CSM IMPROVEMENT
WORK PLAN

ROUTE 8 LANDFILL & BCO HILL
SIDNEY, NEW YORK

Prepared on behalf of

AMPHENOL CORPORATION

40-60 Delaware Avenue
Sidney, NY 13838-1395

Prepared by

JTM ASSOCIATES, LLC

PO Box 359
Bridgeport, NY 13030

and

amec

Amec Environment & Infrastructure
511 Congress Street, Suite 200
Portland, Maine 04101

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1 - INTRODUCTION

Amphenol Corporation (Amphenol) proposes to complete investigatory tasks to improve the Conceptual Site Model (CSM) at two different but related NYSDEC inactive hazardous waste sites; Route 8 Landfill Site # 413009 (Rt. 8) and BCO Hill Site # 413003 (BCO Hill). This work plan describes the current CSM and defines the objectives of the proposed efforts including data collection tasks, their sequence of completion and the reporting and discussion of the results with the Department. Data will be evaluated as it becomes available. As a result of the evaluation and in consult with the NYSDEC, tasks may be added or modified as appropriate. Following the CSM improvement efforts described herein, additional data collection efforts that would support a Remedial System Optimization (RSO) program consistent with NYSDEC guidance may also be considered.

1.1 – General Site History

During the 1960's, the Rt. 8 and BCO Hill sites (Figure 1) were used by the Bendix Corporation, for the disposal of industrial refuse, waste oils which contained PCBs and spent solvents (largely Trichloroethylene). The sites have been undergoing remediation since the late 1980's and early 1990's and are currently identified as Class 4 sites on the New York State Registry of Inactive Hazardous Waste Sites. Both sites have NYSDEC approved Site Management Plans (SMPs) and have been monitored quarterly for approximately 30 years. Recently submitted Periodic Review Reports (PRRs) certified that the ongoing remedial actions comply with their respective Record of Decisions (RODs) and SMPs.

It is reasonable to view the Rt. 8 and BCO Hill sites as a single study area because of their proximity to each other and related hydrogeology. In fact, in describing the remedial approach, the ROD for BCO Hill acknowledges the hydrogeologic relationship between the sites and that the bedrock pump and treat system at the Rt. 8 site may capture bedrock groundwater contaminants that originate from the BCO Hill Site.

Site conditions including hydrogeology and contaminant distribution are described in the respective SMPs and the regularly submitted monitoring reports for each site. In 2017 Amphenol initiated a comprehensive review of available hydrogeologic and groundwater chemistry data of both the Rt. 8 and BCO Hill sites. The purpose of that effort was to update the CSM as it relates to the distribution of contaminants of concern (COC) and their transport using current data interpretation and visualization methods. Additionally, remedial system contaminant mass removal trends were assessed for the Rt. 8 groundwater recovery and treatment system.

As result of the 2017 data review, Amphenol proposed and completed a comprehensive groundwater sampling event in March 2018. This sampling event included all available groundwater monitoring wells at both Rt. 8 and BCO Hill sites; a total of 64 wells and 4 seeps. This supplemental sampling afforded comparison of contaminant distribution with a March 2006 comprehensive sampling event that also included all available monitoring wells.

The results of the CSM update were presented and discussed during a NYSDEC and Amphenol coordination meeting on December 13, 2018. The primary conclusions drawn are summarized below. The figures referenced for a given conclusion are provided in this work plan.

- Reduction of plume mass has occurred in the vicinity of the bedrock recovery wells.
    - Figure 2 provides a 3-D depiction of the TCE groundwater plume in 2006 and 2018 and illustrates that contaminant mass has been reduced in proximity to the bedrock recovery wells. Figures 3.A through 3.H provide iso-contours of total benzene, toluene, ethylbenzene, and xylene (BTEX) and total chlorinated volatile organic compounds (CVOCs) from the overburden and bedrock aquifers for both the 2006 and 2018 groundwater data sets. Figures 5.1 through 5.7 show cross section orientation and cross sections with CVOC and TCE distributions from the 2018 sampling.
- Plume perimeter and downgradient, off-site concentrations are stable (Figures 3.A through 3.H).
- Reductive dechlorination of chlorinated ethenes is occurring.
- Table 2 provides the groundwater analytical data from the 2006 and 2018 sampling events which indicates matrix diffusion of contaminants in bedrock may be acting as an ongoing diffusive source of chlorinated VOCs.
- Groundwater collection and treatment is currently recovering less than 7 pounds per year of contaminants.
    - Figure 4.A provides a plot of the recovery system's historic mass removal rate. Monthly recovery well performance data for the last 5 calendar quarters are provided as Figure 4.B. The average contaminant mass recovery rate over the last 5 quarters is a nominal 0.56 pounds per month.

It was also noted during the December 2018 meeting that the interpreted thickness of the bedrock contaminant zone and contaminant transport pathways at the sites are not well understood. This is, in part, due to many of the bedrock monitoring wells installed during the remedial investigation in the 1980s being open hole (unscreened) construction with between 20 and 96 feet of open hole. This may provide for mixing of groundwater from different zones within the borehole. Furthermore, the bedrock recovery wells extend to depths much greater than the bedrock monitoring wells (in some cases more than 100 feet). As a result, the extraction wells may be drawing in water from less-contaminated fractures and mixing with and diluting water drawn in from more contaminated fractures within the borehole making it difficult to compare groundwater collection system chemistry to the contaminant plume chemistry as monitored in more discretely screened monitoring wells.

To further improve the CSM as a whole and particularly as it relates to the bedrock flow zone Amphenol proposes to:

- further evaluate the bedrock flow system;
- assess in more detail the vertical distribution of contaminants and identify preferential pathways; and
- define appropriate monitoring program modifications.

1.2 – Current CSM

The present CSM, using the most recent comprehensive groundwater data, describes contaminants of concern (COC), the source of identified impact, primary or secondary release mechanisms, migration pathways, media affected, and potential receptors. This CSM is based on information that is currently available; it is considered a dynamic model and subject to change. The CSM presented below has been used to define the additional data gathering activities proposed herein. The CSM will be further modified when the additional data or observations demonstrate the need for its modification.

1.2.1 General Background

The BCO Hill and Rt. 8 Landfill Sites can be described as vacant and consisting largely of wooded and overgrown areas. A small building housing the groundwater treatment system is located on the Rt. 8 Landfill property together with two small sheds containing the groundwater recovery wells.

There are currently no users of groundwater from the two aquifers affected by the Site. All surrounding residences and commercial properties are on public water.

Comprehensive groundwater sampling performed in March of 2006 showed CVOCs in both the overburden and bedrock aquifers. Historic disposal at the BCO Hill Site is the primary source of CVOCs with the bulk of dissolved contaminants being transported in the bedrock aquifer. CVOCs are present in the overburden aquifer but are generally limited to the area of the BCO Hill Site source area and the wetland area downgradient of the Rt. 8 Site where the bedrock aquifer discharges to the overburden. The 2006 data indicates a zone of reduced CVOC concentrations in the bedrock aquifer around the extraction wells (Figures 2 and 3.A through 3.D). The lower concentrations are attributed to both the extraction of contaminants and dilution due to capture of uncontaminated water.

Additional comprehensive sampling performed in April of 2018 corroborates this. The plume depicted using the 2018 data shows relatively stable plume conditions but with a larger area of reduced contaminant concentrations surrounding the extraction wells (Figures 2 and 3.E through 3.H).

Both data sets show contribution of aromatic hydrocarbons, primarily to the overburden aquifer from the Rt. 8 Landfill. The elevated aromatic hydrocarbon concentrations are coincident with a zone of increased reductive dechlorination.

A more thorough understanding of the bedrock flow regime is necessary for optimization of the remedial measures for the BCO Hill and Rt. 8 sites. Specific data gaps which are targeted with this investigation include:

- identification and definition of predominant contaminant flow paths; and
- assessing the degree of diffuse contaminant contribution to the bedrock aquifer.

1.2.2 Contaminants of Concern (COC)

The primary contaminants that have been detected on-site as revealed by routine monitoring consist of the CVOC alkenes PCE, TCE, 1,2-DCE, and vinyl chloride; the

CVOC alkanes 1,1,1-TCA and 1,1-DCA; and the aromatic hydrocarbons benzene, ethylbenzene, toluene, and xylenes.

Detected CVOCs PCE, TCE, and 1,1,1-TCA are largely used as solvents and degreasers in manufacturing. The remaining CVOCs are likely breakdown (daughter) products. The detected aromatic hydrocarbons are most commonly fuel related.

PCBs have also been detected nearly exclusively in overburden monitoring well OBG-3.

1.2.3 Source Areas

The primary source area of CVOCs appears to be the BCO Hill Site disposal area with a lesser contribution from the Rt. 8 Landfill. The Rt. 8 Landfill is the primary source of aromatic hydrocarbons (BTEX).

1.2.4 Points of Entry/Primary Release Mechanism (for the COCs)

The primary release mechanism for CVOCs was direct disposal at both the BCO Hill Site and Rt. 8 Landfill Site. Based upon observed contaminant distributions, the Hill Site is responsible for the majority of existing CVOC distribution. The Rt. 8 Landfill is the primary source of observed aromatic hydrocarbons. Secondary release mechanisms at both sites include transport of contaminants via infiltration water (precipitation) migrating through contaminated soils. Observed groundwater contaminant concentrations in both 2006 and 2018, indicate the potential for TCE to be present as dense non-aqueous phase liquid in both overburden and bedrock at the BCO Hill Site.

1.2.5 Contaminant Fate and Transport

Contaminants discharged to the ground and waste disposal areas have migrated to groundwater, either directly with discharge, or with rainwater infiltration from shallow source areas (BCO Hill Site and Rt. 8 Landfill Site). Groundwater flow is to the north-northwest from the vicinity of the BCO Hill Site towards the Rt. 8 Landfill Site. Contaminated overburden groundwater is present in the immediate proximity of the BCO Hill Site and Rt. 8 Landfill Site. The vast majority of contaminant transport occurs within the bedrock aquifer.

CVOCs tend to be recalcitrant (*i.e.* persistent) in the environment; it is not unusual to find these contaminants persisting in the environment decades after their purported discontinued use. Although highly mobile with groundwater, the mobility of these compounds may be retarded in groundwater due to the presence of organic carbon in the soil and/or rock matrix. In addition, these compounds can degrade through reductive dechlorination in anaerobic aquifers. The presence of the PCE, TCE and 1,1,1-TCA daughter products 1,1-DCE, vinyl chloride, and 1,1-DCA suggests that conditions may be suitable for their natural degradation. The observed distribution of CVOCs in the bedrock aquifer show an area of lower concentration in the vicinity of the Rt. 8 extraction wells. A comparison of 2006 to 2018 groundwater data shows that the area of reduced concentration has expanded, resulting in decreased efficiency of the treatment system and a corresponding decrease in mass removal (Figures 2 and 3.A through 3.H). The persistence of the contaminant plume suggests a contribution from matrix diffusion from the bedrock aquifer.

1.2.6 Migration Pathways

Contaminants disposed of at the BCO Hill Site and Rt. 8 Landfill Site either migrated directly to groundwater or sorbed to overburden soils. Recharge water (precipitation) then leached sorbed soil contaminants and transported them to groundwater. Vertical gradients at the BCO Hill and Rt. 8 Landfill Sites are downward from overburden to bedrock with overburden groundwater contamination limited to the proximity of the source areas.

Contaminants present in groundwater can volatilize to soil vapor. Unless from a contaminated soil source, contaminated soil vapor will for the most part be co-located with the groundwater plume. Off-gassing will occur for the CVOCs due to the physical properties of the chemicals (*i.e*., high vapor pressure and low atmospheric equilibrium concentrations). Preferential pathways resulting from infrastructure backfill (especially if it is coarser than the surrounding fill/native soil) result in migration of the vapor phase in directions that are not consistent with groundwater flow. The presence of relatively clean overburden groundwater overlying the bedrock aquifer mitigates much of the concern for soil vapor exposure.

1.2.7 Potential Complete Exposure Pathways

Potential complete exposure pathways at and in the vicinity of the Site include direct contact with contaminated soil and groundwater, ingestion of contaminate groundwater, and inhalation of contaminated air.

The surrounding area is served by public water; therefore, the ingestion of groundwater in the surrounding off-Site area is not complete. If residual contaminants are still present on the ground surface (up to 2 feet deep), or excavation work is conducted in areas where soil contamination is present, a potential for an exposure to the contaminated soils may exist.

1.2.8 Data Gaps

Based on a review of existing data, the following data gaps exist.

- Identification and definition of predominant bedrock contaminant flow paths.
- Assessment of the degree of diffuse contaminant contribution to the bedrock aquifer.

2 - PROPOSED CSM IMPROVEMENT TASKS

To improve the understanding of the bedrock hydrogeology, contaminant distribution and contaminant transport it is proposed that the operation of the remedial system at the Rt. 8 Site be suspended to allow for data collection under non-pumping hydrostatic conditions. The specific duration of the suspension will be one-year which should provide for sufficient supplemental data collection and interpretation in consultation with NYSDEC.

The following work tasks will be completed at the Rt. 8 and BCO Hill Sites. A proposed timeline of tasks is provided in the Appendix.

- Completion of the every 5th quarter groundwater monitoring event scheduled for June 2021as described in the SMPs for the respective sites prior to remedial system operation suspension.
- Groundwater elevation monitoring before system shutdown and during recovery at select bedrock and overburden monitoring wells at the Rt. 8 site.
- Routine quarterly groundwater quality monitoring during the shutdown at select wells.
- Borehole geophysical logging program.
- Focused vertical groundwater sampling of logged recovery and monitoring wells.
- Regular data sharing and conferring with NYSDEC regarding technical results and direction of the program.

The scope of these tasks is described below. Data collection efforts will be completed consistent with the approved SMPs and their associated protocols and health and safety plans.

2.1 – Pre-shutdown Groundwater Elevation Measurements and Sample Collection

Prior to suspending the operation of the groundwater collection and treatment system, groundwater elevations will be measured at all available groundwater monitoring wells at both the BCO Hill and Rt. 8 Sites. One month after shutdown, a second comprehensive round of water levels will be manually collected in the same wells. Data collected for this effort will be used to construct potentiometric surface maps under pumping and non-pumping (static) conditions.

Following groundwater elevation measurement and before the shutdown, the routine (every 5th quarter) groundwater sampling event will be completed as prescribed in the SMP for each respective site. Figure 6.A and Table 3 indicate the wells to be sampled.

2.2 – Groundwater Elevation Monitoring Post Shutdown

Groundwater elevation monitoring will take place immediately prior to and after the recovery well shut-down at bedrock monitoring wells R8-1, R8-2, R8-3, R8-4, R8-5, R8-28, R8-30 and R8-36 (Figure 6.A). These wells will be equipped with data logging pressure transducers to record the rate of recovery in bedrock wells proximate to the extraction wells.

The data loggers will be set to record water levels every 15 minutes. In addition to those bedrock monitoring wells proposed for pre-shutdown sampling, overburden monitoring well nests in the vicinity of the bedrock recovery wells will also be monitored for groundwater elevation. These wells include R8-16S,I,D, 17I,D, 18S,I, 19S,I,D, and R8-29 (Figure 6.A). Recovery of the extraction wells RW-1 and RW-2 will also be monitored using the existing system pumping level indicators in the wells. The post shutdown recovery monitoring period is anticipated to last 1 to 2 weeks but will be continued until potentiometric surface stabilization is observed and in consult NYSDEC.

Following the shutdown, routine remedial treatment system maintenance including air stripper cleaning and conveyance line de-scaling may also be completed. Other equipment repairs may also take place during the shutdown period as appropriate.

2.3 – Routine Groundwater Quality Monitoring

Quarterly groundwater VOC monitoring will occur at Rt. 8 for wells R8-1, R8-2, R8-3, R8-4, R8-5, R8- 23, R8-24, R8-25, R8-28, R8-30, R8-36 and R8-37 and BCO Hill wells 83-3, 83-4, 84-10 and 84-12 (Figure 6.A). The purpose of this effort is to assess contaminant rebound in the vicinity of the bedrock recovery wells and monitor the plume perimeter. In addition, once samples are collected, passive diffusion bags (PDB) will be placed in R8-28 and R8-30; the two monitoring wells that have historically contained the highest concentration of VOCs. The PDBs will be used to evaluate the potential for matrix diffusion from the bedrock. The PDBs will continue to be used for the remaining monitoring during the shut-down at these locations.

2.4 – Groundwater Collection Trench Inspection

The Rt. 8 site also employs a shallow groundwater recovery trench designated RW-3 that is located immediately southeast of monitoring well OBG-3. This recovery trench, which includes a central collection sump, was installed in the event that recoverable free oil occurred in this area that may be responsible for PCBs previously detected in OBG- 3. PCBs have not been detected in OBG-3 since December 2016 and free oil has not been observed since its installation. During the shutdown, the collection sump will be monitored weekly for the presence of free oil. Additionally, OBG-3, which is included in the routine site monitoring program, will be monitored quarterly for VOCs and PCBs.

2.5 – Borehole Geophysical Logging Program

Following shutdown and recovery monitoring, the pumps will be removed from recovery wells RW-1 and RW-2. Approximately one-month after shutdown, when the potentiometric surface has returned to static levels, the wells will be geophysically logged to evaluate the physical and hydraulic characteristics of bedrock aquifer. The length of the open bedrock hole portion of these wells, the portion that will be logged, are 294 and 251 feet, respectively.

The objective of the logging is to determine the orientation (i.e., attitude) of the bedding and fractures, and identification of water-bearing fractures for targeted sampling using inflatable packers or technique suitable to the well construction. The specific borehole geophysical logging will consist of the following log suite, which is generally performed in this order:

- caliper;
- natural gamma;
- spontaneous potential/single point resistance;
- fluid temperature/fluid resistivity;
- acoustic televiewer and/or optical televiewer; and
- heat pulse flow meter (HPFM) under ambient and stressed conditions.

It has been our experience that this suite of logs provides the most comprehensive data relevant to understanding bedrock stratigraphy and groundwater flow zones within the borehole.

