VIA ELECTRONIC DELIVERY

July 15, 2022

Karen A. Cahill
Division of Environmental Remediation
New York State Department of Environmental Conservation, Region 7
615 Erie Boulevard West
Syracuse, NY 13204-2400

Subject: **Fire Water Reservoir Area Groundwater Isopleths**
Former Emerson Power Transmission Facility, Ithaca, New York, Site No. 755010
Order on Consent #A7-0125-87-09

Dear Karen:

On behalf of Emerson Electric Co. (Emerson), WSP USA Inc. (WSP) is pleased to submit this letter report for the Fire Water Reservoir Area Groundwater Isopleths at the former Emerson Power Transmission Site in Ithaca, New York. The scope of work was developed based on a request by the New York State Department of Environmental Conservation (NYSDEC) to provide an updated understanding of the distribution of affected groundwater within specific hydrogeologic zones proximate to the former Fire Water Reservoir (FWR, Figure 1).

On March 9, 2022 WSP redeveloped monitoring wells MW-30B, MW-31B, and MW-9-100 prior to implementing the quarterly sampling event between March 22 and 24, 2022. Monitoring wells MW-30B and MW-31B have not been sampled since at least January 2016 and MW-9-100 has not been sampled since October 2015. During the redevelopment effort, it was observed that tubing that had been previously left in MW-31B was stained neon green, likely from the dye trace study that was completed in Area of Concern (AOC) 1. The well redevelopment removed the build-up of sediment. The total depths measured in the field were compared to the recorded installation depths to ensure this goal was achieved. WSP used a submersible pump and surge block for development purposes that was decontaminated between wells. Fluids generated during the activity, including water generated during decontamination of equipment, was contained at the well heads and managed using the onsite groundwater treatment system.

All sample-related activities were performed in accordance with WSP's Field Standard Operating Procedures (SOPs), the NYSDEC's Draft Department of Environmental Remediation (DER) Technical Guidance (DER-10) for Site Investigation and Remediation (2010), and the U.S. Environmental Protection Agency (EPA) *Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (EPA 2017) as indicated in the SMP.

The isopleth maps illustrate the distribution of affected groundwater within the B- and C- hydrogeologic zones and create a new isopleth map for the D- hydrogeologic zone in the immediate vicinity of the FWR and downgradient of the former reservoir. The isopleths were developed based on data for the wells shown in Figure 1. Table 1 includes the sampling event for which the data was used and Table 2 shows the monitoring location and the respective hydrogeologic zone used to develop each isopleth.

Hydrologic isopleths in plan view illustrate the distribution of affected groundwater in each of the B, C, and D hydrogeologic zones relative to total site-related compounds of < 100 micrograms per liter (µg/l), $\geq$ 100 to < 1,000 µg/l, and > 1,000 µg/l from the vicinity of the FWR. The B-zone is shown in Figure 2, the C-zone is shown in Figure 3, and the D-zone is shown in Figure 4. The estimated

WSP USA
Suite 300
13530 Dulles Technology Drive
Herndon, VA 20171

Tel.: +1 703 709-6500
Fax: +1 703 709-8505
wsp.com

discharge zone between the C-zone and B-zone is shown on each figure, this estimated bedding plane discharge zone is where groundwater from the C-zone discharges into the overlying B-zone. In evaluating the fracture zones and isopleth downgradient of the FWR, the discharge zone occurs approximately 203-feet downgradient of the FWR which corresponds to elevations 524 to 534 feet above mean sea level.

Please contact us should you have any questions or comments during your review.

Kind regards,

Scott Haitz
Vice President, National Practice Lead

Lisa K. Kelly, P.G. NY# 000622-1
Vice President

Enclosures

JRB:SPH:lkk
k:\emerson\ithaca\groundwater isopleths\2022 isopleth report\letter.hw755010.2022-07-15.FWRisopleths.pdf

cc: Stephen Clarke, Emerson
Anthony Perretta, NYSDOH

FIGURES

SOUTH ALBANY STREET
SOUTH GENEVA STREET
WEST SPENCER STREET
SOUTH CAYUGA STREET
SOUTH HILL TERRACE
TURNER PLACE

MW-17-40
MW-24B (ABANDONED)
MW-23B (ABANDONED)
MW-22B
MW-30B
MW-31B
MW-32B
MW-8-40
MW-20B
MW-9-100
MW-16-100
EXB-7
MW-7-40
EXB-9
MW-1B
MW-2B
MW-3B
MW-5B
EW-5-25B
EW-6-60C
MW-18C
MW-36B
MW-46-72C
MW-7B
MW-46-43C
MW-50-160D
MW-4B
EXB-10
MW-5-40
MW-12C
MW-5-100
MW-5-25
MW-8B
MW-13C
MW-16C (ABANDONED)

