



February 8, 2018

Ms. Heather Bishop
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233

**Re: Indoor Air/Sub-Slab Soil Vapor & Mitigation System Sampling Work Plan
Luitpold Pharmaceuticals
26 Precision Drive Facility
Shirley, New York 11967
H2M Project No. LUIT1602**

Dear Ms. Bishop:

On behalf of Luitpold Pharmaceuticals (Luitpold) and in accordance with your request, H2M architects + engineers (H2M) provides herein a Soil Vapor Intrusion Investigation (SVII) and Mitigation System Sampling (MSS) work plan for the above-referenced site. The purpose of this SVII is to assess indoor air quality in the 26 Precision Drive Facility. SVII activities will commence following NYSDEC approval of this SVI Sampling Plan. Following sampling activities and receipt of sampling results, a SVII Report will be prepared. The results of the SVII will be used to evaluate the current mitigation system. The purpose of MSS is to assess the air quality of vapor removed from the sub-slab and to assess the effectiveness of the granulated activated carbon drums to process the system discharge. A site location map is provided as **Figure 1**.

Project Background: The subject property was formerly owned by a metal fabricating facility known as Precision Concepts. Precision Concepts operated at the subject property from 1985 to 1993. Sanitary system sampling conducted by the Suffolk County Department of Health Services (SCDHS) in May 1988 determined that an on-site leaching pool was impacted with 1,1,1-trichloroethane (TCA). A subsequent SCDHS sampling event determined that five private wells located downgradient of the subject property were impacted with TCA as well as dichloroethane (DCA), a contaminant identified in 1990 in a monitoring well located along the southern boundary of Brookhaven National Laboratory.

SCDHS subsequently installed 20 monitoring wells along the Long Island expressway south service road and along Precision Drive to determine both the source of the impacts and groundwater flow direction. SCDHS sampling/analytical results determined the presence of TCA in monitoring wells on Precision Drive. Based upon the analytical data, SCDHS nominated the subject property for inclusion on the NYSDEC listing of Inactive Hazardous Waste Disposal Sites (IHWDS).

A Focused Remedial Investigation conducted at the subject property by General Consolidated Industries (GCI) in 1999 determined that there was no on-site source of TCA contamination identified in any of the study areas. Based upon the investigation results, no remedial measures were recommended for the subject property and GCI requested that the site be de-listed and removed from the NYSDEC IHWDS. NYSDEC subsequently de-listed the subject property in approximately 2000.

The subject property is now owned by Luitpold and is no longer operating as a metal fabricating facility. The building footprint has remained nearly identical to that which was present during the time that Precision Concepts was operating the facility. Approximately two thirds of the 44,000-square foot structure now consists of warehouse space and a small product testing lab. The remainder of the building generally consists of office space and a lunchroom. Work hours are approximately 7:00 am to 3:30 pm, with limited building occupation until approximately 5:00pm.

A total of nine (9) permanent vapor sampling points were installed throughout the facility. Vapor sampling point locations are shown on **Figure 2**. Heating season samples were collected annually from 2010 through

2013. On January 24, 2013 samples collected from SS-1 had a tetrachloroethene concentration of 67,100 ug/cubic meter and trichloroethene concentration of 1,850 ug/cubic meter. The sample collected from SS-6 had a tetrachloroethene concentration of 167 ug/cubic meter. According to the New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion document, mitigation of sub-slab vapors was required at SS-1 and continued monitoring was required at SS-6. A summary of analytical results for VOCs collected in 2013 is provided in **Table 1**.

A mitigation system consisting of sub-slab piping connected to a soil vapor extraction blower was designed by H2M and approved by the NYSDOH and NYSDEC. The system was installed in December 2017 and began operation in January 2018. A pressure field test was performed at SS-1 and confirmed a vacuum of greater than 5 PSI.

Nature of Work: The SVII Work Plan includes the collection of nine (9) sub-slab soil vapor samples and (9) indoor air samples. Two (2) outdoor air sample will be collected from an upwind and downwind location on-site to be field located. The sample locations are illustrated on the attached plan sheet **Figure 2**. The mitigation system will be turned off for a period of one week prior to collection of indoor air quality samples.

The MSS Work Plan includes the collection of one (1) vapor sample from the system exhaust following carbon filtration.

