



March 6, 2009

Girish Desai
New York Department of Environmental Conservation
Division of Environmental Remediation
Building 40 – SUNY, Stony Brook
Stony Brook, New York 11790-2356

Re: Revised Vapor Intrusion Sampling Plan
Operable Unit No. 2
Former Columbia Cement Company Facility
Freeport, New York
Site ID No. 130052

Dear Mr. Desai:

As requested by the New York Department of Environmental Conservation (NYSDEC), URS Corporation (URS) is pleased to present this Revised Vapor Intrusion Sampling Plan for Operable Unit No. 2 of the former Columbia Cement Company facility in Freeport, New York (Site). URS has been conducting investigation / remediation activities at the Site on behalf of Atlantic Richfield Company, a BP affiliated company (BP). A draft Sampling Plan was submitted to NYSEDC on February 3, 2009, in response to NYSDEC's January 22, 2009 email. This revised Sampling Plan addresses comments in NYSDEC's February 23, 2009 email.

The October 2008 *Revised Remedial Investigation Workplan, Operable Unit No. 2, Off-Site Areas, Former Columbia Cement Company, Inc. Facility, Freeport, New York*, stated that a vapor intrusion (VI) investigation workplan would be prepared after installation and sampling of offsite monitoring wells. However, to ensure that the VI investigation occurs during the current heating season (before March 31, 2009), this workplan was prepared based on the results of the groundwater screening sampling conducted in December 2008. The groundwater screening sampling results indicated groundwater contamination exceeding NYSDEC Groundwater Quality Standards at locations in front of 159 Hanse Avenue (Former Columbia Cement Building), 162 Hanse Avenue (Farber Plastics building), 178 Hanse Avenue (Love & Quiches building) and 191 Hanse Avenue (Apollo Fine Spirits building).

This Vapor Intrusion Sampling Plan presents a proposal to investigate the VI pathway at properties overlying groundwater impacts in the vicinity of the Former Columbia Cement building.

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SOIL VAPOR CONTAMINANTS OF CONCERN (COCs)

A Supplemental Soil Vapor investigation was conducted at the Former Columbia Cement Property in August and October 2006. For this investigation, a list Contaminants of Concern (COCs) was developed for laboratory analysis of samples. As part of the screening process utilized in the Supplemental Soil Vapor Sampling Plan, NYSDEC requested that COCs to be included for soil vapor sample analyses be based on the following criteria:

- Compounds related to the 1988 1,1,1-TCA spill (1,1,1-TCA, 1,1-DCA, 1,1-DCE and chloroethane);
- Compounds known to have been stored in Site USTs;
- Compounds previously detected at high levels in Site soil and/or groundwater;
- Compounds that are ingredients in Laktane, a product previously stored in a Site UST.

Based on these criteria, the COCs used in the 2006 Soil Vapor Sampling Plan were:

- Acetone;
- Benzene;
- Chlorobenzene;
- Chloroethane;
- 1,1-Dichloroethane;
- 1,1-Dichloroethene;
- cis-1,2-Dichloroethene;
- trans-1,2-Dichloroethene;
- Ethylbenzene;
- Freon 113;
- Freon 114;
- Heptane;
- Hexane;
- Methyl Cyclohexane (as a TIC);
- Methylene Chloride;
- Methyl Ethyl Ketone (MEK);
- Pentane;
- Tetrachloroethene;
- 1,1,1-Trichloroethane;
- Toluene;
- Trichloroethene;
- Vinyl Chloride.

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- M&p-Xylene;
- Total Xylenes.

BP proposes to use the same list for the OU-2 VI investigation. Tentatively identified compounds (TICs) will be reported and evaluated. Methyl cyclohexane, a component of Laktane is not part of the TO-15, list but can be identified as a TIC.

SAMPLING PLAN

Details of the proposed sampling plan are presented below. Sampling activities will be performed by URS. Samples will be collected at the Apollo Fine Spirits building, the Farber Plastics building and the Love & Quiches building. Samples will also be collected at the Rohm & Haas property, located east of the Former Columbia Cement Building. Based on the results from groundwater samples collected from wells on the north side of the Columbia Cement building, and sub-slab and soil vapor samples collected on the north side of the Columbia Cement building, no sampling is recommended for 149 Hanse Avenue, the property immediately north of the Columbia Cement building. The samples will be collected in general accordance with the protocols described in the NYSDOH document "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 and be analyzed for the COC list presented above.

