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July 24, 2009

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Mr. David Szymanski
New York State Department of Environmental Conservation
Division of Environmental Remediation
Region 9
270 Michigan Ave.
Buffalo, NY 14203

RE: Subslab Depressurization System Installation – Moog Plant 11

Dear Mr. Szymanski:

URS Corporation (URS) is pleased to present this letter report documenting the installation of a subslab depressurization (SSD) system at Moog, Inc.'s Plant 11 facility. The SSD system was installed by US Radon, Inc., Harmony, Rhode Island, on June 23 and 24, 2009 under direct oversight by URS.

Background

A spill at the eastern portion of Plant 11 previously resulted in groundwater contamination containing chlorinated solvents, principally 1,1-dichloroethane (1,1-DCA) with lower levels of other chlorinated ethanes, chlorinated ethenes, and freon. Moog, Inc. (Moog) has been operating a groundwater collection and treatment system for over ten years, resulting in a significant decrease in solvent concentrations in the groundwater. However, 1,1-DCA levels have remained as high as 210 µg/L in monitoring well MW-2B located east of the plant, suggesting that SVI may be an exposure pathway of concern at this site. Concentrations in wells MW-4 and MW-6, located north and northeast of the spill areas, respectively, have shown lower levels of 1,1-DCA, but are located downgradient of the groundwater collection trench and thus may not reflect groundwater concentrations beneath the plant slab.

URS conducted a soil vapor intrusion (SVI) investigation at Building 11A in May 2008 to assess the potential of soil vapor contamination of the eastern portion of Building 11A. This SVI study was limited in scope to Building 11A in the area of the inferred groundwater plume. As a result of the SVI investigation results, Moog elected to conservatively move straight to mitigation via installation of an SSD system at the eastern portion of Building 11A.

Subsequently, Moog contracted URS to prepare a SVI Mitigation Plan (Plan). URS prepared this Plan in accordance with guidelines specified in the New York State Department of Health (NYSDOH), 2006 "Guidance for Evaluating Soil Vapor Intrusion in the State of New York. This plan specified the proposed locations of the subslab vapor extraction points and described the portion of the building that would be subject to subslab depressurization. Moog submitted this Plan to the New York State Department

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of Environmental Conservation (NYSDEC) and the NYSDOH for review and approval. Moog received approval of this approach from the state for installation in March, 2009.

This report documents the SSD system in accordance with the approved SVI Mitigation Plan.

Subslab Depressurization System Installation

The SSD system consists of three, 4-inch inside diameter (ID), Schedule 40 polyvinyl chloride (PVC) pipes that penetrate the building floor at three locations (suction points). For the purpose of describing system construction, these suction points are designated Suction Points North, South and East, based on their locations within Building 11A. The suction points are connected to a suction fan by 4-inch ID Schedule 40 PVC piping. The suction fan, a Radonaway Model No. GP501, is mounted outside of the building's east wall about two feet below the roofline. A short 4-inch ID PVC pipe extends above the fan to place the system discharge about three feet above the roof line. The fan operates on 110 volts AC power. All electrical hookups were made by Moog electricians. A generalized view of the SSD system construction is shown on Figure 1.

Two of the suction points (Suction Points North and South) are located in the eastern portion of the building adjacent to building roof support columns. The locations of these two suction points are dictated by the location of the support columns along which the suction pipe may run. The actual suction points at these two locations were offset approximately two feet from the base of the column to avoid the column footer. The third suction point (Suction Point East) is located in a small addition that is separated from the main building by a concrete structural footer. This addition is presently occupied by the maintenance department and also houses a groundwater remediation system. Suction point locations are shown on Figure 2. System construction is documented in a photographic log provided in Attachment 1.

Each of the suction points has a valve that can be used to adjust the air flow from each suction point. Each suction point also has a manometer placed in the piping above the floor penetration that measures vacuum at each suction point.

Subslab Depressurization System Testing.

Following construction and installation of the SSD system components, the fan was turned on and the system effectiveness measured by collecting vacuum readings from seven 3/8-inch diameter test holes. Vacuum readings were recorded using a portable differential pressure gauge. Test hole locations are shown on Figure 2. Measured vacuum readings from the test holes are provided in Table 1. Vacuum readings averaged 0.050 inches of water, and ranged from 0.001 inches of water in Test Hole 2, at the southeast corner of Building 11A, to 0.089 inches of water at Test Hole 7 in the building addition. Vacuum readings at the three suction points ranged from 1.1 to 1.6 inches of water as measured on the manometers affixed to each suction point. Final suction point

vacuum measurements are presented in Table 1. All of the test holes were sealed with concrete caulk after testing.

The lowest vacuum readings were measured in the two corners of Building 11A. Readings of 0.001 and 0.002 inches of water were recorded at Test Holes 2 and 6, respectively. Because these points were located at the building corners, they represent the most difficult area at which to obtain depressurization. Although these readings are low, the readings were steady and clearly show that the system has created a negative pressure field extending from well within the building to the walls at the northeastern portion of building 11A. The remainder of the vacuum readings from the test holes were 0.037 inches of water and higher which demonstrate excellent pressure field extension.

The vacuum readings from the test holes and manometers indicate that the system has created a subslab negative pressure field that is sufficient to significantly reduce the likelihood of subslab vapors entering the building.

Operation and Maintenance.

On July 15, 2009, URS performed an operation and maintenance (O&M) training session to Moog building maintenance personnel on the operation and maintenance of the SSD system. Moog maintenance personnel will regularly check the vacuums measured by the manometers at each of the three suction points. Should no vacuum be observed at any time, this would be a symptom of fan failure and Moog would replace or repair the fan.

Sincerely,

URS Corporation – New York

Sheldon S. Nozik, P.G., CHMM
Project Manager

CC: Cameron O'Connor, NYSDOH
Christopher Russin, Moog
Jon Sundquist – URS
John Boyd – URS
File – 11175046 (C-1)

Figures: Figure 1 - Generalized View of the SSD System
Figure 2 - Suction Point Locations

Attachments: Photographic Log

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Table 1
Subslab Depressurization System Vacuum Measurements
Building 11A, Moog, Inc. East Aurora, NY

Vacuum Monitoring Location	Date	Vacuum Reading (inches of water column)
Vacuum Test Point 1	June 24, 2009	0.038
Vacuum Test Point 2	June 24, 2009	0.001
Vacuum Test Point 3	June 24, 2009	0.070
Vacuum Test Point 4	June 24, 2009	0.080
Vacuum Test Point 5	June 24, 2009	0.037
Vacuum Test Point 6	June 24, 2009	0.002
Vacuum Test Point 7	June 24, 2009	0.089
Suction Point North	June 24, 2009	1.10
Suction Point South	June 24, 2009	1.50
Suction Point East	June 24, 2009	1.60

Q:\Sundquist, Jon\Figure 2\FIGURE 2.dwg 9/17/08

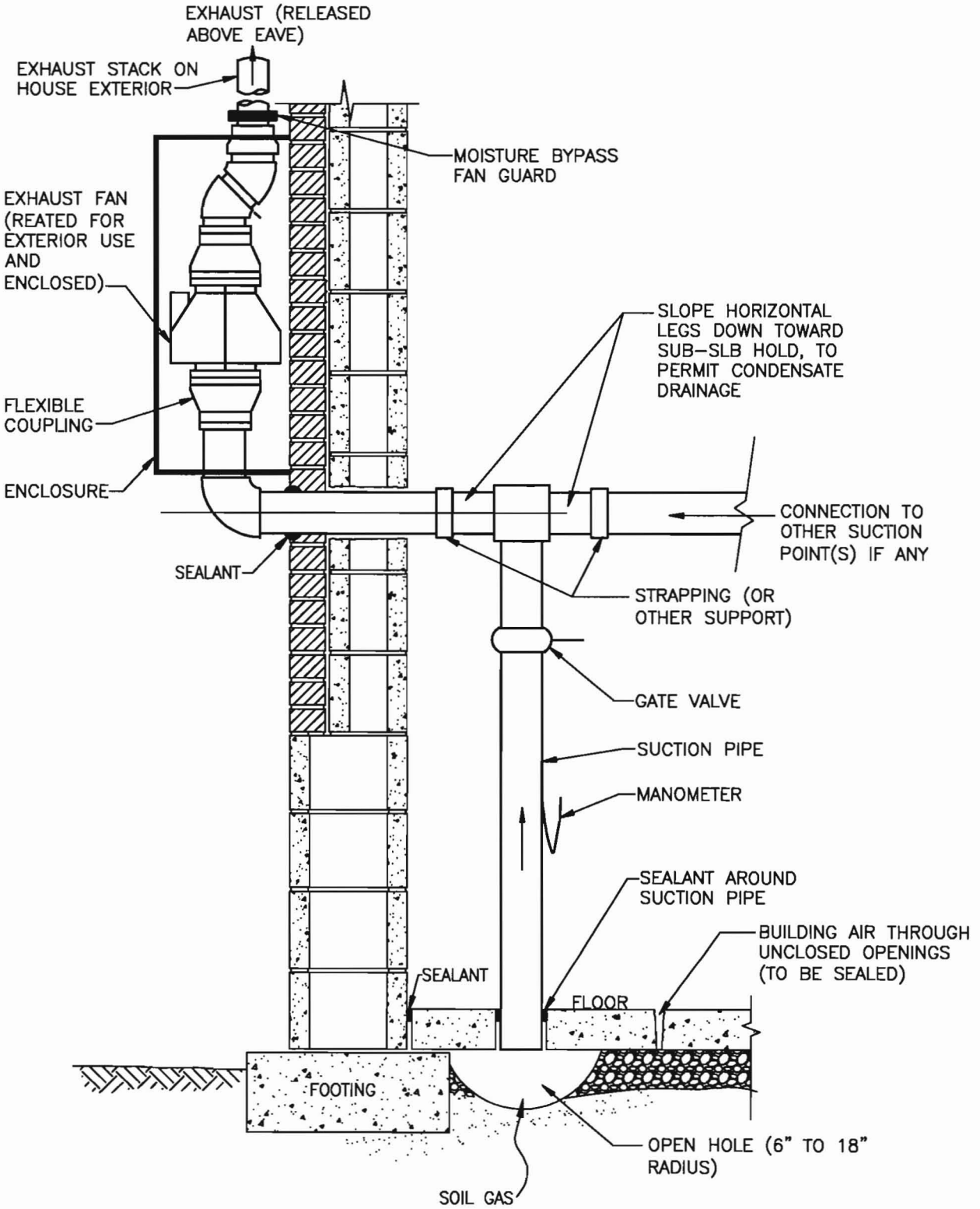

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FIGURE 2

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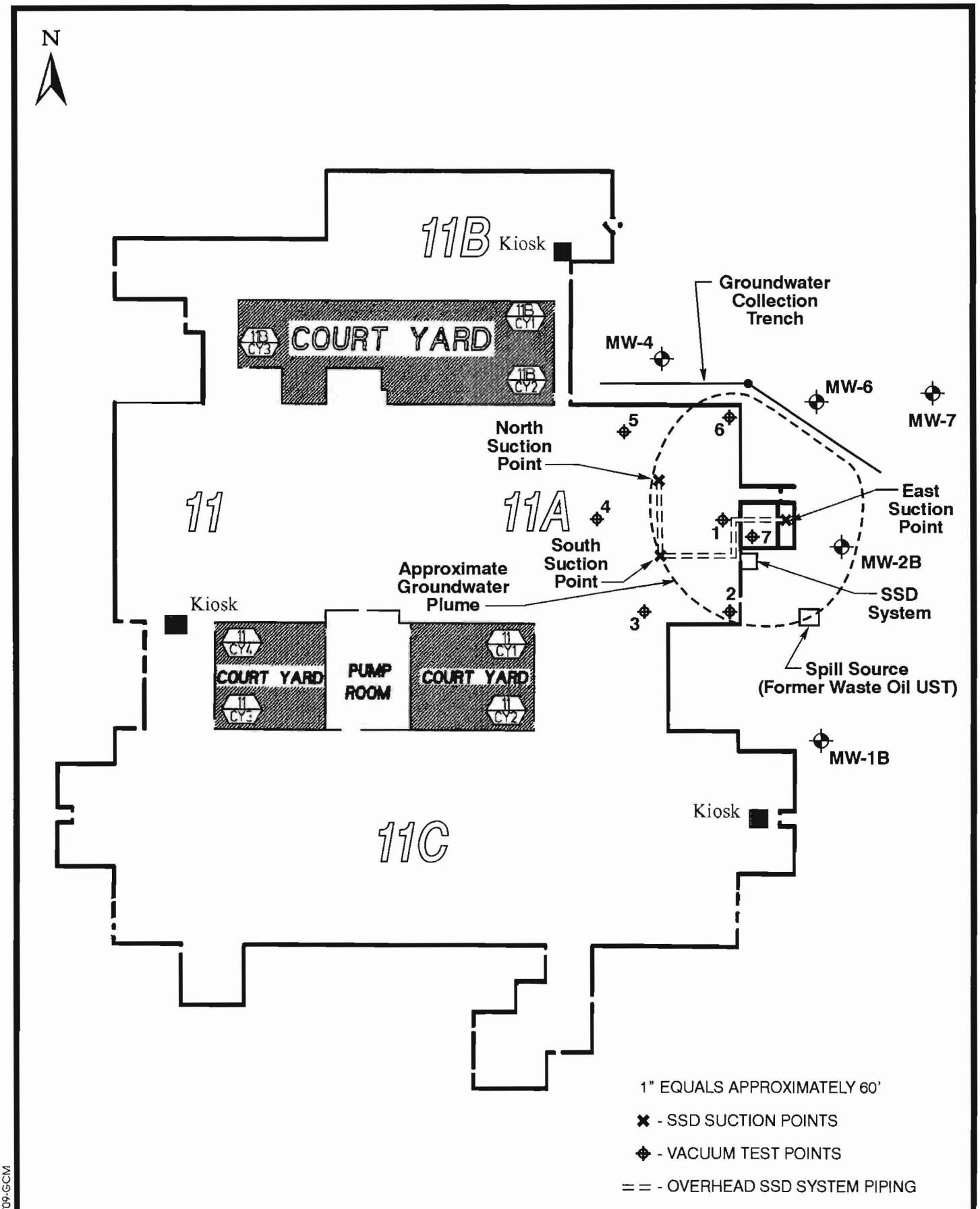
MOOG, INC., SSD SYSTEM INSTALLATIONS
TYPICAL DEPRESSURIZATION VENT AND EXHAUST PIPING

FIGURE 1



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MOOG, INC.
LOCATIONS OF SSD SYSTEM
SUCTION POINTS AND VACUUM TEST POINTS

FIGURE 2

AG20125A-11175481-071709-GCM

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ATTACHMENT 1
PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG
Moog, Inc. Building 11 SSD System Installation
East Aurora, New York

Looking west at "South" suction point, flow adjustment valve and manometer.

Looking northeast at "North" suction point and flow adjustment valve.

PHOTOGRAPHIC LOG
Moog, Inc. Building 11 SSD System Installation
East Aurora, New York

Looking south at "North" suction point and manometer.

Looking southwest at routing of pipe from suction point "South" to system fan (left) and to suction point "North" (right).

PHOTOGRAPHIC LOG
Moog, Inc. Building 11 SSD System Installation
East Aurora, New York

Looking west at suction point "East" with flow adjustment valve and manometer.

Looking west at piping from suction point "East" to main building via pipe-run through adjacent suspended ceiling.

PHOTOGRAPHIC LOG
Moog, Inc. Building 11 SSD System Installation
East Aurora, New York

Looking east at junction of piping from suction point "East" (left), piping from suction points "South" and "North" (right) and exit of system piping to outside mounted fan.

Looking south at system fan mounted on east wall of Building 11.