OU-1

FORMER R&D BUILDING
IRM BUILDING
NYSE&G SUBSTATION
FORMER FIRE WATER RESERVOIR
EPT MAIN PLANT BUILDING

N

LEGEND

- B-ZONE MONITORING WELL
- B-ZONE EXTRACTION WELL
- C-ZONE MONITORING WELL
- C-ZONE EXTRACTION WELL
- D-ZONE MONITORING WELL
- IRM EXTRACTION AND CONVEYANCE LAYOUT
- PROPERTY BOUNDARY
- EDGE OF PAVEMENT

0 60 120 240
SCALE, FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

IRM BUILDING
EW-1-62C
EW-2-62C
EW-3-60C
EW-4-25B
EW-1B
EW-6-60C
EW-7-25B
EW-8-62C
EW-10-25B
FORMER FIRE WATER RESERVOIR
EW-9R-72C
EW-11-45
EW-12-45C

0 50 100
SCALE, FEET

Drawn By: RAT 07/05/2022
Checked: [signature] 07/07/2022
Approved:
Dwg Name: 314P1545.001-B45

FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
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FIGURE 1

DISTRIBUTION OF WELLS MONITORING THE B, C, AND D HYDROGEOLOGIC ZONES (FIRE WATER RESERVOIR AREA)

WSP USA Inc.
11 STANWIX STREET
SUITE 950
PITTSBURGH, PA 15222
TEL: +1 412.604.1040

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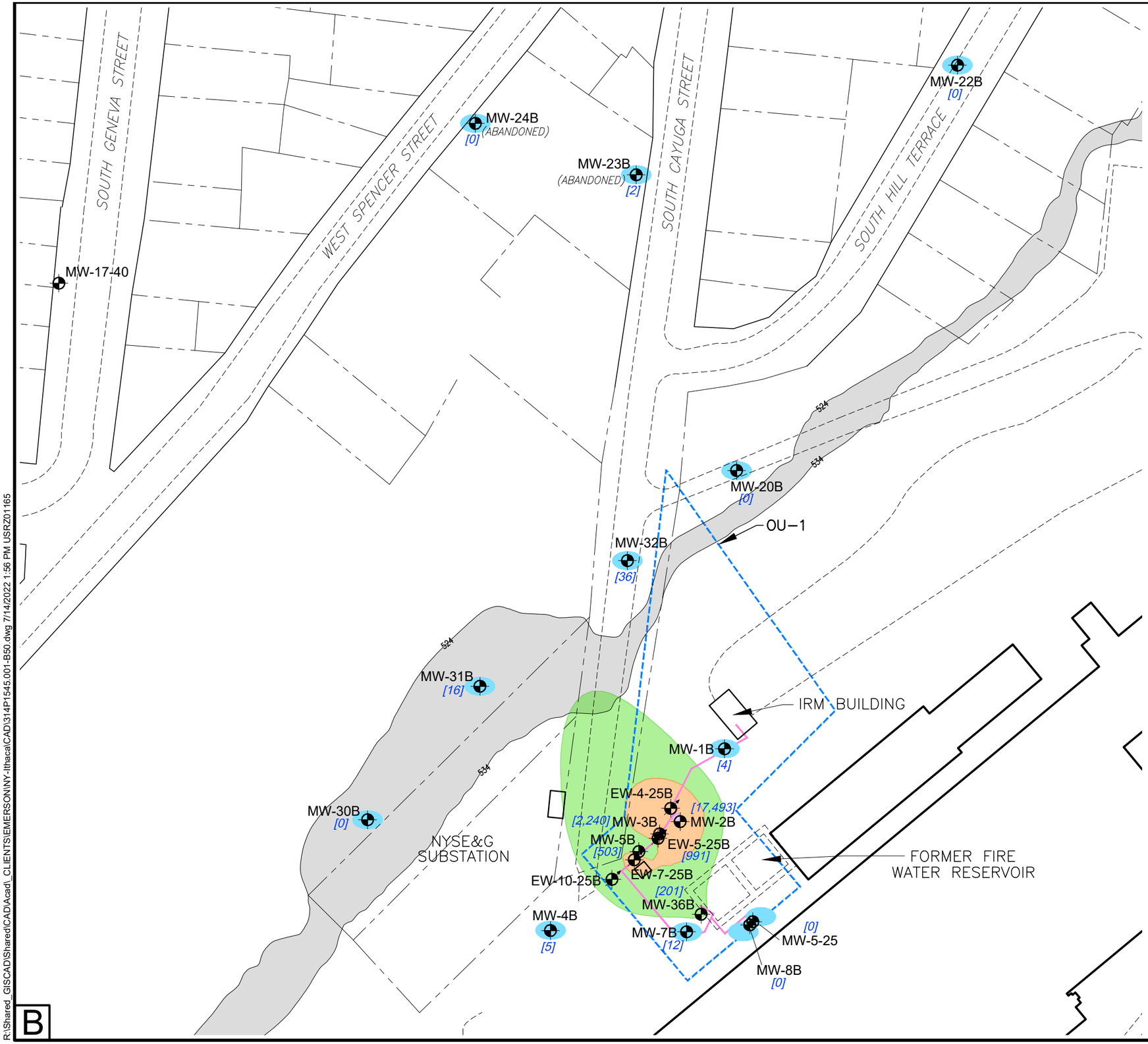

