February 5, 2019

Mr. Daniel R. Lanners, P.E.
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014

Subject: **Indoor Air Sampling Work Plan for Former Manufacturing Building**
Federal-Mogul/Huck Site, Kingston, New York
NYSDEC Site Number V00171

Dear Mr. Lanners:

WSP USA Inc., on behalf of Tenneco Inc. (as successor in interest to Federal-Mogul LLC), has prepared this work plan to collect indoor air samples in the former manufacturing building at the Federal-Mogul/Huck site at 85 Grand Street in Kingston, New York. This work plan is being submitted in response to the New York State Department of Environmental Conservation's (NYSDEC's) request for indoor air sampling, dated January 25, 2019.

BACKGROUND INFORMATION

The site consists of a former manufacturing building and an attached office building, which together occupy approximately 105,000 square feet. The remainder of the property consists mainly of asphalt parking lots and access roads (Figure 1). The former manufacturing building contains approximately 400 self-storage units and a small office area. The office building is used by a moving and truck rental company. Portions of the former manufacturing building are leased to other entities.

Tenneco performed five indoor air sampling events inside the former manufacturing building from April 2003 through January 2005 to evaluate indoor air quality (Figure 1). The initial round of indoor air samples was collected from the main office complex and the former Scheffel Furniture space to evaluate indoor air quality in portions of the building that were occupied on a routine basis. Based on the results of the April 2003 sampling event, an expanded sampling event was performed in August 2003 that included 12 locations in the former manufacturing building (Figure 1).

In March 2004, two interim remedial measures (IRMs) were installed at the site. A soil vapor extraction (SVE) trench system was installed primarily along the eastern and southern property lines to address volatile organic compounds (VOCs) in shallow soil and to prevent the offsite migration of VOCs in soil vapor (Figure 2). In addition, a subslab depressurization system was installed in the brick office building in the southeastern portion of the site (Figure 2). Following startup of the SVE system, indoor air samples were collected in the former manufacturing building in April 2004, July 2004, and January 2005 to evaluate the performance of the SVE system. The performance monitoring samples were collected at five locations that exhibited the highest trichloroethene (TCE) concentrations during the August 2003 sampling event, while also targeting occupied spaces near, and downgradient from, the groundwater source areas in the former finish and chemical storage area and former degreaser area. Additional indoor air samples were collected in the main office complex in June and August 2008 to verify that pulsed operation of the SVE system would not

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negatively affect indoor air quality within the building. The results from the June and August 2008 samples indicated the presence of TCE at concentration of 3.4 and 1.79 parts per billion by volume (ppbv), respectively.

In 2014, WSP installed an air sparging (AS)/SVE system as an IRM to reduce VOC mass in groundwater and vadose zone soils in select areas of the site. The AS/SVE system consists of 12 SVE wells and 9 AS wells divided into two cycle groups to provide for cycled operation of the system (Figure 2). Currently, the cycle groups are alternated on an approximately monthly basis. Cycle Group 1 includes SVE and AS wells inside the building in the two groundwater source areas. Cycle Group 2 is comprised of AS and SVE wells located west and southwest of the building. Cycle Group 1 is anticipated to be in operation during February 2019.

PROPOSED SCOPE OF WORK

Tenneco is proposing to collect indoor air samples at 5 locations in the former manufacturing building that correspond to the historical performance monitoring locations (Figure 3). The proposed sample locations are subject to change based on accessibility, potential below-grade utilities, and site operations. The sampling activities will be performed at least 1 week after Cycle Group 1 of the AS/SVE system has been deactivated to represent conservative conditions with respect to potential vapor intrusion.

The proposed vapor intrusion assessment will consist of performing a building inspection and material inventory, collecting five indoor air samples within the former manufacturing building, and collecting two ambient outdoor air samples at upwind locations selected on the day of sampling to evaluate potential background sources for VOCs in outdoor air. The sampling activities will be conducted in accordance with the New York State Department of Health's (NYSDOH's) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006, and associated updates. A description of the proposed sampling activities is provided below.

