Mr. Joshua Cook, P.E.
Professional Engineer 1
New York State Department of Environmental Conservation
Region 7
615 Erie Boulevard West
Syracuse, NY 13204

Ms. Sara Bogardus
New York State Department of Health
Bureau of Env. Exposure Investigation
Empire State Plaza
Corning Tower Rm 1787
Albany, NY 12237

Arcadis of New York, Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Phone: 315 446 9120
Fax: 315 449 0017
www.arcadis.com

Date: April 15, 2021
Our Ref: 30064943
Subject: **2021 Building 3 Vapor Intrusion (VI) Supplemental Mitigation**
Bristol-Myers Squibb Company
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York

Dear Mr. Cook and Ms. Bogardus,

This letter is submitted on behalf of Bristol-Myers Squibb Company (BMS) to accept the modifications contained in the April 2, 2021 approval from the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) of the March 19, 2021 Building 3 Soil Vapor Intrusion Mitigation Work Plan for Building 3 at the referenced site.

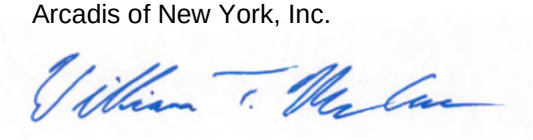
In Comment 1, NYSDEC/NYSDOH requested confirmation, "…*that the Norair® 800 Negative Air Scrubber activated carbon system is designed to adequately mitigate the volume of the Building 3 basement*," and BMS offers the following in response. As part of the system selection process, Arcadis selected an air treatment unit capable of achieving an initial 250 cubic feet per minute (cfm) flow rate, which will enable an estimated 2.2 indoor air volume per hour turnover rate within the approximately 6,900-square-foot Building 3 basement. The system will use activated carbon, as this treatment media is proven to be effective at removing volatile organic compounds (VOC) from air. Based on vendor data, it is anticipated that an approximate 70-90% reduction in VOC levels post-treatment can be expected. To confirm effectiveness of the system in reducing indoor air concentrations, an initial post-mitigation air sample will be collected 1 week after start-up of the treatment system, as detailed in the work plan. To determine a carbon filter change-out schedule, four additional indoor air samples will be collected weekly. All samples will be analyzed for VOC in accordance with USEPA Method TO-15. These data will be used to propose a long-term sampling/monitoring program within an operation, maintenance, and monitoring (OMM) Plan. The OMM Plan will be submitted with the installation summary report.

In response to Comment 3, "*The post-mitigation sampling event must include analysis for the full TO-15 volatile organic compounds (VOCs) list*," attached is the list of VOC that will be analyzed during post-mitigation sampling.

A copy of the approved work plan and the modification letters will be placed in the document repository.

If you have any questions or require additional information, please contact Richard Mator of BMS at richard.mator@bms.com or 412.926.0656.

Sincerely,
Arcadis of New York, Inc.



William McCune
Principal Geologist/ Project Manager

Email: william.mccune@arcadis.com
Direct Line: 315.671.9172

CC. Gary Priscott, NYSDEC
Scarlett McLaughlin, NYSDOH
William Pufko, BMS
Richard Mator, BMS
Anne Locke, BMS
Daniel Zuck, Arcadis

