

Kevin Whalen IBM Corporate Environmental Affairs 8976 Wellington Road Manassas, VA 20109 February 5, 2013 File No. 63526.00

Re: Remedial Design Work Plan Submittal BCA #C704044 IBM Gun Club – Former Burn Pit Area Union, New York

Dear Mr. Whalen:

Sanborn, Head Engineering P.C. (SHPC) has prepared this letter for submittal to the New York State Department of Environmental Conservation (NYSDEC) in accordance with its request to complete and submit¹ a Remedial Design Work Plan (RDWP) in support of IBM's work at the IBM Gun Club – Former Burn Bit Area property in Union, New York (the site). The site is covered under BCP Agreement No. C704044 executed by IBM and NYSDEC on August 22, 2005 as amended on April 26, 2012. We understand that IBM will provide NYSDEC with a copy of this letter to fulfill the request.

This letter, along with the contents of the Remedial Work Plan² dated December 19, 2012, constitute the RDWP in fulfillment of the requirements for this submittal under NYS Guidance DER-10³. In accordance with direction from NYSDEC, this letter provides a summary of the remedial design components (what is being designed) and a detailed schedule including projected submittal dates and milestones. This letter is signed and certified by the individuals who will be in responsible charge of the design and construction phase engineering. As you are aware, the design is based on field pilot testing and years of monitoring, and no additional investigations and testing are planned as a part of, or to support design.

SUMMARY OF REMEDY

The remedy components as outlined below are consistent with those detailed in the Remedial Work Plan and described in NYSDEC's December 17, 2012 Decision Document (Decision Document)⁴.

¹ New York State DEC, January 11, 2013, Email from Jon Greco.

² Sanborn, Head Engineering P.C., December 19, 2012, <u>Brownfield Cleanup Program, Alternatives Analysis</u> and Remedial Work Plan, BCA #C704044, IBM Gun Club – Former Burn Pit Area, Union, New York.

³ NYSDEC, May 3, 2010, DEC Program Policy, <u>DER-10/Technical Guidance for Site Investigation and</u> <u>Remediation.</u> *Section 5.2 Remedial Design (b) Remedial Design Work Plan.*

⁴ NYSDEC, December 17, 2012, <u>Decision Document, IBM Gun Club, Burn Pit, Brownfield Cleanup Program,</u> <u>Union, Broome County, Site No. C704044.</u>

February 5, 2013	Page 2
20130205 RDWP.docx	63526.00

The Remedy is intended to address site environmental conditions that are summarized in Section 1.1 of the AA&RWP and include the presence of volatile organic compounds (VOCs) in rock and groundwater below the site, and metals-containing surficial soil in the vicinity of the former burn pit area (BPA). The Decision Document indentifies trichloroethene (TCE), arsenic, dichloroethylene, and lead as the contaminants of concern for the site.

The Attached Executive Summary Figure ES-1 from the Remedial Work Plan summarizes pertinent site features and components of the approved remedy that include:

- 1. Capping the primary VOC source area and residual surficial soils with an engineered, low-permeability clean soil fill cap, providing a minimum of 2 feet cover over surficial soils containing certain metals at concentrations above New York State soil clean up objectives established for residential property use (Residential SCO).
- 2. Placement and compaction of engineered soil fill within a topographic depression south of the Burn Pit Area where VOC-containing groundwater has been observed to breakout to the ground surface seasonally as seeps and springs.
- 3. Establishing and maintaining grass and tree cover to both limit infiltration recharge and enhance direct uptake of VOC-containing shallow groundwater, a process known as phytoremediation. The tree planting shall include fast growing tree species that have been commonly applied to VOC phytoremediation projects and native species.
- 4. Engineered introduction of amendments to groundwater that have been shown in site-specific pilot testing to enhance biochemical destruction of VOCs. The amendment used in pilot testing⁵ was an edible soybean oil product commercially produced for biochemical remediation applications. The amendment will be injected into vertical boreholes designed for this application and open to the upper 20 or so feet of subsurface.

Institutional Controls will be established and maintained for the downgradient plume area where development of groundwater supplies shall be restricted. Future construction of occupied structures would require testing and/or implementation of appropriate actions to address exposures related to soil vapor intrusion.