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FIGURE 2

DISTRIBUTION OF cVOCs IN B HYDROGEOLOGIC ZONE (FIRE WATER RESERVOIR AREA)

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WSP USA Inc.
11 STANWIX STREET
SUITE 950
PITTSBURGH, PA 15222
TEL: +1 412.604.1040

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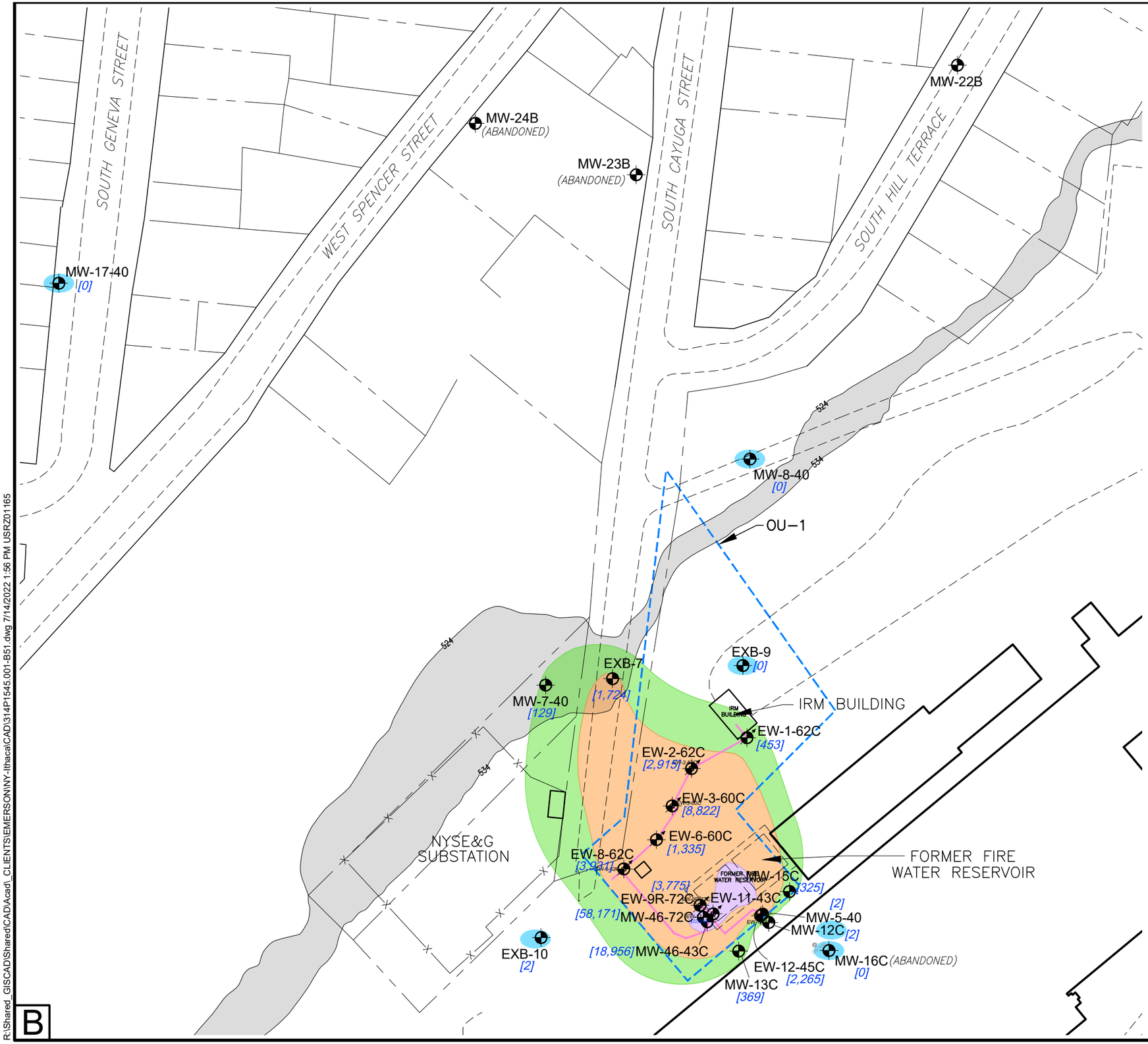