Procedures: In order to assess the contaminants of concern, the following activities will be performed:

- Sub-Slab Soil Vapor – Sub-slab soil vapor samples will be collected in conformance with the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Nine (9) sub-slab vapor sample will be collected from permanent vapor points installed throughout the building. The samples will be collected over a period of approximately eight hours at a flow rate of <0.2 L/min utilizing Summa® vacuum canisters. Sub-slab vapor samples will be analyzed for volatile organic compounds (VOCs) via EPA Method TO-15. Sampling results will be evaluated utilizing the NYSDOH Soil Vapor/Indoor Air decision matrices.
- Indoor Air – Concurrent with the sub-slab soil vapor samples, nine (9) indoor ambient air sample will also be collected at each location. The samples will be collected over a period of approximately eight hours at a flow rate of <0.2 L/min utilizing Summa® vacuum canisters. Indoor ambient air samples will be analyzed for volatile organic compounds (VOCs) via EPA Method TO-15. Sampling results will be evaluated utilizing the NYSDOH Soil Vapor/Indoor Air decision matrices.
- Outdoor Air – Concurrent with sub-slab soil vapor and indoor air sampling, two (2) outdoor ambient air sample will be collected at an upwind and downwind location. The sample will be collected over a period of approximately eight hours at a flow rate of <0.2 L/min utilizing a Summa® vacuum canister. The outdoor ambient air sample will be analyzed for volatile organic compounds (VOCs) via EPA Method TO-15.

Prior to sampling, H2M will ensure that the heating systems are operating in the building and the building is at room temperature. H2M is aware that the warehouse location is susceptible to air exchanges when opening and closing doors. The warehouse is equipped with a standard access door in addition to the roll-up garage doors. Care will be taken to minimize door openings. All air samples will be submitted to a NYSDOH ELAP-certified laboratory.

- Mitigation System Effluent Vapor – One (1) system vapor sample will be collected from the discharge of the mitigation system following carbon filtration. The samples will be collected over a period of approximately two hours at a flow rate of <0.2 L/min utilizing Summa® vacuum canisters. Sub-slab vapor sample will be analyzed for volatile organic compounds (VOCs) via EPA Method TO-15. Sampling results will be reviewed to evaluate the effectiveness of carbon filtration.

Personnel on Site: All sampling shall be performed by trained and experienced H2M personnel.



Safety Training & Level of Protection: All H2M personnel scheduled to work at this site are currently certified under OSHA's 40-hour HAZWOPER training. Site work will be performed with Level D personal protection equipment (PPE).

Duration of Work: Each sampling event will take place over the course of one (1) day.

Schedule: Work will be performed between the hours of 8:00 AM and 5:00 PM. Annual heating season samples will be collected between November 15 and March 31.

Mitigation system sampling will be performed on a quarterly basis.