To provide spatial data and potentially cross-hole correlations, an additional eight open-hole bedrock wells will be geophysically logged. These include: R8-1, which has 96 feet of open bedrock (96’), R8-2 (45’), R8-3 (30’), R8-33 (25’), R8-36 (50’), 83-2 (30’), 83-3 (30’ and 83-4

(33'). The location of these wells are shown on Figure 6.B. A more detailed description of the proposed borehole geophysical logging is provided in the Appendix.

2.6 – Focused Vertical Groundwater Sampling

Following borehole geophysical logging, the data will be evaluated in consultant to select zones/fractures appropriate for sampling. Not all identified fractures will likely be appropriate for sampling. Fractures that are likely to yield little to no water based on geophysical log interpretation will not be considered for sampling.

Groundwater samples will be collected from each of the bedrock borings by low-flow straddle packer sampling. The sampling zone (i.e., distance between packers) will be fixed throughout the sampling activity. The exact distance between the packers will be optimized based on borehole geophysical logging results and depth and separation of the target fractures. A sampling zone of 5-feet or less is generally preferred if possible.

Sample intervals will be based on heat pulse flow meter results and up to five of the most hydraulically conductive fractures will be sampled following low flow purging and sampling techniques.

Packers will be assembled at the surface then lowered slowly to the target depth using PVC or steel piping attached to the top of the packer assembly as it is lowered to the desired sampling depth. The rubber bladders will be inflated using compressed air to hydraulically isolate the water-bearing fractures. Water levels will be taken from above the top of the packer assembly and monitored inside the packer assembly to verify that the packers are seated properly. Packers will be deconned between boreholes.

2.7 – Regular Data Sharing and Conferring with NYSDEC

Program activity and data summaries will be provided to NYSDEC following the completion of the major data collection tasks. This will afford Amphenol and Department representatives to confer regarding modifications of the proposed data collection activities. A meeting will be held with the Department approximately 90 days after the focused vertical groundwater sampling to review data and discuss the scope of the CSM improvement program going forward.

A report summarizing the findings and recommendations will be submitted for review 45-days following the meeting with NYSDEC.

TABLES

Table 1
Monitoring Well Construction Summary

Well	Screen/Open Hole	Formation	Top of Casing Elevation	Borehole Depth	Screen/Open Hole Length (ft)	Top Screen/Open Hole Depth (ft bgs)	Bottom Screen/Open Hole Depth (ft bgs)	Top of Screen/Open Hole Elev (ft msl)	Bottom of Screen/Open Hole Elev (ft msl)
BCO Hill Site									
B-1	Screen	Shal. O	1117.74	19.4	10.0	9.0	19.0	1108.7	1098.7
B-12	Screen	Shal. O	1102.99	22.3	15.0	5.0	20.0	1098.0	1083.0
B-13	Screen	Shal. O	1111.6	17.4	10.0	5.0	15.0	1106.6	1096.6
14	Screen	Int. O	1100.33	40.0	10.0	30.0	40.0	1070.3	1060.3
15	Screen	Dp. O	1123.72	70.0	10.0	62.0	72.0	1061.7	1051.7
16	Screen	Int. O	1124.32	46.4	10.0	35.0	45.0	1089.3	1079.3
17	Screen	Int. O	1108.97	31.7	20.0	11.0	31.0	1098.0	1078.0
18	Screen	Int. O	1101.91	25.9	20.0	5.0	25.0	1096.9	1076.9
20	Screen	Int. O	1110.25	35.9	10.0	20.0	30.0	1090.3	1080.3
4 I	Screen	Dp. O	116.54	70.0	10.0	60.0	70.0	1056.5	1048.5
24	Screen	Int. O	1101.31	25.0	10.0	10.0	32.0	1091.3	1069.3
26	Screen	Int. O	1115.78	26.1	10.0	15.0	25.0	1100.8	1090.8
27	Screen	Int. O	1123.53	33.4	10.0	22.0	32.0	1101.5	1091.5
28	Screen	Dp. O	1124.05	103.6	10.0	95.0	105.0	1029.1	1019.1
29	Screen	Int. O	1124.26	40.9	10.0	30.0	40.0	1094.3	1084.3
31	Screen	Int. O	1109.4	29.8	10.0	20.0	30.0	1089.4	1079.4
32	Screen	Int. O	1119.88	24.2	10.0	12.0	22.0	1107.9	1097.9
83-1	Open	B	1118.38	103.0	20.0	82.0	102.0	1036.4	1016.4
83-2	Open	B	1105.24	80.0	30.0	50.0	80.0	1055.2	1025.2
83-3	Open	B	1038.31	80.0	30.0	50.0	80.0	988.3	958.3
83-4	Open	B	1038.13	65.0	45.0	20.0	65.0	1018.1	973.1
84-10	Screen	Int. O	1080.97	39.0	10.0	10.0	20.0	1071.0	1061.0
84-11	Screen	Int. O	1039.7	20.0	10.0	10.0	20.0	1029.7	1019.7
84-12	Screen	Int. O	1073.44	14.5	15.0	7.0	22.0	1066.4	1051.4
84-13	Screen	Dp. O	1125.88	123.0	10.0	108.0	118.0	1017.9	1007.9
Seep 1	-	Seep	1023.77	-	NA	-	-	-	-
Seep 2	-	Seep	1030.33	-	NA	-	-	-	-
Seep 3	-	Seep	1054.85	-	NA	-	-	-	-
Seep 4	-	Seep	1043.29	-	NA	-	-	-	-

Overburden
Bedrock

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Route 8 Landfill									
R8-1	Open	B	1028.51	117.5	96.0	21.5	117.5	1007.0	911.0
R8-2	Open	B	1008.66	66.6	45.0	21.6	66.6	987.1	942.1
R8-3	Open	B	1007.15	49.0	27.2	22.5	49.0	984.7	958.2
R8-4	Open	B	1026.21	77.3	33.0	44.3	77.3	982.0	949.0
R8-5	Open	B	1039.18	61.3	30.0	31.3	61.3	1007.9	977.9
R8-6	Screen	Int. O	1039.7	21.0	10.0	11.0	21.0	1028.7	1018.7
R8-8	Screen	Int. O	1066.53	24.6	10.0	14.6	24.6	1051.9	1041.9
R8-9	Screen	Int. O	1047.22	22.8	10.0	12.8	22.8	1034.5	1024.5
R8-10	Screen	Dp. O	1027.69	32.4	15.0	17.4	32.4	1010.3	995.3
R8-11	Screen	Int. O	1023.98	22.9	10.0	12.9	22.9	1011.1	1001.1
R8-12	Screen	Int. O	1028.12	26.6	10.0	16.6	26.6	1011.5	1001.5
R8-13	Screen	Int. O	1019.08	19.3	10.0	9.3	19.3	1009.8	999.8
R8-14	Screen	Int. O	1016.85	19.1	10.0	9.1	19.1	1007.8	997.8
R8-15	Screen	Int. O	1017.65	17.8	5.0	12.8	17.8	1004.8	999.8
R8-16S	Screen	Shal. O	1027.04	12.0	5.0	7.0	12.0	1020.0	1015.0
R8-16I	Screen	Int. O	1024.83	30.3	10.0	20.3	30.3	1004.5	994.5
R8-16D	Screen	Dp. O	1025.21	37.9	5.0	32.9	37.9	992.3	987.3
R8-17I	Screen	Int. O	1018.12	10.0	10.0	10.2	20.2	1007.9	997.9
R8-17D	Screen	Dp. O	1019.42	33.2	5.0	28.2	33.2	991.3	986.3
R8-18S	Screen	Shal. O	1034.94	13.5	5.0	8.5	13.5	1026.4	1021.4
R8-18I	Screen	Int. O	1034.54	25.2	5.0	20.2	25.2	1014.4	1009.4
R8-19S	Screen	Shal. O	1024.92	10.7	5.0	5.7	10.7	1019.2	1014.2
R8-19I	Screen	Int. O	1024.63	24.5	5.0	19.5	24.5	1005.1	1000.1
R8-19D	Screen	Dp. O	1026.3	39.7	5.0	34.7	39.7	991.6	986.6
R8-20	Screen	Int. O	1006.98	21.8	5.0	16.8	21.8	990.2	985.2
R8-21	Screen	Int. O	1022.05	20.3	10.0	10.3	20.3	1011.8	1001.8
R8-23	Screen	Dp. O	994.67	52.0	10.0	42.0	52.0	952.7	942.7
R8-24	Open	B	1001.44	74.0	23.0	51.0	74.0	950.4	927.4
R8-25	Screen	Int. O	1001.73	29.7	10.0	19.7	29.7	982.0	972.0
R8-26	Screen	Int. O	1016.25	22.8	10.0	12.8	22.8	1003.4	993.4
R8-28	Open	B	992.91	60.0	20.0	40.0	60.0	952.9	932.9
R8-29	Screen	Int. O	992.68	26.5	10.0	16.5	26.5	976.1	966.1
R8-30	Open	B	993.32	65.5	20.0	45.0	65.5	948.3	927.8

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R8-31	Screen	Int. O	993.73	25.0	10.0	15.0	25.0	978.7	968.7
R8-32	Screen	Dp. O	991.95	87.9	10.0	77.9	87.9	914.1	904.1
R8-33	Open	B	993.71	120.0	25.0	95.0	120.0	898.7	873.7
R8-34	Screen	Dp. O	1028.21	32.3	10.0	22.3	32.3	1005.9	995.9
R8-35	Open	B	1028.5	59.9	20.0	39.9	59.9	988.6	968.6
R8-36	Open	B	992.84	140.0	50.0	90.0	140.0	902.8	852.8
R8-37	Open	B	1003.61	88.5	19.0	69.5	88.5	934.1	915.1
OBG-2	Screen	Shal. O	1007.68	12.2	5.0	7.2	12.2	1000.5	995.5
OBG-3	Screen	Shal. O	1010.07	10.18	5	5.18	10.18	1004.89	999.89
RW-1	Open	B	1015	310.0	294.0	16.0	310.0	999.0	705.0
RW-2	Open	B	1018.93	283.0	251.0	31.9	282.9	987.0	736.0

Overburden
Bedrock

Table 2
2006 and 2018 Groundwater Data Summary Table

			2006 Data													2018 Data										
Well ID	Well Type	Units	Vinyl Chloride	1,1-DCA	1,2-DCE	1,1,1-TCA	TCE	PCE	CVOCs	Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX	Total PCBs	Vinyl Chloride	1,1-DCA	1,2-DCE	1,1,1-TCA	TCE	PCE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total PCBs
B-1	S	ug/L	20	150	170	16	5.7	<5	361.7	<2.5	16	28	63	107												
B-12	S	ug/L	<20	160	430	110	<20	<20	700	<10	<20	<20	<20	<20												
B-13	S	ug/L	<1	1.1	<1	<1	<1	<1	1.1	<0.5	<1	<1	<1	<1												
14	I	ug/L	<1	<1	<1	<1	1.3	<1	1.3	<0.5	<1	<1	<1	<1		1	0.58		3.9	7.4	1	1	1	1	1	
15	D	ug/L	<5	6.7	190	52	160	<5	408.7	<2.5	<5	<5	<5	<5		1	24.1		122	657	1	1	1	1	1	
16	I	ug/L	<5	5.5	110	28	110	<5	253.5	<2.5	<5	<5	<5	<5		1	10.8		46.9	413	1	1	1	1	1	
17	I	ug/L	<1	1.4	<1	2.8	1.4	<1	5.6	<0.5	<1	<1	<1	<1		1	2.7		1.2	1.9	1	1	1	1	1	
18	I	ug/L	12	110	370	120	15	<5	627	<2.5	<5	<5	<5	<5		5.4	72	67.7	32.4	13	<0.82	<0.23	<0.21	<0.24	<0.20	
19	I	ug/L	<1000	<1000	45000	11000	<1000	<1000	56000	<500	9400	1200	7800	18400												
20	I	ug/L	5.5	62	170	80	36	<2	353.5	<1	<2	<2	<2	<3		1	12.9		15	53.5	1	1	1	1	1	
22	D	ug/L	<2000	<2000	77000	91000	82000	<2000	250000	<1000	25000	<2000	2000	27000		500	4120	68000	178000	237000	<1	<10	651	27400	2716	
24	I	ug/L	<250	<250	6300	2400	6700	<250	15400	<120	<250	<250	<250	<120		17	382	7082.5	1900	5890	<1	<1	<11	<12	<9.8	
26	I	ug/L	<100	2000	13000	3800	<100	<100	18800	<50	<100	<100	<100	<50		51.3	1620		1570	92.1	1	1	1	1	1	
27	I	ug/L	<1	1.1	9.9	7.2	2.1	<1	20.3	<0.5	<1	<1	<1	<1		1	8.7		17.3	8.5	1	1	1	1	1	
28	D	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1		1	1		1	1	1	1	1	1	1	
29	I	ug/L	<1	<1	5.9	3.3	<1	<1	9.2	<0.5	<1	<1	<1	<1		1	1.1		1.8	0.39	1	1	1	1	1	
30	D	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1												
31	I	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1		<0.29	0.42	<0.54	<0.36	0.29	<0.82	<0.23	<0.21	<0.24	<0.20	
32	I	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1		<0.29	<0.32	<0.54	<0.36	<0.24	<0.82	<0.23	<0.21	<0.24	<0.20	
83-1	B	ug/L	<10	10	39	80	230	<10	359	<5	<10	<10	<10	<10		<0.29	25.5	260.46	230	266	<0.82	<0.23	<0.21	<0.24	<0.20	
83-2	B	ug/L	<10	<10	140	130	410	<10	680	<5	<10	<10	<10	<10		<0.58	17.6	192.4	162	558	<1.6	<0.47	<0.42	<0.47	<0.39	
83-3	B	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1		<0.29	<0.32	<0.54	<0.36	<0.24	<0.82	<0.23	<0.21	<0.24	<0.20	
83-4	B	ug/L	<1	20	55	4.6	14	<1	93.6	<0.5	<1	<1	<1	<1		2.2	74.9	273.79	17.7	35.6	<0.82	<0.23	<0.21	<0.24	<0.20	
84-10	I	ug/L	<5	46	94	20	6.8	<5	166.8	<2.5	<5	<5	<5	<5		<0.29	8.2	7.4	2.9	4.1	<0.82	<0.23	<0.21	<0.24	<0.20	
84-11	S	ug/L	<1	<1	<1	<1	1.1	<1	1.1	<0.5	<1	<1	<1	<1		1	1		1	0.66	1	1	1	1	1	
84-12	I	ug/L	<1	<1	1.6	1	<1	<1	2.6	<0.5	<1	<1	<1	<1		<0.29	1.3	5.4	2	0.51	<0.82	<0.23	<0.21	<0.24	<0.20	
84-13	D	ug/L	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1		1	1		1	1	1	1	1	1	1	
Seep 1	Seep	ug/L	<1	6.4	22	16	49	<1	93.4	<0.5	<1	<1	<1	<1		<0.29	2.5	11.6	7.5	31.5	<0.82	<0.23	<0.21	<0.24	<0.20	
Seep 2	Seep	ug/L	<1	<1	3.9	4	12	<1	19.9	<0.5	<1	<1	<1	<1		<0.29	2.2	14.1	13.3	55.7	<0.82	<0.23	<0.21	<0.24	<0.20	
Seep 3	Seep	ug/L														<0.29	7	11.7	1.5	5.9	<0.82	<0.23	<0.21	<0.24	<0.20	
Seep 4	Seep	ug/L														2.6	85.8	369.72	66.5	1.5	<0.82	<0.23	<0.21	<0.24	<0.20	
R8-1	B	ug/L	94	33	410	<2	150	<2	687	<1	<2	<2	<2	<2	<0.050	51.3	19.2	232	0.48	91.8	<0.82	0.39	<0.24	<0.21	<0.43	
R8-2	B	ug/L	<1	6.2	9.5	<1	1.4	<1	17.1	<0.5	<1	<1	<1	<1	<0.050	2.9	3.9	10.9	<0.36	3.5	<0.82	<0.23	<0.24	<0.21	<0.43	
R8-3	B	ug/L	<2	2.7	3	<1	<2	<2	5.7	<1	<2	3.2	86	89.2	<0.051	0.31	1.4	<0.54	<0.36	<0.24	<0.82	<0.23	<0.24	0.33	114	
R8-4	B	ug/L	560	200	1600	26	16	<10	2402	<5	21	57	85	163	<0.050		18.7	51.9	0.66	41.4						
R8-5	B	ug/L	230	140	370	6.7	17	<2	763.7	<1	190	260	620	1070	0.102	132	53.4	236	3.9	4.4	<0.82	1	52	101	360.9	
R8-6	O	ug/L	<1	<1	1	<1	2.4	<1	3.4	<0.5	<1	<1	<1	<1	<0.050		1	1	1	2						
R8-8	O	ug/L	<1	<1	<1	<1	<1	<1	0	<0.5	<1	<1	<1	<1	<0.050		1	1	1	0.72						
R8-9	O	ug/L	1.1	1.2	2	1.2	<1	<1	5.5	<0.5	<1	<1	<1	<1	0.111	<0.29	<0.32	<0.54	<0.36	0.47	<0.82	<0.23	<0.24	<0.21	<0.43	
R8-10	O	ug/L	1.6	57	<1	2.8	<1	<1	61.4	0.6	31	100	290	421.6	<0.050		11.7	26.2	1	1						
R8-11	O	ug/L	3.7	56	1.7	2.1	<1	<1	63.5	<0.5	18	69	197	284	<0.050		14.2	21.7	1	0.26						
R8-12	O	ug/L	<1	8.5	<1	<1	<1	<1	8.5	<1	<1	<1	<1	0	<0.050		1.9	1.2	1	1						
R8-13	O	ug/L	1.4	7.7	1.5	<1	<1	<1	10.6	<1	<1	15	150	165	<0.050		1.8	1	1	1						
R8-14	O	ug/L	<1	1.4	<1	<1	<1	<1	1.4	<1	1.5	2.1	<1	3.6	0.052	<0.29	1.2	<0.54	<0.36	0.24	<0.82	<0.23	<0.24	<0.21	4.6	
R8-15	O	ug/L	<1	2.3	<1	<1	<1	<1	2.3	<1	<1	<1	<1	<1	<0.050		1	1	1	1						
R8-16S	O	ug/L	<10	49	350	27	<10	<10	426	<5	<10	<10	<10	<10	<0.050		92.5	206	2.1	1						
R8-16I	O	ug/L	<100	310	<100	<100	<100	<100	310	<50	7400	1200	2000	10600	<0.050		225	6.4	10.2	0.53						
R8-16D	O	ug/L	<10	71	15	<10	<10	<10	86	<5	510	130	480	1120	<0.050		119	5.6	6.5	0.88						
R8-17I	O	ug/L	<20	99	<20	<20	32	<20	131	<10	310	620	1370	2300	<0.050		23.9	0.92	1	0.48						
R8-17D	O	ug/L	2.2	20	2.5	<1	<1	<1	24.7	<0.5	<1	5.3	7.9	13.2	<0.050		1.4	0.88	1	1						
R8-18S	O	ug/L	<10	68	660	46	<10	<10	774	<5	<10	<10	<10	<10	<0.050		107	513	6.6	0.74						
R8-18I	O	ug/L	170	350	880	100	<50	<50	1500	<25	4500	390	880	5770	<0.050		196	108	9.6	0.84						
R8-19S	O	ug/L	34	170	65	<20	<20	<20	269	<10	2200	610	1070	3880	<0.050		123	4.2	7.2	0.25						
R8-19I	O	ug/L	<20	190	<20	<20	22	<20	212	<10	840	520	850	2210	0.295	2.7	148	2.6	6.8	<0.24	<0.82	1.3	69.9	457	779	
R8-19D	O	ug/L	160	220	1100	55	23	<20	1558	<10	58	720	890	1668	<0.050		41.8	49.6	1.1	2.1						
R8-20	O	ug/L	<1	3.5	<1	<1	<1	<1	3.5	<0.5	<1	<1	40	40	<0.050		2.5	1	1	1						
R8-21	O	ug/L	<1	26	2.5	1.9	<1	<1	30.4	<0.5	9	33	94	136	<0.050		7.5	15.3	1	1						
R8-23	O	ug/L	4.9	2.8	6.6	<1	<1	<1	14.3	<0.5	<1	<1	<1	<1	0.156	27	7.6	11.6	<0.36	0.78	<0.82	<0.23	<0.24	<0.21	<0.43	
R8-24	B	ug/L	14	9.2	48	2	5.6	<1	78.8	<0.5	<1	<1	<1	<1	0.06	17.3	9.4	19.6	1.5	5.2	<0.82	0.27	<0.24	<0.21	<0.43	
R8-25	O	ug/L	<1	5	15	<1	5.9	<1	25.9	<0.5	<1	<1	<1	<1	<0.050	0.59	3.3	5.8	<0.36	3.7	<0.82	<0.23	<0.24	<0.21	<0.43	
R8-26	O	ug/L	<1	4.2	<1	<1	<1	<1	4.2	<0.5	<1	<1	<1	<1	<0.050		4.6	1.8	1	0.75						
R8-28	B	ug/L	630	170	1400	<20	32	<20	2232	<10	<20	<20	<20	<20	<0.050	382	100	410	<0.36	5.8	<0.82	1.9	1.1	0.41	1.1	
R8-29	O	ug/L	84	65	450	19	39	<10	657	<5	<10	<10	<10	<10	<0.050		30.2	113	0.99	13.9						
R8-30	B	ug/L	780	230	3000	160	69	<50	4239	<25	<50	<50	<50	<50	<0.050	1400	427	2810	12.4	108	<1	16.6	20.6	21.9	28.6	