Attachment: Indoor Air VOC List

Attachment 1
Indoor Air VOC List

2020 Building 3 Vapor Intrusion (VI) Supplemental Mitigation
Site #C734138: BMS Syracuse North Campus Restoration Area

	CAS Number
Volatile Organics - TO-15	
1,1,1-Trichloroethane*	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon 113)	76-13-1
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene*	75-35-4
1,2,3-Trimethylbenzene	526-73-8
1,2,4-Trichlorobenzene	120-82-1
1,2,4-Trimethylbenzene	95-63-6
1,2-Dibromoethane (EDB)	106-93-4
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	76-14-2
1,2-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2
1,2-Dichloropropane	78-87-5
1,3,5-Trimethylbenzene	108-67-8
1,3-Butadiene	106-99-0
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
1,4-Dioxane	123-91-1
2,2,4-Trimethylpentane	540-84-1
2-Hexanone	591-78-6
3-Chloropropene	107-05-1
4-Ethyltoluene	622-96-8
Acetone	67-64-1
Benzene	71-43-2
Benzyl chloride (a-chlorotoluene)	100-44-7
Bromodichloromethane	75-27-4
Bromoform	75-25-2
Bromomethane	74-83-9
Carbon disulfide	75-15-0
Carbon tetrachloride*	56-23-5
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
cis-1,2-Dichloroethene*	156-59-2
cis-1,3-Dichloropropene	10061-01-5
Cyclohexane	110-82-7
Dibromochloromethane	124-48-1
Dichlorodifluoromethane (Freon 12)	75-71-8
Ethanol	64-17-5
Ethylbenzene	100-41-4
Hexachlorobutadiene	87-68-3
Isopropyl alcohol (2-propanol)	67-63-0
Isopropylbenzene (cumene)	98-82-8
m,p-Xylene	108-38-3
Methyl ethyl ketone (MEK, 2-Butanone)	78-93-3
4-methyl-2-pentanone (MIBK)	108-10-1
Methyl tert-butyl ether	1634-04-4
Methylene chloride*	75-09-2
Naphthalene	91-20-3
n-Heptane	142-82-5
n-Hexane	110-54-3
n-Propylbenzene	103-65-1
o-Xylene	95-47-6
Pentane	109-66-0
Styrene	100-42-5
Tetrachloroethene (PCE)*	127-18-4
Tetrahydrofuran	109-99-9
Toluene	108-88-3
trans-1,2-Dichloroethene	156-60-5
trans-1,3-Dichloropropene	10061-02-6
Trichloroethene (TCE)*	79-01-6
Trichlorofluoromethane (Freon 11)	75-69-4
Vinyl chloride*	75-01-4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, NY 13204-2400
P: (315) 426-7519, (315) 426-7551 | F: (315) 426-2653
www.dec.ny.gov

April 2, 2021

John Hickey
Interim General Manager, Syracuse
Bristol-Myers Squibb Company
PO Box 4755
Syracuse, NY 13221

Re: Bristol-Myers Squibb Restoration Area, Site ID No. C734138
Village of East Syracuse, Town of DeWitt, Onondaga County
Building 3 Soil Vapor Intrusion Mitigation Work Plan

Dear John Hickey:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Building 3 Soil Vapor Intrusion Mitigation Work Plan (work plan) for the Bristol-Myers Squibb Restoration Area (site), dated March 19, 2021, which was prepared by Arcadis of New York, Inc. (Arcadis) on behalf of the Bristol-Myers Squibb Company (BMS). With the following modifications, the work plan is approved.

1. Prior to installation, Arcadis and/or BMS must confirm that the Norair® 800 Negative Air Scrubber activated carbon system is designed to adequately mitigate the volume of the Building 3 basement. If its undersized, additional activated carbon systems must be installed.

2. The installation must be overseen by a qualified environmental professional (QEP), as defined in Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-1.2(ak).

3. The post-mitigation sampling event must include analysis for the full TO-15 volatile organic compounds (VOCs) list.

4. The confirmation sampling must be completed in accordance with previously approved remedial investigation work plans that detail the SVI procedures for sampling of Building 3, indoor and outdoor air samples, and a product inventory must be completed as part of the confirmation sampling.

5. Validation must be completed within 30 days of receipt of the analytical results from the laboratory and no later than 60 days from completion of sampling.

6. The summary report must document all sampling and mitigation activities in Building 3 for which a report has not been completed to-date, and should cite any reports which have been approved by the Department that document soil vapor intrusion sampling and mitigation activities in Building 3.

7. The summary report must comply with the requirements of the approved work plan, 6 NYCRR Part 375, and the Department's guidance document *DER-10: Technical Guidance for Site Investigation and Remediation* dated May 2010, as updated by its Errata Sheet (DER-10).

8. The summary report must include photos of the installation and sampling areas.

9. The summary report must be certified in accordance with DER-10 section 1.5.

10. An Operation, Maintenance and Monitoring Plan for the mitigation system must be submitted along with the summary report and must include measures to protect the treatment unit from damage and ensure it is not tampered with.

