Cook, Joshua P (DEC)

From: Locke, Anne <anne.locke@bms.com>
Sent: Tuesday, October 21, 2014 8:01 AM
To: Cook, Joshua P (DEC); Jones, Richard E (HEALTH)
Cc: Warner, Harry (DEC); Morrison, Douglas; 'Thomas, George M.'; 'Korik, Andrew'; Pooler, James; McLaughlin, Robert; Tyson, Robert; Braun, Greg
Subject: Surface Soil Sampling Start Date
Attachments: BMS soil_sediment sample log.pdf

Josh and Dick,

This email is to inform you that ARCADIS, on behalf of BMS, plans to initiate field activities associated with the Surface Soil Sampling Work Plan as approved in your October 16, 2014 letter to BMS.

ARCADIS field staff will be at the security entrance to the BMS facility off of Burnet Avenue at approximately 8:00 AM on Thursday 10/30/2014, 2014 to initiate the work.

ARCADIS will have the sample locations as identified in the September 2014 Surface Soil Sampling Work Plan Module surveyed by a New York State licensed surveyor and staked prior to mobilization and will then collect the samples from within an approximately one foot radius of the staked location. A post sample survey will not be completed.

As identified in the OBG 2013 FSAP Section 4 - Surface Soil Sampling Procedures; ARCADIS will penetrate the surface and remove the sample from within the 0 to 1 foot interval below ground surface using a clean hand trowel, shovel or hand auger.

- For VOCs, the vertical section will be screened as outlined in the September 2014 Surface Soil Sampling Work Plan Module and a dedicated sample scoop (Encore Core sampler or Terra Core sampler) will be used to collect the sample from the field-identified location within the boring.
- For Alcohols and Glycols, the same screening method as identified with VOCs sample collection will be utilized with the exception that the samples to be collected will be placed into appropriate glassware using a dedicated tool (decontaminated stainless steel spoon)
- All other analytical samples will be collected from a composite sample which will be homogenized in a dedicated/disposable aluminum pan with a dedicated/decontaminated mixing apparatus (stainless steel spoon)
- Because no surface sample collection log was included in the FSAP, ARCADIS will be utilizing the attached document to record and report sample information.

Excess soils removed during the sampling procedure will be returned to the hole, tamped and seeded with grass seed.

Some of the analytical methods stated in OBG's 2013 QAPP are no longer current methodologies. The currently NYSDEC approved USEPA analytical methodologies are listed below and will be utilized for analysis of the samples collected:

Method Type	Current QAPP Methods	Method for Surface Soil Sampling
TCL VOC's + TICs (1)	5035A/8000C/8260B/8260C	5035A
TCL SVOC's + TICs	3541/3550B/8000C/8270C/8270D	8270D(3)
Alcohols & Glycols	8000C/8015B	8015D(2)
TAL Metals & Molybdenum	3050B/6010B/6010C/6020/6020A	6010C
TCL PCB's	3541/3550B/8000C/8082/8082A	8082A(3)
TCL Pesticides	3541/3550B/8081A/8081B	8081B(3)
Cyanide, Total	9012A/9012B/9014	9012A
Mercury	7471A/7471B	7471B(4)

(1) Soil Samples will be collected using USEPA SW-846 Method 5035A, water from equipment/trip banks will be analyzed using 8260C.
(2) Updated NYSDEC/USEPA Method for Alcohols and Glycols not identified in the QAPP.
(3) 8270D, 8081B and 8082A water samples now utilize 250mL amber glass bottles for water analyzed for equipment blank analysis.
(4) Water from equipment banks will be analyzed using 7470A for Mercury.

The 2013 OBG Work Plan requires that monitoring for a Community Air Monitoring Plan (CAMP) be completed for all soil intrusive activities. BMS is requesting that that the CAMP monitoring not be required for the surface soil sampling plan for the following reasons:

- there were no CAMP exceedances during the Transformation project during which extensive building demolition and soil disturbance occurred
- there were no CAMP exceedances during placement of the current 1 foot thick soil cover which will be sampled during this work
- there were no CAMP exceedances during implementation of the Phase 1 drilling activities at more than 100 boring locations which required the use of heavy drilling equipment to drill at depths much greater than the 1 foot surface soil cover
- real time air monitoring will be completed in the breathing zone during field activities which will be used to assess whether there are breathing zone impacts during the field implementation and if there are, this equipment could be used to monitor downwind locations to monitor downwind locations.

Please let me know if NYSDEC and NYSDOH concur that a CAMP is not needed for this work, whether you have any questions and whether you plan on meeting the sampling team at the start of this work.

Thank you.