Table 2
2006 and 2018 Groundwater Data Summary Table

			2006 Data													**2018 Data**										
Well ID	Well Type	Units	Vinyl Chloride	1,1-DCA	1,2-DCE	1,1,1-TCA	TCE	PCE	CVOCs	Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX	Total PCBs	Vinyl Chloride	1,1-DCA	1,2-DCE	1,1,1-TCA	TCE	PCE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total PCBs
R8-31	O	ug/L	24	63	320	16	53	<10	476	<5	<10	<10	<10	<10	<0.050	120	44	470	4	94.7	<0.82	2.3	<0.24	<0.21	1.1	
R8-32	O	ug/L	13	21	780	27	190	<10	1031	<5	<10	<10	<10	<10	<0.050		24.5	512	5	157						
R8-33	B	ug/L	<20	<20	450	<20	66	<20	516	<10	<20	<20	<20	<20	0.125	9.8	18.2	336	1.9	73.2	<0.82	0.24	<0.24	<0.21	<0.43	
R8-34	O	ug/L	<1	<1	<1	<1	4.3	<1	4.3	<0.5	<1	<1	<1	<1	<0.050	<0.29	<0.32	<0.54	<0.36	3.5	<0.82	<0.23	<0.24	<0.21	<0.43	0.56
R8-35	B	ug/L	<1	<1	9.9	1.1	39	<1	50	<0.5	<1	<1	<1	<1	<0.050	0.31	1.5	5.1	0.4	20.5	<0.82	<0.23	<0.24	<0.21	<0.43	
R8-36	B	ug/L	56	48	820	<10	180	<10	1104	<5	<10	<10	<10	<10	<0.050		102	1680	1	71.4						
R8-37	B	ug/L	270	140	870	<10	120	<10	1400	<5	<10	<10	<10	<10	<0.050	310	72.2	698	<0.36	37	<0.82	1.7	<0.24	0.41	0.49	
OBG-2	O	ug/L	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10	260	260	<0.050		2.6	1	1	1						
OBG-3	O	ug/L	<10	<10	<10	<10	<10	<10	<10	<5	<10	210	1100	1310	0.851	<0.29	1.8	0.77	<0.36	<0.24	<0.82	0.55	1.3	1.5	957.9	

Key: S: Shallow, I: Intermediate, D: Deep, B: Bedrock, O: Overburden
the MDL shown as the indicating delineation for non-detects.

Table 3
Groundwater and Seep Sampling Requirements and Schedule

BCO Hill Site

Sampling Location	**Analytical Parameters**		**Schedule**
	VOCs (EPA Method 624)	Elevation	
83-1	X	X	every fifth quarter
83-2	X	X	every fifth quarter
83-3	X	X	every fifth quarter
83-4	X	X	every fifth quarter
84-10	X	X	every fifth quarter
84-12	X	X	every fifth quarter
84-13		X	every fifth quarter
14		X	every fifth quarter
15	X	X	every fifth quarter
16	X	X	every fifth quarter
17		X	every fifth quarter
18	X	X	every fifth quarter
20		X	every fifth quarter
4I	X	X	every fifth quarter
24	X	X	every fifth quarter
26	X	X	every fifth quarter
27	X	X	every fifth quarter
28	X	X	every fifth quarter
29	X	X	every fifth quarter
31	X	X	every fifth quarter
32	X	X	every fifth quarter
Seep-1	X		every fifth quarter
Seep-2	X		every fifth quarter
Seep-3	X		every fifth quarter
Seep-4	X		every fifth quarter

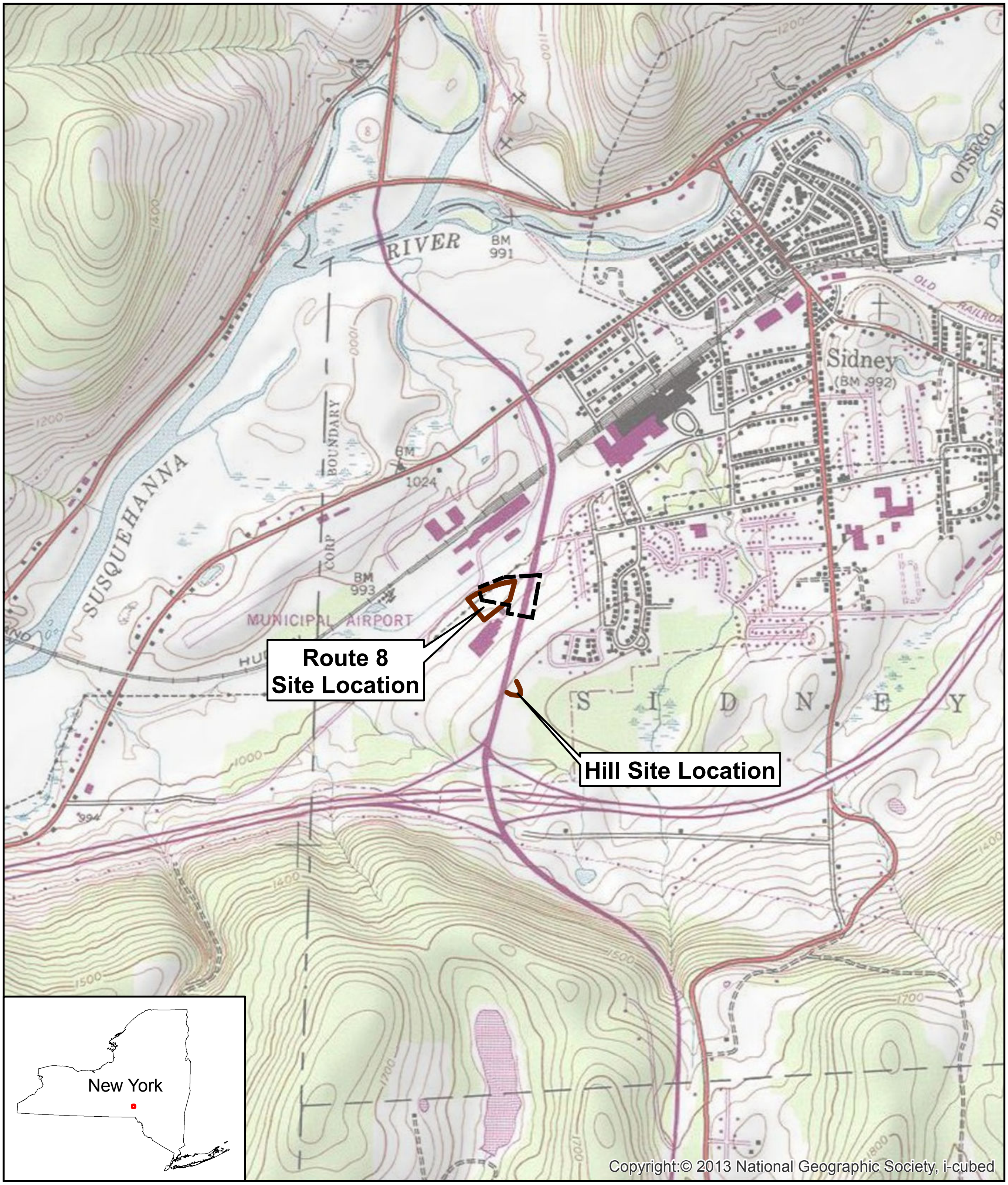
Table 3
Groundwater Sampling Requirements and Schedule

Rt. 8 Landfill Site

Sampling Location		**Frequency**	**Analytical Parameters**
Overburden Wells: OBG-3 R8-8 R8-9 R8-10 R8-14 R8-16S R8-16I R8-16D R8-18S R8-18I R8-19S R8-19I R8-19D R8-20 R8-23 R8-25 R8-26 R8-29 R8-31 R8-32 R8-34	Bedrock Wells: R8-1 R8-2 R8-3 R8-4 R8-5 R8-24 R8-28 R8-30 R8-33 R8-37 R8-35 R8-36	Every Fifth Quarter	VOCs (Method 8260) and PCBs (Method 8082)

FIGURES

Document: P:\Projects\AMP_HON SREP 361717740\9\4.0_Deliverables\4.5_Databases\GIS\Mapdocuments\Site_Location_Both.mxd PDF: P:\Projects\AMP_HON SREP 361717740\9\4.0_Deliverables\4.5_Databases\GIS\Figures\SREP\working\Figure 1 - Site Locations.pdf 12-16-2020 8:32 AM brian.peters



Legend

Property Line

Site Boundary per Order of Consent

N

0 1,000 2,000 Feet

amec

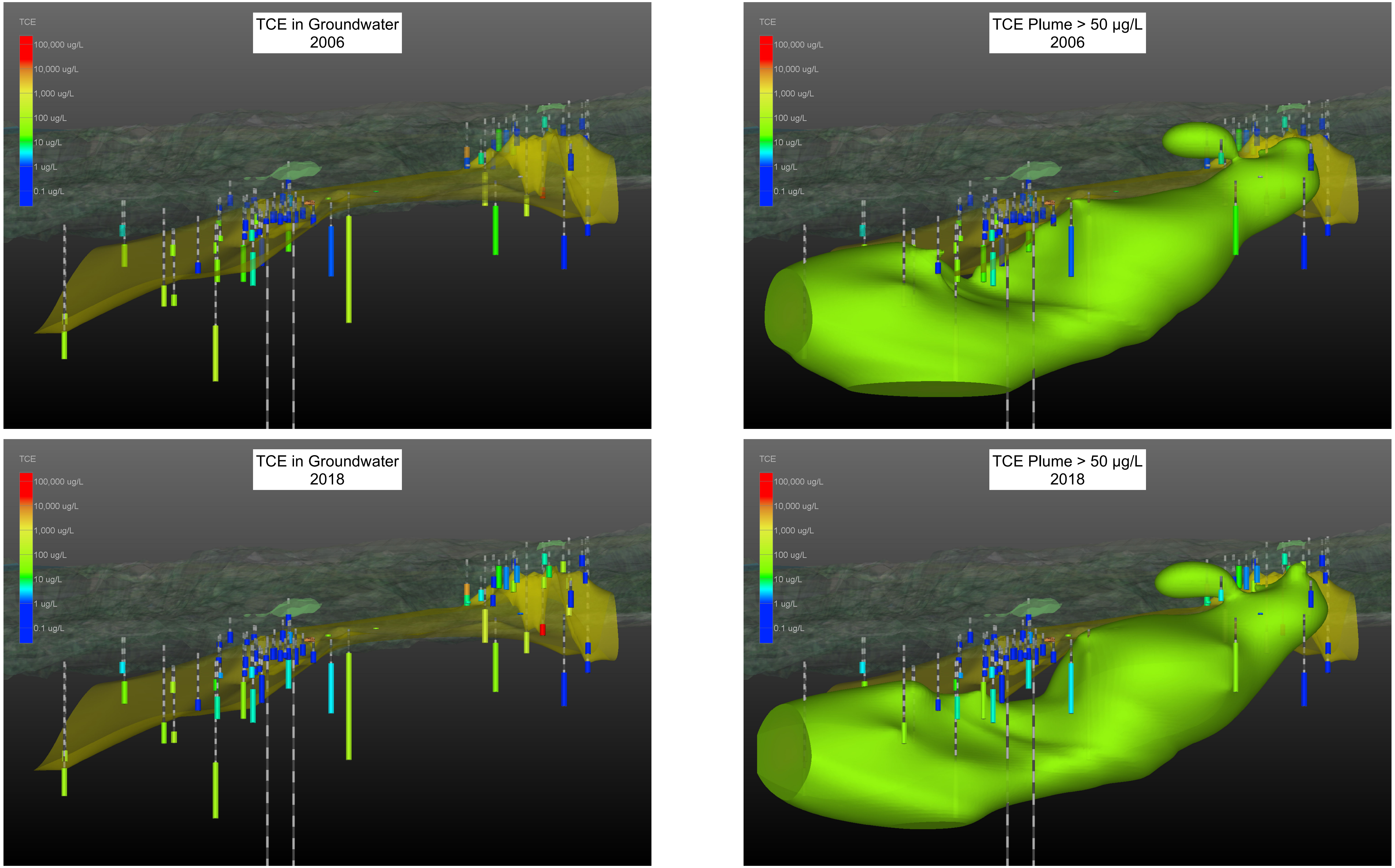
JTM ASSOCIATES, LLC

Figure 1
Route 8 and Hill
Site Locations

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 12-16-20	Checked/Date: RRR 12-16-20

Document: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\GIS\Mapdocuments\Amphenol_2019_Rt8_Demo_WP_Fig2.mxd PDF: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\RRR_GIS\GIS\Figures\2019 ROP WP\Figure 2 - TCE in Groundwater.pdf 06-18-2021 10:01 AM brian.peters