BUILDING INSPECTION AND MATERIAL INVENTORY

The target site-related VOCs (i.e., TCE, tetrachloroethene [PCE], or cis-1,2-dichloroethene [cis-1,2-DCE]) are found in many household and commercial products. WSP will attempt to limit the potential for these background sources to affect the indoor air results by performing a material inventory of the main office complex, the former Kloom Construction space, and the space formerly occupied by Family Services, Inc. If possible, materials containing site-related VOCs will be removed from the building before sampling is performed, or they will be sealed in plastic bags to prevent vapor emissions to the indoor air. However, the interior of the former manufacturing building contains over 400 self-storage units that will not be accessible to WSP. Therefore, WSP cannot control or eliminate any potential impacts to indoor quality resulting from materials that may be stored in these units.

The pre-sampling site inspection and material inventory will be conducted a minimum of 24 hours before conducting the sampling activities. During the site inspection, WSP will evaluate the building construction, complete the NYSDOH's indoor air quality questionnaire and building inventory form, and conduct an inventory of materials and equipment stored in the accessible portions of the building. The materials and equipment of concern include, but are not limited to, petroleum products, gas-powered equipment, kerosene heaters, paints, varnishes, products containing petroleum distillates or solvents, and pesticides. In general, the volatile ingredients of each material, if available, will be photographed or recorded on the inventory form, and the containers will be scanned with a photoionization detector (RAE Systems ppbRAE or equivalent) for potential vapor emissions. If the contents of a container are not listed on the label, WSP will record the product name and manufacturer's name and address (if available) on the inventory form. At the conclusion of the site inspection, WSP will provide information to the property owner and tenants regarding activities that should be avoided within 24 hours of sample collection, in accordance with NYSDOH guidance.

INDOOR AIR SAMPLES

Indoor air samples will be collected using evacuated 6-liter SUMMATM-style canisters with flow controllers and particulate filters installed. Each of the indoor air sample canisters will be placed approximately 3 to 5 feet above the floor to be representative of the breathing zone. Physical and visual barriers will be placed around the canisters, if necessary, so that they are not disturbed during sample collection. The flow regulators will be pre-set by the laboratory to collect the samples over an approximately 8-hour period. The flow regulator will be connected to the canister and opened to initiate sample collection. After approximately 8 hours, or when

the vacuum reaches approximately 5 inches of mercury (in Hg), the flow regulator will be closed to complete the sample collection. The sample name, location, time and date of sample collection, final canister vacuum, canister and regulator number, and the analytical method to be used will be recorded on the chain-of-custody form and in the field log book. Site conditions, including temperature and barometric pressure, will be documented at the beginning and end of the indoor air sampling activities.

AMBIENT OUTDOOR AIR SAMPLING

Ambient (outdoor) air samples will be collected from two locations upwind of the facility concurrently with indoor air sample collection. In accordance with NYSDOH guidance, the outdoor air samples will be collected approximately 3 to 5 feet above the ground and away from wind obstructions, if possible (e.g., trees, brush, wooden fences). The outdoor air samples will be collected with evacuated 6-liter SUMMA™-style canisters and dedicated flow controllers over an approximately 8-hour period using the same procedures described above for the indoor air samples. Site conditions, including temperature, wind direction and velocity, barometric pressure, and the occurrence of precipitation will be documented at the beginning and end of the sampling activities.

QUALITY ASSURANCE/QUALITY CONTROL

The canisters used for the sampling activities will be 100% individually certified-clean by the laboratory by analyzing the ambient air inside a clean canister by U.S. Environmental Protection Agency (EPA) Method TO-15. If no target compounds are detected at concentrations above the reporting limits, then the canister is evacuated again, and the canister is available for sampling. If target compounds are detected at concentrations above the reporting limits, then the canister must be re-cleaned and reanalyzed for the target compounds. A duplicate indoor air sample will be collected from one of the proposed sample locations. The duplicate sample will be collected at the same time and from the same sample location using a T-splitter. The field duplicate identity will not be provided to the laboratory. Field duplicates are useful in documenting the precision of the sampling process.

