0	0.1	0.2	0.0
268	8/30/2019 12:01:30	0.0	0.1	0.1	0.0
269	8/30/2019 12:02:30	0.0	0.1	0.1	0.0
270	8/30/2019 12:03:30	0.0	0.1	0.1	0.1

271	8/30/2019 12:04:30	0.0	0.1	0.1	0.0
272	8/30/2019 12:05:30	0.0	0.0	0.1	0.0
273	8/30/2019 12:06:30	0.0	0.0	0.1	0.0
274	8/30/2019 12:07:30	0.0	0.1	0.1	0.1
275	8/30/2019 12:08:30	0.0	0.1	0.1	0.0
276	8/30/2019 12:09:30	0.0	0.1	0.1	0.1
277	8/30/2019 12:10:30	0.0	0.1	0.1	0.0
278	8/30/2019 12:11:30	0.0	0.1	0.1	0.0
279	8/30/2019 12:12:30	0.0	0.1	0.1	0.1
280	8/30/2019 12:13:30	0.0	0.1	0.2	0.1
281	8/30/2019 12:14:30	0.0	0.1	0.1	0.0
282	8/30/2019 12:15:30	0.0	0.1	0.1	0.1
283	8/30/2019 12:16:30	0.0	0.1	0.1	0.1
284	8/30/2019 12:17:30	0.0	0.1	0.1	0.0
285	8/30/2019 12:18:30	0.0	0.1	0.1	0.1
286	8/30/2019 12:19:30	0.0	0.1	0.1	0.1
287	8/30/2019 12:20:30	0.0	0.1	0.3	0.1
288	8/30/2019 12:21:30	0.0	0.1	0.1	0.0
289	8/30/2019 12:22:30	0.0	0.1	0.2	0.1
290	8/30/2019 12:23:30	0.0	0.1	0.2	0.1
291	8/30/2019 12:24:30	0.0	0.1	0.1	0.0
292	8/30/2019 12:25:30	0.0	0.0	0.1	0.0
293	8/30/2019 12:26:30	0.0	0.0	0.1	0.1
294	8/30/2019 12:27:30	0.0	0.1	0.1	0.1

295	8/30/2019 12:28:30	0.0	0.1	0.1	0.0
296	8/30/2019 12:29:30	0.0	0.0	0.1	0.1
297	8/30/2019 12:30:30	0.0	0.1	0.1	0.1
298	8/30/2019 12:31:30	0.0	0.0	0.1	0.1
299	8/30/2019 12:32:30	0.0	0.1	0.1	0.1
300	8/30/2019 12:33:30	0.0	0.1	0.1	0.0
301	8/30/2019 12:34:30	0.0	0.0	0.1	0.0
302	8/30/2019 12:35:30	0.0	0.0	0.1	0.0
303	8/30/2019 12:36:30	0.0	0.1	0.1	0.0
304	8/30/2019 12:37:30	0.0	0.0	0.1	0.0
305	8/30/2019 12:38:30	0.0	0.0	0.1	0.1
306	8/30/2019 12:39:30	0.0	0.0	0.1	0.0
307	8/30/2019 12:40:30	0.0	0.0	0.1	0.0
308	8/30/2019 12:41:30	0.0	0.0	0.1	0.0
309	8/30/2019 12:42:30	0.0	0.0	0.1	0.0
310	8/30/2019 12:43:30	0.0	0.0	0.1	0.1
311	8/30/2019 12:44:30	0.0	0.0	0.1	0.0
312	8/30/2019 12:45:30	0.0	0.0	0.1	0.1
313	8/30/2019 12:46:30	0.0	0.0	0.1	0.1
314	8/30/2019 12:47:30	0.0	0.0	0.1	0.1
315	8/30/2019 12:48:30	0.0	0.0	0.1	0.1
316	8/30/2019 12:49:30	0.0	0.1	0.1	0.1
317	8/30/2019 12:50:30	0.0	0.1	0.1	0.1
318	8/30/2019 12:51:30	0.0	0.0	0.1	0.0

319	8/30/2019 12:52:30	0.0	0.0	0.1	0.0
320	8/30/2019 12:53:30	0.0	0.0	0.1	0.0
321	8/30/2019 12:54:30	0.0	0.0	0.1	0.0
322	8/30/2019 12:55:30	0.0	0.0	0.1	0.0
323	8/30/2019 12:56:30	0.0	0.0	0.1	0.1
324	8/30/2019 12:57:30	0.0	0.1	0.1	0.1
325	8/30/2019 12:58:30	0.0	0.1	0.1	0.1
326	8/30/2019 12:59:30	0.0	0.1	0.1	0.1
327	8/30/2019 13:00:30	0.0	0.1	0.1	0.1
328	8/30/2019 13:01:30	0.0	0.1	0.1	0.1
329	8/30/2019 13:02:30	0.0	0.1	0.1	0.1
330	8/30/2019 13:03:30	0.0	0.1	0.1	0.0
331	8/30/2019 13:04:30	0.0	0.1	0.1	0.1
332	8/30/2019 13:05:30	0.0	0.1	0.1	0.0
333	8/30/2019 13:06:30	0.0	0.1	0.1	0.1
334	8/30/2019 13:07:30	0.0	0.1	0.1	0.1
335	8/30/2019 13:08:30	0.1	0.1	0.1	0.1
336	8/30/2019 13:09:30	0.0	0.1	0.1	0.1
337	8/30/2019 13:10:30	0.0	0.1	0.1	0.1
338	8/30/2019 13:11:30	0.0	0.1	0.2	0.1
339	8/30/2019 13:12:30	0.0	0.1	0.1	0.1
340	8/30/2019 13:13:30	0.0	0.1	0.1	0.1
341	8/30/2019 13:14:30	0.0	0.1	0.1	0.1
342	8/30/2019 13:15:30	0.0	0.1	0.1	0.0

343	8/30/2019 13:16:30	0.0	0.1	0.1	0.1
344	8/30/2019 13:17:30	0.0	0.1	0.1	0.0
345	8/30/2019 13:18:30	0.0	0.1	0.1	0.1
346	8/30/2019 13:19:30	0.0	0.1	0.1	0.0
347	8/30/2019 13:20:30	0.0	0.0	0.1	0.0
348	8/30/2019 13:21:30	0.0	0.1	0.1	0.1
349	8/30/2019 13:22:30	0.0	0.1	0.1	0.1
350	8/30/2019 13:23:30	0.0	0.1	0.1	0.1
351	8/30/2019 13:24:30	0.0	0.1	0.1	0.1
352	8/30/2019 13:25:30	0.0	0.1	0.1	0.1
353	8/30/2019 13:26:30	0.0	0.1	0.1	0.0
354	8/30/2019 13:27:30	0.0	0.0	0.1	0.0
355	8/30/2019 13:28:30	0.0	0.1	0.1	0.1
356	8/30/2019 13:29:30	0.0	0.1	0.1	0.1
357	8/30/2019 13:30:30	0.0	0.1	0.1	0.0
358	8/30/2019 13:31:30	0.0	0.0	0.1	0.0
359	8/30/2019 13:32:30	0.0	0.0	0.1	0.0
360	8/30/2019 13:33:30	0.0	0.0	0.1	0.1
361	8/30/2019 13:34:30	0.0	0.1	0.1	0.0
362	8/30/2019 13:35:30	0.0	0.0	0.1	0.1
363	8/30/2019 13:36:30	0.0	0.1	0.1	0.1
364	8/30/2019 13:37:30	0.0	0.0	0.1	0.0
365	8/30/2019 13:38:30	0.0	0.1	0.1	0.1
366	8/30/2019 13:39:30	0.0	0.0	0.1	0.0

367	8/30/2019 13:40:30	0.0	0.1	0.1	0.1
368	8/30/2019 13:41:30	0.0	0.0	0.1	0.0
369	8/30/2019 13:42:30	0.0	0.0	0.1	0.1
370	8/30/2019 13:43:30	0.0	0.1	0.1	0.1
371	8/30/2019 13:44:30	0.0	0.0	0.1	0.1
372	8/30/2019 13:45:30	0.0	0.1	0.1	0.0
373	8/30/2019 13:46:30	0.0	0.0	0.1	0.0
374	8/30/2019 13:47:30	0.0	0.0	0.1	0.0
375	8/30/2019 13:48:30	0.0	0.0	0.1	0.0
376	8/30/2019 13:49:30	0.0	0.0	0.1	0.1
377	8/30/2019 13:50:30	0.0	0.0	0.1	0.1
378	8/30/2019 13:51:30	0.0	0.0	0.1	0.0
379	8/30/2019 13:52:30	0.0	0.0	0.1	0.0
380	8/30/2019 13:53:30	0.0	0.0	0.1	0.1
381	8/30/2019 13:54:30	0.0	0.0	0.1	0.0
382	8/30/2019 13:55:30	0.0	0.0	0.1	0.0
383	8/30/2019 13:56:30	0.0	0.0	0.1	0.0
384	8/30/2019 13:57:30	0.0	0.0	0.1	0.0
385	8/30/2019 13:58:30	0.0	0.0	0.1	0.0
386	8/30/2019 13:59:30	0.0	0.0	0.1	0.0
387	8/30/2019 14:00:30	0.0	0.0	0.1	0.0
388	8/30/2019 14:01:30	0.0	0.0	0.1	0.0
389	8/30/2019 14:02:30	0.0	0.0	0.1	0.0
390	8/30/2019 14:03:30	0.0	0.0	0.1	0.0

391	8/30/2019 14:04:30	0.0	0.0	0.1	0.0
392	8/30/2019 14:05:30	0.0	0.0	0.1	0.0
393	8/30/2019 14:06:30	0.0	0.0	0.1	0.0
394	8/30/2019 14:07:30	0.0	0.0	0.1	0.0
395	8/30/2019 14:08:30	0.0	0.0	0.1	0.0
396	8/30/2019 14:09:30	0.0	0.0	0.1	0.0
397	8/30/2019 14:10:30	0.0	0.0	0.1	0.1
398	8/30/2019 14:11:30	0.0	0.0	0.1	0.1
399	8/30/2019 14:12:30	0.0	0.1	0.2	0.1
400	8/30/2019 14:13:30	0.0	0.0	0.1	0.0
401	8/30/2019 14:14:30	0.0	0.0	0.1	0.0
402	8/30/2019 14:15:30	0.0	0.0	0.1	0.0
403	8/30/2019 14:16:30	0.0	0.1	0.1	0.1
404	8/30/2019 14:17:30	0.0	0.1	0.1	0.1
405	8/30/2019 14:18:30	0.0	0.0	0.1	0.0
406	8/30/2019 14:19:30	0.0	0.0	0.1	0.0
407	8/30/2019 14:20:30	0.0	0.0	0.1	0.0
408	8/30/2019 14:21:30	0.0	0.0	0.1	0.0
409	8/30/2019 14:22:30	0.0	0.0	0.1	0.0
410	8/30/2019 14:23:30	0.0	0.1	0.1	0.0
411	8/30/2019 14:24:30	0.0	0.0	0.1	0.0
412	8/30/2019 14:25:30	0.0	0.0	0.1	0.0
413	8/30/2019 14:26:30	0.0	0.0	0.1	0.1
414	8/30/2019 14:27:30	0.0	0.0	0.1	0.0

415	8/30/2019 14:28:30	0.0	0.0	0.1	0.0
416	8/30/2019 14:29:30	0.0	0.0	0.1	0.0
417	8/30/2019 14:30:30	0.0	0.0	0.1	0.0
418	8/30/2019 14:31:30	0.0	0.0	0.1	0.0
419	8/30/2019 14:32:30	0.0	0.0	0.1	0.0
420	8/30/2019 14:33:30	0.0	0.0	0.1	0.0
421	8/30/2019 14:34:30	0.0	0.0	0.1	0.0
422	8/30/2019 14:35:30	0.0	0.0	0.1	0.0
423	8/30/2019 14:36:30	0.0	0.0	0.1	0.0
424	8/30/2019 14:37:30	0.0	0.0	0.1	0.1
425	8/30/2019 14:38:30	0.0	0.0	0.1	0.0
426	8/30/2019 14:39:30	0.0	0.0	0.1	0.0
427	8/30/2019 14:40:30	0.0	0.0	0.1	0.0
428	8/30/2019 14:41:30	0.0	0.0	0.1	0.0
429	8/30/2019 14:42:30	0.0	0.0	0.1	0.0
430	8/30/2019 14:43:30	0.0	0.0	0.1	0.0
431	8/30/2019 14:44:30	0.0	0.0	0.1	0.0
432	8/30/2019 14:45:30	0.0	0.0	0.1	0.0
433	8/30/2019 14:46:30	0.0	0.1	0.1	0.1
434	8/30/2019 14:47:30	0.0	0.1	0.1	0.0
435	8/30/2019 14:48:30	0.0	0.0	0.1	0.0
436	8/30/2019 14:49:30	0.0	0.0	0.1	0.1
437	8/30/2019 14:50:30	0.0	0.0	0.1	0.0
438	8/30/2019 14:51:30	0.0	0.0	0.1	0.0

439	8/30/2019 14:52:30	0.0	0.0	0.0	0.0
440	8/30/2019 14:53:30	0.0	0.0	0.1	0.0
441	8/30/2019 14:54:30	0.0	0.0	0.0	0.0
442	8/30/2019 14:55:30	0.0	0.0	0.1	0.0
443	8/30/2019 14:56:30	0.0	0.0	0.1	0.0
444	8/30/2019 14:57:30	0.0	0.0	0.1	0.0
445	8/30/2019 14:58:30	0.0	0.0	0.1	0.0
446	8/30/2019 14:59:30	0.0	0.0	0.1	0.0
447	8/30/2019 15:00:30	0.0	0.0	0.1	0.0
448	8/30/2019 15:01:30	0.0	0.0	0.1	0.0
449	8/30/2019 15:02:30	0.0	0.0	0.1	0.0
450	8/30/2019 15:03:30	0.0	0.0	0.1	0.0
451	8/30/2019 15:04:30	0.0	0.0	0.1	0.0
452	8/30/2019 15:05:30	0.0	0.0	0.1	0.0
453	8/30/2019 15:06:30	0.0	0.0	0.0	0.0
454	8/30/2019 15:07:30	0.0	0.0	0.0	0.0
455	8/30/2019 15:08:30	0.0	0.0	0.0	0.0
456	8/30/2019 15:09:30	0.0	0.0	0.0	0.0
457	8/30/2019 15:10:30	0.0	0.0	0.0	0.0
458	8/30/2019 15:11:30	0.0	0.0	0.0	0.0
459	8/30/2019 15:12:30	0.0	0.0	0.1	0.0
460	8/30/2019 15:13:30	0.0	0.0	0.1	0.0
461	8/30/2019 15:14:30	0.0	0.0	0.0	0.0
462	8/30/2019 15:15:30	0.0	0.0	0.0	0.0

463	8/30/2019 15:16:30		0.0	0.0	0.0	0.0
464	8/30/2019 15:17:30		0.0	0.0	0.0	0.0
Peak		0.1	0.1	0.5	0.3	
Min		0.0	0.0	0.0	0.0	
Average			0.0	0.1	0.1	0.1

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	8/30/2019 07:34:30	0.0	---	
002	8/30/2019 07:35:30	0.0	---	
003	8/30/2019 07:36:30	0.0	---	
004	8/30/2019 07:37:30	0.0	---	
005	8/30/2019 07:38:30	0.0	---	
006	8/30/2019 07:39:30	0.0	---	
007	8/30/2019 07:40:30	0.0	---	
008	8/30/2019 07:41:30	0.0	---	
009	8/30/2019 07:42:30	0.0	---	
010	8/30/2019 07:43:30	0.0	---	
011	8/30/2019 07:44:30	0.0	---	
012	8/30/2019 07:45:30	0.0	---	
013	8/30/2019 07:46:30	0.0	---	
014	8/30/2019 07:47:30	0.0	---	

015	8/30/2019 07:48:30	0.0	0.1
016	8/30/2019 07:49:30	0.0	0.1
017	8/30/2019 07:50:30	0.0	0.1
018	8/30/2019 07:51:30	0.0	0.1
019	8/30/2019 07:52:30	0.0	0.1
020	8/30/2019 07:53:30	0.0	0.1
021	8/30/2019 07:54:30	0.0	0.1
022	8/30/2019 07:55:30	0.0	0.1
023	8/30/2019 07:56:30	0.0	0.1
024	8/30/2019 07:57:30	0.0	0.1
025	8/30/2019 07:58:30	0.0	0.1
026	8/30/2019 07:59:30	0.0	0.1
027	8/30/2019 08:00:30	0.0	0.1
028	8/30/2019 08:01:30	0.0	0.1
029	8/30/2019 08:02:30	0.0	0.1
030	8/30/2019 08:03:30	0.0	0.1
031	8/30/2019 08:04:30	0.0	0.1
032	8/30/2019 08:05:30	0.0	0.1
033	8/30/2019 08:06:30	0.0	0.1
034	8/30/2019 08:07:30	0.0	0.1
035	8/30/2019 08:08:30	0.0	0.1
036	8/30/2019 08:09:30	0.0	0.1
037	8/30/2019 08:10:30	0.0	0.1
038	8/30/2019 08:11:30	0.0	0.1

039	8/30/2019 08:12:30	0.0	0.1
040	8/30/2019 08:13:30	0.0	0.1
041	8/30/2019 08:14:30	0.0	0.1
042	8/30/2019 08:15:30	0.0	0.1
043	8/30/2019 08:16:30	0.0	0.1
044	8/30/2019 08:17:30	0.0	0.1
045	8/30/2019 08:18:30	0.0	0.1
046	8/30/2019 08:19:30	0.0	0.1
047	8/30/2019 08:20:30	0.0	0.1
048	8/30/2019 08:21:30	0.0	0.1
049	8/30/2019 08:22:30	0.0	0.1
050	8/30/2019 08:23:30	0.0	0.1
051	8/30/2019 08:24:30	0.0	0.1
052	8/30/2019 08:25:30	0.0	0.1
053	8/30/2019 08:26:30	0.0	0.1
054	8/30/2019 08:27:30	0.0	0.1
055	8/30/2019 08:28:30	0.0	0.1
056	8/30/2019 08:29:30	0.0	0.1
057	8/30/2019 08:30:30	0.0	0.1
058	8/30/2019 08:31:30	0.0	0.1
059	8/30/2019 08:32:30	0.0	0.1
060	8/30/2019 08:33:30	0.0	0.1
061	8/30/2019 08:34:30	0.0	0.1
062	8/30/2019 08:35:30	0.0	0.1

063	8/30/2019 08:36:30	0.0	0.1
064	8/30/2019 08:37:30	0.0	0.1
065	8/30/2019 08:38:30	0.0	0.1
066	8/30/2019 08:39:30	0.0	0.1
067	8/30/2019 08:40:30	0.0	0.1
068	8/30/2019 08:41:30	0.0	0.1
069	8/30/2019 08:42:30	0.0	0.1
070	8/30/2019 08:43:30	0.0	0.1
071	8/30/2019 08:44:30	0.0	0.1
072	8/30/2019 08:45:30	0.0	0.1
073	8/30/2019 08:46:30	0.0	0.1
074	8/30/2019 08:47:30	0.0	0.1
075	8/30/2019 08:48:30	0.0	0.1
076	8/30/2019 08:49:30	0.0	0.1
077	8/30/2019 08:50:30	0.0	0.1
078	8/30/2019 08:51:30	0.0	0.1
079	8/30/2019 08:52:30	0.0	0.1
080	8/30/2019 08:53:30	0.0	0.1
081	8/30/2019 08:54:30	0.0	0.1
082	8/30/2019 08:55:30	0.0	0.1
083	8/30/2019 08:56:30	0.0	0.1
084	8/30/2019 08:57:30	0.0	0.1
085	8/30/2019 08:58:30	0.0	0.1
086	8/30/2019 08:59:30	0.0	0.1

087	8/30/2019 09:00:30	0.0	0.1
088	8/30/2019 09:01:30	0.0	0.1
089	8/30/2019 09:02:30	0.0	0.1
090	8/30/2019 09:03:30	0.0	0.1
091	8/30/2019 09:04:30	0.0	0.1
092	8/30/2019 09:05:30	0.0	0.1
093	8/30/2019 09:06:30	0.0	0.1
094	8/30/2019 09:07:30	0.0	0.1
095	8/30/2019 09:08:30	0.0	0.1
096	8/30/2019 09:09:30	0.0	0.1
097	8/30/2019 09:10:30	0.0	0.1
098	8/30/2019 09:11:30	0.0	0.1
099	8/30/2019 09:12:30	0.0	0.1
100	8/30/2019 09:13:30	0.0	0.1
101	8/30/2019 09:14:30	0.0	0.1
102	8/30/2019 09:15:30	0.0	0.1
103	8/30/2019 09:16:30	0.0	0.1
104	8/30/2019 09:17:30	0.0	0.1
105	8/30/2019 09:18:30	0.0	0.1
106	8/30/2019 09:19:30	0.0	0.1
107	8/30/2019 09:20:30	0.0	0.1
108	8/30/2019 09:21:30	0.0	0.1
109	8/30/2019 09:22:30	0.0	0.1
110	8/30/2019 09:23:30	0.0	0.1

111	8/30/2019 09:24:30	0.0	0.1
112	8/30/2019 09:25:30	0.0	0.1
113	8/30/2019 09:26:30	0.0	0.1
114	8/30/2019 09:27:30	0.0	0.1
115	8/30/2019 09:28:30	0.0	0.1
116	8/30/2019 09:29:30	0.0	0.1
117	8/30/2019 09:30:30	0.0	0.1
118	8/30/2019 09:31:30	0.0	0.1
119	8/30/2019 09:32:30	0.0	0.1
120	8/30/2019 09:33:30	0.0	0.1
121	8/30/2019 09:34:30	0.0	0.1
122	8/30/2019 09:35:30	0.0	0.1
123	8/30/2019 09:36:30	0.0	0.1
124	8/30/2019 09:37:30	0.0	0.1
125	8/30/2019 09:38:30	0.0	0.1
126	8/30/2019 09:39:30	0.0	0.1
127	8/30/2019 09:40:30	0.0	0.1
128	8/30/2019 09:41:30	0.0	0.1
129	8/30/2019 09:42:30	0.0	0.1
130	8/30/2019 09:43:30	0.0	0.1
131	8/30/2019 09:44:30	0.0	0.1
132	8/30/2019 09:45:30	0.0	0.1
133	8/30/2019 09:46:30	0.0	0.1
134	8/30/2019 09:47:30	0.0	0.1

135	8/30/2019 09:48:30	0.0	0.1
136	8/30/2019 09:49:30	0.0	0.1
137	8/30/2019 09:50:30	0.0	0.1
138	8/30/2019 09:51:30	0.0	0.1
139	8/30/2019 09:52:30	0.0	0.1
140	8/30/2019 09:53:30	0.0	0.1
141	8/30/2019 09:54:30	0.0	0.1
142	8/30/2019 09:55:30	0.0	0.1
143	8/30/2019 09:56:30	0.0	0.1
144	8/30/2019 09:57:30	0.0	0.1
145	8/30/2019 09:58:30	0.0	0.1
146	8/30/2019 09:59:30	0.0	0.1
147	8/30/2019 10:00:30	0.0	0.1
148	8/30/2019 10:01:30	0.0	0.1
149	8/30/2019 10:02:30	0.0	0.1
150	8/30/2019 10:03:30	0.0	0.1
151	8/30/2019 10:04:30	0.0	0.1
152	8/30/2019 10:05:30	0.0	0.1
153	8/30/2019 10:06:30	0.0	0.1
154	8/30/2019 10:07:30	0.0	0.1
155	8/30/2019 10:08:30	0.0	0.1
156	8/30/2019 10:09:30	0.0	0.1
157	8/30/2019 10:10:30	0.0	0.1
158	8/30/2019 10:11:30	0.0	0.1

159	8/30/2019 10:12:30	0.0	0.1
160	8/30/2019 10:13:30	0.0	0.1
161	8/30/2019 10:14:30	0.0	0.1
162	8/30/2019 10:15:30	0.0	0.1
163	8/30/2019 10:16:30	0.0	0.1
164	8/30/2019 10:17:30	0.0	0.1
165	8/30/2019 10:18:30	0.0	0.1
166	8/30/2019 10:19:30	0.0	0.1
167	8/30/2019 10:20:30	0.0	0.1
168	8/30/2019 10:21:30	0.0	0.1
169	8/30/2019 10:22:30	0.0	0.1
170	8/30/2019 10:23:30	0.0	0.1
171	8/30/2019 10:24:30	0.0	0.1
172	8/30/2019 10:25:30	0.0	0.1
173	8/30/2019 10:26:30	0.0	0.1
174	8/30/2019 10:27:30	0.0	0.1
175	8/30/2019 10:28:30	0.0	0.1
176	8/30/2019 10:29:30	0.0	0.1
177	8/30/2019 10:30:30	0.0	0.1
178	8/30/2019 10:31:30	0.0	0.1
179	8/30/2019 10:32:30	0.0	0.1
180	8/30/2019 10:33:30	0.0	0.1
181	8/30/2019 10:34:30	0.0	0.1
182	8/30/2019 10:35:30	0.0	0.1

183	8/30/2019 10:36:30	0.0	0.1
184	8/30/2019 10:37:30	0.0	0.1
185	8/30/2019 10:38:30	0.0	0.1
186	8/30/2019 10:39:30	0.0	0.1
187	8/30/2019 10:40:30	0.0	0.1
188	8/30/2019 10:41:30	0.0	0.1
189	8/30/2019 10:42:30	0.0	0.1
190	8/30/2019 10:43:30	0.0	0.1
191	8/30/2019 10:44:30	0.0	0.1
192	8/30/2019 10:45:30	0.0	0.1
193	8/30/2019 10:46:30	0.0	0.1
194	8/30/2019 10:47:30	0.0	0.1
195	8/30/2019 10:48:30	0.0	0.1
196	8/30/2019 10:49:30	0.0	0.1
197	8/30/2019 10:50:30	0.0	0.1
198	8/30/2019 10:51:30	0.0	0.1
199	8/30/2019 10:52:30	0.0	0.1
200	8/30/2019 10:53:30	0.0	0.1
201	8/30/2019 10:54:30	0.0	0.1
202	8/30/2019 10:55:30	0.0	0.1
203	8/30/2019 10:56:30	0.0	0.1
204	8/30/2019 10:57:30	0.0	0.1
205	8/30/2019 10:58:30	0.0	0.1
206	8/30/2019 10:59:30	0.0	0.1

207	8/30/2019 11:00:30	0.0	0.1
208	8/30/2019 11:01:30	0.0	0.1
209	8/30/2019 11:02:30	0.0	0.1
210	8/30/2019 11:03:30	0.0	0.1
211	8/30/2019 11:04:30	0.0	0.1
212	8/30/2019 11:05:30	0.0	0.1
213	8/30/2019 11:06:30	0.0	0.1
214	8/30/2019 11:07:30	0.0	0.1
215	8/30/2019 11:08:30	0.0	0.1
216	8/30/2019 11:09:30	0.0	0.1
217	8/30/2019 11:10:30	0.0	0.1
218	8/30/2019 11:11:30	0.0	0.1
219	8/30/2019 11:12:30	0.0	0.1
220	8/30/2019 11:13:30	0.0	0.1
221	8/30/2019 11:14:30	0.0	0.1
222	8/30/2019 11:15:30	0.0	0.1
223	8/30/2019 11:16:30	0.0	0.1
224	8/30/2019 11:17:30	0.0	0.1
225	8/30/2019 11:18:30	0.0	0.1
226	8/30/2019 11:19:30	0.0	0.1
227	8/30/2019 11:20:30	0.0	0.1
228	8/30/2019 11:21:30	0.0	0.1
229	8/30/2019 11:22:30	0.0	0.1
230	8/30/2019 11:23:30	0.0	0.1

231	8/30/2019 11:24:30	0.0	0.1
232	8/30/2019 11:25:30	0.0	0.1
233	8/30/2019 11:26:30	0.0	0.1
234	8/30/2019 11:27:30	0.0	0.1
235	8/30/2019 11:28:30	0.0	0.1
236	8/30/2019 11:29:30	0.1	0.1
237	8/30/2019 11:30:30	0.1	0.1
238	8/30/2019 11:31:30	0.1	0.1
239	8/30/2019 11:32:30	0.1	0.1
240	8/30/2019 11:33:30	0.1	0.1
241	8/30/2019 11:34:30	0.1	0.1
242	8/30/2019 11:35:30	0.1	0.1
243	8/30/2019 11:36:30	0.1	0.1
244	8/30/2019 11:37:30	0.1	0.1
245	8/30/2019 11:38:30	0.1	0.1
246	8/30/2019 11:39:30	0.1	0.1
247	8/30/2019 11:40:30	0.1	0.1
248	8/30/2019 11:41:30	0.1	0.1
249	8/30/2019 11:42:30	0.1	0.1
250	8/30/2019 11:43:30	0.1	0.1
251	8/30/2019 11:44:30	0.1	0.1
252	8/30/2019 11:45:30	0.1	0.1
253	8/30/2019 11:46:30	0.1	0.1
254	8/30/2019 11:47:30	0.1	0.1

255	8/30/2019 11:48:30	0.1	0.1
256	8/30/2019 11:49:30	0.1	0.1
257	8/30/2019 11:50:30	0.1	0.1
258	8/30/2019 11:51:30	0.1	0.1
259	8/30/2019 11:52:30	0.1	0.1
260	8/30/2019 11:53:30	0.1	0.1
261	8/30/2019 11:54:30	0.1	0.1
262	8/30/2019 11:55:30	0.1	0.1
263	8/30/2019 11:56:30	0.1	0.0
264	8/30/2019 11:57:30	0.1	0.1
265	8/30/2019 11:58:30	0.1	0.0
266	8/30/2019 11:59:30	0.1	0.0
267	8/30/2019 12:00:30	0.1	0.0
268	8/30/2019 12:01:30	0.1	0.0
269	8/30/2019 12:02:30	0.1	0.0
270	8/30/2019 12:03:30	0.1	0.0
271	8/30/2019 12:04:30	0.1	0.0
272	8/30/2019 12:05:30	0.1	0.0
273	8/30/2019 12:06:30	0.1	0.0
274	8/30/2019 12:07:30	0.1	0.0
275	8/30/2019 12:08:30	0.1	0.0
276	8/30/2019 12:09:30	0.1	0.0
277	8/30/2019 12:10:30	0.1	0.0
278	8/30/2019 12:11:30	0.1	0.0

279	8/30/2019 12:12:30	0.1	0.0
280	8/30/2019 12:13:30	0.1	0.0
281	8/30/2019 12:14:30	0.1	0.0
282	8/30/2019 12:15:30	0.1	0.0
283	8/30/2019 12:16:30	0.1	0.0
284	8/30/2019 12:17:30	0.1	0.0
285	8/30/2019 12:18:30	0.1	0.1
286	8/30/2019 12:19:30	0.1	0.1
287	8/30/2019 12:20:30	0.1	0.1
288	8/30/2019 12:21:30	0.1	0.1
289	8/30/2019 12:22:30	0.1	0.1
290	8/30/2019 12:23:30	0.1	0.1
291	8/30/2019 12:24:30	0.1	0.1
292	8/30/2019 12:25:30	0.1	0.1
293	8/30/2019 12:26:30	0.1	0.1
294	8/30/2019 12:27:30	0.1	0.1
295	8/30/2019 12:28:30	0.1	0.1
296	8/30/2019 12:29:30	0.1	0.1
297	8/30/2019 12:30:30	0.1	0.1
298	8/30/2019 12:31:30	0.1	0.1
299	8/30/2019 12:32:30	0.1	0.1
300	8/30/2019 12:33:30	0.1	0.1
301	8/30/2019 12:34:30	0.1	0.1
302	8/30/2019 12:35:30	0.1	0.1

303	8/30/2019 12:36:30	0.1	0.1
304	8/30/2019 12:37:30	0.1	0.1
305	8/30/2019 12:38:30	0.1	0.1
306	8/30/2019 12:39:30	0.1	0.0
307	8/30/2019 12:40:30	0.1	0.0
308	8/30/2019 12:41:30	0.1	0.0
309	8/30/2019 12:42:30	0.1	0.0
310	8/30/2019 12:43:30	0.1	0.0
311	8/30/2019 12:44:30	0.1	0.0
312	8/30/2019 12:45:30	0.1	0.0
313	8/30/2019 12:46:30	0.1	0.0
314	8/30/2019 12:47:30	0.1	0.0
315	8/30/2019 12:48:30	0.1	0.0
316	8/30/2019 12:49:30	0.1	0.0
317	8/30/2019 12:50:30	0.1	0.1
318	8/30/2019 12:51:30	0.1	0.1
319	8/30/2019 12:52:30	0.1	0.1
320	8/30/2019 12:53:30	0.1	0.1
321	8/30/2019 12:54:30	0.1	0.0
322	8/30/2019 12:55:30	0.1	0.0
323	8/30/2019 12:56:30	0.1	0.1
324	8/30/2019 12:57:30	0.1	0.1
325	8/30/2019 12:58:30	0.1	0.1
326	8/30/2019 12:59:30	0.1	0.1

327	8/30/2019 13:00:30	0.1	0.1
328	8/30/2019 13:01:30	0.1	0.1
329	8/30/2019 13:02:30	0.1	0.1
330	8/30/2019 13:03:30	0.1	0.1
331	8/30/2019 13:04:30	0.1	0.1
332	8/30/2019 13:05:30	0.1	0.1
333	8/30/2019 13:06:30	0.1	0.1
334	8/30/2019 13:07:30	0.1	0.1
335	8/30/2019 13:08:30	0.1	0.1
336	8/30/2019 13:09:30	0.1	0.1
337	8/30/2019 13:10:30	0.1	0.1
338	8/30/2019 13:11:30	0.1	0.1
339	8/30/2019 13:12:30	0.1	0.1
340	8/30/2019 13:13:30	0.1	0.1
341	8/30/2019 13:14:30	0.1	0.1
342	8/30/2019 13:15:30	0.1	0.1
343	8/30/2019 13:16:30	0.1	0.1
344	8/30/2019 13:17:30	0.1	0.1
345	8/30/2019 13:18:30	0.1	0.1
346	8/30/2019 13:19:30	0.1	0.1
347	8/30/2019 13:20:30	0.1	0.1
348	8/30/2019 13:21:30	0.1	0.1
349	8/30/2019 13:22:30	0.1	0.1
350	8/30/2019 13:23:30	0.1	0.1

351	8/30/2019 13:24:30	0.1	0.1
352	8/30/2019 13:25:30	0.1	0.1
353	8/30/2019 13:26:30	0.1	0.1
354	8/30/2019 13:27:30	0.1	0.1
355	8/30/2019 13:28:30	0.1	0.1
356	8/30/2019 13:29:30	0.1	0.1
357	8/30/2019 13:30:30	0.1	0.1
358	8/30/2019 13:31:30	0.1	0.1
359	8/30/2019 13:32:30	0.1	0.1
360	8/30/2019 13:33:30	0.1	0.1
361	8/30/2019 13:34:30	0.1	0.1
362	8/30/2019 13:35:30	0.1	0.1
363	8/30/2019 13:36:30	0.1	0.1
364	8/30/2019 13:37:30	0.1	0.1
365	8/30/2019 13:38:30	0.1	0.1
366	8/30/2019 13:39:30	0.1	0.1
367	8/30/2019 13:40:30	0.1	0.1
368	8/30/2019 13:41:30	0.1	0.0
369	8/30/2019 13:42:30	0.1	0.1
370	8/30/2019 13:43:30	0.1	0.1
371	8/30/2019 13:44:30	0.1	0.1
372	8/30/2019 13:45:30	0.1	0.1
373	8/30/2019 13:46:30	0.1	0.1
374	8/30/2019 13:47:30	0.1	0.1

375	8/30/2019 13:48:30	0.1	0.1
376	8/30/2019 13:49:30	0.1	0.1
377	8/30/2019 13:50:30	0.1	0.1
378	8/30/2019 13:51:30	0.1	0.1
379	8/30/2019 13:52:30	0.1	0.0
380	8/30/2019 13:53:30	0.1	0.1
381	8/30/2019 13:54:30	0.1	0.0
382	8/30/2019 13:55:30	0.1	0.0
383	8/30/2019 13:56:30	0.1	0.0
384	8/30/2019 13:57:30	0.1	0.0
385	8/30/2019 13:58:30	0.1	0.0
386	8/30/2019 13:59:30	0.1	0.0
387	8/30/2019 14:00:30	0.1	0.0
388	8/30/2019 14:01:30	0.1	0.0
389	8/30/2019 14:02:30	0.1	0.0
390	8/30/2019 14:03:30	0.1	0.0
391	8/30/2019 14:04:30	0.1	0.0
392	8/30/2019 14:05:30	0.1	0.0
393	8/30/2019 14:06:30	0.1	0.0
394	8/30/2019 14:07:30	0.1	0.0
395	8/30/2019 14:08:30	0.1	0.0
396	8/30/2019 14:09:30	0.1	0.0
397	8/30/2019 14:10:30	0.1	0.0
398	8/30/2019 14:11:30	0.1	0.0

399	8/30/2019 14:12:30	0.1	0.0
400	8/30/2019 14:13:30	0.1	0.0
401	8/30/2019 14:14:30	0.1	0.0
402	8/30/2019 14:15:30	0.1	0.0
403	8/30/2019 14:16:30	0.1	0.0
404	8/30/2019 14:17:30	0.1	0.0
405	8/30/2019 14:18:30	0.1	0.0
406	8/30/2019 14:19:30	0.1	0.0
407	8/30/2019 14:20:30	0.1	0.0
408	8/30/2019 14:21:30	0.1	0.0
409	8/30/2019 14:22:30	0.1	0.0
410	8/30/2019 14:23:30	0.1	0.0
411	8/30/2019 14:24:30	0.1	0.0
412	8/30/2019 14:25:30	0.1	0.0
413	8/30/2019 14:26:30	0.1	0.0
414	8/30/2019 14:27:30	0.1	0.0
415	8/30/2019 14:28:30	0.1	0.0
416	8/30/2019 14:29:30	0.1	0.0
417	8/30/2019 14:30:30	0.1	0.0
418	8/30/2019 14:31:30	0.1	0.0
419	8/30/2019 14:32:30	0.1	0.0
420	8/30/2019 14:33:30	0.1	0.0
421	8/30/2019 14:34:30	0.1	0.0
422	8/30/2019 14:35:30	0.1	0.0

423	8/30/2019 14:36:30	0.1	0.0
424	8/30/2019 14:37:30	0.1	0.0
425	8/30/2019 14:38:30	0.1	0.0
426	8/30/2019 14:39:30	0.1	0.0
427	8/30/2019 14:40:30	0.1	0.0
428	8/30/2019 14:41:30	0.1	0.0
429	8/30/2019 14:42:30	0.1	0.0
430	8/30/2019 14:43:30	0.1	0.0
431	8/30/2019 14:44:30	0.1	0.0
432	8/30/2019 14:45:30	0.1	0.0
433	8/30/2019 14:46:30	0.1	0.0
434	8/30/2019 14:47:30	0.1	0.0
435	8/30/2019 14:48:30	0.1	0.0
436	8/30/2019 14:49:30	0.1	0.0
437	8/30/2019 14:50:30	0.1	0.0
438	8/30/2019 14:51:30	0.1	0.0
439	8/30/2019 14:52:30	0.1	0.0
440	8/30/2019 14:53:30	0.1	0.0
441	8/30/2019 14:54:30	0.1	0.0
442	8/30/2019 14:55:30	0.1	0.0
443	8/30/2019 14:56:30	0.1	0.0
444	8/30/2019 14:57:30	0.1	0.0
445	8/30/2019 14:58:30	0.1	0.0
446	8/30/2019 14:59:30	0.1	0.0

447	8/30/2019 15:00:30	0.1	0.0
448	8/30/2019 15:01:30	0.1	0.0
449	8/30/2019 15:02:30	0.1	0.0
450	8/30/2019 15:03:30	0.1	0.0
451	8/30/2019 15:04:30	0.1	0.0
452	8/30/2019 15:05:30	0.1	0.0
453	8/30/2019 15:06:30	0.1	0.0
454	8/30/2019 15:07:30	0.1	0.0
455	8/30/2019 15:08:30	0.1	0.0
456	8/30/2019 15:09:30	0.1	0.0
457	8/30/2019 15:10:30	0.1	0.0
458	8/30/2019 15:11:30	0.1	0.0
459	8/30/2019 15:12:30	0.1	0.0
460	8/30/2019 15:13:30	0.1	0.0
461	8/30/2019 15:14:30	0.1	0.0
462	8/30/2019 15:15:30	0.1	0.0
463	8/30/2019 15:16:30	0.1	0.0
464	8/30/2019 15:17:30	0.1	0.0

Test 015

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	08/30/2019
Instrument S/N	8533151804	Start Time	07:30:32
		Stop Date	08/30/2019
		Stop Time	15:15:32
		Total Time	0:07:45:00
		Logging Interval	900 seconds

Test Data

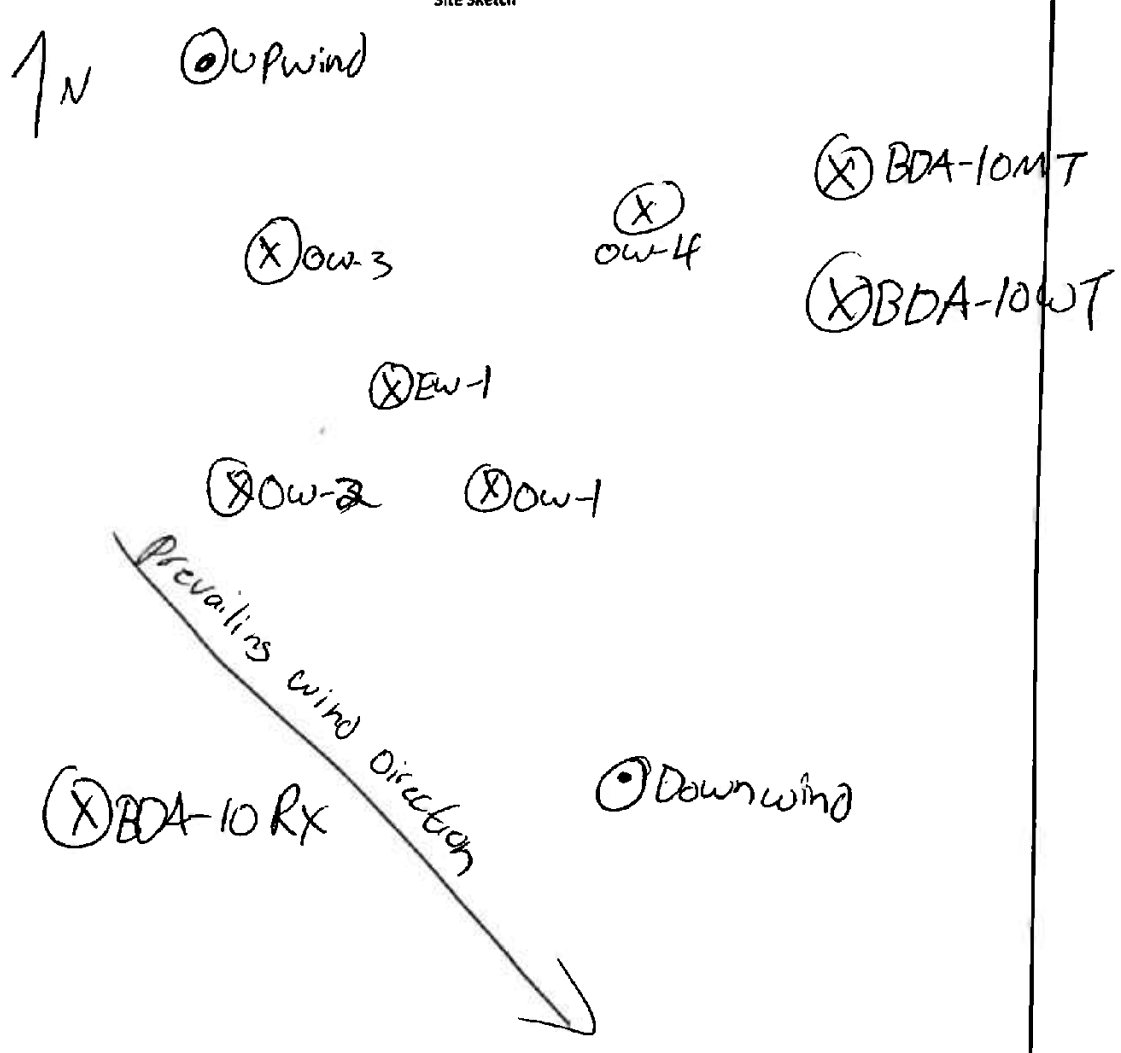
Data Point	Date	Time	PM1 mg/m^3	PM2.5 mg/m^3	RESP mg/m^3	PM10 mg/m^3	TOTAL mg/m^3
1	08/30/2019	07:45:32	0.011	0.011	0.012	0.017	0.022
2	08/30/2019	08:00:32	0.011	0.012	0.013	0.017	0.022
3	08/30/2019	08:15:32	0.009	0.010	0.010	0.013	0.015
4	08/30/2019	08:30:32	0.010	0.010	0.011	0.013	0.014
5	08/30/2019	08:45:32	0.010	0.011	0.011	0.014	0.017
6	08/30/2019	09:00:32	0.011	0.011	0.012	0.015	0.017
7	08/30/2019	09:15:32	0.011	0.011	0.012	0.015	0.017
8	08/30/2019	09:30:32	0.011	0.011	0.012	0.014	0.016
9	08/30/2019	09:45:32	0.011	0.011	0.012	0.014	0.015
10	08/30/2019	10:00:32	0.011	0.012	0.013	0.015	0.017
11	08/30/2019	10:15:32	0.012	0.012	0.013	0.016	0.019
12	08/30/2019	10:30:32	0.010	0.011	0.012	0.015	0.016
13	08/30/2019	10:45:32	0.011	0.012	0.013	0.017	0.021
14	08/30/2019	11:00:32	0.018	0.020	0.022	0.033	0.045
15	08/30/2019	11:15:32	0.009	0.010	0.011	0.014	0.016
16	08/30/2019	11:30:32	0.013	0.013	0.014	0.019	0.029
17	08/30/2019	11:45:32	0.010	0.010	0.011	0.013	0.016
18	08/30/2019	12:00:32	0.008	0.008	0.009	0.010	0.011
19	08/30/2019	12:15:32	0.007	0.007	0.007	0.009	0.010
20	08/30/2019	12:30:32	0.007	0.007	0.007	0.008	0.009
21	08/30/2019	12:45:32	0.008	0.008	0.009	0.012	0.014
22	08/30/2019	13:00:32	0.006	0.006	0.006	0.008	0.009
23	08/30/2019	13:15:32	0.008	0.008	0.009	0.013	0.015
24	08/30/2019	13:30:32	0.007	0.007	0.008	0.010	0.012
25	08/30/2019	13:45:32	0.007	0.008	0.008	0.010	0.011
26	08/30/2019	14:00:32	0.008	0.008	0.008	0.011	0.013
27	08/30/2019	14:15:32	0.007	0.007	0.007	0.009	0.010
28	08/30/2019	14:30:32	0.010	0.011	0.012	0.017	0.024
29	08/30/2019	14:45:32	0.007	0.007	0.008	0.009	0.012
30	08/30/2019	15:00:32	0.013	0.014	0.015	0.021	0.031
31	08/30/2019	15:15:32	0.011	0.012	0.013	0.018	0.023

ARCADIS Design & Consultancy for natural and built assets

Daily CAMP Log

Project	Phase 2 Groundwater RI
Location	East Syracuse, NY
Date	4/30/15
Weather Conditions	70's, Sunny & Windy
Upwind Monitor	SQ2-914272
Downwind Monitor	SQ2-914371
Start Time	0730
End Time	

Site Sketch



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Environmental North

Anne Locke
Associate Manager, Environmental Protection
Environmental, Health and Safety Department
Bristol-Myers Squibb
P.O. Box 4755
Syracuse, NY 13221

Date:
November 11 - 15, 2019

Contact:
William McCune

Phone:
315-671-9172

Email:
William.McCune@arcadis.com

Our ref:
B0087363.0037

Subject:
Community Air Monitoring During High-Vac Extraction Pilot Study Bristol-Myers Squibb Syracuse Facility – East Syracuse, New York 13057

Dear Ms. Locke:

The following is a summary of the community air monitoring plan (CAMP) provided by Arcadis U.S., Inc. (Arcadis) during the High Vacuum Extraction Pilot Study activities conducted at the Bristol-Myers Squibb (BMS) Syracuse North Campus, East Syracuse, NY from November 11th to November 15th 2019.

November 11, 2019: Arcadis began high-vacuum extraction activities at 5:15PM and completed them by 6:15 PM. CAMP monitoring included photoionization detectors at upwind and downwind locations. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

November 12, 2019: Arcadis continued high-vacuum extraction activities at 9:30 AM and completed them by 8:00 PM. CAMP monitoring included photoionization detectors at upwind and downwind locations. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

November 13, 2019: Arcadis continued high-vacuum extraction activities at 8:30 AM and completed them by 7:45 PM. CAMP monitoring included photoionization detectors at upwind and downwind locations. The prevailing wind direction was observed originating from the northwest through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

November 14, 2019: Arcadis continued high-vacuum extraction activities at 8:30 AM and completed them by 8:15 PM. CAMP monitoring included photoionization detectors at upwind and downwind locations. The prevailing wind direction was observed originating from the north through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

November 15, 2019: Arcadis continued high-vacuum extraction activities at 8:40 AM and completed them by 2:15 PM. CAMP monitoring included photoionization detectors at upwind and downwind locations. The prevailing wind direction was observed originating from the north through the day. Air quality parameters did not exceed CAMP standards at any time during work activities. Table 1 shows the serial numbers and associated CAMP stations locations.

CAMP Station Locations	Serial Number
Upwind PID	#592-908404
Downwind PID	#592-913461

Please contact us with any questions or comments pertaining to this project.

Sincerely,

Arcadis U.S., Inc.