IBM will enter into an environmental easement for the site as required under New York ECL Article 71, Title 36 that will include by reference a Site Management Plan (SMP) that will specify institutional and engineering controls to be implemented and maintained. Under the SMP, IBM will submit to NYSDEC a periodic certification document of the status of the site relative to institutional and engineering controls in accordance with Part 375-1.8 (h)(3).

⁵ Sanborn, Head & Associates, Inc., October 5, 2011, <u>Report of Findings, Pilot Testing of Enhanced In Situ</u> <u>Biochemical Degradation, IBM Gun Club – Former Burn Pit Area, Union, New York.</u>

REMEDIAL INVESTIGATION FINDINGS AND BASIS FOR REMEDIAL DESIGN

The site remedy is being designed based on findings discussed in the Remedial Investigation (RI) Report of findings⁶, RI Addendum⁷, and site-specific pilot testing, as well as subsequent semi-annual water quality monitoring for evidence of changes in site environmental conditions. Data gaps or materially changing conditions that would require additional investigation work have not been identified. As IBM and NYSDEC are aware, the Remedial Work Plan reflected nearly 95% complete design development and outlined in detail the items referenced in DER-10 Section 5.2 (b), which are included by reference with this letter.

SCHEDULE

Figure 2 depicts an updated schedule projection that reflects the December 2012 approval of the Remedial Work Plan and the NYSDEC Decision Document, and the input from the Agencies regarding their projection of the regulatory review process going forward. It projects construction in the second and third quarter of calendar year 2013. The schedule projection is organized by line identification numbers (ID) on the left hand column that are referenced in the discussion to follow. Particularly notable milestones moving forward include:

- Submittal of the 95% Complete Design package (ID 22) to the NYSDEC in mid-February 2013. The 95% Complete Design package will include drawings to support Storm Water Pollution Prevention permitting (SWPP). We understand that the agency review process will take approximately 30 days and include reviews by NYSDEC and NYSDOH. The Agency review will focus on consistency with the agency decision document and compliance with possible permitting. As outlined in the Remedial Work Plan, we understand that permitting will include Underground Injection Control permitting in addition to the SWPP.
- Contracting for construction implementation and construction phase engineering targeting start of construction in the second quarter of 2013 (ID 27). The contracting will begin after IBM receives comments/approval of the 95% Design. A final design submittal of construction plans and specifications, along with a site Health and Safety Plan (HASP), is projected for late March assuming a 30 day review period for the 95% complete design before approval or minimal revisions to address comments; and
- Preparation of the SMP and submittal to the NYSDEC in early April 2013 (ID 76).

The schedule depicts an allowance of up to 120 days for site work, allowing for seeding and planting of the filled area within the New York State Department of Transportation

⁶ Sanborn, Head & Associates, Inc., August 5, 2009, <u>Report of findings</u>, <u>Brownfield Cleanup Program</u> <u>Remedial Investigation, IBM Gun Club – Former Burn Pit area, Union, New York</u>.

⁷ Sanborn Head & Associates, Inc., March 15, 2012, <u>RI Addendum – Supplemental Soil Sampling and Analysis, Brownfield Cleanup Program remedial Investigation, IBM Gun Club – Former Burn Pit Area (BPA), Union, New York, NYSDEC Brownfield Cleanup Program Agreement #C704044.</u>

(NYSDOT) preferred planting season. The NYSDOT preferred planting season for grass cover from August to late October is shown by line ID 36.

The schedule depicts construction of the injection boreholes (ID 37) after completion of site work through placement of soil fill (ID 34) leading to submittal of the Final Engineering Report (FER – ID 88) in the first quarter of 2014.

CLOSING

The remedial design is to be performed by Sanborn, Head Engineering P.C. and the undersigned certify that they are currently NYS registered professional engineers and that this Remedial Design Work Plan Letter 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).

We trust that this letter satisfies you present needs. We greatly appreciate the opportunity to be of service to IBM on this important project.



) eBC

Daniel B. Carr, NYS P.E. *Vice President*

DBC/DS: dbc

Encl.