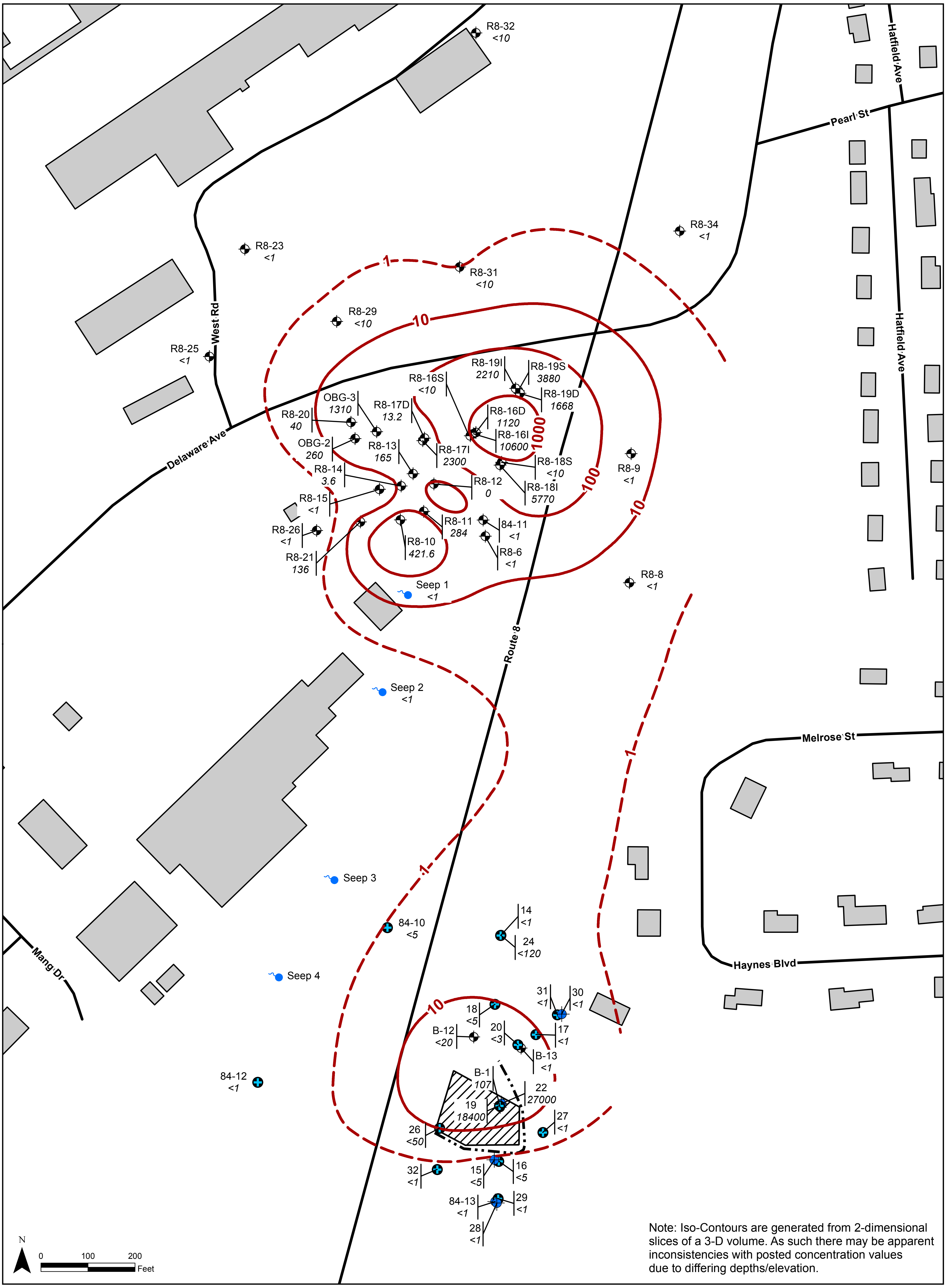
Notes:
View Looking to the Southeast
5X Vertical Exaggeration

Figure 2
TCE in Groundwater
2006 and 2018

2019 Remediation Optimization Program Workplan
Amphenol Facility Sites
Sidney, New York

amec JTM ASSOCIATES, LLC

Prepared/Date: BRP 06-18-21	Checked/Date: SEW 06-18-21



Legend

- BTEX in Overburden Groundwater (µg/L)
- (dashed where inferred)
- Shallow Overburden Monitoring Well
- Intermediate Overburden Monitoring Well
- Deep Overburden Monitoring Well
- Seep
- Road
- Ditch
- Approximate Excavation Area
- Building

B-1 - Location ID
107 - BTEX Concentration in (µg/L)

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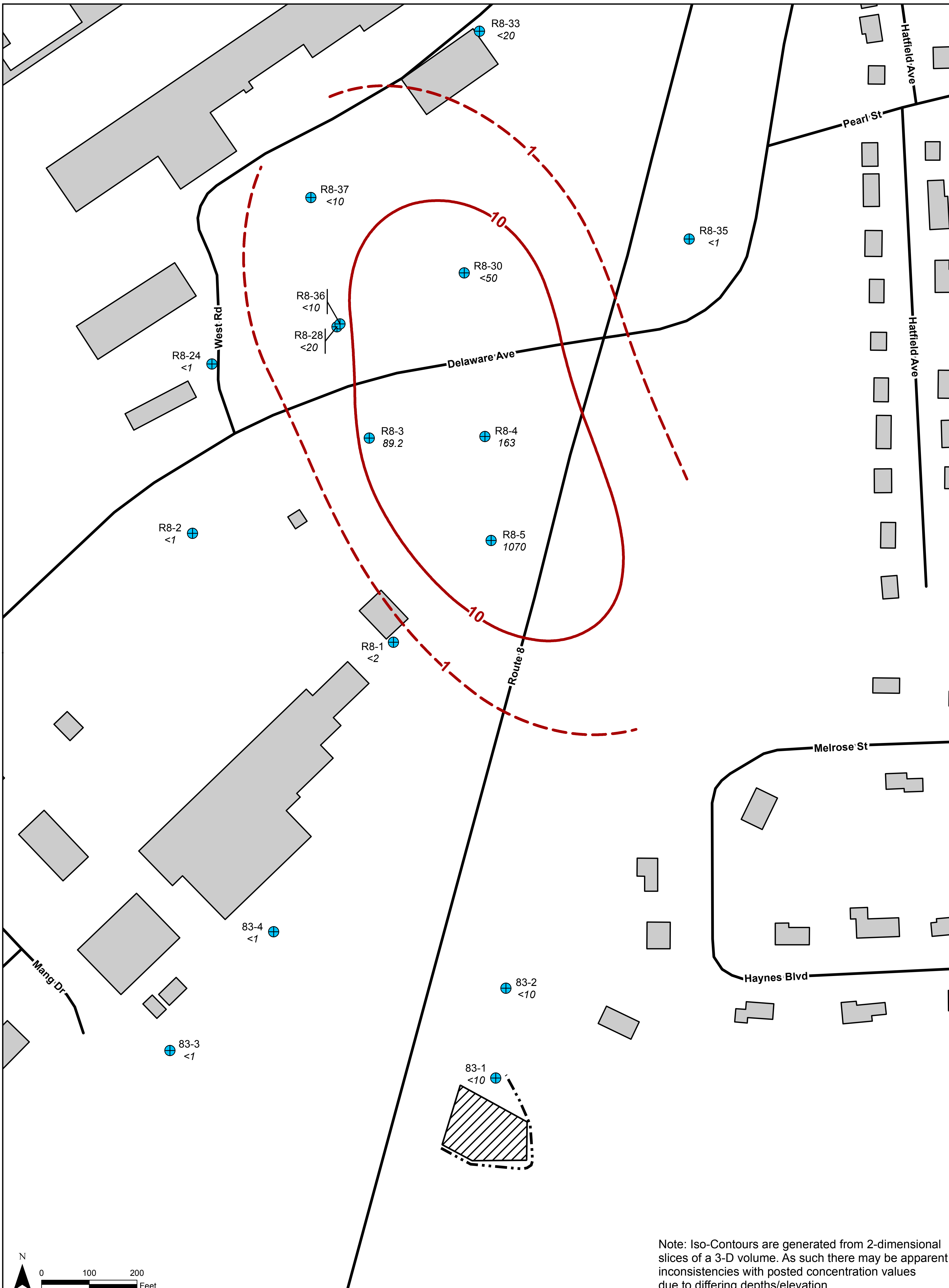
Figure 3.A
BTEX in Overburden Groundwater
2006
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-10-21	Checked/Date: RRR 06-10-21



Legend

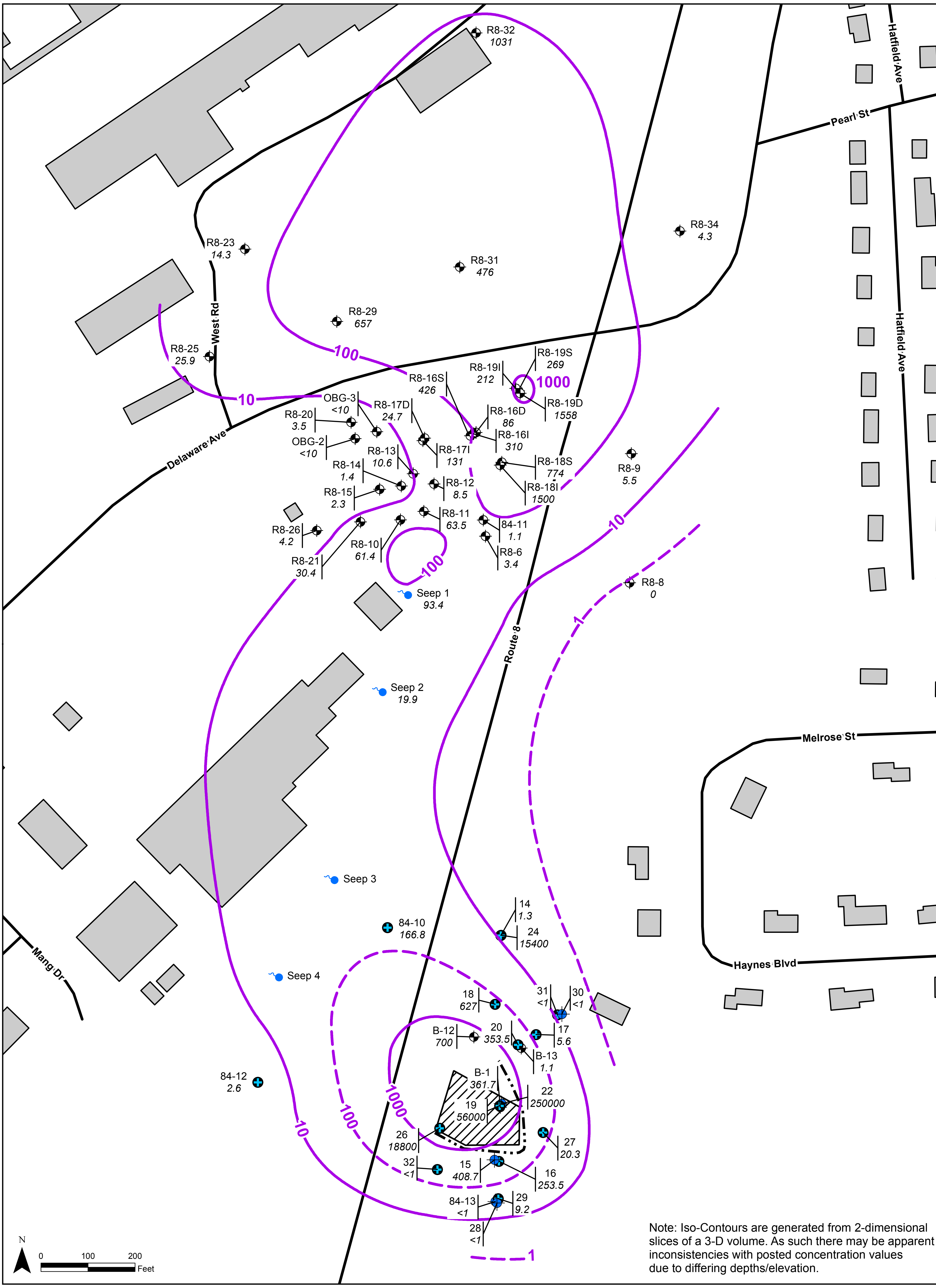
- BTEX in Bedrock Groundwater (µg/L)
- (dashed where inferred)
- Bedrock Monitoring Well
- Road
- Ditch
- Approximate Excavation Area
- Building

R8-5 - Location ID
1070 - BTEX Concentration in (µg/L)

Figure 3.B
BTEX in
Bedrock Groundwater
2006
Amphenol Corporation
Sidney, New York

amec
JTM ASSOCIATES, LLC

Prepared/Date: BRP 06-10-21 | Checked/Date: RRR 06-10-21



Legend

- CVOCs in Overburden Groundwater (µg/L)
- (dashed where inferred)
- Shallow Overburden Monitoring Well
- Intermediate Overburden Monitoring Well
- Deep Overburden Monitoring Well
- Seep
- Road
- Ditch
- Approximate Excavation Area
- Building

B-1 - Location ID
361.7 - CVOCs Concentration in (µg/L)

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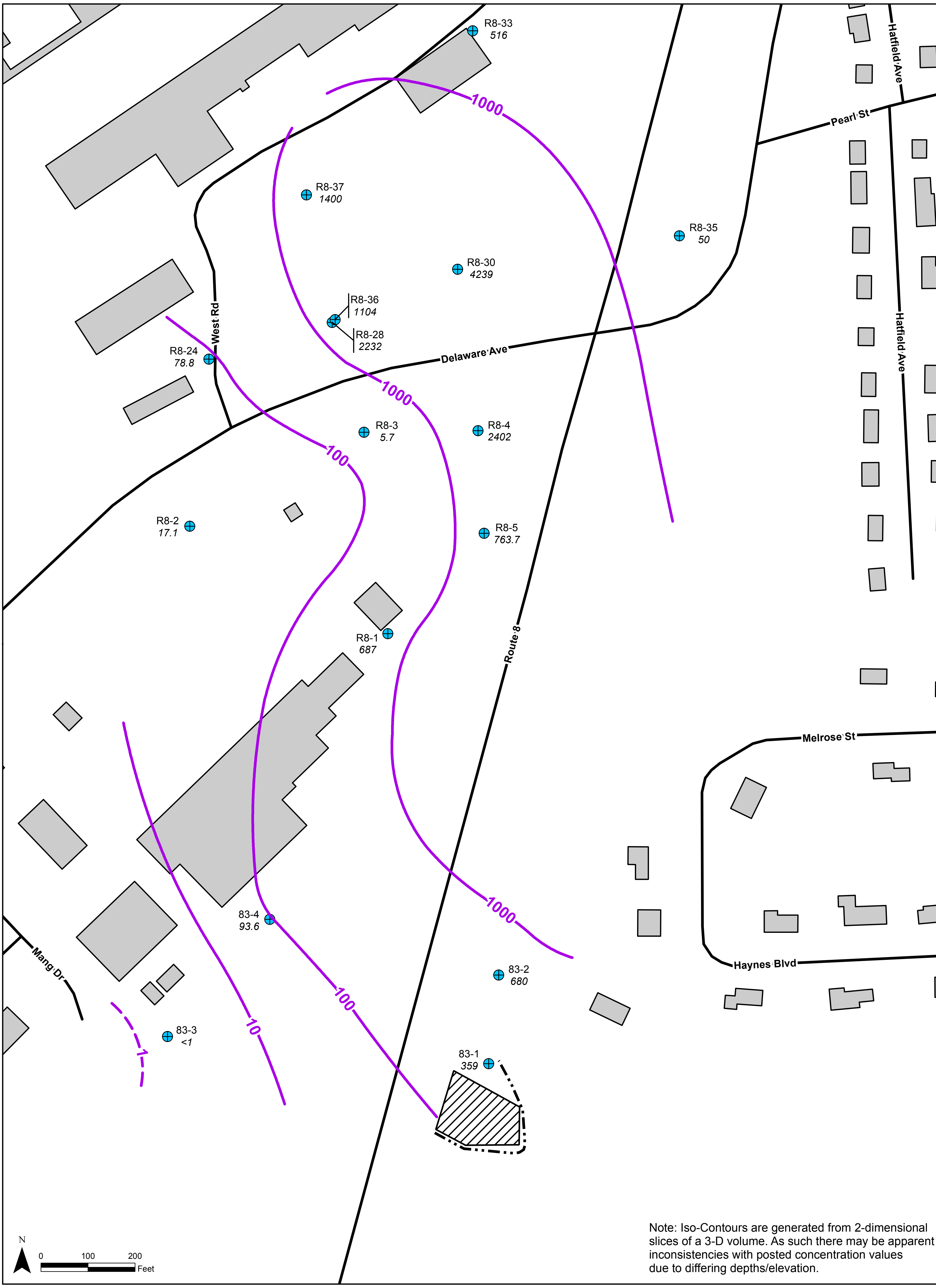
Figure 3.C
CVOCs in
Overburden Groundwater
2006
Amphenol Corporation
Sidney, New York



Legend

CVOCs in Bedrock Groundwater (µg/L)
(dashed where inferred)
Bedrock Monitoring Well
Road
Ditch
Approximate Excavation Area
Building

R8-5 - Location ID
763.7 - CVOCs Concentration in (µg/L)

Figure 3.D
CVOCs in
Bedrock Groundwater
2006
Amphenol Corporation
Sidney, New York

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Prepared/Date: BRP 06-10-21 | Checked/Date: RRR 06-10-21

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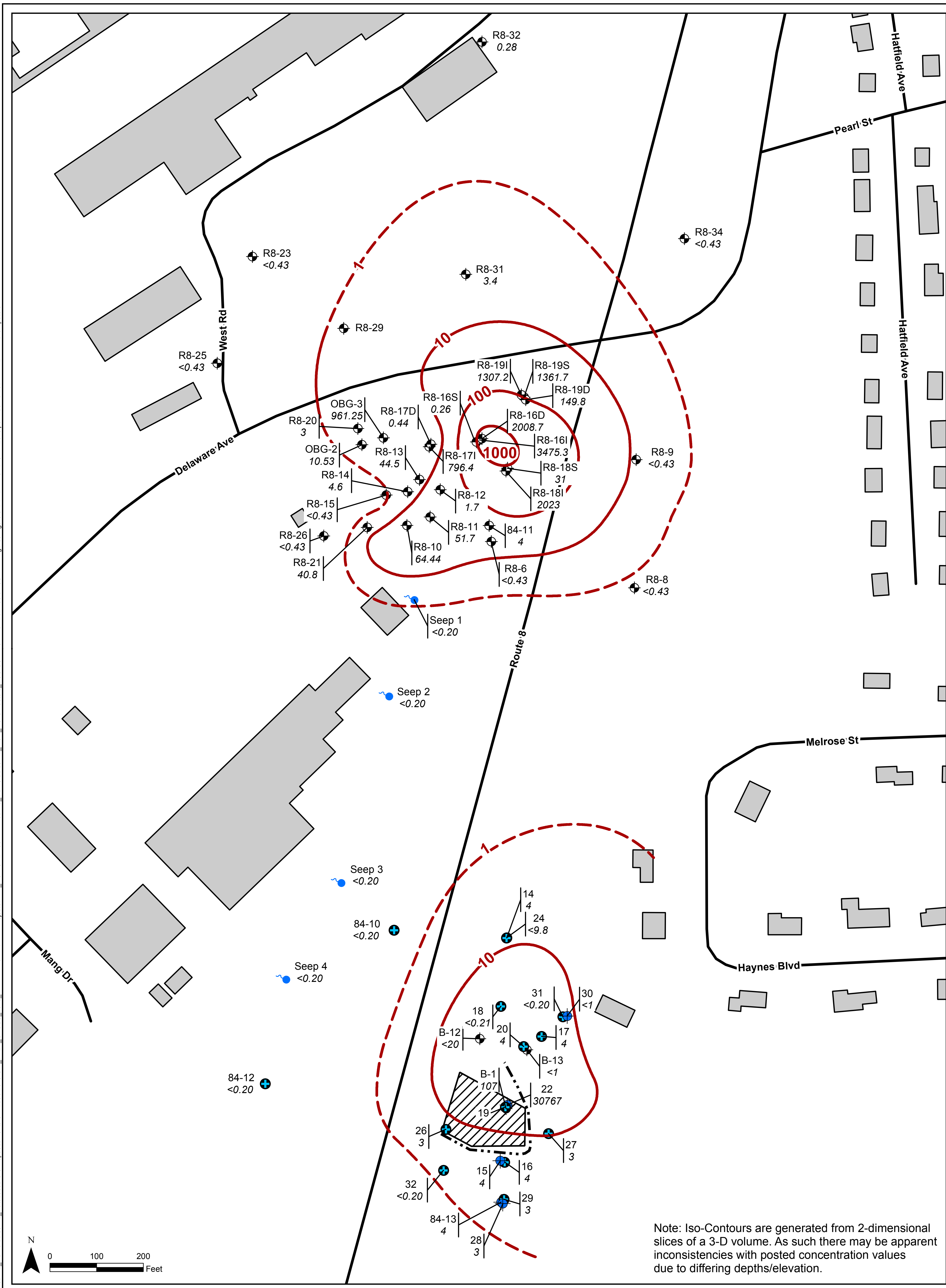

