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Via: Electronic Mail

March 8, 2017

Mr. William G. McKercher, P.E.
Branch Chief
Groundwater Assessment and
Remediation Division – GARD I
Mississippi Department of Environmental Quality ("MDEQ")
515 E. Amite Street
Jackson, MS 39201

Re: Interim Subslab Depressurization System – Installation Scope-of-Work
Borg-Warner, Inc. Facility
Former Holley Automotive
Water Valley, Yalobusha County, Mississippi

Dear Mr. McKercher:

First Environment, Inc. (First Environment), on behalf of EnPro Industries, Inc., is submitting this modified scope-of-work based on your review and comments dated February 23, 2017. This scope-of-work outlines the installation of a subslab depressurization (SSD) system as an interim remedial measure ("IRM") to abate the intrusion of vapors into the Borg Warner facility located in Water Valley, Mississippi ("the Site"). Additional work resulting from the installation of the IRM, such as performance evaluation sampling, operation and maintenance of the system, shut-down, and reporting will be addressed in additional submittals to the MDEQ.

Background

Commencing on or about January 16, 2017, a vapor intrusion (VI) investigation was conducted inside the industrial manufacturing building located at the Site (the "Plant"). The VI investigation included real-time monitoring of the indoor air, ambient and indoor air sampling, and corresponding subslab vapor sampling. The vapor intrusion investigation results revealed various contaminants of concern (COCs) (i.e., TCE and its degradation products such as cis-1,2-dichloroethene [cis DCE], and vinyl chloride [VC]). TCE concentrations in the indoor air exceeded the MDEQ action level of 26 µg/m3 in the former degreaser area. PCE was also detected in excess of the action level close to an existing sewer manhole within the Plant. Subslab soil gas samples revealed elevated concentrations of COCs throughout the Plant, particularly in and around the area where the former degreasers were located. Several samples within this area had significant elevated TCE concentrations requiring interim measures be taken. Based on sampling results, a subslab depressurization system is recommended as an IRM to address the vapor intrusion in the area where elevated concentrations of TCE and its degradation products were identified. Physically, this area is located in the central portion of the Plant near the former

degreaser area. Figure A summarizes the indoor air results from the January 2017 VI investigation.

IRM Design Objectives

The design objective of the SSD system is to prevent soil gases from infiltrating into the central area of the Plant where the highest concentrations of TCE and its degradation products were detected at the former degreaser area. The SSD system is proposed as an interim measure that is not intended to remediate the impacted soil or groundwater beneath the Plant. Even though remediation is not the design objective of the proposed SSD system, its ancillary effect will be to reduce the concentrations of the subslab vapors as well as elevated vapor concentrations in the indoor air at the degreaser area. Specifically, by venting soil gases, the proposed SSD system will facilitate the removal of any contaminants, on a mass basis, from the subsurface media. Moreover, every volume of vented soil gas has to be replaced by an equal volume of air, resulting in an influx of oxygen into impacted areas, which may facilitate the aerobic biodegradation of contaminants.

Proposed Location of the IRM

The proposed location of the subslab depressurization system is within the maintenance room where the indoor air sample IA-1 was collected, as depicted in Figure A. Historical documentation indicates this room is in the vicinity of the Plant's former degreaser operation (Building Schematic, Colt Industries Holly Carburetor Division Plant No. 9 Revised Feb 28, 1985); Dames & Moore, Report of Findings Phase V-B Inside Soils Supplemental Investigation, August 27, 1992. Figure B provides a depiction of the SSD system extraction point along with monitoring points. Based on the subslab vapor samples and the results of proposed SSD system, additional extraction points will be assessed and likely proposed following the interim SSD.