Anne Locke
Acting Director, Syracuse EHS
Associate Manager, Environmental Protection
Bristol-Myers Squibb Syracuse Site
PO Box 4755
Syracuse, NY 13221
(315) 432-2660

ARCADIS
Infrastructure, environment, facilities

SOIL/SEDIMENT SAMPLE COLLECTION LOG

Sample ID _____ Project Name and No. _____

Date _____ Sampling Personnel _____

Time _____

Weather _____

DESCRIPTION OF SAMPLE LOCATION:

Location _____

Sample depth (1/10 ft) _____ to _____

PID Reading _____

Sample Description _____

_____

_____

_____

Color _____

Odor _____

CONTAINER DESCRIPTION:

	Container and #	Analysis
TOTAL:		

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, New York 13204-2400
Phone: (315) 426-7551 • **Fax:** (315) 426-7499
Website: www.dec.ny.gov

Joe Martens
Commissioner

October 16, 2014

John Mosack
Executive Director, General Manager
Bristol-Myers Squibb Company
Mail Stop A-1; Syracuse Operations
Global Manufacturing and Supply
6000 Thompson Road
East Syracuse, NY 13057

Re: Bristol-Myers Squibb Restoration Area
Site ID No. C734138
Village of East Syracuse, Town of DeWitt, Onondaga County
Phase 1A RIWP – Surface Soil Sampling Module

Dear Mr. Mosack:

The New York State Department of Environmental Conservation (Department) has reviewed the letter from Bristol-Myers Squibb Company (BMS) dated October 10, 2014 (BMS's letter), which was responding to the Department's letter dated September 25, 2014 (the Department's letter), which provided a conditional approval of the Phase 1A Remedial Investigation Work Plan – Surface Soil Sampling Module (surface soil work plan), dated September 2014 and prepared by ARCADIS of New York, Inc. (ARCADIS) on behalf of BMS.

Regarding Response 3, the Department agrees that certain analytes may be detected in surface soil that would not necessarily be determined to be contaminants of concern for the site merely due to detection (*i.e.*, calcium, iron, magnesium, potassium, sodium, aluminum). As such, detection of those contaminants may not require action (*i.e.*, determination of applicable soil cleanup objectives (SCOs) or construction of a cover system), unless detected at a significant concentration or unless detected with sufficient frequency at concentrations greater than background. BMS's letter makes reference to sulfate and ammonia; however, the surface soil work plan did not propose sampling for those analytes, so further consideration or review of those statements was not completed by the Department. BMS's letter also suggested that any ethanol detections would not be of concern. The Department does not agree with that proposed approach for ethanol.

Use of the United States Environmental Protection Agency soil screening levels (SSLs) or Regional Screening Levels (RSLs) is not approved at this time. However, if BMS wishes to propose such an approach in the future, the use of Industrial RSLs is not appropriate, because BMS has indicated the future intended use of the site is for commercial use.

It is worth noting that if other contaminants of concern are present in a given sample at concentrations that exceed their applicable SCOs, further action will be necessary. If that action adequately addresses those contaminants which do not have established SCOs, then BMS would not need to calculate SCOs for those contaminants.

If contaminants are detected in surface soil, and if applicable SCOs are not determined for those contaminants, at a minimum, further sampling would be needed. If further sampling were conducted which confirmed the detection, and if the contaminant(s) was not otherwise addressed by the remedial program, then an acceptable cover system (impervious cover or one foot of clean soil) would be needed for the affected areas.

Analysis of the Non-VOC samples must include total cyanide as well.

Please attach this letter, along with the Department's letter dated September 25th and BMS's letter dated October 10th, to the front of all copies of the surface soil work plan. Please proceed with the sampling. 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.
Environmental Engineer 2

ec: Harry Warner (NYSDEC)
Joshua Cook (NYSDEC)
Maureen Schuck (NYSDOH)
Richard Jones (NYSDOH)
John Mosack (BMS)
J. Richard Pooler (BMS)
Douglas Morrison (BMS)
Anne Locke (BMS)
George Thomas (ARCADIS)
Andrew Korik (ARCADIS)
Jo Ann Robertson (ARCADIS)

Bristol-Myers Squibb Company
P.O. Box 4755 Syracuse, NY 13221-4755 315 432-2000

October 10, 2014

Joshua Cook, P.E.
Environmental Engineer 2
Division of Environmental Remediation
Region 7
New York State Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, NY 13204-7499

Re: Bristol-Myers Squibb Restoration Area
Site ID No. C734138
Village of East Syracuse, Town of DeWitt, Onondaga County
Phase 1A RIWP – Surface Soil Sampling Module

Dear Mr. Cook:

Thank you for the Department's September 25, 2014 comments regarding the September 14, 2014 Phase 1A Remedial Investigation Work Plan - Surface Soil Sampling Module for the Bristol-Myers Squibb Restoration Area (site) prepared by ARCADIS of New York, Inc. (ARCADIS) on behalf of the Bristol-Myers Squibb Company (BMS). The Department provided six (6) comments, each of which is addressed below. For ease of review, each comment is reprinted followed by BMS's response.

Comment 1

Section 2, 2nd Paragraph, Item 3, 2nd Sentence – The phrase "as the final cover" is hereby deleted.

Response 1

BMS agrees with and accepts this comment.

Comment 2

Section 2, Surface Soil Sampling Strategy – The sample for alcohols and glycols will not be composited. The sample will be collected in accordance with the procedure for the volatile organic compound sample.

Response 2

BMS agrees with and accepts this comment. For clarification, please note that the collection of the sample for alcohols and glycols will not use the TeraCore equipment that is required for collection of the volatile organic compound sample as the TeraCore sampler is not appropriate for collection of the samples for alcohols and glycols.