Building Observations

Prior to initiation of the sub-slab vapor sampling at each off-site property, URS will review existing building information made available by the Site owners. URS will also perform a visual inspection of the building. URS will observe the condition of the floor slab and locations for potential vapor intrusion, including, but not limited to cracks, sumps, floor drains, and utility access ports. URS will perform an inventory of any materials stored in the building. Floor staining or other potential sources of indoor vapors will also be noted. URS will photo-document any potential sources, staining or potential pathways for soil vapor intrusion. URS will also evaluate the ventilation system and note the locations of vents, intakes, fans, etc. URS will also review the results of prior indoor air sampling, if any.

Sub-Slab Vapor Sampling Plan

At the Apollo Fine Spirits building, the Farber Plastics building and the Love & Quiches building, URS will collect two sub-slab vapor samples in each building. Proposed samples locations are as follows:

- In the Apollo building, sub-slab sample SS-191-01 will be collected from the western portion of the building, to the west of groundwater screening sample GW-09. Sub-slab sample SS-191-02 will be collected from the warehouse portion of the building.
- In the Farber Plastics building, sub-slab sample SS-162-01 will be collected from the western side of the building, downgradient from groundwater screening sample location GW-01. Sub-slab sample SS-162-02 will be collected from the eastern (rear) portion of the building.
- In the Love & Quiches Building, sub-slab sample SS-178-01 will be collected from the western (front) side of the building, downgradient from groundwater screening sample locations GW-03 and/or GW-04. Sub-slab sample will be SS-178-02 will be collected from the eastern (rear) portion of the building, upgradient from wells MW-07-16S and MW-07-17D.

Sample locations are shown on Figure 1. Sample locations are subject to change depending on site conditions and consultation with NYSDEC and/or NYSDOH. At each location, bore holes will be advanced by means of a hammer drill or coring machine through the slab into the sub-slab aggregate/soil. Dedicated Teflon tubing will then be installed in the aggregate/soil. A bentonite or modeling clay seal will be placed in the annular space between the slab and the sample tubing to create a seal to the atmosphere. Samples will be obtained using laboratory supplied pre-cleaned 6-liter SUMMA canisters. To evaluate the potential for "short circuit" of ambient air into soil vapor samples, a small polyethylene bucket, equipped with purge and vent ports as well as a grommet equipped with a 1/4-inch diameter hole for the sampling tube will be placed upside down over the hole, with the sampling tube passing through the bottom of the bucket. A foam rubber gasket will be placed around the bucket edge, which will act as a seal between the bucket and the slab surface around the sampling point. The purge and vent ports on the bucket will be opened and helium will be introduced into the bucket space until an 80 to 100 percent concentration is measured at the vent port. Both ports will then be closed.

The sampling line will be purged at 200 cc/min and checked for helium intrusion and, if 10 percent helium or less is measured, sampling for sub-slab vapors will be initiated. The sub-slab vapor sampling line will be attached to the SUMMA Canister after the pre-sampling vacuum has been recorded and the sample will be collected at a maximum of 12.5 cc/min. for 8 hours (6 liters in total). During the sampling period, the vacuum reading will be monitored.

Indoor Air Sampling Plan

URS will collect one indoor air samples adjacent to each sub-slab sample. Indoor air samples will be collected concurrently with the sub-slab samples. Proposed sample locations are

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shown on Figure 1, but are subject to change depending on site conditions and consultation with NYSDEC and/or NYSDOH. The samples will be collected using a laboratory supplied pre-cleaned 6-liter SUMMA canister placed at breathing level height (3 to 5 feet above the floor). The samples will be collected at a maximum of 12.5 cc/min. for 8 hours (6 liters in total). One duplicate indoor air sample will be collected using a "T" fitting.