William McCune
Principal Geologist

Attachments

1 CAMP Data Logs
2 CAMP Monitoring Station Locations/Notes

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19/11/11 17:04

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-908404

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00007

User ID 00000001

Begin 11/11/2019 17:04:44

End 11/11/2019 18:04:04

Sample Period(s) 900

Number of Records 3

Sensor PID(ppm)

Sensor SN S023030567U7

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	434.8
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:21
Peak	0.1
Min	0.1
Average	0.1

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/11/2019 17:19:44	0.1	0.1	0.2	0.1	
002	11/11/2019 17:34:44	0.1	0.1	0.1	0.1	
003	11/11/2019 17:49:44	0.0	0.1	0.1	0.1	
Peak		0.1	0.1	0.2	0.1	
Min		0.0	0.1	0.1	0.1	
Average			0.1	0.1	0.1	0.1

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/11/2019 17:19:44	0.0	0.1	
002	11/11/2019 17:34:44	0.0	0.2	
003	11/11/2019 17:49:44	0.0	0.2	

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19/11/11 17:18

****

Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-913461

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 11/11/2019 17:18:12

End 11/11/2019 18:17:18

Sample Period(s) 60

Number of Records 59

Sensor PID(ppm)

Sensor SN S023030030R8

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	100.0
TWA Alarm	50.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:53
Peak	0.1
Min	0.0
Average	0.0

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/11/2019 17:19:12	0.0	0.0	0.0	0.0	
002	11/11/2019 17:20:12	0.0	0.0	0.0	0.0	
003	11/11/2019 17:21:12	0.0	0.0	0.0	0.0	
004	11/11/2019 17:22:12	0.0	0.0	0.1	0.0	
005	11/11/2019 17:23:12	0.0	0.1	0.1	0.1	
006	11/11/2019 17:24:12	0.0	0.1	0.1	0.0	
007	11/11/2019 17:25:12	0.0	0.1	0.1	0.1	

008	11/11/2019 17:26:12	0.1	0.1	0.1	0.1
009	11/11/2019 17:27:12	0.1	0.1	0.1	0.1
010	11/11/2019 17:28:12	0.0	0.1	0.1	0.0
011	11/11/2019 17:29:12	0.0	0.1	0.1	0.1
012	11/11/2019 17:30:12	0.1	0.1	0.1	0.1
013	11/11/2019 17:31:12	0.1	0.1	0.1	0.1
014	11/11/2019 17:32:12	0.1	0.1	0.1	0.1
015	11/11/2019 17:33:12	0.1	0.1	0.1	0.1
016	11/11/2019 17:34:12	0.0	0.1	0.1	0.1
017	11/11/2019 17:35:12	0.0	0.0	0.1	0.0
018	11/11/2019 17:36:12	0.0	0.0	0.0	0.0
019	11/11/2019 17:37:12	0.0	0.0	0.0	0.0
020	11/11/2019 17:38:12	0.0	0.0	0.0	0.0
021	11/11/2019 17:39:12	0.0	0.0	0.0	0.0
022	11/11/2019 17:40:12	0.0	0.0	0.0	0.0
023	11/11/2019 17:41:12	0.0	0.0	0.0	0.0
024	11/11/2019 17:42:12	0.0	0.0	0.0	0.0
025	11/11/2019 17:43:12	0.0	0.0	0.0	0.0
026	11/11/2019 17:44:12	0.0	0.0	0.0	0.0
027	11/11/2019 17:45:12	0.0	0.0	0.0	0.0
028	11/11/2019 17:46:12	0.0	0.0	0.0	0.0
029	11/11/2019 17:47:12	0.0	0.0	0.0	0.0
030	11/11/2019 17:48:12	0.0	0.0	0.0	0.0
031	11/11/2019 17:49:12	0.0	0.0	0.0	0.0

032	11/11/2019 17:50:12	0.0	0.0	0.0	0.0
033	11/11/2019 17:51:12	0.0	0.0	0.0	0.0
034	11/11/2019 17:52:12	0.0	0.0	0.0	0.0
035	11/11/2019 17:53:12	0.0	0.0	0.0	0.0
036	11/11/2019 17:54:12	0.0	0.0	0.0	0.0
037	11/11/2019 17:55:12	0.0	0.0	0.0	0.0
038	11/11/2019 17:56:12	0.0	0.0	0.0	0.0
039	11/11/2019 17:57:12	0.0	0.0	0.0	0.0
040	11/11/2019 17:58:12	0.0	0.0	0.0	0.0
041	11/11/2019 17:59:12	0.0	0.0	0.0	0.0
042	11/11/2019 18:00:12	0.0	0.0	0.0	0.0
043	11/11/2019 18:01:12	0.0	0.0	0.0	0.0
044	11/11/2019 18:02:12	0.0	0.0	0.0	0.0
045	11/11/2019 18:03:12	0.0	0.0	0.0	0.0
046	11/11/2019 18:04:12	0.0	0.0	0.0	0.0
047	11/11/2019 18:05:12	0.0	0.0	0.0	0.0
048	11/11/2019 18:06:12	0.0	0.0	0.0	0.0
049	11/11/2019 18:07:12	0.0	0.0	0.0	0.0
050	11/11/2019 18:08:12	0.0	0.0	0.0	0.0
051	11/11/2019 18:09:12	0.0	0.0	0.0	0.0
052	11/11/2019 18:10:12	0.0	0.0	0.0	0.0
053	11/11/2019 18:11:12	0.0	0.0	0.0	0.0
054	11/11/2019 18:12:12	0.0	0.0	0.0	0.0
055	11/11/2019 18:13:12	0.0	0.0	0.0	0.0

056	11/11/2019 18:14:12		0.0	0.0	0.0	0.0
057	11/11/2019 18:15:12		0.0	0.0	0.0	0.0
058	11/11/2019 18:16:12		0.0	0.0	0.0	0.0
059	11/11/2019 18:17:12		0.0	0.0	0.0	0.0
Peak		0.1	0.1	0.1	0.1	
Min		0.0	0.0	0.0	0.0	
Average			0.0	0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/11/2019 17:19:12		0.0	---
002	11/11/2019 17:20:12		0.0	---
003	11/11/2019 17:21:12		0.0	---
004	11/11/2019 17:22:12		0.0	---
005	11/11/2019 17:23:12		0.0	---
006	11/11/2019 17:24:12		0.0	---
007	11/11/2019 17:25:12		0.0	---
008	11/11/2019 17:26:12		0.0	---
009	11/11/2019 17:27:12		0.0	---
010	11/11/2019 17:28:12		0.0	---
011	11/11/2019 17:29:12		0.0	---
012	11/11/2019 17:30:12		0.0	---

013	11/11/2019 17:31:12	0.0	---
014	11/11/2019 17:32:12	0.0	---
015	11/11/2019 17:33:12	0.0	0.1
016	11/11/2019 17:34:12	0.0	0.1
017	11/11/2019 17:35:12	0.0	0.1
018	11/11/2019 17:36:12	0.0	0.1
019	11/11/2019 17:37:12	0.0	0.1
020	11/11/2019 17:38:12	0.0	0.1
021	11/11/2019 17:39:12	0.0	0.1
022	11/11/2019 17:40:12	0.0	0.1
023	11/11/2019 17:41:12	0.0	0.1
024	11/11/2019 17:42:12	0.0	0.0
025	11/11/2019 17:43:12	0.0	0.0
026	11/11/2019 17:44:12	0.0	0.0
027	11/11/2019 17:45:12	0.0	0.0
028	11/11/2019 17:46:12	0.0	0.0
029	11/11/2019 17:47:12	0.0	0.0
030	11/11/2019 17:48:12	0.0	0.0
031	11/11/2019 17:49:12	0.0	0.0
032	11/11/2019 17:50:12	0.0	0.0
033	11/11/2019 17:51:12	0.0	0.0
034	11/11/2019 17:52:12	0.0	0.0
035	11/11/2019 17:53:12	0.0	0.0
036	11/11/2019 17:54:12	0.0	0.0

037	11/11/2019 17:55:12	0.0	0.0
038	11/11/2019 17:56:12	0.0	0.0
039	11/11/2019 17:57:12	0.0	0.0
040	11/11/2019 17:58:12	0.0	0.0
041	11/11/2019 17:59:12	0.0	0.0
042	11/11/2019 18:00:12	0.0	0.0
043	11/11/2019 18:01:12	0.0	0.0
044	11/11/2019 18:02:12	0.0	0.0
045	11/11/2019 18:03:12	0.0	0.0
046	11/11/2019 18:04:12	0.0	0.0
047	11/11/2019 18:05:12	0.0	0.0
048	11/11/2019 18:06:12	0.0	0.0
049	11/11/2019 18:07:12	0.0	0.0
050	11/11/2019 18:08:12	0.0	0.0
051	11/11/2019 18:09:12	0.0	0.0
052	11/11/2019 18:10:12	0.0	0.0
053	11/11/2019 18:11:12	0.0	0.0
054	11/11/2019 18:12:12	0.0	0.0
055	11/11/2019 18:13:12	0.0	0.0
056	11/11/2019 18:14:12	0.0	0.0
057	11/11/2019 18:15:12	0.0	0.0
058	11/11/2019 18:16:12	0.0	0.0
059	11/11/2019 18:17:12	0.0	0.0

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19/11/12 09:08

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-908404

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00007

User ID 00000001

Begin 11/12/2019 09:08:28

End 11/12/2019 18:44:45

Sample Period(s) 900

Number of Records 38

Sensor PID(ppm)

Sensor SN S023030567U7

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	434.8
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:21
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/12/2019 09:23:28	0.0	0.0	0.0	0.0	
002	11/12/2019 09:38:28	0.0	0.0	0.0	0.0	
003	11/12/2019 09:53:28	0.0	0.0	0.0	0.0	
004	11/12/2019 10:08:28	0.0	0.0	0.0	0.0	
005	11/12/2019 10:23:28	0.0	0.0	0.1	0.0	
006	11/12/2019 10:38:28	0.0	0.0	0.0	0.0	
007	11/12/2019 10:53:28	0.0	0.0	0.0	0.0	

008	11/12/2019 11:08:28	0.0	0.0	0.0	0.0
009	11/12/2019 11:23:28	0.0	0.0	0.0	0.0
010	11/12/2019 11:38:28	0.0	0.0	0.0	0.0
011	11/12/2019 11:53:28	0.0	0.0	0.0	0.0
012	11/12/2019 12:08:28	0.0	0.0	0.0	0.0
013	11/12/2019 12:23:28	0.0	0.0	0.0	0.0
014	11/12/2019 12:38:28	0.0	0.0	0.0	0.0
015	11/12/2019 12:53:28	0.0	0.0	0.0	0.0
016	11/12/2019 13:08:28	0.0	0.0	0.0	0.0
017	11/12/2019 13:23:28	0.0	0.0	0.0	0.0
018	11/12/2019 13:38:28	0.0	0.0	0.0	0.0
019	11/12/2019 13:53:28	0.0	0.0	0.0	0.0
020	11/12/2019 14:08:28	0.0	0.0	0.0	0.0
021	11/12/2019 14:23:28	0.0	0.0	0.0	0.0
022	11/12/2019 14:38:28	0.0	0.0	0.0	0.0
023	11/12/2019 14:53:28	0.0	0.0	0.0	0.0
024	11/12/2019 15:08:28	0.0	0.0	0.0	0.0
025	11/12/2019 15:23:28	0.0	0.0	0.0	0.0
026	11/12/2019 15:38:28	0.0	0.0	0.0	0.0
027	11/12/2019 15:53:28	0.0	0.0	0.0	0.0
028	11/12/2019 16:08:28	0.0	0.0	0.0	0.0
029	11/12/2019 16:23:28	0.0	0.0	0.0	0.0
030	11/12/2019 16:38:28	0.0	0.0	0.0	0.0
031	11/12/2019 16:53:28	0.0	0.0	0.0	0.0

032	11/12/2019 17:08:28	0.0	0.0	0.0	0.0
033	11/12/2019 17:23:28	0.0	0.0	0.0	0.0
034	11/12/2019 17:38:28	0.0	0.0	0.0	0.0
035	11/12/2019 17:53:28	0.0	0.0	0.0	0.0
036	11/12/2019 18:08:28	0.0	0.0	0.0	0.0
037	11/12/2019 18:23:28	0.0	0.0	0.0	0.0
038	11/12/2019 18:38:28	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.1	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/12/2019 09:23:28	0.0	0.0	
002	11/12/2019 09:38:28	0.0	0.0	
003	11/12/2019 09:53:28	0.0	0.0	
004	11/12/2019 10:08:28	0.0	0.0	
005	11/12/2019 10:23:28	0.0	0.0	
006	11/12/2019 10:38:28	0.0	0.0	
007	11/12/2019 10:53:28	0.0	0.0	
008	11/12/2019 11:08:28	0.0	0.0	
009	11/12/2019 11:23:28	0.0	0.0	

010	11/12/2019 11:38:28	0.0	0.0
011	11/12/2019 11:53:28	0.0	0.0
012	11/12/2019 12:08:28	0.0	0.0
013	11/12/2019 12:23:28	0.0	0.0
014	11/12/2019 12:38:28	0.0	0.0
015	11/12/2019 12:53:28	0.0	0.0
016	11/12/2019 13:08:28	0.0	0.0
017	11/12/2019 13:23:28	0.0	0.0
018	11/12/2019 13:38:28	0.0	0.0
019	11/12/2019 13:53:28	0.0	0.0
020	11/12/2019 14:08:28	0.0	0.0
021	11/12/2019 14:23:28	0.0	0.0
022	11/12/2019 14:38:28	0.0	0.0
023	11/12/2019 14:53:28	0.0	0.0
024	11/12/2019 15:08:28	0.0	0.0
025	11/12/2019 15:23:28	0.0	0.0
026	11/12/2019 15:38:28	0.0	0.0
027	11/12/2019 15:53:28	0.0	0.0
028	11/12/2019 16:08:28	0.0	0.0
029	11/12/2019 16:23:28	0.0	0.0
030	11/12/2019 16:38:28	0.0	0.0
031	11/12/2019 16:53:28	0.0	0.0
032	11/12/2019 17:08:28	0.0	0.0
033	11/12/2019 17:23:28	0.0	0.0

034	11/12/2019 17:38:28	0.0	0.0
035	11/12/2019 17:53:28	0.0	0.0
036	11/12/2019 18:08:28	0.0	0.0
037	11/12/2019 18:23:28	0.0	0.0
038	11/12/2019 18:38:28	0.0	0.0

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19/11/12 09:25

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-913461

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 11/12/2019 09:25:38

End 11/12/2019 19:02:04

Sample Period(s) 900

Number of Records 38

Sensor PID(ppm)

Sensor SN S023030030R8

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	100.0
TWA Alarm	50.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:53
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/12/2019 09:40:38	0.0	0.0	0.0	0.0	
002	11/12/2019 09:55:38	0.0	0.0	0.0	0.0	
003	11/12/2019 10:10:38	0.0	0.0	0.0	0.0	
004	11/12/2019 10:25:38	0.0	0.0	0.0	0.0	
005	11/12/2019 10:40:38	0.0	0.0	0.0	0.0	
006	11/12/2019 10:55:38	0.0	0.0	0.0	0.0	
007	11/12/2019 11:10:38	0.0	0.0	0.0	0.0	

008	11/12/2019 11:25:38	0.0	0.0	0.0	0.0
009	11/12/2019 11:40:38	0.0	0.0	0.0	0.0
010	11/12/2019 11:55:38	0.0	0.0	0.0	0.0
011	11/12/2019 12:10:38	0.0	0.0	0.0	0.0
012	11/12/2019 12:25:38	0.0	0.0	0.0	0.0
013	11/12/2019 12:40:38	0.0	0.0	0.0	0.0
014	11/12/2019 12:55:38	0.0	0.0	0.0	0.0
015	11/12/2019 13:10:38	0.0	0.0	0.0	0.0
016	11/12/2019 13:25:38	0.0	0.0	0.0	0.0
017	11/12/2019 13:40:38	0.0	0.0	0.0	0.0
018	11/12/2019 13:55:38	0.0	0.0	0.0	0.0
019	11/12/2019 14:10:38	0.0	0.0	0.0	0.0
020	11/12/2019 14:25:38	0.0	0.0	0.0	0.0
021	11/12/2019 14:40:38	0.0	0.0	0.0	0.0
022	11/12/2019 14:55:38	0.0	0.0	0.0	0.0
023	11/12/2019 15:10:38	0.0	0.0	0.0	0.0
024	11/12/2019 15:25:38	0.0	0.0	0.0	0.0
025	11/12/2019 15:40:38	0.0	0.0	0.0	0.0
026	11/12/2019 15:55:38	0.0	0.0	0.0	0.0
027	11/12/2019 16:10:38	0.0	0.0	0.0	0.0
028	11/12/2019 16:25:38	0.0	0.0	0.0	0.0
029	11/12/2019 16:40:38	0.0	0.0	0.0	0.0
030	11/12/2019 16:55:38	0.0	0.0	0.0	0.0
031	11/12/2019 17:10:38	0.0	0.0	0.0	0.0

032	11/12/2019 17:25:38	0.0	0.0	0.0	0.0
033	11/12/2019 17:40:38	0.0	0.0	0.0	0.0
034	11/12/2019 17:55:38	0.0	0.0	0.0	0.0
035	11/12/2019 18:10:38	0.0	0.0	0.0	0.0
036	11/12/2019 18:25:38	0.0	0.0	0.0	0.0
037	11/12/2019 18:40:38	0.0	0.0	0.0	0.0
038	11/12/2019 18:55:38	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.0	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/12/2019 09:40:38	0.0	0.0	
002	11/12/2019 09:55:38	0.0	0.0	
003	11/12/2019 10:10:38	0.0	0.0	
004	11/12/2019 10:25:38	0.0	0.0	
005	11/12/2019 10:40:38	0.0	0.0	
006	11/12/2019 10:55:38	0.0	0.0	
007	11/12/2019 11:10:38	0.0	0.0	
008	11/12/2019 11:25:38	0.0	0.0	
009	11/12/2019 11:40:38	0.0	0.0	

010	11/12/2019 11:55:38	0.0	0.0
011	11/12/2019 12:10:38	0.0	0.0
012	11/12/2019 12:25:38	0.0	0.0
013	11/12/2019 12:40:38	0.0	0.0
014	11/12/2019 12:55:38	0.0	0.0
015	11/12/2019 13:10:38	0.0	0.0
016	11/12/2019 13:25:38	0.0	0.0
017	11/12/2019 13:40:38	0.0	0.0
018	11/12/2019 13:55:38	0.0	0.0
019	11/12/2019 14:10:38	0.0	0.0
020	11/12/2019 14:25:38	0.0	0.0
021	11/12/2019 14:40:38	0.0	0.0
022	11/12/2019 14:55:38	0.0	0.0
023	11/12/2019 15:10:38	0.0	0.0
024	11/12/2019 15:25:38	0.0	0.0
025	11/12/2019 15:40:38	0.0	0.0
026	11/12/2019 15:55:38	0.0	0.0
027	11/12/2019 16:10:38	0.0	0.0
028	11/12/2019 16:25:38	0.0	0.0
029	11/12/2019 16:40:38	0.0	0.0
030	11/12/2019 16:55:38	0.0	0.0
031	11/12/2019 17:10:38	0.0	0.0
032	11/12/2019 17:25:38	0.0	0.0
033	11/12/2019 17:40:38	0.0	0.0

034	11/12/2019 17:55:38	0.0	0.0
035	11/12/2019 18:10:38	0.0	0.0
036	11/12/2019 18:25:38	0.0	0.0
037	11/12/2019 18:40:38	0.0	0.0
038	11/12/2019 18:55:38	0.0	0.0

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19/11/12 09:08

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-908404

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00007

User ID 00000001

Begin 11/12/2019 09:08:28

End 11/12/2019 18:44:45

Sample Period(s) 900

Number of Records 38

Sensor PID(ppm)

Sensor SN S023030567U7

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	434.8
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:21
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/12/2019 09:23:28	0.0	0.0	0.0	0.0	
002	11/12/2019 09:38:28	0.0	0.0	0.0	0.0	
003	11/12/2019 09:53:28	0.0	0.0	0.0	0.0	
004	11/12/2019 10:08:28	0.0	0.0	0.0	0.0	
005	11/12/2019 10:23:28	0.0	0.0	0.1	0.0	
006	11/12/2019 10:38:28	0.0	0.0	0.0	0.0	
007	11/12/2019 10:53:28	0.0	0.0	0.0	0.0	

008	11/12/2019 11:08:28	0.0	0.0	0.0	0.0
009	11/12/2019 11:23:28	0.0	0.0	0.0	0.0
010	11/12/2019 11:38:28	0.0	0.0	0.0	0.0
011	11/12/2019 11:53:28	0.0	0.0	0.0	0.0
012	11/12/2019 12:08:28	0.0	0.0	0.0	0.0
013	11/12/2019 12:23:28	0.0	0.0	0.0	0.0
014	11/12/2019 12:38:28	0.0	0.0	0.0	0.0
015	11/12/2019 12:53:28	0.0	0.0	0.0	0.0
016	11/12/2019 13:08:28	0.0	0.0	0.0	0.0
017	11/12/2019 13:23:28	0.0	0.0	0.0	0.0
018	11/12/2019 13:38:28	0.0	0.0	0.0	0.0
019	11/12/2019 13:53:28	0.0	0.0	0.0	0.0
020	11/12/2019 14:08:28	0.0	0.0	0.0	0.0
021	11/12/2019 14:23:28	0.0	0.0	0.0	0.0
022	11/12/2019 14:38:28	0.0	0.0	0.0	0.0
023	11/12/2019 14:53:28	0.0	0.0	0.0	0.0
024	11/12/2019 15:08:28	0.0	0.0	0.0	0.0
025	11/12/2019 15:23:28	0.0	0.0	0.0	0.0
026	11/12/2019 15:38:28	0.0	0.0	0.0	0.0
027	11/12/2019 15:53:28	0.0	0.0	0.0	0.0
028	11/12/2019 16:08:28	0.0	0.0	0.0	0.0
029	11/12/2019 16:23:28	0.0	0.0	0.0	0.0
030	11/12/2019 16:38:28	0.0	0.0	0.0	0.0
031	11/12/2019 16:53:28	0.0	0.0	0.0	0.0

032	11/12/2019 17:08:28	0.0	0.0	0.0	0.0
033	11/12/2019 17:23:28	0.0	0.0	0.0	0.0
034	11/12/2019 17:38:28	0.0	0.0	0.0	0.0
035	11/12/2019 17:53:28	0.0	0.0	0.0	0.0
036	11/12/2019 18:08:28	0.0	0.0	0.0	0.0
037	11/12/2019 18:23:28	0.0	0.0	0.0	0.0
038	11/12/2019 18:38:28	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.1	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/12/2019 09:23:28	0.0	0.0	
002	11/12/2019 09:38:28	0.0	0.0	
003	11/12/2019 09:53:28	0.0	0.0	
004	11/12/2019 10:08:28	0.0	0.0	
005	11/12/2019 10:23:28	0.0	0.0	
006	11/12/2019 10:38:28	0.0	0.0	
007	11/12/2019 10:53:28	0.0	0.0	
008	11/12/2019 11:08:28	0.0	0.0	
009	11/12/2019 11:23:28	0.0	0.0	

010	11/12/2019 11:38:28	0.0	0.0
011	11/12/2019 11:53:28	0.0	0.0
012	11/12/2019 12:08:28	0.0	0.0
013	11/12/2019 12:23:28	0.0	0.0
014	11/12/2019 12:38:28	0.0	0.0
015	11/12/2019 12:53:28	0.0	0.0
016	11/12/2019 13:08:28	0.0	0.0
017	11/12/2019 13:23:28	0.0	0.0
018	11/12/2019 13:38:28	0.0	0.0
019	11/12/2019 13:53:28	0.0	0.0
020	11/12/2019 14:08:28	0.0	0.0
021	11/12/2019 14:23:28	0.0	0.0
022	11/12/2019 14:38:28	0.0	0.0
023	11/12/2019 14:53:28	0.0	0.0
024	11/12/2019 15:08:28	0.0	0.0
025	11/12/2019 15:23:28	0.0	0.0
026	11/12/2019 15:38:28	0.0	0.0
027	11/12/2019 15:53:28	0.0	0.0
028	11/12/2019 16:08:28	0.0	0.0
029	11/12/2019 16:23:28	0.0	0.0
030	11/12/2019 16:38:28	0.0	0.0
031	11/12/2019 16:53:28	0.0	0.0
032	11/12/2019 17:08:28	0.0	0.0
033	11/12/2019 17:23:28	0.0	0.0

034	11/12/2019 17:38:28	0.0	0.0
035	11/12/2019 17:53:28	0.0	0.0
036	11/12/2019 18:08:28	0.0	0.0
037	11/12/2019 18:23:28	0.0	0.0
038	11/12/2019 18:38:28	0.0	0.0

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19/11/13 08:35

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-913461

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 11/13/2019 08:35:09

End 11/13/2019 18:02:29

Sample Period(s) 900

Number of Records 37

Sensor PID(ppm)

Sensor SN S023030030R8

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	100.0
TWA Alarm	50.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:53
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/13/2019 08:50:09	0.0	0.0	0.0	0.0	
002	11/13/2019 09:05:09	0.0	0.0	0.0	0.0	
003	11/13/2019 09:20:09	0.0	0.0	0.0	0.0	
004	11/13/2019 09:35:09	0.0	0.0	0.0	0.0	
005	11/13/2019 09:50:09	0.0	0.0	0.0	0.0	
006	11/13/2019 10:05:09	0.0	0.0	0.0	0.0	
007	11/13/2019 10:20:09	0.0	0.0	0.0	0.0	

008	11/13/2019 10:35:09	0.0	0.0	0.0	0.0
009	11/13/2019 10:50:09	0.0	0.0	0.0	0.0
010	11/13/2019 11:05:09	0.0	0.0	0.0	0.0
011	11/13/2019 11:20:09	0.0	0.0	0.0	0.0
012	11/13/2019 11:35:09	0.0	0.0	0.0	0.0
013	11/13/2019 11:50:09	0.0	0.0	0.0	0.0
014	11/13/2019 12:05:09	0.0	0.0	0.0	0.0
015	11/13/2019 12:20:09	0.0	0.0	0.0	0.0
016	11/13/2019 12:35:09	0.0	0.0	0.0	0.0
017	11/13/2019 12:50:09	0.0	0.0	0.0	0.0
018	11/13/2019 13:05:09	0.0	0.0	0.0	0.0
019	11/13/2019 13:20:09	0.0	0.0	0.0	0.0
020	11/13/2019 13:35:09	0.0	0.0	0.0	0.0
021	11/13/2019 13:50:09	0.0	0.0	0.0	0.0
022	11/13/2019 14:05:09	0.0	0.0	0.0	0.0
023	11/13/2019 14:20:09	0.0	0.0	0.0	0.0
024	11/13/2019 14:35:09	0.0	0.0	0.0	0.0
025	11/13/2019 14:50:09	0.0	0.0	0.0	0.0
026	11/13/2019 15:05:09	0.0	0.0	0.0	0.0
027	11/13/2019 15:20:09	0.0	0.0	0.0	0.0
028	11/13/2019 15:35:09	0.0	0.0	0.0	0.0
029	11/13/2019 15:50:09	0.0	0.0	0.0	0.0
030	11/13/2019 16:05:09	0.0	0.0	0.0	0.0
031	11/13/2019 16:20:09	0.0	0.0	0.0	0.0

032	11/13/2019 16:35:09	0.0	0.0	0.0	0.0
033	11/13/2019 16:50:09	0.0	0.0	0.0	0.0
034	11/13/2019 17:05:09	0.0	0.0	0.0	0.0
035	11/13/2019 17:20:09	0.0	0.0	0.0	0.0
036	11/13/2019 17:35:09	0.0	0.0	0.0	0.0
037	11/13/2019 17:50:09	0.0	0.0	0.0	0.0
Peak	0.0	0.0	0.0	0.0	
Min	0.0	0.0	0.0	0.0	
Average		0.0	0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/13/2019 08:50:09	0.0	0.0	
002	11/13/2019 09:05:09	0.0	0.0	
003	11/13/2019 09:20:09	0.0	0.0	
004	11/13/2019 09:35:09	0.0	0.0	
005	11/13/2019 09:50:09	0.0	0.0	
006	11/13/2019 10:05:09	0.0	0.0	
007	11/13/2019 10:20:09	0.0	0.0	
008	11/13/2019 10:35:09	0.0	0.0	
009	11/13/2019 10:50:09	0.0	0.0	
010	11/13/2019 11:05:09	0.0	0.0	

011	11/13/2019 11:20:09	0.0	0.0
012	11/13/2019 11:35:09	0.0	0.0
013	11/13/2019 11:50:09	0.0	0.0
014	11/13/2019 12:05:09	0.0	0.0
015	11/13/2019 12:20:09	0.0	0.0
016	11/13/2019 12:35:09	0.0	0.0
017	11/13/2019 12:50:09	0.0	0.0
018	11/13/2019 13:05:09	0.0	0.0
019	11/13/2019 13:20:09	0.0	0.0
020	11/13/2019 13:35:09	0.0	0.0
021	11/13/2019 13:50:09	0.0	0.0
022	11/13/2019 14:05:09	0.0	0.0
023	11/13/2019 14:20:09	0.0	0.0
024	11/13/2019 14:35:09	0.0	0.0
025	11/13/2019 14:50:09	0.0	0.0
026	11/13/2019 15:05:09	0.0	0.0
027	11/13/2019 15:20:09	0.0	0.0
028	11/13/2019 15:35:09	0.0	0.0
029	11/13/2019 15:50:09	0.0	0.0
030	11/13/2019 16:05:09	0.0	0.0
031	11/13/2019 16:20:09	0.0	0.0
032	11/13/2019 16:35:09	0.0	0.0
033	11/13/2019 16:50:09	0.0	0.0
034	11/13/2019 17:05:09	0.0	0.0

035	11/13/2019 17:20:09	0.0	0.0
036	11/13/2019 17:35:09	0.0	0.0
037	11/13/2019 17:50:09	0.0	0.0

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19/11/14 08:06

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-908404

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00007

User ID 00000001

Begin 11/14/2019 08:06:02

End 11/14/2019 18:10:38

Sample Period(s) 900

Number of Records 40

Sensor PID(ppm)

Sensor SN S023030567U7

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	434.8
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:21
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/14/2019 08:21:02	0.0	0.0	0.0	0.0	
002	11/14/2019 08:36:02	0.0	0.0	0.0	0.0	
003	11/14/2019 08:51:02	0.0	0.0	0.0	0.0	
004	11/14/2019 09:06:02	0.0	0.0	0.0	0.0	
005	11/14/2019 09:21:02	0.0	0.0	0.0	0.0	
006	11/14/2019 09:36:02	0.0	0.0	0.0	0.0	
007	11/14/2019 09:51:02	0.0	0.0	0.0	0.0	

008	11/14/2019 10:06:02	0.0	0.0	0.0	0.0
009	11/14/2019 10:21:02	0.0	0.0	0.0	0.0
010	11/14/2019 10:36:02	0.0	0.0	0.0	0.0
011	11/14/2019 10:51:02	0.0	0.0	0.0	0.0
012	11/14/2019 11:06:02	0.0	0.0	0.0	0.0
013	11/14/2019 11:21:02	0.0	0.0	0.0	0.0
014	11/14/2019 11:36:02	0.0	0.0	0.0	0.0
015	11/14/2019 11:51:02	0.0	0.0	0.0	0.0
016	11/14/2019 12:06:02	0.0	0.0	0.0	0.0
017	11/14/2019 12:21:02	0.0	0.0	0.0	0.0
018	11/14/2019 12:36:02	0.0	0.0	0.0	0.0
019	11/14/2019 12:51:02	0.0	0.0	0.0	0.0
020	11/14/2019 13:06:02	0.0	0.0	0.0	0.0
021	11/14/2019 13:21:02	0.0	0.0	0.0	0.0
022	11/14/2019 13:36:02	0.0	0.0	0.0	0.0
023	11/14/2019 13:51:02	0.0	0.0	0.0	0.0
024	11/14/2019 14:06:02	0.0	0.0	0.0	0.0
025	11/14/2019 14:21:02	0.0	0.0	0.0	0.0
026	11/14/2019 14:36:02	0.0	0.0	0.0	0.0
027	11/14/2019 14:51:02	0.0	0.0	0.0	0.0
028	11/14/2019 15:06:02	0.0	0.0	0.0	0.0
029	11/14/2019 15:21:02	0.0	0.0	0.0	0.0
030	11/14/2019 15:36:02	0.0	0.0	0.0	0.0
031	11/14/2019 15:51:02	0.0	0.0	0.0	0.0

032	11/14/2019 16:06:02	0.0	0.0	0.0	0.0
033	11/14/2019 16:21:02	0.0	0.0	0.0	0.0
034	11/14/2019 16:36:02	0.0	0.0	0.0	0.0
035	11/14/2019 16:51:02	0.0	0.0	0.0	0.0
036	11/14/2019 17:06:02	0.0	0.0	0.0	0.0
037	11/14/2019 17:21:02	0.0	0.0	0.0	0.0
038	11/14/2019 17:36:02	0.0	0.0	0.0	0.0
039	11/14/2019 17:51:02	0.0	0.0	0.0	0.0
040	11/14/2019 18:06:02	0.0	0.0	0.0	0.0
Peak	0.0	0.0	0.0	0.0	
Min	0.0	0.0	0.0	0.0	
Average		0.0	0.0	0.0	0.0

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TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/14/2019 08:21:02	0.0	0.0	
002	11/14/2019 08:36:02	0.0	0.0	
003	11/14/2019 08:51:02	0.0	0.0	
004	11/14/2019 09:06:02	0.0	0.0	
005	11/14/2019 09:21:02	0.0	0.0	
006	11/14/2019 09:36:02	0.0	0.0	
007	11/14/2019 09:51:02	0.0	0.0	

008	11/14/2019 10:06:02	0.0	0.0
009	11/14/2019 10:21:02	0.0	0.0
010	11/14/2019 10:36:02	0.0	0.0
011	11/14/2019 10:51:02	0.0	0.0
012	11/14/2019 11:06:02	0.0	0.0
013	11/14/2019 11:21:02	0.0	0.0
014	11/14/2019 11:36:02	0.0	0.0
015	11/14/2019 11:51:02	0.0	0.0
016	11/14/2019 12:06:02	0.0	0.0
017	11/14/2019 12:21:02	0.0	0.0
018	11/14/2019 12:36:02	0.0	0.0
019	11/14/2019 12:51:02	0.0	0.0
020	11/14/2019 13:06:02	0.0	0.0
021	11/14/2019 13:21:02	0.0	0.0
022	11/14/2019 13:36:02	0.0	0.0
023	11/14/2019 13:51:02	0.0	0.0
024	11/14/2019 14:06:02	0.0	0.0
025	11/14/2019 14:21:02	0.0	0.0
026	11/14/2019 14:36:02	0.0	0.0
027	11/14/2019 14:51:02	0.0	0.0
028	11/14/2019 15:06:02	0.0	0.0
029	11/14/2019 15:21:02	0.0	0.0
030	11/14/2019 15:36:02	0.0	0.0
031	11/14/2019 15:51:02	0.0	0.0

032	11/14/2019 16:06:02	0.0	0.0
033	11/14/2019 16:21:02	0.0	0.0
034	11/14/2019 16:36:02	0.0	0.0
035	11/14/2019 16:51:02	0.0	0.0
036	11/14/2019 17:06:02	0.0	0.0
037	11/14/2019 17:21:02	0.0	0.0
038	11/14/2019 17:36:02	0.0	0.0
039	11/14/2019 17:51:02	0.0	0.0
040	11/14/2019 18:06:02	0.0	0.0

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19/11/14 08:18

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-913461

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 11/14/2019 08:18:49

End 11/14/2019 18:23:27

Sample Period(s) 900

Number of Records 40

Sensor PID(ppm)

Sensor SN S023030030R8

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	100.0
TWA Alarm	50.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:53
Peak	0.0
Min	0.0
Average	0.0

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Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/14/2019 08:33:49	0.0	0.0	0.0	0.0	
002	11/14/2019 08:48:49	0.0	0.0	0.0	0.0	
003	11/14/2019 09:03:49	0.0	0.0	0.0	0.0	
004	11/14/2019 09:18:49	0.0	0.0	0.0	0.0	
005	11/14/2019 09:33:49	0.0	0.0	0.0	0.0	
006	11/14/2019 09:48:49	0.0	0.0	0.0	0.0	
007	11/14/2019 10:03:49	0.0	0.0	0.0	0.0	

008	11/14/2019 10:18:49	0.0	0.0	0.0	0.0
009	11/14/2019 10:33:49	0.0	0.0	0.0	0.0
010	11/14/2019 10:48:49	0.0	0.0	0.0	0.0
011	11/14/2019 11:03:49	0.0	0.0	0.0	0.0
012	11/14/2019 11:18:49	0.0	0.0	0.0	0.0
013	11/14/2019 11:33:49	0.0	0.0	0.0	0.0
014	11/14/2019 11:48:49	0.0	0.0	0.0	0.0
015	11/14/2019 12:03:49	0.0	0.0	0.0	0.0
016	11/14/2019 12:18:49	0.0	0.0	0.0	0.0
017	11/14/2019 12:33:49	0.0	0.0	0.0	0.0
018	11/14/2019 12:48:49	0.0	0.0	0.0	0.0
019	11/14/2019 13:03:49	0.0	0.0	0.0	0.0
020	11/14/2019 13:18:49	0.0	0.0	0.0	0.0
021	11/14/2019 13:33:49	0.0	0.0	0.0	0.0
022	11/14/2019 13:48:49	0.0	0.0	0.0	0.0
023	11/14/2019 14:03:49	0.0	0.0	0.0	0.0
024	11/14/2019 14:18:49	0.0	0.0	0.0	0.0
025	11/14/2019 14:33:49	0.0	0.0	0.0	0.0
026	11/14/2019 14:48:49	0.0	0.0	0.0	0.0
027	11/14/2019 15:03:49	0.0	0.0	0.0	0.0
028	11/14/2019 15:18:49	0.0	0.0	0.0	0.0
029	11/14/2019 15:33:49	0.0	0.0	0.0	0.0
030	11/14/2019 15:48:49	0.0	0.0	0.0	0.0
031	11/14/2019 16:03:49	0.0	0.0	0.0	0.0

032	11/14/2019 16:18:49	0.0	0.0	0.0	0.0
033	11/14/2019 16:33:49	0.0	0.0	0.0	0.0
034	11/14/2019 16:48:49	0.0	0.0	0.0	0.0
035	11/14/2019 17:03:49	0.0	0.0	0.0	0.0
036	11/14/2019 17:18:49	0.0	0.0	0.0	0.0
037	11/14/2019 17:33:49	0.0	0.0	0.0	0.0
038	11/14/2019 17:48:49	0.0	0.0	0.0	0.0
039	11/14/2019 18:03:49	0.0	0.0	0.0	0.0
040	11/14/2019 18:18:49	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.0	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)	
001	11/14/2019 08:33:49	0.0	0.0	
002	11/14/2019 08:48:49	0.0	0.0	
003	11/14/2019 09:03:49	0.0	0.0	
004	11/14/2019 09:18:49	0.0	0.0	
005	11/14/2019 09:33:49	0.0	0.0	
006	11/14/2019 09:48:49	0.0	0.0	
007	11/14/2019 10:03:49	0.0	0.0	

008	11/14/2019 10:18:49	0.0	0.0
009	11/14/2019 10:33:49	0.0	0.0
010	11/14/2019 10:48:49	0.0	0.0
011	11/14/2019 11:03:49	0.0	0.0
012	11/14/2019 11:18:49	0.0	0.0
013	11/14/2019 11:33:49	0.0	0.0
014	11/14/2019 11:48:49	0.0	0.0
015	11/14/2019 12:03:49	0.0	0.0
016	11/14/2019 12:18:49	0.0	0.0
017	11/14/2019 12:33:49	0.0	0.0
018	11/14/2019 12:48:49	0.0	0.0
019	11/14/2019 13:03:49	0.0	0.0
020	11/14/2019 13:18:49	0.0	0.0
021	11/14/2019 13:33:49	0.0	0.0
022	11/14/2019 13:48:49	0.0	0.0
023	11/14/2019 14:03:49	0.0	0.0
024	11/14/2019 14:18:49	0.0	0.0
025	11/14/2019 14:33:49	0.0	0.0
026	11/14/2019 14:48:49	0.0	0.0
027	11/14/2019 15:03:49	0.0	0.0
028	11/14/2019 15:18:49	0.0	0.0
029	11/14/2019 15:33:49	0.0	0.0
030	11/14/2019 15:48:49	0.0	0.0
031	11/14/2019 16:03:49	0.0	0.0

032	11/14/2019 16:18:49	0.0	0.0
033	11/14/2019 16:33:49	0.0	0.0
034	11/14/2019 16:48:49	0.0	0.0
035	11/14/2019 17:03:49	0.0	0.0
036	11/14/2019 17:18:49	0.0	0.0
037	11/14/2019 17:33:49	0.0	0.0
038	11/14/2019 17:48:49	0.0	0.0
039	11/14/2019 18:03:49	0.0	0.0
040	11/14/2019 18:18:49	0.0	0.0

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19/11/15 08:26

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-908404

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00007

User ID 00000001

Begin 11/15/2019 08:26:01

End 11/15/2019 14:20:35

Sample Period(s) 900

Number of Records 23

Sensor PID(ppm)

Sensor SN S023030567U7

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	434.8
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	25.0
TWA Alarm	10.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:21
Peak	0.0
Min	0.0
Average	0.0

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/15/2019 08:41:01	0.0	0.0	0.0	0.0	
002	11/15/2019 08:56:01	0.0	0.0	0.0	0.0	
003	11/15/2019 09:11:01	0.0	0.0	0.0	0.0	
004	11/15/2019 09:26:01	0.0	0.0	0.0	0.0	
005	11/15/2019 09:41:01	0.0	0.0	0.0	0.0	
006	11/15/2019 09:56:01	0.0	0.0	0.0	0.0	
007	11/15/2019 10:11:01	0.0	0.0	0.0	0.0	

008	11/15/2019 10:26:01	0.0	0.0	0.0	0.0
009	11/15/2019 10:41:01	0.0	0.0	0.0	0.0
010	11/15/2019 10:56:01	0.0	0.0	0.0	0.0
011	11/15/2019 11:11:01	0.0	0.0	0.0	0.0
012	11/15/2019 11:26:01	0.0	0.0	0.0	0.0
013	11/15/2019 11:41:01	0.0	0.0	0.0	0.0
014	11/15/2019 11:56:01	0.0	0.0	0.0	0.0
015	11/15/2019 12:11:01	0.0	0.0	0.0	0.0
016	11/15/2019 12:26:01	0.0	0.0	0.0	0.0
017	11/15/2019 12:41:01	0.0	0.0	0.0	0.0
018	11/15/2019 12:56:01	0.0	0.0	0.0	0.0
019	11/15/2019 13:11:01	0.0	0.0	0.0	0.0
020	11/15/2019 13:26:01	0.0	0.0	0.0	0.0
021	11/15/2019 13:41:01	0.0	0.0	0.0	0.0
022	11/15/2019 13:56:01	0.0	0.0	0.0	0.0
023	11/15/2019 14:11:01	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.0	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)

001	11/15/2019 08:41:01	0.0	0.0
002	11/15/2019 08:56:01	0.0	0.0
003	11/15/2019 09:11:01	0.0	0.0
004	11/15/2019 09:26:01	0.0	0.0
005	11/15/2019 09:41:01	0.0	0.0
006	11/15/2019 09:56:01	0.0	0.0
007	11/15/2019 10:11:01	0.0	0.0
008	11/15/2019 10:26:01	0.0	0.0
009	11/15/2019 10:41:01	0.0	0.0
010	11/15/2019 10:56:01	0.0	0.0
011	11/15/2019 11:11:01	0.0	0.0
012	11/15/2019 11:26:01	0.0	0.0
013	11/15/2019 11:41:01	0.0	0.0
014	11/15/2019 11:56:01	0.0	0.0
015	11/15/2019 12:11:01	0.0	0.0
016	11/15/2019 12:26:01	0.0	0.0
017	11/15/2019 12:41:01	0.0	0.0
018	11/15/2019 12:56:01	0.0	0.0
019	11/15/2019 13:11:01	0.0	0.0
020	11/15/2019 13:26:01	0.0	0.0
021	11/15/2019 13:41:01	0.0	0.0
022	11/15/2019 13:56:01	0.0	0.0
023	11/15/2019 14:11:01	0.0	0.0

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19/11/15 08:43

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Summary

Unit Name MiniRAE 3000(PGM-7320)

Unit SN 592-913461

Unit Firmware Ver V2.16

Running Mode Hygiene Mode

Datalog Mode Manual

Diagnostic Mode No

Stop Reason Power Down

Site ID RAE00000

User ID 00000001

Begin 11/15/2019 08:43:18

End 11/15/2019 14:34:15

Sample Period(s) 900

Number of Records 23

Sensor PID(ppm)

Sensor SN S023030030R8

Measure Type Min; Avg; Max; Real

Span	100.0
Span 2	1000.0
Low Alarm	50.0
High Alarm	100.0
Over Alarm	2000.0
STEL Alarm	100.0
TWA Alarm	50.0
Measurement Gas	Isobutylene
Calibration Time	11/7/2019 10:53
Peak	0.0
Min	0.0
Average	0.0

****

Datalog

Index	Date/Time	PID(ppm) (Min)	PID(ppm) (Avg)	PID(ppm) (Max)	PID(ppm) (Real)	PID(ppm)
001	11/15/2019 08:58:18	0.0	0.0	0.0	0.0	
002	11/15/2019 09:13:18	0.0	0.0	0.0	0.0	
003	11/15/2019 09:28:18	0.0	0.0	0.0	0.0	
004	11/15/2019 09:43:18	0.0	0.0	0.0	0.0	
005	11/15/2019 09:58:18	0.0	0.0	0.0	0.0	
006	11/15/2019 10:13:18	0.0	0.0	0.0	0.0	
007	11/15/2019 10:28:18	0.0	0.0	0.0	0.0	

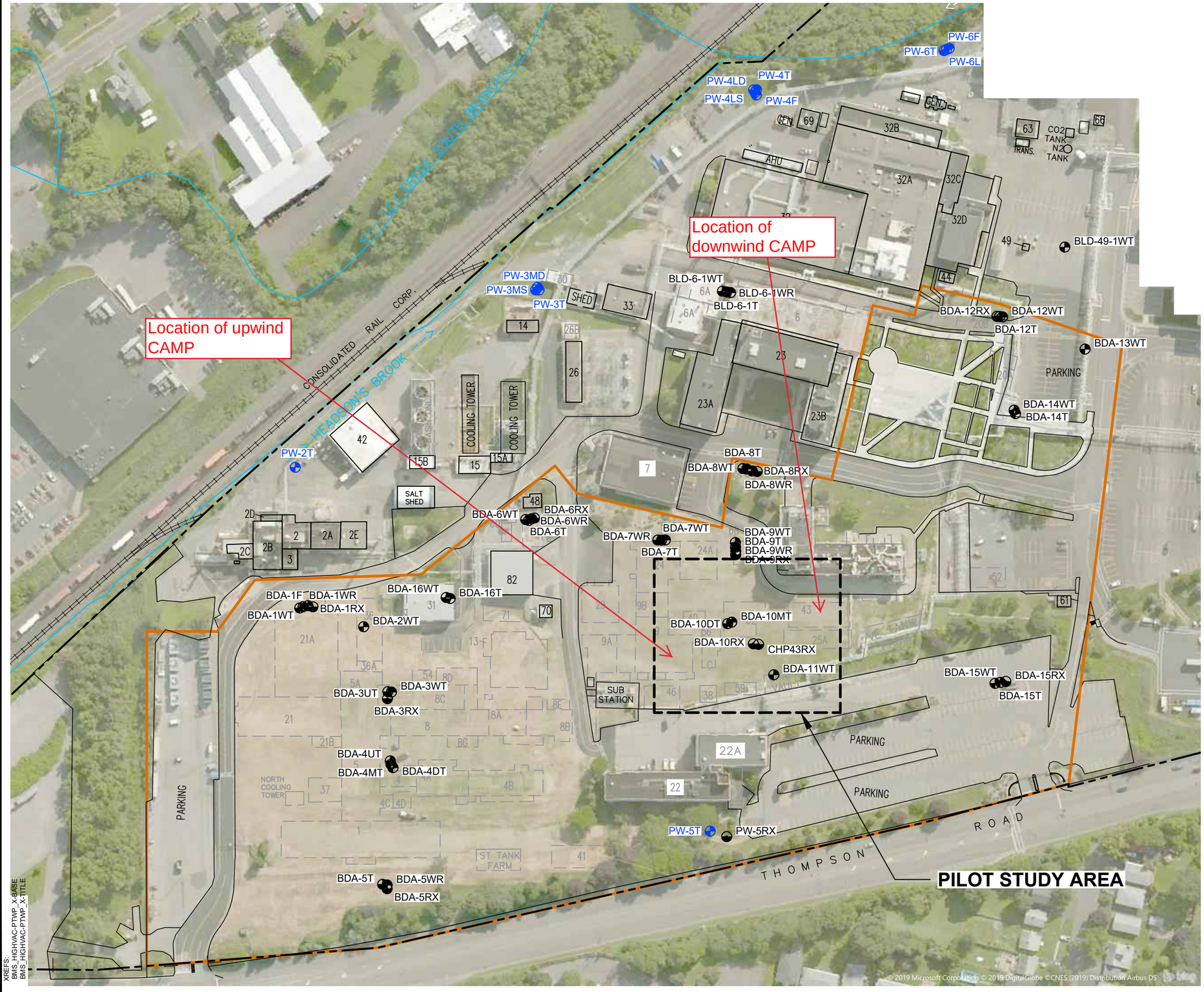
008	11/15/2019 10:43:18	0.0	0.0	0.0	0.0
009	11/15/2019 10:58:18	0.0	0.0	0.0	0.0
010	11/15/2019 11:13:18	0.0	0.0	0.0	0.0
011	11/15/2019 11:28:18	0.0	0.0	0.0	0.0
012	11/15/2019 11:43:18	0.0	0.0	0.0	0.0
013	11/15/2019 11:58:18	0.0	0.0	0.0	0.0
014	11/15/2019 12:13:18	0.0	0.0	0.0	0.0
015	11/15/2019 12:28:18	0.0	0.0	0.0	0.0
016	11/15/2019 12:43:18	0.0	0.0	0.0	0.0
017	11/15/2019 12:58:18	0.0	0.0	0.0	0.0
018	11/15/2019 13:13:18	0.0	0.0	0.0	0.0
019	11/15/2019 13:28:18	0.0	0.0	0.0	0.0
020	11/15/2019 13:43:18	0.0	0.0	0.0	0.0
021	11/15/2019 13:58:18	0.0	0.0	0.0	0.0
022	11/15/2019 14:13:18	0.0	0.0	0.0	0.0
023	11/15/2019 14:28:18	0.0	0.0	0.0	0.0
Peak		0.0	0.0	0.0	0.0
Min		0.0	0.0	0.0	0.0
Average			0.0	0.0	0.0

****

TWA/STEL

Index	Date/Time	PID(ppm) (TWA)	PID(ppm) (STEL)

001	11/15/2019 08:58:18	0.0	0.0
002	11/15/2019 09:13:18	0.0	0.0
003	11/15/2019 09:28:18	0.0	0.0
004	11/15/2019 09:43:18	0.0	0.0
005	11/15/2019 09:58:18	0.0	0.0
006	11/15/2019 10:13:18	0.0	0.0
007	11/15/2019 10:28:18	0.0	0.0
008	11/15/2019 10:43:18	0.0	0.0
009	11/15/2019 10:58:18	0.0	0.0
010	11/15/2019 11:13:18	0.0	0.0
011	11/15/2019 11:28:18	0.0	0.0
012	11/15/2019 11:43:18	0.0	0.0
013	11/15/2019 11:58:18	0.0	0.0
014	11/15/2019 12:13:18	0.0	0.0
015	11/15/2019 12:28:18	0.0	0.0
016	11/15/2019 12:43:18	0.0	0.0
017	11/15/2019 12:58:18	0.0	0.0
018	11/15/2019 13:13:18	0.0	0.0
019	11/15/2019 13:28:18	0.0	0.0
020	11/15/2019 13:43:18	0.0	0.0
021	11/15/2019 13:58:18	0.0	0.0
022	11/15/2019 14:13:18	0.0	0.0
023	11/15/2019 14:28:18	0.0	0.0



LEGEND:

- APPROXIMATE BROWNFIELD DEVELOPMENT AREA (BDA) BOUNDARY
- APPROXIMATE BRISTOL-MYERS SQUIBB PROPERTY LINE
- DEMOLISHED BUILDINGS
- EXISTING RAILROAD
- SITE PERIMETER WELL
- OVERBURDEN MONITORING WELL
- BEDROCK MONITORING WELL

NOTES:

1. BASEMAP SOURCE: MAP TITLED "BRISTOL-MYERS SQUIBB PART OF LOT 41 - TOWN OF DEWITT AND PART OF THE VILLAGE OF EAST SYRACUSE ONONDAGA COUNTY NEW YORK", DATED MARCH 25, 2010 PREPARED BY COTTRELL LAND SURVEYORS, P.C.. UPDATED BASED ON SUBSEQUENT AERIAL IMAGERY AND SITE VISITS AND SURVEY WITHIN THE BDA BY CT MALE ASSOCIATES, SYRACUSE, NY.
2. ABBREVIATIONS:
   BMS = BRISTOL-MYERS SQUIBB COMPANY
   PDI = PRE-DESIGN INVESTIGATION

0 160' 320'

GRAPHIC SCALE

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

HIGH VACUUM PILOT TEST WORK PLAN

SITE LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

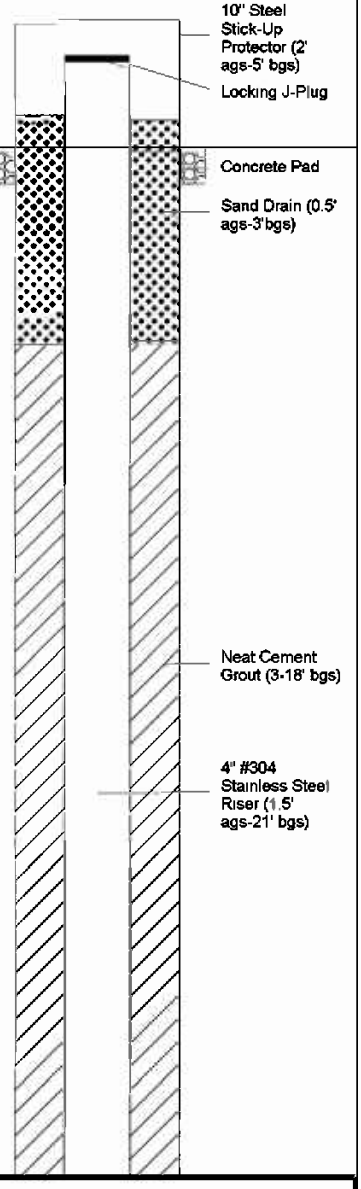
CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB/LD: L.POSENAUER PM/TM: B.MCCUNE LYR: ON=*;OFF=REF, (FRZ)
C:\Users\lposenauer\BIM 360\Arcadis\ANA - BRISTOL-MYERS COMPANY\Project Files\TECHNICAL SUPPORT 2019\B0087363.0038\01-DWG\BMS_HIGHVAC-PTWP_FIG02-SITE LAYOUT.dwg LAYOUT: 2 SAVED: 10/10/2019 11:56 AM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: MONOCHROME.CTB PLOTTED: 10/10/2019 12:17 PM BY: POSENAUER, LISA
XREFS:
BMS_HIGHVAC-PTWP_X-BASE
BMS_HIGHVAC-PTWP_X-TITLE

APPENDIX B

Soil Boring, Well Construction, and Well Development Logs

Date Start/Finish: 8-28-19	**Northing:** 1117260.13'	Well/Boring ID: **EW-1**
Drilling Company: Parratt-Wolff	**Easting:** 952834.647'	Client: Bristol-Myers Squibb
Driller's Name: Anthony Convey, Wayne Nielson	**Casing Elevation:** 439.427'	Location: Bristol-Myers Squibb Thompson Road East Syracuse, NY
Drilling Method: Rotary Sonic	**Borehole Depth:** 31' bgs.	
Sampling Method: 4" Core Barrel	**Surface Elevation:** 436.503'	
Rig Type: Track Mounted Mini Sonic	**Descriptions By:** Evan Green	

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
440						
0				0.0		Grayish brown (10YR 5/2) fine - coarse SAND, some subrounded fine - coarse Gravel, little Silt, medium dense, moist. [Fill].
				0.0		
				0.0		
				0.0		
435				0.0		
5	1	0-10'	10.0	0.0		
				0.0		Reddish brown (5YR 5/4) unconsolidated SILT, little subangular - subrounded Gravel, little low - medium plasticity Clay, little fine - coarse Sand, stiff, moist. [Till].
				0.0		
				0.0		
				0.0		
430				0.0		
10				0.0		Reddish brown (5YR 5/4) consolidated SILT, little subangular fine - coarse Gravel, little fine Sand, little Clay, hard, dry - moist. [Till].
				0.0		
	2	10-20'	10.0	0.2		
				0.2		Reddish brown (5YR 5/4) unconsolidated SILT, some subangular fine - coarse Gravel, little fine - coarse Sand, trace Cobble, loose - medium dense, dry - moist. [Till].
425				0.3		
15				0.5		



Well/Boring Construction

ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Analytical soil samples collected from 23-25' and 27-29' bgs. Duplicate soil sample collected over 23-25' interval.
Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American

Client: Bristol-Myers Squibb

Well/Boring ID: EW-1

Borehole Depth: 31' bgs

Site Location:

Bristol-Myers Squibb
Thompson Road
East Syracuse, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	420	2	10-20'	10.0	1.0 0.5 0.5 0.9		Dark reddish brown (10YR 6/4) unconsolidated SILT, some subangular fine - coarse Gravel, trace fine Sand, trace Cobble, medium stiff, dry - moist. [Till].	Neat Cement Grout (3-18' bgs) 4" #304 Stainless Steel Riser (1.5' ags-21' bgs) Bentonite Seal (18-20' bgs)
20	415	3	20-25'	5.0	0.8 0.9 1.9 31.6 67.8		Reddish brown (5YR 5/4) consolidated SILT, little low plasticity Clay, little subangular fine Gravel, hard, moist. [Till]. Faint chemical like odor from 23-25'	#1 Silica Sand Pack (20-31' bgs) 4" #304 Stainless Steel 0.020" slotted screen 21-31' bgs)
25	410	4	25-31'	6.0	5.8 0.4 0.7 0.4 0.5 0.2		Reddish brown (5YR 5/4) consolidated SILT, some medium plasticity Clay, little subrounded fine Gravel, hard, moist. [Till]. Reddish brown (5YR 5/4) consolidated SILT, little subangular fine Gravel, trace Cobble, hard moist. [Till] Moderately strong chemical like odor from 27-28'	
30	405						End of boring at 31' bgs.	
35								

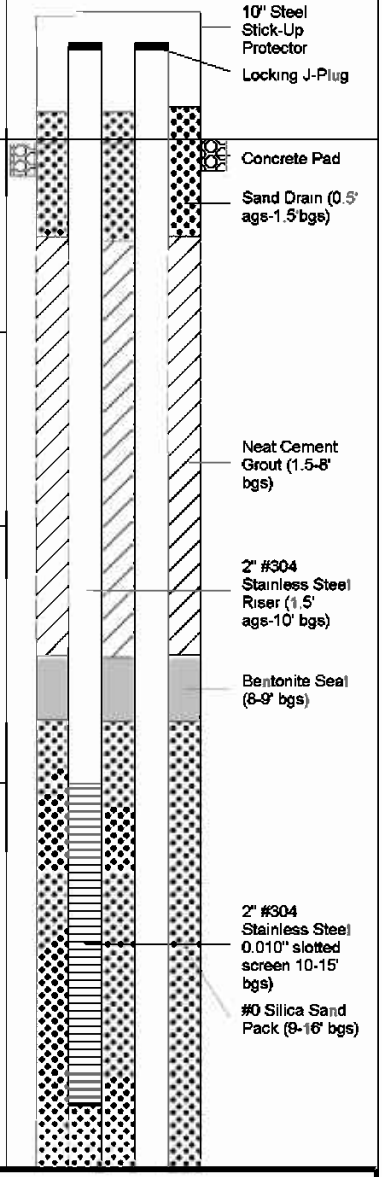
ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Analytical soil samples collected from 23-25' and 27-29' bgs. Duplicate soil sample collected over 23-25' interval.
Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American

Date Start/Finish: 8-29-19	**Northing:** 1117258.374'	Well/Boring ID: OW-1
Drilling Company: Parratt-Wolff	**Easting:** 952838.177'	Client: Bristol-Myers Squibb
Driller's Name: Anthony Convey, Wayne Nielson	**Casing Elevation:** 439.535'	Location: Bristol-Myers Squibb Thompson Road East Syracuse, NY
Drilling Method: Rotary Sonic	**Borehole Depth:** 31' bgs.	
Sampling Method: 4" Core Barrel	**Surface Elevation:** 436.356'	
Rig Type: Track Mounted Mini Sonic	**Descriptions By:** Evan Green	

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
440						
0	1	0-5'	5.0	0.0 0.9 3.2 0.4 0.0		Brown (7.5YR 4/4) fine - medium SAND, some Silt, little subrounded fine Gravel, loose - medium dense, moist. [Fill].
435						Light gray (10YR 7/2) unconsolidated SILT, little fine Sand, loose, dry [Fill]
-5	2	5-10'	5.0	0.0 0.0 0.0 0.0 0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine - medium Gravel, trace Clay, very hard, moist. [Till]
430						
-10	3	10-20'	10.0	0.0 0.0 0.0 0.0 0.0 0.0		Reddish brown (5YR 5/4) unconsolidated SILT, little subrounded fine Gravel, little fine Sand, stiff dry [Till]
425						
-15						



Well/Boring Construction

ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Client: Bristol-Myers Squibb

Well/Boring ID: OW-1

Borehole Depth: 31' bgs

Site Location:

Bristol-Myers Squibb
Thompson Road
East Syracuse, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	420	3	10-20'	10.0	0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine Gravel, very hard, moist [Till]	2" #304 Stainless Steel Riser (1.5' ags-21' bgs)
					0.0			
					0.0			Bentonite Seal (16-20' bgs)
20					0.0			
					13.6			
					1.9			
					0.8			
	415				0.8			
25					1.9			
		4	20-31'	11.0	1.8			#0 Silica Sand Pack (20-31' bgs)
					0.8			2" #304 Stainless Steel 0.010" slotted screen 21-31' bgs)
					0.9			
					1.0			
	410				1.1			
30					1.2			
							End of boring at 31' bgs.	
	405							
35								

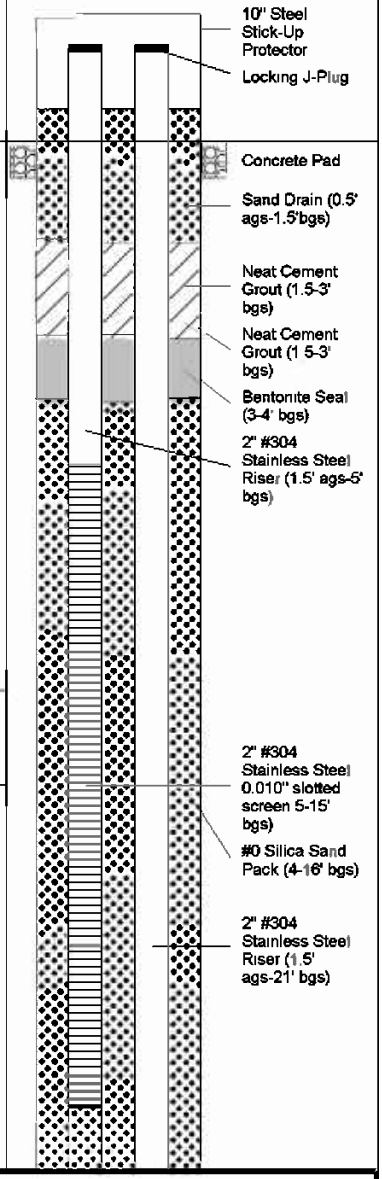
ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Date Start/Finish: 8-28-19 / 8-29-19	**Northing:** 1117250.944'	Well/Boring ID: OW-2
Drilling Company: Parratt-Wolff	**Easting:** 952830.781'	Client: Bristol-Myers Squibb
Driller's Name: Anthony Convey, Wayne Nielson	**Casing Elevation:** 439.789'	Location: Bristol-Myers Squibb Thompson Road East Syracuse, NY
Drilling Method: Rotary Sonic	**Borehole Depth:** 31' bgs.	
Sampling Method: 4" Core Barrel	**Surface Elevation:** 436.582'	
Rig Type: Track Mounted Mini Sonic	**Descriptions By:** Evan Green	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
	440						
0					0.0		Dark reddish brown (5YR 3/2) unconsolidated SILT, some subangular - angular fine Gravel, medium stiff, dry - moist. [Fill].
					0.0		
					0.0		
					0.0		
					0.0		
	435				0.0		
-5		1	0-10'	10.0	0.0		
					0.0		
					0.0		
					0.0		
					0.0		
	430				0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine - coarse Gravel, trace Clay, very stiff, dry - moist. [Till].
-10					0.0		Reddish brown (5YR 5/4) unconsolidated SILT, some consolidated Silt, little subrounded fine Gravel, little low - medium plasticity Clay, hard, moist [Till]
					0.0		
					0.0		
		2	10-20'	10.0	0.0		
					0.0		
					0.0		
-15	425				0.6		



Well/Boring Construction

ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Client: Bristol-Myers Squibb

Well/Boring ID: OW-2

Borehole Depth: 31' bgs

Site Location:

Bristol-Myers Squibb
Thompson Road
East Syracuse, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
					1.8		Dark reddish gray (5YR 3/2) unconsolidated SILT, little subrounded fine - coarse Gravel, trace fine Sand, medium stiff, dry - moist. [Till].	2" #304 Stainless Steel Riser (1.5' ags-21' bgs)
		2	10-20'	10.0	1.0			
					0.5			Bentonite Seal (16-20' bgs)
20	420				0.5			
					4.4		Reddish brown (5YR 5/4) unconsolidated SILT, little low - medium plasticity Clay, little subangular fine - coarse Gravel, hard, moist, moderate - strong chemical like odor	
					9.1			
					0.0			
					0.0			
25	415				0.0			
		3	20-31'	11.0	0.1			#0 Silica Sand Pack (20-31' bgs)
					0.4			2" #304 Stainless Steel 0.010" slotted screen 21-31' bgs)
					3.7			
					1.6			
30	410				1.4			
					1.0			
							End of boring at 31' bgs.	
35	405							

ARCADIS Design & Consultancy for natural and built assets

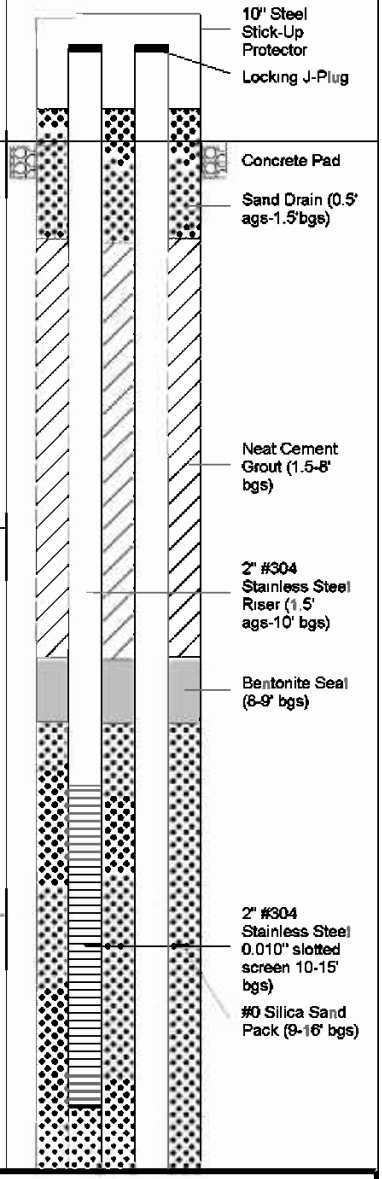
Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Date Start/Finish: 8-30-19	**Northing:** 1117266.012'	Well/Boring ID: OW-3
Drilling Company: Parratt-Wolff	**Easting:** 952825.348'	Client: Bristol-Myers Squibb
Driller's Name: Anthony Convey, Wayne Nielson	**Casing Elevation:** 439.856'	Location: Bristol-Myers Squibb Thompson Road East Syracuse, NY
Drilling Method: Rotary Sonic	**Borehole Depth:** 31' bgs.	
Sampling Method: 4" Core Barrel	**Surface Elevation:** 439.856'	
Rig Type: Track Mounted Mini Sonic	**Descriptions By:** Evan Green	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	440						
		1	0-5'	7.0	0.0		Brown (7.5YR 4/4) fine - coarse SAND, little subangular fine - medium Gravel, loose - medium dense, moist. [Fill]
					0.0		
					0.0		
					0.0		
					0.0		
5	435				0.0		
					0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine - coarse Gravel, trace fine Sand, trace Clay, hard, moist. [Till].
					0.0		
					0.0		
		2	8-20'	12.0	0.0		
10	430				0.0		
					0.0		
					0.0		Reddish brown (5YR 4/4) consolidated SILT, some unconsolidated Silt, little subrounded fine - coarse Gravel, little fine Sand, very stiff - hard, moist, faint chemical like odor. [Till].
					0.0		
					0.0		
					0.0		
15	425				0.0		

Well/Boring Construction



ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Client: Bristol-Myers Squibb

Well/Boring ID: OW-3

Borehole Depth: 31' bgs

Site Location:

Bristol-Myers Squibb
Thompson Road
East Syracuse, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	430	2	8-20'	12.0	0.0		Reddish brown (5YR 4/4) consolidated SILT, some unconsolidated Silt, little subrounded fine - coarse Gravel, little fine Sand, very stiff - hard, moist, faint chemical like odor [Till].	2" #304 Stainless Steel Riser (1.5' ags-21' bgs)
5	425				0.0			Bentonite Seal (16-20' bgs)
10	420				0.0			
15	415	3	20-31'	11.0	0.4			#0 Silica Sand Pack (20-31' bgs)
20	410				0.3			2" #304 Stainless Steel 0.010" slotted screen 21-31' bgs)
25	405				4.6			
30	400				8.0			
35	395				1.9			
					0.8			
					0.3			
					0.0			
					0.0			
					0.0		End of boring at 31' bgs.	
					0.0			

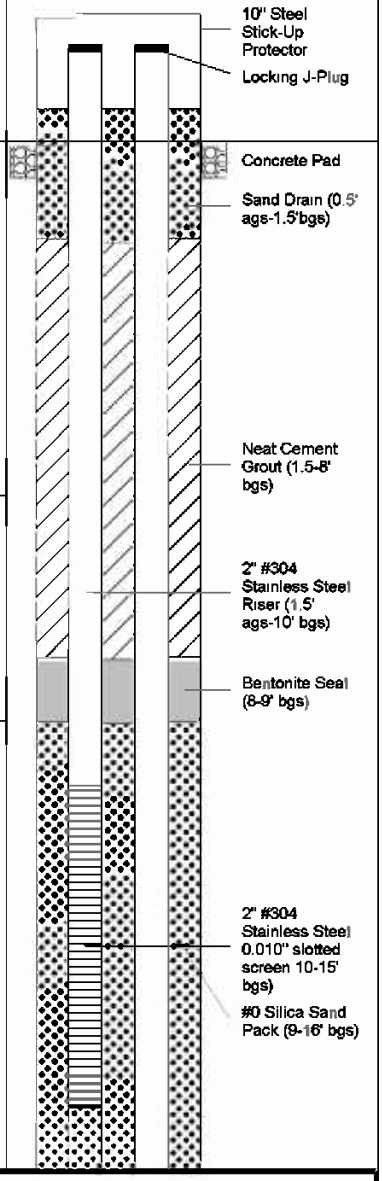
ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Date Start/Finish: 8-30-19	**Northing:** 1117273.72'	Well/Boring ID: **OW-4**
Drilling Company: Parratt-Wolff	**Easting:** 952840.896'	Client: Bristol-Myers Squibb
Driller's Name: Anthony Convey, Wayne Nielson	**Casing Elevation:** 439.287'	
Drilling Method: Rotary Sonic	**Borehole Depth:** 31' bgs.	Location: Bristol-Myers Squibb Thompson Road East Syracuse, NY
Sampling Method: 4" Core Barrel	**Surface Elevation:** 436.213'	
Rig Type: Track Mounted Mini Sonic	**Descriptions By:** Evan Green	

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
440						
0				0.0		Brown (7.5YR 4/4) fine - coarse SAND, little Silt, little subangular fine - coarse Gravel, loose - medium dense, moist. [Fill]
				0.0		
				0.0		
				0.0		
435				0.0		
-5	1	0-9'	7.0	0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine Gravel, trace Clay, stiff - very stiff, moist [Till].
				0.0		
				0.0		
				0.0		
				0.0		
430				0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine - coarse Gravel, very hard, dry - moist [Till].
-10				0.0		
				0.0		
	2	9-20'	9.0	0.0		
				0.0		
				0.0		
425				0.0		
-15				0.0		



Well/Boring Construction

ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

Client: Bristol-Myers Squibb

Well/Boring ID: OW-4

Borehole Depth: 31' bgs

Site Location:

Bristol-Myers Squibb
Thompson Road
East Syracuse, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (ft)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
420 / 20	2	9-20'	9.0	0.0 0.0 0.0 0.0		Reddish brown (5YR 5/4) consolidated SILT, little subrounded fine - coarse Gravel, very hard, dry - moist [Till].	2" #304 Stainless Steel Riser (1.5' ags-21' bgs) Bentonite Seal (16-20' bgs)
415 / 25	3	20-25'	4.0	0.4 0.6 0.7 0.2 0.2		Reddish brown (5YR 5/4) consolidated SILT, some unconsolidated Silt, little subrounded fine Gravel, very stiff, dry - moist, faint chemical like odor. [Till].	
410 / 30	4	25-31'	6.0	1.9 3.6 12.5 8.9 1.4 0.8		Reddish brown (5YR 5/4) consolidated SILT, little unconsolidated Silt, little subrounded fine - coarse Gravel, trace Clay, hard - very hard, dry, moderately strong chemical like odor. [Till].	#0 Silica Sand Pack (20-31' bgs) 2" #304 Stainless Steel 0.010" slotted screen 21-31' bgs)
405 / 35						End of boring at 31' bgs.	

ARCADIS Design & Consultancy for natural and built assets

Remarks: ags = above ground surface; bgs = below ground surface;' = feet; " = inches; PID = photoionization detector; PPM = parts per million
Soil samples were screened using a 11.7 eV lamp.

Northing and easting provided in U.S. survey feet refrenced to New York State Plane Central Zone NAD 83. Elevations are in U.S. survey feet refrenced to the North American Vertical Datum of 1988 (NAVD 88).

34 Location BMS SYRACUSE Date 9-9-19

Project / Client

START: 0830; SUNNY ~60°F

PID CALIBRATED @ 1300

END 1630 SUNNY ~75°F

- WORK PERMIT GIVEN @ 0900

Location BMS SYRACUSE Date 9-10-19

Project / Client

START 0700, SUNNY ~55°F

PID CALIBRATED @ 0730

END 1600 SUNNY ~75°F

36

Location BMS SYRACUSE Date 9-11-19

Project / Client

START	0830		RAINING		~50°F
- DELAYED START DUE TO RAIN					
- TRACTION PADS USED TO ACCESS SITE					
- PID CALIBRATED 0910					
- DEN IS FROM HTS VISITED SITE					
	PID		- BEGAN ADDING WATER TO WELLS		
1300	0.00 PPM				
1450	0.00 PPM				
1530	0.00 PPM				
1610	0.00 PPM				
END	1645		CLOUDY		~70°F

Location BMS SYRACUSE Date 9-12-19

Project / Client

START 0700 CLOUDY ~65°F

PID CALIBRATED 0730

PID		
0750	0.00	PPM
0845	0.00	PPM
1000	0.00	PPM
1115	0.00	PPM
1215	0.00	PPM
1330	0.00	PPM
1430	0.00	PPM
1515	0.06	PPM
1605	0.00	PPM

END 1630 CLOUDY ~75°F

Site **WELL DEVELOPMENT LOG** Event

Sampling Personnel: Sarah Tuttle, Nick Kanauer, Jillian Chute (GPW)
Well ID: EW-1
Client / Job Number: BMS -
Date: 9/9/2019
Weather: mostly [illegible] - some clouds 65°
Time In: 0900 [illegible] 1105
Time Out:

Well Information

Depth to Water: 9.91	(feet)		(from MP)
Total Depth: 32.44	(feet)		(from MP)
Length of Water Column:	(feet)	22.53	
Volume of Water in Well:	(gal)	14.71	

Well Type:	Flushmount	Stick-Up (circled)	
Well Material:	Stainless Steel (circled)	PVC	
Well Locked:	Yes	No (circled)	
Measuring Point Marked:	Yes (circled)	No	
Well Diameter:	1"	2"	Other: 4"

Purging Information

Purging Method:	Bailer	Peristaltic	Waterra (circled)	Other:	
Tubing/Bailer Material:	Steel	Polyethylene	Waterra (circled)	Other:	
Duration of Pumping:	(min)	—			
Average Pumping Rate:	(ml/min)	—	Water-Quality Meter Type:	Horiba U-22/LaMotte 2020 (circled)	
Total Volume Removed:	(gal)	91 Gal	Did well go dry:	Yes (circled)	No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 ml = 0.1337 cubic feet

* Pump Rate Not Accurate *

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12	13
(date / time)	12:00	9-10 0745	9-10 0805	9-10 0820	0908	9/11/19 10:05 10:20	10:50	11:40	1500 15:45	9/12/19 09:00 09:27	09:55		
Volume Purged (gal)	11	18	21	26	30	34	50	66 gal (58)	74	82	91		
Rate (gal/min)	0.39	0.13	0.15	0.33	0.08	0.26	0.53	0.32	0.35	0.29	0.32		
Depth to Water (ft.)	25.3[illegible]	21.30	23.12	26.5	27.02	21.45	24.90	27.30	20.61	21.76	25.54		
pH	6.72	7.17	6.16	6.72	7.16	7.10	6.83	6.36	6.65	7.03	—		
Temp. (C)	17.93	13.69	13.56	13.43	14.89	20.36	19.34	18.86	19.33	15.52	—		
Conductivity (mS/cm)	10.6	10.8	10.9	10.7	10.8	10.2	3.5	5.55	2.05	2.50	—		
Dissolved Oxygen (mg/L)	2.30	13.48	4.13	4.35	6.13	3.68	5.31	2.90	5.57	5.65	—		
Turbidity (NTU)	>500	>500	>500	>500	>500	>500	>500	>500	>500	>500	—		
Notes:	Dry @ 1230				Dry @ 0920						Dry @ 09:55		

Problems / Observations

- LEVEL @ 07:30, 9-10, 18.80'
- LEVEL = 25.47 @ 11:30 (9-10-19)
- LEVEL = 16.62 @ 09:23 (9-11-19)
- LEVEL = 12.36 @ 08:27 (9-12-19)

4 GAL BUCKETS ADDED

𝍸 𝍸 I

44 Gallons Added

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: Sarah Fuller, Jim Lawrence, Nick Karnacki
Client / Job Number: BMS 30630237
Weather: Sunny - 65°

Well ID: OW-7D
Date: 9/9/2019
Time In: ~~[illegible]~~ 1513
Time Out: 1140

Well Information

Depth to Water:	(feet)	15.98	(from MP)
Total Depth:	(feet)	32.73	(from MP)
Length of Water Column:	(feet)	16.75	
Volume of Water in Well:	(gal)	2.73	

Well Type:	Flushmount	(Stick-Up) circled	
Well Material:	(Stainless Steel) circled	PVC	
Well Locked:	Yes	(No) circled	
Measuring Point Marked:	(Yes) circled	No	
Well Diameter:	1"	(2") circled	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra) circled	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra) circled	Other:
Duration of Pumping:	(min) —			
Average Pumping Rate:	(ml/min) —	Water-Quality Meter Type:	(Horiba U-22) circled / LaMotte 2020	
Total Volume Removed:	(gal) 25.5 Gal	Did well go dry:	(Yes) circled	No

Conversion Factors	1" ID	2" ID	4" ID	6" ID
gal / ft. of water	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 ml = 0.1337 cubic feet

Ø Pump Rate Not Accurate Ø

10:50, 11:05 (5)

Parameter:	1 1523	2 1524	3 1547	4 1558	5 9/12/19	6 11:27	7 11:33	8	9	10	11	12	13
Volume Purged (gal)	3.0	6.0	9.0	10.5	17.5	21.5	25.5						
Rate (mL/min)	.3	.27	.13	.14	0.46	0.19	0.8						
Depth to Water (ft.)	25.1	26.3	29	30.7	31.52	29.97	30.21						
pH	7.88	7.20	7.05	7.02	6.56	7.26	8.10						
Temp. (C)	16.04	15.05	15.64	15.57	14.80	15.79	17.30						
Conductivity (mS/cm)	8.59	8.41	8.9	8.86	8.70	5.03	0.79						
Dissolved Oxygen (mg/L)	3.57	3.58	3.50	3.69	5.11	5.07	5.01						
Turbidity (NTU)	>500	>500	>600	>500	>500	>500	>500						
Notes:				dry @ 1603									

Problems / Observations

LEVEL = 18.35 @ 11:28 (9-10-19)
LEVEL = 8.69 @ 09:19 (9-11-19)

4 GAL BUCKETS ADDED
||||
16 Gallons Added

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: N. KANALEY, SARAH TATTLE Well ID: OW-15
Client / Job Number: 30030257 Date:
Weather: Time In: 0835 Time Out:

Well Information

Depth to Water:	(feet) 8.82	(from MP)
Total Depth:	(feet) 17.07	(from MP)
Length of Water Column:	(feet) 8.25	
Volume of Water in Well:	(gal) 1.34 GAL	

Well Type:	Flushmount	(Stick-Up)	
Well Material:	(Stainless Steel)	PVC	
Well Locked:	Yes	(No)	
Measuring Point Marked:	(Yes)	No	
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra)	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra)	Other:
Duration of Pumping:	(min)			
Average Pumping Rate:	(ml/min) ~~BAIL~~	Water-Quality Meter Type:	(Horiba U-22/LaMotte 2020)	
Total Volume Removed:	(gal) 14 Gal	Did well go dry:	(Yes)	No

★ Pump Rate Not Accurate ★

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3785 ml = 0.1337 cubic feet				

14:55

Parameter:	1	2 9/12/19	3	4	5	6	7	8	9	10	11	12	13
	0842	15:07	15:19	15:29									
Volume Purged (gal)	3	7	11	14									
Rate (mL/min)		0.36	0.33	0.4									
Depth to Water (ft.) 14.43	~~13.55~~	13.69	14.39	16.24									
pH	7.16	8.26	8.32	—									
Temp. (C)	14.03	19.71	19.97	—									
Conductivity (mS/cm)	8.07	2.09	1.39	—									
Dissolved Oxygen (mg/L)	6.91	6.30	5.62	—									
Turbidity (NTU)	>500	>500	>500	—									
Notes:	PRY @ 0843			DRY @ 15:29									

Problems / Observations

LEVEL = 12.80 @ 11:27 (9-10-19)

LEVEL = 13.76 @ 09:21 (9-11-19)

LEVEL = 9.64 @ 14:51 (9-12-19)

4 GAL BUCKETS ADDED

11

8 GALLONS ADDED

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: N. KANAGER, S. TUTTLE
Well ID: OW - 2D
Client / Job Number: BMS 30030237
Date: 9-10-19
Weather:
Time In:
Time Out:

Well Information

Depth to Water:	(feet) 8.33	(from MP)
Total Depth:	(feet) 32.94	(from MP)
Length of Water Column:	(feet) 24.61	
Volume of Water in Well:	(gal) 4.01	

Well Type:	Flushmount		(Stick-Up)
Well Material:	(Stainless Steel)		PVC
Well Locked:		Yes	(No)
Measuring Point Marked:		(Yes)	No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra)	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra)	Other:
Duration of Pumping:	(min)	–		
Average Pumping Rate:	(ml/min)	–	Water-Quality Meter Type:	(Horiba U-22/LaMotte 2020)
Total Volume Removed:	(gal) 37 Gal		Did well go dry:	(Yes) No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3785 ml = 0.1337 cubic feet				

09:35 * Pump Rate Not Accurate*
09:42 ±0.25

Parameter:	1	2	3	9/12/19 4	5	6	7	8	9	10	11	12	13
		10:07	11:08	10:30	10:48	11:00	11:09	11:19	11:30	11:38	11:45		
Volume Purged (gal)	1.0	5.0	–	9.0	13.0	17.0	21.0	25.0	29.0	33.0	37.0		
Rate (mL/min)	0.14	0.16	–	0.66	0.23	0.33	0.57	0.40	0.31	0.5	–		
Depth to Water (ft.)	9.78	18.72	16.62	20.41	23.24	15.03	17.83	27.49	27.8	26.11	–		
pH	7.33	7.89	–	8.12	8.15	7.97	8.02	8.10	7.94	8.07	–		
Temp. (C)	16.27	16.48	–	15.86	14.58	16.42	16.71	16.22	17.26	16.89	–		
Conductivity (mS/cm)	2.19	2.36	–	2.25	2.55	1.33	0.93	1.39	0.83	1.21	–		
Dissolved Oxygen (mg/L)	5.64	4.11	–	6.04	3.27	7.35	5.65	5.01	5.50	5.20	–		
Turbidity (NTU)	>500	>500	–	>500	>500	>500	>500	>500	>500	>500	–		
Notes:											DRY @ 11:45		

Problems / Observations

Level = 17.75 @ 11:18 (9-10-19)
LEVEL = 8.47 @ 09:02 (9-11-19)
LEVEL = 11.97 @ 10:22 (9-12-19)

4 GAL BUCKETS ADDED
IIII
16 Gallons

Site **WELL DEVELOPMENT LOG** Event

Sampling Personnel: Sarah Tuttle, Nick Kanauer, Jill Crouch Well ID: OW-2S
Client / Job Number: BMS 30030237 Date: 9/4/2019
Weather: 65° sunny Time In: ~~[illegible]~~ 1335 Time Out:

Well Information

Depth to Water:	(feet)	8.2	(from MP)
Total Depth:	(feet)	17.33	(from MP)
Length of Water Column:	(feet)	9.13	
Volume of Water in Well:	(gal)	1.49	

Well Type:	Flushmount	(Stick-Up) circled	
Well Material:	(Stainless Steel) circled	PVC	
Well Locked:	Yes	(No) circled	
Measuring Point Marked:	(Yes) circled	No	
Well Diameter:	1"	(2") circled	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra) circled	Other:	
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra) circled	Other:	
Duration of Pumping:	(min)	—			
Average Pumping Rate:	(ml/min)	—	Water-Quality Meter Type:	(Horiba U-22) circled	LaMotte 2020
Total Volume Removed:	(gal) 21 Gal		Did well go dry:	Yes	(No) circled

Conversion Factors	1" ID	2" ID	4" ID	6" ID
gal / ft. of water	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3785 ml = 0.1337 cubic feet

* Pump Rate Not Accurate*

resumed pumping 1439 → 1451

resumed pumping 1531

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12	13
Time	1337	1342	1351	1358	1409	1415	~~1424~~	1456	1501	1505	1510	1516	1542
Volume Purged (gal)	1.49	3	4.5	6	7.5	9.0	10.5	12	13.5	15.0	16.5	18	19.5
Rate (mL/min)	.19	.3	.16	.21	.14	.25	.13	.3	.3	.38	.3	.25	.3
Depth to Water (ft.)	8.21	8.29	8.3	8.35	8.4	8.4	8.4	8.4	8.7	8.8	8.8	8.87	8.99
pH	7.8	7.96	8.10	8.32	8.35	8.39	8.09	8.44	8.57	8.61	8.58	8.54	7.71
Temp. (C)	19.75	18.79	18.3	18.13	18.03	17.98	17.37	17.88	17.93	17.95	18.03	18.32	17.35
Conductivity (mS/cm)	3.53	3.17	2.63	2.49	2.34	2.31	2.52	2.20	2.22	2.23	2.24	2.25	2.56
Dissolved Oxygen (mg/L)	2.98	3.17	3.10	3.05	2.70	2.78	1.50	1.87	1.82	2.12	2.22	2.07	2.39
Turbidity (NTU)	>500	>500	>500	>500	>500	>500	>500	>500	>500	>500	>500	>500	>500
Notes:													

Problems / Observations

~~Ketel~~

NO WATER ADDED

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel:
Well ID: OW-25 (cont)
Client / Job Number: 300502.37
Date:
Weather:
Time In: Time Out:

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	Yes		No
Measuring Point Marked:	Yes		No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Waterra	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Waterra	Other:
Duration of Pumping:	(min)			
Average Pumping Rate:	(ml/min)	Water-Quality Meter Type:	Horiba U-22/LaMotte 2020	
Total Volume Removed:	(gal)	Did well go dry:	Yes	No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3785 ml = 0.1337 cubic feet				

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12	13
	1552												
Volume Purged (gal) (1.5)	21												
Rate (mL/min)	.15												
Depth to Water (ft.)	9.2												
pH	7.62												
Temp. (C)	17.52												
Conductivity (mS/cm)	2.43												
Dissolved Oxygen (mg/L)	1.70												
Turbidity (NTU)	>500												
Notes:													

Problems / Observations

Level = 8.53 @ 11:15 (9-10-19)
Level = 8.22 @ 09:05 (9-11-19)

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: Sarah Tuttle, Jillian Graves, Nick Kurnauer
Well ID: OU-3D
Client / Job Number: BMS 30030237
Date: 9/9/2019
Weather: 65 - sun clouds
Time In: 1412
Time Out:

Well Information

Depth to Water:	(feet)	10.87	(from MP)
Total Depth:	(feet)	33.46	(from MP)
Length of Water Column:	(feet)	22.59	
Volume of Water in Well:	(gal)	3.68	

Well Type:		Flushmount	**Stick-Up**
Well Material:		**Stainless Steel**	PVC
Well Locked:		Yes	**No**
Measuring Point Marked:		**Yes**	No
Well Diameter:	1"	**2"**	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	**Waterra**	Other:
Tubing/Bailer Material:	Steel	Polyethylene	**Waterra**	Other:
Duration of Pumping:	(min) —			
Average Pumping Rate:	(ml/min) —	Water-Quality Meter Type:	**Horiba U-22** / LaMotte 2020	
Total Volume Removed:	(gal) 40 Gal	Did well go dry:	**Yes**	No

Conversion Factors	1" ID	2" ID	4" ID	6" ID
gal / ft. of water	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3785 ml = 0.1337 cubic feet				

* Pump Rate Not Accurate *

9-12

Parameter:	1 1421	2 1435	3 1449	9/10/19 09:10	5 09:37	6 0923	7 0937	8 0956	9	10	11	12	13
Volume Purged (gal)	4	8	~~4~~ 12	16	20	24	32	40					
Rate (mL/min)	.44	.28	.4	0.26	0.15	—	—	—					
Depth to Water (ft.)	24	26.6	30.7	25.76	30.98	27.20	24.94	—					
pH	7.39	7.04	7.17	6.90	6.53	7.56	7.18	7.51					
Temp. (C)	15.21	14.98	14.69	13.41	13.31	15.67	15.87	16.22					
Conductivity (mS/cm)	7.99	8.32	8.30	7.96	8.36	7.77	3.83	1.69					
Dissolved Oxygen (mg/L)	1.27	2.30	4.36	3.42	4.35	6.59	5.03	6.68					
Turbidity (NTU)	7600	7500	>500	7500	>500	7500	7500	>500					
Notes:			dry @14:02		DRY @ 09:37								

Problems / Observations

- DEPTH @0855, 9-10, 14.60'
- LEVEL = 26.92 @ 11:20 (9-10-19)
- LEVEL = 13.24 @ 09:08 (9-11-19)
- LEVEL = 11.37 @ 08:30 (9-12-19)

4 GAL BUCKETS ADDED

||||

16 Gallons Added

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: S. Tuttle, N. Kandner
Client / Job Number: 30030237
Weather: Sunny & 73°
Well ID: OW-35
Date: 9-10-19
Time In: 15:07 Time Out:

Well Information

Depth to Water:	(feet)	8.46	(from MP)
Total Depth:	(feet)	17.78	(from MP)
Length of Water Column:	(feet)	9.32	
Volume of Water in Well:	(gal)	1.52	

Well Type:	Flushmount		(Stick-Up)
Well Material:	(Stainless Steel)		PVC
Well Locked:	Yes		(No)
Measuring Point Marked:	(Yes)		No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra)	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra)	Other:
Duration of Pumping:	(min) –			
Average Pumping Rate:	(ml/min) –	Water-Quality Meter Type:	(Horiba U-22/LaMotte 2020)	
Total Volume Removed:	(gal) 26 Gal	Did well go dry:	(Yes)	No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

* Pump Rate Not Accurate *

~~15:52~~ 14:09 14:25 14:45 14:39

Parameter:	1 15:49	2		X	X 3	5	6	7	8	9	10	11	12	13
Volume Purged (gal)	4	12		20	20	26								
Rate (mL/min)	0.21	(5.99)		15.10	–	–								
Depth to Water (ft.)	~~15.49~~	~~8.51~~			15.10	15.11								
pH	7.45	8.17			8.33	8.54								
Temp. (C)	19.23	18.34			19.03	19.11								
Conductivity (mS/cm)	3.97	1.40			0.708	0.702								
Dissolved Oxygen (mg/L)	3.34	6.51			6.77	7.05								
Turbidity (NTU)	>500	>500			>500	>500								
Notes:	DRY @ 15:52													

Problems / Observations

LEVEL = 8.46 @ 11:22 (9-10-19)

LEVEL = 9.70 @ 09:10 (9-11-19)

LEVEL = 8.61 @ ~~X~~ 14:01 (9-12-19)

4 GAL BUCKETS ADDED

IIII

16 Gallons Added

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: Sarah Tuttle, Nick Kanauer, Jill Bouchie
Well ID: OW-4D
Client / Job Number: BMS 30035237
Date: 9/9/2019
Weather: Sunny 65°
Time In: 11:50
Time Out:

Well Information

Depth to Water: 9.87	(feet)		(from MP)
Total Depth: 33.73	(feet)		(from MP)
Length of Water Column:	(feet)	23.86	
Volume of Water in Well:	(gal)	3.89	

Well Type:	Flushmount	(Stick-Up) circled	
Well Material:	(Stainless Steel) circled	PVC	
Well Locked:	Yes	(No) circled	
Measuring Point Marked:	(Yes) circled	No	
Well Diameter:	1"	(2") circled	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra) circled	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra) circled	Other:
Duration of Pumping:	(min) —			
Average Pumping Rate:	(ml/min) —	Water-Quality Meter Type:	(Horiba U-52/LaMotte 2020) circled	
Total Volume Removed:	(gal) 35 Gal	Did well go dry:	(Yes) circled	No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3785 ml = 0.1337 cubic feet				

12:10 12:20 ↑ Began pump ↑ @1559

* PUMP Rate NOT ACCURATE *

Parameter:	12:19 [illegible]	2	3 9/10/19 08:15	4 9-11 1025	5 1115	6 1205	7 1525	8	9	10	11	12	13
Volume Purged (gal)	4	8	11	17	25	31	35						
Rate (~~ml/min~~) gal/min	.2gal	.4gal	0.2	—	—	—	—						
Depth to Water (ft.)	29.70	29.71	32.07	23.1	18.23	25.53 ~~7.44~~	~~7.47~~						
pH 6.51	[illegible]	6.46	7.02	7.24	7.08	7.44	7.47						
Temp. (C) 16.71	[illegible]	14.83	13.48	17.82	19.31	21.21	20.93						
Conductivity (mS/cm) 4.72	[illegible]	4.86	4.44	0.914	0.531	0.485	0.409						
Dissolved Oxygen (mg/L) 5	[illegible]	3.91	5.11	7.53	6.39	6.30	10.69						
Turbidity (NTU)	>500	>600	>500	>500	>500	>500	435						
Notes:		Dry @ 1230	DRY @ 08:15										

Problems / Observations

- Surge block pulled off - left in bottom of well.
- LEVEL @0755, 9-10, 26.85'
- LEVEL = 32.08 @ 11:24 (9-10-19)
- LEVEL = 30.22 @ 09:14 (9-11-19)

4 GAL BUCKETS ADDED

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40 Gallons Added

Site

WELL DEVELOPMENT LOG

Event

Sampling Personnel: Sarah Tuttle, Nick Kanauer Well ID: OW-45
Client / Job Number: 30030237 Date: 9-10-19
Weather: Sunny ~ 65°F Time In: 10:00 Time Out:

Well Information

Depth to Water:	(feet)	13.50	(from MP)
Total Depth:	(feet)	17.83	(from MP)
Length of Water Column:	(feet)	4.33	
Volume of Water in Well:	(gal)	0.71	

Well Type:		Flushmount	(Stick-Up)
Well Material:		(Stainless Steel)	PVC
Well Locked:		Yes	(No)
Measuring Point Marked:		(Yes)	No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	(Waterra)	Other:
Tubing/Bailer Material:	Steel	Polyethylene	(Waterra)	Other:
Duration of Pumping:	(min)			
Average Pumping Rate:	(ml/min)		Water-Quality Meter Type:	(Horiba U-22/LaMotte 2020)
Total Volume Removed:	(gal)	15.5 Gal	Did well go dry:	(Yes) No

Conversion Factors				
gal / ft of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

~~PUMP RATE NOT ACCURATE~~

1:32 13:22

Parameter:	1 14:57	2 7/12/19 1355	3 14:15	4 14:39	5	6	7	8	9	10	11	12	13
Volume Purged (gal)	3	7	12	15.5									
Rate (mL/min) 0.21 L/min	0.12	0.12	0.25	0.21									
Depth to Water (ft.) 13.50	~~13.50~~	17.08	17.16	17.07									
pH	7.72	8.25	8.33	—									
Temp. (C)	20.06	17.95	17.54	—									
Conductivity (mS/cm)	4.67	1.38	2.98	—									
Dissolved Oxygen (mg/L)	8.26	7.55	6.86	—									
Turbidity (NTU)	>500	93.1	322	—									
Notes:			[redacted]	DRY @ 14:39									

Problems / Observations

~~[redacted]~~

- Unable to pass plunger through
- ~~WATER @ 16.25 @ 11:45:44~~
- LEVEL = 14.51 @ 09:16 (9-11-19)

~~11:~~ 4 GAL BUCKETS ADDED

11:

12 Gallons Added

APPENDIX C

Laboratory Analytical Reports

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Report Date: October 04, 2019 12:51

Project: Bristol-Myers Squibb

Account #: 03074
Group Number: 2061413
SDG: BMS78
PO Number: 30033396
State of Sample Origin: NY

Electronic Copy To	Arcadis	Attn: William McCune
Electronic Copy To	Arcadis	Attn: Lawrence Carey Healy

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
EW-1(23-25) Grab Soil	08/28/2019 13:00	1138859
EW-1(27-29) Grab Soil	08/28/2019 13:20	1138860
EW-1(27-29) MS Grab Soil	08/28/2019 13:20	1138861
EW-1(27-29) MSD Grab Soil	08/28/2019 13:20	1138862
DUP-1-082819 Grab Soil	08/28/2019	1138863
Trip Blank 1 Water	08/28/2019	1138864

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Bristol-Myers Squibb
ELLE Group #: 2061413

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 1138859, 1138863

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample #s: 1138864

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

Sample #s: 1138860, 1138861, 1138862

The recovery for a sample internal standard is outside the QC acceptance limits. The internal standard recovery was outside of acceptance limits in the background, matrix spike, and matrix spike duplicate indicating a matrix effect.

Batch #: B192461AB (Sample number(s): 1138860-1138862 UNSPK: 1138860)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Ethyl Acetate, 1,1-Dichloroethene, Methylene Chloride, 1,1,1-Trichloroethane, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, Ethylbenzene, m+p-Xylene, o-Xylene, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3,5-Trimethylbenzene, tert-Butylbenzene, 1,2,4-Trimethylbenzene, sec-Butylbenzene, p-Isopropyltoluene, n-Butylbenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, Chlorodifluoromethane, Acetone, 2-Butanone, Xylene (Total), Freon 113

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene, Acetonitrile

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: n-Heptane, Dichlorodifluoromethane, Vinyl Chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,2,4-Trichlorobenzene, Naphthalene, Acetonitrile

Batch #: B192461AC (Sample number(s): 1138861-1138862 UNSPK: 1138860)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Ethyl Acetate, Chlorodifluoromethane

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Acetonitrile

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Acetonitrile

SW-846 8270D, GC/MS Semivolatiles

Sample #s: 1138859, 1138860, 1138861, 1138862, 1138863

Z=The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

Batch #: 19247SLC026 (Sample number(s): 1138859-1138863 UNSPK: 1138860)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: N,N-Dimethylaniline, Triethylamine

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 4-Nitrophenol, Pentachlorophenol, 4,6-Dinitro-2-methylphenol, Hexachlorocyclopentadiene, 2,3,4,6-Tetrachlorophenol

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 4-Nitrophenol, Pentachlorophenol, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol

SW-846 8315A, Aldehydes & Ketones

Sample #s: 1138862, 1138863

The surrogate data is outside the QC limits due to unresolvable
matrix problems evident during the sample preparation.
Formaldehyde is detected in the blank at 695 ug/l.
Formaldehyde LOQ and MDL were raised to <700ug/l.

Sample #s: 1138859, 1138860, 1138861

The surrogate data is outside the QC limits due to unresolvable
matrix problems evident during the sample preparation.
Formaldehyde is detected in the blank at 695 ug/l.
Formaldehyde MDL was raised to <700ug/l.