SAMPLE ANALYSIS

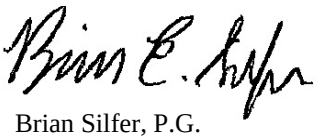
The sample canisters will be submitted under ambient conditions to ALS Laboratory in Simi Valley, California, under strict chain-of-custody procedures. ALS Laboratory is Environmental Laboratory Approval Program (ELAP)-certified. Consistent with previous onsite and offsite indoor air sampling events, the indoor air samples will be analyzed for site-related VOCs (i.e., TCE, PCE, and cis-1,2-DCE) using EPA Method TO-15. The minimum detection limits using EPA Method TO-15 will be 0.11 micrograms per cubic meter (µg/m3) for the target VOCs. On receipt of the final laboratory data package, the sample results will be validated by a third-party contractor.

PROJECT SCHEDULE AND REPORTING

Tenneco anticipates initiating the sampling activities within approximately 2 weeks of receiving work plan approval from the NYSDEC and NYSDOH, provided access to leased spaces is provided in a timely manner. Tenneco is prepared to complete the proposed sampling activities before March 31, 2019. The sampling activities should take approximately 3 days to complete, and WSP anticipates receiving final analytical results within 3 weeks of sample collection. Data validation by a third-party validator will require an additional 3 weeks to complete. WSP anticipates submitting a report to the NYSDEC and NYSDOH summarizing the results of the indoor air assessment approximately 1 week after receiving the final validated analytical results (i.e., approximately 7 weeks after sample collection). The report will include, at a minimum, a description of the sampling activities, tables summarizing the validated sample results, a figure showing the sample locations, and recommendations for additional actions, if warranted.

Please feel free to contact us with any questions or comments regarding this work plan at (315) 655-3900.

Sincerely,



Brian Silfer, P.G.
Practice Leader

BES:rlo
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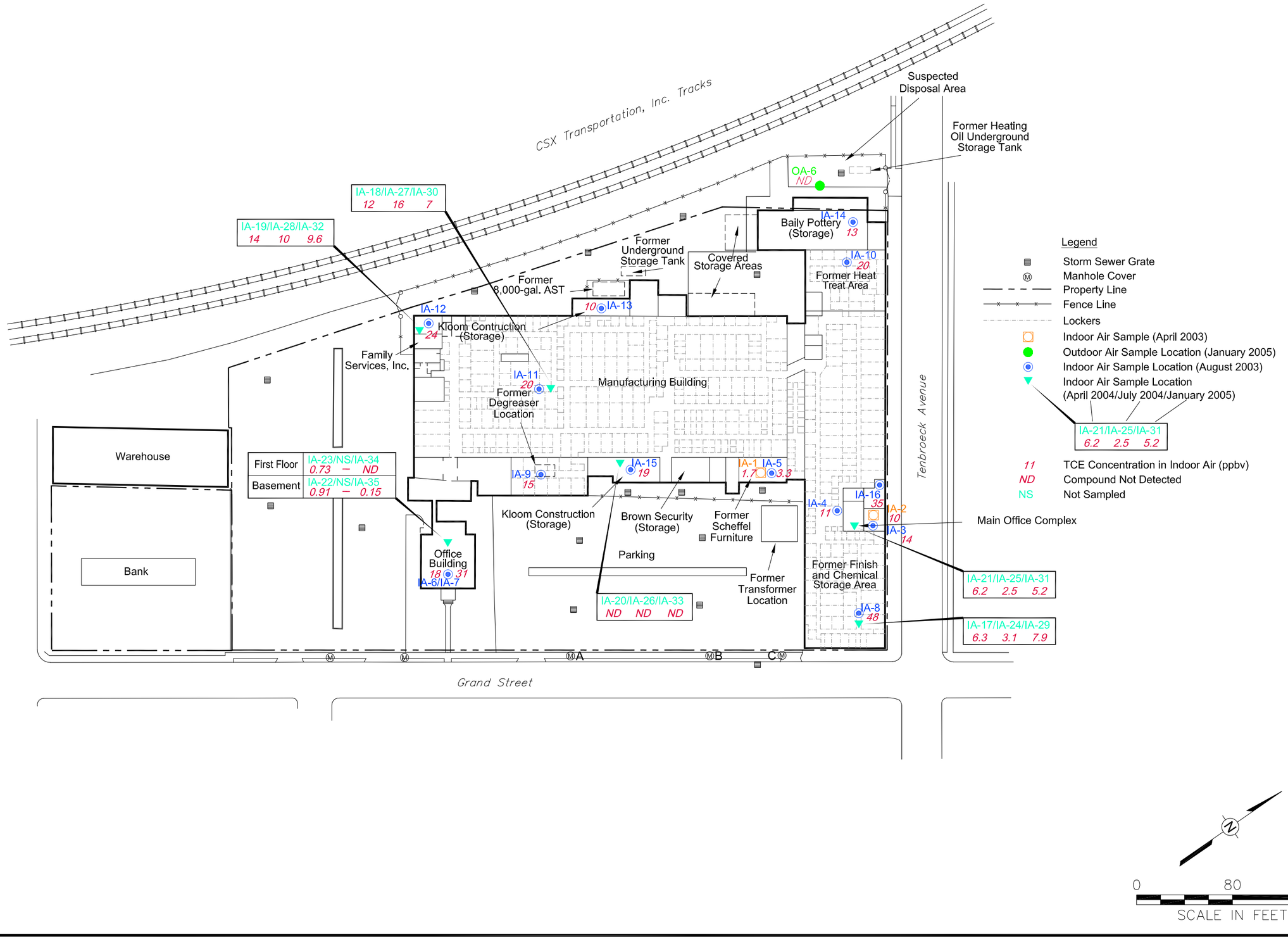
cc: Kristin Kulow, New York State Department of Health
Mark T. Bauer, Federal-Mogul Powertrain LLC