Construction Details

The following summarizes the construction of the SSD system:

- A four- to six-inch diameter extraction hole will be created in the slab by a concrete coring machine. A proper seal will be constructed and established around the extraction hole by using polyurethane sealants (or similar products) containing "low" or no volatile organic compounds. Three- to four-inch diameter PVC pipe will be utilized as vertical suction piping inserted into the extraction hole, which will in turn exit out of the maintenance room and be directed vertically to the Plant's ceiling. From this point, the piping will turn to the south and run along the Plant's existing piping infrastructure to the south wall where it will exit out the Plant's exterior wall. Pursuant to 11 Miss. Admin. Code Pt. 2, R. 2.13 (E) Exemptions, no air permitting is required for the SSD system.
- The suction line will be equipped with a magnehelic and/or U-tube manometer type device to measure differential pressure.
- An inline Radon type electric blower or equivalent will be installed along the exterior wall of the south side of the Plant for easy access of servicing. A larger variable speed drive radial blower type application will also be evaluated for installation, due to ease of adaptability of additional points, if needed.
- A sampling port will be installed on the exhaust side of the piping for easy access to monitor VOC concentrations within the system.

- Adaptability of the placement of an activated carbon filter or ultra violet (UV) type system will be installed in the systems piping, on the exterior wall of the plant near the blower.
- Labels will be placed on the SSD system components that identify the purpose of the system, as well as a name and phone number of a contact in case there are any problems. In the electrical panel, the appropriate electrical breaker or the fuse that powers the SSD system shall be labeled accordingly.
- A communication test will be subsequently conducted by First Environment personnel after the interim SSD system is fully operational. Subslab sampling points utilized in the recent VI Investigation, which are depicted in Figure B, will be "re-drilled" and utilized as observation holes to determine the lateral extent of the negative pressure (vacuum). Handheld magnehelic gauges will be utilized to quantify the vacuum readings at the observation holes. Additional observation holes may need to be installed to further evaluate the radius of influence (ROI). The location of these additional observation holes will need to be determined during the implementation of the communication test (i.e., in-the-field determination).

The following pictures are examples of a typical SSD mitigation system, similar in construction of what is being proposed for the stated application.


An example of extraction point and exhaust piping equipped with a negative pressure manometer


An example of stack piping equipped with an electrical fan

An example of large radial blower application

Operation of the System

The SSD system is designed to create a negative pressure field directly under the maintenance room, as well as the adjoining training room, the ATS room, and the surrounding manufacturing areas in the vicinity of these rooms; thus becoming a “sink” for any soil gases present in the vicinity. Any volatile organic constituents (VOCs) caught in the advective sweep of this negative pressure field will be collected and piped to an ambient air discharge point located outside the Plant. The system will be operated 24 hours per day seven days per week. It is anticipated that the system will be shut down from time-to-time for routine maintenance including the change-out of carbon filters and the maintenance and clean-out of piping, fans, and blowers. Final shutdown of the system is not anticipated until a more permanent sub-slab/groundwater remedial approach is implemented or when the contamination has been abated.

SSD Installation Schedule

Upon authorization from the MDEQ and access and construction authorization from Borg Warner, the current site owner, First Environment and its contractors can install and start up the SSD system within three to four weeks. Subject to these approvals, the goal is to have the system operational in the month of April.

Conclusion

As presented above, this scope-of-work outlines the design, installation, and operation of a SSD system as an IRM at the Site to abate the intrusion of vapors into the indoor air of the central portion of the Plant where the highest concentrations of TCE and its degradation products were detected. Additional work resulting from the installation and operation of the IRM, such as performance evaluation sampling, operation, and maintenance of the system, expansion of the SSD, shut-down, and reporting will be addressed in additional submittals to the MDEQ.