Batch #: 192420026A (Sample number(s): 1138859-1138863 UNSPK: 1138860)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 1138859, 1138860, 1138861, 1138862, 1138863, Blank, LCS, MS, MSD

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Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	N.D.		860	260	38.82
11995	Acetonitrile	75-05-8	N.D.		4,300	1,100	38.82
11995	Benzene	71-43-2	N.D.		210	21	38.82
11995	Bromochloromethane	74-97-5	N.D.		210	26	38.82
11995	Bromodichloromethane	75-27-4	N.D.		210	17	38.82
11995	Bromoform	75-25-2	N.D.		430	210	38.82
11995	Bromomethane	74-83-9	N.D.		210	30	38.82
11995	n-Butanol	71-36-3	N.D.		11,000	2,400	38.82
11995	2-Butanone	78-93-3	N.D.		430	43	38.82
11995	t-Butyl alcohol	75-65-0	880	J	4,300	640	38.82
11995	n-Butylbenzene	104-51-8	N.D.		340	130	38.82
11995	sec-Butylbenzene	135-98-8	N.D.		210	86	38.82
11995	tert-Butylbenzene	98-06-6	N.D.		210	34	38.82
11995	Carbon Disulfide	75-15-0	N.D.		210	26	38.82
11995	Carbon Tetrachloride	56-23-5	N.D.		210	21	38.82
11995	Chlorobenzene	108-90-7	N.D.		210	21	38.82
11995	Chlorodifluoromethane[1]	75-45-6	N.D.		430	86	38.82
11995	Chloroethane	75-00-3	N.D.		210	43	38.82
11995	Chloroform	67-66-3	N.D.		210	26	38.82
11995	Chloromethane	74-87-3	N.D.		210	26	38.82
11995	Cyclohexane	110-82-7	N.D.		210	21	38.82
11995	Cyclohexanone[1]	108-94-1	N.D.		11,000	1,100	38.82
11995	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		210	21	38.82
11995	Dibromochloromethane	124-48-1	N.D.		210	21	38.82
11995	1,2-Dibromoethane	106-93-4	N.D.		210	17	38.82
11995	1,2-Dichlorobenzene	95-50-1	23	J	210	21	38.82
11995	1,3-Dichlorobenzene	541-73-1	N.D.		210	21	38.82
11995	1,4-Dichlorobenzene	106-46-7	N.D.		210	17	38.82
11995	Dichlorodifluoromethane	75-71-8	N.D.		210	26	38.82
11995	1,1-Dichloroethane	75-34-3	N.D.		210	21	38.82
11995	1,2-Dichloroethane	107-06-2	N.D.		210	26	38.82
11995	1,1-Dichloroethene	75-35-4	N.D.		210	21	38.82
11995	cis-1,2-Dichloroethene	156-59-2	N.D.		210	21	38.82
11995	trans-1,2-Dichloroethene	156-60-5	N.D.		210	21	38.82
11995	1,2-Dichloropropane	78-87-5	N.D.		210	21	38.82
11995	cis-1,3-Dichloropropene	10061-01-5	N.D.		210	17	38.82
11995	trans-1,3-Dichloropropene	10061-02-6	N.D.		210	21	38.82
11995	1,4-Dioxane	123-91-1	N.D.		11,000	1,600	38.82
11995	Ethyl Acetate	141-78-6	N.D.		210	43	38.82
11995	Ethyl Ether[1]	60-29-7	N.D.		210	43	38.82
11995	Ethylbenzene	100-41-4	N.D.		210	17	38.82

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Freon 113	76-13-1	N.D.	430	26	38.82
11995	n-Heptane[1]	142-82-5	N.D.	340	130	38.82
11995	n-Hexane[1]	110-54-3	150 J	210	21	38.82
11995	2-Hexanone	591-78-6	N.D.	430	43	38.82
11995	Isobutyl Alcohol	78-83-1	N.D.	11,000	1,600	38.82
11995	Isopropylbenzene	98-82-8	N.D.	210	17	38.82
11995	p-Isopropyltoluene	99-87-6	N.D.	210	86	38.82
11995	Methyl Acetate	79-20-9	N.D.	210	43	38.82
11995	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	210	21	38.82
11995	4-Methyl-2-pentanone	108-10-1	N.D.	430	43	38.82
11995	Methylcyclohexane	108-87-2	N.D.	210	26	38.82
11995	Methylene Chloride	75-09-2	180,000	11,000	4,300	1940.99
11995	Naphthalene	91-20-3	N.D.	210	86	38.82
11995	2-Nitropropane	79-46-9	N.D.	430	86	38.82
11995	Styrene	100-42-5	N.D.	210	17	38.82
11995	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	210	17	38.82
11995	Tetrachloroethene	127-18-4	75 J	210	21	38.82
11995	Tetrahydrofuran[1]	109-99-9	N.D.	340	43	38.82
11995	Toluene	108-88-3	N.D.	210	26	38.82
11995	1,2,3-Trichlorobenzene	87-61-6	N.D.	430	210	38.82
11995	1,2,4-Trichlorobenzene	120-82-1	N.D.	430	210	38.82
11995	1,1,1-Trichloroethane	71-55-6	N.D.	210	26	38.82
11995	1,1,2-Trichloroethane	79-00-5	N.D.	210	21	38.82
11995	Trichloroethene	79-01-6	N.D.	210	21	38.82
11995	Trichlorofluoromethane	75-69-4	N.D.	210	30	38.82
11995	1,2,4-Trimethylbenzene	95-63-6	N.D.	210	21	38.82
11995	1,3,5-Trimethylbenzene	108-67-8	N.D.	210	21	38.82
11995	Vinyl Chloride	75-01-4	N.D.	210	26	38.82
11995	m+p-Xylene	179601-23-1	N.D.	210	43	38.82
11995	o-Xylene	95-47-6	N.D.	210	17	38.82
11995	Xylene (Total)	1330-20-7	N.D.	430	60	38.82

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

12027 VOA Interp. Library Search-20

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

GC/MS Semivolatiles	**SW-846 8270D**	**ug/kg**	**ug/kg**	**ug/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	N.D.	18	4	1
10726	Acenaphthylene	208-96-8	N.D.	18	4	1
10726	Acetophenone	98-86-2	N.D.	55	18	1
10726	Aniline	62-53-3	N.D.	550	180	1
10726	Anthracene	120-12-7	N.D.	18	4	1
10726	Atrazine	1912-24-9	N.D.	480	220	1
10726	Benzaldehyde	100-52-7	N.D.	180	74	1
10726	Benzo(a)anthracene	56-55-3	N.D.	18	7	1
10726	Benzo(a)pyrene	50-32-8	N.D.	18	4	1
10726	Benzo(b)fluoranthene	205-99-2	6 J	18	4	1
10726	Benzo(g,h,i)perylene	191-24-2	N.D.	18	4	1
10726	Benzo(k)fluoranthene	207-08-9	N.D.	18	4	1
10726	Benzyl alcohol	100-51-6	N.D.	550	180	1
10726	1,1'-Biphenyl	92-52-4	N.D.	41	18	1
10726	4-Bromophenyl-phenylether	101-55-3	N.D.	55	26	1
10726	Butylbenzylphthalate	85-68-7	N.D.	180	74	1
10726	Di-n-butylphthalate	84-74-2	N.D.	180	74	1
10726	Caprolactam	105-60-2	N.D.	180	37	1
10726	Carbazole	86-74-8	N.D.	41	18	1
10726	4-Chloro-3-methylphenol	59-50-7	N.D.	55	26	1
10726	4-Chloroaniline	106-47-8	N.D.	180	37	1
10726	bis(2-Chloroethoxy)methane	111-91-1	N.D.	41	18	1
10726	bis(2-Chloroethyl)ether	111-44-4	N.D.	55	26	1
10726	bis(2-Chloroisopropyl)ether[1]	39638-32-9	N.D.	48	22	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	2-Chloronaphthalene	91-58-7	N.D.	37	7	1
10726	2-Chlorophenol	95-57-8	N.D.	41	18	1
10726	4-Chlorophenyl-phenylether	7005-72-3	N.D.	48	22	1
10726	Chrysene	218-01-9	6 J	18	4	1
10726	Dibenz(a,h)anthracene	53-70-3	N.D.	18	7	1
10726	Dibenzofuran	132-64-9	N.D.	41	18	1
10726	3,3'-Dichlorobenzidine	91-94-1	N.D.	370	110	1
10726	2,4-Dichlorophenol	120-83-2	N.D.	48	22	1
10726	Dicyclohexylamine[1]	101-83-7	N.D.	2,200	740	1
10726	Diethylphthalate	84-66-2	N.D.	180	74	1
10726	N,N-Dimethylaniline[1]	121-69-7	240 Z	180	37	1
10726	2,4-Dimethylphenol	105-67-9	N.D.	74	33	1
10726	Dimethylphthalate	131-11-3	N.D.	180	74	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	550	260	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	2,4-Dinitrophenol	51-28-5	N.D.	1,100	370	1
10726	2,4-Dinitrotoluene	121-14-2	N.D.	180	74	1
10726	2,6-Dinitrotoluene	606-20-2	N.D.	55	26	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	170 J	180	74	1
10726	Fluoranthene	206-44-0	5 J	18	4	1
10726	Fluorene	86-73-7	N.D.	18	4	1
10726	Hexachlorobenzene	118-74-1	N.D.	18	7	1
10726	Hexachlorobutadiene	87-68-3	N.D.	85	41	1
10726	Hexachlorocyclopentadiene	77-47-4	N.D. K3	550	220	1
10726	Hexachloroethane	67-72-1	N.D.	180	37	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	18	4	1
10726	Isophorone	78-59-1	N.D.	41	18	1
10726	2-Methylnaphthalene	91-57-6	N.D.	37	4	1
10726	2-Methylphenol	95-48-7	N.D.	74	18	1
10726	4-Methylphenol	65794-96-9	N.D.	55	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10726	Naphthalene	91-20-3	12 J	18	7	1
10726	2-Nitroaniline	88-74-4	N.D.	55	18	1
10726	3-Nitroaniline	99-09-2	N.D.	180	74	1
10726	4-Nitroaniline	100-01-6	N.D.	180	74	1
10726	Nitrobenzene	98-95-3	N.D.	74	30	1
10726	2-Nitrophenol	88-75-5	N.D.	63	30	1
10726	4-Nitrophenol	100-02-7	N.D.	550	180	1
10726	N-Nitroso-di-n-propylamine	621-64-7	N.D.	55	26	1
10726	N-Nitrosodiphenylamine	86-30-6	N.D.	41	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	N.D.	180	74	1
10726	Pentachlorophenol	87-86-5	N.D.	180	74	1
10726	Phenanthrene	85-01-8	8 J	18	4	1
10726	Phenol[1]	108-95-2	N.D.	41	18	1
10726	Pyrene	129-00-0	7 J	18	4	1
10726	Pyridine	110-86-1	N.D.	180	74	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	N.D.	41	18	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	N.D.	180	74	1
10726	2,4,5-Trichlorophenol	95-95-4	N.D.	74	33	1
10726	2,4,6-Trichlorophenol	88-06-2	N.D.	63	30	1
10726	Triethylamine[1]	121-44-8	N.D. Z	5,500	1,800	1

Z=The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
00886	**SVOA TIC Interpretive(25)**					
	The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.					
Aldehydes & Ketones	**SW-846 8315A**		**mg/kg**	**mg/kg**	**mg/kg**	
13031	Acetaldehyde[1]	75-07-0	0.90 J	1.1	0.55	1
13031	Formaldehyde	50-00-0	3.7	1.7	0.78	1
13031	Glutaraldehyde[1]	111-30-8	N.D.	1.1	0.55	1
	The surrogate data is outside the QC limits due to unresolvable matrix problems evident during the sample preparation. Formaldehyde is detected in the blank at 695 ug/l. Formaldehyde MDL was raised to <700ug/l.					
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/kg**	**mg/kg**	**mg/kg**	
12925	Ethylene glycol	107-21-1	N.D.	11	5.5	1
12925	Propylene glycol[1]	57-55-6	N.D.	11	5.5	1
GC Miscellaneous	**SW-846 8015D Rev.4, June 2003**		**ug/kg**	**ug/kg**	**ug/kg**	
10604	Ethanol (by Direct Injection)[1]	64-17-5	N.D. D2	1,100	130	1
10604	Isopropanol[1]	67-63-0	N.D. D2	1,100	51	1
10604	Methanol (by Direct Injection)[1]	67-56-1	2,600 D2	1,100	220	1
Wet Chemistry	**SM 2540 G-2011 %Moisture Calc**		**%**	**%**	**%**	
00111	Moisture[1]	n.a.	9.7	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Eurofins Lancaster Laboratories Environmental, LLC is responsible only for the certified testing of samples. We are not directly responsible for the integrity of the sample prior to laboratory receipt. Any reported concentrations less than 200 ug/kg may be biased low if they were not collected according to EPA 5035/5035A specifications.

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Sample Description: **EW-1(23-25) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:00
SDG#: BMS78-01

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138859
ELLE Group #: 2061413
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	V192461AA	09/03/2019 16:17	Stephen C Nolte	38.82
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	V192481AA	09/05/2019 17:46	Stephen C Nolte	1940.99
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	1	201924154721	08/29/2019 17:49	Rebecca Williams	1
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	2	201924154721	08/29/2019 17:50	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201924154721	08/28/2019 13:00	Client Supplied	1
10726	SVOA 8270D/E (microwave)	SW-846 8270D	1	19247SLC026	09/09/2019 16:07	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	19247SLC026	09/05/2019 07:00	Joshua S Ruth	1
13031	Short List Aldehydes- S 8315A	SW-846 8315A	1	192420026A	09/03/2019 16:13	Jessica L Miller	1
05876	Formaldehyde Solid Extraction	SW-846 8315A	1	192420026A	08/30/2019 13:20	Alison Moll	1
12925	Glycols in Soil by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 22:26	Donald Brown	1
10604	Alcohols in Soil	SW-846 8015D Rev.4, June 2003	1	192480006A	09/05/2019 16:28	Johanna C Kennedy	1
13121	Glycol Solids Ext. 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 19:01	Donald Brown	1
00380	Solids Extraction for Alcohols	SW-846 8015D Rev 4 06/2003 Mod	3	192480006A	09/05/2019 11:05	Johanna C Kennedy	1
00111	Moisture	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03961

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 1138859
Sample wt/vol: 6.44 (g/mL) g Lab File ID: HP23313.i/19sep03a.b/vs03s11.d
Level: (low/med) MED Date Received: 08/29/19
% Moisture: not dec. 9.7 Date Analyzed: 09/03/19
Column: (pack/cap) CAP Dilution Factor: 38.8
CONCENTRATION UNITS:
Number TICs found: 3 (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown alkane	5.91	220	J
2.	556-67-2	Cyclotetrasiloxane, octameth	12.16	2100	J
3.		Unknown	13.51	520	J
4.					
5.	VOCTIC	Total VOC TICs		2800	J
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FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03961

Lab Name: Lancaster Laboratories Contract:
Lab Code: LANCAS Case No.: SAS No.: SDG No.:
Matrix: (soil/water) SOIL Lab Sample ID: 1138859
Sample wt/vol: 30.02(g/mL) g Lab File ID: gi0320.d
Level: (low/med) LOW Date Received: 08/29/19
% Moisture: 9.7 Decanted: (Y/N) Date Extracted: 09/05/19
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/09/19
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic
CONCENTRATION UNITS:
Number TICs found: 18 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	1.287	220	J
2.	Unknown	1.434	1500	J
3.590-90-9	4-Hydroxy-2-butanone	2.281	4500	J
4.	Unknown	3.075	15000	JB
5.	Unknown	3.587	170	J
6.	Unknown	3.740	310	J
7.541-02-6	Cyclopentasiloxane, decameth	5.622	460	J
8.100-10-7	Benzaldehyde, 4-(dimethylami	8.016	740	J
9.	Unknown	9.316	1000	J
10.	Unknown	10.910	160	J
11.22915-20-4	1-Piperidineacetonitrile, .a	11.174	430	J
12.	Unknown	11.304	6700	J
13.	Unknown	11.392	160	J
14.101-61-1	Benzenamine, 4,4'-methyleneb	11.445	230	J
15.	Unknown	12.016	340	J
16.112-84-5	13-Docosenamide, (Z)-	12.598	270	J
17.	Unknown	14.133	350	J
18.	Unknown	14.739	350	J
19.				
20.SVOCTIC	Total SVOC TICs		33000	JB
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page 1 of 1

FORM I SV-1

Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	10 J	14	4	0.62
11995	Acetonitrile	75-05-8	N.D.	69	17	0.62
11995	Benzene	71-43-2	N.D.	3	0.3	0.62
11995	Bromochloromethane	74-97-5	N.D.	3	0.4	0.62
11995	Bromodichloromethane	75-27-4	N.D.	3	0.3	0.62
11995	Bromoform	75-25-2	N.D.	7	3	0.62
11995	Bromomethane	74-83-9	N.D.	3	0.5	0.62
11995	n-Butanol	71-36-3	N.D.	170	39	0.62
11995	2-Butanone	78-93-3	N.D.	7	0.7	0.62
11995	t-Butyl alcohol	75-65-0	N.D.	69	10	0.62
11995	n-Butylbenzene	104-51-8	N.D.	6	2	0.62
11995	sec-Butylbenzene	135-98-8	N.D.	3	1	0.62
11995	tert-Butylbenzene	98-06-6	N.D.	3	0.6	0.62
11995	Carbon Disulfide	75-15-0	3 J	3	0.4	0.62
11995	Carbon Tetrachloride	56-23-5	N.D.	3	0.3	0.62
11995	Chlorobenzene	108-90-7	N.D.	3	0.3	0.62
11995	Chlorodifluoromethane[1]	75-45-6	N.D.	7	1	0.62
11995	Chloroethane	75-00-3	N.D.	3	0.7	0.62
11995	Chloroform	67-66-3	N.D.	3	0.4	0.62
11995	Chloromethane	74-87-3	N.D.	3	0.4	0.62
11995	Cyclohexane	110-82-7	N.D.	3	0.3	0.62
11995	Cyclohexanone[1]	108-94-1	N.D.	170	17	0.62
11995	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	0.3	0.62
11995	Dibromochloromethane	124-48-1	N.D.	3	0.3	0.62
11995	1,2-Dibromoethane	106-93-4	N.D.	3	0.3	0.62
11995	1,2-Dichlorobenzene	95-50-1	N.D.	3	0.3	0.62
11995	1,3-Dichlorobenzene	541-73-1	N.D.	3	0.3	0.62
11995	1,4-Dichlorobenzene	106-46-7	N.D.	3	0.3	0.62
11995	Dichlorodifluoromethane	75-71-8	N.D.	3	0.4	0.62
11995	1,1-Dichloroethane	75-34-3	N.D.	3	0.3	0.62
11995	1,2-Dichloroethane	107-06-2	N.D.	3	0.4	0.62
11995	1,1-Dichloroethene	75-35-4	1 J	3	0.3	0.62
11995	cis-1,2-Dichloroethene	156-59-2	N.D.	3	0.3	0.62
11995	trans-1,2-Dichloroethene	156-60-5	0.6 J	3	0.3	0.62
11995	1,2-Dichloropropane	78-87-5	N.D.	3	0.3	0.62
11995	cis-1,3-Dichloropropene	10061-01-5	N.D.	3	0.3	0.62
11995	trans-1,3-Dichloropropene	10061-02-6	N.D.	3	0.3	0.62
11995	1,4-Dioxane	123-91-1	N.D.	170	25	0.62
11995	Ethyl Acetate	141-78-6	N.D.	3	0.7	0.62
11995	Ethyl Ether[1]	60-29-7	N.D.	3	0.7	0.62
11995	Ethylbenzene	100-41-4	N.D.	3	0.3	0.62

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Freon 113	76-13-1	N.D.	7	0.4	0.62
11995	n-Heptane[1]	142-82-5	N.D.	6	2	0.62
11995	n-Hexane[1]	110-54-3	N.D.	3	0.3	0.62
11995	2-Hexanone	591-78-6	N.D.	7	0.7	0.62
11995	Isobutyl Alcohol	78-83-1	N.D.	170	26	0.62
11995	Isopropylbenzene	98-82-8	N.D.	3	0.3	0.62
11995	p-Isopropyltoluene	99-87-6	N.D.	3	1	0.62
11995	Methyl Acetate	79-20-9	N.D.	3	0.7	0.62
11995	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	3	0.3	0.62
11995	4-Methyl-2-pentanone	108-10-1	N.D.	7	0.7	0.62
11995	Methylcyclohexane	108-87-2	N.D.	3	0.4	0.62
11995	Methylene Chloride	75-09-2	2,000	260	100	46.73
11995	Naphthalene	91-20-3	N.D.	3	1	0.62
11995	2-Nitropropane	79-46-9	N.D.	7	1	0.62
11995	Styrene	100-42-5	N.D.	3	0.3	0.62
11995	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	3	0.3	0.62
11995	Tetrachloroethene	127-18-4	N.D.	3	0.3	0.62
11995	Tetrahydrofuran[1]	109-99-9	N.D.	6	0.7	0.62
11995	Toluene	108-88-3	N.D.	3	0.4	0.62
11995	1,2,3-Trichlorobenzene	87-61-6	N.D.	7	3	0.62
11995	1,2,4-Trichlorobenzene	120-82-1	N.D.	7	3	0.62
11995	1,1,1-Trichloroethane	71-55-6	N.D.	3	0.4	0.62
11995	1,1,2-Trichloroethane	79-00-5	N.D.	3	0.3	0.62
11995	Trichloroethene	79-01-6	0.4 J	3	0.3	0.62
11995	Trichlorofluoromethane	75-69-4	N.D.	3	0.5	0.62
11995	1,2,4-Trimethylbenzene	95-63-6	N.D.	3	0.3	0.62
11995	1,3,5-Trimethylbenzene	108-67-8	N.D.	3	0.3	0.62
11995	Vinyl Chloride	75-01-4	N.D.	3	0.4	0.62
11995	m+p-Xylene	179601-23-1	N.D.	3	0.7	0.62
11995	o-Xylene	95-47-6	N.D.	3	0.3	0.62
11995	Xylene (Total)	1330-20-7	N.D.	7	1	0.62

The recovery for a sample internal standard is outside the QC acceptance limits. The internal standard recovery was outside of acceptance limits in the background, matrix spike, and matrix spike duplicate indicating a matrix effect.

12027 VOA Interp. Library Search-20

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	N.D.	18	4	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthylene	208-96-8	N.D.	18	4	1
10726	Acetophenone	98-86-2	N.D.	55	18	1
10726	Aniline	62-53-3	N.D.	550	180	1
10726	Anthracene	120-12-7	N.D.	18	4	1
10726	Atrazine	1912-24-9	N.D.	480	220	1
10726	Benzaldehyde	100-52-7	N.D.	180	73	1
10726	Benzo(a)anthracene	56-55-3	N.D.	18	7	1
10726	Benzo(a)pyrene	50-32-8	N.D.	18	4	1
10726	Benzo(b)fluoranthene	205-99-2	4 J	18	4	1
10726	Benzo(g,h,i)perylene	191-24-2	N.D.	18	4	1
10726	Benzo(k)fluoranthene	207-08-9	N.D.	18	4	1
10726	Benzyl alcohol	100-51-6	N.D.	550	180	1
10726	1,1'-Biphenyl	92-52-4	N.D.	40	18	1
10726	4-Bromophenyl-phenylether	101-55-3	N.D.	55	26	1
10726	Butylbenzylphthalate	85-68-7	N.D.	180	73	1
10726	Di-n-butylphthalate	84-74-2	N.D.	180	73	1
10726	Caprolactam	105-60-2	N.D.	180	37	1
10726	Carbazole	86-74-8	N.D.	40	18	1
10726	4-Chloro-3-methylphenol	59-50-7	N.D.	55	26	1
10726	4-Chloroaniline	106-47-8	N.D.	180	37	1
10726	bis(2-Chloroethoxy)methane	111-91-1	N.D.	40	18	1
10726	bis(2-Chloroethyl)ether	111-44-4	N.D.	55	26	1
10726	bis(2-Chloroisopropyl)ether[1]	39638-32-9	N.D.	48	22	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	2-Chloronaphthalene	91-58-7	N.D.	37	7	1
10726	2-Chlorophenol	95-57-8	N.D.	40	18	1
10726	4-Chlorophenyl-phenylether	7005-72-3	N.D.	48	22	1
10726	Chrysene	218-01-9	4 J	18	4	1
10726	Dibenz(a,h)anthracene	53-70-3	N.D.	18	7	1
10726	Dibenzofuran	132-64-9	N.D.	40	18	1
10726	3,3'-Dichlorobenzidine	91-94-1	N.D.	370	110	1
10726	2,4-Dichlorophenol	120-83-2	N.D.	48	22	1
10726	Dicyclohexylamine[1]	101-83-7	N.D.	2,200	730	1
10726	Diethylphthalate	84-66-2	N.D.	180	73	1
10726	N,N-Dimethylaniline[1]	121-69-7	N.D. Z	180	37	1
10726	2,4-Dimethylphenol	105-67-9	N.D.	73	33	1
10726	Dimethylphthalate	131-11-3	N.D.	180	73	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	550	260	1
10726	2,4-Dinitrophenol	51-28-5	N.D.	1,100	370	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	2,4-Dinitrotoluene	121-14-2	N.D.	180	73	1
10726	2,6-Dinitrotoluene	606-20-2	N.D.	55	26	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	180	73	1
10726	Fluoranthene	206-44-0	4 J	18	4	1
10726	Fluorene	86-73-7	N.D.	18	4	1
10726	Hexachlorobenzene	118-74-1	N.D.	18	7	1
10726	Hexachlorobutadiene	87-68-3	N.D.	84	40	1
10726	Hexachlorocyclopentadiene	77-47-4	N.D. K3	550	220	1
10726	Hexachloroethane	67-72-1	N.D.	180	37	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	18	4	1
10726	Isophorone	78-59-1	N.D.	40	18	1
10726	2-Methylnaphthalene	91-57-6	N.D.	37	4	1
10726	2-Methylphenol	95-48-7	N.D.	73	18	1
10726	4-Methylphenol	65794-96-9	N.D.	55	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10726	Naphthalene	91-20-3	N.D.	18	7	1
10726	2-Nitroaniline	88-74-4	N.D.	55	18	1
10726	3-Nitroaniline	99-09-2	N.D.	180	73	1
10726	4-Nitroaniline	100-01-6	N.D.	180	73	1
10726	Nitrobenzene	98-95-3	N.D.	73	29	1
10726	2-Nitrophenol	88-75-5	N.D.	62	29	1
10726	4-Nitrophenol	100-02-7	N.D.	550	180	1
10726	N-Nitroso-di-n-propylamine	621-64-7	N.D.	55	26	1
10726	N-Nitrosodiphenylamine	86-30-6	N.D.	40	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	N.D.	180	73	1
10726	Pentachlorophenol	87-86-5	N.D.	180	73	1
10726	Phenanthrene	85-01-8	5 J	18	4	1
10726	Phenol[1]	108-95-2	N.D.	40	18	1
10726	Pyrene	129-00-0	N.D.	18	4	1
10726	Pyridine	110-86-1	N.D.	180	73	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	N.D.	40	18	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	N.D.	180	73	1
10726	2,4,5-Trichlorophenol	95-95-4	N.D.	73	33	1
10726	2,4,6-Trichlorophenol	88-06-2	N.D.	62	29	1
10726	Triethylamine[1]	121-44-8	N.D. Z	5,500	1,800	1

Z=The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
00886	**SVOA TIC Interpretive(25)**						
	The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.						
Aldehydes & Ketones	**SW-846 8315A**		**mg/kg**		**mg/kg**	**mg/kg**	
13031	Acetaldehyde[1]	75-07-0	N.D.		1.1	0.55	1
13031	Formaldehyde	50-00-0	3.1		1.6	0.77	1
13031	Glutaraldehyde[1]	111-30-8	N.D.		1.1	0.55	1
	The surrogate data is outside the QC limits due to unresolvable matrix problems evident during the sample preparation. Formaldehyde is detected in the blank at 695 ug/l. Formaldehyde MDL was raised to <700ug/l.						
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/kg**		**mg/kg**	**mg/kg**	
12925	Ethylene glycol	107-21-1	N.D.		11	5.5	1
12925	Propylene glycol[1]	57-55-6	N.D.		11	5.5	1
GC Miscellaneous	**SW-846 8015D Rev.4, June 2003**		**ug/kg**		**ug/kg**	**ug/kg**	
10604	Ethanol (by Direct Injection)[1]	64-17-5	N.D.	D2	1,100	130	1
10604	Isopropanol[1]	67-63-0	N.D.	D2	1,100	51	1
10604	Methanol (by Direct Injection)[1]	67-56-1	230	JD2	1,100	220	1
Wet Chemistry	**SM 2540 G-2011 %Moisture Calc**		**%**		**%**	**%**	
00111	Moisture[1]	n.a.	9.6		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Eurofins Lancaster Laboratories Environmental, LLC is responsible only for the certified testing of samples. We are not directly responsible for the integrity of the sample prior to laboratory receipt. Any reported concentrations less than 200 ug/kg may be biased low if they were not collected according to EPA 5035/5035A specifications.

*=This limit was used in the evaluation of the final result

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Sample Description: **EW-1(27-29) Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02BKG

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138860
ELLE Group #: 2061413
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	B192461AB	09/10/2019 14:19	Linda C Pape	0.62
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	V192541AA	09/11/2019 18:04	Stephen C Nolte	46.73
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	1	201924154721	08/29/2019 17:50	Rebecca Williams	1
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	2	201924154721	08/29/2019 17:50	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201924154721	08/28/2019 13:20	Client Supplied	1
10726	SVOA 8270D/E (microwave)	SW-846 8270D	1	19247SLC026	09/09/2019 16:31	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	19247SLC026	09/05/2019 07:00	Joshua S Ruth	1
13031	Short List Aldehydes- S 8315A	SW-846 8315A	1	192420026A	09/03/2019 16:24	Jessica L Miller	1
05876	Formaldehyde Solid Extraction	SW-846 8315A	1	192420026A	08/30/2019 13:20	Alison Moll	1
12925	Glycols in Soil by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 22:38	Donald Brown	1
10604	Alcohols in Soil	SW-846 8015D Rev.4, June 2003	1	192480006A	09/05/2019 16:45	Johanna C Kennedy	1
13121	Glycol Solids Ext. 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 19:01	Donald Brown	1
00380	Solids Extraction for Alcohols	SW-846 8015D Rev 4 06/2003 Mod	3	192480006A	09/05/2019 11:05	Johanna C Kennedy	1
00111	Moisture	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03962

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 1138860
Sample wt/vol: 8.03 (g/mL) g Lab File ID: HP09953.i/19sep10a.b/bs10s05.d
Level: (low/med) LOW Date Received: 08/29/19
% Moisture: not dec. 9.6 Date Analyzed: 09/10/19
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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29.					
30.					

page 1 of 1

FORM I VOA-TIC

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

03962

Lab Name: Lancaster Laboratories Contract:
Lab Code: LANCAS Case No.: SAS No.: SDG No.:
Matrix: (soil/water) SOIL Lab Sample ID: 1138860
Sample wt/vol: 30.25(g/mL) g Lab File ID: gi0321.d
Level: (low/med) LOW Date Received: 08/29/19
% Moisture: 9.6 Decanted: (Y/N) Date Extracted: 09/05/19
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/09/19
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic
CONCENTRATION UNITS:
Number TICs found: 4 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 590-90-9	4-Hydroxy-2-butanone	2.251	1400	J
2.	Unknown	3.075	16000	JB
3.	Unknown	9.316	700	J
4. 112-84-5	13-Docosenamide, (Z)-	12.598	260	J
5.				
6. SVOCTIC	Total SVOC TICs		19000	JB
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30.				

Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	250		16	5	0.75
11995	Acetonitrile	75-05-8	33	J	71	18	0.65
11995	Benzene	71-43-2	19		4	0.4	0.75
11995	Bromochloromethane	74-97-5	18		4	0.5	0.75
11995	Bromodichloromethane	75-27-4	18		4	0.3	0.75
11995	Bromoform	75-25-2	15		8	4	0.75
11995	Bromomethane	74-83-9	10		4	0.6	0.75
11995	n-Butanol	71-36-3	800		210	46	0.75
11995	2-Butanone	78-93-3	180		8	0.8	0.75
11995	t-Butyl alcohol	75-65-0	190		82	12	0.75
11995	n-Butylbenzene	104-51-8	24		7	2	0.75
11995	sec-Butylbenzene	135-98-8	35		4	2	0.75
11995	tert-Butylbenzene	98-06-6	40		4	0.7	0.75
11995	Carbon Disulfide	75-15-0	22		4	0.5	0.75
11995	Carbon Tetrachloride	56-23-5	21		4	0.4	0.75
11995	Chlorobenzene	108-90-7	18		4	0.4	0.75
11995	Chlorodifluoromethane[1]	75-45-6	18		7	1	0.65
11995	Chloroethane	75-00-3	10		4	0.8	0.75
11995	Chloroform	67-66-3	20		4	0.5	0.75
11995	Chloromethane	74-87-3	13		4	0.5	0.75
11995	Cyclohexane	110-82-7	19		4	0.4	0.75
11995	Cyclohexanone[1]	108-94-1	260		210	21	0.75
11995	1,2-Dibromo-3-chloropropane	96-12-8	25		4	0.4	0.75
11995	Dibromochloromethane	124-48-1	20		4	0.4	0.75
11995	1,2-Dibromoethane	106-93-4	17		4	0.3	0.75
11995	1,2-Dichlorobenzene	95-50-1	21		4	0.4	0.75
11995	1,3-Dichlorobenzene	541-73-1	19		4	0.4	0.75
11995	1,4-Dichlorobenzene	106-46-7	18		4	0.3	0.75
11995	Dichlorodifluoromethane	75-71-8	9		4	0.5	0.75
11995	1,1-Dichloroethane	75-34-3	19		4	0.4	0.75
11995	1,2-Dichloroethane	107-06-2	19		4	0.5	0.75
11995	1,1-Dichloroethene	75-35-4	23		4	0.4	0.75
11995	cis-1,2-Dichloroethene	156-59-2	20		4	0.4	0.75
11995	trans-1,2-Dichloroethene	156-60-5	20		4	0.4	0.75
11995	1,2-Dichloropropane	78-87-5	18		4	0.4	0.75
11995	cis-1,3-Dichloropropene	10061-01-5	15		4	0.3	0.75
11995	trans-1,3-Dichloropropene	10061-02-6	16		4	0.4	0.75
11995	1,4-Dioxane	123-91-1	450		210	30	0.75
11995	Ethyl Acetate	141-78-6	18		4	0.7	0.65
11995	Ethyl Ether[1]	60-29-7	11		4	0.7	0.65
11995	Ethylbenzene	100-41-4	19		4	0.3	0.75

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Freon 113	76-13-1	23	8	0.5	0.75
11995	n-Heptane[1]	142-82-5	14	7	2	0.75
11995	n-Hexane[1]	110-54-3	17	4	0.4	0.75
11995	2-Hexanone	591-78-6	110	8	0.8	0.75
11995	Isobutyl Alcohol	78-83-1	450	210	31	0.75
11995	Isopropylbenzene	98-82-8	20	4	0.3	0.75
11995	p-Isopropyltoluene	99-87-6	31	4	2	0.75
11995	Methyl Acetate	79-20-9	17	4	0.8	0.75
11995	Methyl Tertiary Butyl Ether	1634-04-4	19	4	0.4	0.75
11995	4-Methyl-2-pentanone	108-10-1	85	8	0.8	0.75
11995	Methylcyclohexane	108-87-2	18	4	0.5	0.75
11995	Methylene Chloride	75-09-2	1,100 E	4	2	0.75
11995	Naphthalene	91-20-3	9	4	2	0.75
11995	2-Nitropropane	79-46-9	15	8	2	0.75
11995	Styrene	100-42-5	15	4	0.3	0.75
11995	1,1,2,2-Tetrachloroethane	79-34-5	36	4	0.3	0.75
11995	Tetrachloroethene	127-18-4	23	4	0.4	0.75
11995	Tetrahydrofuran[1]	109-99-9	98	7	0.8	0.75
11995	Toluene	108-88-3	21	4	0.5	0.75
11995	1,2,3-Trichlorobenzene	87-61-6	8	8	4	0.75
11995	1,2,4-Trichlorobenzene	120-82-1	8 J	8	4	0.75
11995	1,1,1-Trichloroethane	71-55-6	21	4	0.5	0.75
11995	1,1,2-Trichloroethane	79-00-5	22	4	0.4	0.75
11995	Trichloroethene	79-01-6	19	4	0.4	0.75
11995	Trichlorofluoromethane	75-69-4	13	4	0.6	0.75
11995	1,2,4-Trimethylbenzene	95-63-6	30	4	0.4	0.75
11995	1,3,5-Trimethylbenzene	108-67-8	34	4	0.4	0.75
11995	Vinyl Chloride	75-01-4	11	4	0.5	0.75
11995	m+p-Xylene	179601-23-1	37	4	0.8	0.75
11995	o-Xylene	95-47-6	19	4	0.3	0.75
11995	Xylene (Total)	1330-20-7	56	8	1	0.75

The recovery for a sample internal standard is outside the QC acceptance limits. The internal standard recovery was outside of acceptance limits in the background, matrix spike, and matrix spike duplicate indicating a matrix effect.

GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	1,500	18	4	1
10726	Acenaphthylene	208-96-8	1,700	18	4	1
10726	Acetophenone	98-86-2	1,500	55	18	1
10726	Aniline	62-53-3	1,200	550	180	1
10726	Anthracene	120-12-7	1,700	18	4	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Atrazine	1912-24-9	1,600	470	220	1
10726	Benzaldehyde	100-52-7	1,000	180	73	1
10726	Benzo(a)anthracene	56-55-3	1,600	18	7	1
10726	Benzo(a)pyrene	50-32-8	1,600	18	4	1
10726	Benzo(b)fluoranthene	205-99-2	1,500	18	4	1
10726	Benzo(g,h,i)perylene	191-24-2	1,600	18	4	1
10726	Benzo(k)fluoranthene	207-08-9	1,500	18	4	1
10726	Benzyl alcohol	100-51-6	1,600	550	180	1
10726	1,1'-Biphenyl	92-52-4	1,500	40	18	1
10726	4-Bromophenyl-phenylether	101-55-3	1,900	55	26	1
10726	Butylbenzylphthalate	85-68-7	1,600	180	73	1
10726	Di-n-butylphthalate	84-74-2	1,600	180	73	1
10726	Caprolactam	105-60-2	1,600	180	37	1
10726	Carbazole	86-74-8	1,500	40	18	1
10726	4-Chloro-3-methylphenol	59-50-7	1,500	55	26	1
10726	4-Chloroaniline	106-47-8	1,300	180	37	1
10726	bis(2-Chloroethoxy)methane	111-91-1	1,600	40	18	1
10726	bis(2-Chloroethyl)ether	111-44-4	1,400	55	26	1
10726	bis(2-Chloroisopropyl)ether[1]	39638-32-9	1,400	47	22	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	2-Chloronaphthalene	91-58-7	1,200	37	7	1
10726	2-Chlorophenol	95-57-8	1,400	40	18	1
10726	4-Chlorophenyl-phenylether	7005-72-3	1,600	47	22	1
10726	Chrysene	218-01-9	1,400	18	4	1
10726	Dibenz(a,h)anthracene	53-70-3	1,700	18	7	1
10726	Dibenzofuran	132-64-9	1,500	40	18	1
10726	3,3'-Dichlorobenzidine	91-94-1	1,400	370	110	1
10726	2,4-Dichlorophenol	120-83-2	1,400	47	22	1
10726	Dicyclohexylamine[1]	101-83-7	N.D.	2,200	730	1
10726	Diethylphthalate	84-66-2	1,500	180	73	1
10726	N,N-Dimethylaniline[1]	121-69-7	N.D. Z	180	37	1
10726	2,4-Dimethylphenol	105-67-9	1,300	73	33	1
10726	Dimethylphthalate	131-11-3	1,400	180	73	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	1,400	550	260	1
10726	2,4-Dinitrophenol	51-28-5	1,800	1,100	370	1
10726	2,4-Dinitrotoluene	121-14-2	1,500	180	73	1
10726	2,6-Dinitrotoluene	606-20-2	1,600	55	26	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	1,700	180	73	1
10726	Fluoranthene	206-44-0	1,500	18	4	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Fluorene	86-73-7	1,500	18	4	1
10726	Hexachlorobenzene	118-74-1	1,800	18	7	1
10726	Hexachlorobutadiene	87-68-3	1,500	84	40	1
10726	Hexachlorocyclopentadiene	77-47-4	N.D.	550	220	1
10726	Hexachloroethane	67-72-1	1,000	180	37	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	1,600	18	4	1
10726	Isophorone	78-59-1	1,600	40	18	1
10726	2-Methylnaphthalene	91-57-6	1,500	37	4	1
10726	2-Methylphenol	95-48-7	1,500	73	18	1
10726	4-Methylphenol	65794-96-9	1,500	55	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10726	Naphthalene	91-20-3	1,400	18	7	1
10726	2-Nitroaniline	88-74-4	1,800	55	18	1
10726	3-Nitroaniline	99-09-2	1,600	180	73	1
10726	4-Nitroaniline	100-01-6	1,500	180	73	1
10726	Nitrobenzene	98-95-3	1,400	73	29	1
10726	2-Nitrophenol	88-75-5	1,400	62	29	1
10726	4-Nitrophenol	100-02-7	1,300	550	180	1
10726	N-Nitroso-di-n-propylamine	621-64-7	1,500	55	26	1
10726	N-Nitrosodiphenylamine	86-30-6	1,700	40	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	1,700	180	73	1
10726	Pentachlorophenol	87-86-5	950	180	73	1
10726	Phenanthrene	85-01-8	1,600	18	4	1
10726	Phenol[1]	108-95-2	1,400	40	18	1
10726	Pyrene	129-00-0	1,500	18	4	1
10726	Pyridine	110-86-1	770	180	73	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	1,500	40	18	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	1,300	180	73	1
10726	2,4,5-Trichlorophenol	95-95-4	1,400	73	33	1
10726	2,4,6-Trichlorophenol	88-06-2	1,200	62	29	1
10726	Triethylamine[1]	121-44-8	N.D. Z	5,500	1,800	1
	Z=The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Aldehydes & Ketones	**SW-846 8315A**		**mg/kg**	**mg/kg**	**mg/kg**	
13031	Acetaldehyde[1]	75-07-0	11	1.1	0.55	1
13031	Formaldehyde	50-00-0	14	1.7	0.77	1
13031	Glutaraldehyde[1]	111-30-8	12	1.1	0.55	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
	The surrogate data is outside the QC limits due to unresolvable matrix problems evident during the sample preparation. Formaldehyde is detected in the blank at 695 ug/l. Formaldehyde MDL was raised to <700ug/l.					
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/kg**	**mg/kg**	**mg/kg**	
12925	Ethylene glycol	107-21-1	98	11	5.5	1
12925	Propylene glycol[1]	57-55-6	89	11	5.5	1
GC Miscellaneous	**SW-846 8015D Rev.4, June 2003**		**ug/kg**	**ug/kg**	**ug/kg**	
10604	Ethanol (by Direct Injection)[1]	64-17-5	2,500 D2	1,100	130	1
10604	Isopropanol[1]	67-63-0	2,500 D2	1,100	51	1
10604	Methanol (by Direct Injection)[1]	67-56-1	2,900 D2	1,100	220	1
Wet Chemistry	**SM 2540 G-2011 %Moisture Calc**		**%**	**%**	**%**	
00118	Moisture[1]	n.a.	9.6	0.50	0.50	1

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Eurofins Lancaster Laboratories Environmental, LLC is responsible only for the certified testing of samples. We are not directly responsible for the integrity of the sample prior to laboratory receipt. Any reported concentrations less than 200 ug/kg may be biased low if they were not collected according to EPA 5035/5035A specifications.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	B192461AB	09/10/2019 14:42	Linda C Pape	0.75
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	B192461AC	09/12/2019 12:17	Linda C Pape	0.65
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	1	201924154721	08/29/2019 17:50	Rebecca Williams	1
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	2	201924154721	08/29/2019 17:50	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201924154721	08/28/2019 13:20	Client Supplied	1
10726	SVOA 8270D/E (microwave)	SW-846 8270D	1	19247SLC026	09/09/2019 16:56	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	19247SLC026	09/05/2019 07:00	Joshua S Ruth	1
13031	Short List Aldehydes- S 8315A	SW-846 8315A	1	192420026A	09/03/2019 16:35	Jessica L Miller	1
05876	Formaldehyde Solid Extraction	SW-846 8315A	1	192420026A	08/30/2019 13:20	Alison Moll	1
12925	Glycols in Soil by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 22:51	Donald Brown	1

*=This limit was used in the evaluation of the final result

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Sample Description: **EW-1(27-29) MS Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MS

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138861
ELLE Group #: 2061413
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10604	Alcohols in Soil	SW-846 8015D Rev.4, June 2003	1	192480006A	09/05/2019 17:01	Johanna C Kennedy	1
13121	Glycol Solids Ext. 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 19:01	Donald Brown	1
00380	Solids Extraction for Alcohols	SW-846 8015D Rev 4 06/2003 Mod	3	192480006A	09/05/2019 11:05	Johanna C Kennedy	1
00118	Moisture	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	270		20	6	0.91
11995	Acetonitrile	75-05-8	54	J	70	18	0.64
11995	Benzene	71-43-2	23		5	0.5	0.91
11995	Bromochloromethane	74-97-5	21		5	0.6	0.91
11995	Bromodichloromethane	75-27-4	22		5	0.4	0.91
11995	Bromoform	75-25-2	17		10	5	0.91
11995	Bromomethane	74-83-9	14		5	0.7	0.91
11995	n-Butanol	71-36-3	900		250	57	0.91
11995	2-Butanone	78-93-3	200		10	1	0.91
11995	t-Butyl alcohol	75-65-0	210		100	15	0.91
11995	n-Butylbenzene	104-51-8	32		8	3	0.91
11995	sec-Butylbenzene	135-98-8	45		5	2	0.91
11995	tert-Butylbenzene	98-06-6	50		5	0.8	0.91
11995	Carbon Disulfide	75-15-0	27		5	0.6	0.91
11995	Carbon Tetrachloride	56-23-5	26		5	0.5	0.91
11995	Chlorobenzene	108-90-7	23		5	0.5	0.91
11995	Chlorodifluoromethane[1]	75-45-6	19		7	1	0.64
11995	Chloroethane	75-00-3	15		5	1	0.91
11995	Chloroform	67-66-3	24		5	0.6	0.91
11995	Chloromethane	74-87-3	16		5	0.6	0.91
11995	Cyclohexane	110-82-7	24		5	0.5	0.91
11995	Cyclohexanone[1]	108-94-1	300		250	25	0.91
11995	1,2-Dibromo-3-chloropropane	96-12-8	28		5	0.5	0.91
11995	Dibromochloromethane	124-48-1	24		5	0.5	0.91
11995	1,2-Dibromoethane	106-93-4	20		5	0.4	0.91
11995	1,2-Dichlorobenzene	95-50-1	26		5	0.5	0.91
11995	1,3-Dichlorobenzene	541-73-1	24		5	0.5	0.91
11995	1,4-Dichlorobenzene	106-46-7	23		5	0.4	0.91
11995	Dichlorodifluoromethane	75-71-8	13		5	0.6	0.91
11995	1,1-Dichloroethane	75-34-3	24		5	0.5	0.91
11995	1,2-Dichloroethane	107-06-2	22		5	0.6	0.91
11995	1,1-Dichloroethene	75-35-4	29		5	0.5	0.91
11995	cis-1,2-Dichloroethene	156-59-2	24		5	0.5	0.91
11995	trans-1,2-Dichloroethene	156-60-5	25		5	0.5	0.91
11995	1,2-Dichloropropane	78-87-5	22		5	0.5	0.91
11995	cis-1,3-Dichloropropene	10061-01-5	19		5	0.4	0.91
11995	trans-1,3-Dichloropropene	10061-02-6	19		5	0.5	0.91
11995	1,4-Dioxane	123-91-1	510		250	37	0.91
11995	Ethyl Acetate	141-78-6	22		4	0.7	0.64
11995	Ethyl Ether[1]	60-29-7	10		4	0.7	0.64
11995	Ethylbenzene	100-41-4	25		5	0.4	0.91

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Freon 113	76-13-1	29	10	0.6	0.91
11995	n-Heptane[1]	142-82-5	20	8	3	0.91
11995	n-Hexane[1]	110-54-3	23	5	0.5	0.91
11995	2-Hexanone	591-78-6	130	10	1	0.91
11995	Isobutyl Alcohol	78-83-1	490	250	38	0.91
11995	Isopropylbenzene	98-82-8	26	5	0.4	0.91
11995	p-Isopropyltoluene	99-87-6	41	5	2	0.91
11995	Methyl Acetate	79-20-9	18	5	1	0.91
11995	Methyl Tertiary Butyl Ether	1634-04-4	21	5	0.5	0.91
11995	4-Methyl-2-pentanone	108-10-1	88	10	1	0.91
11995	Methylcyclohexane	108-87-2	22	5	0.6	0.91
11995	Methylene Chloride	75-09-2	1,000 E	5	2	0.91
11995	Naphthalene	91-20-3	12	5	2	0.91
11995	2-Nitropropane	79-46-9	18	10	2	0.91
11995	Styrene	100-42-5	19	5	0.4	0.91
11995	1,1,2,2-Tetrachloroethane	79-34-5	39	5	0.4	0.91
11995	Tetrachloroethene	127-18-4	29	5	0.5	0.91
11995	Tetrahydrofuran[1]	109-99-9	110	8	1	0.91
11995	Toluene	108-88-3	26	5	0.6	0.91
11995	1,2,3-Trichlorobenzene	87-61-6	11	10	5	0.91
11995	1,2,4-Trichlorobenzene	120-82-1	11	10	5	0.91
11995	1,1,1-Trichloroethane	71-55-6	26	5	0.6	0.91
11995	1,1,2-Trichloroethane	79-00-5	26	5	0.5	0.91
11995	Trichloroethene	79-01-6	23	5	0.5	0.91
11995	Trichlorofluoromethane	75-69-4	19	5	0.7	0.91
11995	1,2,4-Trimethylbenzene	95-63-6	38	5	0.5	0.91
11995	1,3,5-Trimethylbenzene	108-67-8	43	5	0.5	0.91
11995	Vinyl Chloride	75-01-4	16	5	0.6	0.91
11995	m+p-Xylene	179601-23-1	49	5	1	0.91
11995	o-Xylene	95-47-6	25	5	0.4	0.91
11995	Xylene (Total)	1330-20-7	74	10	1	0.91

The recovery for a sample internal standard is outside the QC acceptance limits. The internal standard recovery was outside of acceptance limits in the background, matrix spike, and matrix spike duplicate indicating a matrix effect.

GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	1,400	18	4	1
10726	Acenaphthylene	208-96-8	1,600	18	4	1
10726	Acetophenone	98-86-2	1,300	55	18	1
10726	Aniline	62-53-3	1,000	550	180	1
10726	Anthracene	120-12-7	1,500	18	4	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Atrazine	1912-24-9	1,400		480	220	1
10726	Benzaldehyde	100-52-7	940		180	74	1
10726	Benzo(a)anthracene	56-55-3	1,400		18	7	1
10726	Benzo(a)pyrene	50-32-8	1,400		18	4	1
10726	Benzo(b)fluoranthene	205-99-2	1,400		18	4	1
10726	Benzo(g,h,i)perylene	191-24-2	1,400		18	4	1
10726	Benzo(k)fluoranthene	207-08-9	1,300		18	4	1
10726	Benzyl alcohol	100-51-6	1,300		550	180	1
10726	1,1'-Biphenyl	92-52-4	1,500		41	18	1
10726	4-Bromophenyl-phenylether	101-55-3	1,700		55	26	1
10726	Butylbenzylphthalate	85-68-7	1,500		180	74	1
10726	Di-n-butylphthalate	84-74-2	1,500		180	74	1
10726	Caprolactam	105-60-2	1,400		180	37	1
10726	Carbazole	86-74-8	1,400		41	18	1
10726	4-Chloro-3-methylphenol	59-50-7	1,400		55	26	1
10726	4-Chloroaniline	106-47-8	1,200		180	37	1
10726	bis(2-Chloroethoxy)methane	111-91-1	1,400		41	18	1
10726	bis(2-Chloroethyl)ether	111-44-4	1,200		55	26	1
10726	bis(2-Chloroisopropyl)ether[1]	39638-32-9	1,200		48	22	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	2-Chloronaphthalene	91-58-7	1,200		37	7	1
10726	2-Chlorophenol	95-57-8	1,200		41	18	1
10726	4-Chlorophenyl-phenylether	7005-72-3	1,500		48	22	1
10726	Chrysene	218-01-9	1,400		18	4	1
10726	Dibenz(a,h)anthracene	53-70-3	1,600		18	7	1
10726	Dibenzofuran	132-64-9	1,400		41	18	1
10726	3,3'-Dichlorobenzidine	91-94-1	1,500		370	110	1
10726	2,4-Dichlorophenol	120-83-2	1,300		48	22	1
10726	Dicyclohexylamine[1]	101-83-7	N.D.		2,200	740	1
10726	Diethylphthalate	84-66-2	1,400		180	74	1
10726	N,N-Dimethylaniline[1]	121-69-7	N.D.	Z	180	37	1
10726	2,4-Dimethylphenol	105-67-9	1,200		74	33	1
10726	Dimethylphthalate	131-11-3	1,400		180	74	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	780		550	260	1
10726	2,4-Dinitrophenol	51-28-5	400	J	1,100	370	1
10726	2,4-Dinitrotoluene	121-14-2	1,400		180	74	1
10726	2,6-Dinitrotoluene	606-20-2	1,500		55	26	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	1,600		180	74	1
10726	Fluoranthene	206-44-0	1,400		18	4	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Fluorene	86-73-7	1,400		18	4	1
10726	Hexachlorobenzene	118-74-1	1,500		18	7	1
10726	Hexachlorobutadiene	87-68-3	1,400		85	41	1
10726	Hexachlorocyclopentadiene	77-47-4	N.D.		550	220	1
10726	Hexachloroethane	67-72-1	910		180	37	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	1,400		18	4	1
10726	Isophorone	78-59-1	1,400		41	18	1
10726	2-Methylnaphthalene	91-57-6	1,400		37	4	1
10726	2-Methylphenol	95-48-7	1,400		74	18	1
10726	4-Methylphenol	65794-96-9	1,400		55	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	1,200		18	7	1
10726	2-Nitroaniline	88-74-4	1,700		55	18	1
10726	3-Nitroaniline	99-09-2	1,500		180	74	1
10726	4-Nitroaniline	100-01-6	1,300		180	74	1
10726	Nitrobenzene	98-95-3	1,300		74	29	1
10726	2-Nitrophenol	88-75-5	1,200		63	29	1
10726	4-Nitrophenol	100-02-7	890		550	180	1
10726	N-Nitroso-di-n-propylamine	621-64-7	1,300		55	26	1
10726	N-Nitrosodiphenylamine	86-30-6	1,600		41	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	1,500		180	74	1
10726	Pentachlorophenol	87-86-5	540		180	74	1
10726	Phenanthrene	85-01-8	1,500		18	4	1
10726	Phenol[1]	108-95-2	1,300		41	18	1
10726	Pyrene	129-00-0	1,400		18	4	1
10726	Pyridine	110-86-1	730		180	74	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	1,400		41	18	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	1,100		180	74	1
10726	2,4,5-Trichlorophenol	95-95-4	1,300		74	33	1
10726	2,4,6-Trichlorophenol	88-06-2	1,200		63	29	1
10726	Triethylamine[1]	121-44-8	N.D.	Z	5,500	1,800	1
	Z=The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Aldehydes & Ketones	**SW-846 8315A**		**mg/kg**		**mg/kg**	**mg/kg**	
13031	Acetaldehyde[1]	75-07-0	10		1.1	0.55	1
13031	Formaldehyde	50-00-0	14		1.7	0.77	1
13031	Glutaraldehyde[1]	111-30-8	12		1.1	0.55	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
	The surrogate data is outside the QC limits due to unresolvable matrix problems evident during the sample preparation. Formaldehyde is detected in the blank at 695 ug/l. Formaldehyde LOQ and MDL were raised to <700ug/l.					
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/kg**	**mg/kg**	**mg/kg**	
12925	Ethylene glycol	107-21-1	110	11	5.5	1
12925	Propylene glycol[1]	57-55-6	98	11	5.5	1
GC Miscellaneous	**SW-846 8015D Rev.4, June 2003**		**ug/kg**	**ug/kg**	**ug/kg**	
10604	Ethanol (by Direct Injection)[1]	64-17-5	2,500 D2	1,100	130	1
10604	Isopropanol[1]	67-63-0	2,500 D2	1,100	51	1
10604	Methanol (by Direct Injection)[1]	67-56-1	2,800 D2	1,100	220	1
Wet Chemistry	**SM 2540 G-2011 %Moisture Calc**		**%**	**%**	**%**	
00118	Moisture[1]	n.a.	9.6	0.50	0.50	1
00121	Moisture Duplicate[1]	n.a.	9.6	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Eurofins Lancaster Laboratories Environmental, LLC is responsible only for the certified testing of samples. We are not directly responsible for the integrity of the sample prior to laboratory receipt. Any reported concentrations less than 200 ug/kg may be biased low if they were not collected according to EPA 5035/5035A specifications.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	B192461AB	09/10/2019 15:04	Linda C Pape	0.91
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	B192461AC	09/12/2019 12:39	Linda C Pape	0.64
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	1	201924154721	08/29/2019 17:50	Rebecca Williams	1
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	2	201924154721	08/29/2019 17:50	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201924154721	08/28/2019 13:20	Client Supplied	1
10726	SVOA 8270D/E (microwave)	SW-846 8270D	1	19247SLC026	09/09/2019 17:20	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	19247SLC026	09/05/2019 07:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1(27-29) MSD Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019 13:20
SDG#: BMS78-02MSD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138862
ELLE Group #: 2061413
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13031	Short List Aldehydes- S 8315A	SW-846 8315A	1	192420026A	09/03/2019 16:46	Jessica L Miller	1
05876	Formaldehyde Solid Extraction	SW-846 8315A	1	192420026A	08/30/2019 13:20	Alison Moll	1
12925	Glycols in Soil by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 23:04	Donald Brown	1
10604	Alcohols in Soil	SW-846 8015D Rev.4, June 2003	1	192480006A	09/05/2019 17:18	Johanna C Kennedy	1
13121	Glycol Solids Ext. 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 19:01	Donald Brown	1
00380	Solids Extraction for Alcohols	SW-846 8015D Rev 4 06/2003 Mod	3	192480006A	09/05/2019 11:05	Johanna C Kennedy	1
00118	Moisture	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	N.D.	720	220	32.3
11995	Acetonitrile	75-05-8	N.D.	3,600	900	32.3
11995	Benzene	71-43-2	N.D.	180	18	32.3
11995	Bromochloromethane	74-97-5	N.D.	180	22	32.3
11995	Bromodichloromethane	75-27-4	N.D.	180	14	32.3
11995	Bromoform	75-25-2	N.D.	360	180	32.3
11995	Bromomethane	74-83-9	N.D.	180	25	32.3
11995	n-Butanol	71-36-3	N.D.	9,000	2,000	32.3
11995	2-Butanone	78-93-3	N.D.	360	36	32.3
11995	t-Butyl alcohol	75-65-0	N.D.	3,600	540	32.3
11995	n-Butylbenzene	104-51-8	N.D.	290	110	32.3
11995	sec-Butylbenzene	135-98-8	N.D.	180	72	32.3
11995	tert-Butylbenzene	98-06-6	N.D.	180	29	32.3
11995	Carbon Disulfide	75-15-0	22 J	180	22	32.3
11995	Carbon Tetrachloride	56-23-5	N.D.	180	18	32.3
11995	Chlorobenzene	108-90-7	N.D.	180	18	32.3
11995	Chlorodifluoromethane[1]	75-45-6	N.D.	360	72	32.3
11995	Chloroethane	75-00-3	N.D.	180	36	32.3
11995	Chloroform	67-66-3	N.D.	180	22	32.3
11995	Chloromethane	74-87-3	N.D.	180	22	32.3
11995	Cyclohexane	110-82-7	N.D.	180	18	32.3
11995	Cyclohexanone[1]	108-94-1	N.D.	9,000	900	32.3
11995	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	180	18	32.3
11995	Dibromochloromethane	124-48-1	N.D.	180	18	32.3
11995	1,2-Dibromoethane	106-93-4	N.D.	180	14	32.3
11995	1,2-Dichlorobenzene	95-50-1	N.D.	180	18	32.3
11995	1,3-Dichlorobenzene	541-73-1	N.D.	180	18	32.3
11995	1,4-Dichlorobenzene	106-46-7	N.D.	180	14	32.3
11995	Dichlorodifluoromethane	75-71-8	N.D.	180	22	32.3
11995	1,1-Dichloroethane	75-34-3	N.D.	180	18	32.3
11995	1,2-Dichloroethane	107-06-2	N.D.	180	22	32.3
11995	1,1-Dichloroethene	75-35-4	N.D.	180	18	32.3
11995	cis-1,2-Dichloroethene	156-59-2	N.D.	180	18	32.3
11995	trans-1,2-Dichloroethene	156-60-5	N.D.	180	18	32.3
11995	1,2-Dichloropropane	78-87-5	N.D.	180	18	32.3
11995	cis-1,3-Dichloropropene	10061-01-5	N.D.	180	14	32.3
11995	trans-1,3-Dichloropropene	10061-02-6	N.D.	180	18	32.3
11995	1,4-Dioxane	123-91-1	N.D.	9,000	1,300	32.3
11995	Ethyl Acetate	141-78-6	N.D.	180	36	32.3
11995	Ethyl Ether[1]	60-29-7	N.D.	180	36	32.3
11995	Ethylbenzene	100-41-4	N.D.	180	14	32.3

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Freon 113	76-13-1	N.D.	360	22	32.3
11995	n-Heptane[1]	142-82-5	N.D.	290	110	32.3
11995	n-Hexane[1]	110-54-3	110 J	180	18	32.3
11995	2-Hexanone	591-78-6	N.D.	360	36	32.3
11995	Isobutyl Alcohol	78-83-1	N.D.	9,000	1,400	32.3
11995	Isopropylbenzene	98-82-8	N.D.	180	14	32.3
11995	p-Isopropyltoluene	99-87-6	N.D.	180	72	32.3
11995	Methyl Acetate	79-20-9	N.D.	180	36	32.3
11995	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	180	18	32.3
11995	4-Methyl-2-pentanone	108-10-1	N.D.	360	36	32.3
11995	Methylcyclohexane	108-87-2	N.D.	180	22	32.3
11995	Methylene Chloride	75-09-2	150,000	9,000	3,600	1614.99
11995	Naphthalene	91-20-3	N.D.	180	72	32.3
11995	2-Nitropropane	79-46-9	N.D.	360	72	32.3
11995	Styrene	100-42-5	N.D.	180	14	32.3
11995	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	180	14	32.3
11995	Tetrachloroethene	127-18-4	61 J	180	18	32.3
11995	Tetrahydrofuran[1]	109-99-9	N.D.	290	36	32.3
11995	Toluene	108-88-3	N.D.	180	22	32.3
11995	1,2,3-Trichlorobenzene	87-61-6	N.D.	360	180	32.3
11995	1,2,4-Trichlorobenzene	120-82-1	N.D.	360	180	32.3
11995	1,1,1-Trichloroethane	71-55-6	N.D.	180	22	32.3
11995	1,1,2-Trichloroethane	79-00-5	N.D.	180	18	32.3
11995	Trichloroethene	79-01-6	N.D.	180	18	32.3
11995	Trichlorofluoromethane	75-69-4	N.D.	180	25	32.3
11995	1,2,4-Trimethylbenzene	95-63-6	N.D.	180	18	32.3
11995	1,3,5-Trimethylbenzene	108-67-8	N.D.	180	18	32.3
11995	Vinyl Chloride	75-01-4	N.D.	180	22	32.3
11995	m+p-Xylene	179601-23-1	N.D.	180	36	32.3
11995	o-Xylene	95-47-6	N.D.	180	14	32.3
11995	Xylene (Total)	1330-20-7	N.D.	360	51	32.3

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

12027 VOA Interp. Library Search-20

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

GC/MS Semivolatiles	**SW-846 8270D**	**ug/kg**	**ug/kg**	**ug/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	N.D.	18	4	1
10726	Acenaphthylene	208-96-8	N.D.	18	4	1
10726	Acetophenone	98-86-2	N.D.	55	18	1
10726	Aniline	62-53-3	N.D.	550	180	1
10726	Anthracene	120-12-7	N.D.	18	4	1
10726	Atrazine	1912-24-9	N.D.	480	220	1
10726	Benzaldehyde	100-52-7	N.D.	180	73	1
10726	Benzo(a)anthracene	56-55-3	N.D.	18	7	1
10726	Benzo(a)pyrene	50-32-8	N.D.	18	4	1
10726	Benzo(b)fluoranthene	205-99-2	N.D.	18	4	1
10726	Benzo(g,h,i)perylene	191-24-2	N.D.	18	4	1
10726	Benzo(k)fluoranthene	207-08-9	N.D.	18	4	1
10726	Benzyl alcohol	100-51-6	N.D.	550	180	1
10726	1,1'-Biphenyl	92-52-4	N.D.	40	18	1
10726	4-Bromophenyl-phenylether	101-55-3	N.D.	55	26	1
10726	Butylbenzylphthalate	85-68-7	N.D.	180	73	1
10726	Di-n-butylphthalate	84-74-2	N.D.	180	73	1
10726	Caprolactam	105-60-2	N.D.	180	37	1
10726	Carbazole	86-74-8	N.D.	40	18	1
10726	4-Chloro-3-methylphenol	59-50-7	N.D.	55	26	1
10726	4-Chloroaniline	106-47-8	N.D.	180	37	1
10726	bis(2-Chloroethoxy)methane	111-91-1	N.D.	40	18	1
10726	bis(2-Chloroethyl)ether	111-44-4	N.D.	55	26	1
10726	bis(2-Chloroisopropyl)ether[1]	39638-32-9	N.D.	48	22	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	2-Chloronaphthalene	91-58-7	N.D.	37	7	1
10726	2-Chlorophenol	95-57-8	N.D.	40	18	1
10726	4-Chlorophenyl-phenylether	7005-72-3	N.D.	48	22	1
10726	Chrysene	218-01-9	5 J	18	4	1
10726	Dibenz(a,h)anthracene	53-70-3	N.D.	18	7	1
10726	Dibenzofuran	132-64-9	N.D.	40	18	1
10726	3,3'-Dichlorobenzidine	91-94-1	N.D.	370	110	1
10726	2,4-Dichlorophenol	120-83-2	N.D.	48	22	1
10726	Dicyclohexylamine[1]	101-83-7	N.D.	2,200	730	1
10726	Diethylphthalate	84-66-2	N.D.	180	73	1
10726	N,N-Dimethylaniline[1]	121-69-7	180 JZ	180	37	1
10726	2,4-Dimethylphenol	105-67-9	N.D.	73	33	1
10726	Dimethylphthalate	131-11-3	N.D.	180	73	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	550	260	1

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	2,4-Dinitrophenol	51-28-5	N.D.		1,100	370	1
10726	2,4-Dinitrotoluene	121-14-2	N.D.		180	73	1
10726	2,6-Dinitrotoluene	606-20-2	N.D.		55	26	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	140	J	180	73	1
10726	Fluoranthene	206-44-0	4	J	18	4	1
10726	Fluorene	86-73-7	N.D.		18	4	1
10726	Hexachlorobenzene	118-74-1	N.D.		18	7	1
10726	Hexachlorobutadiene	87-68-3	N.D.		85	40	1
10726	Hexachlorocyclopentadiene	77-47-4	N.D.	K3	550	220	1
10726	Hexachloroethane	67-72-1	N.D.		180	37	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		18	4	1
10726	Isophorone	78-59-1	N.D.		40	18	1
10726	2-Methylnaphthalene	91-57-6	4	J	37	4	1
10726	2-Methylphenol	95-48-7	N.D.		73	18	1
10726	4-Methylphenol	65794-96-9	N.D.		55	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	11	J	18	7	1
10726	2-Nitroaniline	88-74-4	N.D.		55	18	1
10726	3-Nitroaniline	99-09-2	N.D.		180	73	1
10726	4-Nitroaniline	100-01-6	N.D.		180	73	1
10726	Nitrobenzene	98-95-3	N.D.		73	29	1
10726	2-Nitrophenol	88-75-5	N.D.		62	29	1
10726	4-Nitrophenol	100-02-7	N.D.		550	180	1
10726	N-Nitroso-di-n-propylamine	621-64-7	N.D.		55	26	1
10726	N-Nitrosodiphenylamine	86-30-6	N.D.		40	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	N.D.		180	73	1
10726	Pentachlorophenol	87-86-5	N.D.		180	73	1
10726	Phenanthrene	85-01-8	7	J	18	4	1
10726	Phenol[1]	108-95-2	N.D.		40	18	1
10726	Pyrene	129-00-0	8	J	18	4	1
10726	Pyridine	110-86-1	N.D.		180	73	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	N.D.		40	18	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	N.D.		180	73	1
10726	2,4,5-Trichlorophenol	95-95-4	N.D.		73	33	1
10726	2,4,6-Trichlorophenol	88-06-2	N.D.		62	29	1
10726	Triethylamine[1]	121-44-8	N.D.	Z	5,500	1,800	1

Z=The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
00886	**SVOA TIC Interpretive(25)**					
	The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.					
Aldehydes & Ketones	**SW-846 8315A**		**mg/kg**	**mg/kg**	**mg/kg**	
13031	Acetaldehyde[1]	75-07-0	1.1 J	1.1	0.56	1
13031	Formaldehyde	50-00-0	3.4	1.7	0.78	1
13031	Glutaraldehyde[1]	111-30-8	N.D.	1.1	0.56	1
	The surrogate data is outside the QC limits due to unresolvable matrix problems evident during the sample preparation. Formaldehyde is detected in the blank at 695 ug/l. Formaldehyde LOQ and MDL were raised to <700ug/l.					
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/kg**	**mg/kg**	**mg/kg**	
12925	Ethylene glycol	107-21-1	N.D.	11	5.6	1
12925	Propylene glycol[1]	57-55-6	N.D.	11	5.6	1
GC Miscellaneous	**SW-846 8015D Rev.4, June 2003**		**ug/kg**	**ug/kg**	**ug/kg**	
10604	Ethanol (by Direct Injection)[1]	64-17-5	N.D. D2	1,100	130	1
10604	Isopropanol[1]	67-63-0	N.D. D2	1,100	51	1
10604	Methanol (by Direct Injection)[1]	67-56-1	1,700 D2	1,100	220	1
Wet Chemistry	**SM 2540 G-2011 %Moisture Calc**		**%**	**%**	**%**	
00111	Moisture[1]	n.a.	10.6	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Eurofins Lancaster Laboratories Environmental, LLC is responsible only for the certified testing of samples. We are not directly responsible for the integrity of the sample prior to laboratory receipt. Any reported concentrations less than 200 ug/kg may be biased low if they were not collected according to EPA 5035/5035A specifications.

*=This limit was used in the evaluation of the final result

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Sample Description: **DUP-1-082819 Grab Soil**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-03FD

ARCADIS U.S., Inc.
ELLE Sample #: SW 1138863
ELLE Group #: 2061413
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	V192461AA	09/03/2019 16:39	Stephen C Nolte	32.3
11995	VOCs- Solid by 8260C/D	SW-846 8260C	1	V192481AA	09/05/2019 18:08	Stephen C Nolte	1614.99
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	1	201924154721	08/29/2019 17:50	Rebecca Williams	1
06176	GC/MS - LL DIH2O Prep	SW-846 5035A	2	201924154721	08/29/2019 17:50	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201924154721	08/28/2019 00:00	Client Supplied	1
10726	SVOA 8270D/E (microwave)	SW-846 8270D	1	19247SLC026	09/09/2019 17:45	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	19247SLC026	09/05/2019 07:00	Joshua S Ruth	1
13031	Short List Aldehydes- S 8315A	SW-846 8315A	1	192420026A	09/03/2019 16:57	Jessica L Miller	1
05876	Formaldehyde Solid Extraction	SW-846 8315A	1	192420026A	08/30/2019 13:20	Alison Moll	1
12925	Glycols in Soil by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 23:16	Donald Brown	1
10604	Alcohols in Soil	SW-846 8015D Rev.4, June 2003	1	192480006A	09/05/2019 17:35	Johanna C Kennedy	1
13121	Glycol Solids Ext. 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192420049A	08/30/2019 19:01	Donald Brown	1
00380	Solids Extraction for Alcohols	SW-846 8015D Rev 4 06/2003 Mod	3	192480006A	09/05/2019 11:05	Johanna C Kennedy	1
00111	Moisture	SM 2540 G-2011 %Moisture Calc	1	19247820003B	09/05/2019 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03963

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 1138863
Sample wt/vol: 7.74 (g/mL) g Lab File ID: HP23313.i/19sep03a.b/vs03s12.d
Level: (low/med) MED Date Received: 08/29/19
% Moisture: not dec. 10.6 Date Analyzed: 09/03/19
Column: (pack/cap) CAP Dilution Factor: 32.3
CONCENTRATION UNITS:
Number TICs found: 3 (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	556-67-2	Cyclotetrasiloxane, octameth	12.16	2800	J
2.	1120-21-4	Undecane	13.32	260	J
3.		Unknown	13.51	720	J
4.					
5.	VOCTIC	Total VOC TICs		3700	J
6.					
7.					
8.					
9.					
10.					
11.					
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27.					
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29.					
30.					

page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03963

Lab Name: Lancaster Laboratories Contract:
Lab Code: LANCAS Case No.: SAS No.: SDG No.:
Matrix: (soil/water) SOIL Lab Sample ID: 1138863
Sample wt/vol: 30.44(g/mL) g Lab File ID: gi0324.d
Level: (low/med) LOW Date Received: 08/29/19
% Moisture: 10.6 Decanted: (Y/N) Date Extracted: 09/05/19
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/09/19
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic
CONCENTRATION UNITS:
Number TICs found: 17 (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	1.269	160	J
2.		Unknown	1.422	660	J
3.	590-90-9	4-Hydroxy-2-butanone	2.257	2800	J
4.		Unknown	2.410	610	J
5.		Unknown	3.057	11000	JB
6.	1193-18-6	2-Cyclohexen-1-one, 3-methyl	5.104	180	J
7.		Unknown	9.316	450	J
8.	112-61-8	Methyl stearate	10.433	190	J
9.		Unknown	10.910	160	J
10.		Unknown	11.033	160	J
11.		Unknown	11.169	400	J
12.	101-61-1	Benzenamine, 4,4'-methyleneb	11.304	5800	J
13.		Unknown	11.445	200	J
14.		Unknown	12.016	240	J
15.	112-84-5	13-Docosenamide, (Z)-	12.598	300	J
16.		Unknown	14.133	440	J
17.		Unknown	14.733	360	J
18.					
19.	SVOCTIC	Total SVOC TICs		24000	JB
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

Sample Description: **Trip Blank 1 Water**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-04TB

ARCADIS U.S., Inc.
ELLE Sample #: WW 1138864
ELLE Group #: 2061413
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	N.D.	20	0.7	1
11997	Acetonitrile	75-05-8	N.D.	100	16	1
11997	Benzene	71-43-2	N.D.	1	0.2	1
11997	Bromochloromethane	74-97-5	N.D.	5	0.2	1
11997	Bromodichloromethane	75-27-4	N.D.	1	0.2	1
11997	Bromoform	75-25-2	N.D.	4	1	1
11997	Bromomethane	74-83-9	N.D.	1	0.3	1
11997	n-Butanol	71-36-3	N.D.	250	61	1
11997	2-Butanone	78-93-3	N.D.	10	0.3	1
11997	t-Butyl alcohol	75-65-0	N.D.	50	12	1
11997	n-Butylbenzene	104-51-8	N.D.	5	0.2	1
11997	sec-Butylbenzene	135-98-8	N.D.	5	0.2	1
11997	tert-Butylbenzene	98-06-6	N.D.	5	0.3	1
11997	Carbon Disulfide	75-15-0	N.D.	5	0.2	1
11997	Carbon Tetrachloride	56-23-5	N.D.	1	0.2	1
11997	Chlorobenzene	108-90-7	N.D.	1	0.2	1
11997	Chlorodifluoromethane[1]	75-45-6	N.D.	5	2	1
11997	Chloroethane	75-00-3	N.D.	1	0.2	1
11997	Chloroform	67-66-3	N.D.	1	0.2	1
11997	Chloromethane	74-87-3	N.D.	1	0.2	1
11997	Cyclohexane	110-82-7	N.D.	5	1	1
11997	Cyclohexanone[1]	108-94-1	N.D.	100	25	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5	0.3	1
11997	Dibromochloromethane	124-48-1	N.D.	1	0.2	1
11997	1,2-Dibromoethane	106-93-4	N.D.	1	0.2	1
11997	1,2-Dichlorobenzene	95-50-1	N.D.	5	0.2	1
11997	1,3-Dichlorobenzene	541-73-1	N.D.	5	0.2	1
11997	1,4-Dichlorobenzene	106-46-7	N.D.	5	0.2	1
11997	Dichlorodifluoromethane	75-71-8	N.D.	1	0.2	1
11997	1,1-Dichloroethane	75-34-3	N.D.	1	0.2	1
11997	1,2-Dichloroethane	107-06-2	N.D.	1	0.3	1
11997	1,1-Dichloroethene	75-35-4	N.D.	1	0.2	1
11997	cis-1,2-Dichloroethene	156-59-2	N.D.	1	0.2	1
11997	trans-1,2-Dichloroethene	156-60-5	N.D.	1	0.2	1
11997	1,2-Dichloropropane	78-87-5	N.D.	1	0.2	1
11997	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	0.2	1
11997	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	0.2	1
11997	1,4-Dioxane	123-91-1	N.D.	250	29	1
11997	Ethyl Acetate	141-78-6	N.D.	5	0.7	1
11997	Ethyl ether	60-29-7	N.D.	5	0.2	1
11997	Ethylbenzene	100-41-4	N.D.	1	0.4	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank 1 Water**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-04TB

ARCADIS U.S., Inc.
ELLE Sample #: WW 1138864
ELLE Group #: 2061413
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Freon 113	76-13-1	N.D.	10	0.2	1
11997	n-Heptane[1]	142-82-5	N.D.	5	2	1
11997	n-Hexane[1]	110-54-3	N.D.	5	2	1
11997	2-Hexanone	591-78-6	N.D.	10	0.3	1
11997	Isobutyl Alcohol	78-83-1	N.D.	250	36	1
11997	Isopropylbenzene	98-82-8	N.D.	5	0.2	1
11997	p-Isopropyltoluene	99-87-6	N.D.	5	0.2	1
11997	Methyl Acetate	79-20-9	N.D.	5	0.2	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.2	1
11997	4-Methyl-2-pentanone	108-10-1	N.D.	10	0.5	1
11997	Methylcyclohexane	108-87-2	N.D.	5	0.5	1
11997	Methylene Chloride	75-09-2	0.5 J	1	0.3	1
11997	Naphthalene	91-20-3	N.D.	5	1	1
11997	2-Nitropropane	79-46-9	N.D.	10	0.8	1
11997	Styrene	100-42-5	N.D.	5	0.2	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	0.2	1
11997	Tetrachloroethene	127-18-4	N.D.	1	0.2	1
11997	Tetrahydrofuran	109-99-9	N.D.	10	0.7	1
11997	Toluene	108-88-3	N.D.	1	0.2	1
11997	1,2,3-Trichlorobenzene	87-61-6	N.D.	5	0.4	1
11997	1,2,4-Trichlorobenzene	120-82-1	N.D.	5	0.3	1
11997	1,1,1-Trichloroethane	71-55-6	N.D.	1	0.3	1
11997	1,1,2-Trichloroethane	79-00-5	N.D.	1	0.2	1
11997	Trichloroethene	79-01-6	N.D.	1	0.2	1
11997	Trichlorofluoromethane	75-69-4	N.D.	1	0.2	1
11997	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	1	1
11997	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	0.3	1
11997	Vinyl Chloride	75-01-4	N.D.	1	0.2	1
11997	m+p-Xylene	179601-23-1	N.D.	5	1	1
11997	o-Xylene	95-47-6	N.D.	1	0.4	1
11997	Xylene (Total)	1330-20-7	N.D.	6	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

12027 VOA Interp. Library Search-20

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank 1 Water**
BMS High Vac Extraction Pilot Study

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 08/29/2019 10:15
Collection Date/Time: 08/28/2019
SDG#: BMS78-04TB

ARCADIS U.S., Inc.
ELLE Sample #: WW 1138864
ELLE Group #: 2061413
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**mg/l**		**mg/l**	**mg/l**	
12926	Ethylene glycol	107-21-1	N.D.		10	5.0	1
12926	Propylene glycol[1]	57-55-6	N.D.		10	2.0	1
GC Miscellaneous	**SW-846 8015C Feb 2007 Rev 3**		**ug/l**		**ug/l**	**ug/l**	
10603	Ethanol	64-17-5	N.D.	D2	1,000	150	1
10603	Isopropanol[1]	67-63-0	N.D.	D2	1,000	110	1
10603	Methanol	67-56-1	380	JD2	1,000	220	1

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	4192473AA	09/04/2019 23:02	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	4192473AA	09/04/2019 23:01	Don V Viray	1
10603	Alcohols in Water	SW-846 8015C Feb 2007 Rev 3	1	192460015A	09/04/2019 09:47	Johanna C Kennedy	1
12926	Glycols in Water by 8015C/D	SW-846 8015C Feb 2007 Rev 3	1	192470045A	09/05/2019 00:53	Donald Brown	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
03964

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 1138864
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP23297.i/19sep04b.b/4s04s65.d
Level: (low/med) LOW Date Received: 08/29/19
% Moisture: not dec. Date Analyzed: 09/04/19
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
Batch number: B192461AB	Sample number(s): 1138860-1138862		
Acetone	N.D.	20	6
Acetonitrile	N.D.	100	25
Benzene	N.D.	5	0.5
Bromochloromethane	N.D.	5	0.6
Bromodichloromethane	N.D.	5	0.4
Bromoform	N.D.	10	5
Bromomethane	N.D.	5	0.7
n-Butanol	N.D.	250	56
2-Butanone	N.D.	10	1
t-Butyl alcohol	N.D.	100	15
n-Butylbenzene	N.D.	8	3
sec-Butylbenzene	N.D.	5	2
tert-Butylbenzene	N.D.	5	0.8
Carbon Disulfide	N.D.	5	0.6
Carbon Tetrachloride	N.D.	5	0.5
Chlorobenzene	N.D.	5	0.5
Chlorodifluoromethane	N.D.	10	2
Chloroethane	N.D.	5	1
Chloroform	N.D.	5	0.6
Chloromethane	N.D.	5	0.6
Cyclohexane	N.D.	5	0.5
Cyclohexanone	N.D.	250	25
1,2-Dibromo-3-chloropropane	N.D.	5	0.5
Dibromochloromethane	N.D.	5	0.5
1,2-Dibromoethane	N.D.	5	0.4
1,2-Dichlorobenzene	N.D.	5	0.5
1,3-Dichlorobenzene	N.D.	5	0.5
1,4-Dichlorobenzene	N.D.	5	0.4
Dichlorodifluoromethane	N.D.	5	0.6
1,1-Dichloroethane	N.D.	5	0.5
1,2-Dichloroethane	N.D.	5	0.6
1,1-Dichloroethene	N.D.	5	0.5
cis-1,2-Dichloroethene	N.D.	5	0.5
trans-1,2-Dichloroethene	N.D.	5	0.5
1,2-Dichloropropane	N.D.	5	0.5
cis-1,3-Dichloropropene	N.D.	5	0.4
trans-1,3-Dichloropropene	N.D.	5	0.5
1,4-Dioxane	N.D.	250	37
Ethyl Acetate	N.D.	5	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
Ethyl Ether	N.D.	5	1
Ethylbenzene	N.D.	5	0.4
Freon 113	N.D.	10	0.6
n-Heptane	N.D.	8	3
n-Hexane	N.D.	5	0.5
2-Hexanone	N.D.	10	1
Isobutyl Alcohol	N.D.	250	38
Isopropylbenzene	N.D.	5	0.4
p-Isopropyltoluene	N.D.	5	2
Methyl Acetate	N.D.	5	1
Methyl Tertiary Butyl Ether	N.D.	5	0.5
4-Methyl-2-pentanone	N.D.	10	1
Methylcyclohexane	N.D.	5	0.6
Methylene Chloride	N.D.	5	2
Naphthalene	N.D.	5	2
2-Nitropropane	N.D.	10	2
Styrene	N.D.	5	0.4
1,1,2,2-Tetrachloroethane	N.D.	5	0.4
Tetrachloroethene	N.D.	5	0.5
Tetrahydrofuran	N.D.	8	1
Toluene	N.D.	5	0.6
1,2,3-Trichlorobenzene	N.D.	10	5
1,2,4-Trichlorobenzene	N.D.	10	5
1,1,1-Trichloroethane	N.D.	5	0.6
1,1,2-Trichloroethane	N.D.	5	0.5
Trichloroethene	N.D.	5	0.5
Trichlorofluoromethane	N.D.	5	0.7
1,2,4-Trimethylbenzene	N.D.	5	0.5
1,3,5-Trimethylbenzene	N.D.	5	0.5
Vinyl Chloride	N.D.	5	0.6
m+p-Xylene	N.D.	5	1
o-Xylene	N.D.	5	0.4
Xylene (Total)	N.D.	10	1
Batch number: B192461AC	Sample number(s): 1138861-1138862		
Acetonitrile	N.D.	100	25
Chlorodifluoromethane	N.D.	10	2
Ethyl Acetate	N.D.	5	1
Ethyl Ether	N.D.	5	1
Batch number: V192461AA	Sample number(s): 1138859,1138863		
Acetone	N.D.	1,000	300
Acetonitrile	N.D.	5,000	1,300
Benzene	N.D.	250	25
Bromochloromethane	N.D.	250	30
Bromodichloromethane	N.D.	250	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
Bromoform	N.D.	500	250
Bromomethane	N.D.	250	35
n-Butanol	N.D.	13,000	2,800
2-Butanone	N.D.	500	50
t-Butyl alcohol	N.D.	5,000	750
n-Butylbenzene	N.D.	400	150
sec-Butylbenzene	N.D.	250	100
tert-Butylbenzene	N.D.	250	40
Carbon Disulfide	N.D.	250	30
Carbon Tetrachloride	N.D.	250	25
Chlorobenzene	N.D.	250	25
Chlorodifluoromethane	N.D.	500	100
Chloroethane	N.D.	250	50
Chloroform	N.D.	250	30
Chloromethane	N.D.	250	30
Cyclohexane	N.D.	250	25
Cyclohexanone	N.D.	13,000	1,300
1,2-Dibromo-3-chloropropane	N.D.	250	25
Dibromochloromethane	N.D.	250	25
1,2-Dibromoethane	N.D.	250	20
1,2-Dichlorobenzene	N.D.	250	25
1,3-Dichlorobenzene	N.D.	250	25
1,4-Dichlorobenzene	N.D.	250	20
Dichlorodifluoromethane	N.D.	250	30
1,1-Dichloroethane	N.D.	250	25
1,2-Dichloroethane	N.D.	250	30
1,1-Dichloroethene	N.D.	250	25
cis-1,2-Dichloroethene	N.D.	250	25
trans-1,2-Dichloroethene	N.D.	250	25
1,2-Dichloropropane	N.D.	250	25
cis-1,3-Dichloropropene	N.D.	250	20
trans-1,3-Dichloropropene	N.D.	250	25
1,4-Dioxane	N.D.	13,000	1,900
Ethyl Acetate	N.D.	250	50
Ethyl Ether	N.D.	250	50
Ethylbenzene	N.D.	250	20
Freon 113	N.D.	500	30
n-Heptane	N.D.	400	150
n-Hexane	N.D.	250	25
2-Hexanone	N.D.	500	50
Isobutyl Alcohol	N.D.	13,000	1,900
Isopropylbenzene	N.D.	250	20
p-Isopropyltoluene	N.D.	250	100
Methyl Acetate	N.D.	250	50
Methyl Tertiary Butyl Ether	N.D.	250	25

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
4-Methyl-2-pentanone	N.D.	500	50
Methylcyclohexane	N.D.	250	30
Naphthalene	N.D.	250	100
2-Nitropropane	N.D.	500	100
Styrene	N.D.	250	20
1,1,2,2-Tetrachloroethane	N.D.	250	20
Tetrachloroethene	N.D.	250	25
Tetrahydrofuran	N.D.	400	50
Toluene	N.D.	250	30
1,2,3-Trichlorobenzene	N.D.	500	250
1,2,4-Trichlorobenzene	N.D.	500	250
1,1,1-Trichloroethane	N.D.	250	30
1,1,2-Trichloroethane	N.D.	250	25
Trichloroethene	N.D.	250	25
Trichlorofluoromethane	N.D.	250	35
1,2,4-Trimethylbenzene	N.D.	250	25
1,3,5-Trimethylbenzene	N.D.	250	25
Vinyl Chloride	N.D.	250	30
m+p-Xylene	N.D.	250	50
o-Xylene	N.D.	250	20
Xylene (Total)	N.D.	500	70
Batch number: V192481AA	Sample number(s): 1138859,1138863		
Methylene Chloride	N.D.	250	100
Batch number: V192541AA	Sample number(s): 1138860		
Methylene Chloride	N.D.	250	100
	ug/l	ug/l	ug/l
Batch number: 4192473AA	Sample number(s): 1138864		
Acetone	N.D.	20	0.7
Acetonitrile	N.D.	100	16
Benzene	N.D.	1	0.2
Bromochloromethane	N.D.	5	0.2
Bromodichloromethane	N.D.	1	0.2
Bromoform	N.D.	4	1
Bromomethane	N.D.	1	0.3
n-Butanol	N.D.	250	61
2-Butanone	N.D.	10	0.3
t-Butyl alcohol	N.D.	50	12
n-Butylbenzene	N.D.	5	0.2
sec-Butylbenzene	N.D.	5	0.2
tert-Butylbenzene	N.D.	5	0.3
Carbon Disulfide	N.D.	5	0.2
Carbon Tetrachloride	N.D.	1	0.2
Chlorobenzene	N.D.	1	0.2

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
Chlorodifluoromethane	N.D.	5	2
Chloroethane	N.D.	1	0.2
Chloroform	N.D.	1	0.2
Chloromethane	N.D.	1	0.2
Cyclohexane	N.D.	5	1
Cyclohexanone	N.D.	100	25
1,2-Dibromo-3-chloropropane	N.D.	5	0.3
Dibromochloromethane	N.D.	1	0.2
1,2-Dibromoethane	N.D.	1	0.2
1,2-Dichlorobenzene	N.D.	5	0.2
1,3-Dichlorobenzene	N.D.	5	0.2
1,4-Dichlorobenzene	N.D.	5	0.2
Dichlorodifluoromethane	N.D.	1	0.2
1,1-Dichloroethane	N.D.	1	0.2
1,2-Dichloroethane	N.D.	1	0.3
1,1-Dichloroethene	N.D.	1	0.2
cis-1,2-Dichloroethene	N.D.	1	0.2
trans-1,2-Dichloroethene	N.D.	1	0.2
1,2-Dichloropropane	N.D.	1	0.2
cis-1,3-Dichloropropene	N.D.	1	0.2
trans-1,3-Dichloropropene	N.D.	1	0.2
1,4-Dioxane	N.D.	250	29
Ethyl Acetate	N.D.	5	0.7
Ethyl ether	N.D.	5	0.2
Ethylbenzene	N.D.	1	0.4
Freon 113	N.D.	10	0.2
n-Heptane	N.D.	5	2
n-Hexane	N.D.	5	2
2-Hexanone	N.D.	10	0.3
Isobutyl Alcohol	N.D.	250	36
Isopropylbenzene	N.D.	5	0.2
p-Isopropyltoluene	N.D.	5	0.2
Methyl Acetate	N.D.	5	0.2
Methyl Tertiary Butyl Ether	N.D.	1	0.2
4-Methyl-2-pentanone	N.D.	10	0.5
Methylcyclohexane	N.D.	5	0.5
Methylene Chloride	0.5 J	1	0.3
Naphthalene	N.D.	5	1
2-Nitropropane	N.D.	10	0.8
Styrene	N.D.	5	0.2
1,1,2,2-Tetrachloroethane	N.D.	1	0.2
Tetrachloroethene	N.D.	1	0.2
Tetrahydrofuran	N.D.	10	0.7
Toluene	N.D.	1	0.2
1,2,3-Trichlorobenzene	N.D.	5	0.4

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
1,2,4-Trichlorobenzene	N.D.	5	0.3
1,1,1-Trichloroethane	N.D.	1	0.3
1,1,2-Trichloroethane	N.D.	1	0.2
Trichloroethene	N.D.	1	0.2
Trichlorofluoromethane	N.D.	1	0.2
1,2,4-Trimethylbenzene	N.D.	5	1
1,3,5-Trimethylbenzene	N.D.	5	0.3
Vinyl Chloride	N.D.	1	0.2
m+p-Xylene	N.D.	5	1
o-Xylene	N.D.	1	0.4
Xylene (Total)	N.D.	6	1
	ug/kg	ug/kg	ug/kg
Batch number: 19247SLC026	Sample number(s): 1138859-1138863		
Acenaphthene	N.D.	17	3
Acenaphthylene	N.D.	17	3
Acetophenone	N.D.	50	17
Aniline	N.D.	500	170
Anthracene	N.D.	17	3
Atrazine	N.D.	430	200
Benzaldehyde	N.D.	170	67
Benzo(a)anthracene	N.D.	17	7
Benzo(a)pyrene	N.D.	17	3
Benzo(b)fluoranthene	N.D.	17	3
Benzo(g,h,i)perylene	N.D.	17	3
Benzo(k)fluoranthene	N.D.	17	3
Benzyl alcohol	N.D.	500	170
1,1'-Biphenyl	N.D.	37	17
4-Bromophenyl-phenylether	N.D.	50	23
Butylbenzylphthalate	N.D.	170	67
Di-n-butylphthalate	N.D.	170	67
Caprolactam	N.D.	170	33
Carbazole	N.D.	37	17
4-Chloro-3-methylphenol	N.D.	50	23
4-Chloroaniline	N.D.	170	33
bis(2-Chloroethoxy)methane	N.D.	37	17
bis(2-Chloroethyl)ether	N.D.	50	23
bis(2-Chloroisopropyl)ether	N.D.	43	20
2-Chloronaphthalene	N.D.	33	7
2-Chlorophenol	N.D.	37	17
4-Chlorophenyl-phenylether	N.D.	43	20
Chrysene	N.D.	17	3
Dibenz(a,h)anthracene	N.D.	17	7
Dibenzofuran	N.D.	37	17
3,3'-Dichlorobenzidine	N.D.	330	100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
2,4-Dichlorophenol	N.D.	43	20
Dicyclohexylamine	N.D.	2,000	670
Diethylphthalate	N.D.	170	67
N,N-Dimethylaniline	N.D.	170	33
2,4-Dimethylphenol	N.D.	67	30
Dimethylphthalate	N.D.	170	67
4,6-Dinitro-2-methylphenol	N.D.	500	230
2,4-Dinitrophenol	N.D.	1,000	330
2,4-Dinitrotoluene	N.D.	170	67
2,6-Dinitrotoluene	N.D.	50	23
bis(2-Ethylhexyl)phthalate	N.D.	170	67
Fluoranthene	N.D.	17	3
Fluorene	N.D.	17	3
Hexachlorobenzene	N.D.	17	7
Hexachlorobutadiene	N.D.	77	37
Hexachlorocyclopentadiene	N.D.	500	200
Hexachloroethane	N.D.	170	33
Indeno(1,2,3-cd)pyrene	N.D.	17	3
Isophorone	N.D.	37	17
2-Methylnaphthalene	N.D.	33	3
2-Methylphenol	N.D.	67	17
4-Methylphenol	N.D.	50	17
Naphthalene	N.D.	17	7
2-Nitroaniline	N.D.	50	17
3-Nitroaniline	N.D.	170	67
4-Nitroaniline	N.D.	170	67
Nitrobenzene	N.D.	67	27
2-Nitrophenol	N.D.	57	27
4-Nitrophenol	N.D.	500	170
N-Nitroso-di-n-propylamine	N.D.	50	23
N-Nitrosodiphenylamine	N.D.	37	17
Di-n-octylphthalate	N.D.	170	67
Pentachlorophenol	N.D.	170	67
Phenanthrene	N.D.	17	3
Phenol	N.D.	37	17
Pyrene	N.D.	17	3
Pyridine	N.D.	170	67
1,2,4,5-Tetrachlorobenzene	N.D.	37	17
2,3,4,6-Tetrachlorophenol	N.D.	170	67
2,4,5-Trichlorophenol	N.D.	67	30
2,4,6-Trichlorophenol	N.D.	57	27
Triethylamine	N.D.	5,000	1,700
	mg/kg	mg/kg	mg/kg

Batch number: 192420026A Sample number(s): 1138859-1138863

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	mg/kg	mg/kg	mg/kg
Acetaldehyde	N.D.	1.0	0.50
Formaldehyde	N.D.	1.5	0.70
Glutaraldehyde	N.D.	1.0	0.50
Batch number: 192420049A	Sample number(s): 1138859-1138863		
Ethylene glycol	N.D.	10	5.0
Propylene glycol	N.D.	10	5.0
	mg/l	mg/l	mg/l
Batch number: 192470045A	Sample number(s): 1138864		
Ethylene glycol	N.D.	10	5.0
Propylene glycol	N.D.	10	5.0
	ug/kg	ug/kg	ug/kg
Batch number: 192480006A	Sample number(s): 1138859-1138863		
Ethanol (by Direct Injection)	N.D.	1,000	120
Isopropanol	N.D.	1,000	46
Methanol (by Direct Injection)	N.D.	1,000	200
	ug/l	ug/l	ug/l
Batch number: 192460015A	Sample number(s): 1138864		
Ethanol	N.D.	1,000	150
Isopropanol	N.D.	1,000	110
Methanol	N.D.	1,000	220

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B192461AB	Sample number(s): 1138860-1138862								
Acetone	150	175.14	150	178.25	117	119	41-150	2	30
Acetonitrile	150	113.48	150	132.19	76	88	61-120	15	30
Benzene	20	20.18	20	20.27	101	101	80-120	0	30
Bromochloromethane	20	20.57	20	20.45	103	102	72-124	1	30
Bromodichloromethane	20	21.34	20	21.5	107	107	70-120	1	30
Bromoform	20	18.03	20	18.19	90	91	51-127	1	30
Bromomethane	20	15.26	20	15.39	76	77	45-140	1	30
n-Butanol	1000	897.34	1000	908.15	90	91	63-123	1	30
2-Butanone	150	154.6	150	154.24	103	103	57-128	0	30
t-Butyl alcohol	200	203.85	200	193.86	102	97	74-121	5	30
n-Butylbenzene	20	21.93	20	22.61	110	113	71-121	3	30
sec-Butylbenzene	20	23.03	20	23.32	115	117	72-120	1	30

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
tert-Butylbenzene	20	22.16	20	21.95	111	110	68-120	1	30
Carbon Disulfide	20	19.41	20	19.78	97	99	64-133	2	30
Carbon Tetrachloride	20	21.79	20	22.12	109	111	64-134	2	30
Chlorobenzene	20	20.67	20	20.75	103	104	80-120	0	30
Chlorodifluoromethane	20	15.23	20	18.1	76	90	60-133	17	30
Chloroethane	20	16.08	20	16.22	80	81	43-135	1	30
Chloroform	20	21.47	20	21.31	107	107	80-120	1	30
Chloromethane	20	18.06	20	19.59	90	98	56-120	8	30
Cyclohexane	20	19.65	20	20.09	98	100	58-126	2	30
Cyclohexanone	500	362.43	500	358.04	72	72	47-136	1	30
1,2-Dibromo-3-chloropropane	20	19.3	20	19.93	97	100	48-134	3	30
Dibromochloromethane	20	21.32	20	21.43	107	107	69-125	1	30
1,2-Dibromoethane	20	20.92	20	21.18	105	106	76-120	1	30
1,2-Dichlorobenzene	20	21.46	20	21.52	107	108	76-120	0	30
1,3-Dichlorobenzene	20	20.85	20	21.05	104	105	75-120	1	30
1,4-Dichlorobenzene	20	20.62	20	20.51	103	103	80-120	1	30
Dichlorodifluoromethane	20	17.72	20	17.9	89	89	21-127	1	30
1,1-Dichloroethane	20	20.39	20	20.38	102	102	79-120	0	30
1,2-Dichloroethane	20	22.22	20	22.07	111	110	71-128	1	30
1,1-Dichloroethene	20	22.72	20	22.83	114	114	73-129	0	30
cis-1,2-Dichloroethene	20	21.85	20	21.96	109	110	80-125	1	30
trans-1,2-Dichloroethene	20	21.25	20	21.16	106	106	80-126	0	30
1,2-Dichloropropane	20	20.74	20	20.59	104	103	80-120	1	30
cis-1,3-Dichloropropene	20	20.27	20	20.37	101	102	66-120	0	30
trans-1,3-Dichloropropene	20	20.23	20	20.08	101	100	68-122	1	30
1,4-Dioxane	500	493.66	500	484.55	99	97	62-131	2	30
Ethyl Acetate	20	17.04	20	21.04	85	105	65-133	21	30
Ethyl Ether	20	11.99	20	14.62	60	73	59-135	20	30
Ethylbenzene	20	21.43	20	21.24	107	106	78-120	1	30
Freon 113	20	23.27	20	24.06	116	120	64-135	3	30
n-Heptane	20	20.66	20	21.94	103	110	50-141	6	30
n-Hexane	20	21.13	20	22.4	106	112	50-132	6	30
2-Hexanone	100	103.37	100	105.41	103	105	54-140	2	30
Isobutyl Alcohol	500	502.37	500	491.66	100	98	69-129	2	30
Isopropylbenzene	20	22.33	20	22.65	112	113	77-120	1	30
p-Isopropyltoluene	20	23.22	20	23.37	116	117	72-120	1	30
Methyl Acetate	20	20.4	20	20.18	102	101	67-128	1	30
Methyl Tertiary Butyl Ether	20	19.5	20	19.86	98	99	72-120	2	30
4-Methyl-2-pentanone	100	96.24	100	98.03	96	98	67-128	2	30
Methylcyclohexane	20	21.04	20	21.66	105	108	61-124	3	30
Methylene Chloride	20	20.83	20	21.31	104	107	76-122	2	30
Naphthalene	20	17.16	20	17.79	86	89	48-130	4	30
2-Nitropropane	20	16.45	20	15.3	82	76	27-183	7	30
Styrene	20	20.5	20	20.38	103	102	76-120	1	30

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2,2-Tetrachloroethane	20	21.08	20	21.25	105	106	69-125	1	30
Tetrachloroethene	20	22.64	20	22.77	113	114	73-120	1	30
Tetrahydrofuran	100	103.35	100	95.83	103	96	71-127	8	30
Toluene	20	20.38	20	20.34	102	102	80-120	0	30
1,2,3-Trichlorobenzene	20	20.38	20	20.38	102	102	57-131	0	30
1,2,4-Trichlorobenzene	20	20.06	20	20.66	100	103	56-130	3	30
1,1,1-Trichloroethane	20	22.1	20	22.02	111	110	69-123	0	30
1,1,2-Trichloroethane	20	22.66	20	22.25	113	111	80-120	2	30
Trichloroethene	20	21.11	20	20.89	106	104	80-120	1	30
Trichlorofluoromethane	20	18.05	20	18.09	90	90	55-134	0	30
1,2,4-Trimethylbenzene	20	21.81	20	21.87	109	109	73-120	0	30
1,3,5-Trimethylbenzene	20	22.28	20	22.34	111	112	73-120	0	30
Vinyl Chloride	20	17.91	20	17.54	90	88	52-120	2	30
m+p-Xylene	40	43.27	40	43.14	108	108	80-120	0	30
o-Xylene	20	20.99	20	21.03	105	105	75-120	0	30
Xylene (Total)	60	64.26	60	64.17	107	107	75-120	0	30
Batch number: B192461AC	Sample number(s): 1138861-1138862								
Acetonitrile	150	110.21	150	109.43	73	73	61-120	1	30
Chlorodifluoromethane	20	16.87	20	16.56	84	83	60-133	2	30
Ethyl Acetate	20	19.34	20	19.32	97	97	65-133	0	30
Ethyl Ether	20	16.24	20	16.07	81	80	59-135	1	30
Batch number: V192461AA	Sample number(s): 1138859,1138863								
Acetone	7500	6283.7	7500	6841.96	84	91	41-150	9	30
Acetonitrile	7500	7886.54	7500	7756.28	105	103	61-120	2	30
Benzene	1000	1066.76	1000	1061.51	107	106	80-120	0	30
Bromochloromethane	1000	1011.77	1000	1017.89	101	102	72-124	1	30
Bromodichloromethane	1000	1119.24	1000	1114.08	112	111	70-120	0	30
Bromoform	1000	950.65	1000	948.95	95	95	51-127	0	30
Bromomethane	1000	782.1	1000	883.66	78	88	45-140	12	30
n-Butanol	50000	50579.41	50000	52738.54	101	105	63-123	4	30
2-Butanone	7500	6404.45	7500	6832.88	85	91	57-128	6	30
t-Butyl alcohol	10000	9464.67	10000	8271.42	95	83	74-121	13	30
n-Butylbenzene	1000	966.01	1000	924.9	97	92	71-121	4	30
sec-Butylbenzene	1000	1007.6	1000	977.59	101	98	72-120	3	30
tert-Butylbenzene	1000	1036.73	1000	1001.44	104	100	68-120	3	30
Carbon Disulfide	1000	951.05	1000	960.34	95	96	64-133	1	30
Carbon Tetrachloride	1000	1100.78	1000	1083.09	110	108	64-134	2	30
Chlorobenzene	1000	1041.97	1000	1028.84	104	103	80-120	1	30
Chlorodifluoromethane	1000	668.79	1000	652.78	67	65	60-133	2	30
Chloroethane	1000	795.9	1000	902.12	80	90	43-135	13	30
Chloroform	1000	1071.37	1000	1080.78	107	108	80-120	1	30
Chloromethane	1000	757.88	1000	770.58	76	77	56-120	2	30
Cyclohexane	1000	1032.14	1000	1006.27	103	101	58-126	3	30