Figure ES-1Executive Summary of Site Features and Remedy ComponentsFigure 2Schedule Projection Overview

cc: Jennifer Sanborn (Sanborn Head), Allan Horneman (Sanborn Head).

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Engineered introduction of amendments shown to enhance biochemical destruction of VOCs in site-specific pilot testing. The amendment will be injected into vertical boreholes designed for this application and open to the upper 20 or so feet of subsurface.



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Capping residual contaminated soils with an engineered low permeability clean soil fill providing a minimum of 2 feet of clean soil cover over soils containing certain metals at concentrations above New York State soil clean up objectives established for residential property use (Residential SCO).

Establishing and maintaining grass and tree cover to both limit infiltration recharge and enhance direct uptake of VOC-containing shallow groundwater. The tree planting is to include fast growing tree species that have been commonly applied to VOC phytoremediation projects and native species that will cover about 2.3 acres of land.

Placement and compaction of 2. engineered soil fill within a topographic depression where VOC-containing groundwater has been observed to breakout to the ground surface seasonally as seeps and springs.

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Institutional Controls to be applied to 5. the downgradient plume area - Development of groundwater supplies is restricted via NYS Public Health Law 206(18). Future construction of occupied structures would require testing and/or implementation of appropriate actions to address exposures related to soil vapor intrusion.



Figure ES-1

Executive Summary

Brownfield Cleanup Program Alternatives Analysis and Remedial Work Plan

IBM Gun Club - Former Burn Pit Area

Union, New York

Drawn By:	S. Warner
Designed By:	A. Horneman
Reviewed By:	D. Carr / D. Shea
Project No:	3025.00
Date:	September 2012

Figure Narrative

This figure is intended as a component of the executive summary describing recommended alternative remedy associated with environmental remediation of the IBM Former Burn Pit under the New York State Brownfield Cleanup Program.

The remedy involves excavation and capping of surficial soils and enhancing in situ biochemical processes already active at the site and the planting and maintenance of trees to enhance uptake of VOC-containing groundwater.

Please refer to the executive summary text for additional details and to Figures 1 and 2 for additional notes and legend.

Legend



Proposed Injection Boring Location

Former Burn Pit Disposal Area

Surveyed boundaries of Burn Pit Property (Parcel B). Entire parcel to be subject to deed restrictions associated with groundwater development/use, and construction of human occupied structures.



Area of property to meet Track 2 residential SCOs

Inferred limits of groundwater TCE concentrations exceeding New York Standards (>5 µg/L)

Proposed limits of Tree Planting



Track 4 Surficial Soil Remedy Area -Propsed 1.28-Acre area requiring twofeet of Soil Fill Cap meeting soils Soil Cleanup Objectives or SCO)



Approximate Limit of Soil Cap Extension resulting from proposed final grading of imported soils.



Approximate limit of additional fill required for filling topographic depression

standards for residential use (Residential

Surveyed limits of soil removal conducted under Interim Remedial Measure (IRM) in May 2012 to meet residential SCO



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Figure 2 Schedule Projection Overview