Soil Gas Sampling

The Rohm & Haas Electronic Materials (Rohm & Haas) facility is located directly east of the Site. Shallow soil gas samples collected near the Rohm & Haas property boundary contained Site-related COCs. NYSDEC and NYSDOH requested the BP collect sub-slab vapor samples from the Rohm & Haas Building. Based on requests from Rohm & Haas, instead of an indoor sub-slab vapor sample, URS will collect two shallow soil gas samples, SS-272-01 and SS-272-02, outside the portion of the building closest to soil gas sampling point SG-05-02.

The soil gas sample will be collected from the aggregate below the concrete pavement. The soil gas sample will be collected using methods described above for the sub-slab samples over an 8-hour period. Following sample collection, the sample tubing will be removed and the boring will be sealed and topped with a concrete patch.

If results indicate that the shallow soil gas presents a potential vapor intrusion risk for the Rohm & Haas building, URS will seek to obtain access from Rohm & Haas to collect one or more sub-slab samples within the building.

Ambient Air Background Sample

URS will collect one ambient air background sample near one of the Rohm & Haas sample locations and one ambient air background sample in the area behind 178 Hanse Avenue. The ambient air samples will be collected concurrently with the nearest sub-slab / shallow soil gas samples. The samples will be collected using laboratory supplied pre-cleaned 6-liter SUMMA® canisters placed at breathing level height (3 to 5 feet above grade). The samples will be collected at a maximum of 12.5 cc/min. for 8 hours (6 liters in total).

GENERAL

After the sampling has been completed, the SUMMA canister vacuum readings will be recorded, chain-of-custody documentation will be completed, and the samples will be forwarded to TestAmerica Laboratory in Burlington, Vermont, an ELAP certified laboratory for analysis. Sample analysis will be performed following the U.S. EPA Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) In Air Collected In



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Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS) (1999). Samples will be analyzed with a maximum detection limit of 1.0 $\mu\text{g}/\text{m}^3$. Indoor air samples will be analyzed with a maximum detection limit of 0.25 $\mu\text{g}/\text{m}^3$ for trichloroethene and vinyl chloride. Samples will be analyzed for only those COCs listed above, as well as TICs. Laboratory data will be provided in NY ASP Category B deliverable format.

REPORTING

Upon receipt of laboratory data, URS will prepare a letter report for submittal to NYSDEC and NYSDOH. The report will summarize the sampling results and compare the results to the applicable Soil Vapor / Indoor Air Matrices for them the NYSDOH Vapor Intrusion Guidance Document. The report will also present recommendations for additional (if any) soil vapor and/or sub-slab vapor sampling.

Should you have any questions or comments, please feel free to contact me.

Very truly yours,

URS CORPORATION

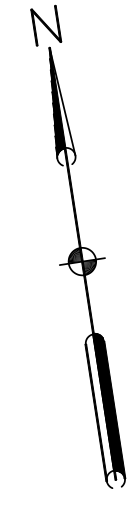
Mark T. Becker, P.G.
Senior Project Manager

MTB/mtb

cc: K. Endriss, BP
S. McLelland, NYSDOH
R. Hanks, ITW
K. Mignone, Pepe Hazard
D. Kohler, Apollo Fine Spirits
L. Farber, Farber Plastics
S. Wildman, Wildman Realty
R. Casselberry, Rohm & Haas