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Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/04/2019 12:51

Group Number: 2061413

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Cyclohexanone	25000	27852.37	25000	27302.31	111	109	47-136	2	30
1,2-Dibromo-3-chloropropane	1000	861.27	1000	857.81	86	86	48-134	0	30
Dibromochloromethane	1000	1059.22	1000	1066.8	106	107	69-125	1	30
1,2-Dibromoethane	1000	1044.08	1000	1030.8	104	103	76-120	1	30
1,2-Dichlorobenzene	1000	982.53	1000	975.58	98	98	76-120	1	30
1,3-Dichlorobenzene	1000	999.75	1000	987.76	100	99	75-120	1	30
1,4-Dichlorobenzene	1000	1017.32	1000	995.99	102	100	80-120	2	30
Dichlorodifluoromethane	1000	514.2	1000	516.54	51	52	21-127	0	30
1,1-Dichloroethane	1000	1055.76	1000	1060.54	106	106	79-120	0	30
1,2-Dichloroethane	1000	1108.65	1000	1121.21	111	112	71-128	1	30
1,1-Dichloroethene	1000	1047.28	1000	1045.17	105	105	73-129	0	30
cis-1,2-Dichloroethene	1000	1128.72	1000	1134.29	113	113	80-125	0	30
trans-1,2-Dichloroethene	1000	1060.49	1000	1057.39	106	106	80-126	0	30
1,2-Dichloropropane	1000	1116.04	1000	1107.63	112	111	80-120	1	30
cis-1,3-Dichloropropene	1000	1149.96	1000	1129.61	115	113	66-120	2	30
trans-1,3-Dichloropropene	1000	1073.64	1000	1061.78	107	106	68-122	1	30
1,4-Dioxane	25000	27809.67	25000	27940.63	111	112	62-131	0	30
Ethyl Acetate	1000	1043.93	1000	1014.54	104	101	65-133	3	30
Ethyl Ether	1000	969.84	1000	972.35	97	97	59-135	0	30
Ethylbenzene	1000	1030.24	1000	1021.84	103	102	78-120	1	30
Freon 113	1000	1039.8	1000	1014.57	104	101	64-135	2	30
n-Heptane	1000	1119.82	1000	1040.02	112	104	50-141	7	30
n-Hexane	1000	1147.88	1000	1086.68	115	109	50-132	5	30
2-Hexanone	5000	4366.83	5000	4421.31	87	88	54-140	1	30
Isobutyl Alcohol	25000	24509.55	25000	25349.61	98	101	69-129	3	30
Isopropylbenzene	1000	1046.21	1000	1034.4	105	103	77-120	1	30
p-Isopropyltoluene	1000	1006.72	1000	979.04	101	98	72-120	3	30
Methyl Acetate	1000	984.48	1000	1024.86	98	102	67-128	4	30
Methyl Tertiary Butyl Ether	1000	996.65	1000	1009.6	100	101	72-120	1	30
4-Methyl-2-pentanone	5000	4687.78	5000	4721.21	94	94	67-128	1	30
Methylcyclohexane	1000	1078.13	1000	1036.63	108	104	61-124	4	30
Naphthalene	1000	883.72	1000	876.59	88	88	48-130	1	30
2-Nitropropane	1000	942.77	1000	952.19	94	95	27-183	1	30
Styrene	1000	1059.23	1000	1039.85	106	104	76-120	2	30
1,1,2,2-Tetrachloroethane	1000	949.29	1000	943.95	95	94	69-125	1	30
Tetrachloroethene	1000	1076.43	1000	1064.97	108	106	73-120	1	30
Tetrahydrofuran	5000	5169.68	5000	5440.76	103	109	71-127	5	30
Toluene	1000	1035.06	1000	1024.45	104	102	80-120	1	30
1,2,3-Trichlorobenzene	1000	873.32	1000	853.87	87	85	57-131	2	30
1,2,4-Trichlorobenzene	1000	898.51	1000	887.2	90	89	56-130	1	30
1,1,1-Trichloroethane	1000	1091.77	1000	1078.78	109	108	69-123	1	30
1,1,2-Trichloroethane	1000	1063.48	1000	1066.61	106	107	80-120	0	30
Trichloroethene	1000	1074.62	1000	1075.63	107	108	80-120	0	30
Trichlorofluoromethane	1000	819.09	1000	820.43	82	82	55-134	0	30

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2,4-Trimethylbenzene	1000	983.05	1000	963.49	98	96	73-120	2	30
1,3,5-Trimethylbenzene	1000	1000.64	1000	986.8	100	99	73-120	1	30
Vinyl Chloride	1000	817.5	1000	832.66	82	83	52-120	2	30
m+p-Xylene	2000	2098.89	2000	2081.12	105	104	80-120	1	30
o-Xylene	1000	1025.24	1000	1018.52	103	102	75-120	1	30
Xylene (Total)	3000	3124.13	3000	3099.64	104	103	75-120	1	30
Batch number: V192481AA	Sample number(s): 1138859,1138863								
Methylene Chloride	1000	1108.12	1000	1095.12	111	110	76-122	1	30
Batch number: V192541AA	Sample number(s): 1138860								
Methylene Chloride	1000	1165.88	1000	1142.77	117	114	76-122	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 4192473AA	Sample number(s): 1138864								
Acetone	150	150.29			100		54-157		
Acetonitrile	150	146.36	150	136.43	98	91	66-149	7	30
Benzene	20	20.93			105		80-120		
Bromochloromethane	20	17.56			88		80-120		
Bromodichloromethane	20	17.27			86		71-120		
Bromoform	20	13.03			65		51-120		
Bromomethane	20	14.9			75		53-128		
n-Butanol	1000	966.54			97		57-130		
2-Butanone	150	131.78			88		59-135		
t-Butyl alcohol	200	172.67			86		60-130		
n-Butylbenzene	20	20.11			101		76-120		
sec-Butylbenzene	20	19.82			99		77-120		
tert-Butylbenzene	20	19.29			96		78-120		
Carbon Disulfide	20	17.43			87		65-128		
Carbon Tetrachloride	20	16.65			83		64-134		
Chlorobenzene	20	20.2			101		80-120		
Chlorodifluoromethane	20	16.84	20	15.67	84	78	45-149	7	30
Chloroethane	20	16.28			81		55-123		
Chloroform	20	19.51			98		80-120		
Chloromethane	20	16.5			82		56-121		
Cyclohexane	20	17.52			88		68-126		
Cyclohexanone	500	509.82			102		27-141		
1,2-Dibromo-3-chloropropane	20	16.62			83		47-131		
Dibromochloromethane	20	15.88			79		71-120		
1,2-Dibromoethane	20	19.4			97		77-120		
1,2-Dichlorobenzene	20	19.62			98		80-120		
1,3-Dichlorobenzene	20	19.62			98		80-120		
1,4-Dichlorobenzene	20	20.16			101		80-120		
Dichlorodifluoromethane	20	12.79			64		41-127		
1,1-Dichloroethane	20	20.83			104		80-120		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloroethane	20	19.77			99		73-124		
1,1-Dichloroethene	20	21.42			107		80-131		
cis-1,2-Dichloroethene	20	21.68			108		80-125		
trans-1,2-Dichloroethene	20	20.8			104		80-126		
1,2-Dichloropropane	20	21.59			108		80-120		
cis-1,3-Dichloropropene	20	17.92			90		75-120		
trans-1,3-Dichloropropene	20	16.82			84		67-120		
1,4-Dioxane	500	529.38			106		63-146		
Ethyl Acetate	20	21.35	20	20.34	107	102	67-131	5	30
Ethyl ether	20	19.09	20	17.96	95	90	59-141	6	30
Ethylbenzene	20	19.63			98		80-120		
Freon 113	20	18.8			94		73-139		
n-Heptane	20	16.51			83		56-133		
n-Hexane	20	18.54			93		61-138		
2-Hexanone	100	93.07			93		56-135		
Isobutyl Alcohol	500	513.68			103		61-136		
Isopropylbenzene	20	18.49			92		80-120		
p-Isopropyltoluene	20	19.11			96		76-120		
Methyl Acetate	20	18.77			94		54-136		
Methyl Tertiary Butyl Ether	20	17.93			90		69-122		
4-Methyl-2-pentanone	100	88.71			89		62-133		
Methylcyclohexane	20	15.57			78		67-121		
Methylene Chloride	20	21.87			109		80-120		
Naphthalene	20	17.57			88		53-124		
2-Nitropropane	20	11.62			58		19-144		
Styrene	20	18.9			95		80-120		
1,1,2,2-Tetrachloroethane	20	21.73			109		72-120		
Tetrachloroethene	20	18.85			94		80-120		
Tetrahydrofuran	100	96.77			97		54-144		
Toluene	20	20.33			102		80-120		
1,2,3-Trichlorobenzene	20	17.95			90		66-120		
1,2,4-Trichlorobenzene	20	17.01			85		63-120		
1,1,1-Trichloroethane	20	17.9			90		67-126		
1,1,2-Trichloroethane	20	20.66			103		80-120		
Trichloroethene	20	19.83			99		80-120		
Trichlorofluoromethane	20	14.08			70		55-135		
1,2,4-Trimethylbenzene	20	19.96			100		75-120		
1,3,5-Trimethylbenzene	20	19.86			99		75-120		
Vinyl Chloride	20	16.38			82		56-120		
m+p-Xylene	40	39.09			98		80-120		
o-Xylene	20	18.58			93		80-120		
Xylene (Total)	60	57.67			96		80-120		
	ug/kg	ug/kg	ug/kg	ug/kg					

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19247SLC026	Sample number(s): 1138859-1138863								
Acenaphthene	1666.67	1250.95			75		58-107		
Acenaphthylene	1666.67	1368.12			82		62-115		
Acetophenone	1666.67	1171.61			70		47-102		
Aniline	1666.67	1074.45			64		22-91		
Anthracene	1666.67	1354.02			81		67-111		
Atrazine	1666.67	1338.74			80		68-122		
Benzaldehyde	1666.67	746.02			45		20-101		
Benzo(a)anthracene	1666.67	1491.33			89		67-112		
Benzo(a)pyrene	1666.67	1565.01			94		68-119		
Benzo(b)fluoranthene	1666.67	1407.51			84		65-117		
Benzo(g,h,i)perylene	1666.67	1555.09			93		65-119		
Benzo(k)fluoranthene	1666.67	1547.39			93		66-122		
Benzyl alcohol	1666.67	1210.66			73		45-115		
1,1'-Biphenyl	1666.67	1267.93			76		59-106		
4-Bromophenyl-phenylether	1666.67	1422.31			85		63-115		
Butylbenzylphthalate	1666.67	1548.62			93		67-115		
Di-n-butylphthalate	1666.67	1387.65			83		67-118		
Caprolactam	1666.67	1429.14			86		61-113		
Carbazole	1666.67	1307.01			78		72-114		
4-Chloro-3-methylphenol	1666.67	1351.37			81		62-109		
4-Chloroaniline	1666.67	1217.41			73		14-97		
bis(2-Chloroethoxy)methane	1666.67	1290.22			77		50-103		
bis(2-Chloroethyl)ether	1666.67	1094.47			66		40-99		
bis(2-Chloroisopropyl)ether	1666.67	1089.34			65		35-93		
2-Chloronaphthalene	1666.67	990.71			59		43-124		
2-Chlorophenol	1666.67	1140.62			68		47-103		
4-Chlorophenyl-phenylether	1666.67	1311.01			79		58-110		
Chrysene	1666.67	1408.51			85		66-111		
Dibenz(a,h)anthracene	1666.67	1664.01			100		72-127		
Dibenzofuran	1666.67	1231.71			74		60-108		
3,3'-Dichlorobenzidine	1666.67	1444.3			87		16-107		
2,4-Dichlorophenol	1666.67	1277.03			77		58-107		
Dicyclohexylamine	1666.67	1216.52	1666.67	1178.69	73	71	49-141	3	30
Diethylphthalate	1666.67	1299.65			78		58-115		
N,N-Dimethylaniline	1666.67	512.28	1666.67	437.98	31*	26*	32-133	16	30
2,4-Dimethylphenol	1666.67	1050.23			63		46-89		
Dimethylphthalate	1666.67	1224.43			73		56-116		
4,6-Dinitro-2-methylphenol	1666.67	1410.01			85		45-134		
2,4-Dinitrophenol	3333.33	2620.91			79		10-138		
2,4-Dinitrotoluene	1666.67	1346			81		61-121		
2,6-Dinitrotoluene	1666.67	1355.84			81		64-115		
bis(2-Ethylhexyl)phthalate	1666.67	1674.25			100		66-121		
Fluoranthene	1666.67	1303.9			78		65-114		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Fluorene	1666.67	1253.47			75		62-110		
Hexachlorobenzene	1666.67	1381.56			83		57-123		
Hexachlorobutadiene	1666.67	1147.77			69		32-123		
Hexachlorocyclopentadiene	3333.33	2341.56			70		14-109		
Hexachloroethane	1666.67	1057.97			63		25-107		
Indeno(1,2,3-cd)pyrene	1666.67	1576.2			95		67-119		
Isophorone	1666.67	1298.67			78		49-103		
2-Methylnaphthalene	1666.67	1272.75			76		52-104		
2-Methylphenol	1666.67	1247.37			75		41-113		
4-Methylphenol	1666.67	1248.38			75		46-112		
Naphthalene	1666.67	1130.85			68		46-99		
2-Nitroaniline	1666.67	1453.07			87		65-119		
3-Nitroaniline	1666.67	1404.1			84		58-115		
4-Nitroaniline	1666.67	1034.86			62		41-91		
Nitrobenzene	1666.67	1171.02			70		33-115		
2-Nitrophenol	1666.67	1293.67			78		50-107		
4-Nitrophenol	1666.67	1220.94			73		54-107		
N-Nitroso-di-n-propylamine	1666.67	1184.46			71		43-100		
N-Nitrosodiphenylamine	1666.67	1409.86			85		68-115		
Di-n-octylphthalate	1666.67	1661.68			100		64-125		
Pentachlorophenol	1666.67	1237.02			74		48-127		
Phenanthrene	1666.67	1355.71			81		66-110		
Phenol	1666.67	1168.96			70		43-105		
Pyrene	1666.67	1357.47			81		67-109		
Pyridine	1666.67	603.11			36		10-117		
1,2,4,5-Tetrachlorobenzene	1666.67	1174.97			70		54-101		
2,3,4,6-Tetrachlorophenol	1666.67	1514.72			91		62-116		
2,4,5-Trichlorophenol	1666.67	1391.39			83		60-116		
2,4,6-Trichlorophenol	1666.67	1403.65			84		60-120		
Triethylamine	3333.33	925.4	3333.33	839.73	28*	25*	70-130	10	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 192420026A	Sample number(s): 1138859-1138863								
Acetaldehyde	10	9.22			92		83-115		
Formaldehyde	10	10.15			102		81-120		
Glutaraldehyde	9.96	11.16			112		84-123		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 192420049A	Sample number(s): 1138859-1138863								
Ethylene glycol	99.8	109.22			109		76-122		
Propylene glycol	98.51	99.21			101		67-131		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 192470045A	Sample number(s): 1138864								

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Ethylene glycol	102.78	96.02			93		77-121		
Propylene glycol	98.9	89.78			91		78-131		
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 192480006A	Sample number(s): 1138859-1138863								
Ethanol (by Direct Injection)	2501	2431.52			97		77-120		
Isopropanol	2505	2452.05			98		75-125		
Methanol (by Direct Injection)	2503	2646.99			106		76-119		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 192460015A	Sample number(s): 1138864								
Ethanol	2501	2694.5			108		80-115		
Isopropanol	2505	2679.65			107		85-115		
Methanol	2503	2838.66			113		79-120		
	%	%	%	%					
Batch number: 19247820003B	Sample number(s): 1138859-1138863								
Moisture	89.5	89.45			100		99-101		
Moisture	89.5	89.45			100		99-101		
Moisture Duplicate	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: B192461AB	Sample number(s): 1138860-1138862 UNSPK: 1138860									
Acetone	8.94	111.78	222.93	136.86	245.8	191*	173*	41-150	10	30
Acetonitrile	N.D.	96.78	29.7	95.3	48.44	31*	51*	61-120	48*	30
Benzene	N.D.	14.9	16.77	18.25	20.64	112	113	80-120	21	30
Bromochloromethane	N.D.	14.9	15.89	18.25	18.64	107	102	72-124	16	30
Bromodichloromethane	N.D.	14.9	16.5	18.25	19.71	111	108	70-120	18	30
Bromoform	N.D.	14.9	13.41	18.25	15.51	90	85	51-127	15	30
Bromomethane	N.D.	14.9	8.91	18.25	12.91	60	71	45-140	37*	30
n-Butanol	N.D.	745.2	718.86	912.4	810.65	96	89	63-123	12	30
2-Butanone	N.D.	111.78	166.62	136.86	183.25	149*	134*	57-128	10	30
t-Butyl alcohol	N.D.	149.04	174.73	182.48	192.15	117	105	74-121	9	30
n-Butylbenzene	N.D.	14.9	21.4	18.25	28.68	144*	157*	71-121	29	30
sec-Butylbenzene	N.D.	14.9	31.68	18.25	40.47	213*	222*	72-120	24	30

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
tert-Butylbenzene	N.D.	14.9	36.3	18.25	44.87	244*	246*	68-120	21	30
Carbon Disulfide	2.66	14.9	19.58	18.25	24.2	114	118	64-133	21	30
Carbon Tetrachloride	N.D.	14.9	18.88	18.25	23.72	127	130	64-134	23	30
Chlorobenzene	N.D.	14.9	16.26	18.25	20.35	109	112	80-120	22	30
Chlorodifluoromethane	N.D.	12.9	15.86	12.71	17.08	123	134*	60-133	7	30
Chloroethane	N.D.	14.9	9.38	18.25	13.93	63	76	43-135	39*	30
Chloroform	N.D.	14.9	17.95	18.25	21.73	120	119	80-120	19	30
Chloromethane	N.D.	14.9	11.76	18.25	14.76	79	81	56-120	23	30
Cyclohexane	N.D.	14.9	17.48	18.25	22.06	117	121	58-126	23	30
Cyclohexanone	N.D.	372.6	234.13	456.2	272.02	63	60	47-136	15	30
1,2-Dibromo-3-chloropropane	N.D.	14.9	22.52	18.25	25.65	151*	141*	48-134	13	30
Dibromochloromethane	N.D.	14.9	18.46	18.25	21.26	124	117	69-125	14	30
1,2-Dibromoethane	N.D.	14.9	15.62	18.25	17.97	105	98	76-120	14	30
1,2-Dichlorobenzene	N.D.	14.9	19.1	18.25	23.81	128*	130*	76-120	22	30
1,3-Dichlorobenzene	N.D.	14.9	17.59	18.25	21.99	118	120	75-120	22	30
1,4-Dichlorobenzene	N.D.	14.9	16.31	18.25	20.57	109	113	80-120	23	30
Dichlorodifluoromethane	N.D.	14.9	7.84	18.25	11.4	53	62	21-127	37*	30
1,1-Dichloroethane	N.D.	14.9	17.5	18.25	21.38	117	117	79-120	20	30
1,2-Dichloroethane	N.D.	14.9	17.47	18.25	20.33	117	111	71-128	15	30
1,1-Dichloroethene	0.945	14.9	20.5	18.25	25.95	131*	137*	73-129	23	30
cis-1,2-Dichloroethene	N.D.	14.9	18.21	18.25	22.04	122	121	80-123	19	30
trans-1,2-Dichloroethene	0.574	14.9	18.2	18.25	22.87	118	122	80-125	23	30
1,2-Dichloropropane	N.D.	14.9	16.37	18.25	19.94	110	109	80-120	20	30
cis-1,3-Dichloropropene	N.D.	14.9	13.93	18.25	16.87	93	92	66-120	19	30
trans-1,3-Dichloropropene	N.D.	14.9	14.43	18.25	17.1	97	94	68-122	17	30
1,4-Dioxane	N.D.	372.6	403.3	456.2	464.77	108	102	62-131	14	30
Ethyl Acetate	N.D.	12.9	15.96	12.71	19.61	124	154*	65-133	20	30
Ethyl Ether	N.D.	12.9	9.49	12.71	9.31	74	73	59-135	2	30
Ethylbenzene	N.D.	14.9	17.36	18.25	22.28	116	122*	78-120	25	30
Freon 113	N.D.	14.9	20.72	18.25	26.11	139*	143*	64-135	23	30
n-Heptane	N.D.	14.9	12.87	18.25	17.8	86	98	50-141	32*	30
n-Hexane	N.D.	14.9	15.47	18.25	20.6	104	113	50-132	28	30
2-Hexanone	N.D.	74.52	103.7	91.24	113.66	139	125	54-140	9	30
Isobutyl Alcohol	N.D.	372.6	410.96	456.2	445.66	110	98	69-129	8	30
Isopropylbenzene	N.D.	14.9	18.31	18.25	23.84	123*	131*	77-120	26	30
p-Isopropyltoluene	N.D.	14.9	28.17	18.25	36.78	189*	202*	72-120	27	30
Methyl Acetate	N.D.	14.9	15.45	18.25	15.83	104	87	67-128	2	30
Methyl Tertiary Butyl Ether	N.D.	14.9	16.93	18.25	19.1	114	105	72-120	12	30
4-Methyl-2-pentanone	N.D.	74.52	77.15	91.24	79.38	104	87	67-128	3	30
Methylcyclohexane	N.D.	14.9	16.39	18.25	20.04	110	110	61-124	20	30
Methylene Chloride	740.04	14.9	987.83	18.25	926.52	1663 (2)	1022 (2)	76-122	6	30
Naphthalene	N.D.	14.9	7.70	18.25	10.7	52	59	48-130	33*	30
2-Nitropropane	N.D.	14.9	13.64	18.25	16.12	92	88	27-183	17	30

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Styrene	N.D.	14.9	13.21	18.25	17.31	89	95	76-120	27	30
1,1,2,2-Tetrachloroethane	N.D.	14.9	32.76	18.25	35.31	220*	194*	69-125	7	30
Tetrachloroethene	N.D.	14.9	20.63	18.25	26.22	138*	144*	73-120	24	30
Tetrahydrofuran	N.D.	74.52	88.94	91.24	99.68	119	109	71-127	11	30
Toluene	N.D.	14.9	18.95	18.25	23.75	127*	130*	80-120	22	30
1,2,3-Trichlorobenzene	N.D.	14.9	7.51	18.25	10.04	50*	55*	57-131	29	30
1,2,4-Trichlorobenzene	N.D.	14.9	6.89	18.25	9.58	46*	53*	56-130	33*	30
1,1,1-Trichloroethane	N.D.	14.9	18.93	18.25	23.21	127*	127*	69-123	20	30
1,1,2-Trichloroethane	N.D.	14.9	20.02	18.25	23.32	134*	128*	80-120	15	30
Trichloroethene	0.345	14.9	16.81	18.25	20.77	110	112	80-120	21	30
Trichlorofluoromethane	N.D.	14.9	11.52	18.25	16.81	77	92	55-134	37*	30
1,2,4-Trimethylbenzene	N.D.	14.9	26.78	18.25	34.24	180*	188*	73-120	24	30
1,3,5-Trimethylbenzene	N.D.	14.9	31.13	18.25	39.03	209*	214*	73-120	23	30
Vinyl Chloride	N.D.	14.9	9.73	18.25	14.02	65	77	52-120	36*	30
m+p-Xylene	N.D.	29.81	33.55	36.5	44.24	113	121*	80-120	27	30
o-Xylene	N.D.	14.9	17.42	18.25	22.42	117	123*	75-120	25	30
Xylene (Total)	N.D.	44.71	50.97	54.74	66.66	114	122*	75-120	27	30
Batch number: B192461AC	Sample number(s): 1138861-1138862 UNSPK: 1138860									
Acetonitrile	N.D.	96.78	29.7	95.3	48.44	31*	51*	61-120	48*	30
Chlorodifluoromethane	N.D.	12.9	15.86	12.71	17.08	123	134*	60-133	7	30
Ethyl Acetate	N.D.	12.9	15.96	12.71	19.61	124	154*	65-133	20	30
Ethyl Ether	N.D.	12.9	9.49	12.71	9.31	74	73	59-135	2	30
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 19247SLC026	Sample number(s): 1138859-1138863 UNSPK: 1138860									
Acenaphthene	N.D.	1650.17	1396.41	1665	1263.04	85	76	58-107	10	30
Acenaphthylene	N.D.	1650.17	1521.77	1665	1413.32	92	85	62-115	7	30
Acetophenone	N.D.	1650.17	1324.39	1665	1162.69	80	70	47-102	13	30
Aniline	N.D.	1650.17	1127.62	1665	942.66	68	57	22-91	18	30
Anthracene	N.D.	1650.17	1504.04	1665	1375.34	91	83	67-111	9	30
Atrazine	N.D.	1650.17	1433.87	1665	1276.64	87	77	68-122	12	30
Benzaldehyde	N.D.	1650.17	929.73	1665	846.3	56	51	20-101	9	30
Benzo(a)anthracene	N.D.	1650.17	1432.39	1665	1305.77	87	78	67-112	9	30
Benzo(a)pyrene	N.D.	1650.17	1440.35	1665	1262.11	87	76	68-119	13	30
Benzo(b)fluoranthene	3.84	1650.17	1333.02	1665	1221.25	81	73	65-117	9	30
Benzo(g,h,i)perylene	N.D.	1650.17	1425.28	1665	1254.27	86	75	65-119	13	30
Benzo(k)fluoranthene	N.D.	1650.17	1372.71	1665	1171.37	83	70	66-122	16	30
Benzyl alcohol	N.D.	1650.17	1416.24	1665	1190.76	86	72	45-115	17	30
1,1'-Biphenyl	N.D.	1650.17	1400.95	1665	1316.1	85	79	59-106	6	30
4-Bromophenyl-phenylether	N.D.	1650.17	1698.46	1665	1528.15	103	92	63-115	11	30
Butylbenzylphthalate	N.D.	1650.17	1421.91	1665	1347.23	86	81	67-115	5	30
Di-n-butylphthalate	N.D.	1650.17	1436.06	1665	1345.5	87	81	67-118	7	30

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Caprolactam	N.D.	1650.17	1429.99	1665	1245.45	87	75	61-113	14	30
Carbazole	N.D.	1650.17	1364.9	1665	1304.07	83	78	72-114	5	30
4-Chloro-3-methylphenol	N.D.	1650.17	1387.92	1665	1306.37	84	78	62-109	6	30
4-Chloroaniline	N.D.	1650.17	1212.69	1665	1105.59	73	66	14-97	9	30
bis(2-Chloroethoxy)methane	N.D.	1650.17	1422.94	1665	1290.37	86	77	50-103	10	30
bis(2-Chloroethyl)ether	N.D.	1650.17	1300.2	1665	1113.73	79	67	40-99	15	30
bis(2-Chloroisopropyl)ether	N.D.	1650.17	1268.69	1665	1126.95	77	68	35-93	12	30
2-Chloronaphthalene	N.D.	1650.17	1093.13	1665	1058.27	66	64	43-124	3	30
2-Chlorophenol	N.D.	1650.17	1283.17	1665	1129.32	78	68	47-103	13	30
4-Chlorophenyl-phenylether	N.D.	1650.17	1422.43	1665	1325.65	86	80	58-110	7	30
Chrysene	3.88	1650.17	1310.61	1665	1270.29	79	76	66-111	3	30
Dibenz(a,h)anthracene	N.D.	1650.17	1570.86	1665	1401.73	95	84	72-127	11	30
Dibenzofuran	N.D.	1650.17	1384.55	1665	1237.02	84	74	60-108	11	30
3,3'-Dichlorobenzidine	N.D.	1650.17	1248.01	1665	1326.82	76	80	16-107	6	30
2,4-Dichlorophenol	N.D.	1650.17	1306.78	1665	1198.74	79	72	58-107	9	30
Diethylphthalate	N.D.	1650.17	1380.38	1665	1308.2	84	79	58-115	5	30
2,4-Dimethylphenol	N.D.	1650.17	1162.51	1665	1039.88	70	62	46-89	11	30
Dimethylphthalate	N.D.	1650.17	1245.56	1665	1229.75	75	74	56-116	1	30
4,6-Dinitro-2-methylphenol	N.D.	1650.17	1280.16	1665	702.25	78	42*	45-134	58*	30
2,4-Dinitrophenol	N.D.	3300.33	1617.93	3330	363.21	49	11	10-138	127*	30
2,4-Dinitrotoluene	N.D.	1650.17	1364.25	1665	1253.86	83	75	61-121	8	30
2,6-Dinitrotoluene	N.D.	1650.17	1412.83	1665	1353.33	86	81	64-115	4	30
bis(2-Ethylhexyl)phthalate	N.D.	1650.17	1561.15	1665	1481.03	95	89	66-121	5	30
Fluoranthene	3.66	1650.17	1331.17	1665	1244.69	80	75	65-114	7	30
Fluorene	N.D.	1650.17	1388.82	1665	1265.36	84	76	62-110	9	30
Hexachlorobenzene	N.D.	1650.17	1600.77	1665	1371.25	97	82	57-123	15	30
Hexachlorobutadiene	N.D.	1650.17	1400.93	1665	1230.88	85	74	32-123	13	30
Hexachlorocyclopentadiene	N.D.	3300.33	N.D.	3330	N.D.	0*	0*	14-109	0	30
Hexachloroethane	N.D.	1650.17	910.02	1665	819.78	55	49	25-107	10	30
Indeno(1,2,3-cd)pyrene	N.D.	1650.17	1449.87	1665	1302.28	88	78	67-119	11	30
Isophorone	N.D.	1650.17	1403.23	1665	1286.54	85	77	49-103	9	30
2-Methylnaphthalene	N.D.	1650.17	1378.61	1665	1277.41	84	77	52-104	8	30
2-Methylphenol	N.D.	1650.17	1357.82	1665	1223.73	82	73	41-113	10	30
4-Methylphenol	N.D.	1650.17	1377.09	1665	1248.4	83	75	46-112	10	30
Naphthalene	N.D.	1650.17	1257.4	1665	1124.54	76	68	46-99	11	30
2-Nitroaniline	N.D.	1650.17	1653.15	1665	1491.89	100	90	65-119	10	30
3-Nitroaniline	N.D.	1650.17	1453.97	1665	1343.67	88	81	58-115	8	30
4-Nitroaniline	N.D.	1650.17	1327.69	1665	1136.82	80	68	41-91	15	30
Nitrobenzene	N.D.	1650.17	1285.74	1665	1194.23	78	72	33-115	7	30
2-Nitrophenol	N.D.	1650.17	1258.27	1665	1099	76	66	50-107	14	30
4-Nitrophenol	N.D.	1650.17	1139.62	1665	801.32	69	48*	54-107	35*	30
N-Nitroso-di-n-propylamine	N.D.	1650.17	1338.13	1665	1183.85	81	71	43-100	12	30
N-Nitrosodiphenylamine	N.D.	1650.17	1562.41	1665	1418.89	95	85	68-115	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Di-n-octylphthalate	N.D.	1650.17	1495.3	1665	1316.78	91	79	64-125	13	30
Pentachlorophenol	N.D.	1650.17	857.47	1665	485.81	52	29*	48-127	55*	30
Phenanthrene	4.29	1650.17	1486.03	1665	1359.56	90	81	66-110	9	30
Phenol	N.D.	1650.17	1289.17	1665	1135.68	78	68	43-105	13	30
Pyrene	N.D.	1650.17	1350.59	1665	1275.63	82	77	67-109	6	30
Pyridine	N.D.	1650.17	695.91	1665	659.76	42	40	10-117	5	30
1,2,4,5-Tetrachlorobenzene	N.D.	1650.17	1396.16	1665	1267.75	85	76	54-101	10	30
2,3,4,6-Tetrachlorophenol	N.D.	1650.17	1161.98	1665	969.93	70	58*	62-116	18	30
2,4,5-Trichlorophenol	N.D.	1650.17	1295.3	1665	1169.29	78	70	60-116	10	30
2,4,6-Trichlorophenol	N.D.	1650.17	1099.42	1665	1065.27	67	64	60-120	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 192420026A	Sample number(s): 1138859-1138863 UNSPK: 1138860									
Acetaldehyde	N.D.	9.98	9.74	9.95	9.46	98	95	83-115	3	50
Formaldehyde	2.82	9.98	12.41	9.95	12.21	96	94	81-120	2	50
Glutaraldehyde	N.D.	9.94	11.02	9.91	10.86	111	110	84-123	1	50
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 192420049A	Sample number(s): 1138859-1138863 UNSPK: 1138860									
Ethylene glycol	N.D.	99.8	89.04	99.8	100.36	89	101	76-122	12	20
Propylene glycol	N.D.	98.51	80.82	98.51	88.3	82	90	67-131	9	20
	ug/kg	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 192480006A	Sample number(s): 1138859-1138863 UNSPK: 1138860									
Ethanol (by Direct Injection)	N.D.	2501	2237.27	2501	2281.68	89	91	77-120	2	20
Isopropanol	N.D.	2505	2249.23	2505	2289.07	90	91	75-125	2	20
Methanol (by Direct Injection)	212.28	2503	2607.77	2503	2520	96	92	76-119	3	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 19247820003B	Sample number(s): 1138859-1138863 BKG: 1138860			
Moisture	9.61	9.61	0	5
Moisture	9.61	9.61	0	5
Moisture Duplicate	9.61	9.61	0	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- 5ml Water by 8260C/D
Batch number: 4192473AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1138864	98	103	103	94
Blank	98	104	102	94
LCS	95	103	102	92
LCSD	94	101	101	93
Limits:	80-120	80-120	80-120	80-120

Analysis Name: VOCs- Solid by 8260C/D
Batch number: B192461AB

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1138860	103	97	118	72
1138861	103	99	114	74
1138862	101	96	114	76
Blank	101	102	99	97
LCS	100	101	99	106
LCSD	101	103	98	99
MS	103	99	114	74
MSD	101	96	114	76
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260C/D
Batch number: V192461AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1138859	110	115	104	104
1138863	95	99	90	91
Blank	98	106	97	96
LCS	106	108	100	100
LCSD	106	108	99	99
Limits:	50-141	54-135	52-141	50-131

Analysis Name: SVOA 8270D/E (microwave)
Batch number: 19247SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
1138859	91	94	61	88	96	111
1138860	78	80	73	75	81	100
1138861	80	83	77	85	85	102
1138862	70	72	73	73	78	94
1138863	78	82	77	73	85	85

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SVOA 8270D/E (microwave)
Batch number: 19247SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
Blank	70	73	110	72	74	114
LCS	72	74	101	76	74	102
LCSD	69	67	89	63	67	108
MS	80	83	77	85	85	102
MSD	70	72	73	73	78	94
Limits:	21-112	18-115	10-136	14-115	22-122	23-141

Analysis Name: Short List Aldehydes- S 8315A
Batch number: 192420026A

	Butyraldehyde
1138859	23*
1138860	22*
1138861	22*
1138862	22*
1138863	22*
Blank	22*
LCS	23*
MS	22*
MSD	22*
Limits:	77-133

Analysis Name: Glycols in Soil by 8015C/D
Batch number: 192420049A

	Tetramethylene glycol
1138859	47
1138860	42
1138861	75
1138862	84
1138863	56
Blank	61
LCS	93
MS	75
MSD	84
Limits:	36-143

Analysis Name: Alcohols in Water
Batch number: 192460015A

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2061413
Reported: 10/04/2019 12:51

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Alcohols in Water
Batch number: 192460015A

	Acetone-D1	Acetone-D2
1138864	91	101
Blank	93	97
LCS	91	98
Limits:	58-149	58-149

Analysis Name: Glycols in Water by 8015C/D
Batch number: 192470045A

	Tetramethylene glycol
1138864	67
Blank	67
LCS	91
Limits:	17-134

Analysis Name: Alcohols in Soil
Batch number: 192480006A

	Acetone-D1	Acetone-D2
1138859	85	86
1138860	66	60
1138861	80	78
1138862	87	86
1138863	87	88
Blank	99	92
LCS	92	91
MS	80	78
MSD	87	86
Limits:	10-179	10-179

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 3074 Group # 2064B Sample # 1138859-64

COC #590263

For Lab Use Only
FSC:
SCR#: 247936

Client Information

Client: Arcadis - US
Acct. #:
Project Name/#: BMS High Vac Extraction Pilot Study
PWSID #:
Project Manager: William McCune
P.O. #: 30033396
Sampler: Evan Green
Quote #:
State where samples were collected: New York State
For Compliance: Yes ☐ No ☒

Matrix: Soil ☒ Sediment ☐ Tissue ☐; Water: Potable ☒ Ground ☐ NPDES ☐ Surface ☐; Other:

Analysis Requested — Preservation and Filtration Codes: O, H, H (over VOCs-5ml water, Alcohols in water, Glycols in water)

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture	Short List Aldehydes-Soil	SVOA 8270D (chloroaniline)	Alcohols in Soil	Glycols in Soil by 8015	VOCs-Soil by 8260C	VOCs-5mL water by 8260	Alcohols in water	Glycols in water by 8015
EW-1(23-25)	8/28/19	1300	X		SO			4	X	X	X	X	X	X			
EW-1(27-29)	8/28/19	1320	X		SO			4	X	X	X	X	X	X			
EW-1(27-29) MS	8/28/19	1320	X		SO			4	X	X	X	X	X	X			
EW-1(27-29) MSD	8/28/19	1320	X		SO			4	X	X	X	X	X	X			
DUP-1-082819	8/28/19	--	X		SO			4	X	X	X	X	X	X			
Trip Blank 1	8/28/19	--	X			P		6							X	X	X

RG 8-28-19

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks
Syracuse #225

Turnaround Time (TAT) Requested (please circle)
Standard (circled) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: 10

E-mail address: William.McCune@Arcadis.com

Relinquished by	Date	Time	Received by	Date	Time
[signature]	8-22-19	1425	[signature]	8/28/19	0800
[signature]	8/28/19	1725	[signature]	8/28/19	1725
[signature] TA SYR	8-28-19	19:00			
			[signature]	8-29-19	10:15

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B (B circled) MA MCP CT RCP

EDD Required? Yes (circled) No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? Yes (circled) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.4 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0718

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Sample Administration Receipt Documentation Log

Doc Log ID: 258721

Group Number(s): 2061413

Client: ARCADIS-US

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/29/2019 10:15
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	12
Samples Chilled:	Yes	Trip Blank Type:	See Below
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): (8) HCL, (4) UNP

Unpacked by Jessenia Colon Martinez (30 856) at 10:57 on 08/29/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	192099059	1.4	IR	Wet	Y	Loose/Bag	N
2	DT42-01	0.6	DT	Wet	Y	Loose/Bag	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Report Date: October 02, 2019 12:25

Project: Bristol-Myers Squibb

Account #: 03074
Group Number: 2065563
SDG: BMS80
PO Number: 30033396
State of Sample Origin: NY

Electronic Copy To	Arcadis	Attn: William McCune
Electronic Copy To	Arcadis	Attn: Lawrence Carey Healy

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
EW-1 Grab Groundwater	09/20/2019 13:10	1158431
DUP-1-092019 Grab Groundwater	09/20/2019	1158432
Trip Blank Water	09/20/2019	1158433

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Bristol-Myers Squibb
ELLE Group #: 2065563

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **EW-1 Grab Groundwater**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019 13:10
SDG#: BMS80-01

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158431
ELLE Group #: 2065563
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	N.D.	10,000	350	500
11997	Acetonitrile	75-05-8	N.D.	50,000	8,000	500
11997	Benzene	71-43-2	N.D.	500	100	500
11997	Bromochloromethane	74-97-5	N.D.	2,500	100	500
11997	Bromodichloromethane	75-27-4	N.D.	500	100	500
11997	Bromoform	75-25-2	N.D.	2,000	500	500
11997	Bromomethane	74-83-9	N.D.	500	150	500
11997	n-Butanol	71-36-3	N.D.	130,000	31,000	500
11997	2-Butanone	78-93-3	N.D.	5,000	150	500
11997	t-Butyl alcohol	75-65-0	N.D.	25,000	6,000	500
11997	n-Butylbenzene	104-51-8	N.D.	2,500	100	500
11997	sec-Butylbenzene	135-98-8	N.D.	2,500	100	500
11997	tert-Butylbenzene	98-06-6	N.D.	2,500	150	500
11997	Carbon Disulfide	75-15-0	N.D.	2,500	100	500
11997	Carbon Tetrachloride	56-23-5	N.D.	500	100	500
11997	Chlorobenzene	108-90-7	N.D.	500	100	500
11997	Chlorodifluoromethane[1]	75-45-6	N.D.	2,500	1,000	500
11997	Chloroethane	75-00-3	N.D.	500	100	500
11997	Chloroform	67-66-3	N.D.	500	100	500
11997	Chloromethane	74-87-3	N.D.	500	100	500
11997	Cyclohexane	110-82-7	N.D.	2,500	500	500
11997	Cyclohexanone[1]	108-94-1	N.D.	50,000	13,000	500
11997	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2,500	150	500
11997	Dibromochloromethane	124-48-1	N.D.	500	100	500
11997	1,2-Dibromoethane	106-93-4	N.D.	500	100	500
11997	1,2-Dichlorobenzene	95-50-1	N.D.	2,500	100	500
11997	1,3-Dichlorobenzene	541-73-1	N.D.	2,500	100	500
11997	1,4-Dichlorobenzene	106-46-7	N.D.	2,500	100	500
11997	Dichlorodifluoromethane	75-71-8	N.D.	500	100	500
11997	1,1-Dichloroethane	75-34-3	N.D.	500	100	500
11997	1,2-Dichloroethane	107-06-2	N.D.	500	150	500
11997	1,1-Dichloroethene	75-35-4	N.D.	500	100	500
11997	cis-1,2-Dichloroethene	156-59-2	N.D.	500	100	500
11997	trans-1,2-Dichloroethene	156-60-5	N.D.	500	100	500
11997	1,2-Dichloropropane	78-87-5	N.D.	500	100	500
11997	cis-1,3-Dichloropropene	10061-01-5	N.D.	500	100	500
11997	trans-1,3-Dichloropropene	10061-02-6	N.D.	500	100	500
11997	1,4-Dioxane	123-91-1	N.D.	130,000	15,000	500
11997	Ethyl Acetate	141-78-6	N.D.	2,500	350	500
11997	Ethyl ether	60-29-7	N.D.	2,500	100	500
11997	Ethylbenzene	100-41-4	N.D.	500	200	500

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 Grab Groundwater**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019 13:10
SDG#: BMS80-01

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158431
ELLE Group #: 2065563
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Freon 113	76-13-1	N.D.	5,000	100	500
11997	n-Heptane[1]	142-82-5	N.D.	2,500	1,000	500
11997	n-Hexane[1]	110-54-3	N.D.	2,500	1,000	500
11997	2-Hexanone	591-78-6	N.D.	5,000	150	500
11997	Isobutyl Alcohol	78-83-1	N.D.	130,000	18,000	500
11997	Isopropylbenzene	98-82-8	N.D.	2,500	100	500
11997	p-Isopropyltoluene	99-87-6	N.D.	2,500	100	500
11997	Methyl Acetate	79-20-9	N.D.	2,500	100	500
11997	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	500	100	500
11997	4-Methyl-2-pentanone	108-10-1	N.D.	5,000	250	500
11997	Methylcyclohexane	108-87-2	N.D.	2,500	250	500
11997	Methylene Chloride	75-09-2	510,000	5,000	1,500	5000
11997	Naphthalene	91-20-3	N.D.	2,500	500	500
11997	2-Nitropropane	79-46-9	N.D.	5,000	400	500
11997	Styrene	100-42-5	N.D.	2,500	100	500
11997	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	500	100	500
11997	Tetrachloroethene	127-18-4	N.D.	500	100	500
11997	Tetrahydrofuran	109-99-9	N.D.	5,000	350	500
11997	Toluene	108-88-3	N.D.	500	100	500
11997	1,2,3-Trichlorobenzene	87-61-6	N.D.	2,500	200	500
11997	1,2,4-Trichlorobenzene	120-82-1	N.D.	2,500	150	500
11997	1,1,1-Trichloroethane	71-55-6	N.D.	500	150	500
11997	1,1,2-Trichloroethane	79-00-5	N.D.	500	100	500
11997	Trichloroethene	79-01-6	N.D.	500	100	500
11997	Trichlorofluoromethane	75-69-4	N.D.	500	100	500
11997	1,2,4-Trimethylbenzene	95-63-6	N.D.	2,500	500	500
11997	1,3,5-Trimethylbenzene	108-67-8	N.D.	2,500	150	500
11997	Vinyl Chloride	75-01-4	N.D.	500	100	500
11997	m+p-Xylene	179601-23-1	N.D.	2,500	500	500
11997	o-Xylene	95-47-6	N.D.	500	200	500
11997	Xylene (Total)	1330-20-7	N.D.	3,000	700	500

12027 VOA Interp. Library Search-20
The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 Grab Groundwater**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019 13:10
SDG#: BMS80-01

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158431
ELLE Group #: 2065563
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	L192741AA	10/01/2019 18:34	Corie Mellinger	500
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	L192741AA	10/01/2019 18:56	Corie Mellinger	5000
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L192741AA	10/01/2019 18:33	Corie Mellinger	500
01163	GC/MS VOA Water Prep	SW-846 5030C	2	L192741AA	10/01/2019 18:55	Corie Mellinger	5000

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
59525

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 1158431
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/19oct01a.b/lc01s23.d
Level: (low/med) LOW Date Received: 09/21/19
% Moisture: not dec. Date Analyzed: 10/01/19
Column: (pack/cap) CAP Dilution Factor: 500.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: **DUP-1-092019 Grab Groundwater**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-02FD

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158432
ELLE Group #: 2065563
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	N.D.	10,000	350	500
11997	Acetonitrile	75-05-8	N.D.	50,000	8,000	500
11997	Benzene	71-43-2	N.D.	500	100	500
11997	Bromochloromethane	74-97-5	N.D.	2,500	100	500
11997	Bromodichloromethane	75-27-4	N.D.	500	100	500
11997	Bromoform	75-25-2	N.D.	2,000	500	500
11997	Bromomethane	74-83-9	N.D.	500	150	500
11997	n-Butanol	71-36-3	N.D.	130,000	31,000	500
11997	2-Butanone	78-93-3	N.D.	5,000	150	500
11997	t-Butyl alcohol	75-65-0	N.D.	25,000	6,000	500
11997	n-Butylbenzene	104-51-8	N.D.	2,500	100	500
11997	sec-Butylbenzene	135-98-8	N.D.	2,500	100	500
11997	tert-Butylbenzene	98-06-6	N.D.	2,500	150	500
11997	Carbon Disulfide	75-15-0	N.D.	2,500	100	500
11997	Carbon Tetrachloride	56-23-5	N.D.	500	100	500
11997	Chlorobenzene	108-90-7	N.D.	500	100	500
11997	Chlorodifluoromethane[1]	75-45-6	N.D.	2,500	1,000	500
11997	Chloroethane	75-00-3	N.D.	500	100	500
11997	Chloroform	67-66-3	N.D.	500	100	500
11997	Chloromethane	74-87-3	N.D.	500	100	500
11997	Cyclohexane	110-82-7	N.D.	2,500	500	500
11997	Cyclohexanone[1]	108-94-1	N.D.	50,000	13,000	500
11997	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2,500	150	500
11997	Dibromochloromethane	124-48-1	N.D.	500	100	500
11997	1,2-Dibromoethane	106-93-4	N.D.	500	100	500
11997	1,2-Dichlorobenzene	95-50-1	N.D.	2,500	100	500
11997	1,3-Dichlorobenzene	541-73-1	N.D.	2,500	100	500
11997	1,4-Dichlorobenzene	106-46-7	N.D.	2,500	100	500
11997	Dichlorodifluoromethane	75-71-8	N.D.	500	100	500
11997	1,1-Dichloroethane	75-34-3	N.D.	500	100	500
11997	1,2-Dichloroethane	107-06-2	N.D.	500	150	500
11997	1,1-Dichloroethene	75-35-4	N.D.	500	100	500
11997	cis-1,2-Dichloroethene	156-59-2	N.D.	500	100	500
11997	trans-1,2-Dichloroethene	156-60-5	N.D.	500	100	500
11997	1,2-Dichloropropane	78-87-5	N.D.	500	100	500
11997	cis-1,3-Dichloropropene	10061-01-5	N.D.	500	100	500
11997	trans-1,3-Dichloropropene	10061-02-6	N.D.	500	100	500
11997	1,4-Dioxane	123-91-1	N.D.	130,000	15,000	500
11997	Ethyl Acetate	141-78-6	N.D.	2,500	350	500
11997	Ethyl ether	60-29-7	N.D.	2,500	100	500
11997	Ethylbenzene	100-41-4	N.D.	500	200	500

*=This limit was used in the evaluation of the final result

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Sample Description: **DUP-1-092019 Grab Groundwater**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-02FD

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158432
ELLE Group #: 2065563
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Freon 113	76-13-1	N.D.	5,000	100	500
11997	n-Heptane[1]	142-82-5	N.D.	2,500	1,000	500
11997	n-Hexane[1]	110-54-3	N.D.	2,500	1,000	500
11997	2-Hexanone	591-78-6	N.D.	5,000	150	500
11997	Isobutyl Alcohol	78-83-1	N.D.	130,000	18,000	500
11997	Isopropylbenzene	98-82-8	N.D.	2,500	100	500
11997	p-Isopropyltoluene	99-87-6	N.D.	2,500	100	500
11997	Methyl Acetate	79-20-9	N.D.	2,500	100	500
11997	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	500	100	500
11997	4-Methyl-2-pentanone	108-10-1	N.D.	5,000	250	500
11997	Methylcyclohexane	108-87-2	N.D.	2,500	250	500
11997	Methylene Chloride	75-09-2	410,000	5,000	1,500	5000
11997	Naphthalene	91-20-3	N.D.	2,500	500	500
11997	2-Nitropropane	79-46-9	N.D.	5,000	400	500
11997	Styrene	100-42-5	N.D.	2,500	100	500
11997	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	500	100	500
11997	Tetrachloroethene	127-18-4	N.D.	500	100	500
11997	Tetrahydrofuran	109-99-9	N.D.	5,000	350	500
11997	Toluene	108-88-3	N.D.	500	100	500
11997	1,2,3-Trichlorobenzene	87-61-6	N.D.	2,500	200	500
11997	1,2,4-Trichlorobenzene	120-82-1	N.D.	2,500	150	500
11997	1,1,1-Trichloroethane	71-55-6	N.D.	500	150	500
11997	1,1,2-Trichloroethane	79-00-5	N.D.	500	100	500
11997	Trichloroethene	79-01-6	N.D.	500	100	500
11997	Trichlorofluoromethane	75-69-4	N.D.	500	100	500
11997	1,2,4-Trimethylbenzene	95-63-6	N.D.	2,500	500	500
11997	1,3,5-Trimethylbenzene	108-67-8	N.D.	2,500	150	500
11997	Vinyl Chloride	75-01-4	N.D.	500	100	500
11997	m+p-Xylene	179601-23-1	N.D.	2,500	500	500
11997	o-Xylene	95-47-6	N.D.	500	200	500
11997	Xylene (Total)	1330-20-7	N.D.	3,000	700	500