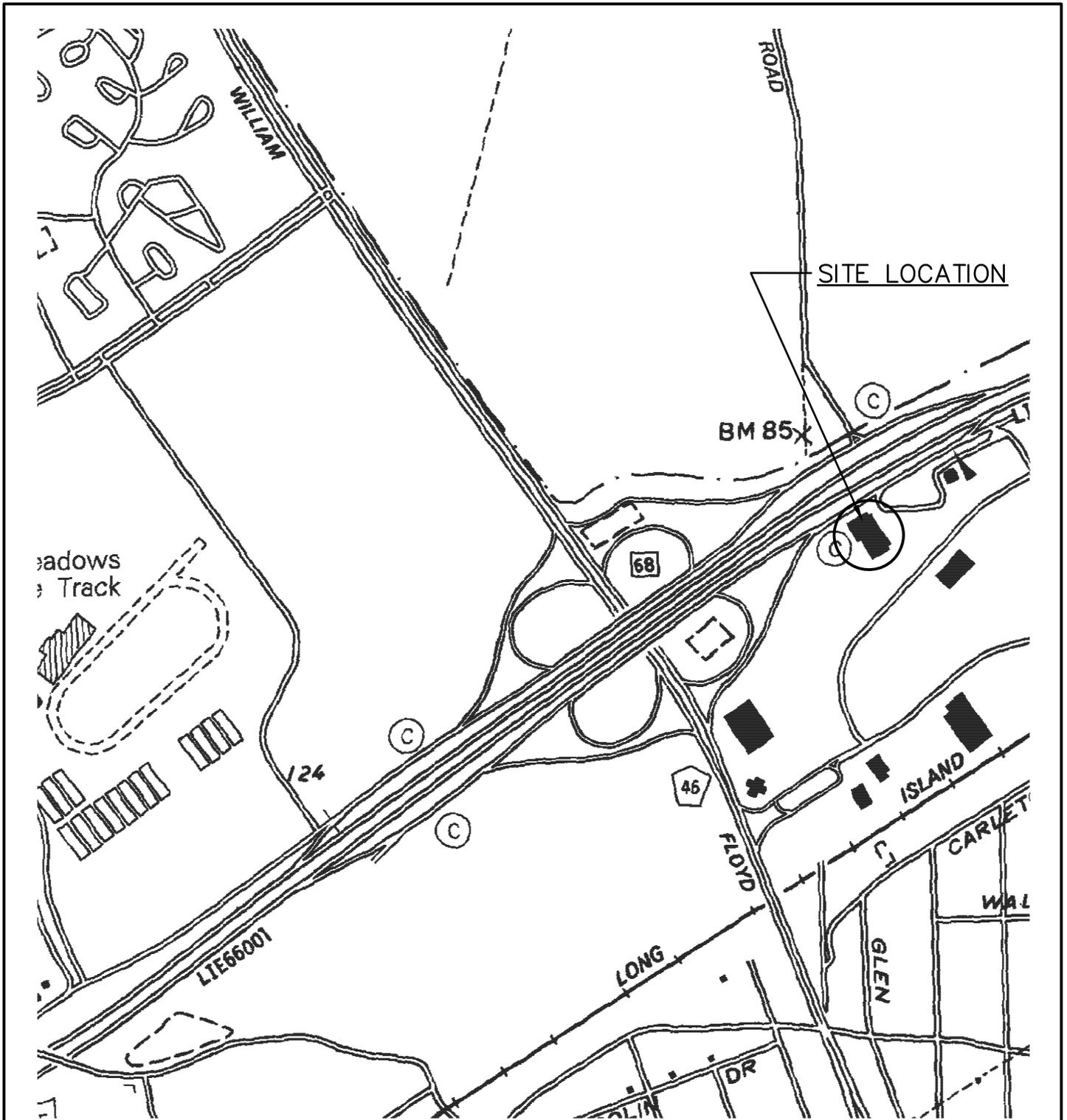
Should you have any questions or comments, please contact Mr. Joseph Loesch at (631) 756-8000, at Ext. 1628.

H2M architects + engineers

A handwritten signature in blue ink, appearing to read 'Joe Loesch', is written over the printed name.

Joseph Loesch
Project Engineer
Environmental Engineering

cc: James Longo: Luitpold Pharmaceuticals



SITE LOCATION MAP

SCALE: 1" = 2,000'

FIGURE 1

LUIT1401

H	2	architects + engineers
M		
		Melville, NY Parsippany, NJ

● Sub-slab sample point

● Indoor air sample point

All locations are approximate.