Remedy Design and Implementation through Final Engineering Report

IBM Gun Club Burn Pit Area

ID	Task Name			Duration	Sen	Qtr 4, 2	2011	Qtr 1, 2	2012 Feb Mar	Qtr 2,	2012	Qtr 3,	2012	Sen	Qtr 4, 2012		Qtr 1,	2013	Mar	Qtr 2,	2013 May lup	Qtr 3, 201
1	1 Alternatives Analysis	and Remedial W	ork Plan	238 days		000		Juli		Арг		oui	Aug			/ DCC	Jan		IVICI	7,01	Widy Our	
13	2 Agency Review and C	Community Partic	ipation	195 davs														-				
14	2.1 Agency Review			182 edays					3/20					 9/	18							
15	2.2 Agency Preparation	of Decision Docume	ent (DD)	109 edays							6/1			 (9/	18							
16	2.3 Issue Public Notice			0 days											_10/1							
17	2.4 Public Notice Perior	d		75 edays										10/1			/15					
18	2.5 Finalization of Deci	- sion Document		3 edays											1	2/15 1	2/18					
19	2.6 Receipt of Approva	l Via Agency Accepta	ince Letter	0 davs													2/18					
20	3 Design Development	and Contracting		264 days														-				
21	3 1 95% Complete Desi	an an		276 edays					L	5	/14)			-				42	/14			
22	3.2 Design Submittal to	Agencies		0 days															2/15_			
23	3 3 NVS Review of 95%	Complete Design		30 edays													2	/15	3/	17		
24	3.4 Final Design Docum	ents		5 days															8/18	3/22		
25	3 5 Refine FBD Injection	n Design		5 days															3/25	3/29		
26	3.6 Construction HASP	il Design		30 edays													1/28		2/27			
27	3.7 Contracting of Cons	struction		40 days																		
31	4 Construction			228 days															•			
22				220 uays																		
34	4.1 Mobilization	•		15 days																	5/20	
35	4.2 Site Work Construc	tion		60 days																	6/3	
26	4.3 Construction Phase	Engineering		60 days																	0/5	0/2
30	4.4 NYSDOT Seeding Pe	eriod 		44 days																		0/20
38	4.5 Drilling and Constru	action of injection Ga	Meries Monitoring Fauinment	20 days																	7/1	2 7/16
30	4.6 Construction and in		e ivionitoring Equipment	10 days																		1
40	4.7 Initial Amendment	Injection A-A Alignr	ment	/ days																		
41	4.8 Second Amenamen	t injection B-B' Align	iment	4 days																		
- 10	5 Reporting			649 days		•						_				_						
42	5.1 Progress Reporting			631 days		I	II	I	II	I	II	Į	I	I	II	İ	I	I	Î	I	I I	Į !
73	5.2 Metal Shot IRM Cor	nstruction Completio	on Report (CCR)	77 edays							5/31		8/	16		_						
74	5.3 Agency Review of L	ead Shot CCR		122 edays								8	\$/16			1 2	/16		r		4.0	
75	5.4 Preparation of Envi	ronmental Easement	t	60 edays														/15		4/	10	
70	5.5 Site Management P	Plan (SMP)		60 days												4/		- 2/	10	<u> </u>		
78	5.5.2 SMP Body Text			22 days 23 days													2	13	1Z	/15		
79	5.5.3 Monitoring and C	Quality Control Plan Appe	endix	10 days													2/	1 3 🔼	2/26			
80	5.5.4 Excavation Plan	Appendix		5 days													2/	3	2/19	0.000		
81 82	5.5.5 IBM Review	inal SMP Submittal		10 days														3	3/18 🚞 4/1	3/29		
83	5.6 Agency Review of S	MP		90 edays															4/5	5	ļ	7/4
84	5.7 Preparation of Reco	ord Drawings		30 edays																		8/1
85	5.8 Final Engineering Rep	port (FER)		95 days																		
86	5.8.1 Preparation of a	Draft Report for IBM Rev	view	113 edays																		8/2
87	5.8.2 Addressing IBM	Comments, Preparation	of NYSDEC Submittal	15 days																		
88	5.9 Agency Review of F	ER		90 edays									-									
89	6 Performance Monito	ring First Year		338 days																		
90	6.1 Routine Monitoring Eve	ent Spring	tion Event Refere Drilling	5 days														3	3/18 🧧 🕄	3/22		
91	6.2 Performance Monitoring	g First Year 2- Pre Injec n First Year 3- First Post	tion Event Before Drilling	5 days																		8/19
93	6.4 Performance Monitoring	g First Year 5- Second P	Post Injection Round	5 days																-		
94	6.5 Performance Monitoring	g First Year 6- Third Pos	t Injection Round	5 days																		
95	6.6 Performance Monitoring	g First Year 7 - Fourth Po	ost Injection Round	5 days															<u> </u>			
Project	63526 00 Burn Dit Area	Task		Progress				Sum	marv			R	Rolled Un	Critical	Task 💳			Rolle	d Up Pro	oaress		
Date:	Thu 1/31/13	Critical Task		Milestone		•		Rolle	, d Up Task	Ē			Rolled Un	Milesto	one 🖒			Split		<u> </u>		
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