12027 VOA Interp. Library Search-20
The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

*=This limit was used in the evaluation of the final result

Sample Description: **DUP-1-092019 Grab Groundwater BMS Syracuse**

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-02FD

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158432
ELLE Group #: 2065563
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	L192741AA	10/01/2019 19:18	Corie Mellinger	500
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	L192741AA	10/01/2019 19:40	Corie Mellinger	5000
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L192741AA	10/01/2019 19:17	Corie Mellinger	500
01163	GC/MS VOA Water Prep	SW-846 5030C	2	L192741AA	10/01/2019 19:39	Corie Mellinger	5000

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
59526

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 1158432
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/19oct01a.b/lc01s25.d
Level: (low/med) LOW Date Received: 09/21/19
% Moisture: not dec. Date Analyzed: 10/01/19
Column: (pack/cap) CAP Dilution Factor: 500.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: **Trip Blank Water**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-03TB

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158433
ELLE Group #: 2065563
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	N.D.	20	0.7	1
11997	Acetonitrile	75-05-8	N.D.	100	16	1
11997	Benzene	71-43-2	N.D.	1	0.2	1
11997	Bromochloromethane	74-97-5	N.D.	5	0.2	1
11997	Bromodichloromethane	75-27-4	N.D.	1	0.2	1
11997	Bromoform	75-25-2	N.D.	4	1	1
11997	Bromomethane	74-83-9	N.D.	1	0.3	1
11997	n-Butanol	71-36-3	N.D.	250	61	1
11997	2-Butanone	78-93-3	N.D.	10	0.3	1
11997	t-Butyl alcohol	75-65-0	N.D.	50	12	1
11997	n-Butylbenzene	104-51-8	N.D.	5	0.2	1
11997	sec-Butylbenzene	135-98-8	N.D.	5	0.2	1
11997	tert-Butylbenzene	98-06-6	N.D.	5	0.3	1
11997	Carbon Disulfide	75-15-0	N.D.	5	0.2	1
11997	Carbon Tetrachloride	56-23-5	N.D.	1	0.2	1
11997	Chlorobenzene	108-90-7	N.D.	1	0.2	1
11997	Chlorodifluoromethane[1]	75-45-6	N.D.	5	2	1
11997	Chloroethane	75-00-3	N.D.	1	0.2	1
11997	Chloroform	67-66-3	0.2 J	1	0.2	1
11997	Chloromethane	74-87-3	N.D.	1	0.2	1
11997	Cyclohexane	110-82-7	N.D.	5	1	1
11997	Cyclohexanone[1]	108-94-1	N.D.	100	25	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5	0.3	1
11997	Dibromochloromethane	124-48-1	N.D.	1	0.2	1
11997	1,2-Dibromoethane	106-93-4	N.D.	1	0.2	1
11997	1,2-Dichlorobenzene	95-50-1	N.D.	5	0.2	1
11997	1,3-Dichlorobenzene	541-73-1	N.D.	5	0.2	1
11997	1,4-Dichlorobenzene	106-46-7	N.D.	5	0.2	1
11997	Dichlorodifluoromethane	75-71-8	N.D.	1	0.2	1
11997	1,1-Dichloroethane	75-34-3	N.D.	1	0.2	1
11997	1,2-Dichloroethane	107-06-2	N.D.	1	0.3	1
11997	1,1-Dichloroethene	75-35-4	N.D.	1	0.2	1
11997	cis-1,2-Dichloroethene	156-59-2	N.D.	1	0.2	1
11997	trans-1,2-Dichloroethene	156-60-5	N.D.	1	0.2	1
11997	1,2-Dichloropropane	78-87-5	N.D.	1	0.2	1
11997	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	0.2	1
11997	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	0.2	1
11997	1,4-Dioxane	123-91-1	N.D.	250	29	1
11997	Ethyl Acetate	141-78-6	N.D.	5	0.7	1
11997	Ethyl ether	60-29-7	N.D.	5	0.2	1
11997	Ethylbenzene	100-41-4	N.D.	1	0.4	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-03TB

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158433
ELLE Group #: 2065563
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Freon 113	76-13-1	N.D.	10	0.2	1
11997	n-Heptane[1]	142-82-5	N.D.	5	2	1
11997	n-Hexane[1]	110-54-3	N.D.	5	2	1
11997	2-Hexanone	591-78-6	N.D.	10	0.3	1
11997	Isobutyl Alcohol	78-83-1	N.D.	250	36	1
11997	Isopropylbenzene	98-82-8	N.D.	5	0.2	1
11997	p-Isopropyltoluene	99-87-6	N.D.	5	0.2	1
11997	Methyl Acetate	79-20-9	N.D.	5	0.2	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.2	1
11997	4-Methyl-2-pentanone	108-10-1	N.D.	10	0.5	1
11997	Methylcyclohexane	108-87-2	N.D.	5	0.5	1
11997	Methylene Chloride	75-09-2	N.D.	1	0.3	1
11997	Naphthalene	91-20-3	N.D.	5	1	1
11997	2-Nitropropane	79-46-9	N.D.	10	0.8	1
11997	Styrene	100-42-5	N.D.	5	0.2	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	0.2	1
11997	Tetrachloroethene	127-18-4	N.D.	1	0.2	1
11997	Tetrahydrofuran	109-99-9	N.D.	10	0.7	1
11997	Toluene	108-88-3	N.D.	1	0.2	1
11997	1,2,3-Trichlorobenzene	87-61-6	N.D.	5	0.4	1
11997	1,2,4-Trichlorobenzene	120-82-1	N.D.	5	0.3	1
11997	1,1,1-Trichloroethane	71-55-6	N.D.	1	0.3	1
11997	1,1,2-Trichloroethane	79-00-5	N.D.	1	0.2	1
11997	Trichloroethene	79-01-6	N.D.	1	0.2	1
11997	Trichlorofluoromethane	75-69-4	N.D.	1	0.2	1
11997	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	1	1
11997	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	0.3	1
11997	Vinyl Chloride	75-01-4	N.D.	1	0.2	1
11997	m+p-Xylene	179601-23-1	N.D.	5	1	1
11997	o-Xylene	95-47-6	N.D.	1	0.4	1
11997	Xylene (Total)	1330-20-7	N.D.	6	1	1

12027 VOA Interp. Library Search-20
The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
BMS Syracuse

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 09/21/2019 09:47
Collection Date/Time: 09/20/2019
SDG#: BMS80-03TB

ARCADIS U.S., Inc.
ELLE Sample #: GW 1158433
ELLE Group #: 2065563
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	L192741AA	10/01/2019 14:53	Corie Mellinger	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L192741AA	10/01/2019 14:52	Corie Mellinger	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
59527

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 1158433
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/19oct01a.b/lc01s11.d
Level: (low/med) LOW Date Received: 09/21/19
% Moisture: not dec. Date Analyzed: 10/01/19
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2065563
Reported: 10/02/2019 12:25

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
Batch number: L192741AA	Sample number(s): 1158431-1158433		
Acetone	N.D.	20	0.7
Acetonitrile	N.D.	100	16
Benzene	N.D.	1	0.2
Bromochloromethane	N.D.	5	0.2
Bromodichloromethane	N.D.	1	0.2
Bromoform	N.D.	4	1
Bromomethane	N.D.	1	0.3
n-Butanol	N.D.	250	61
2-Butanone	N.D.	10	0.3
t-Butyl alcohol	N.D.	50	12
n-Butylbenzene	N.D.	5	0.2
sec-Butylbenzene	N.D.	5	0.2
tert-Butylbenzene	N.D.	5	0.3
Carbon Disulfide	N.D.	5	0.2
Carbon Tetrachloride	N.D.	1	0.2
Chlorobenzene	N.D.	1	0.2
Chlorodifluoromethane	N.D.	5	2
Chloroethane	N.D.	1	0.2
Chloroform	N.D.	1	0.2
Chloromethane	N.D.	1	0.2
Cyclohexane	N.D.	5	1
Cyclohexanone	N.D.	100	25
1,2-Dibromo-3-chloropropane	N.D.	5	0.3
Dibromochloromethane	N.D.	1	0.2
1,2-Dibromoethane	N.D.	1	0.2
1,2-Dichlorobenzene	N.D.	5	0.2
1,3-Dichlorobenzene	N.D.	5	0.2
1,4-Dichlorobenzene	N.D.	5	0.2
Dichlorodifluoromethane	N.D.	1	0.2
1,1-Dichloroethane	N.D.	1	0.2
1,2-Dichloroethane	N.D.	1	0.3
1,1-Dichloroethene	N.D.	1	0.2
cis-1,2-Dichloroethene	N.D.	1	0.2
trans-1,2-Dichloroethene	N.D.	1	0.2
1,2-Dichloropropane	N.D.	1	0.2
cis-1,3-Dichloropropene	N.D.	1	0.2
trans-1,3-Dichloropropene	N.D.	1	0.2
1,4-Dioxane	N.D.	250	29
Ethyl Acetate	N.D.	5	0.7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2065563
Reported: 10/02/2019 12:25

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
Ethyl ether	N.D.	5	0.2
Ethylbenzene	N.D.	1	0.4
Freon 113	N.D.	10	0.2
n-Heptane	N.D.	5	2
n-Hexane	N.D.	5	2
2-Hexanone	N.D.	10	0.3
Isobutyl Alcohol	N.D.	250	36
Isopropylbenzene	N.D.	5	0.2
p-Isopropyltoluene	N.D.	5	0.2
Methyl Acetate	N.D.	5	0.2
Methyl Tertiary Butyl Ether	N.D.	1	0.2
4-Methyl-2-pentanone	N.D.	10	0.5
Methylcyclohexane	N.D.	5	0.5
Methylene Chloride	N.D.	1	0.3
Naphthalene	N.D.	5	1
2-Nitropropane	N.D.	10	0.8
Styrene	N.D.	5	0.2
1,1,2,2-Tetrachloroethane	N.D.	1	0.2
Tetrachloroethene	N.D.	1	0.2
Tetrahydrofuran	N.D.	10	0.7
Toluene	N.D.	1	0.2
1,2,3-Trichlorobenzene	N.D.	5	0.4
1,2,4-Trichlorobenzene	N.D.	5	0.3
1,1,1-Trichloroethane	N.D.	1	0.3
1,1,2-Trichloroethane	N.D.	1	0.2
Trichloroethene	N.D.	1	0.2
Trichlorofluoromethane	N.D.	1	0.2
1,2,4-Trimethylbenzene	N.D.	5	1
1,3,5-Trimethylbenzene	N.D.	5	0.3
Vinyl Chloride	N.D.	1	0.2
m+p-Xylene	N.D.	5	1
o-Xylene	N.D.	1	0.4
Xylene (Total)	N.D.	6	1

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L192741AA	Sample number(s): 1158431-1158433								
Acetone	150	164.23	150	143.62	109	96	54-157	13	30
Acetonitrile	150	165.31	150	157.81	110	105	66-149	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 10/02/2019 12:25

Group Number: 2065563

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzene	20	20.55	20	21.95	103	110	80-120	7	30
Bromochloromethane	20	18.21	20	18.98	91	95	80-120	4	30
Bromodichloromethane	20	17.13	20	18.27	86	91	71-120	6	30
Bromoform	20	14.83	20	15.41	74	77	51-120	4	30
Bromomethane	20	11.54	20	11.12	58	56	53-128	4	30
n-Butanol	1000	947.77	1000	953.28	95	95	57-130	1	30
2-Butanone	150	152.73	150	148.18	102	99	59-135	3	30
t-Butyl alcohol	200	188.33	200	194.69	94	97	60-130	3	30
n-Butylbenzene	20	21.4	20	22.81	107	114	76-120	6	30
sec-Butylbenzene	20	21.46	20	22.85	107	114	77-120	6	30
tert-Butylbenzene	20	19.39	20	20.77	97	104	78-120	7	30
Carbon Disulfide	20	18.69	20	19.71	93	99	65-128	5	30
Carbon Tetrachloride	20	16.43	20	17.71	82	89	64-134	8	30
Chlorobenzene	20	20.05	20	21.63	100	108	80-120	8	30
Chlorodifluoromethane	20	18.98	20	18.92	95	95	45-149	0	30
Chloroethane	20	13.69	20	13.34	68	67	55-123	3	30
Chloroform	20	18.76	20	20.09	94	100	80-120	7	30
Chloromethane	20	19.11	20	18.24	96	91	56-121	5	30
Cyclohexane	20	19.72	20	21.37	99	107	68-126	8	30
Cyclohexanone	500	587.38	500	564.29	117	113	27-141	4	30
1,2-Dibromo-3-chloropropane	20	18.13	20	18.44	91	92	47-131	2	30
Dibromochloromethane	20	17.55	20	18.74	88	94	71-120	7	30
1,2-Dibromoethane	20	19.63	20	21.06	98	105	77-120	7	30
1,2-Dichlorobenzene	20	20.05	20	21.44	100	107	80-120	7	30
1,3-Dichlorobenzene	20	19.9	20	21.04	99	105	80-120	6	30
1,4-Dichlorobenzene	20	19.88	20	21.1	99	105	80-120	6	30
Dichlorodifluoromethane	20	14.41	20	13.62	72	68	41-127	6	30
1,1-Dichloroethane	20	20.19	20	21.51	101	108	80-120	6	30
1,2-Dichloroethane	20	17.46	20	18.41	87	92	73-124	5	30
1,1-Dichloroethene	20	20.6	20	21.95	103	110	80-131	6	30
cis-1,2-Dichloroethene	20	20.99	20	22.26	105	111	80-125	6	30
trans-1,2-Dichloroethene	20	20.4	20	21.42	102	107	80-126	5	30
1,2-Dichloropropane	20	20.59	20	22.25	103	111	80-120	8	30
cis-1,3-Dichloropropene	20	17.93	20	18.88	90	94	75-120	5	30
trans-1,3-Dichloropropene	20	17.35	20	18.31	87	92	67-120	5	30
1,4-Dioxane	500	637.98	500	660.46	128	132	63-146	3	30
Ethyl Acetate	20	19.91	20	18.27	100	91	67-131	9	30
Ethyl ether	20	15.63	20	16.37	78	82	59-141	5	30
Ethylbenzene	20	19.71	20	21.3	99	106	80-120	8	30
Freon 113	20	19.86	20	21.38	99	107	73-139	7	30
n-Heptane	20	20.3	20	22.31	102	112	56-133	9	30
n-Hexane	20	21.45	20	22.92	107	115	61-138	7	30
2-Hexanone	100	98.1	100	99.41	98	99	56-135	1	30
Isobutyl Alcohol	500	461.09	500	462.81	92	93	61-136	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2065563
Reported: 10/02/2019 12:25

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	19.95	20	21.5	100	107	80-120	7	30
p-Isopropyltoluene	20	20.67	20	22.13	103	111	76-120	7	30
Methyl Acetate	20	21.01	20	21.75	105	109	54-136	3	30
Methyl Tertiary Butyl Ether	20	18.02	20	18.89	90	94	69-122	5	30
4-Methyl-2-pentanone	100	89.4	100	92.64	89	93	62-133	4	30
Methylcyclohexane	20	19.67	20	20.21	98	101	67-121	3	30
Methylene Chloride	20	21.35	20	22.43	107	112	80-120	5	30
Naphthalene	20	20.27	20	21.07	101	105	53-124	4	30
2-Nitropropane	20	12.15	20	12.23	61	61	19-144	1	30
Styrene	20	19.01	20	20.33	95	102	80-120	7	30
1,1,2,2-Tetrachloroethane	20	21.6	20	21.8	108	109	72-120	1	30
Tetrachloroethene	20	19.17	20	20.82	96	104	80-120	8	30
Tetrahydrofuran	100	85.14	100	91.29	85	91	54-144	7	30
Toluene	20	20.61	20	22.14	103	111	80-120	7	30
1,2,3-Trichlorobenzene	20	20	20	20.71	100	104	66-120	3	30
1,2,4-Trichlorobenzene	20	19.44	20	20.2	97	101	63-120	4	30
1,1,1-Trichloroethane	20	17.04	20	18.34	85	92	67-126	7	30
1,1,2-Trichloroethane	20	20.86	20	22.58	104	113	80-120	8	30
Trichloroethene	20	19.23	20	20.67	96	103	80-120	7	30
Trichlorofluoromethane	20	14.56	20	14.39	73	72	55-135	1	30
1,2,4-Trimethylbenzene	20	19.74	20	21.26	99	106	75-120	7	30
1,3,5-Trimethylbenzene	20	20.08	20	21.57	100	108	75-120	7	30
Vinyl Chloride	20	17.39	20	16.55	87	83	56-120	5	30
m+p-Xylene	40	39.62	40	42.87	99	107	80-120	8	30
o-Xylene	20	19.35	20	20.8	97	104	80-120	7	30
Xylene (Total)	60	58.98	60	63.67	98	106	80-120	8	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- 5ml Water by 8260C/D
Batch number: L192741AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1158431	95	103	102	94
1158432	96	105	102	94
1158433	94	103	102	94
Blank	93	101	103	95
LCS	94	102	104	99
LCSD	93	102	105	99

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2065563
Reported: 10/02/2019 12:25

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- 5ml Water by 8260C/D
Batch number: L192741AA

Limits:	80-120	80-120	80-120	80-120

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

TestAmerica Buffalo
10 Hazelwood Drive

Amherst, NY 14228
Phone: 716.691.2600 Fax: 716.691.7991

Chain of Custody Record 306680

A.8074 G20655763 S-115848I-33

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: William McCone	Site Contact: Evan Green	Date:	COC No:
Company Name: Arcadis-US	Tel/Fax: 315-420-4348	Lab Contact: Megan Moeller	Carrier:	1 of 1 COCs
Address: 110 W Fayette St #300	Analysis Turnaround Time			Sampler: Evan Green
City/State/Zip: Syracuse/NY/13202	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
Phone: 315-420-4348	TAT if different from Below			Walk-in Client:
Fax: NA	☒ 2 weeks			Lab Sampling:
Project Name: BMS E Syracuse	☐ 1 week			
Site: BMS East Syracuse	☐ 2 days			Job / SDG No.:
PO# 3003335396	☐ 1 day			

Syracuse #225

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	VOCs-Sm List 8260C	Sample Specific Notes:
EW-1	9/20/19	1310	G	GW	3			X	
DUP-1-092019	9/20/19	—	G	GW	3			X	

AP 9-20-19

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: EDD required, not for compliance, SCR # 247282
NYSDEC Category B

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Arcadis	9/20/19 1700	[signature]	TASYR	9/20/19 1700
Relinquished by: [signature] 9/20/19	Company: TASYR 9-20-19	Date/Time: 1900	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Company: ELLE	Date/Time: 9/21/19 0947

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Sample Administration Receipt Documentation Log

Doc Log ID: 260876

Group Number(s): 2065563

Client: Arcadis

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Date:	09/21/2019
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	8
Samples Chilled:	Yes	Trip Blank Type:	See Below
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 6-HCl, 2 unpreserved

Unpacked by Kristin Zeigler (2 123) at 13:43 on 09/23/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.4	DT	Wet	Y	Loose/Bag	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
HVE-DVE-WC	7	9/20/2019 14:00	
HVE-DW-WC	7	9/20/2019 14:15	
BDA-14-DW-WC	7	9/20/2019 14:45	
BDA-14-COR-WC	7	9/20/2019 14:55	
BDA-17-COR-WC	7	9/20/2019 15:55	
BDA-17-DW-WC	7	9/20/2019 16:10	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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9/26/2019
Mr. Bill McCune
Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette St., Suite 300
Syracuse NY 13202

Project Name: BMS Syracuse
Project #: 30030236
Workorder #: 1909488

Dear Mr. Bill McCune

The following report includes the data for the above referenced project for sample(s) received on 9/24/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 (5&20 ppbv) are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

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WORK ORDER #: 1909488

Work Order Summary

CLIENT:	Mr. Bill McCune Arcadis U.S., Inc. One Lincoln Center 110 West Fayette St., Suite 300 Syracuse, NY 13202	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	315-446-9120	**P.O. #**	30030236.1A
FAX:		**PROJECT #**	30030236 BMS Syracuse
DATE RECEIVED:	09/24/2019	**CONTACT:**	Ausha Scott
DATE COMPLETED:	09/26/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EW-1	Modified TO-15 (5&20 ppbv	5.5 "Hg	2 psi
01B	EW-1	Modified TO-15 (5&20 ppbv	5.5 "Hg	2 psi
02A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
03A	CCV	Modified TO-15 (5&20 ppbv	NA	NA
04A	LCS	Modified TO-15 (5&20 ppbv	NA	NA
04AA	LCSD	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY:  DATE: 09/26/19

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15 Soil Gas
Arcadis U.S., Inc.
Workorder# 1909488

The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Sample EW-1 was transferred from SIM/Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on sample EW-1 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS
BMS Syracuse

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Client ID:	EW-1		
Lab ID:	1909488-01A	**Date/Time Analyzed:**	9/25/19 01:21 PM
Date/Time Collected:	9/23/19 05:22 PM	**Dilution Factor:**	13.9
Media:	6 Liter Summa Canister (SIM Certified UTC	**Instrument/Filename:**	msd14.i / 14092510

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	78	170	280	Not Detected
1,1-Dichloroethene	75-35-4	37	160	280	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	200	610	820	Not Detected
4-Methyl-2-pentanone	108-10-1	140	170	280	Not Detected
Acetone	67-64-1	96	500	660	Not Detected
Benzene	71-43-2	31	130	220	Not Detected
Carbon Disulfide	75-15-0	130	650	860	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	990	Not Detected
Chloroethane	75-00-3	210	550	730	Not Detected
Chloromethane	74-87-3	120	430	570	150 J
cis-1,2-Dichloroethene	156-59-2	85	160	280	Not Detected
Cyclohexane	110-82-7	53	140	240	120 J
tert-Butyl alcohol	75-65-0	86	D	840	Not Detected
trans-1,2-Dichloroethene	156-60-5	100	160	280	Not Detected
Trichloroethene	79-01-6	110	220	370	Not Detected
Vinyl Chloride	75-01-4	61	110	180	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS
BMS Syracuse

Client ID:	EW-1		
Lab ID:	1909488-01B	**Date/Time Analyzed:**	9/25/19 12:12 PM
Date/Time Collected:	9/23/19 05:22 PM	**Dilution Factor:**	46.4
Media:	6 Liter Summa Canister (SIM Certified UTC	**Instrument/Filename:**	msd14.i / 14092508

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	75-09-2	500	2400	3200	1500000

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
BMS Syracuse

Client ID:	Lab Blank		
Lab ID:	1909488-02A	**Date/Time Analyzed:**	9/25/19 11:12 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14092506c

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	5.6	12	20	Not Detected
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	14	44	59	Not Detected
4-Methyl-2-pentanone	108-10-1	10	12	20	Not Detected
Acetone	67-64-1	6.9	36	48	Not Detected
Benzene	71-43-2	2.2	9.6	16	Not Detected
Carbon Disulfide	75-15-0	9.5	47	62	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	71	Not Detected
Chloroethane	75-00-3	15	40	53	Not Detected
Chloromethane	74-87-3	8.7	31	41	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Cyclohexane	110-82-7	3.8	10	17	Not Detected
Methylene Chloride	75-09-2	11	52	69	19 J
tert-Butyl alcohol	75-65-0	6.2	D	61	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
BMS Syracuse

Client ID:	CCV		
Lab ID:	1909488-03A	**Date/Time Analyzed:**	9/25/19 09:29 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14092502

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	94
1,1-Dichloroethene	75-35-4	102
2-Butanone (Methyl Ethyl Ketone)	78-93-3	90
4-Methyl-2-pentanone	108-10-1	86
Acetone	67-64-1	98
Benzene	71-43-2	94
Carbon Disulfide	75-15-0	92
Chlorodifluoromethane	75-45-6	112
Chloroethane	75-00-3	79
Chloromethane	74-87-3	99
cis-1,2-Dichloroethene	156-59-2	98
Cyclohexane	110-82-7	92
Methylene Chloride	75-09-2	105
tert-Butyl alcohol	75-65-0	65
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
BMS Syracuse

Client ID:	LCS		
Lab ID:	1909488-04A	**Date/Time Analyzed:**	9/25/19 09:57 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14092503

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	96
1,1-Dichloroethene	75-35-4	102
2-Butanone (Methyl Ethyl Ketone)	78-93-3	93
4-Methyl-2-pentanone	108-10-1	75
Acetone	67-64-1	122
Benzene	71-43-2	93
Carbon Disulfide	75-15-0	92
Chlorodifluoromethane	75-45-6	Not Spiked
Chloroethane	75-00-3	79
Chloromethane	74-87-3	92
cis-1,2-Dichloroethene	156-59-2	94
Cyclohexane	110-82-7	94
Methylene Chloride	75-09-2	103
tert-Butyl alcohol	75-65-0	Not Spiked
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
BMS Syracuse

Client ID:	LCSD		
Lab ID:	1909488-04AA	**Date/Time Analyzed:**	9/25/19 10:20 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14092504

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	94
1,1-Dichloroethene	75-35-4	100
2-Butanone (Methyl Ethyl Ketone)	78-93-3	93
4-Methyl-2-pentanone	108-10-1	75
Acetone	67-64-1	116
Benzene	71-43-2	94
Carbon Disulfide	75-15-0	91
Chlorodifluoromethane	75-45-6	Not Spiked
Chloroethane	75-00-3	85
Chloromethane	74-87-3	94
cis-1,2-Dichloroethene	156-59-2	96
Cyclohexane	110-82-7	94
Methylene Chloride	75-09-2	102
tert-Butyl alcohol	75-65-0	Not Spiked
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

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11/22/2019
Mr. Bill McCune
Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette St., Suite 300
Syracuse NY 13202

Project Name: Bristol-Myers Squibb East Syracuse
Project #:
Workorder #: 1911393

Dear Mr. Bill McCune

The following report includes the data for the above referenced project for sample(s) received on 11/19/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 (5&20 ppbv) are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1911393

Work Order Summary

CLIENT:	Mr. Bill McCune Arcadis U.S., Inc. One Lincoln Center 110 West Fayette St., Suite 300 Syracuse, NY 13202	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	315-446-9120	**P.O. #**	30030236.1A
FAX:		**PROJECT #**	Bristol-Myers Squibb East Syracuse
DATE RECEIVED:	11/19/2019	**CONTACT:**	Ausha Scott
DATE COMPLETED:	11/22/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	High Vac Pilot Influent-01	Modified TO-15 (5&20 ppbv	6.3 "Hg	1.8 psi
02A(on hold)	High Vac Pilot Effluent-01	Modified TO-15 (5&20 ppbv	1.6 "Hg	2.1 psi
03A	High Vac Pilot Influent-02	Modified TO-15 (5&20 ppbv	5.7 "Hg	1.9 psi
04A	High Vac Pilot Duplicate-01	Modified TO-15 (5&20 ppbv	4.7 "Hg	2.1 psi
05A	High Vac Pilot Effluent-02	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
06A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
07A	CCV	Modified TO-15 (5&20 ppbv	NA	NA
08A	LCS	Modified TO-15 (5&20 ppbv	NA	NA
08AA	LCSD	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 11/22/19

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15 Soil Gas
Arcadis U.S., Inc.
Workorder# 1911393

Four 6 Liter Summa Canister and one 1 Liter Tedlar Bag samples were received on November 19, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Receiving Notes

The Chain of Custody (COC) information for sample High Vac Pilot Influent-02 did not match the information on the canister with regard to canister identification. The sample labeled N0080 on the COC is labeled as N4295 on the canister. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Sample High Vac Pilot Effluent-02 was received past the recommended hold time of 3 days. Analysis proceeded.

Sample High Vac Pilot Effluent-01 was placed on hold per the client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Method TO-15 is validated for samples collected in specially treated canisters. As such, the use of Tedlar bags for sample collection is outside the scope of the method and not recommended for ambient or indoor air samples. It is the responsibility of the data user to determine the usability of TO-15 results generated from Tedlar bags.

Dilution was performed on samples High Vac Pilot Influent-01, High Vac Pilot Influent-02 and High Vac Pilot Duplicate-01 due to the presence of high level target species.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	High Vac Pilot Influent-01		
Lab ID:	1911393-01A	**Date/Time Analyzed:**	11/21/19 09:38 AM
Date/Time Collected:	11/12/19 05:30 PM	**Dilution Factor:**	17.8
Media:	6 Liter Summa Canister	**Instrument/Filename:**	msd14.i / 14112122

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	100	220	360	Not Detected
1,1-Dichloroethene	75-35-4	48	210	350	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	250	790	1000	Not Detected
4-Methyl-2-pentanone	108-10-1	180	220	360	Not Detected
Acetone	67-64-1	120	630	840	Not Detected
Benzene	71-43-2	40	170	280	98 J
Carbon Disulfide	75-15-0	170	830	1100	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	1300	Not Detected
Chloroethane	75-00-3	270	700	940	Not Detected
Chloromethane	74-87-3	150	550	740	Not Detected
cis-1,2-Dichloroethene	156-59-2	110	210	350	Not Detected
Cyclohexane	110-82-7	68	180	310	340
Methylene Chloride	75-09-2	190	930	1200	310000
tert-Butyl alcohol	75-65-0	110	D	1100	Not Detected
trans-1,2-Dichloroethene	156-60-5	130	210	350	Not Detected
Trichloroethene	79-01-6	140	290	480	Not Detected
Vinyl Chloride	75-01-4	79	140	230	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	High Vac Pilot Influent-02		
Lab ID:	1911393-03A	**Date/Time Analyzed:**	11/21/19 08:46 AM
Date/Time Collected:	11/15/19 10:00 AM	**Dilution Factor:**	13.9
Media:	6 Liter Summa Canister	**Instrument/Filename:**	msd14.i / 14112120

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	78	170	280	Not Detected
1,1-Dichloroethene	75-35-4	37	160	280	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	200	610	820	Not Detected
4-Methyl-2-pentanone	108-10-1	140	170	280	Not Detected
Acetone	67-64-1	96	500	660	Not Detected
Benzene	71-43-2	31	130	220	43 J
Carbon Disulfide	75-15-0	130	650	860	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	990	Not Detected
Chloroethane	75-00-3	210	550	730	Not Detected
Chloromethane	74-87-3	120	430	570	Not Detected
cis-1,2-Dichloroethene	156-59-2	85	160	280	Not Detected
Cyclohexane	110-82-7	53	140	240	97 J
Methylene Chloride	75-09-2	150	720	960	250000
tert-Butyl alcohol	75-65-0	86	D	840	Not Detected
trans-1,2-Dichloroethene	156-60-5	100	160	280	Not Detected
Trichloroethene	79-01-6	110	220	370	Not Detected
Vinyl Chloride	75-01-4	61	110	180	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	High Vac Pilot Duplicate-01		
Lab ID:	1911393-04A	**Date/Time Analyzed:**	11/21/19 09:10 AM
Date/Time Collected:	11/15/19 12:00 AM	**Dilution Factor:**	13.6
Media:	6 Liter Summa Canister	**Instrument/Filename:**	msd14.i / 14112121

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	76	160	280	Not Detected
1,1-Dichloroethene	75-35-4	37	160	270	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	190	600	800	Not Detected
4-Methyl-2-pentanone	108-10-1	140	170	280	Not Detected
Acetone	67-64-1	94	480	650	Not Detected
Benzene	71-43-2	30	130	220	Not Detected
Carbon Disulfide	75-15-0	130	640	850	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	960	Not Detected
Chloroethane	75-00-3	200	540	720	Not Detected
Chloromethane	74-87-3	120	420	560	Not Detected
cis-1,2-Dichloroethene	156-59-2	83	160	270	Not Detected
Cyclohexane	110-82-7	52	140	230	73 J
Methylene Chloride	75-09-2	150	710	940	240000
tert-Butyl alcohol	75-65-0	84	D	820	Not Detected
trans-1,2-Dichloroethene	156-60-5	100	160	270	Not Detected
Trichloroethene	79-01-6	110	220	360	Not Detected
Vinyl Chloride	75-01-4	60	100	170	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	High Vac Pilot Effluent-02		
Lab ID:	1911393-05A	**Date/Time Analyzed:**	11/21/19 06:24 AM
Date/Time Collected:	11/15/19 10:45 AM	**Dilution Factor:**	1.00
Media:	1 Liter Tedlar Bag	**Instrument/Filename:**	msd14.i / 14112117

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	5.6	12	20	Not Detected
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	14	44	59	55 J
4-Methyl-2-pentanone	108-10-1	10	12	20	Not Detected
Acetone	67-64-1	6.9	36	48	130
Benzene	71-43-2	2.2	9.6	16	4.8 J
Carbon Disulfide	75-15-0	9.5	47	62	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	71	Not Detected
Chloroethane	75-00-3	15	40	53	Not Detected
Chloromethane	74-87-3	8.7	31	41	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Cyclohexane	110-82-7	3.8	10	17	Not Detected
Methylene Chloride	75-09-2	11	52	69	13 J
tert-Butyl alcohol	75-65-0	6.2	D	61	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	Lab Blank		
Lab ID:	1911393-06A	**Date/Time Analyzed:**	11/20/19 06:57 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14112106c

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	75-34-3	5.6	12	20	Not Detected
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	14	44	59	Not Detected
4-Methyl-2-pentanone	108-10-1	10	12	20	Not Detected
Acetone	67-64-1	6.9	36	48	Not Detected
Benzene	71-43-2	2.2	9.6	16	Not Detected
Carbon Disulfide	75-15-0	9.5	47	62	Not Detected
Chlorodifluoromethane	75-45-6	NA	D	71	Not Detected
Chloroethane	75-00-3	15	40	53	Not Detected
Chloromethane	74-87-3	8.7	31	41	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Cyclohexane	110-82-7	3.8	10	17	Not Detected
Methylene Chloride	75-09-2	11	52	69	Not Detected
tert-Butyl alcohol	75-65-0	6.2	D	61	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	CCV		
Lab ID:	1911393-07A	**Date/Time Analyzed:**	11/20/19 05:09 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14112102

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	97
1,1-Dichloroethene	75-35-4	101
2-Butanone (Methyl Ethyl Ketone)	78-93-3	97
4-Methyl-2-pentanone	108-10-1	102
Acetone	67-64-1	103
Benzene	71-43-2	93
Carbon Disulfide	75-15-0	93
Chlorodifluoromethane	75-45-6	72
Chloroethane	75-00-3	95
Chloromethane	74-87-3	98
cis-1,2-Dichloroethene	156-59-2	101
Cyclohexane	110-82-7	95
Methylene Chloride	75-09-2	101
tert-Butyl alcohol	75-65-0	100
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	LCS		
Lab ID:	1911393-08A	**Date/Time Analyzed:**	11/20/19 05:38 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14112103

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	103
1,1-Dichloroethene	75-35-4	105
2-Butanone (Methyl Ethyl Ketone)	78-93-3	107
4-Methyl-2-pentanone	108-10-1	116
Acetone	67-64-1	119
Benzene	71-43-2	100
Carbon Disulfide	75-15-0	101
Chlorodifluoromethane	75-45-6	Not Spiked
Chloroethane	75-00-3	115
Chloromethane	74-87-3	117
cis-1,2-Dichloroethene	156-59-2	102
Cyclohexane	110-82-7	103
Methylene Chloride	75-09-2	105
tert-Butyl alcohol	75-65-0	Not Spiked
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	111

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
Bristol-Myers Squibb East Syracuse

Client ID:	LCSD		
Lab ID:	1911393-08AA	**Date/Time Analyzed:**	11/20/19 06:03 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14112104

Compound	CAS#	%Recovery
1,1-Dichloroethane	75-34-3	104
1,1-Dichloroethene	75-35-4	105
2-Butanone (Methyl Ethyl Ketone)	78-93-3	112
4-Methyl-2-pentanone	108-10-1	122
Acetone	67-64-1	122
Benzene	71-43-2	101
Carbon Disulfide	75-15-0	103
Chlorodifluoromethane	75-45-6	Not Spiked
Chloroethane	75-00-3	112
Chloromethane	74-87-3	108
cis-1,2-Dichloroethene	156-59-2	101
Cyclohexane	110-82-7	107
Methylene Chloride	75-09-2	108
tert-Butyl alcohol	75-65-0	Not Spiked
trans-1,2-Dichloroethene	156-60-5	110
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	112

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

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Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1911393

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page--of ---

Client: Arcadis
Project Name: Bill McCune
Project Manager: Bristol-Myers Squibb East Project #
Sampler: Chris Duvern Syracuse
Site Name:

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard _____ Rush X (3 dy) (specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	TO-15 (site specific)			
01A	High Vac Pilot Influent -01	N0080	—	11/12/19	17:30	—	—	28	7						
02A	High Vac Pilot Effluent -01	NZ827	—	11/12/19	17:45	—	—	28	7						
03A	High Vac Pilot Influent -02	N0080	— 11/15	~~11/12/19~~	10:00	—	—	30	7						
04A	High Vac Pilot Duplicate -01	00813	—	11/15/19	—	—	—	28	7						
05A	High Vac Pilot Effluent -02	NA - Two tedlar bags		11/15/19	10:45	—	—	NA	NA						

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
ARCADIS	11/18/19	10:00		11/19/19	0950
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fedex | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Report Date: December 06, 2019 15:59

Project: Bristol-Myers Squibb

Account #: 03074
Group Number: 2075626
SDG: BMS85
PO Number: 30030237
State of Sample Origin: NY

Electronic Copy To	Arcadis	Attn: William McCune
Electronic Copy To	Arcadis	Attn: Lawrence Carey Healy

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
EW-1 (Carbon) Composite Solid	11/19/2019 14:30	1206759
EW-1 (Carbon) Composite Solid	11/19/2019 14:30	1206760
EW-1 (Purge Water) Composite Groundwater	11/19/2019 14:31	1206761

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Bristol-Myers Squibb
ELLE Group #: 2075626

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 1206761

A Report Limit Verification (RLV) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The RLV standard shows adequate sensitivity at or below the reporting limit.

Batch #: Y193371AA (Sample number(s): 1206761)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,2-Dichloropropane

SW-846 8270D, GC/MS Semivolatiles

Sample #s: 1206761

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch #: 19325WAX026 (Sample number(s): 1206761)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Dicyclohexylamine

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SW-846 6010D Rev.4, July 2014, Metals

Batch #: 193271404501 (Sample number(s): 1206759 UNSPK: 1206759 BKG: 1206759)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Silver

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Silver

SW-846 7470A, Metals

Batch #: 193270571301 (Sample number(s): 1206759 UNSPK: 1206759 BKG: 1206759)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Mercury

ASTM D93-90, Wet Chemistry

Sample #s: 1206761

No flash observed below 177F.
Test flame extinguished at 157F.
Flash point was determined using Pensky Martens closed cup apparatus.

SW-846 Chapter 7, Wet Chemistry

Sample #s: 1206761

The pH of the sample is 7.22 indicating that the sample is not corrosive. A sample is corrosive if it exhibits a pH equal to or less than 2 or equal to or greater than 12.5.

Sample Description: **EW-1 (Carbon) Composite Solid**
TCLP NVE
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:30
SDG#: BMS85-02

ARCADIS U.S., Inc.
ELLE Sample #: TL 1206759
ELLE Group #: 2075626
Matrix: Solid

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**mg/l**	**mg/l**	**mg/l**	
14252	1,4-Dichlorobenzene	106-46-7	N.D.	0.010	0.003	1
14252	2,4-Dinitrotoluene	121-14-2	N.D.	0.025	0.005	1
14252	Hexachlorobenzene	118-74-1	N.D.	0.003	0.0005	1
14252	Hexachlorobutadiene	87-68-3	N.D.	0.010	0.003	1
14252	Hexachloroethane	67-72-1	N.D.	0.025	0.005	1
14252	2-Methylphenol	95-48-7	N.D.	0.010	0.003	1
14252	4-Methylphenol	65794-96-9	N.D.	0.010	0.003	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
14252	Nitrobenzene	98-95-3	N.D.	0.010	0.003	1
14252	Pentachlorophenol	87-86-5	N.D.	0.025	0.005	1
14252	Pyridine	110-86-1	N.D.	0.025	0.010	1
14252	2,4,5-Trichlorophenol	95-95-4	N.D.	0.010	0.003	1
14252	2,4,6-Trichlorophenol	88-06-2	N.D.	0.010	0.003	1
Pesticides	**SW-846 8081B**		**mg/l**	**mg/l**	**mg/l**	
10647	Gamma BHC - Lindane	58-89-9	N.D. D1	0.00050	0.00010	10
10647	Chlordane	57-74-9	N.D. D1	0.025	0.0080	10
10647	Endrin	72-20-8	N.D. D1	0.0010	0.00040	10
10647	Heptachlor	76-44-8	N.D. D1	0.00050	0.00020	10
10647	Heptachlor Epoxide	1024-57-3	N.D. D1	0.00050	0.00012	10
10647	Methoxychlor	72-43-5	N.D. D2	0.0050	0.0015	10
10647	Toxaphene	8001-35-2	N.D. D2	0.15	0.050	10
Metals	**SW-846 6010D Rev.4, July 2014**		**mg/l**	**mg/l**	**mg/l**	
07035	Arsenic	7440-38-2	N.D.	0.0300	0.0160	1
07046	Barium	7440-39-3	0.0440	0.0050	0.0010	1
07049	Cadmium	7440-43-9	N.D.	0.0050	0.0010	1
07051	Chromium	7440-47-3	N.D.	0.0150	0.0016	1
07055	Lead	7439-92-1	N.D.	0.0150	0.0071	1
07036	Selenium	7782-49-2	N.D.	0.0500	0.0160	1
07066	Silver	7440-22-4	N.D.	0.0100	0.0050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.00020	0.000050	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Carbon) Composite Solid**
TCLP NVE
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:30
SDG#: BMS85-02

ARCADIS U.S., Inc.
ELLE Sample #: TL 1206759
ELLE Group #: 2075626
Matrix: Solid

Sample Comments

State of New York Certification No. 10670

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14252	TCLP 8270D MINI	SW-846 8270D	1	19326WAL026	11/24/2019 20:34	Edward C Monborne	1
04731	TCLP Leachate Extraction	SW-846 3510C	1	19326WAL026	11/23/2019 23:00	Mathias Okpo	1
10647	TCLP Pesticides by 8081B	SW-846 8081B	1	193300014A	11/27/2019 22:26	Anita M Dale	10
11126	Pest Leachate Update IV	SW-846 3510C	1	193300014A	11/26/2019 19:35	Laura Duquette	1
07035	Arsenic	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
07046	Barium	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 19:05	Elaine F Stoltzfus	1
07049	Cadmium	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
07051	Chromium	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
07055	Lead	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
07036	Selenium	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
07066	Silver	SW-846 6010D Rev.4, July 2014	1	193271404501	11/26/2019 13:04	Christina Termini	1
00259	Mercury	SW-846 7470A	1	193270571301	11/25/2019 11:21	Damary Valentin	1
14045	ICP-WW/TL, 3010A (tot) - U345	SW-846 3010A	1	193271404501	11/26/2019 03:28	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	193270571301	11/23/2019 03:42	James L Mertz	1
00947	TCLP Non-volatile Extraction	SW-846 1311	1	19325-30841-947	11/21/2019 11:53	Richard Lehr	n.a.

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Carbon) Composite Solid**
TCLP ZHE
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:30
SDG#: BMS85-03

ARCADIS U.S., Inc.
ELLE Sample #: TL 1206760
ELLE Group #: 2075626
Matrix: Solid

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**mg/l**	**mg/l**	**mg/l**	
11997	Benzene	71-43-2	N.D.	0.020	0.004	20
11997	2-Butanone	78-93-3	N.D.	0.20	0.006	20
11997	Carbon Tetrachloride	56-23-5	N.D.	0.020	0.004	20
11997	Chlorobenzene	108-90-7	N.D.	0.020	0.004	20
11997	Chloroform	67-66-3	N.D.	0.020	0.004	20
11997	1,2-Dichloroethane	107-06-2	N.D.	0.020	0.006	20
11997	1,1-Dichloroethene	75-35-4	N.D.	0.020	0.004	20
11997	Tetrachloroethene	127-18-4	N.D.	0.020	0.004	20
11997	Trichloroethene	79-01-6	N.D.	0.020	0.004	20
11997	Vinyl Chloride	75-01-4	N.D.	0.020	0.004	20

Sample Comments

State of New York Certification No. 10670

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	5193371AA	12/03/2019 12:54	Chelsea B Riehl	20
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5193371AA	12/03/2019 12:53	Chelsea B Riehl	20
00946	TCLP Zero Headspace Extraction	SW-846 1311	1	19325-30841-946	11/21/2019 11:35	Richard Lehr	n.a.

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	N.D.	1,000	35	50
11997	Acetonitrile	75-05-8	N.D.	5,000	800	50
11997	Benzene	71-43-2	55	50	10	50
11997	Bromochloromethane	74-97-5	N.D.	250	10	50
11997	Bromodichloromethane	75-27-4	N.D.	50	10	50
11997	Bromoform	75-25-2	N.D.	200	50	50
11997	Bromomethane	74-83-9	N.D.	50	15	50
11997	n-Butanol	71-36-3	N.D.	13,000	3,100	50
11997	2-Butanone	78-93-3	N.D.	500	15	50
11997	t-Butyl alcohol	75-65-0	N.D.	2,500	600	50
11997	n-Butylbenzene	104-51-8	N.D.	250	10	50
11997	sec-Butylbenzene	135-98-8	N.D.	250	10	50
11997	tert-Butylbenzene	98-06-6	N.D.	250	15	50
11997	Carbon Disulfide	75-15-0	N.D.	250	10	50
11997	Carbon Tetrachloride	56-23-5	N.D.	50	10	50
11997	Chlorobenzene	108-90-7	N.D.	50	10	50
11997	Chlorodifluoromethane[1]	75-45-6	N.D.	250	100	50
11997	Chloroethane	75-00-3	N.D.	50	10	50
11997	Chloroform	67-66-3	N.D.	50	10	50
11997	Chloromethane	74-87-3	N.D.	50	10	50
11997	Cyclohexane	110-82-7	N.D.	250	50	50
11997	Cyclohexanone[1]	108-94-1	N.D.	5,000	1,300	50
11997	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	250	15	50
11997	Dibromochloromethane	124-48-1	N.D.	50	10	50
11997	1,2-Dibromoethane	106-93-4	N.D.	50	10	50
11997	1,2-Dichlorobenzene	95-50-1	N.D.	250	10	50
11997	1,3-Dichlorobenzene	541-73-1	N.D.	250	10	50
11997	1,4-Dichlorobenzene	106-46-7	N.D.	250	10	50
11997	Dichlorodifluoromethane	75-71-8	N.D.	50	10	50
11997	1,1-Dichloroethane	75-34-3	N.D.	50	10	50
11997	1,2-Dichloroethane	107-06-2	N.D.	50	15	50
11997	1,1-Dichloroethene	75-35-4	N.D.	50	10	50
11997	cis-1,2-Dichloroethene	156-59-2	N.D.	50	10	50
11997	trans-1,2-Dichloroethene	156-60-5	N.D.	50	10	50
11997	1,2-Dichloropropane	78-87-5	N.D.	50	10	50
11997	cis-1,3-Dichloropropene	10061-01-5	N.D.	50	10	50
11997	trans-1,3-Dichloropropene	10061-02-6	N.D.	50	10	50
11997	1,4-Dioxane	123-91-1	N.D.	13,000	1,500	50
11997	Ethyl Acetate	141-78-6	N.D.	250	35	50
11997	Ethyl ether	60-29-7	N.D.	250	10	50
11997	Ethylbenzene	100-41-4	120	50	20	50

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Freon 113	76-13-1	N.D.	500	10	50
11997	n-Heptane[1]	142-82-5	N.D.	250	100	50
11997	n-Hexane[1]	110-54-3	N.D.	250	100	50
11997	2-Hexanone	591-78-6	N.D.	500	15	50
11997	Isobutyl Alcohol	78-83-1	N.D.	13,000	1,800	50
11997	Isopropylbenzene	98-82-8	16 J	250	10	50
11997	p-Isopropyltoluene	99-87-6	N.D.	250	10	50
11997	Methyl Acetate	79-20-9	N.D.	250	10	50
11997	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	50	10	50
11997	4-Methyl-2-pentanone	108-10-1	N.D.	500	25	50
11997	Methylcyclohexane	108-87-2	56 J	250	25	50
11997	Methylene Chloride	75-09-2	23,000	500	150	500
11997	Naphthalene	91-20-3	71 J	250	50	50
11997	2-Nitropropane	79-46-9	N.D.	500	40	50
11997	Styrene	100-42-5	N.D.	250	10	50
11997	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	50	10	50
11997	Tetrachloroethene	127-18-4	N.D.	50	10	50
11997	Tetrahydrofuran	109-99-9	N.D.	500	35	50
11997	Toluene	108-88-3	200	50	10	50
11997	1,2,3-Trichlorobenzene	87-61-6	N.D.	250	20	50
11997	1,2,4-Trichlorobenzene	120-82-1	N.D.	250	15	50
11997	1,1,1-Trichloroethane	71-55-6	N.D.	50	15	50
11997	1,1,2-Trichloroethane	79-00-5	N.D.	50	10	50
11997	Trichloroethene	79-01-6	N.D.	50	10	50
11997	Trichlorofluoromethane	75-69-4	N.D.	50	10	50
11997	1,2,4-Trimethylbenzene	95-63-6	280	250	50	50
11997	1,3,5-Trimethylbenzene	108-67-8	90 J	250	15	50
11997	Vinyl Chloride	75-01-4	N.D.	50	10	50
11997	m+p-Xylene	179601-23-1	620	250	50	50
11997	o-Xylene	95-47-6	220	50	20	50
11997	Xylene (Total)	1330-20-7	840	300	70	50

A Report Limit Verification (RLV) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The RLV standard shows adequate sensitivity at or below the reporting limit.