Comment 3

Section 2, 4th Paragraph –The sampling results will also be compared to the Supplemental Soil Cleanup Objectives for the Protection of Groundwater from the Department's policy document CP-51 – Soil Cleanup Guidance. For any contaminants which do not have a soil cleanup objective (SCO) established, the Participant will either establish the necessary SCOs pursuant to procedures in 6 NYCRR 375-6.9 or an appropriate cover system will be constructed.

Response 3

BMS agrees with and accepts the first sentence of this comment.

With respect to the second sentence, there were nearly 50 constituents which did not have established SCOs for commercial or groundwater protection based on the subsurface soil sampling completed during the Phase 1 investigations at the site (see the attached list in Table 1). The number of constituents which will be detected during the Phase 1A surface soil sampling program without SCOs is unknown at this time, however, the results of the Phase 1 sampling can serve as a guide regarding what may be detected during the planned Phase 1A work.

BMS does not understand your comment to suggest that we immediately develop SCOs for constituents which are not the predominant contaminants of concern (COCs). NYSDEC's Policy CP-51/ Soil Cleanup Guidance (Issued 10/21/2010, page 11) states "Generally, DEC will request that an SCO be developed only where the contaminant is a predominant contaminant of concern (COC) at the site and is not otherwise being addressed to DEC's satisfaction as part of the proposed remedy." Because of this and the large number of constituents which may be detected in the surface soil at the site which do not have SCOs, BMS is proposing to address these constituents as follows:

- A number of the constituents detected during Phase 1 have no SCOs and are essential nutrients (calcium, iron, magnesium, potassium, sodium) or are a principal constituent of soil (aluminum). Other detected constituents without SCOs are not likely to be associated with adverse human health effects (ethanol, ammonia nitrogen and sulfate) based on their chemical/physical properties or toxicological information (or the lack thereof) at the concentrations which would be expected in surface soils. Based on these factors, if detected during Phase 1A sampling, SCOs would not be developed for these constituents.

- Most of the remaining constituents detected in site soils during Phase 1 without SCOs do have USEPA risk-based screening levels for direct contact with soils and protection of groundwater (referred to as Regional Screening Levels [RSLs] and Soil Screening Levels [SSLs], respectively); these RSLs and SSLs are developed using a methodology similar to the NYSDEC SCOs. The USEPA RSLs and SSLs are chemical-specific concentrations for individual constituents in soil which are used to determine whether levels of constituents found at a site may warrant further investigation. The RSLs and SSLs are derived based upon considerations of human health risk. Therefore, BMS proposes to use the RSLs and SSLs developed by USEPA for the constituents that do not have NYSDEC SCOs.
- There are some constituents which were detected during the Phase 1 soil investigation for which USEPA has not developed RSLs or SSLs, or which would not be excluded from SCO development for the reasons stated above. Specifically, these constituents are methylcyclohexane, n-heptane, tert-butyl alcohol, dicyclohexylamine and dimethylphylamine. If these types of constituents are detected in the Phase 1A surface soil samples, BMS will develop SCOs for constituents that have appropriate toxicity data. In the event that appropriate toxicity data. cannot be identified for a particular constituent, BMS will research the availability of other applicable screening levels. If applicable screening levels are not available, the constituent will be evaluated qualitatively (e.g., frequency of detection, spatial location relative to COCs).

In summary, BMS proposes the following process to screen the soil analytical results which are generated as part of the approved surface soil sampling plan:

1. Comparison to available NYSDEC SCOs:
   Compare the results for constituents identified against the Department's commercial and protection of groundwater SCOs (in both NYSDEC CP-51/Soil Cleanup Guidance, Table 1 Supplemental Soil Cleanup Objectives for Commercial and Protection of Groundwater (NYSDEC 2010) and in 6 NYCRR Subpart 375-6.8 (a) and (b), including Commercial SCOs and Protection of Groundwater SCOs). This comparison will identify constituents having SCOs for these potential exposure pathways and receptor groups. Tentatively identified compounds will not be screened against SCOs because their actual identification and concentration will not be uniquely determined and can be highly uncertain, thereby making a direct comparison to criteria invalid.
2. Identification of Non-Toxic Constituents:
   Constituents without SCOs and which are essential nutrients, principal components of soil or are not likely to be associated with adverse human health effects (based on chemical/physical properties and/or toxicity data) would be noted, but additional comparison to criteria would not be needed.
3. Identify USEPA Screening Levels:
   Any remaining constituents would then be compared to the USEPA industrial (Outdoor Worker) RSLs and protection of groundwater SSLs.

4. Develop SCOs:
   For the remaining constituents that do not have associated USEPA RSLs/SSLs research will be conducted to evaluate the availability of appropriate toxicity data necessary to develop SCOs for such constituents. If the appropriate toxicity data are available, SCOs would be developed for those constituents using this information.
5. Alternate Screening Levels/Qualitative Evaluation:
   Finally, for those constituents that do not have appropriate toxicity information, BMS will research the availability of other applicable screening levels. If applicable screening levels are not available, the constituent will be evaluated qualitatively (e.g., frequency of detection, spatial location relative to COCs).