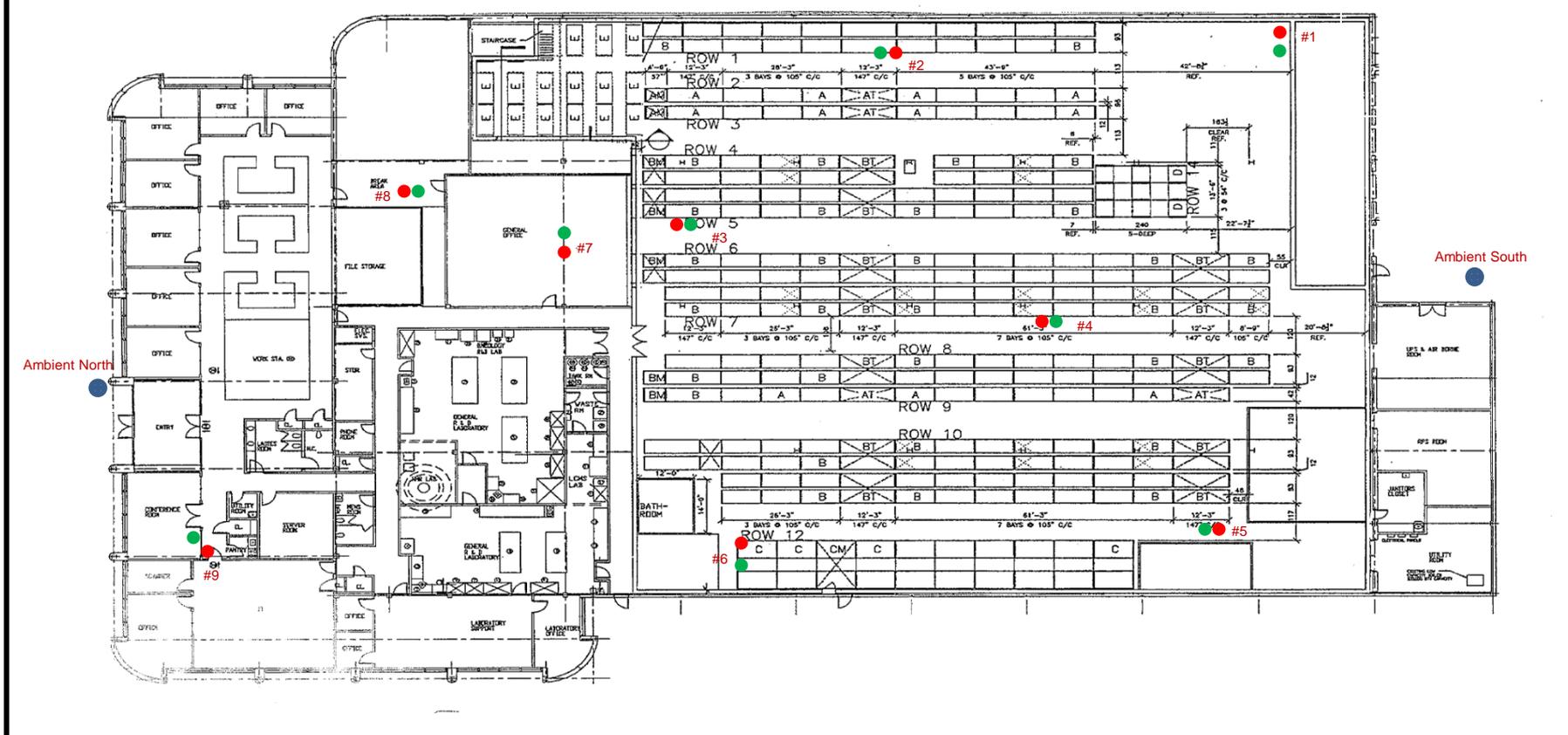


Figure 2.0
Site Plan
Locations of Indoor Air and Sub-Slab Vapor Samples
H2M Project No. LUIT13-01

TABLE 1
LUITPOLD PHARMACEUTICALS
NYSDOH DECISION MATRIX
SUMMARY OF ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS (ug/m³)

Sample ID	AQ-1	SS-1	NYSDOH	AQ-2	SS-2	NYSDOH	AQ-3	SS-3	NYSDOH	AQ-4	SS-4	NYSDOH	AQ-5	SS-5	NYSDOH
Date of Collection	1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013	
Volatile Organic Compounds	(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)	
1,1,1-Trichloroethane	< 1.09	589	NFA	< 1.09	194	NFA	< 1.09	86.6	NFA	< 1.09	53.5	NFA	< 1.09	66.1	NFA
Carbon tetrachloride	< 1.26	< 1.26	IDENTIFY												
Tetrachloroethene	3.26	67,100	MITIGATE	2.58	279	NFA	1.76	604	NFA	< 1.36	463	NFA	2.03	187	NFA
Trichloroethene	< 1.07	1,850	MITIGATE	< 1.07	< 1.07	IDENTIFY									

Sample ID	AQ-6	SS-6	NYSDOH	AQ-7	SS-7	NYSDOH	AQ-8	SS-8	NYSDOH	AQ-9	SS-9	NYSDOH	Ambient North	Ambient South
Date of Collection	1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013		1/24/2013	1/24/2013
Volatile Organic Compounds	(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)		(ug/m ³)	(ug/m ³)
1,1,1-Trichloroethane	< 1.09	159	NFA	< 1.09	78	NFA	< 1.09	7.8	NFA	< 1.09	107	NFA	< 10.9	< 10.9
Carbon tetrachloride	< 1.26	< 1.26	IDENTIFY	< 1.26	< 1.26									
Tetrachloroethene	3.26	167	MONITOR	3.26	46.6	NFA	< 1.36	1.42	NFA	1.56	496	NFA	< 1.36	< 1.36
Trichloroethene	< 1.07	< 1.07	IDENTIFY	< 1.07	< 1.07									