12027 VOA Interp. Library Search-20

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

GC/MS Semivolatiles	**SW-846 8270D**		**ug/l**	**ug/l**	**ug/l**	

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/l**	**ug/l**	**ug/l**	
14241	Acenaphthene	83-32-9	N.D.	0.50	0.10	1
14241	Acenaphthylene	208-96-8	N.D.	0.50	0.10	1
14241	Acetophenone	98-86-2	N.D.	10	4.0	1
14241	Aniline	62-53-3	N.D.	10	3.0	1
14241	Anthracene	120-12-7	N.D.	0.50	0.10	1
14241	Atrazine	1912-24-9	N.D.	5.0	2.0	1
14241	Benzaldehyde	100-52-7	N.D.	10	3.0	1
14241	Benzo(a)anthracene	56-55-3	N.D.	0.50	0.10	1
14241	Benzo(a)pyrene	50-32-8	N.D.	0.50	0.10	1
14241	Benzo(b)fluoranthene	205-99-2	N.D.	0.50	0.10	1
14241	Benzo(g,h,i)perylene	191-24-2	N.D.	0.50	0.10	1
14241	Benzo(k)fluoranthene	207-08-9	N.D.	0.50	0.10	1
14241	Benzyl alcohol	100-51-6	N.D.	30	10	1
14241	1,1'-Biphenyl	92-52-4	N.D.	10	3.0	1
14241	4-Bromophenyl-phenylether	101-55-3	N.D.	2.0	0.50	1
14241	Butylbenzylphthalate	85-68-7	N.D.	5.0	2.0	1
14241	Di-n-butylphthalate	84-74-2	N.D.	5.0	2.0	1
14241	Caprolactam	105-60-2	N.D.	11	5.0	1
14241	Carbazole	86-74-8	N.D.	2.0	0.50	1
14241	4-Chloro-3-methylphenol	59-50-7	N.D.	2.0	0.50	1
14241	4-Chloroaniline	106-47-8	N.D.	10	4.0	1
14241	bis(2-Chloroethoxy)methane	111-91-1	N.D.	2.0	0.50	1
14241	bis(2-Chloroethyl)ether	111-44-4	N.D.	2.0	0.50	1
14241	bis(2-Chloroisopropyl)ether[1]	39638-32-9	N.D.	2.0	0.50	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
14241	2-Chloronaphthalene	91-58-7	N.D.	1.0	0.40	1
14241	2-Chlorophenol	95-57-8	N.D.	2.0	0.50	1
14241	4-Chlorophenyl-phenylether	7005-72-3	N.D.	2.0	0.50	1
14241	Chrysene	218-01-9	N.D.	0.50	0.10	1
14241	Dibenz(a,h)anthracene	53-70-3	N.D.	0.50	0.10	1
14241	Dibenzofuran	132-64-9	N.D.	2.0	0.50	1
14241	3,3'-Dichlorobenzidine	91-94-1	N.D.	10	3.0	1
14241	2,4-Dichlorophenol	120-83-2	N.D.	2.0	0.50	1
14241	Dicyclohexylamine[1]	101-83-7	N.D.	10	10	1
14241	Diethylphthalate	84-66-2	N.D.	5.0	2.0	1
14241	N,N-Dimethylaniline[1]	121-69-7	14	1.0	0.50	1
14241	2,4-Dimethylphenol	105-67-9	N.D.	10	3.0	1
14241	Dimethylphthalate	131-11-3	N.D.	5.0	2.0	1
14241	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	21	8.1	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/l**	**ug/l**	**ug/l**	
14241	2,4-Dinitrophenol	51-28-5	N.D.	30	14	1
14241	2,4-Dinitrotoluene	121-14-2	N.D.	5.0	1.0	1
14241	2,6-Dinitrotoluene	606-20-2	N.D.	2.0	0.50	1
14241	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	11	5.0	1
14241	Fluoranthene	206-44-0	N.D.	0.50	0.10	1
14241	Fluorene	86-73-7	0.12 J	0.50	0.10	1
14241	Hexachlorobenzene	118-74-1	N.D.	0.50	0.10	1
14241	Hexachlorobutadiene	87-68-3	N.D.	2.0	0.50	1
14241	Hexachlorocyclopentadiene	77-47-4	N.D.	11	5.0	1
14241	Hexachloroethane	67-72-1	N.D.	5.0	1.0	1
14241	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.50	0.10	1
14241	Isophorone	78-59-1	N.D.	2.0	0.50	1
14241	2-Methylnaphthalene	91-57-6	26	0.50	0.10	1
14241	2-Methylphenol	95-48-7	N.D.	2.0	0.50	1
14241	4-Methylphenol	65794-96-9	N.D.	2.0	0.50	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
14241	Naphthalene	91-20-3	35	0.50	0.10	1
14241	2-Nitroaniline	88-74-4	N.D.	7.1	2.0	1
14241	3-Nitroaniline	99-09-2	N.D.	7.1	3.0	1
14241	4-Nitroaniline	100-01-6	N.D.	3.0	0.91	1
14241	Nitrobenzene	98-95-3	N.D.	2.0	0.50	1
14241	2-Nitrophenol	88-75-5	N.D.	10	3.0	1
14241	4-Nitrophenol	100-02-7	N.D.	30	10	1
14241	N-Nitroso-di-n-propylamine	621-64-7	N.D.	3.0	0.71	1
14241	N-Nitrosodiphenylamine	86-30-6	N.D.	3.0	0.71	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
14241	Di-n-octylphthalate	117-84-0	N.D.	11	5.0	1
14241	Pentachlorophenol	87-86-5	N.D.	5.0	1.0	1
14241	Phenanthrene	85-01-8	N.D.	0.50	0.10	1
14241	Phenol	108-95-2	N.D.	2.0	0.50	1
14241	Pyrene	129-00-0	N.D.	0.50	0.10	1
14241	Pyridine	110-86-1	N.D.	5.0	2.0	1
14241	1,2,4,5-Tetrachlorobenzene	95-94-3	N.D.	2.0	0.50	1
14241	2,3,4,6-Tetrachlorophenol	58-90-2	N.D.	10	4.0	1
14241	2,4,5-Trichlorophenol	95-95-4	N.D.	2.0	0.50	1
14241	2,4,6-Trichlorophenol	88-06-2	N.D.	2.0	0.50	1
14241	Triethylamine[1]	121-44-8	N.D.	10	10	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
	Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.					
00886	**SVOA TIC Interpretive(25)**					
	The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.					
Metals		**SW-846 6010D Rev.4, July 2014**	**mg/l**	**mg/l**	**mg/l**	
07044	Antimony	7440-36-0	N.D.	0.0500	0.0160	1
07035	Arsenic	7440-38-2	N.D.	0.0300	0.0160	1
07046	Barium	7440-39-3	2.43	0.0050	0.0010	1
07047	Beryllium	7440-41-7	N.D.	0.0050	0.0010	1
07049	Cadmium	7440-43-9	N.D.	0.0050	0.0010	1
01750	Calcium	7440-70-2	480	1.00	0.480	5
07051	Chromium	7440-47-3	N.D.	0.0150	0.0016	1
07052	Cobalt	7440-48-4	N.D.	0.0050	0.0015	1
07053	Copper	7440-50-8	N.D.	0.100	0.0600	5
01754	Iron	7439-89-6	6.60	0.200	0.0400	1
07055	Lead	7439-92-1	N.D.	0.0150	0.0071	1
01757	Magnesium	7439-95-4	150	0.100	0.0400	1
07058	Manganese	7439-96-5	0.519	0.0100	0.0030	1
07061	Nickel	7440-02-0	0.0436	0.0100	0.0021	1
01762	Potassium	7440-09-7	6.56	0.500	0.204	1
07036	Selenium	7782-49-2	N.D.	0.0500	0.0160	1
07066	Silver	7440-22-4	N.D.	0.0100	0.0050	1
01767	Sodium	7440-23-5	354	1.00	0.239	1
07022	Thallium[1]	7440-28-0	N.D.	0.0300	0.0081	1
		SW-846 6010D Rev.4, July 2014	**ug/l**	**ug/l**	**ug/l**	
07071	Vanadium	7440-62-2	N.D.	10.0	1.9	1
07072	Zinc	7440-66-6	33.3	20.0	3.7	1
		SW-846 6020B Rev.2, July 2014	**ug/l**	**ug/l**	**ug/l**	
06023	Aluminum	7429-90-5	47.7	25.0	19.7	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.00020	0.000050	1
Wet Chemistry		**ASTM D93-90**	**Degrees F**	**Degrees F**	**Degrees F**	
00430	Flash Point[1]	n.a.	No Flash Observed	50	50	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Wet Chemistry	**ASTM D93-90**		**Degrees F**	**Degrees F**	**Degrees F**	
	No flash observed below 177F. Test flame extinguished at 157F. Flash point was determined using Pensky Martens closed cup apparatus.					
Wet Chemistry	**SM 2550 B-2010**		**Degrees C**	**Degrees C**	**Degrees C**	
12151	Temperature of pH[1]	n.a.	18.3	0.010	0.010	1
	SM 4500-H+ B-2011		**Std. Units**	**Std. Units**	**Std. Units**	
12152	pH[1]	n.a.	7.2	0.010	0.010	1
	SW-846 Chapter 7					
00496	Corrosivity[1]	n.a.	See Below	0	0	1
	The pH of the sample is 7.22 indicating that the sample is not corrosive. A sample is corrosive if it exhibits a pH equal to or less than 2 or equal to or greater than 12.5.					

Sample Comments

State of New York Certification No. 10670

[1] = This analyte was not on the laboratory's NYSDOH Scope of Accreditation at the time of analysis.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	Y193371AA	12/03/2019 14:33	Linda C Pape	50
11997	VOCs- 5ml Water by 8260C/D	SW-846 8260C	1	Y193371AA	12/03/2019 14:55	Linda C Pape	500
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Y193371AA	12/03/2019 14:32	Linda C Pape	50
01163	GC/MS VOA Water Prep	SW-846 5030C	2	Y193371AA	12/03/2019 14:54	Linda C Pape	500
14241	SVOAs 8270D/E MINI	SW-846 8270D	1	19325WAX026	11/27/2019 13:01	Kira N Beck	1
11010	8270D BNA Extraction	SW-846 3510C	1	19325WAX026	11/22/2019 09:00	Joshua S Ruth	1
07044	Antimony	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07035	Arsenic	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07046	Barium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07047	Beryllium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07049	Cadmium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
01750	Calcium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 18:37	Cindy M Gehman	5
07051	Chromium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: **EW-1 (Purge Water) Composite Groundwater**
Bristol-Myers Squibb

Project Name: **Bristol-Myers Squibb**

Submittal Date/Time: 11/20/2019 10:39
Collection Date/Time: 11/19/2019 14:31
SDG#: BMS85-04

ARCADIS U.S., Inc.
ELLE Sample #: GW 1206761
ELLE Group #: 2075626
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07052	Cobalt	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07053	Copper	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 18:37	Cindy M Gehman	5
01754	Iron	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07055	Lead	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
01757	Magnesium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07058	Manganese	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07061	Nickel	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
01762	Potassium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07036	Selenium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07066	Silver	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
01767	Sodium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07022	Thallium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07071	Vanadium	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
07072	Zinc	SW-846 6010D Rev.4, July 2014	1	193251404405	12/02/2019 12:44	Lisa J Cooke	1
06023	Aluminum	SW-846 6020B Rev.2, July 2014	1	193291404704A	11/27/2019 16:50	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	193250571305	11/25/2019 09:02	Damary Valentin	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	193251404405	11/27/2019 04:04	James L Mertz	1
14047	ICPMS - Water, 3020A - U345	SW-846 3020A	1	193291404704	11/25/2019 11:35	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	193250571305	11/22/2019 07:15	Annamaria Kuhns	1
00430	Flash Point	ASTM D93-90	1	19331043001A	11/27/2019 10:34	Susan A Engle	1
12151	Temperature of pH	SM 2550 B-2010	1	19329121521A	11/25/2019 15:15	Jeremy L Bolf	1
12152	pH	SM 4500-H+ B-2011	1	19329121521A	11/25/2019 15:15	Jeremy L Bolf	1
00496	Corrosivity	SW-846 Chapter 7	1	19329121521A	11/25/2019 15:15	Jeremy L Bolf	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
31084

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 1206761
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09355.i/19dec03a.b/yd03s12.d
Level: (low/med) LOW Date Received: 11/20/19
% Moisture: not dec. Date Analyzed: 12/03/19
Column: (pack/cap) CAP Dilution Factor: 50.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
2.					
3.					
4.					
5.					
6.					
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30.					

page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
31084

Lab Name: Lancaster Laboratories Contract:
Lab Code: LANCAS Case No.: SAS No.: SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 1206761
Sample wt/vol: 248 (g/mL) mL Lab File ID: lk1641.d
Level: (low/med) LOW Date Received: 11/20/19
% Moisture: Decanted: (Y/N) Date Extracted: 11/22/19
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/27/19
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Sepf
CONCENTRATION UNITS:
Number TICs found: 20 (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.503-74-2	Butanoic acid, 3-methyl-	4.538	9	J
2.	Unknown	5.629	9	J
3.611-14-3	Benzene, 1-ethyl-2-methyl-	6.169	91	J
4.622-96-8	Benzene, 1-ethyl-4-methyl-	6.212	38	J
5.620-14-4	Benzene, 1-ethyl-3-methyl-	6.394	37	J
6.95-63-6	Benzene, 1,2,4-trimethyl-	6.939	53	J
7.104-76-7	1-Hexanol, 2-ethyl-	6.982	8	J
8.496-11-7	Indane	7.116	30	J
9.1074-17-5	Benzene, 1-methyl-2-propyl-	7.287	17	J
10.488-23-3	Benzene, 1,2,3,4-tetramethyl	7.356	35	J
11.934-80-5	Benzene, 4-ethyl-1,2-dimethy	7.576	14	J
12.527-84-4	o-Cymene	7.613	12	J
13.527-53-7	Benzene, 1,2,3,5-tetramethyl	8.052	8	J
14.95-93-2	Benzene, 1,2,4,5-tetramethyl	8.089	11	J
15.	Unknown	8.250	63	J
16.	Unknown	8.319	97	J
17.2039-89-6	Benzene, 2-ethenyl-1,4-dimet	8.426	22	J
18.90-12-0	Naphthalene, 1-methyl-	10.143	12	J
19.4536-87-2	Benzene, (1-ethylnonyl)-	12.780	5	J
20.	Unknown	13.005	8	J
21.				
22.SVOCTIC	Total SVOC TICs		580	J
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ**	MDL
	mg/l	mg/l	mg/l
Batch number: 5193371AA	Sample number(s): 1206760		
Benzene	N.D.	0.001	0.0002
2-Butanone	N.D.	0.010	0.0003
Carbon Tetrachloride	N.D.	0.001	0.0002
Chlorobenzene	N.D.	0.001	0.0002
Chloroform	N.D.	0.001	0.0002
1,2-Dichloroethane	N.D.	0.001	0.0003
1,1-Dichloroethene	N.D.	0.001	0.0002
Tetrachloroethene	N.D.	0.001	0.0002
Trichloroethene	N.D.	0.001	0.0002
Vinyl Chloride	N.D.	0.001	0.0002
	ug/l	ug/l	ug/l
Batch number: Y193371AA	Sample number(s): 1206761		
Acetone	N.D.	20	0.7
Acetonitrile	N.D.	100	16
Benzene	N.D.	1	0.2
Bromochloromethane	N.D.	5	0.2
Bromodichloromethane	N.D.	1	0.2
Bromoform	N.D.	4	1
Bromomethane	N.D.	1	0.3
n-Butanol	N.D.	250	61
2-Butanone	N.D.	10	0.3
t-Butyl alcohol	N.D.	50	12
n-Butylbenzene	N.D.	5	0.2
sec-Butylbenzene	N.D.	5	0.2
tert-Butylbenzene	N.D.	5	0.3
Carbon Disulfide	N.D.	5	0.2
Carbon Tetrachloride	N.D.	1	0.2
Chlorobenzene	N.D.	1	0.2
Chlorodifluoromethane	N.D.	5	2
Chloroethane	N.D.	1	0.2
Chloroform	N.D.	1	0.2
Chloromethane	N.D.	1	0.2
Cyclohexane	N.D.	5	1
Cyclohexanone	N.D.	100	25
1,2-Dibromo-3-chloropropane	N.D.	5	0.3
Dibromochloromethane	N.D.	1	0.2
1,2-Dibromoethane	N.D.	1	0.2
1,2-Dichlorobenzene	N.D.	5	0.2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 12/06/2019 15:59

Group Number: 2075626

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
1,3-Dichlorobenzene	N.D.	5	0.2
1,4-Dichlorobenzene	N.D.	5	0.2
Dichlorodifluoromethane	N.D.	1	0.2
1,1-Dichloroethane	N.D.	1	0.2
1,2-Dichloroethane	N.D.	1	0.3
1,1-Dichloroethene	N.D.	1	0.2
cis-1,2-Dichloroethene	N.D.	1	0.2
trans-1,2-Dichloroethene	N.D.	1	0.2
1,2-Dichloropropane	N.D.	1	0.2
cis-1,3-Dichloropropene	N.D.	1	0.2
trans-1,3-Dichloropropene	N.D.	1	0.2
1,4-Dioxane	N.D.	250	29
Ethyl Acetate	N.D.	5	0.7
Ethyl ether	N.D.	5	0.2
Ethylbenzene	N.D.	1	0.4
Freon 113	N.D.	10	0.2
n-Heptane	N.D.	5	2
n-Hexane	N.D.	5	2
2-Hexanone	N.D.	10	0.3
Isobutyl Alcohol	N.D.	250	36
Isopropylbenzene	N.D.	5	0.2
p-Isopropyltoluene	N.D.	5	0.2
Methyl Acetate	N.D.	5	0.2
Methyl Tertiary Butyl Ether	N.D.	1	0.2
4-Methyl-2-pentanone	N.D.	10	0.5
Methylcyclohexane	N.D.	5	0.5
Methylene Chloride	N.D.	1	0.3
Naphthalene	N.D.	5	1
2-Nitropropane	N.D.	10	0.8
Styrene	N.D.	5	0.2
1,1,2,2-Tetrachloroethane	N.D.	1	0.2
Tetrachloroethene	N.D.	1	0.2
Tetrahydrofuran	N.D.	10	0.7
Toluene	N.D.	1	0.2
1,2,3-Trichlorobenzene	N.D.	5	0.4
1,2,4-Trichlorobenzene	N.D.	5	0.3
1,1,1-Trichloroethane	N.D.	1	0.3
1,1,2-Trichloroethane	N.D.	1	0.2
Trichloroethene	N.D.	1	0.2
Trichlorofluoromethane	N.D.	1	0.2
1,2,4-Trimethylbenzene	N.D.	5	1
1,3,5-Trimethylbenzene	N.D.	5	0.3
Vinyl Chloride	N.D.	1	0.2
m+p-Xylene	N.D.	5	1
o-Xylene	N.D.	1	0.4

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
Xylene (Total)	N.D.	6	1
	mg/l	mg/l	mg/l
Batch number: 19326WAL026	Sample number(s): 1206759		
1,4-Dichlorobenzene	N.D.	0.010	0.003
2,4-Dinitrotoluene	N.D.	0.025	0.005
Hexachlorobenzene	N.D.	0.003	0.0005
Hexachlorobutadiene	N.D.	0.010	0.003
Hexachloroethane	N.D.	0.025	0.005
2-Methylphenol	N.D.	0.010	0.003
4-Methylphenol	N.D.	0.010	0.003
Nitrobenzene	N.D.	0.010	0.003
Pentachlorophenol	N.D.	0.025	0.005
Pyridine	N.D.	0.025	0.010
2,4,5-Trichlorophenol	N.D.	0.010	0.003
2,4,6-Trichlorophenol	N.D.	0.010	0.003
	ug/l	ug/l	ug/l
Batch number: 19325WAX026	Sample number(s): 1206761		
Acenaphthene	N.D.	0.50	0.10
Acenaphthylene	N.D.	0.50	0.10
Acetophenone	N.D.	10	4.0
Aniline	N.D.	10	3.0
Anthracene	N.D.	0.50	0.10
Atrazine	N.D.	5.0	2.0
Benzaldehyde	N.D.	10	3.0
Benzo(a)anthracene	N.D.	0.50	0.10
Benzo(a)pyrene	N.D.	0.50	0.10
Benzo(b)fluoranthene	N.D.	0.50	0.10
Benzo(g,h,i)perylene	N.D.	0.50	0.10
Benzo(k)fluoranthene	N.D.	0.50	0.10
Benzyl alcohol	N.D.	30	10
1,1'-Biphenyl	N.D.	10	3.0
4-Bromophenyl-phenylether	N.D.	2.0	0.50
Butylbenzylphthalate	N.D.	5.0	2.0
Di-n-butylphthalate	N.D.	5.0	2.0
Caprolactam	N.D.	11	5.0
Carbazole	N.D.	2.0	0.50
4-Chloro-3-methylphenol	N.D.	2.0	0.50
4-Chloroaniline	N.D.	10	4.0
bis(2-Chloroethoxy)methane	N.D.	2.0	0.50
bis(2-Chloroethyl)ether	N.D.	2.0	0.50
bis(2-Chloroisopropyl)ether	N.D.	2.0	0.50
2-Chloronaphthalene	N.D.	1.0	0.40
2-Chlorophenol	N.D.	2.0	0.50

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 12/06/2019 15:59

Group Number: 2075626

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
4-Chlorophenyl-phenylether	N.D.	2.0	0.50
Chrysene	N.D.	0.50	0.10
Dibenz(a,h)anthracene	N.D.	0.50	0.10
Dibenzofuran	N.D.	2.0	0.50
3,3'-Dichlorobenzidine	N.D.	10	3.0
2,4-Dichlorophenol	N.D.	2.0	0.50
Dicyclohexylamine	N.D.	10	10
Diethylphthalate	N.D.	5.0	2.0
N,N-Dimethylaniline	N.D.	1.0	0.50
2,4-Dimethylphenol	N.D.	10	3.0
Dimethylphthalate	N.D.	5.0	2.0
4,6-Dinitro-2-methylphenol	N.D.	21	8.0
2,4-Dinitrophenol	N.D.	30	14
2,4-Dinitrotoluene	N.D.	5.0	1.0
2,6-Dinitrotoluene	N.D.	2.0	0.50
bis(2-Ethylhexyl)phthalate	N.D.	11	5.0
Fluoranthene	N.D.	0.50	0.10
Fluorene	N.D.	0.50	0.10
Hexachlorobenzene	N.D.	0.50	0.10
Hexachlorobutadiene	N.D.	2.0	0.50
Hexachlorocyclopentadiene	N.D.	11	5.0
Hexachloroethane	N.D.	5.0	1.0
Indeno(1,2,3-cd)pyrene	N.D.	0.50	0.10
Isophorone	N.D.	2.0	0.50
2-Methylnaphthalene	N.D.	0.50	0.10
2-Methylphenol	N.D.	2.0	0.50
4-Methylphenol	N.D.	2.0	0.50
Naphthalene	N.D.	0.50	0.10
2-Nitroaniline	N.D.	7.0	2.0
3-Nitroaniline	N.D.	7.0	3.0
4-Nitroaniline	N.D.	3.0	0.90
Nitrobenzene	N.D.	2.0	0.50
2-Nitrophenol	N.D.	10	3.0
4-Nitrophenol	N.D.	30	10
N-Nitroso-di-n-propylamine	N.D.	3.0	0.70
N-Nitrosodiphenylamine	N.D.	3.0	0.70
Di-n-octylphthalate	N.D.	11	5.0
Pentachlorophenol	N.D.	5.0	1.0
Phenanthrene	N.D.	0.50	0.10
Phenol	N.D.	2.0	0.50
Pyrene	N.D.	0.50	0.10
Pyridine	N.D.	5.0	2.0
1,2,4,5-Tetrachlorobenzene	N.D.	2.0	0.50
2,3,4,6-Tetrachlorophenol	N.D.	10	4.0
2,4,5-Trichlorophenol	N.D.	2.0	0.50

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
2,4,6-Trichlorophenol	N.D.	2.0	0.50
Triethylamine	N.D.	10	10
	mg/l	mg/l	mg/l
Batch number: 193300014A	Sample number(s): 1206759		
Gamma BHC - Lindane	N.D.	0.000050	0.000010
Chlordane	N.D.	0.0025	0.00080
Endrin	N.D.	0.00010	0.000040
Heptachlor	N.D.	0.000050	0.000020
Heptachlor Epoxide	N.D.	0.000050	0.000012
Methoxychlor	N.D.	0.00050	0.00015
Toxaphene	N.D.	0.015	0.0050
Batch number: 193250571305	Sample number(s): 1206761		
Mercury	N.D.	0.00020	0.000050
Batch number: 193251404405	Sample number(s): 1206761		
Antimony	N.D.	0.0500	0.0160
Arsenic	N.D.	0.0300	0.0160
Barium	N.D.	0.0050	0.0010
Beryllium	N.D.	0.0050	0.0010
Cadmium	N.D.	0.0050	0.0010
Calcium	N.D.	0.200	0.0960
Chromium	0.0022 J	0.0150	0.0016
Cobalt	N.D.	0.0050	0.0015
Copper	N.D.	0.0200	0.0120
Iron	0.0517 J	0.200	0.0400
Lead	N.D.	0.0150	0.0071
Magnesium	0.0467 J	0.100	0.0400
Manganese	N.D.	0.0100	0.0030
Nickel	0.0025 J	0.0100	0.0021
Potassium	N.D.	0.500	0.204
Selenium	N.D.	0.0500	0.0160
Silver	N.D.	0.0100	0.0050
Sodium	N.D.	1.00	0.239
Thallium	N.D.	0.0300	0.0081
Batch number: 193270571301	Sample number(s): 1206759		
Mercury	0.000065 J	0.00020	0.000050
Batch number: 193271404501	Sample number(s): 1206759		
Arsenic	N.D.	0.0300	0.0160
Barium	N.D.	0.0050	0.0010
Cadmium	N.D.	0.0050	0.0010
Chromium	0.0023 J	0.0150	0.0016
Lead	N.D.	0.0150	0.0071
Selenium	N.D.	0.0500	0.0160

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Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 12/06/2019 15:59

Group Number: 2075626

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	mg/l	mg/l	mg/l
Silver	N.D.	0.0100	0.0050
	ug/l	ug/l	ug/l
Batch number: 193251404405	Sample number(s): 1206761		
Vanadium	N.D.	10.0	1.9
Zinc	N.D.	20.0	3.7
Batch number: 193291404704A	Sample number(s): 1206761		
Aluminum	N.D.	25.0	19.7

LCS/LCSD

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5193371AA	Sample number(s): 1206760								
Benzene	0.0200	0.0222			111		80-120		
2-Butanone	0.150	0.154			103		59-135		
Carbon Tetrachloride	0.0200	0.0201			101		64-134		
Chlorobenzene	0.0200	0.0211			105		80-120		
Chloroform	0.0200	0.0211			106		80-120		
1,2-Dichloroethane	0.0200	0.0205			102		73-124		
1,1-Dichloroethene	0.0200	0.0226			113		80-131		
Tetrachloroethene	0.0200	0.0192			96		80-120		
Trichloroethene	0.0200	0.0213			107		80-120		
Vinyl Chloride	0.0200	0.0170			85		56-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: Y193371AA	Sample number(s): 1206761								
Acetone	150	187.07			125		54-157		
Acetonitrile	150	177.28	150	177.86	118	119	66-149	0	30
Benzene	20	23.34			117		80-120		
Bromochloromethane	20	19.64			98		80-120		
Bromodichloromethane	20	21.29			106		71-120		
Bromoform	20	19.88			99		51-120		
Bromomethane	20	16.38			82		53-128		
n-Butanol	1000	1120.95			112		57-130		
2-Butanone	150	167.91			112		59-135		
t-Butyl alcohol	200	242.86			121		60-130		
n-Butylbenzene	20	23.22			116		76-120		
sec-Butylbenzene	20	23.35			117		77-120		
tert-Butylbenzene	20	21.75			109		78-120		
Carbon Disulfide	20	20.28			101		65-128		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Carbon Tetrachloride	20	18.98			95		64-134		
Chlorobenzene	20	22.42			112		80-120		
Chlorodifluoromethane	20	16.83	20	17.06	84	85	45-149	1	30
Chloroethane	20	17.58			88		55-123		
Chloroform	20	21.97			110		80-120		
Chloromethane	20	18.47			92		56-121		
Cyclohexane	20	21.1			106		68-126		
Cyclohexanone	500	424.99			85		27-141		
1,2-Dibromo-3-chloropropane	20	20.45			102		47-131		
Dibromochloromethane	20	21.11			106		71-120		
1,2-Dibromoethane	20	22.68			113		77-120		
1,2-Dichlorobenzene	20	22.87			114		80-120		
1,3-Dichlorobenzene	20	23.06			115		80-120		
1,4-Dichlorobenzene	20	23.42			117		80-120		
Dichlorodifluoromethane	20	12.89			64		41-127		
1,1-Dichloroethane	20	23.03			115		80-120		
1,2-Dichloroethane	20	20.82			104		73-124		
1,1-Dichloroethene	20	22.8			114		80-131		
cis-1,2-Dichloroethene	20	23.72			119		80-125		
trans-1,2-Dichloroethene	20	22.63			113		80-126		
1,2-Dichloropropane	20	24.56			123*		80-120		
cis-1,3-Dichloropropene	20	22.13			111		75-120		
trans-1,3-Dichloropropene	20	21.39			107		67-120		
1,4-Dioxane	500	666.8			133		63-146		
Ethyl Acetate	20	23.55	20	23.71	118	119	67-131	1	30
Ethyl ether	20	15.22			76		59-141		
Ethylbenzene	20	23.05			115		80-120		
Freon 113	20	19.68			98		73-139		
n-Heptane	20	22.59			113		56-133		
n-Hexane	20	22.21			111		61-138		
2-Hexanone	100	113.75			114		56-135		
Isobutyl Alcohol	500	647.02			129		61-136		
Isopropylbenzene	20	22.35			112		80-120		
p-Isopropyltoluene	20	22.95			115		76-120		
Methyl Acetate	20	22.73			114		54-136		
Methyl Tertiary Butyl Ether	20	19.15			96		69-122		
4-Methyl-2-pentanone	100	112.9			113		62-133		
Methylcyclohexane	20	19.46			97		67-121		
Methylene Chloride	20	23.68			118		80-120		
Naphthalene	20	22.1			111		53-124		
2-Nitropropane	20	16.88			84		19-144		
Styrene	20	23.29			116		80-120		
1,1,2,2-Tetrachloroethane	20	24.08			120		72-120		
Tetrachloroethene	20	21.32			107		80-120		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Tetrahydrofuran	100	109.91			110		54-144		
Toluene	20	23			115		80-120		
1,2,3-Trichlorobenzene	20	21.94			110		66-120		
1,2,4-Trichlorobenzene	20	21.65			108		63-120		
1,1,1-Trichloroethane	20	19.56			98		67-126		
1,1,2-Trichloroethane	20	23.86			119		80-120		
Trichloroethene	20	21.65			108		80-120		
Trichlorofluoromethane	20	15.88			79		55-135		
1,2,4-Trimethylbenzene	20	22.61			113		75-120		
1,3,5-Trimethylbenzene	20	22.86			114		75-120		
Vinyl Chloride	20	17.98			90		56-120		
m+p-Xylene	40	45.74			114		80-120		
o-Xylene	20	22.39			112		80-120		
Xylene (Total)	60	68.12			114		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 19326WAL026	Sample number(s): 1206759								
1,4-Dichlorobenzene	0.250	0.152	0.250	0.152	61	61	34-97	0	30
2,4-Dinitrotoluene	0.250	0.226	0.250	0.232	90	93	64-112	3	30
Hexachlorobenzene	0.250	0.232	0.250	0.233	93	93	60-117	0	30
Hexachlorobutadiene	0.250	0.159	0.250	0.166	64	66	20-108	4	30
Hexachloroethane	0.250	0.128	0.250	0.131	51	52	23-95	2	30
2-Methylphenol	0.250	0.154	0.250	0.152	62	61	53-107	2	30
4-Methylphenol	0.250	0.151	0.250	0.150	60	60	49-108	0	30
Nitrobenzene	0.250	0.197	0.250	0.193	79	77	49-113	2	30
Pentachlorophenol	0.250	0.203	0.250	0.212	81	85	54-131	4	30
Pyridine	0.250	0.0829	0.250	0.0793	33	32	21-61	4	30
2,4,5-Trichlorophenol	0.250	0.209	0.250	0.212	83	85	66-118	2	30
2,4,6-Trichlorophenol	0.250	0.209	0.250	0.207	84	83	69-122	1	30
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 19325WAX026	Sample number(s): 1206761								
Acenaphthene	50	41.28			83		52-114		
Acenaphthylene	50	42.24			84		57-121		
Acetophenone	50	42.24			84		61-114		
Aniline	50	32.5			65		35-84		
Anthracene	50	45.78			92		62-116		
Atrazine	50	47.23			94		71-133		
Benzaldehyde	50	39.75			80		48-118		
Benzo(a)anthracene	50	47.18			94		70-118		
Benzo(a)pyrene	50	47.08			94		71-117		
Benzo(b)fluoranthene	50	45.68			91		71-115		
Benzo(g,h,i)perylene	50	43.24			86		60-119		
Benzo(k)fluoranthene	50	46.22			92		71-116		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzyl alcohol	50	45.54			91		58-121		
1,1'-Biphenyl	50	41.03			82		51-112		
4-Bromophenyl-phenylether	50	43.42			87		53-117		
Butylbenzylphthalate	50	27.38			55		44-124		
Di-n-butylphthalate	50	38.29			77		62-118		
Caprolactam	50	12.1			24		10-57		
Carbazole	50	47.37			95		64-127		
4-Chloro-3-methylphenol	50	42.88			86		60-118		
4-Chloroaniline	50	36.63			73		35-108		
bis(2-Chloroethoxy)methane	50	43.71			87		53-119		
bis(2-Chloroethyl)ether	50	41.2			82		49-110		
bis(2-Chloroisopropyl)ether	50	41.08			82		33-119		
2-Chloronaphthalene	50	39.24			78		42-111		
2-Chlorophenol	50	40.08			80		52-109		
4-Chlorophenyl-phenylether	50	43.38			87		46-113		
Chrysene	50	44.86			90		69-116		
Dibenz(a,h)anthracene	50	45.65			91		68-121		
Dibenzofuran	50	42.97			86		53-114		
3,3'-Dichlorobenzidine	50	32.62			65		42-107		
2,4-Dichlorophenol	50	42.72			85		58-114		
Dicyclohexylamine	50	50.67	50	54.26	101*	109*	22-75	7	30
Diethylphthalate	50	28.58			57		48-113		
N,N-Dimethylaniline	25	20.23	25	20.12	81	80	59-114	1	30
2,4-Dimethylphenol	50	34.61			69		48-91		
Dimethylphthalate	50	11.95			24		14-123		
4,6-Dinitro-2-methylphenol	50	43.56			87		63-129		
2,4-Dinitrophenol	100	85.52			86		44-134		
2,4-Dinitrotoluene	50	44.32			89		69-117		
2,6-Dinitrotoluene	50	44.7			89		63-122		
bis(2-Ethylhexyl)phthalate	50	44.26			89		68-120		
Fluoranthene	50	46.63			93		63-122		
Fluorene	50	44.4			89		56-115		
Hexachlorobenzene	50	41.93			84		60-117		
Hexachlorobutadiene	50	32.65			65		20-108		
Hexachlorocyclopentadiene	100	40.36			40		10-91		
Hexachloroethane	50	32.11			64		23-95		
Indeno(1,2,3-cd)pyrene	50	43			86		63-114		
Isophorone	50	43.26			87		56-120		
2-Methylnaphthalene	50	39.93			80		44-111		
2-Methylphenol	50	37.65			75		53-107		
4-Methylphenol	50	36.26			73		49-108		
Naphthalene	50	38.08			76		45-105		
2-Nitroaniline	50	46.24			92		66-126		
3-Nitroaniline	50	43.68			87		47-119		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Nitroaniline	50	39.62			79		45-107		
Nitrobenzene	50	40.45			81		49-113		
2-Nitrophenol	50	42.69			85		57-116		
4-Nitrophenol	50	22.7			45		23-89		
N-Nitroso-di-n-propylamine	50	43.19			86		51-122		
N-Nitrosodiphenylamine	50	43.09			86		63-119		
Di-n-octylphthalate	50	44.82			90		67-120		
Pentachlorophenol	50	40.35			81		54-131		
Phenanthrene	50	45.05			90		65-113		
Phenol	50	21.2			42		19-79		
Pyrene	50	43.71			87		65-115		
Pyridine	50	22.89			46		13-83		
1,2,4,5-Tetrachlorobenzene	50	35.81			72		33-105		
2,3,4,6-Tetrachlorophenol	50	48.05			96		68-118		
2,4,5-Trichlorophenol	50	42.87			86		66-118		
2,4,6-Trichlorophenol	50	45.28			91		69-122		
Triethylamine	50	18.71	50	19.72	37	39	10-88	5	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 193300014A	Sample number(s): 1206759								
Gamma BHC - Lindane	0.000250	0.000241	0.000250	0.000255	96	102	51-132	6	30
Endrin	0.000125	0.000124	0.000125	0.000125	99	100	60-151	1	30
Heptachlor	0.000251	0.000252	0.000251	0.000236	100	94	38-135	7	30
Heptachlor Epoxide	0.000376	0.000396	0.000376	0.000410	105	109	56-132	3	30
Methoxychlor	0.00101	0.00108	0.00101	0.00111	107	110	58-165	3	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 193250571305	Sample number(s): 1206761								
Mercury	0.00100	0.00100			100		80-110		
Batch number: 193251404405	Sample number(s): 1206761								
Antimony	0.100	0.109			109		80-120		
Arsenic	0.0600	0.0622			104		80-120		
Barium	0.0100	0.0105			105		80-120		
Beryllium	0.0100	0.00976			98		80-120		
Cadmium	0.0100	0.0104			104		80-120		
Calcium	0.400	0.437			109		80-120		
Chromium	0.0300	0.0322			107		80-120		
Cobalt	0.0100	0.0117			117		80-120		
Copper	0.0400	0.0461			115		80-120		
Iron	0.400	0.437			109		80-120		
Lead	0.0300	0.0330			110		80-120		
Magnesium	0.200	0.222			111		80-120		
Manganese	0.0200	0.0216			108		80-120		

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Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	2.02	2.08			103		80-120		
Potassium	5.60	5.67			101		80-120		
Selenium	0.100	0.0962			96		80-120		
Silver	0.0200	0.0229			115		80-120		
Sodium	2.00	2.08			104		80-120		
Thallium	0.0600	0.0627			104		80-120		
Batch number: 193270571301	Sample number(s): 1206759								
Mercury	0.00100	0.00103			103		80-110		
Batch number: 193271404501	Sample number(s): 1206759								
Arsenic	0.0600	0.0592			99		80-120		
Barium	0.0100	0.0102			102		80-120		
Cadmium	0.0100	0.0108			108		80-120		
Chromium	0.0300	0.0303			101		80-120		
Lead	0.0300	0.0286			95		80-120		
Selenium	0.100	0.106			106		80-120		
Silver	0.0200	0.0212			106		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 193251404405	Sample number(s): 1206761								
Vanadium	20	21.14			106		80-120		
Zinc	440	416.21			95		80-120		
Batch number: 193291404704A	Sample number(s): 1206761								
Aluminum	200	180.34			90		88-114		
Batch number: 19329121521A	Sample number(s): 1206761								
Corrosivity	7.00	6.96			99		89-110		
	Degrees F	**Degrees F**	**Degrees F**	**Degrees F**					
Batch number: 19331043001A	Sample number(s): 1206761								
Flash Point	81	82.42	81	80.42	102	99	97-103	2	4
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 19329121521A	Sample number(s): 1206761								
pH	7.00	6.96			99		95-105		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 12/06/2019 15:59

Group Number: 2075626

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 193270571301	Sample number(s): 1206759 UNSPK: 1206759									
Mercury	N.D.	0.0200	0.0165	0.0200	0.0157	83	78*	80-120	5	20
Batch number: 193271404501	Sample number(s): 1206759 UNSPK: 1206759									
Arsenic	N.D.	5.00	4.85	5.00	5.40	97	108	75-125	11	20
Barium	0.0440	100	93.36	100	90.33	93	90	75-125	3	20
Cadmium	N.D.	1.00	0.927	1.00	1.03	93	103	75-125	10	20
Chromium	N.D.	5.00	4.47	5.00	4.93	89	99	75-125	10	20
Lead	N.D.	5.00	4.49	5.00	4.97	90	99	75-125	10	20
Selenium	N.D.	1.00	0.934	1.00	1.03	93	103	75-125	10	20
Silver	N.D.	5.00	2.73	5.00	3.43	55*	69*	75-125	22*	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 193270571301	Sample number(s): 1206759 BKG: 1206759			
Mercury	N.D.	N.D.	0 (1)	20
Batch number: 193271404501	Sample number(s): 1206759 BKG: 1206759			
Arsenic	N.D.	N.D.	0 (1)	20
Barium	0.0440	0.0459	4	20
Cadmium	N.D.	N.D.	0 (1)	20
Chromium	N.D.	N.D.	0 (1)	20
Lead	N.D.	N.D.	0 (1)	20
Selenium	N.D.	N.D.	0 (1)	20
Silver	N.D.	N.D.	0 (1)	20
Batch number: 19329121521A	Sample number(s): 1206761 BKG: 1206761			
Corrosivity	7.22	7.19	0	2
	Degrees C	**Degrees C**		
Batch number: 19329121521A	Sample number(s): 1206761 BKG: 1206761			
Temperature of pH	18.3	18.3	0	5
	Std. Units	**Std. Units**		
Batch number: 19329121521A	Sample number(s): 1206761 BKG: 1206761			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
pH	7.22	7.19	0	4

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- 5ml Water by 8260C/D
Batch number: 5193371AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1206760	98	102	99	96
Blank	97	102	99	99
LCS	99	102	99	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: VOCs- 5ml Water by 8260C/D
Batch number: Y193371AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1206761	91	96	98	96
Blank	91	96	98	94
LCS	91	99	98	97
LCSD	88	96	99	94
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SVOAs 8270D/E MINI
Batch number: 19325WAX026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
1206761	23	30	68	62	57	81
Blank	32	47	86	83	82	96
LCS	37	54	88	79	82	86
LCSD	36	53	80	80	81	91
Limits:	10-67	10-84	23-135	33-113	44-102	39-125

Analysis Name: TCLP 8270D MINI
Batch number: 19326WAL026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
1206759	68	70	86	29	41	83
Blank	70	68	92	29	41	85

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc. Group Number: 2075626
Reported: 12/06/2019 15:59

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCLP 8270D MINI
Batch number: 19326WAL026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
LCS	77	76	90	29	42	88
LCSD	75	73	88	29	42	88
Limits:	33-113	44-102	39-125	10-67	10-84	23-135

Analysis Name: TCLP Pesticides by 8081B
Batch number: 193300014A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
1206759	62	78	69	71
Blank	72	70	73	78
LCS	67	68	69	77
LCSD	58	72	59	80
Limits:	39-139	10-164	39-139	10-164

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 3074 Group # 2018602 Sample # 1206758-61

COC # 597240

For Lab Use Only
FSC:
SCR#: 252239

Client Information

Client: ARCADIS
Acct. #:
Project Name/#: 30030237
PWSID #:
Project Manager: BILL MCLINE
P.O. #:
Sampler: NICHOLAS KANAUER
Quote #:
State where samples were collected: NY
For Compliance: Yes ☐ No ☐

Matrix: Tissue ☐ Sediment ☐ Soil ☐; Water: Ground ☑ Potable ☐ Surface ☐ NPDES ☐; Other: Carbon

Analysis Requested — Preservation and Filtration Codes

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCLP VOC'S	Full TCLP	TAL metals	VOC'S Sme water B-d 8260C/D	IGNITABILITY	CORROSIVITY	MINI SVOC'S 8270D/E				Remarks
EW-1 (carbon)	11/19/19	1430		✓			✓	4	✓	✓									Carbon
EW-1 (Purge water)	11/19/19	1431		✓		✓		9			✓	✓	✓	✓	✓				VOC'S EVALUATE MeCl

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: ____________

E-mail address: ____________

Relinquished by	Date	Time	Received by	Date	Time
[signature]	11/15/19	4:00			
NICHOLAS KANAUER	11/19/19	1730			
			[signature]	11/20/19	1039

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

EDD Required? Yes No
If yes, format: ____________

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 1.6 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client. 7044 0919

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 267104

Group Number(s): 2075626

Client: ARCADIS

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Date:	11/20/2019
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	New York		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	0
Samples Chilled:	Yes	Air Quality Samples Present:	No
Paperwork Enclosed:	Yes		
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Julissa Rivera-Santa

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	192050133	1.6	IR	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

APPENDIX D

Waste Disposal Documentation

Site Address: 6000 Thompson Road
East Syracuse,NY 13057

1241522

SC PPW 12/9/2008
WORK ORDER NO: 1905596733

DOCUMENT NO.

STRAIGHT BILL OF LADING

TRANSPORTER 1 Clean Harbors Environmental Services, Inc. VEHICLE ID #

EPA ID # MAD039322250 TRANS. 1 PHONE (781) 792-5000

TRANSPORTER 2 VEHICLE ID #

EPA ID # TRANS. 2 PHONE

DESIGNATED FACILITY			SHIPPER		
Clean Harbors El Dorado LLC			Bristol-Myers Squibb Company		
FACILITY EPA ID # ARD069748192			SHIPPER EPA ID # NYD002230902		
ADDRESS 309 American Circle			ADDRESS PO Box 4755		
CITY El Dorado	STATE AR	ZIP 71730	CITY Syracuse	STATE NY	ZIP 13221

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
3x55	DM		A. NON-REGULATED SOLID	2100	P
1x55	DM		B. NON-REGULATED SOLID, (SOIL SAMPLES)	700	P
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		

SPECIAL HANDLING INSTRUCTIONS A.CH448569 B.CH1923270 EMERGENCY PHONE #: (800) 483-3718 GENERATOR: Bristol-Myers Squibb Company

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

	PRINT	SIGN	DATE
SHIPPER	Anne H Locke	Anne H Locke	10/24/19
TRANSPORTER 1	Jerry Coe	Jerry Coe	10/24/19
TRANSPORTER 2			
RECEIVED BY			

CHI 107

721905596733 SC PPW 12/9/2008

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
NYD002230902	1	(800) 483-3718	013491221 FLE

GENERATOR

5. Generator's Name and Mailing Address
Bristol-Myers Squibb Company
PO Box 4755
Syracuse, NY 13221
Generator's Phone: 315-432-2660

Generator's Site Address (if different than mailing address)
6000 Thompson Road
East Syracuse, NY 13057

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc. — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number: ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S. SOLUTION, (METHYLENE CHLORIDE), 9, PG III	008	DM	3600	P	U080	F002	B
X	2. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S. SOLUTION, (METHYLENE CHLORIDE F002), 9, PG III	007	DM	3150	P	U080	F002	B
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.CH1923136DR1 ERG#171 8x55
2.CH1923137DR2 ERG#171 7x55

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safety

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Anne H Locke — Signature: Anne H Locke — Month: 10 Day: 24 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Jerry Coe — Signature: Jerry Coe — Month: 10 Day: 24 Year: 19
Transporter 2 Printed/Typed Name — Signature — Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040	H040		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name — Signature — Month: Day: Year:

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type. 721906222922 SC PPW 12/9/2008 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NYD002230902	2	(800) 483-3718	013779266 FLE

5. Generator's Name and Mailing Address
Bristol-Myers Squibb Company
PO Box 4755
Syracuse, NY 13221
Generator's Phone: 315-432-2660

Generator's Site Address (if different than mailing address)
6000 Thompson Road
East Syracuse, NY 13057

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc. — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: Franks Vac truck service Inc — U.S. EPA ID Number: NYD 982792814

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number: ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S. SOLUTION, (METHYLENE CHLORIDE), 9, PG III	7	DM	350	P	U080	F002	B
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.CR1923136DR1 ERG#171

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safety

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Anne H Locke — Signature: Anne H Locke — Month 11 Day 21 Year 19

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Richard Laramie — Signature: — Month 11 Day 21 Year 19
Transporter 2 Printed/Typed Name: Richard Charache — Signature: — Month 11 Day 27 Year 19

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Lawrence Hurd — Signature: Lawrence Hurd — Month 12 Day 22 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	NYDUU0230902	3/3	013792446 GE

24. Generator's Name: Bristol Myer

25. Transporter 3 Company Name: Clean Harbors Environmental Services Inc. — U.S. EPA ID Number: MAD039322250

26. Transporter _____ Company Name — U.S. EPA ID Number:

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
	T P O							

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Stephanie Matheny (Agent for CHES) — Signature: Stephanie Matheny — Month: 1 — Day: 23 — Year: 19

34. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Nov 20, 2019

MANIFEST INFORMATION

Generator : Bristol-Myers Squibb Company

Address: 6000 Thompson Road
East Syracuse,NY 13057

EPA ID #: N Y D 0 0 2 2 3 0 9 0 2

Manifest Tracking Info.
013779266FLE

Sales Order No: 1906222922

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH1923136DR1	NON-WASTEWATER	2 (This is subject to LDR.)

EPA Waste Code	EPA Waste SubCategory
F002U080	NONE

LDR Chemical Data

Chemical	Underlying Hazardous Constituents	Constituents of Concern	Contaminants Subject to Treatment
METHYLENE CHLORIDE	N	Y	N

Certification	Applies to Manifest Line Items
Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.	1.

Waste analysis data, where available, is attached.

Signature : Anne M Locke Print Name Anne M Locke

Title : Assoc Mgr, Env Prot Date : 21 Nov 2019

APPENDIX E

Calculations

APPENDIX E - CALCULATIONS

High Vacuum Extraction Pilot Test Summary Report
Site #C734138: Bristol-Myers Squibb Syracuse

GROUNDWATER RECOVERY RATE

Date/Time	GW Recovered (cumul. gal)	
11/11/19 15:25	0	
11/11/19 17:00	24	
11/12/19 9:55	24	
11/12/19 15:45	53	
11/12/19 17:00	63	*Begin Extended Phase
11/13/19 8:00	91	
11/13/19 14:40	101	
11/13/19 16:00	114	
11/14/19 7:00	137	
11/14/19 16:30	165	
11/15/19 7:30	184	
11/15/19 12:00	203	

Groundwater Recovery Rate (Q) = Δ gal / Δ min

At beginning of Extended Phase:
Date/Time 11/12/19 17:00
Cumulative Gal. 63

At middle of Extended Phase:
Date/Time 11/14/19 7:00
Cumulative Gal. 137

Since Previous
Δ gal = 74
Δ time = 1.583 days
Δ time = 2280 minutes
Q = 74 gal / 2280 min
Q = 0.03 gpm

At end of Extended Phase:
Date/Time 11/15/19 12:00
Cumulative Gal. 203

Since Previous
Δ gal = 66
Δ time = 1.208 days
Δ time = 1740 minutes
Q = 66 gal / 1740 min
Q = 0.04 gpm

DISSOLVED PHASE MASS RECOVERY

mass recovery rate (lb/day) = concentration (ug/L) x flow rate (gpm) x 3.78 gal/L x g/1,000,000ug x lb/453.6g x 1440 min/day

Extracted Groundwater Sample Results

Constituent	Concentration (ug/L)
methylene chloride	23,000
Total VOCs	24,728

23,000 / 24,728 = 0.93 = 93% of detected VOCs as methylene chloride

Groundwater Recovery Rate		Methylene Chloride Concentration (ug/L)	Methylene Chloride Mass Recovery Rate			
Gallons per minute	Liters per Minute		ug/min	g/min	g/day	lb/day
0.035	0.132	23,000	3042.9	0.003	4.38	**0.010**

VAPOR PHASE MASS RECOVERY

mass recovery rate (lb/day) = concentration (ug/m^3) x flow rate (ft^3/min) x m^3/35.3ft^3 x g/1,000,000ug x lb/453.6g x 1440 min/day

Extracted Vapor Sample Results

Constituent	Concentration (ug/m^3)
methylene chloride	250,000
Total VOCs	250,140

250,000 / 250,140 = 0.999 = > 99% of detected VOCs as methylene chloride

Vapor Extraction Rate		Methylene Chloride Concentration (ug/m^3)	Methylene Chloride Mass Recovery Rate			
Standard Cubic Feet per Minute	Cubic Meters Per Minute		ug/min	g/min	g/day	lb/day
10.2	0.289	250,000	72250.0	0.072	104.04	**0.229**