Legend

- BTEX in Overburden Groundwater (µg/L)
- (dashed where inferred)
- Shallow Overburden Monitoring Well
- Intermediate Overburden Monitoring Well
- Deep Overburden Monitoring Well
- Seep
- Road
- Ditch
- Approximate Excavation Area
- Building

B-1 - Location ID
107 - BTEX Concentration in (µg/L)

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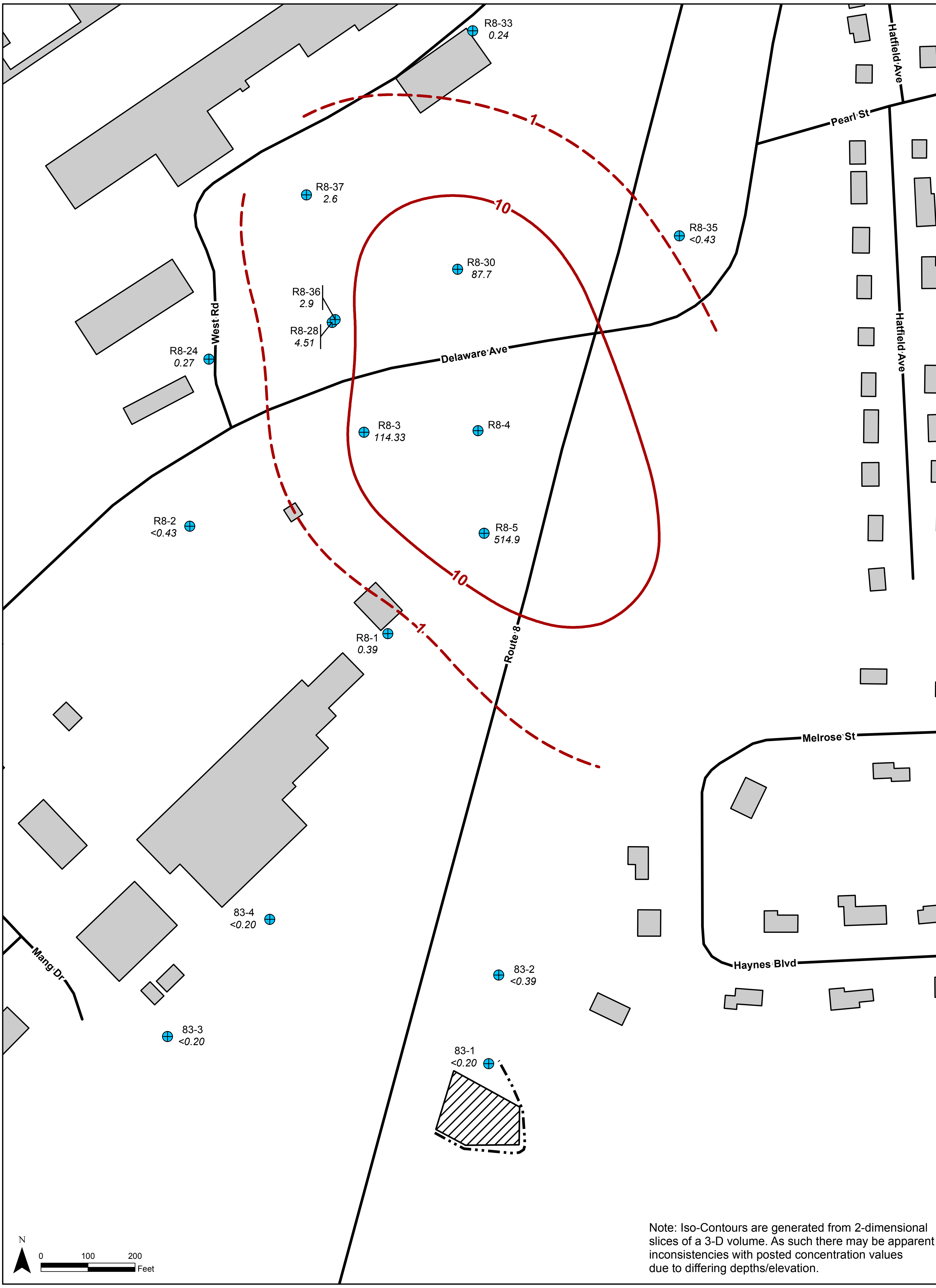
JTM Associates, LLC

Figure 3.E
BTEX in
Overburden Groundwater
2018
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-10-21	Checked/Date: RRR 06-10-21

Document: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\GIS\Mapdocuments\GW 2006 2018\GW_BTEX_CVOCS_2018_11x17P.mxd PDF: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.2_Work_Plans\Route 8_BCO CSM WP\2021 06 04 CSM Work Plan\Figures\Figure 3.E BTEX in OVB GW - 2018.pdf 06-10-2021 11:12 AM brian.peters



Note: Iso-Contours are generated from 2-dimensional slices of a 3-D volume. As such there may be apparent inconsistencies with posted concentration values due to differing depths/elevation.

Legend

- BTEX in Bedrock Groundwater (µg/L)
- (dashed where inferred)
- Bedrock Monitoring Well
- Road
- Ditch
- Approximate Excavation Area
- Building

R8-5 - Location ID
514.9 - BTEX Concentration in (µg/L)

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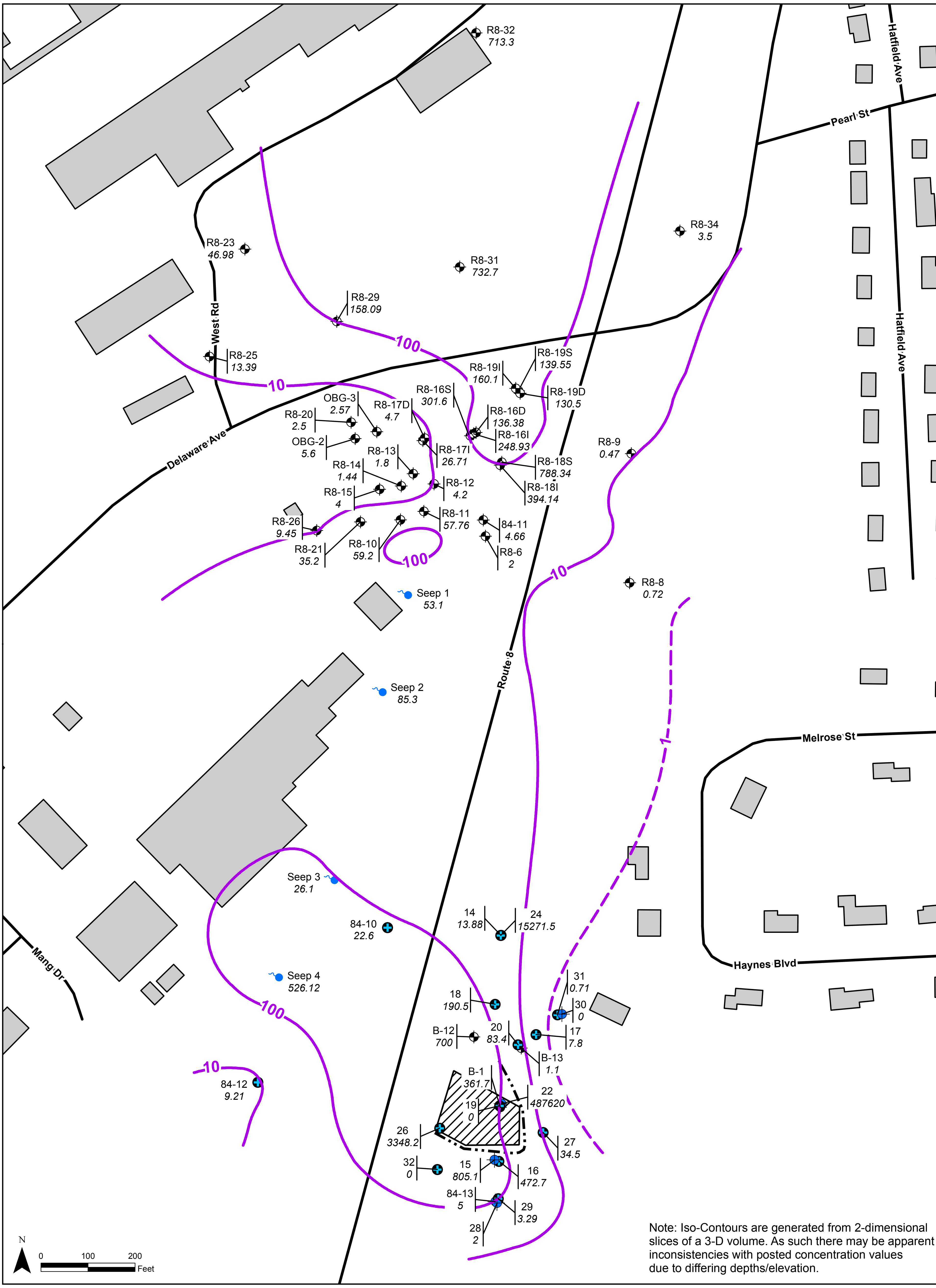
Prepared/Date: BRP 06-10-21 | Checked/Date: RRR 06-10-21

Figure 3.F
BTEX in
Bedrock Groundwater
2018
Amphenol Corporation
Sidney, New York

Document: P:\Projects\AMP_HON SREP 361717740914.0_Deliverables\4.5_Databases\GIS\Mapdocuments\GW 2006 2018\GW_BTEX_CVOCS_2018_11x17P.mxd PDF: P:\Projects\AMP_HON SREP 361717740914.0_Deliverables\4.2_Work_Plans\Route 8_BCO CSM Work Plan\2021 06 04 CSM WP\Figures\Figure 3.F BTEX in BR GW - 2018.pdf 06-10-2021 11:03 AM brian.peters



Legend

- CVOCs in Bedrock Groundwater (µg/L)
- (dashed where inferred)
- Shallow Overburden Monitoring Well
- Intermediate Overburden Monitoring Well
- Deep Overburden Monitoring Well
- Seep
- Road
- Ditch
- Approximate Excavation Area
- Building

B-1 - Location ID
361.7 - CVOCs Concentration in (µg/L)

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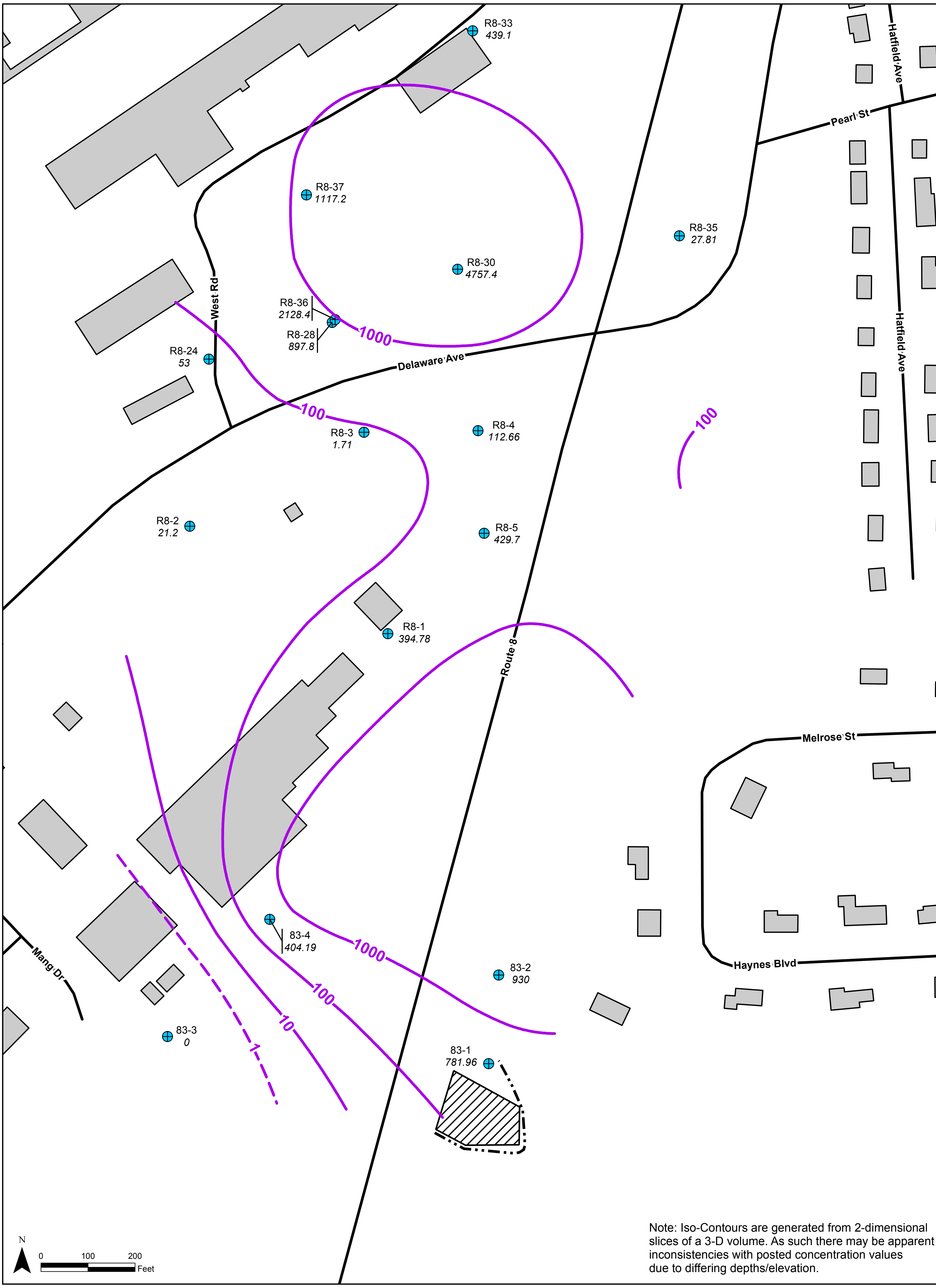
Figure 3.G
CVOCs in
Overburden Groundwater
2018
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-10-21	Checked/Date: RRR 06-10-21



Note: Iso-Contours are generated from 2-dimensional slices of a 3-D volume. As such there may be apparent inconsistencies with posted concentration values due to differing depths/elevation.