Enclosures

FIGURES



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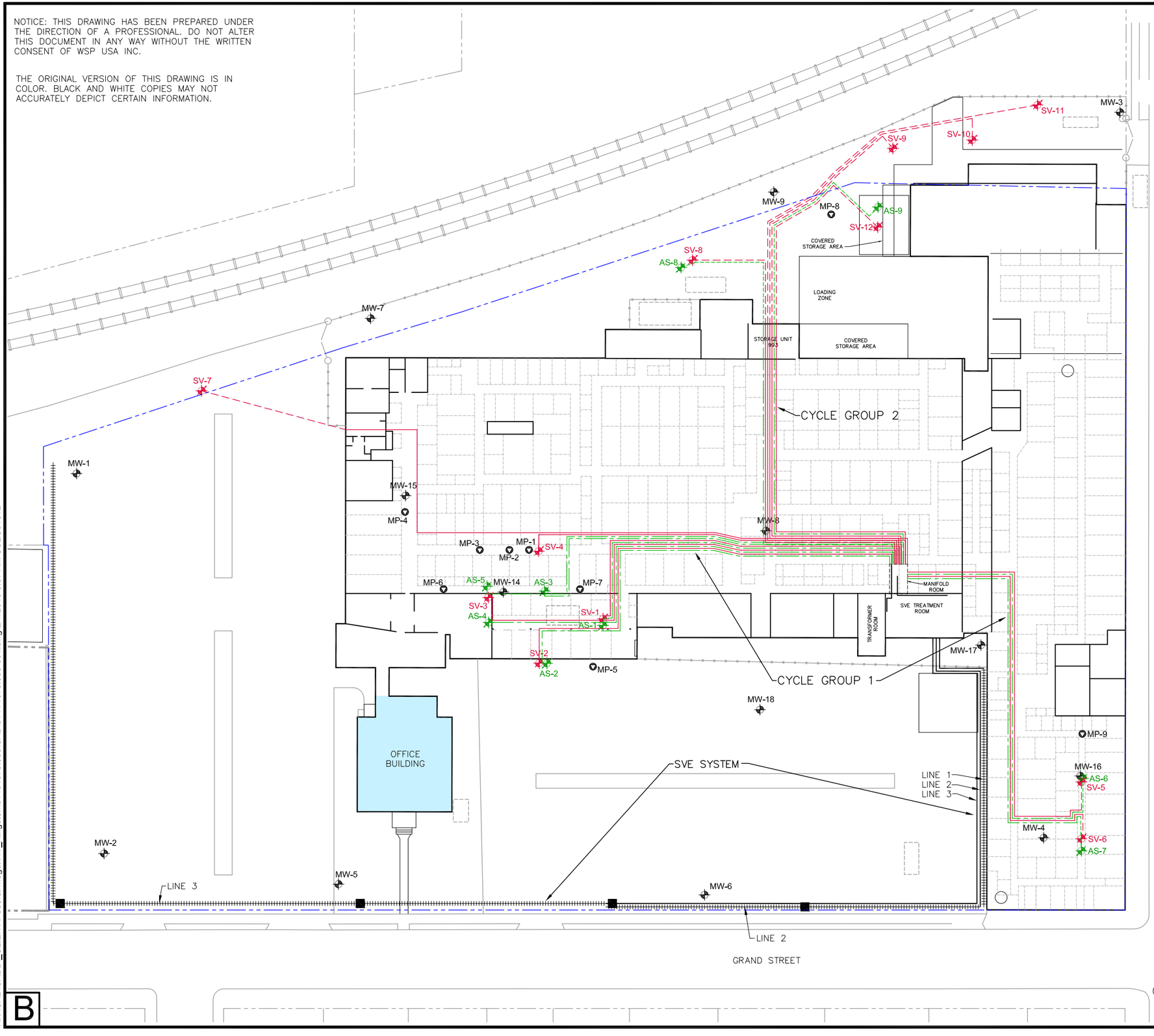
Approved:
DWG Name: 314V1678.006-002