Comment 4

Section 3, 2nd Paragraph – This paragraph is hereby deleted. As an explanation for this deletion, the Department and the NYSDOH may require revision of the Phase 1A Data Report, and those revisions could affect the scope of Phase 2 of the Remedial Investigation.

Response 4

BMS agrees with and accepts this comment.

Comment 5

Section 4 – This section is hereby replaced in its entirety with the following text.

- *The sampling will be initiated within 45 days of the date of this letter. If the ground is frozen prior to sampling being completed, the surface soil sampling will be conducted no later than April 30, 2015.*

- *The Phase 1A Data Summary Report will be submitted in accordance with the schedule included in the Remedial Investigation Work Plan, dated March 2013, and prepared by O'Brien & Gere Engineers, Inc. on behalf of the Participant (RIWP).*

Response 5

BMS agrees with and accepts this comment.

Comment 6

The surface soil sampling must be conducted in accordance with all other requirements of the RIWP, unless specifically modified by the surface soil work plan and/or this letter, including but not limited to, the requirements of the Health and Safety Plan.

Response 6

BMS agrees with and accepts this comment.

* * *

If the Department can please indicate that these responses are acceptable and can be incorporated into an approved Surface Soil Sampling Module work plan, it will be appreciated. Please also let me know if you have any comments or questions on these responses.

As stated in your letter of September 25, 2014, BMS has been requested to initiate the sampling within 45 days of the date of your letter. To meet this schedule, we will plan on scheduling the Phase 1A surface soil sampling in the near future, likely in October, and will notify you at least 7 days prior to initiation of the proposed field activities.

Sincerely,

Anne H Locke

Anne Locke
Acting Director Environment Health & Safety
BMS Syracuse Site

cc: Richard Jones (NYSDOH)

ecc: Margaret Sheen (NYSDEC)
J. Richard Pooler (BMS)
Harry Warner (NYSDEC)
Maureen Schuck (NYSDOH)
John R. Mosack (BMS)
George Thomas (ARCADIS)
Andrew Korik (ARCADIS)

References

NYSDEC. 2010. CP-51/Soil Cleanup Guidance. October 21. Available online at: http://www.dec.ny.gov/docs/remediation_hudson_pdf/cpsoil.pdf

USEPA. 2014. Risk Assessment Users Guide, May 2014. Available on line at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm

Table 1
Bristol Myers Squibb Syracuse
Proposed Soil Screening Values for Compounds without NYSDEC SCOs

2013 Remedial Investigation
Site #C734138: BMS Syracuse North Campus Restoration Area
East Syracuse, NY

Compound Name	CAS #	Units	USEPA Outdoor Worker Regional Screening Levels[1]	USEPA Protection of Groundwater Screening Levels[2] (Risk Based)
Detected Volatile Organics				
2-Nitropropane	79-46-9	mg/kg	0.0663	0.00000054
Acetonitrile	75-05-8	mg/kg	3,780	0.026
Chlorodifluoromethane	75-45-6	mg/kg	228,000	43
Cyclohexane	110-82-7	mg/kg	30,400	13
Cyclohexanone	108-94-1	mg/kg	4,580,000	23
Dichlorodifluoromethane	75-71-8	mg/kg	408	0.3
Ethyl acetate	141-78-6	mg/kg	2,930	0.031
Isobutanol	78-83-1	mg/kg	275,000	1.2
Methyl acetate	79-20-9	mg/kg	1,300,000	4.1
Methylcyclohexane[7]	108-87-2	mg/kg	--	--
n-Butanol	71-36-3	mg/kg	91,600	0.41
N-Heptane[7]	142-82-5	mg/kg	--	--
Tetrahydrofuran	109-99-9	mg/kg	107,000	0.75
Trichlorofluoromethane	75-69-4	mg/kg	3,500	0.73
2-Hexanone	591-78-6	mg/kg	1,490	0.0088
tert-Butyl alcohol[7]	75-65-0	mg/kg	--	--
Chloromethane	74-87-3	mg/kg	515	0.049
n-Hexane	110-54-3	mg/kg	2,730	2.3
Detected Semivolatile Organics				
1,1'-Biphenyl	92-52-4	mg/kg	222	0.0087
2-Chloronaphthalene	91-58-7	mg/kg	104,000	3.8
3-Methylphenol, 4-Methylphenol[4]	108-39-4	mg/kg	45,800	0.74
Acetophenone	98-86-2	mg/kg	130,000	0.58
Benzaldehyde	100-52-7	mg/kg	130,000	0.43
Benzyl Alcohol	100-51-6	mg/kg	91,600	0.48
bis(2-Chloroethyl)ether	111-44-4	mg/kg	1.15	0.0000036
Carbazole[7]	86-74-8	mg/kg	--	--
Dicyclohexylamine[7]	101-83-7	mg/kg	--	--
n,n-Dimethylaniline	121-69-7	mg/kg	2,600	0.013
N-Nitrosodiphenylamine	86-30-6	mg/kg	524	0.066
Triethylamine	121-44-8	mg/kg	539	0.0044
Detected Inorganics				
Aluminum[8]	7429-90-5	mg/kg	1,250,000	30,000
Calcium[6]	7440-70-2	mg/kg	--	--
Chromium[5]	16065-83-1	mg/kg	1,950,000	40,000,000
Cobalt	7440-48-4	mg/kg	386	0.27
Iron[6]	7439-89-6	mg/kg	908,000	350
Magnesium[6]	7439-95-4	mg/kg	--	--
Molybdenum	7439-98-7	mg/kg	6,490	2
Potassium[6]	2023695	mg/kg	--	--
Sodium[6]	7440-23-5	mg/kg	--	--
Thallium	7440-28-0	mg/kg	13	0.014
Vanadium	7440-62-2	mg/kg	6,480	86
Alcohols/Glycols				
Ethanol[8]	64-17-5	mg/kg	--	--
Ethylene glycol	107-21-1	mg/kg	1,830,000	8.1
Isopropyl alcohol	67-63-0	mg/kg	46,300,000,000	--
Methanol	67-56-1	mg/kg	1,830,000	8.1
Propylene Glycol	57-55-6	mg/kg	18,300,000	81
Detected Pesticides				
Endrin Ketone[6]	72-20-8	mg/kg	275	0.092
Detected General Chemistry				
Nitrogen, as Ammonia[8]	7664-41-7	mg/kg	--	--
Sulfate[8]	14808-79-8	mg/kg	--	--