Legend

- CVOCs in Bedrock Groundwater (µg/L)
- (dashed where inferred)
- Bedrock Monitoring Well
- Road
- Ditch
- Approximate Excavation Area
- Building

R8-5 - Location ID
429.7 - CVOCs Concentration in (µg/L)

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Figure 3.H
CVOCs in
Bedrock Groundwater
2018
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-10-21	Checked/Date: RRR 06-10-21

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Figure 4.A
Contaminant Mass Removal
Historical Plot

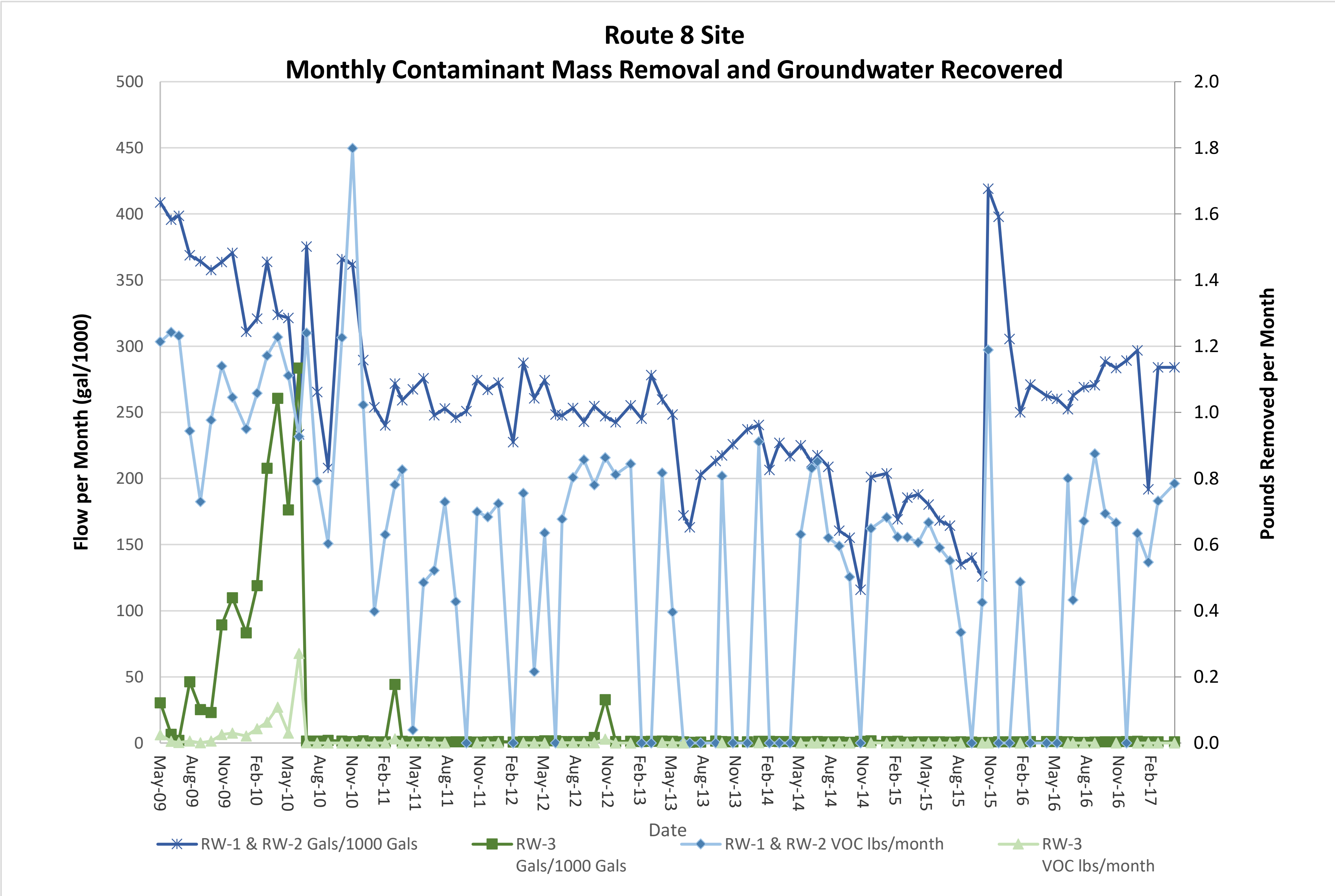
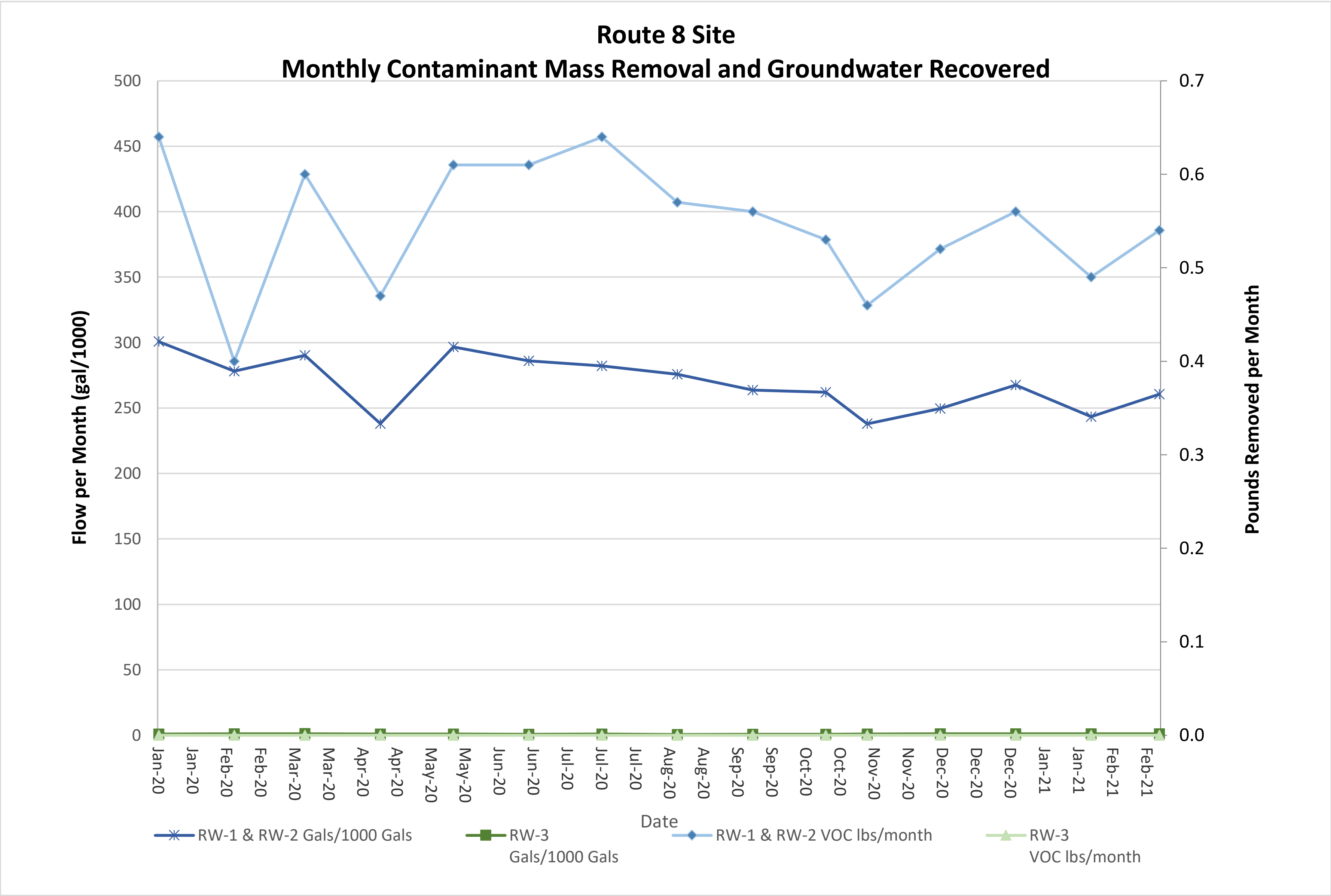
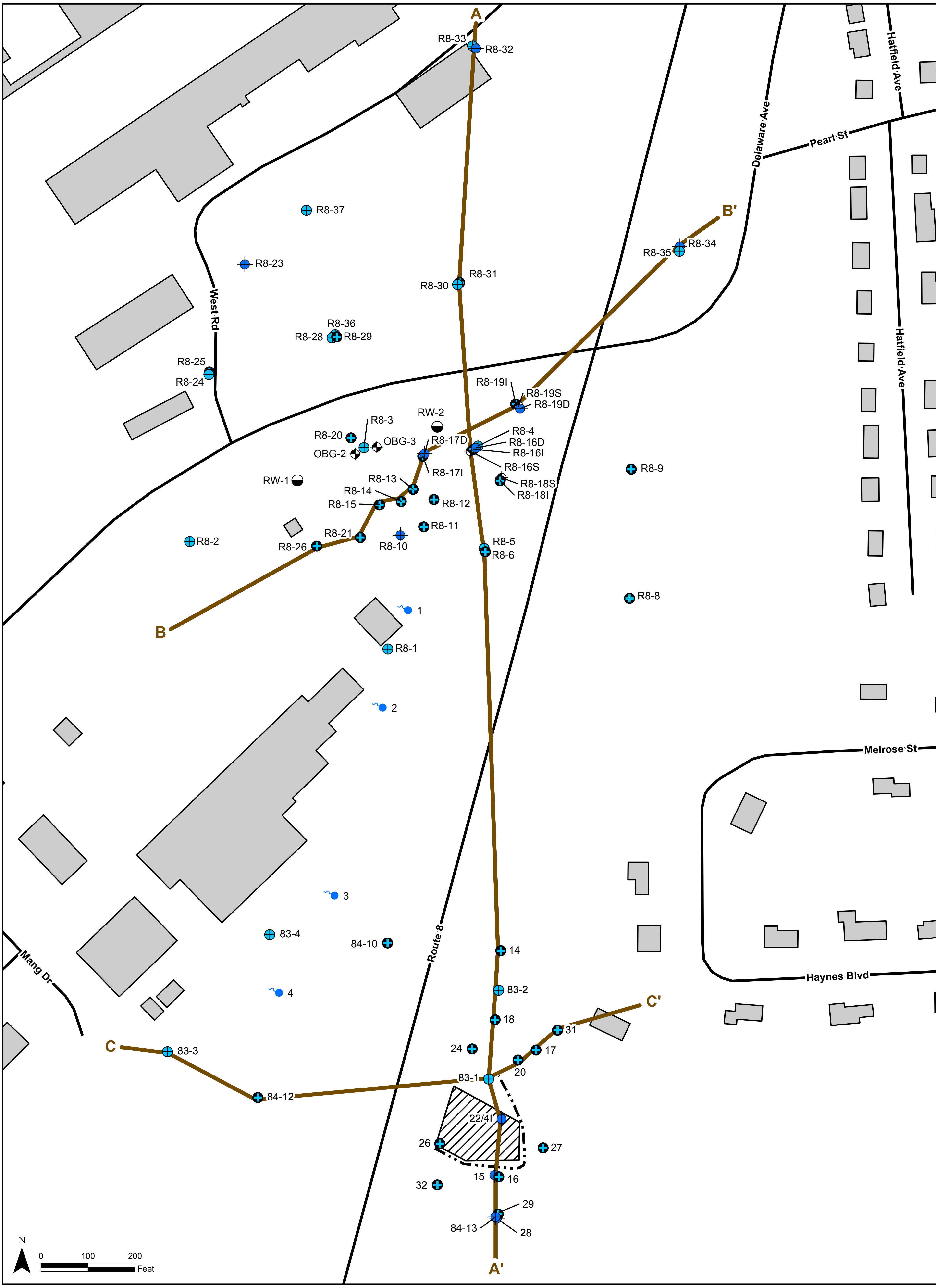


Figure 4.B
Contaminant Mass Removal
2020-2021





Legend

- Recovery Well
- Shallow Overburden Monitoring Well
- Intermediate Overburden Monitoring Well
- Deep Overburden Monitoring Well
- Bedrock Monitoring Well
- Seep
- Cross Section Orientation
- Road
- Ditch
- Approximate Excavation Area
- Building

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Figure 5.1
Section Orientation

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 12-23-20	Checked/Date: RRR 12-23-20

Document: P:\Projects\AMP_HON SREP 3617177409\4.5_Databases\GIS\Mapdocuments\HillSite_Route8_11x17P.mxd PDF: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\GIS\Figures\SREP\working\Figure A.1 - Section Orientation.pdf 12-23-2020 8:41 AM brian.peters

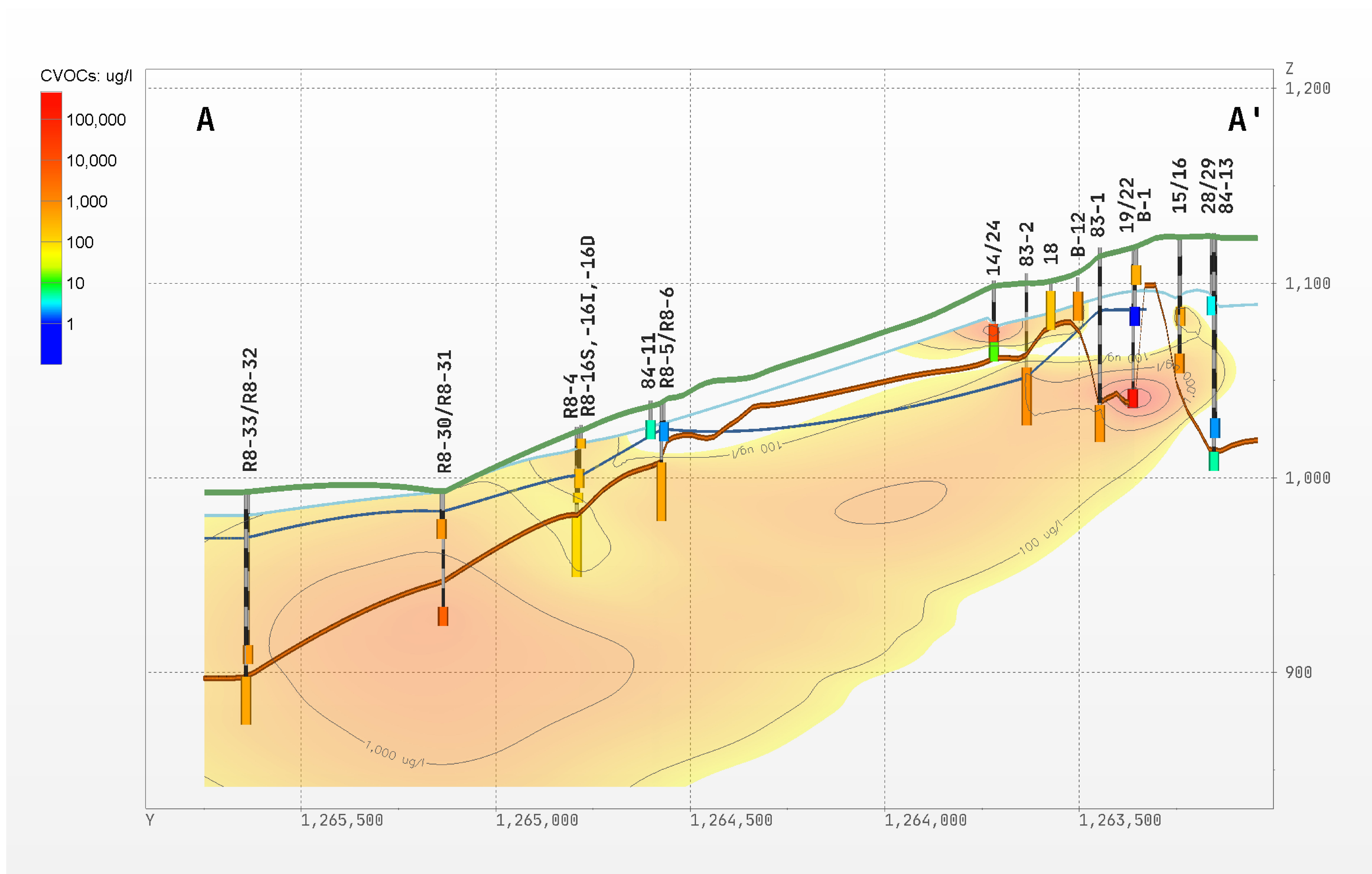

Figure 5.2
Section A-A' CVOC Distribution
July 2018

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21

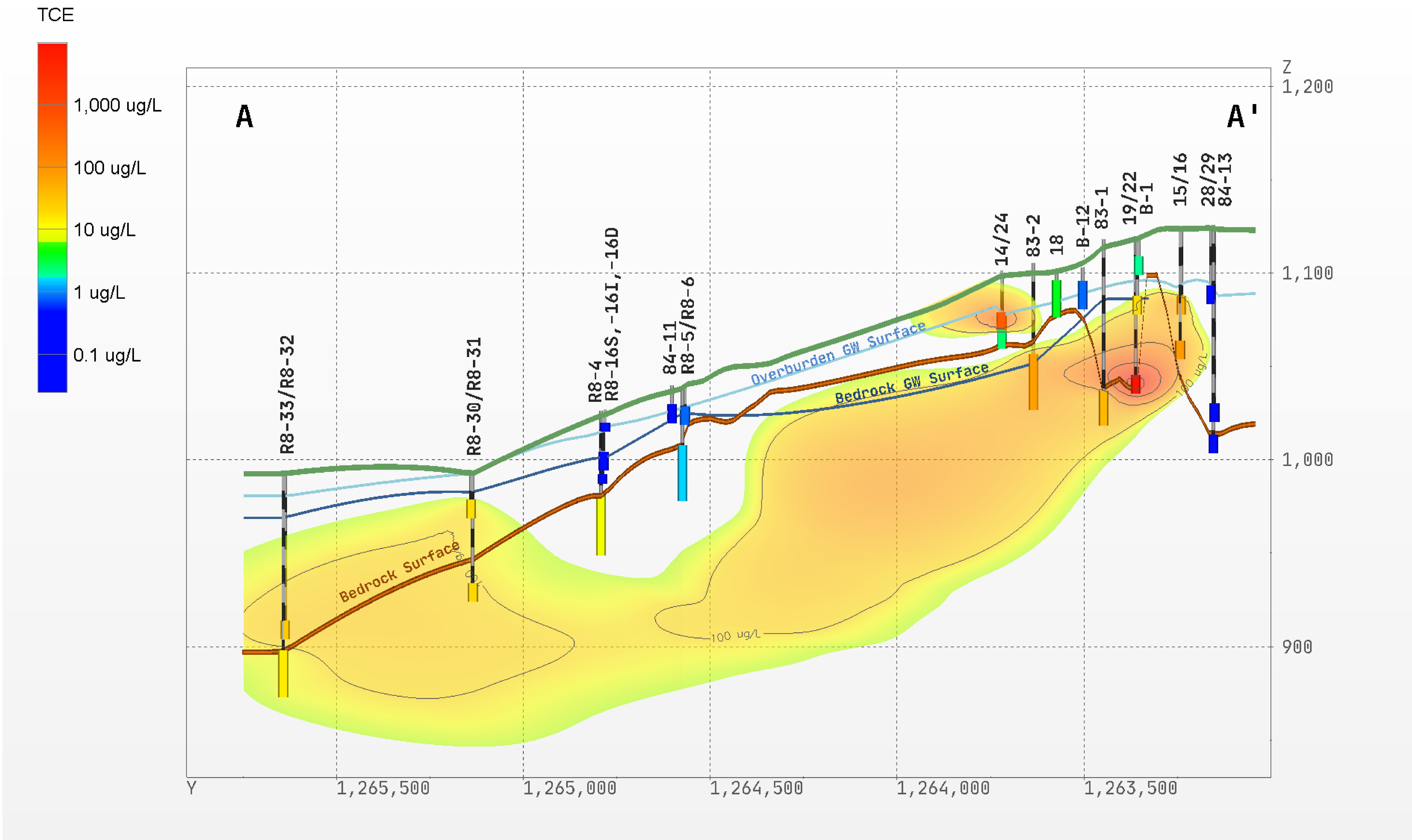

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Figure 5.3
Section A-A' TCE Distribution
July 2018