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK
PREPARED FOR
FEDERAL-MOGUL LLC

Figure 1

HISTORICAL INDOOR AIR RESULTS

WSP USA Inc.
7000 E. GENESEE STREET
BUILDING D, 2ND FLOOR
FAYETTEVILLE, NY 13066
TEL: +1 315.655.3900



LEGEND

- PROPERTY BOUNDARY/SITE BOUNDARY
- MONITORING WELL
- SUBSLAB DEPRESSURIZATION SYSTEM

AS/SVE SYSTEM COMPONENTS:

- MP-1 VACUUM MONITORING LOCATION
- AIR SPARGING WELL
- SVE WELL
- 1.5"ø AS PIPING (HUNG IN BUILDING INTERIOR)
- 4"ø SVE PIPING (HUNG IN BUILDING INTERIOR)
- 1.5"ø AS PIPING (BURIED)
- 4"ø SVE PIPING (BURIED)

SVE SYSTEM COMPONENTS:

- 6"ø EXTRACTION SCREEN
- 6"ø EXTRACTION CONVEYANCE PIPING
- VALVE BOX

NOTES:

1. SELF STORAGE UNIT LOCATIONS ARE APPROXIMATE.
2. SVE SYSTEM INSTALLED IN FEBRUARY 2004.
3. SUBSLAB DEPRESSURIZATION SYSTEM INSTALLED IN MARCH 2004.
4. AS/SVE SYSTEM INSTALLED IN APRIL 2014.

0 50 100
SCALE IN FEET

Drawn By: EGC
Checked:
Approved: BES 2/1/2019
DWG Name: 314V1678.006-004

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK
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FEDERAL-MOGUL LLC

Figure 2
INTERIM REMEDIAL MEASURES

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5 SULLIVAN STREET
CAZENOVIA, NY 13035
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Legend

- Storm Sewer Grate
- Manhole Cover
- Property Line and Institutional Control Boundary
- Fence Line
- Self Storage Units
- Floor Drain
- Proposed Indoor Air Sample Location

N

0 60 120

SCALE IN FEET

CSX Transportation, Inc. Tracks

Suspected Onsite Disposal Area

Former 3,000-Gallon Heating Oil Underground Storage Tank Area

Former Fuel Oil Underground Storage Tank Area

Covered Storage Areas

Former 8,000-Gal. AST

Former Heat Treat Transformer Area

Former Heat Treat Area

Former Manufacturing Building (Main Building)

Former Degreaser Area

Warehouse

Southern Parking Lot

Office Building

Eastern Parking Lot

Former Eastern Parking Lot Transformer Area

Bottle Return Center

Former Metal Finish Area

Smith Avenue

Tenbroeck Avenue

Grand Street

B

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Figure 3

INDOOR AIR SAMPLE LOCATIONS

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