Table 1
Bristol Myers Squibb Syracuse
Proposed Soil Screening Values for Compounds without NYSDEC SCOs

2013 Remedial Investigation
Site #C734138: BMS Syracuse North Campus Restoration Area
East Syracuse, NY

Notes:

1) USEPA values for the Outdoor Worker were obtained from the Regional Screening Levels Calculator for Chemical Contaminants at Superfund Sites using the online calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)
2) USEPA values for Protection of Groundwater were obtained from the May 2014 USEPA The screening level (SL) tables (http://www.epa.gov/reg3hscd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
3) RSL - Regional Screening Level
4) For 3-Methylphenol, 4-Methylphenol, the lower of the two compounds (3-Methylphenol) RSL and CAS# was used for RSL presented above.
5) For Chromium the RSL and CAS# for Chromium III was used for RSL presented above.
6) For Endrin Ketone the RSL and CAS# for Endrin was used for RSL presented above.
7) Compounds with gray shading do not have NYSDEC SCOs or USEPA Screening values and will be evaluated using the methodology provided in the attached letter.
8) These specific compounds are essential nutrients, principal components of soil or not likely to be associated with adverse human health effects; therefore, the constituent concentration will not be compared to a soil screening criteria.

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, New York 13204-2400
Phone: (315) 426-7551 • **Fax:** (315) 426-7499
Website: www.dec.ny.gov

Joe Martens
Commissioner

September 25, 2014

John Mosack
Executive Director, General Manager
Bristol-Myers Squibb Company
Mail Stop A-1; Syracuse Operations
Global Manufacturing and Supply
6000 Thompson Road
East Syracuse, NY 13057

Re: Bristol-Myers Squibb Restoration Area
Site ID No. C734138
Village of East Syracuse, Town of DeWitt, Onondaga County
Phase 1A RIWP – Surface Soil Sampling Module

Dear Mr. Mosack:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Phase 1A Remedial Investigation Work Plan - Surface Soil Sampling Module (the surface soil work plan) for the Bristol-Myers Squibb Restoration Area (site), dated September 2014, which was prepared by ARCADIS of New York, Inc. (ARCADIS) on behalf of the Bristol-Myers Squibb Company (Participant). The work plan is hereby modified as set forth below.

1. Section 2, 2nd Paragraph, Item 3, 2nd Sentence – The phrase "as the final cover" is hereby deleted.

2. Section 2, Surface Soil Sampling Strategy – The sample for alcohols and glycols will not be composited. The sample will be collected in accordance with the procedure for the volatile organic compound sample.

3. Section 2, 4th Paragraph –The sampling results will also be compared to the Supplemental Soil Cleanup Objectives for the Protection of Groundwater from the Department's policy document *CP-51 – Soil Cleanup Guidance*. For any contaminants which do not have a soil cleanup objective (SCO) established, the Participant will either establish the necessary SCOs pursuant to procedures in 6 NYCRR 375-6.9 or an appropriate cover system will be constructed.

4. Section 3, 2nd Paragraph – This paragraph is hereby deleted. As an explanation for this deletion, the Department and the NYSDOH may require revision of the Phase 1A Data Report, and those revisions could affect the scope of Phase 2 of the Remedial Investigation.

5. Section 4 – This section is hereby replaced in its entirety with the following text.

   - The sampling will be initiated within 45 days of the date of this letter. If the ground is frozen prior to sampling being completed, the surface soil sampling will be conducted no later than April 30, 2015.

   - The Phase 1A Data Summary Report will be submitted in accordance with the schedule included in the Remedial Investigation Work Plan, dated March 2013, and prepared by O'Brien & Gere Engineers, Inc. on behalf of the Participant (RIWP).

6. The surface soil sampling must be conducted in accordance with all other requirements of the RIWP, unless specifically modified by the surface soil work plan and/or this letter, including but not limited to, the requirements of the Health and Safety Plan.