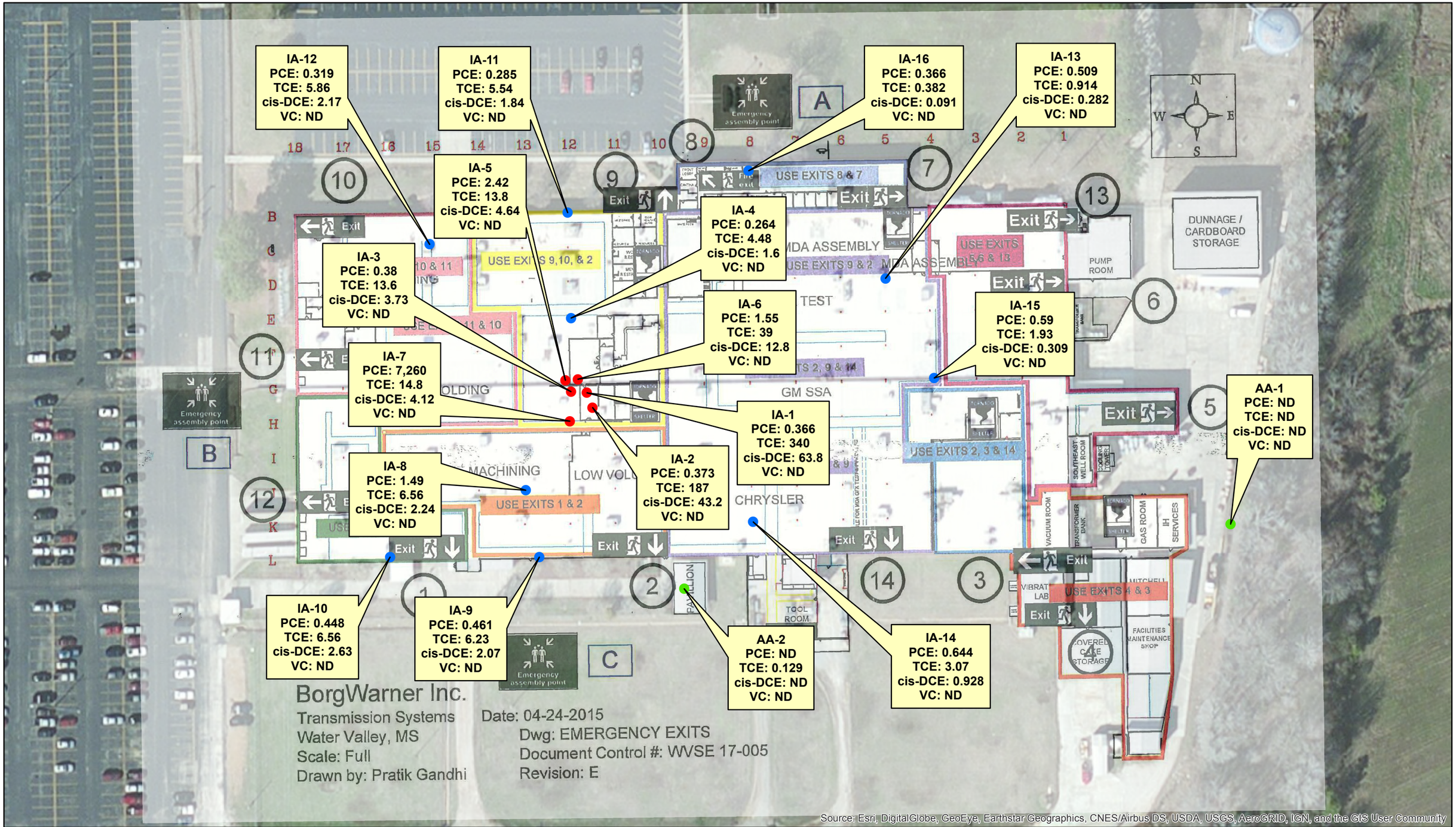
If you have any questions or comments or require additional information, please do not hesitate to contact me.

Very truly yours,

FIRST ENVIRONMENT, INC.

B. Tod Delaney, Ph.D., P.E., BCEE
President
Mississippi Professional Engineer No. 11041

FIGURES



Legend

- IA-1: Indoor air concentrations in ug/m3
- AA-1: Ambient air concentrations in ug/m3
- Subslab location to be checked for vacuum distribution of the interim subslab depressurization mitigation system

ND Concentration not detected above laboratory reported limits

0 20 40 80 Feet

1 inch = 80 feet

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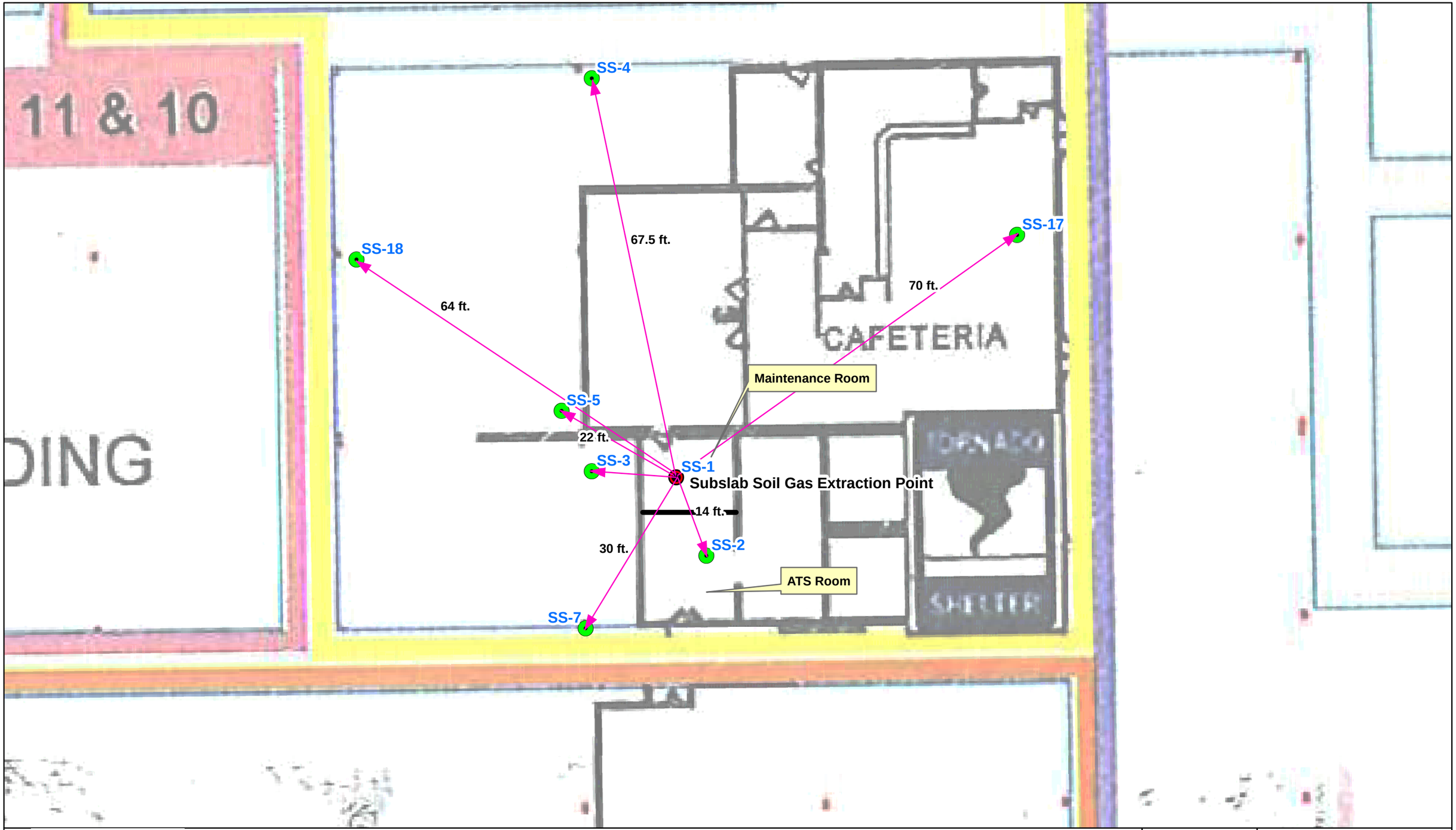
BORG WARNER FACILITY
600 Highway 32E
Water Valley, MS

FIGURE A

AMBIENT AND INDOOR AIR SAMPLING RESULTS

Revised	Drawn	Checked	Approved	Date
	NMT		TCB	2/10/2017



Legend

- Monitoring Points
- Extraction Point

0 3.75 7.5 15 Feet

1 inch = 15 feet

N W E S

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Boonton, New Jersey 07005

FORMER HOLLEY AUTOMOTIVE/COLTEC INDUSTRIES FACILITY
600 Highway 32E, Water Valley, MS
FIGURE B
SUBSLAB DEPRESSURIZATION EXTRACTION AND MONITORING POINTS

Revised	Drawn	Checked	Approved	Date
	NMT		TCB	3/7/2017