Pursuant to 6 NYCRR 375-1.6(d)(3), BMS must respond in writing within 15 days as to whether the modifications will be accepted. If accepted, please send the approved work plan, along with the modification letters, to the document repository. If you have any questions, please do not hesitate to contact me at 315-426-7411 or joshua.cook@dec.ny.gov.

Sincerely,

Joshua P. Cook, P.E.
Professional Engineer 1

ec: Gary Priscott (NYSDEC)
Joshua Cook (NYSDEC)
Scarlett McLaughlin (NYSDOH)
Sara Bogardus (NYSDOH)
William Pufko (BMS)
Richard Mator (BMS)
Davanna Marks (BMS)
Anne Locke (BMS)
William McCune (Arcadis)
Daniel Zuk (Arcadis)

Joshua P. Cook, P.E.,
Professional Engineer 1
New York State Department of Environmental Conservation
615 Erie Blvd. W., Syracuse, NY 13204-2400

Sara Bogardus
New York State Department of Health
Bureau of Env. Exposure Investigation
Empire State Plaza
Corning Tower Rm 1787
Albany, NY 12237

Arcadis of New York, Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Phone: 315 446 9120
Fax: 315 449 0017
www.arcadis.com

Date: March 19, 2021
Ref: 30064943
Subject: **2020 Building 3 Vapor Intrusion (VI) Supplemental Mitigation**
Bristol-Myers Squibb Company
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York

Dear Mr. Cook and Ms. Bogardus,

This letter is submitted on behalf of the Bristol-Myers Squibb Company (BMS) to propose installation of a supplemental vapor mitigation system within the Boiler Control Room located in the basement of Building 3 at the BMS facility located at 3551 Burnet Avenue in East Syracuse, New York.

On January 14, 2021, an indoor air sample (IA-3) and an ambient air sample were collected following the implementation of mitigation measures within Building 3, as proposed in the *Building 3 Vapor Intrusion Assessment Report* (Arcadis 2019). The mitigation measures performed included installation of weather stripping on doorways and balancing of the Heating Ventilation and Air Conditioning (HVAC).

The analytical results from this event identified trichloroethene (TCE) concentrations at IA-3 of 0.54 micrograms per cubic meter (µg/m^3) and 0.52 µg/m^3 from the parent and duplicate indoor air samples, respectively. Although these are the lowest indoor air concentrations for TCE from all five rounds collected in Building 3, BMS has decided to proceed directly with further mitigation of the indoor air.

BMS proposes to install and continuously operate a vapor treatment system for the Boiler Control Room. The proposed treatment unit is identified as the Norair® 800 Negative Air Scrubber (Part# Y-A-1KPG-00: Amaircare AirWash® MultiPRO), which is designed to adsorb vapors from indoor air through a 25-pound activated carbon filter media. A manufacturer's specification sheet for the proposed air treatment unit is attached.

The use of granular activated carbon (GAC) for vapor-phase treatment of TCE is a widely accepted treatment technology. The carbon supplier has indicated an initial TCE removal efficiency between 70 and 90% should be anticipated based on the historical maximum indoor air TCE concentration of 1.9 µg/m^3. As such, the air treatment unit is projected to effectively reduce TCE levels in indoor air.

Joshua P. Cook, P.E.
New York State Department of Environmental Conservation; and
Sara Bogardus
New York State Department of Health
March 19, 2021

BMS also anticipates conducting an indoor air sampling event 7 days after system start-up. If possible, this supplemental sampling will be scheduled to occur prior to the end of March such that it is completed before the end of 2020/2021 heating season. If this proposed sampling event is delayed until early April, sampling will only occur if a temperature difference of at least 15 degrees Fahrenheit (°F) is identified between the inside of the building and outdoor air. BMS will provide 7-day notice of the scheduled sampling activity to the NYSDEC and NYSDOH.

Following this sampling event, BMS will provide the NYSDEC and NYSDOH with the Building 3 VI Summary Report within 60 days of data validation.