Pursuant to 6 NYCRR 375-1.6(d)(3), the Participant must respond in writing within 15 days as to whether the modifications will be accepted. If accepted, this letter and the Participant's response letter must be attached to the front of all copies of the work plan. Alternatives to providing the modified work plan are set forth at 6 NYCRR 375-1.6(d)(3)(ii) and (iii). 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.
Environmental Engineer 2

ec: Harry Warner (NYSDEC)
Joshua Cook (NYSDEC)
Maureen Schuck (NYSDOH)
Richard Jones (NYSDOH)
John Mosack (BMS)
J. Richard Pooler (BMS)
Douglas Morrison (BMS)
Anne Locke (BMS)
George Thomas (ARCADIS)
Andrew Korik (ARCADIS)

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C734138 Phase 1A Remedial Investigation Work Plan

Surface Soil Sampling Module

BMS Syracuse North Campus Restoration Area
East Syracuse, New York

September 2014

George M. Thomas

I, George M. Thomas, certify that I am currently a Qualified Environmental Professional [as defined in 6 NYCRR Part 375] and that this Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

C734138 Phase 1A Remedial Investigation Work Plan

Surface Soil Sampling Module

BMS Syracuse North Campus
Restoration Area
East Syracuse, New York

Prepared for:
Bristol-Myers Squibb Company

Prepared by:
ARCADIS of New York, Inc.
6723 Towpath Road
PO Box 66
Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 446 8053

Our Ref.:
B0087363.0003.00003

Date:
September 2014

Table of Contents

Figures

Acronyms and Abbreviations

BCA	Brownfield Cleanup Agreement
BDA	Brownfield Development Area
BMS	Bristol-Myers Squibb Company
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OBG	O'Brien & Gere Engineers
Phase 1A WP	Phase 1A Work Plan
RI	Remedial Investigation
RIWP	Remedial Investigation Work Plan
SCOs	Soil Cleanup Objectives

1. Introduction

This Surface Soil Sampling Plan comprises the second module of the Phase 1A Remedial Investigation (RI) Work Plan (Phase 1A WP) for the Bristol-Myers Squibb Company (BMS) Syracuse North Campus Restoration Area (Site No. C734138) (Brownfield Development Area [BDA]) located at 6000 Thompson Road in East Syracuse, New York. This Phase IA WP module has been developed by ARCADIS on behalf of BMS. This work is being performed in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program. The Brownfield Cleanup Agreement (BCA) between BMS and NYSDEC was executed on October 18, 2011. A site location map showing the general location of the BMS facility is provided as Figure 1. Figure 2 shows the location and boundaries of the BDA at the BMS facility.

This Surface Soil Sampling Plan has been prepared in accordance with the requirements of the Remedial Investigation Work Plan (RIWP) prepared for BMS by O'Brien & Gere Engineers (OBG) dated March 2013 (OBG 2013a) and conditionally approved by NYSDEC/New York State Department of Health (NYSDOH) on April 3, 2013. As outlined in the RIWP, the RI in the BDA is being completed in multiple phases.

2. Surface Soil Sampling Plan

The purpose of the surface soil sampling is to evaluate soil quality within the upper foot of soil across the BDA relative to the requirements of the BCA.

For the purpose of the surface soil sampling plan, the BDA can be divided into three general areas as outlined below.

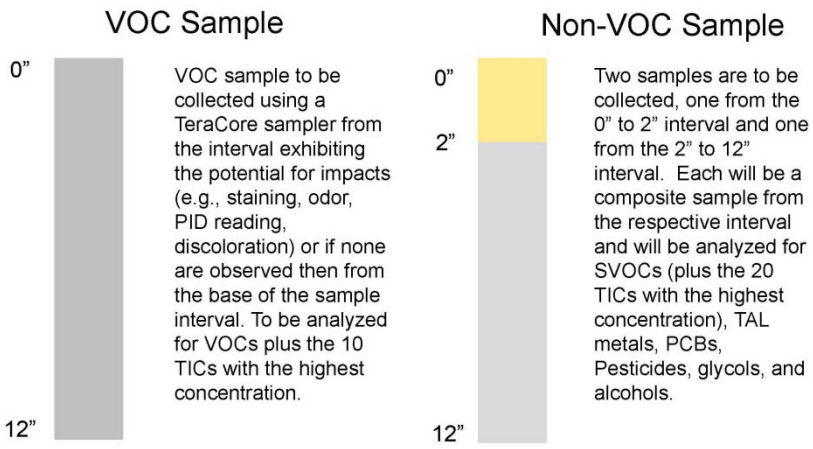
1) Areas currently covered with buildings, concrete or asphalt pavement or sidewalks.

2) Areas where prior manufacturing activities or chemical management did not occur (e.g., along the eastern side of Thompson Road).

3) Other areas which were extensively reworked, where manufacturing and material handling activities took place and where surficial fill was placed. With regard to the areas where surficial fill was placed as the final cover within the limits of the BDA, some of the surficial fill placed in these areas was originally from the BMS property and some was from "NYSDEC-approved imported" fill sources (approval provided by NYSDEC to BMS in emails dated April 25, 2013, June 4, 2013, and July 15, 2013). For the purpose of this Work Plan, however, a distinction between these fill types is not made. This is a conservative approach; BMS is not proposing to reduce the number of samples based on the presence of NYSDEC-approved imported fill.