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21

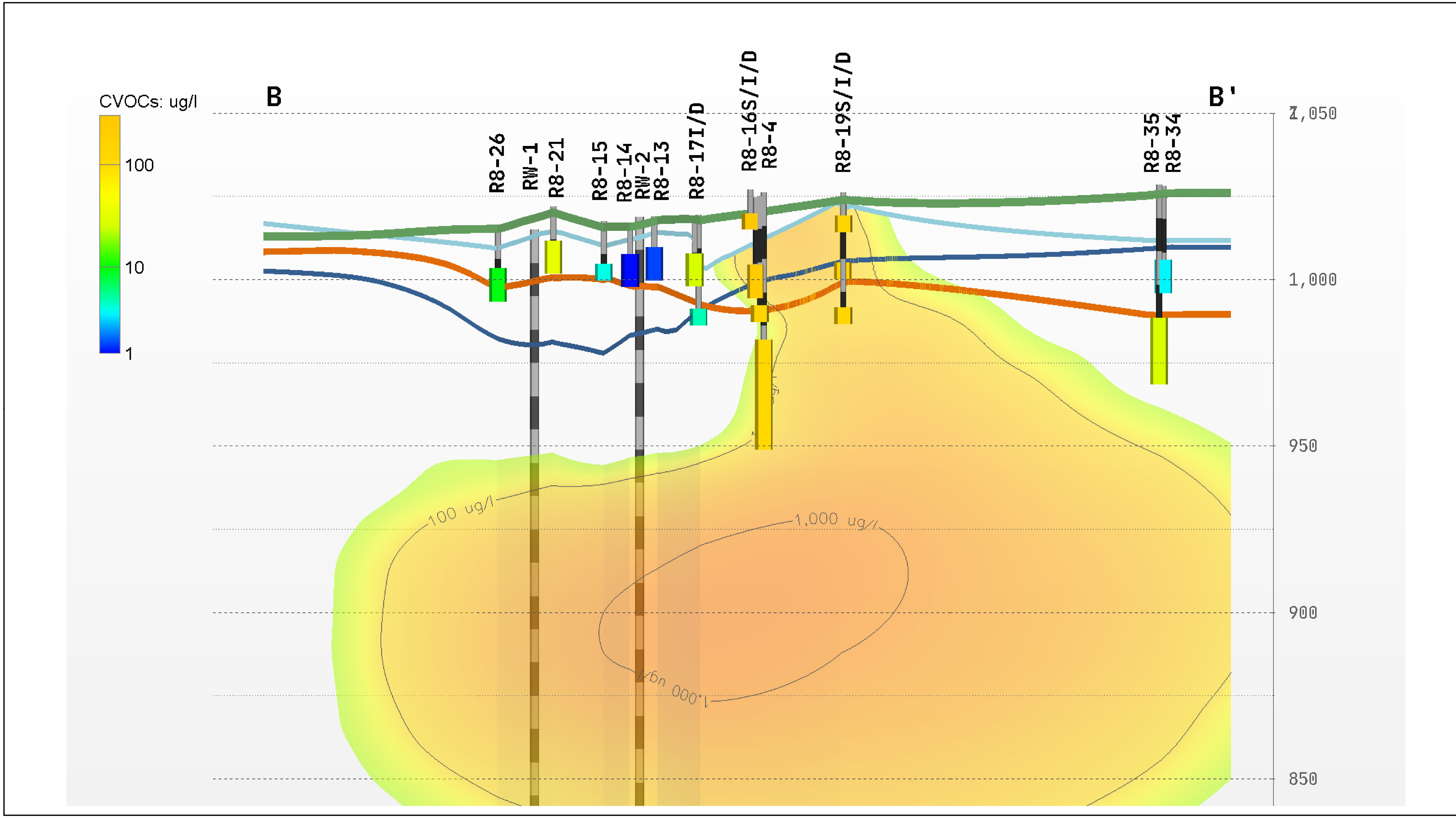

Figure 5.4
Section B-B' CVOC Distribution
July 2018

Amphenol Corporation
Sidney, New York

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Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21

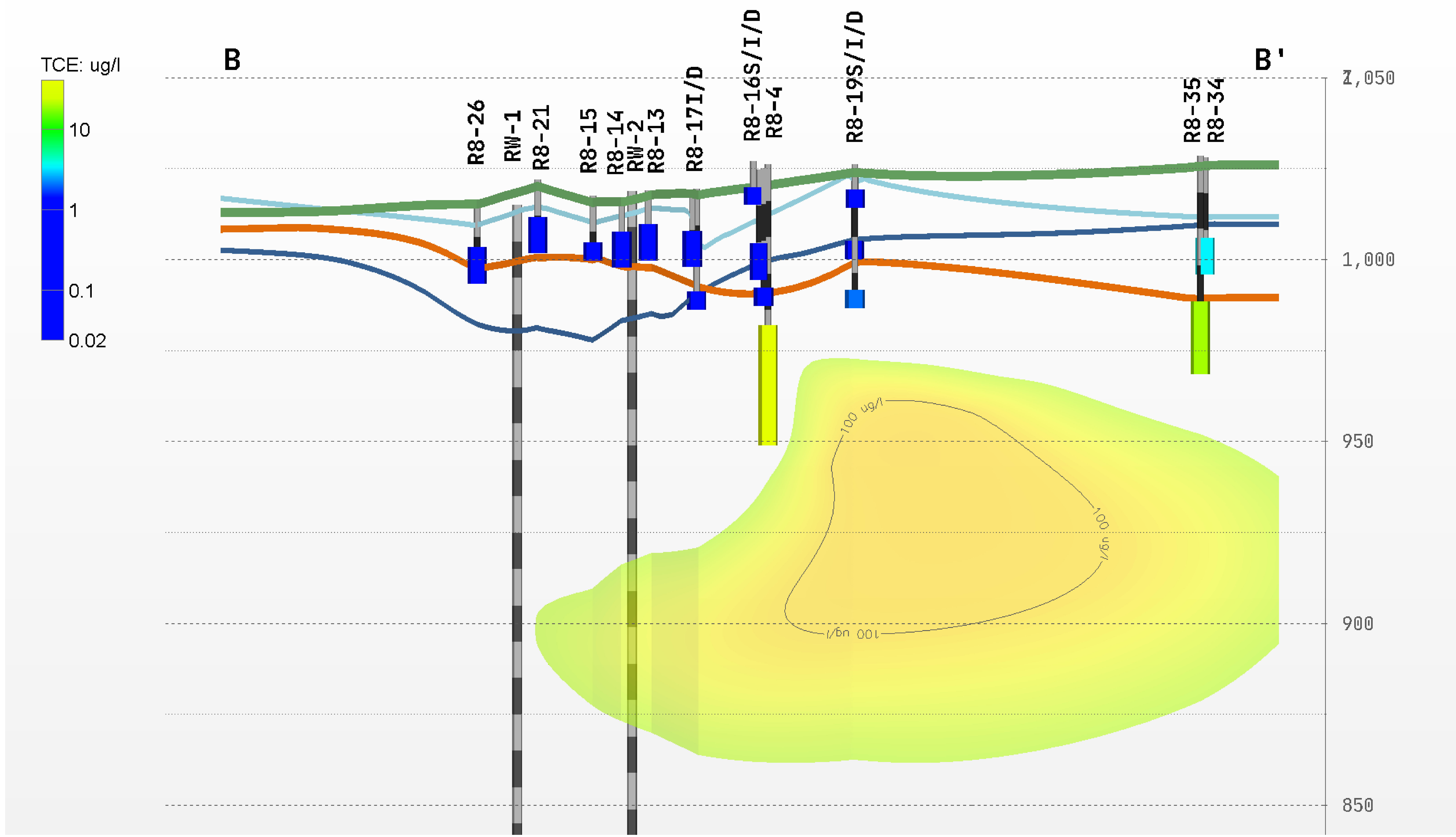

Figure 5.5
Section B-B' TCE Distribution
July 2018

Amphenol Corporation
Sidney, New York

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Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21

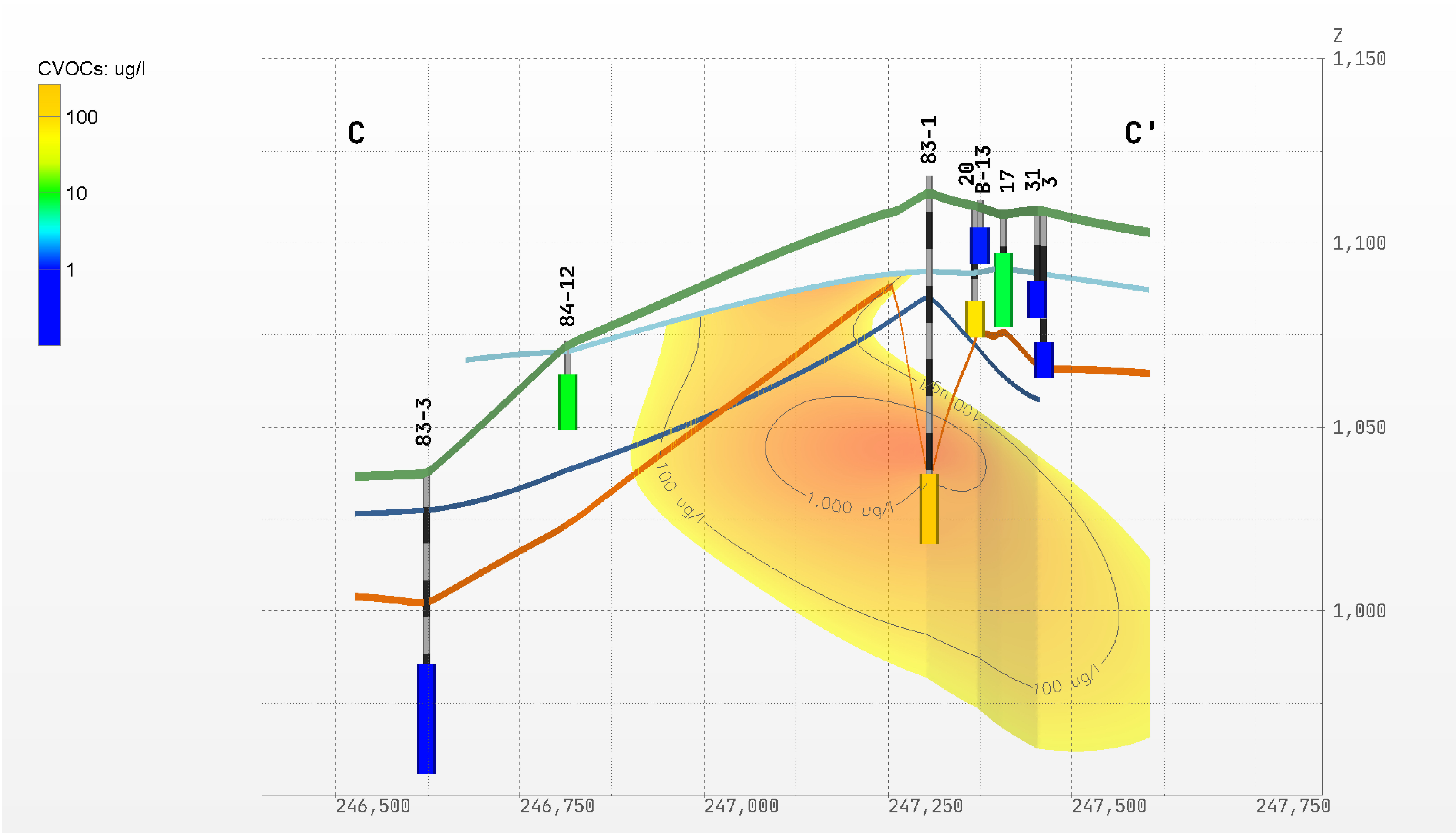

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Figure 5.6
Section C-C' CVOC Distribution
July 2018

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21

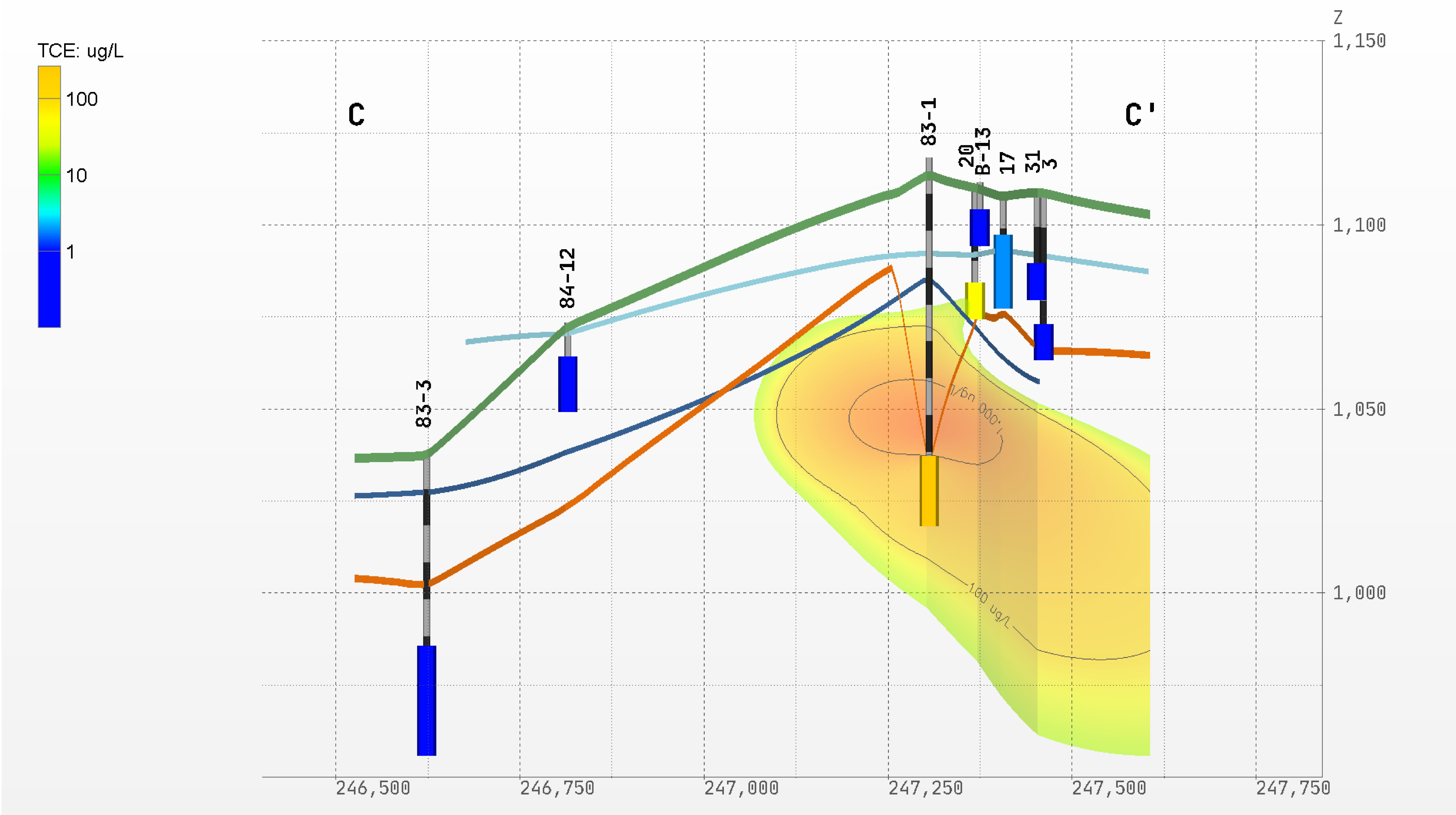

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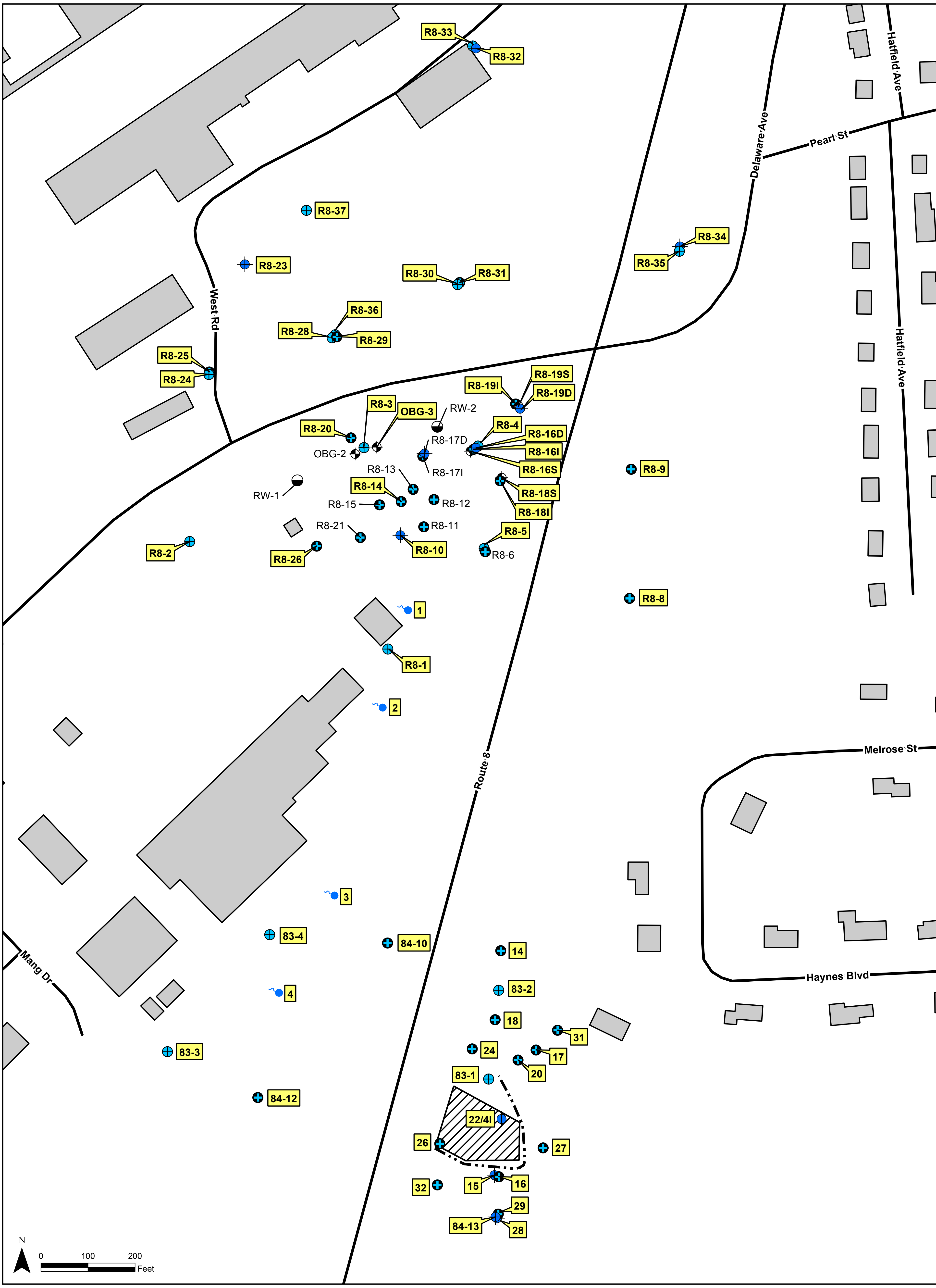
Figure 5.7
Section C-C' TCE Distribution
July 2018

Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 06-07-21	Checked/Date: RRR 06-07-21



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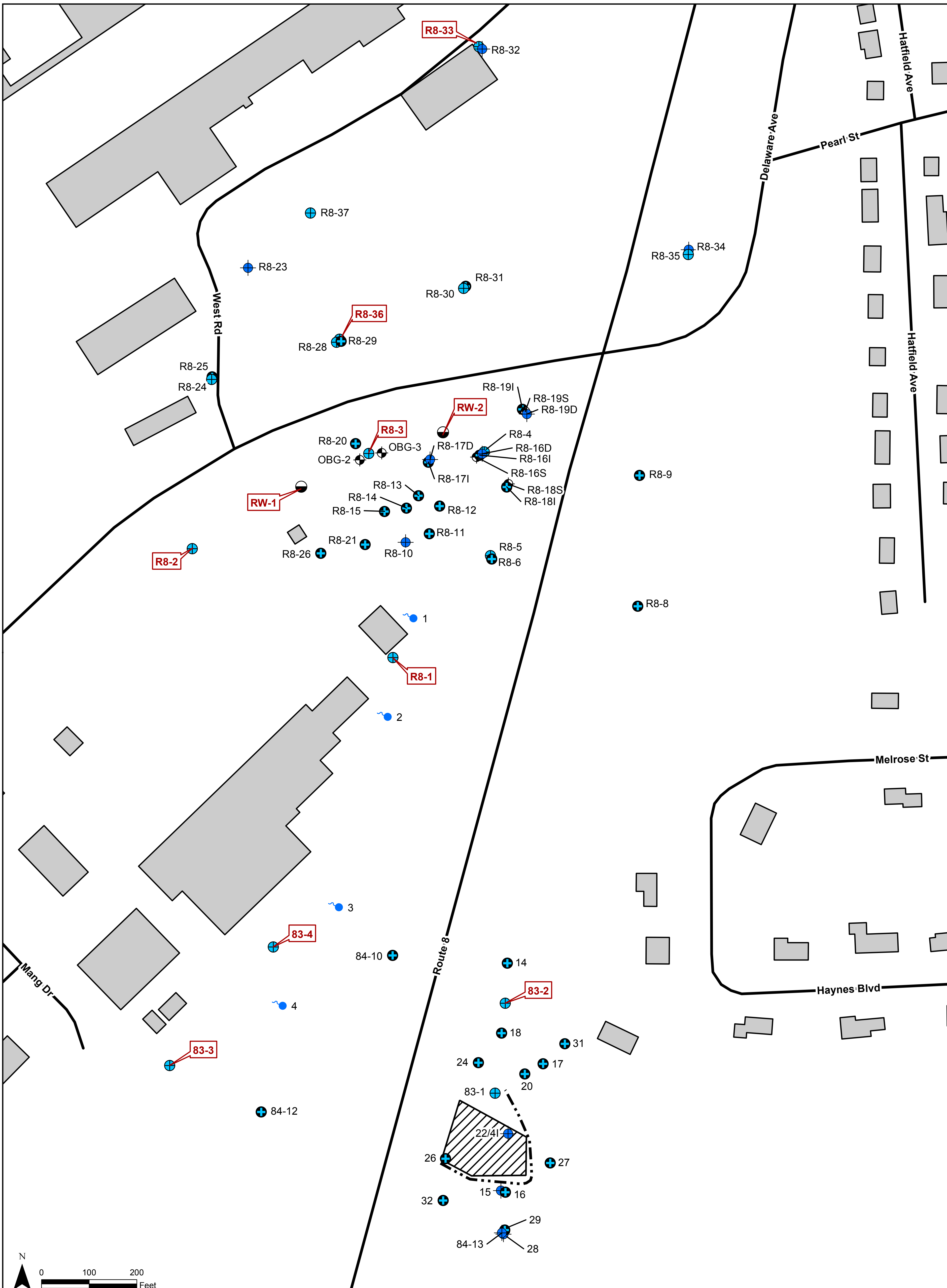
JTM ASSOCIATES, LLC

Legend

R8-5	Well Proposed for Pre-Shutdown Analytical Groundwater Sampling
	Recovery Well
	Shallow Overburden Monitoring Well
	Intermediate Overburden Monitoring Well
	Deep Overburden Monitoring Well
	Bedrock Monitoring Well
	Seep
	Road
	Ditch
	Approximate Excavation Area
	Building

Figure 6A
Route 8 and Hill Site
Proposed Pre-shutdown
Groundwater Sampling Locations
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 07-13-21	Checked/Date: SEW 07-13-21



Legend

83-2	Proposed Location for Borehole Geophysics
	Recovery Well
	Shallow Overburden Monitoring Well
	Intermediate Overburden Monitoring Well
	Deep Overburden Monitoring Well
	Bedrock Monitoring Well
	Seep
	Road
	Ditch
	Approximate Excavation Area
	Building

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Figure 6B
Route 8 and Hill Site
Proposed Wells for
Borehole Geophysical Logging
Amphenol Corporation
Sidney, New York

Prepared/Date: BRP 07-13-21 | Checked/Date: SEW 07-13-21

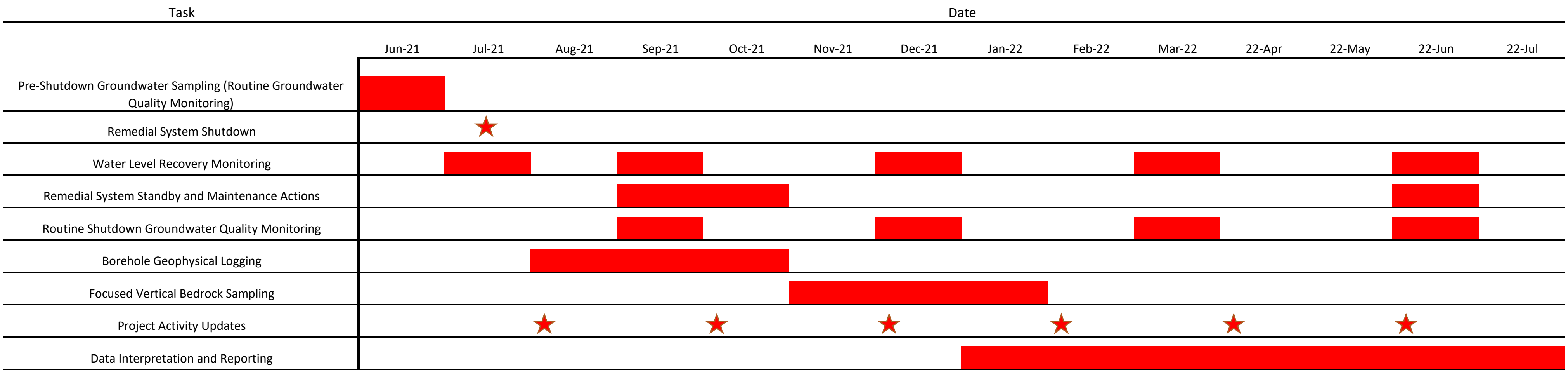
Document: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\GIS\Mapdocuments\HillSite_Route8_11x17P.mxd PDF: P:\Projects\AMP_HON SREP 3617177409\4.0_Deliverables\4.5_Databases\GIS\Figures\SREP\July 2021\Figure 6B - Proposed Geophysical Logging Locations rev July 7_2021.pdf 07-13-2021 10:11 AM brian.peters

APPENDIX

CSM IMPROVEMENT PROJECT SCHEDULE

Amphenol Corporatiom
Rt. 8 Landfill and BCO Hill Site
Conceptual Site Model Improvement Program

Schedule



SUMMARY OF BOREHOLE GEOPHYSICAL LOGGING PROCESS

Summary of Borehole Geophysical Logging

The bedrock recovery wells (RW-1 and RW-2) and select open-borehole groundwater monitoring wells (R8-1, R8-2, R8-3, R8-33, R8-36, 83-2, 83-3 and 83-4) will be geophysically logged after recovery of groundwater elevations following pumping suspension. The purpose of the logging is to improve knowledge of the site stratigraphy including lithology and structure, identify water-bearing fractures, and assess contaminant transport pathways.

Geophysical logging methods and instrumentation

The boreholes will be logged with a Mount Sopris Matrix digital logger and the following down-hole tools including:

- a caliper tool
- fluid temperature/fluid conductivity
- Optical Televiewer (OTV) and Acoustic Televiewer (ATV)
- Single point resistance (SPR) / Spontaneous Potential (SP) tool
- Natural gamma tool
- Heat pulse flow meter (HPFM)

The sequence of logging will follow the above list, with the caliper as the first tool and the HPFM as the last tool. Once all the tools other than the HPFM are deployed, the data will be evaluated on-site and select fractures will be targeted for HPFM measurements. Below is a brief description of each parameter that is measured and how that information is used to locate possible bedrock fractures.

<u>Caliper</u> measures the borehole diameter. Fractures are often revealed on the caliper log as abrupt widenings of the borehole.

<u>Fluid Temperature / Fluid Conductivity</u> is measured to assess the local geothermal gradient and areas where water may be entering or exiting the borehole as revealed by abrupt temperature changes or temperature gradient changes. Fluid conductivity records the conductivity (in microSiemens) of the water in the borehole column. Fluid conductivity can be useful in identifying transmissive fractures as water entering the borehole through fractures may have a different conductivity than the water that is already in the borehole.

<u>The optical televiewer (OTV) log</u> provides a digital optical image of the borehole walls. The OTV can identify and record oriented planar features such as fractures, bedding surfaces, and joints and the resulting strike, dip direction and dip angle can be determined.

<u>The acoustical televiewer (ATV) log</u> provides an acoustical image of the borehole walls. The ATV works by scanning the borehole wall with an acoustic beam that is produced by a rapidly rotating piezoelectric source. Similar to the optical televiewer, planar features such as fractures, bedding surfaces and joints can be identified with the ATV tool and the strike, dip direction and dip angle of these features can often be determined.

<u>Single-point-resistance</u> (SPR) measures the electrical resistance (in ohms) between the probe and a surface electrode. Water-filled fractures will often appear as abrupt spikes of relatively low resistance on this log.

<u>Spontaneous potential</u> (SP) measures the natural electrical currents (in milli-volts) in the

subsurface. Causes of SP can be due to electrochemical changes or oxidation-reduction potentials that may exist between different layers and is often used to distinguish stratigraphy. Another cause for SP can be streaming potentials caused by fluid movement into or out of a bedrock fracture. Typically SP anomalies appear as spikes towards the left (lower voltage) on the log.

Natural gamma measures the gamma radiation in counts per second (cps) that is being emitted from the materials located next to the probe. Natural gamma is generally used as a way to distinguish between different lithologies or soil types. This is because different materials often have different percentages of radioactive elements (mainly potassium-40 and to a lesser extent uranium-238 and thorium-232). Natural gamma is a way to verify depth to bedrock. Also, bedrock fractures or fracture zones are sometimes distinguished by the gamma log because fractures often contain weathered clay minerals which can have higher amounts of potassium or uranium than the unfractured rock.

The HPFM measurements will be performed under static conditions and then repeated while the borehole is being stressed by pumping. A comparison of the static and pumping flowmeter measurements should provide a semi-quantitative estimate of the relative yield of fractures in the borehole which will help target zones for subsequent packer sampling.

Logging Procedure

The general sequence of logging for each borehole will be the caliper, fluid temperature/conductivity, OTV/ATV, SP/SPR, natural gamma and HPFM. The depths for each log will be referenced to the top of casing, which will be set at 0 feet. In general, the logs will be logged from bottom to the top of the borehole. The exception would be the temperature log, which will be logged going downwards in the borehole.

The flowmeter measurements are stationary measurements that will be taken above and below likely fractures in the borehole. In general, three measurements will be taken at each location. At each measurement location the depth, time of the measurement and the water level will be recorded in addition to the flowmeter measurements. Flowmeter measurements will be made at each borehole under static conditions and then flowmeter measurements will be made while the borehole is being stressed by pumping. This will be accomplished by using a small pump.

The equipment decontamination procedure at the beginning of the logging and between boreholes is a potable water rinse followed, by soap (Alconox) wash, potable water rinse, and then a final rinse with DI water.

Data for the logs will be digitally stored on both a computer hard disk and a storage device. The caliper logs (and other logs if requested) will be printed in real time. The ATV and OTV logs require some post-processing and so real time printouts will not be made. However, printouts that show strike and dip of suspected fractures, bedding or other planer features will be made of the ATV and OTV logs shortly after completion of the logging. Flowmeter measurements will be recorded on the computer and in field notes and on the field print-out of the caliper log. All field notes, logs and data files will be available at the end of each field day.

ADDENDUM

NYSDEC ROUTE 8 LANDFILL & BCO HILL
SITE NO.'S 413009 & 413003
SIDNEY, DELAWARE COUNTY
CONCEPTUAL SITE MODEL IMPROVEMENT WORK PLAN APPROVAL WITH MODIFICATIONS
DATED JULY 7, 2021

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 4
1130 North Westcott Road, Schenectady, NY 12306-2014
P: (518) 357-2045 | F: (518) 357-2460
www.dec.ny.gov

July 7, 2021

Amphenol Corporation
Attn: Mr. Joseph Bianchi
40-60 Delaware Avenue
Sidney, NY 13838
jbian@amphenol-aao.com
(Sent via email only)

RE: Route 8 Landfill & BCO Hill (Site No.'s 413009 & 413003), Sidney, Delaware County
Conceptual Site Model Improvement Work Plan Approval With Modifications

Dear Mr. Bianchi:

The New York State Departments of Environmental Conservation (Department) and Health (DOH) have reviewed the revised Conceptual Site Model (CSM) Improvement Work Plan submitted electronically on June 23, 2021 by JTM Associates, LLC and Amec Environment & Infrastructure on behalf of Amphenol Corporation (Amphenol). The work plan is approved with the following modifications/conditions:

1. Please correct/clarify in the last paragraph on page 7 (page 10 of the pdf) that eight wells (not seven) will be geophysically logged.
2. Figure 6 needs to be updated to reflect recent changes to the work plan text. Please break this into two figures, as follows:
    a. Figure 6A: Identify the wells sampled quarterly during the shutdown and those sampled every fifth quarter under routine monitoring.
    b. Figure 6B: Identify the wells selected for geophysical monitoring.
3. Category B deliverables and expedited turnaround times are to be provided by an ELAP-certified laboratory for all quarterly monitoring samples. Quarterly monitoring data should be provided to the Department within two weeks of each sampling event. Quarterly reports are to (1) summarize the monitoring data and water level observations by comparison to historical data, and (2) include updated potentiometric surface maps. Potentiometric surface maps should be prepared using the pre-shutdown data to provide a baseline for future comparison throughout the program.
4. The duration of the temporary remedial system shutdown (up to 12 months) is based on the condition that the system will be promptly restarted at any point during the program if determined appropriate by the Department based on the monitoring data.

5. Though not included in the CSM work plan, it is the Department's understanding that a shorter-term shutdown and restart with water level monitoring is planned for this month, as follows:
   a. Shutdown for one week beginning the week of July 19, 2021.
   b. Restart for one week beginning the week of July 26, 2021.

   Accordingly, it is anticipated that the extended temporary shutdown would begin in August 2021. The Department should be notified of any changes to this schedule.

If Amphenol agrees with the above modification/conditions, please reply to me as such and submit the revised page 7 and Figure 6 to be inserted into the final work plan. This Approval With Modifications letter and Amphenol's acceptance shall be added to the final work plan document as an addendum. If Amphenol does not agree with the above modifications/ conditions, then please contact me as soon as possible to discuss the matter expeditiously.

Please feel free to contact me at 518-357-2008 or joshua.haugh@dec.ny.gov if you have any questions about this letter.

Sincerely,

Joshua Haugh, PG
Professional Geologist 1

ec: C. O'Neill, DEC
G. Burke, DEC
W. Ottaway, DEC
R. Ockerby, DOH
J. Deming, DOH
J. Mickam, JTM

Amphenol
MILITARY & AEROSPACE

Aerospace Operations
40-60 Delaware Avenue
Sidney, NY 13838-1395
Telephone (607) 563-5940

July 9, 2021

Joshua Haugh
NYSDEC, DER Region 4
1130 North Westcott Road
Schenectady, NY 12306-2014

RE: Route 8 Landfill & BCO Hill (Site No.'s 413009 & 413003), Sidney, Delaware County
Conceptual Site Model Improvement Work Plan Approval With Modifications

Dear Mr. Haugh:

This letter is in response to the letter received on July 7, 2021 from the NYSDEC titled, *Route 8 Landfill & BCO Hill (Site No.'s 413009 & 413003), Sidney, Delaware County Conceptual Site Model Improvement Work Plan Approval With Modifications.*

I have reviewed the proposed modifications and have approved JTM Associates, LLC and Amec Environment & Infrastructure to proceed with making the modifications.
As stated in the letter, this letter approving the proposed modifications will be included in the Conceptual Site Model Improvement Work Plan as an addendum.

Regards,

Joseph Bianchi
Senior Environmental Consultant
Wood PLC
for Amphenol Corporation