Please contact Anne Locke (anne.locke@bms.com or 315-432-2660) if you have any questions or need further details.

Sincerely,
Arcadis of New York, Inc.

William McCune
Principal Geologist / Project Manager

CC. Gary Priscott, NYSDEC
Scarlett McLaughlin, NYSDOH
William Pufko, BMS
Richard Mator, BMS
Davanna Marks, BMS
Anne Locke, BMS
Daniel Zuck, Arcadis

Attachment: Norair® 800 Negative Air Scrubber Specifications Sheet

norair 800

Air Scrubber

Interlocking cabinet profile
Provides stability when stacking during transport or when daisy-chaining multiple units

Contoured flex handle
Ample clearance for comfort and mobility, flexes downward for secure stacking

Air flow indicator
Indicates reduced airflow, alerting user filter change may be necessary

Durable housing
Rugged UL 94 compliant flame retardant polyethylene housing for tough environments

12" inlets/outlets
*Accomodates up to **800** cfm*

Quick release latches
Toolless filter changes and access for cleaning

Variable speed control
*Customize the airflow levels you need from **250** to **800** cfm*

User-friendly control panel
GFI protected receptacle outlets, allowing daisy chaining up to three units

Application Options

Perfect Seal® HEPA

Toolless cylindrical Perfect Seal® HEPA filter media for dedicated fine particulate filtration down to 0.3 microns, option to add up to 3 pre-filters for extended service life

Perfect Seal® HEPA/VOC Combo

Toolless cylindrical Perfect Seal® HEPA & 5 lb. inner canister of dedicated activated carbon for air borne chemical and odour absorption, option to add up to 3 pre-filters for extended service life

Ultra VOC

25 lb. activated carbon canister for extreme air borne chemical and odour absorption, option to add up to 3 pre-filters for extended service life

norair 800
Air Scrubber

Ordering Information

	2Y-A-1KPG-00	Norair 800 Negative Air Scrubber, includes Perfect Seal® HEPA cylinder and silicone O-ring installed
	AFC1000726	Media pad pre-filter, 13” x 13” x 1”
	AFC1057554	Pleated pre-filter, MERV 8, 13” x 13” x 2”
	91-A-1407-ET	Washable foam pre-filter, compatible with HEPA and exterior carbon cylinder
	90-A-14ME-ET	Toolless Perfect Seal® HEPA cylinder
	94-A-1402-UL	Ultra VOC Carbon cylinder, exterior 25 lb (gross weight) activated carbon canister
	89-A-00F-00D8-RS	Replacement silicone O-ring for HEPA and exterior carbon cylinder
	94-A-1402-ET	VOC Carbon cylinder, interior 5 lb. (gross weight) activated carbon canister
	92-A-1401-ET	VOC Carbon blanket, interior
	89-A-P0S-16-NA	Replacement wire pre-filter holder

Norair 800 Specifications

Weight:	36 lbs (without filters); 42 lbs (with HEPA filter)
Dimensions:	19” W x 20” H x 32” L 9 (482.6 W x 508 H x 812.8 L)
Airflow:	250 to 800 CFM
Variable Speed Control:	3050 RPM max
Power Supply:	115 vac/1 ph./60 Hz.
Operating current:	2.6 amps
Daisy Chain:	Up to three units on a 9 amp circuit
Stackable:	Up to three units
Inlet/Outlet Connection:	12” dia. collar
Country of Manufacture:	Canada
Warranty:	1 year (excluding filters)
Standards:	CAN/CSA C22.2 No. 113-15 (10th Ed.), UL 507 (9th Ed.)

Dealer Information:
Norkan Inc / Air Machine Superstore
25200 Easy St., Warren, MI 48089
1-800-227-8479
www.norkan.com & www.negairmachines.com

Save time and money!

Toolless access for speedy on site filter changes and change part maintenance

Perfect Seal 360° cylindrical HEPA filter provides up to 25% more surface area than competitor filters, resulting in longer filter life and fewer filter changes

Perfect Seal 360° delivers balanced particulate loading until filter reaches full capacity

Multi functionality for diverse applications – particulate, VOC or combination