Because exposure to surface soil is not possible in areas that are covered with buildings, concrete, asphalt pavement or sidewalks, these areas will not be sampled. As discussed during the May 19, 2014 and May 24, 2014 project meetings, the sampling locations for the remaining BDA are the same as in the March 2014 draft Phase 1A WP, except that three sampling point will be added within the area that was previously excluded in the March 2014 draft Phase 1A WP. The surface soil sampling locations are shown on Figure 2. The strategy for collection of the samples from the upper 1 foot soil interval, as discussed and agreed to during the NYSDEC/NYSDOH-BMS meeting on May 23, 2014, is shown diagrammatically below.

Surface Soil Sampling Strategy



The analytical results from these soil samples will be compared to the Soil Cleanup Objectives (SCOs) provided in 6 NYCRR Subpart 375-6.8 (a) and (b), including Commercial SCOs, Protection of Groundwater SCOs and Unrestricted SCOs and the Commercial Supplemental SCOs in the NYSDEC CP-51 / Soil Cleanup Guidance (NYSDEC 2010). Following receipt and review of the soil sample analytical results, a determination as to whether additional surface soil sampling is necessary will be made in conjunction with NYSDEC and NYSDOH based on comparison to Commercial SCOs. Commercial SCOs will be used as the basis for this determination because the BDA will be deed restricted to Commercial usage, and NYSDEC has recognized this in their approval of the fill material, top soil, and sand imported during the Transformation program (e.g., approvals to-date have been based on compliance with Commercial SCOs).

Soil samples and associated quality assurance/quality control samples will be collected in accordance with the approved Field Sampling and Analysis Plan (OBG 2013b) and Quality Assurance Project Plan (OBG 2013c) and DER-10 Technical Guidance for Site Investigation and Remediation. All work will be performed under the responsible charge of a qualified environmental professional as defined in DER-10.

3. Reporting

The results of the surface soil sampling will be included in the Phase 1A Data Summary Report. The Phase 1A Data Summary Report will include identification of data gaps, if any, and a proposed scope, as needed, for Phase 2 investigations.

This Summary Report will be submitted to NYSDEC and NYSDOH as a Draft (and not certified) document. NYSDEC/NYSDOH, at their discretion, can provide comments on the draft submittal which will subsequently be used to develop the overall RI Report for the site.

4. Schedule

BMS will provide a final schedule for surface soil sampling following receipt of NYSDEC/NYSDOH approval of this Work Plan. Nevertheless, to ensure that the surface soil sampling can be completed before the onset of winter conditions makes sampling more difficult, BMS's desire is to begin field work no later than November 3, 2014. The need to commence and complete the surface soil sampling in a timely manner is underscored by the fact that performance of outfall sediment sampling is dependent upon completion of the surface soil sampling, and for this additional reason, commencement of field work at the earliest practicable time is desired.

5. References

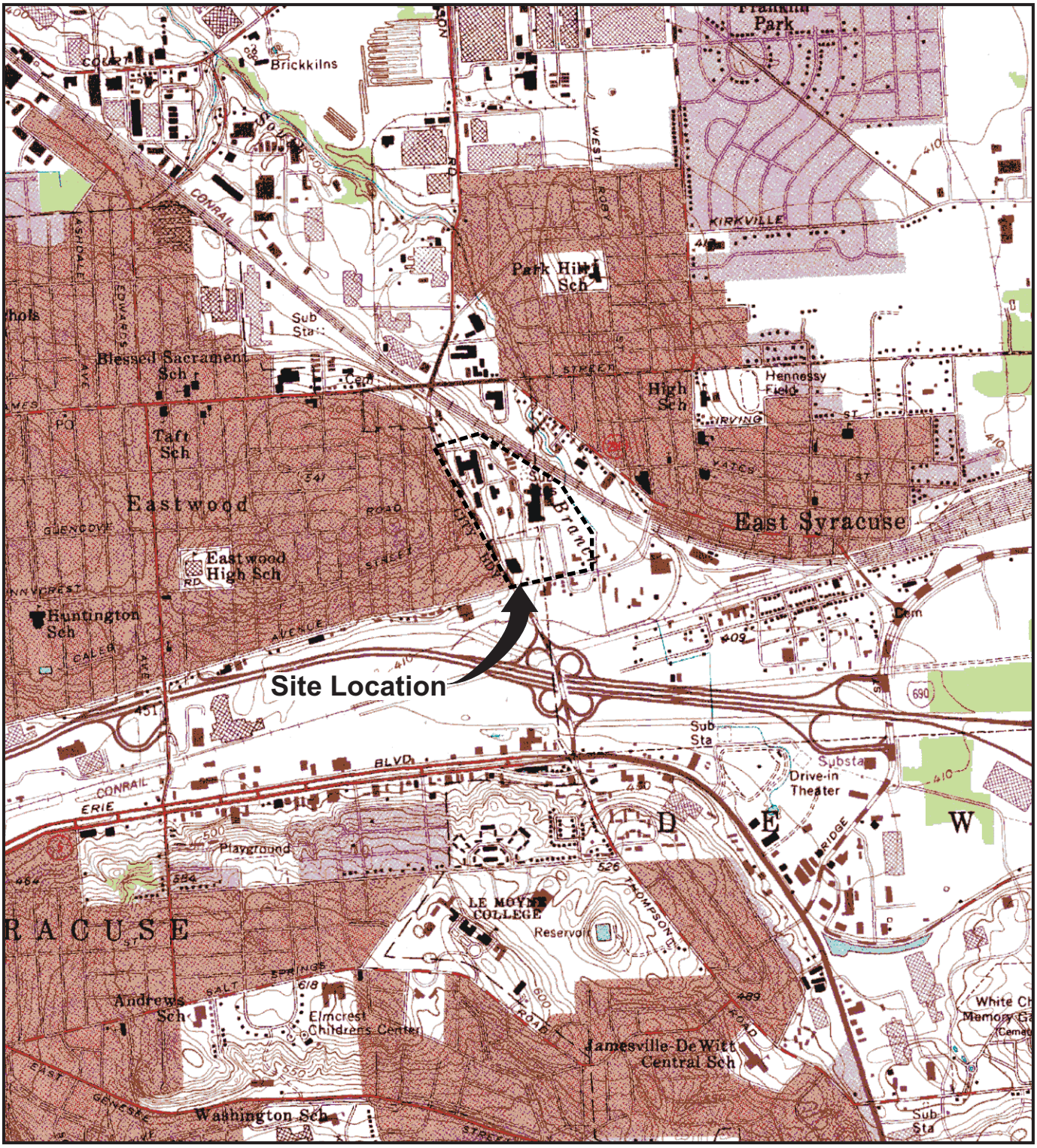
NYSDEC. 2010. CP-51/Soil Cleanup Guidance. October 21, 2010. Available online at http://www.dec.ny.gov/Regulations/2393.html.