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B

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FIGURE 3

DISTRIBUTION OF cVOCs IN C HYDROGEOLOGIC ZONE (FIRE WATER RESERVOIR AREA)

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ITHACA, NEW YORK

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EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
11 STANWIX STREET
SUITE 950
PITTSBURGH, PA 15222
TEL: +1 412.604.1040

SOUTH GENEVA STREET

WEST SPENCER STREET

SOUTH CAYUGA STREET

SOUTH HILL TERRACE

MW-9-100
[0.001]

OU–1

MW-16-100
[22.3]

IRM BUILDING

IRM BUILDING

NYSE&G SUBSTATION

FORMER FIRE WATER RESERVOIR

FORMER FIRE WATER RESERVOIR

MW-50-160D
[6,911.3]

MW-5-100
[87.22]

EBT MAIN PLANT BUILDING

N

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- [16] TOTAL cVOCs
- TOTAL cVOCs <100
- IRM EXTRACTION AND CONVEYANCE LAYOUT
- PROPERTY BOUNDARY
- EDGE OF PAVEMENT

TOTAL cVOCs:

- 100 to 1,000
- >1,000 to 10,000
- >10,000

cVOCs CHLORINATED VOLATILE ORGANIC COMPOUNDS – REPORTED AS MICROGRAMS PER LITER (µg/l)

0 40 80 160
SCALE, FEET

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FIGURE 4

DISTRIBUTION OF cVOCs IN D HYDROGEOLOGIC ZONE (FIRE WATER RESERVOIR AREA)

WSP USA Inc.
11 STANWIX STREET
SUITE 950
PITTSBURGH, PA 15222
TEL: +1 412.604.1040

B

TABLES

Table 1

Monitoring Locations by Sampling Event
Former Emerson Power Transmission
Ithaca, New York

Well Identification	March 2022 SMP	March 2022 Special Samples	September 2021 DPE Report	October 2021 Extraction Wells	June 2017 Sampling Event	April 2016 Sampling Event	July 2012 Sampling Event
Monitoring Location							
EW-10-25B				X			
EW-4-25B				X			
EW-5-25B				X			
EW-7-25B				X			
MW-1B	X						
MW-20B			X				
MW-22B			X				
MW-23B					X		
MW-24B						X	
MW-2B			X				
MW-30B		X					
MW-31B		X					
MW-32B	X						
MW-36B	X						
MW-3B			X				
MW-4B	X						
MW-5-25	X						
MW-5B	X						
MW-7B	X						
MW-8B	X						
EW-11-43C				X			
EW-12-45C				X			
EW-1-62C				X			
EW-2-62C				X			
EW-3-60C				X			
EW-6-60C				X			
EW-8-62C				X			
EW-9R-72C				X			
EXB-10	X						
EXB-7	X						
EXB-9	X						
MW-12C	X						
MW-13C	X						
MW-15C	X						
MW-17-40			X				
MW-46-43C	X						
MW-46-72C	X						
MW-5-40			X				
MW-7-40	X						
MW-8-40			X				
MW-16C							X
MW-16-100			X				
MW-50-160D	X						
MW-5-100			X				
MW-9-100		X					

a/ SMP - Site Management Plan, DPE - Dual Phase Extraction

Table 2

Monitoring Locations by Hydrologic Zones
Former Emerson Power Transmission
Ithaca, New York

Well Identification	Hydrologic Zone B	Hydrologic Zone C	Hydrologic Zone D
Monitoring Location			
EW-10-25B	X		
EW-4-25B	X		
EW-5-25B	X		
EW-7-25B	X		
MW-1B	X		
MW-20B	X		
MW-22B	X		
MW-23B	X		
MW-24B	X		
MW-2B	X		
MW-30B	X		
MW-31B	X		
MW-32B	X		
MW-36B	X		
MW-3B	X		
MW-4B	X		
MW-5-25	X		
MW-5B	X		
MW-7B	X		
MW-8B	X		
EW-11-43C		X	
EW-12-45C		X	
EW-1-62C		X	
EW-2-62C		X	
EW-3-60C		X	
EW-6-60C		X	
EW-8-62C		X	
EW-9R-72C		X	
EXB-10		X	
EXB-7		X	
EXB-9		X	
MW-12C		X	
MW-13C		X	
MW-15C		X	
MW-17-40		X	
MW-46-43C		X	
MW-46-72C		X	
MW-5-40		X	
MW-7-40		X	
MW-8-40		X	
MW-16C		X	
MW-16-100			X
MW-50-160D			X
MW-5-100			X
MW-9-100			X