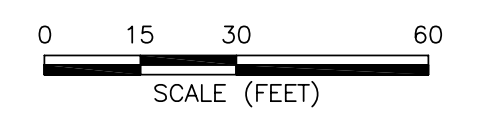
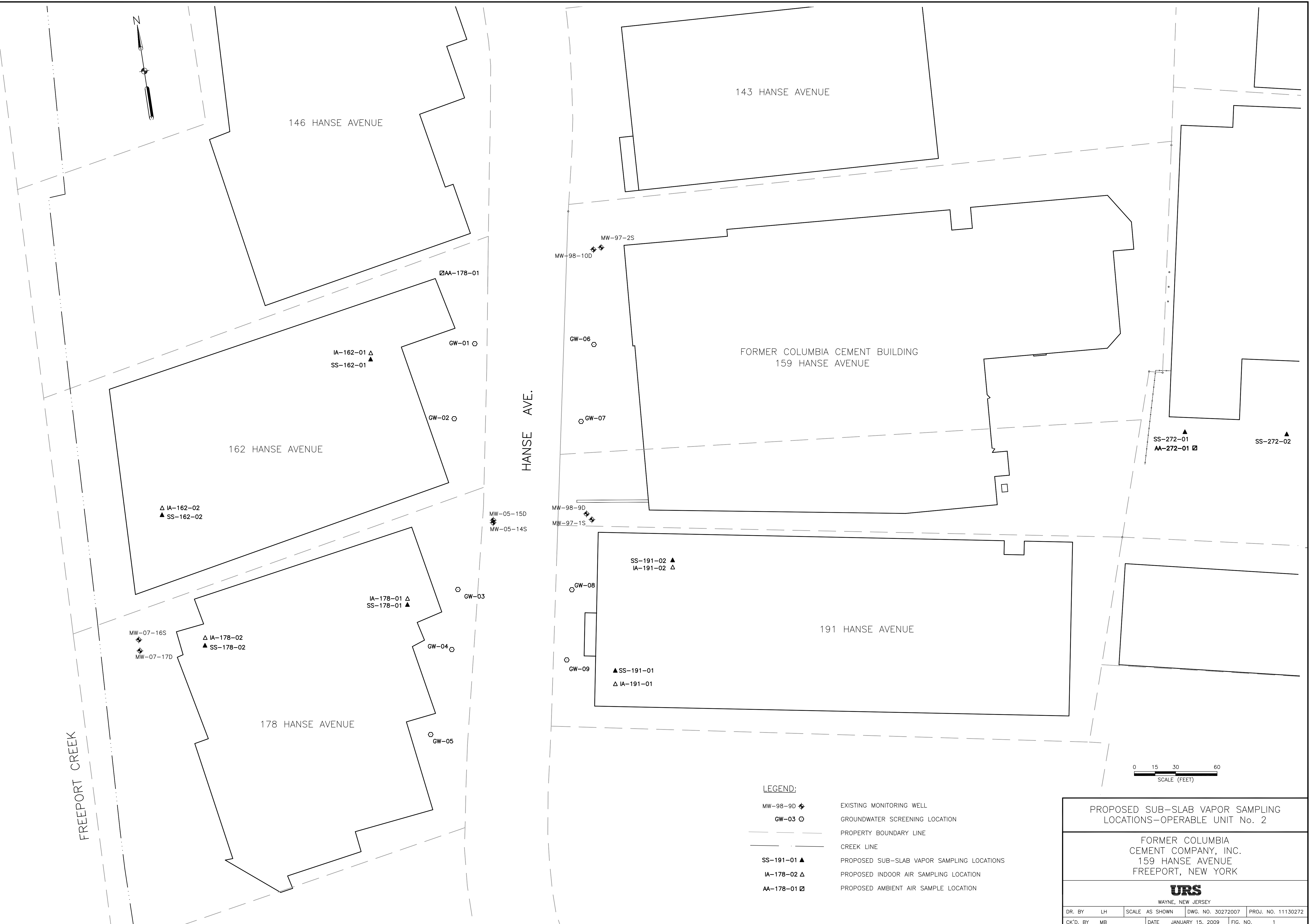
Enclosure

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FREEPORT CREEK

HANSE AVE.



LEGEND:

- MW-98-9D EXISTING MONITORING WELL
- GW-03 GROUNDWATER SCREENING LOCATION
- PROPERTY BOUNDARY LINE
- CREEK LINE
- SS-191-01 PROPOSED SUB-SLAB VAPOR SAMPLING LOCATIONS
- IA-178-02 PROPOSED INDOOR AIR SAMPLING LOCATION
- AA-178-01 PROPOSED AMBIENT AIR SAMPLE LOCATION

PROPOSED SUB-SLAB VAPOR SAMPLING LOCATIONS-OPERABLE UNIT No. 2			
FORMER COLUMBIA CEMENT COMPANY, INC. 159 HANSE AVENUE FREEPORT, NEW YORK			
URS WAYNE, NEW JERSEY			
DR. BY	LH	SCALE AS SHOWN	DWG. NO. 30272007
CK'D. BY	MB	DATE	JANUARY 15, 2009
		PROJ. NO.	11130272
		FIG. NO.	1