NYSDEC. 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3. Available online at: http://www.dec.ny.gov/regulations/67386.html.

O'Brien & Gere (OBG). 2013a. *Remedial Investigation Work Plan: BMS Syracuse North Campus Restoration Area Site No. C734138*. March 2013.

OBG. 2013b. *Field Sampling and Analysis Plan.*

OBG. 2013c. *Quality Assurance Project Plan*.



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., SYRACUSE EAST, N.Y., 1957. PHOTOREVISED 1978.

2000' 0 2000'

Approximate Scale: 1" = 2000'

BRISTOL-MYERS SQUIBB
THOMPSON ROAD FACILITY
EAST SYRACUSE, NY

SITE LOCATION MAP

ARCADIS

FIGURE
1

02/14/2014 SYRACUSE, NY-ENV/CAD-141 DJHOWES
B0087363/0003/00001/CDR/87363N01.CDR

LEGEND:

- PROPOSED SOIL SAMPLING LOCATION
- APPROXIMATE BROWNFIELD AREA BOUNDARY
- APPROXIMATE PROPERTY LINE, BRISTOL-MYERS SQUIBB
- OCCUPIED BUILDINGS
- UNOCCUPIED BUILDINGS / STRUCTURES
- DEMOLISHED BUILDINGS
- PAVED OR CONCRETE AREAS
- UNPAVED AREAS
- EXISTING RAILROAD

NOTES:

1. BASEMAP BASED ON A MAP TITLED "BRISTOL-MYERS SQUIB PART OF LOT 41 – TOWN OF DEWITT AND PART OF THE VILLAGE OF EAST SYRACUSE ONONDAGA COUNTY NEW YORK", DATED MARCH 25, 2010 PREPARED BY COTTRELL LAND SURVEYORS, P.C.. UPDATED BASED ON ARCADIS FIELD VISIT JULY 2014, SEPTEMBER 11, 2014 AND BING AERIAL IMAGERY ACQUIRED SEPTEMBER, 2014.
2. COORDINATES ARE NEW YORK STATE PLANE CENTRAL ZONE, NAD83, US FEET.
3. GROUND SURFACE COVER SHOWN ONLY WITHIN THE LIMITS OF THE BROWNFIELD ARE EXCEPT FOR FORMER BUILDINGS/STRUCTURES WHICH ARE NOW CONCRETE PADS AND SHOWN AS GRAY.

0 160' 320'

GRAPHIC SCALE

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

SURFACE SOIL SAMPLING PLAN

ARCADIS

FIGURE 2

CITY: SYRACUSE, NY DIV/GROUP: ENV/REM-WIM-DV DB: R.PETRIE, R. BASSETT, P.LISTER PM: G. THOMAS TM/TR: A. KORIK LYR: ON=*;OFF=REF, (FRZ)
G:\ENVCAD\SYRACUSE\ACTIVE\B0087363\005\00001\DWG\PH1RESULTS87363P02.dwg LAYOUT: 2 SAVED: 9/18/2014 11:33 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/19/2014 11:43 AM BY: POSENAUER, LISA
XREFS:
87363XBL
87363X05
IMAGES: