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CleanHarbors
ENVIRONMENTAL SERVICES®

Ms. Chris Jump, L.G.
Waste Remediation and Permitting Branch
USEPA, Region 7 11201
11201 Renner Boulevard
Lenexa KS, 66219

August 27, 2013

SUBJECT: **USEPA Comments and Response to the Clean Harbors Supplemental RFI response to EPA comments dated July 22, 2013 and received by EPA on August 9, 2013 for the Clean Harbors Wichita Facility, 2549 New York Avenue, Wichita, Kansas (EPA Identification No KSD007246846)**

Dear Ms. Jump:

Attached please find Clean Harbors Environmental Services response to your July 22, 2013 comment letter on the above referenced document. Should you have any questions or concerns regarding these responses, please contact me at (417) 358-0826.

Sincerely,

Martin L Smith

Digitally signed by Martin L Smith
DN: cn=Martin L Smith, o=Clean Harbors Environmental Services, Inc., ou=Director, Corrective Actions and Discontinued Operations, email=smith.martin@cleanharbors.com, c=US
Date: 2013.08.27 12:51:57 -05'00'

Martin Smith
Director of Corrective Measures
Clean Harbors Environmental Services

RCRA
534682

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Cameron-Cole

Chris Jump, L.G.
Waste Remediation and Permitting Branch
US EPA, Region 7
11201 Renner Boulevard,
Lenexa, KS 66219

August 27, 2013

RE: US EPA Comments on their review of the July 22, 2013 response to the Clean Harbors Supplemental RFI response to EPA comments submitted with the Conditional Approval Letter of the Phase IV RFI Work Plan received from the EPA on August 27, 2013 for the Clean Harbors Wichita Facility, 2549 New York Avenue, Wichita, Kansas (EPA Identification No KSD007246846)

Dear Ms. Jump:

Clean Harbors is providing this response letter to the comments on the RCRA Facility Investigation (RFI) Supplemental Phase IV Work plan at the Clean Harbors Wichita Facility, 2549 New York Avenue, Wichita, Kansas. This letter is intended to present the USEPA with responses to the comments received by Clean Harbors in the Conditional Approval Letter received August 27, 2013. These responses are presented below in standard font following the Specific Comments (in italics) provided by USEPA.

EPA COMMENT # 1. *The revised Table 4 submitted in the response document referenced above was incomplete. It contained 2 copies of pages 1-4 of the table rather than the entire 14 page table. Please send me a complete revised table 4.*

RESPONSE: A hard copy of the complete Table 4 is included as an attachment to this letter. A hard copy of the complete table will also be resubmitted to Mr. Akhter Hossain of the Bureau of Waste Management, Kansas Department of Health and Environmental.

EPA COMMENT # 2. *Response to EPA comment #15 is not sufficient. In addition to the work described in Clean Harbor's response, EPA also requires additional borings be installed immediately adjacent to monitoring wells SK-2S, SK-12S, and SK-1S. These borings must have ground water samples collected from the same intervals from which the hydrasleeve ground water samples will be collected. This is required in order to evaluate the comparability of groundwater from discrete intervals in direct push borings and discrete hydrasleeve intervals in monitoring wells.*

RESPONSE: Clean Harbors has added three additional sample locations located adjacent to wells SK-1S, SK-2S, and SK-12S. Data collected at these locations will be at the same depth intervals within the water column as the hydrasleeve samples from the adjacent associated well. The data will be used to evaluate the comparability of groundwater from discrete intervals in direct push borings and discrete hydrasleeve intervals. Samples collected from the direct push borings will be collected in accordance with Section 3.2 of the Sampling and Analysis Plan (Appendix B of the Phase IV RFI Work Plan) and the July 22, 2013 Clean Harbors response to Comments #4 and #8 from EPA in a letter dated May 17, 2013

EPA COMMENT # 3. *The QAPP approval signature page must include signatures of approving officials including Clean Harbors Project Manager and QA Manager, and others as needed, such as the field operations manager (Cameron-Cole) or laboratory manager. EPA's QA officer has indicated that her signature must be the last added to the document, so you will need to submit a signature page with all the other signatures before EPA can sign. EPA will accept scanned and emailed signature pages and will return a copy with the EPA signature to you.*

RESPONSE: QAPP approval signature pages have been prepared for key personnel identified in the Project Management Plan presented as Appendix A of the Phase IV RFI Work Plan. These include the following.

- Clean Harbors Senior Project Manager, Marty Smith.

  Primary responsibilities of Clean Harbors Senior Project Manager include:

  - Oversight of the project implementation/coordination
  - Review of task objectives;
  - Assistance with allocation of labor or other necessary resources;
  - Communication with client and KDHE; and
  - Review of project deliverables.

- Senior Technical Advisor, Mike Stephenson, Senior Scientist for Cameron-Cole

  The primary responsibilities of the Senior Technical Advisor include:

  - Review of and guidance with respect to the technical objectives and accuracy;
  - Assistance with allocation of labor or other necessary resources;
  - Communication with client, EPA and KDHE; and
  - Review of project deliverables.

- Field Supervisor, Anthony Carmeli, Senior Hydrogeologist for Cameron-Cole.

  The Field Supervisor will be responsible for all field activities, personnel, and health and safety. Specific responsibilities include:

- On-site supervision of field personnel and activities;
- Interaction with public, EPA and KDHE while on-site;
- Compliance with applicable policies, procedures, and laws during field event;
- Compliance with procedures identified in the SAP and HASP; and
- Assurance of a timely, safe progression of field work.

The attached signature page for the QAPP has been signed by all appropriate Clean Harbors and Cameron-Cole personnel.

EPA COMMENT # 4 *The implementation schedule presented in Figure 14 does not include the partial closure activities. Since some of the samples are intended to be used for both the supplemental RFI and partial closure, please add the partial closure activities to this schedule.*

RESPONSE: Figure 14 has been updated to include partial closure activities that overlap with the work presented in the Phase IV RFI Work Plan. The revised Figure 14 is included in the attachments to this response.

Thank you and please contact Marty Smith at 417-358-0826 if you have any questions or need additional information regarding these responses.

Sincerely,

Mike Stephenson
Senior Scientist

Attachments:

- Figures
- Complete Table 4
- QAPP Signature Pages

ATTACHMENTS

Revised Tables

Table 4	Summary of Proposed Sample Locations and Analytical Parameters

Revised Figures

Figure 4	RFI Areas with Proposed Boring, Monitor Well and Sample Locations
Figure 7	Eastern Portion of Facility
Figure 8	South-central Portion of Facility
Figure 9	Central Northeastern Portion of Facility
Figure 10	Northeastern Portion of Facility
Figure 14	RFI Work Plan Implementation Schedule

Signature Pages for QAPP

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #1	S1-1	d	0-0.5	Soil	OVM		X				X	X								
Process Area		d	2	Soil	OVM		X				X	X								
(Figure 5)		d,k	5	Soil	OVM		H				X	H								
		d,k	10	Soil	OVM		H				X	H								
		d,k	15	Soil	OVM		H				X	H								
		d,k	Soil/GW Interface	Soil	OVM						X	H								
		d,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S1-2	d	0-0.5	Soil	OVM		X				X	X								
		d	2	Soil	OVM		X				X	X								
		d,k	5	Soil	OVM		H				X	H								
		d,k	10	Soil	OVM		H				X	H								
		d,k	15	Soil	OVM		H				X	H								
		d,k	Soil/GW Interface	Soil	OVM						X	H								
		d,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
SWMU # 2	S2-1	a	0 - 0.5	Soil	OVM		X				X	X	X							
Waste Blending and Drum		a	2	Soil	OVM		X				X	X								
Processing Area		a,k	5	Soil	OVM		H				X	H								
(Figure 5)		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H	X							
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X	X							
	S2-2	a	0-0.5	Soil	OVM		X				X	X	X							
		a	2	Soil	OVM		X				X	X								
		a	5	Soil	OVM		X				X	X								
SWMU #3	S3-1	a	0-0.5	Soil	OVM		X				X	X	X							
Former Drum Processing Area		a	2	Soil	OVM		X				X	X								
(Figure 5)		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H	X							
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X	X							
	S3-2	a	0-0.5	Soil	OVM		X				X	X	X							
		a	2	Soil	OVM		X				X	X								
		a	5	Soil	OVM		X				X	X								
SWMU #4	S4-1	d	0-0.5	Soil	OVM		X				X	X								
Process Area Truck Bay		d	2	Soil	OVM		X				X	X								
(Figure 5)		d,k	5	Soil	OVM		H				X	H								
		d,k	10	Soil	OVM		H				X	H								
		d,k	15	Soil	OVM		H				X	H								
		d,k	Soil/GW Interface	Soil	OVM						X	H								
		d,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S4-2	d	0-0.5	Soil	OVM		X				X	X								
		d	2	Soil	OVM		X				X	X								
		d,k	5	Soil	OVM		H				X	H								
		d,k	10	Soil	OVM		H				X	H								
		d,k	15	Soil	OVM		H				X	H								
		d,k	Soil/GW Interface	Soil	OVM						X	H								
		d,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								

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Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #5	DC-21	b	0-0.5	Soil	OVM	X														
Sparging Area		b	2**	Soil	OVM	X														
(Figure 5)		b	5	Soil	OVM	H														
	DC-22	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-24	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-25	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-27	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-28	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-SUMP	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM						X									
		b	10	Soil	OVM						H									
		b	15	Soil	OVM						H									
		b	Soil/GW Interface	Soil	OVM						H									
		b	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
SWMU #6	DC-23	b	0-0.5	Soil	OVM	X														
Hot Rooms		b	2**	Soil	OVM	X														
(Figure 5)		b	5	Soil	OVM	H														
	DC-26	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #7	DC-1	b	0-0.5	Soil	OVM	X							X							
Elevated Tank Storage Area		b	2**	Soil	OVM	X														
(Figure 5)		b	5	Soil	OVM	H														
	DC-2	b	0-0.5	Soil	OVM	X							X							
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-3	b	0-0.5	Soil	OVM	X							X							
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
		b	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
SWMU #8	DC-4	b	0-0.5	Soil	OVM	X														
Regulated Waste Storage Area		b	2**	Soil	OVM	X														
(Figure 5)		b	5	Soil	OVM	H														
	DC-5	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-6	b	0-0.5	Soil	OVM	X														

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SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #8		b	2**	Soil	OVM	X														
Regulated Waste Storage Area (Figure 5)		b	5	Soil	OVM						H									
		b	10	Soil	OVM						H									
		b	15	Soil	OVM						H									
		b	Soil/GW Interface	Soil	OVM						H									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	DC-7	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-8	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-9	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM						H									
		b	10	Soil	OVM						H									
		b	15	Soil	OVM						H									
		b	Soil/GW Interface	Soil	OVM						H									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	DC-10	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-11	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #9	DC-12	b	0-0.5	Soil	OVM	X														
Solids Dryer (Figure 5)		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-13	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-14	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-15	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-16	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	DC-17	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM						H									
		b	10	Soil	OVM						H									
		b	15	Soil	OVM						H									
		b	Soil/GW Interface	Soil	OVM						H									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	DC-18	b	0-0.5	Soil	OVM	X														

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SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #9	DC-18	b	2**	Soil	OVM	X														
Solids Dryer		b	5	Soil	OVM	H														
(Figure 5)	DC-20	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #10	S10-1	a	0-0.5	Soil	OVM		X				X	X	X							
Drum Crusher		a	2	Soil	OVM		X				X	X								
(Figure 5)		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H	X							
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X	X							
SWMU #11	S11-1	a	0-0.5	Soil	OVM						X		X							
Crushed-Drum Roll-Off Boxes		a	2	Soil	OVM						X									
(Figure 5)		a,k	5	Soil	OVM			X			X					X		X		
	S11-1	a,k	10	Soil	OVM						X									
		a,k	15	Soil	OVM			X			X					X		X		
		a,k	Soil/GW Interface	Soil	OVM						X		X							
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO			X	X		X		X	X	X	X				
	(S11-1a)	a,k	Above Clay lens	Groundwater	pH/Sp. Cond./DO						X									
		a,k	20-25	Soil	OVM			X								X			X	
		a,k	Clay Lens	Soil	OVM						X								X	
	S11-2	a,k	0-0.5	Soil	OVM						X		X							
			2	Soil	OVM						X									
			5	Soil	OVM						X									
			10	Soil	OVM						X									
			15	Soil	OVM						X									
			Soil/GW Interface	Soil	OVM						X		X							
			2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X		X							
	S11-3	a	0-0.5	Soil	OVM						X		X							
		a	2	Soil	OVM						X									
		a,k	5	Soil	OVM						X									
		a,k	10	Soil	OVM						X									
		a,k	15	Soil	OVM						X									
		a,k	Soil/GW Interface	Soil	OVM						X		X							
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X		X							
SWMU #13	S13-1	a	0-0.5	Soil	OVM		X				X	X								
Dock Area		a	2	Soil	OVM		X				X	X								
(Figure 6)		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H								
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S13-2	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	X								

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						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #13	S13-2	a,k	5	Soil	OVM		H				X	H								
Dock Area		a,k	10	Soil	OVM		H				X	H								
(Figure 6)		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H								
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S13-3	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	X								
		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H								
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S13-4	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	X								
		a	5	Soil	OVM		H				H	H								
SWMU #14	S14-1	a	0-0.5	Soil	OVM		X													
Building C Drum Storage Warehouse		a	2	Soil	OVM		X				X	X								
(Figure 6)		a	5	Soil	OVM		H				H	H								
	S14-2	a	0-0.5	Soil	OVM		X													
		a	2	Soil	OVM		X				X	X								
		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H								
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S14-3	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	X								
		a	5	Soil	OVM		H				H	H								
	S14-4	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	X								
		a,k	5	Soil	OVM		H				X	H								
		a,k	10	Soil	OVM		H				X	H								
		a,k	15	Soil	OVM		H				X	H								
		a,k	Soil/GW Interface	Soil	OVM						X	H								
		a,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
	S14-5	a	0-0.5	Soil	OVM		X				X	X								
		a	2	Soil	OVM		X				X	H								
		a	5	Soil	OVM		H				H	H								
SWMU #15	JC-1	b	0-0.5	Soil	OVM	X														
Building J		b	2**	Soil	OVM	X														
(Figures 7 and 9)		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	JC-2	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group I Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #15	JC-3	b	0-0.5	Soil	OVM	X														
Building J		b	2**	Soil	OVM	X														
(Figures 7 and 9)		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	JC-4	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	JC-5	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	(JC-5a)	b,k	Above Clay lens	Groundwater	pH/Sp. Cond./DO						X									
	JC-6	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	JC-7	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
	JC-7	b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	JC-8	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	JC-9	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	JC-10	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	JC-11	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group I Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #15	JC-11	b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
Building J	JC-12	b	0-0.5	Soil	OVM	X														
(Figures 7 and 9)		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	JC-13	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						X									
		b,k	10	Soil	OVM						X									
		b,k	15	Soil	OVM						X									
		b,k	Soil/GW Interface	Soil	OVM						X									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	JC-14	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #16	BC-1	b	0-0.5	Soil	OVM	X														
The Corrosive Waste Storage Area		b	2**	Soil	OVM	X														
(Figure 8)		b	5	Soil	OVM	H														
	BC-2	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b,k	5	Soil	OVM						H									
		b,k	10	Soil	OVM						H									
		b,k	15	Soil	OVM						H									
		b,k	Soil/GW Interface	Soil	OVM						H									
		b,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	BC-3	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
	BC-4	b	0-0.5	Soil	OVM	X														
		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #17	S17-1	k	2	Soil	OVM		X				X									
Former Dry Solids Gondola		k	5	Soil	OVM		X				X									
(Figure 6)		k	10	Soil	OVM		X				X									
		k	15	Soil	OVM		X				X									
		k	Soil/GW Interface	Soil	OVM		X				X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X									
	(S17-1a)	k	Above Clay lens	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X								X	
	S17-2	k	2	Soil	OVM		X				X									
		k	5	Soil	OVM		X				X									
		k	10	Soil	OVM		X				X									
		k	15	Soil	OVM		X				X									
		k	Soil/GW Interface	Soil	OVM		X				X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X									

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #18	S18-1	k	2	Soil	OVM						X									
Open Area Along Southwestern		k	5	Soil	OVM						X									
Corner of Site		k	10	Soil	OVM						X									
(Figure 11)		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S18-2	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S18-2D	j,k	Lower Zone	Soil	Lithology															
	S18-3	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S18-4	k	2	Soil	OVM						X									
		k	5	Soil	OVM			X			X					X		X		
		k	10	Soil	OVM						X									
		k	15	Soil	OVM			X			X					X		X		
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO			X	X		X			X	X	X				
		k	20-25	soil				X								X			X	
	S18-5	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						H									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X									
	S18-5D	j,k	Lower Zone	Soil	Lithology														X	
	S18-6	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						H									
SWMU #20	S20-1	k	2	Soil	OVM		X				X									
Former Paint Pit		k	5	Soil	OVM		X				X									
(Figure 8)		k	10	Soil	OVM		X				X									
		k	15	Soil	OVM		X				X									
		k	Soil/GW Interface	Soil	OVM		X				X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X									

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #21	DC-19	b	0-0.5	Soil	OVM	X														
Cyclone (Figure 5)		b	2**	Soil	OVM	X														
		b	5	Soil	OVM	H														
SWMU #22	S22-1	f	0-0.5	Soil	OVM						X						X[2]			
Solvent Still Area		f	2	Soil	OVM						X						H[2]			
(Figure 9)		f	5	Soil	OVM						X						H[2]			
		f	10	Soil	OVM						X						H[2]			
		f	15	Soil	OVM						X						H[2]			
		f	Soil/GW Interface	Soil	OVM						X						H[2]			
	S22-1	f,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X						H[2]			
	S22-2	f	0-0.5	Soil	OVM						X						X[2]			
		f	2	Soil	OVM						X						H[2]			
		f	5	Soil	OVM						X						H[2]			
		f	10	Soil	OVM						X						H[2]			
		f	15	Soil	OVM						X						H[2]			
		f	Soil/GW Interface	Soil	OVM						X						H[2]			
		f,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X						H[2]			
SWMU #24	S24-1	k	0-0.5	Soil	OVM															
Area South of Building C		k	2	Soil	OVM						X									
(Figure 6)		k	5	Soil	OVM						X						X			
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X						X			
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S24-1D	j,k	Clay Lens	Soil	OVM/Lithology												X			
		j,k	Lower Zone	Soil	OVM/Lithology												X			
	S24-2	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S24-3	k	2	Soil	OVM						X									
		k	5	Soil	OVM						X									
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S24-4	k	2	Soil	OVM						X						X			
		k	5	Soil	OVM						X						X			
		k	10	Soil	OVM						X									
		k	15	Soil	OVM						X									
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X						X			

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis												Soil Parameters		Ecological
								Group 2 (CMS)												
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
SWMU #25	S25-1	d	0-0.5	Soil	OVM		X				X	X								
Building 1		d	2	Soil	OVM		X				X	X								
		d	5	Soil	OVM		H				H	H								
		d	10	Soil	OVM		H				H	H								
		d	15	Soil	OVM		H				H	H								
		d	Soil/GW Interface	Soil	OVM		H				H	H								
		d	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S25-2	d	0-0.5	Soil	OVM		X				X	X								
		d	2	Soil	OVM		X				X	X								
		d,k	5	Soil	OVM						H									
		d.k	10	Soil	OVM						H									
		d,k	15	Soil	OVM						H									
		d,k	Soil/GW Interface	Soil	OVM						H									
		d,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
AOC #8	A8-1		0-0.5	Soil	OVM						X									
(OA#4) Possible Former Drum			2	Soil	OVM						X									
Storage Area			5	Soil	OVM						X									
(Figure 12)			10	Soil	OVM						X									
			15	Soil	OVM						X									
			Soil/GW Interface	Soil	OVM						X									
			2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
AOC #10	A10-1	k	0-0.5	Soil	OVM		X													
(OA#16) Northeastern Corner		k	2	Soil	OVM		X				X									
Possible Bulk Storage		k	5	Soil	OVM		X				X									
(Figure 10)		k	10	Soil	OVM		X				H									
		k	15	Soil	OVM		X				H									
		k	Soil/GW Interface	Soil	OVM		X				H									
	A10-2	k	0-0.5	Soil	OVM		X													
		k	2	Soil	OVM		X				X									
		k	5	Soil	OVM		X				X									
		k	10	Soil	OVM		X				H									
		k	15	Soil	OVM		X				H									
		k	Soil/GW Interface	Soil	OVM		X				H									
	A10-3	k	0-0.5	Soil	OVM															
		k	2	Soil	OVM		X				X									
		k	5	Soil	OVM		X				X									
		k	10	Soil	OVM		X				H									
		k	15	Soil	OVM		X				H									
		k	Soil/GW Interface	Soil	OVM		X				H									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X									
	A10-4	k	0-0.5	Soil	OVM		X													
		k	2	Soil	OVM		X				X									
		k	5	Soil	OVM		X				X									
		k	10	Soil	OVM		X				H									
		k	15	Soil	OVM		X				H									
		k	Soil/GW Interface	Soil	OVM		X				H									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO			X	X		X									
		k	Clay Lens	Soil	OVM						X									

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)									Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
AOC #10	A10-5	k	0-0.5	Soil	OVM		X													
(OA#16) Northeastern Corner		k	2	Soil	OVM		X				X									
Possible Bulk Storage		k	5	Soil	OVM		X				X									
(Figure 10)		k	10	Soil	OVM		X				H									
		k	15	Soil	OVM		X				H									
		k	Soil/GW Interface	Soil	OVM		X				H									
AOC #11	A11-1	c	0-0.5	Soil	OVM		X				X	X								
Bulk Storage Tanks Between The		c	2	Soil	OVM		X				X	X								
Warming Room and Processing Area		c,k	5	Soil	OVM		H				X	H								
(Figure 5)		c,k	10	Soil	OVM		H				X	H								
		c,k	15	Soil	OVM		H				X	H								
		c,k	Soil/GW Interface	Soil	OVM		H				X	H								
		c,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO		X				X	X								
AOC #12	A12-1	c	0-0.5	Soil	OVM/Radiological						X						X			
Area of Elevated Radium-226		c	2	Soil	OVM/Radiological						X						X			
(Figure 9)		c,k	5	Soil	OVM/Radiological						X						X			
		c,k	10	Soil	OVM/Radiological						X						X			
		c,k	15	Soil	OVM/Radiological						X						X			
		c,k	Soil/GW Interface	Soil	OVM/Radiological						X						X			
		c,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X						X			
		c,k	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X						X			
	A12-1D	c,k	Lower Zone	Groundwater	Lithology/pH/Sp. Cond./DO						X						X			
	A12-2	c	0-0.5	Soil	OVM						X						X			
		c	2	Soil	OVM						X						X			
		c	5	Soil	OVM						H						H			
	A12-3	c	0-0.5	Soil	OVM						X						X			
		c	2	Soil	OVM						X						X			
		c,k	5	Soil	OVM						X						X			
		c,k	10	Soil	OVM						H						X			
		c,k	15	Soil	OVM						H						X			
		c,k	Soil/GW Interface	Soil	OVM						H						X			
		c,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X						X			
	A12-4	c	0-0.5	Soil	OVM						X						X			
		c	2	Soil	OVM						X						X			
		c	5	Soil	OVM						H						H			
	A12-5	c	0-0.5	Soil	OVM						X						X			
		c	2	Soil	OVM						X						X			
		c,l	5	Soil	OVM						X						X			
	A12-6	c	0-0.5	Soil	OVM												X			
		c	2	Soil	OVM												X			
		c	5	Soil	OVM												H			
	MW-18	c	ShallowWater Table	Groundwater	pH/Sp. Cond./DO												X			
	A12-BG1	c	0-0.5	Soil	Radiological												X			
	A12-BG2	c	0-0.5	Soil	Radiological												X			
	A12-BG3	c	0-0.5	Soil	Radiological												X			
	A12-BG4	c	0-0.5	Soil	Radiological												X			

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
Transect Samples (Figure 13)																				
Northwest Corner of Facility	T0-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
Transect 1	T1-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S17-1	See SWMU-17																		
	S18-2	See SWMU-18																		
	S13-1	See SWMU-13																		
	T1-2	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
Transect 2	S18-5	See SWMU-18																		
	S18-4	See SWMU-18																		
	S13-3	See SWMU-13																		
	S2-1	See SWMU-2																		
	T2-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X									
Transect 3	T3-1	g,k	Upper Zone	Groundwater	pH/Sp. Cond./DO						X									
	T3-2	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	S10-1	See SWMU-10																		
	DC-9	See SWMU-8																		
	T3-3	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X									
Transect 4	T4-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T4-2	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T4-3	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X									
	S25-1	See SWMU-25																		
	S22-1	See SWMU-22																		
Transect 5	T5-1	g,k	Upper Zone	Groundwater	pH/Sp. Cond./DO						X									
	T5-2	k	Soil/GW Interface	Soil	pH/Sp. Cond./DO						X									
	T5-2D	l,k	Lower Zone	Soil	Lithology															
	T5-3	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T5-4	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		k	Clay Lens	Soil	OVM						X									
	S25-2	See SWMU-25																		
Transect 6	T6-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T6-2	k	2	Soil	OVM						X									
		k	5	Soil	OVM			X			X					X		X		
		k	10	Soil	OVM						X									
		k	15	Soil	OVM			X			X					X		X		
		k	Soil/GW Interface	Soil	OVM						X									
		k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO			X	X		X			X	X	X				
		k	20-25	soil				X								X			X	X
		k	Clay Lens	Soil	OVM						X								X	X
	JC-9	See SWMU-15																		
	SK-6S	Existing Well																		
Transect 7	T7-1	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T7-2	k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	SEBJ-1	See Southeast Building J																		
	A10-4	See AOC 10																		

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
Transect 8	T8-5	h,l,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO			X			X									
	T8-0	h	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T8-1	g,h,l,k	Upper Zone	Groundwater	pH/Sp. Cond./DO						X									
	T8-1D	h,l,k	Lower Zone	Groundwater	Lithology/pH/Sp. Cond./DO						X									
	T8-2	h,l,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		h,l,k	Clay Lens	Soil	OVM						X									
	T8-2D	h,l,k	Lower Zone	Groundwater	Lithology/pH/Sp. Cond./DO						X									
	SK-10S	Existing Well																		
	T8-3	h,l,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	T8-4	h	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
Vertical Stratification	SK-2S	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	(Hydrasleeve)	g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	SK-2HSVER	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	S11-1	See SWMU-11																		
	S-11a	g	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	SK-1S	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	(Hydrasleeve)	g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	SK-1HSVER	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	S17-1	See SWMU-15																		
	S-17a	g	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	SK-12S	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	(Hydrasleeve)	g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	SK-12HSVER	g, j	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Two-ft interval	Groundwater	pH/Sp. Cond./DO						X									
		g,j	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
	JC-5	See SWMU-15 - Building J Closure Samples																		

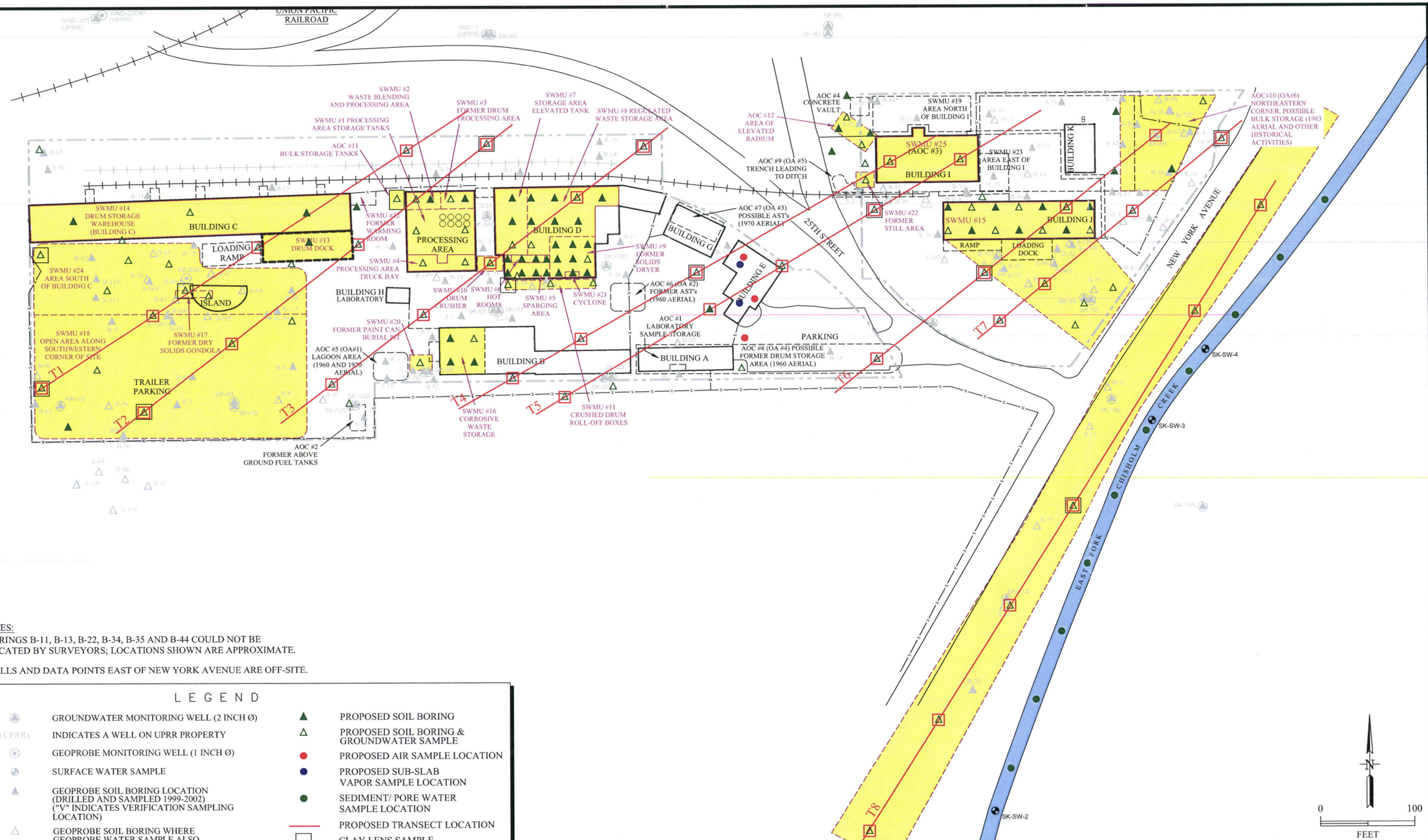
TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis												Soil Parameters		Ecological
								Group 2 (CMS)												
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
Chishom Creek (Figure 13)	CC-0	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-1	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-2	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-3	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-4	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-5	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-6	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-7	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-8	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-9	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	CC-10	g, i	Creek Bottom	Sediment	NA		X			X		X				X				
	PW-0	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-1	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-2	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-3	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-4	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-5	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-6	g, i	Creek Bottom	Pore Water	NA					X	X									
Chishom Creek (Figure 13)	PW-7	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-8	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-9	g, i	Creek Bottom	Pore Water	NA					X	X									
	PW-10	g, i	Creek Bottom	Pore Water	NA					X	X									
	BS-1	g, i	Creek Bottom	Aquatic Detritis	NA															X
	BS-2	g, i	Creek Bottom	Aquatic Detritis	NA															X
	BS-3	g, i	Creek Bottom	Aquatic Detritis	NA															X
	BS-4	g, i	Creek Bottom	Aquatic Detritis	NA															X
	BS-5	g, i	Creek Bottom	Aquatic Detritis	NA															X
North Building J	NBJ-1	h,k	0-0.5	Soil	OVM						X									
		h,k	2	Soil	OVM						X									
		h,k	5	Soil	OVM						X									
		h,k	10	Soil	OVM						X									
		h,k	15	Soil	OVM						X									
		h,k	Soil/GW Interface	Soil	OVM						X									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	NBJ-1a	h,k	Above Clay Lens	Groundwater	pH/Sp. Cond./DO						X									
Southeast Building J (Figure 7)	SEBJ-1	h,k	0-0.5	Soil	OVM						X									
		h,k	2	Soil	OVM						X									
		h,k	5	Soil	OVM						X									
		h,k	10	Soil	OVM						X									
		h,k	15	Soil	OVM						X									
		h,k	Soil/GW Interface	Soil	OVM						X									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	SEBJ-2	h,k	0-0.5	Soil	OVM						X									
		h,k	2	Soil	OVM						X									

TABLE 4
Summary of Proposed Samples and Anlytical Parameters
Phase IV RFI
Clean Harbors, Wichita Facility

						Laboratory Analysis														
								Group 2 (CMS)										Soil Parameters		Ecological
SWMU / AOC/ Other Area	Sample Location	RCRA Permit Section (III.E.2.2)	Sample Depth (ft)	Media	Field Parameters	Closure Plan Appendix A Parameters[1]	Group 1 Total Metals (RCRA)	Total Metals	Dissolved Metals[1]	Toxaphene (Pesticide)	VOC's	SVOC	Total Petroleum Hydrocarbons (DRO)	Total General Chemistry	Dissolved General Chemistry[1]	Total Organic Carbon	Radium-226/228	Vadose Zone	Saturated Zone	Benthic Survey
Southeast Building J	SEBJ-2	hh	5	Soil	OVM						X									
(Figure 7)		h,k	10	Soil	OVM						X									
		h,k	15	Soil	OVM						X									
		h,k	Soil/GW Interface	Soil	OVM						X									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
	SEBJ-3	h,k	0-0.5	Soil	OVM						X									
		h,k	2	Soil	OVM						X									
		h,k	5	Soil	OVM						X									
		h,k	10	Soil	OVM						X									
		h,k	15	Soil	OVM						X									
		h,k	Soil/GW Interface	Soil	OVM						X									
		h,k	2-ft Below Water Table	Groundwater	pH/Sp. Cond./DO						X									
Building E	AS-1	I	Building E	Air	NA						X									
(Figure 12)	AS-2	I	Building E	Air	NA						X									
	AS-3	I	Background	Air	NA						X									
	AS-4	I	Sub-Slab	Air	NA						X									
	AS-5	I	Sub-Slab	Air	NA						X									

[1] Closure Plan Appendix A Parameters include analysis for VOCs, SVOCs, Pesticides, Herbicides, and PCBs
Refer to QAPP Table 2 for a complete list of parameters and analytical methods
OVM=Organic Vapor Monitor (Photo-Ionization Detector or equivalent)
Sp. Cond- specific conductance
DO=dissolved oxygen
VOC=volatile organic compound
[1] Dissolved metal samples will be field filtered
[2] Samples will only be collected if the surfical survey indicate elevated radium 226/228 are present.
X = Sample collected and Analyzed
H = Sample to be collected and submitted to laboratory. Sample will be analyzed by laboratory if preceeding depth is impacted
**Sample to be collected at the baserock/native soil interface which is expected to be approximately 2 ft below the surface



NOTES:

- BORINGS B-11, B-13, B-22, B-34, B-35 AND B-44 COULD NOT BE LOCATED BY SURVEYORS; LOCATIONS SHOWN ARE APPROXIMATE.
- WELLS AND DATA POINTS EAST OF NEW YORK AVENUE ARE OFF-SITE.

LEGEND

- GROUNDWATER MONITORING WELL (2 INCH Ø)
- (UPRR) INDICATES A WELL ON UPRR PROPERTY
- GEOPROBE MONITORING WELL (1 INCH Ø)
- SURFACE WATER SAMPLE
- GEOPROBE SOIL BORING LOCATION (DRILLED AND SAMPLED 1999-2002) ("V" INDICATES VERIFICATION SAMPLING LOCATION)
- GEOPROBE SOIL BORING WHERE GEOPROBE WATER SAMPLE ALSO COLLECTED.
- LOCATION APPROXIMATE (NO SURVEY DATA)
- RAILROAD
- FENCE
- PROPERTY BOUNDARY (NOT SURVEYED)
- PROPOSED SOIL BORING
- PROPOSED SOIL BORING & GROUNDWATER SAMPLE
- PROPOSED AIR SAMPLE LOCATION
- PROPOSED SUB-SLAB VAPOR SAMPLE LOCATION
- SEDIMENT/ PORE WATER SAMPLE LOCATION
- PROPOSED TRANSECT LOCATION
- CLAY LENS SAMPLE
- SWMU LOCATIONS
- RFI INVESTIGATION AREA

	BY	DATE
DRAWN	RJV	8/26/13
CHECKED		
REVISED		
APPROVED		
APPROVED		

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FIGURE 4

RFI AREAS WITH HISTORICAL AND PROPOSED BORING, MONITORING WELL AND SAMPLE LOCATIONS
CLEAN HARBORS KANSAS, LLC

SCALE: 1" = 100'

PROJECT NO.: 1808

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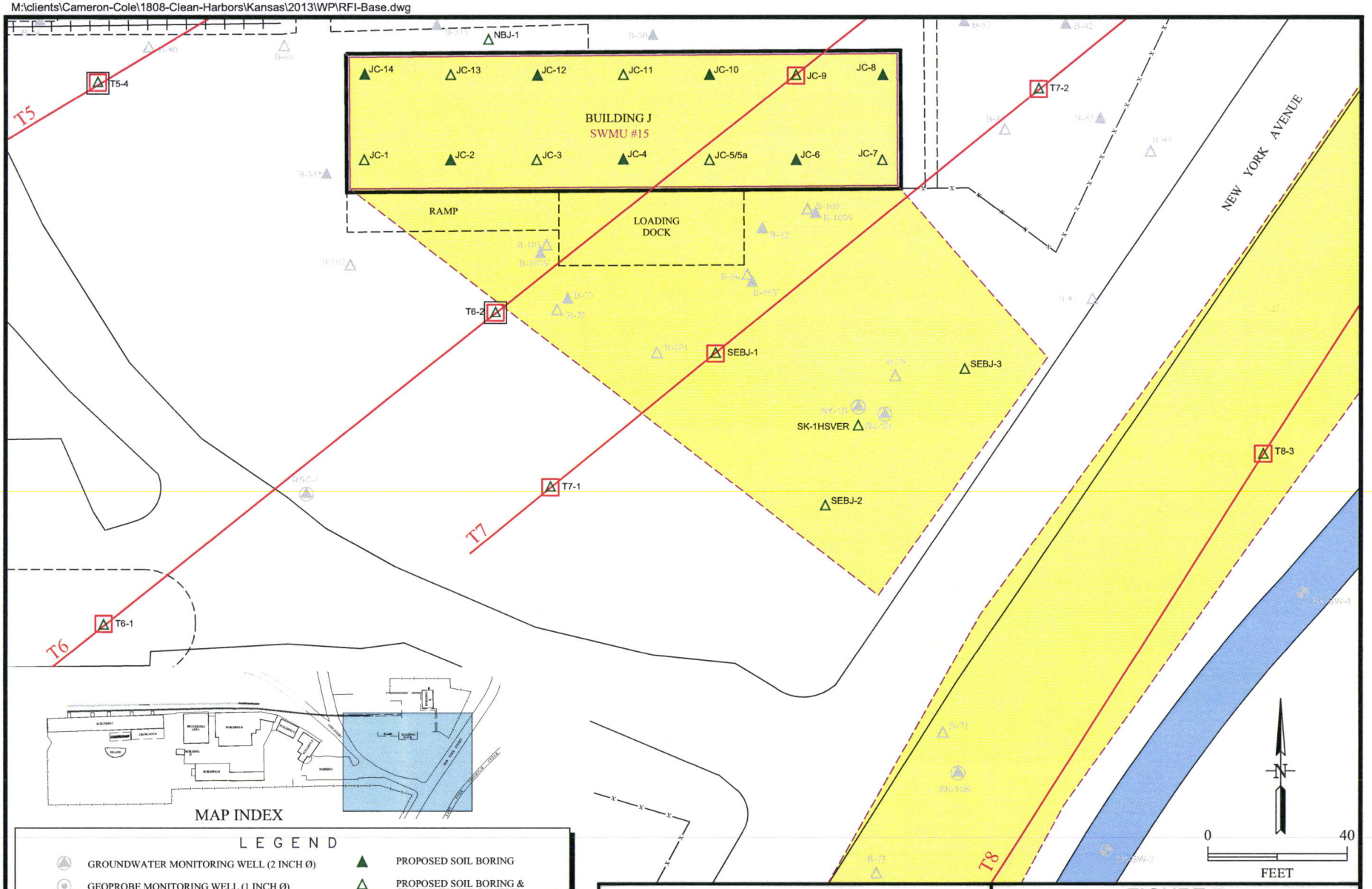

MAP INDEX

LEGEND

- GROUNDWATER MONITORING WELL (2 INCH Ø)
- GEOPROBE MONITORING WELL (1 INCH Ø)
- HISTORICAL GEOPROBE SOIL BORING LOCATION
- HISTORICAL GEOPROBE SOIL BORING (GEOPROBE WATER SAMPLE ALSO COLLECTED)
- RAILROAD
- FENCE
- PROPOSED SOIL BORING
- PROPOSED SOIL BORING & GROUNDWATER SAMPLE
- PROPOSED AIR SAMPLE LOCATION
- PROPOSED TRANSECT LOCATION
- CLAY LENS SAMPLE
- SWMU LOCATIONS

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FIGURE 7

INVESTIGATION AREA
EASTERN PORTION OF FACILITY
CLEAN HARBORS KANSAS, LLC

SCALE:	DATE:	PROJECT NO.
1" = 40'	8/26/13	1808

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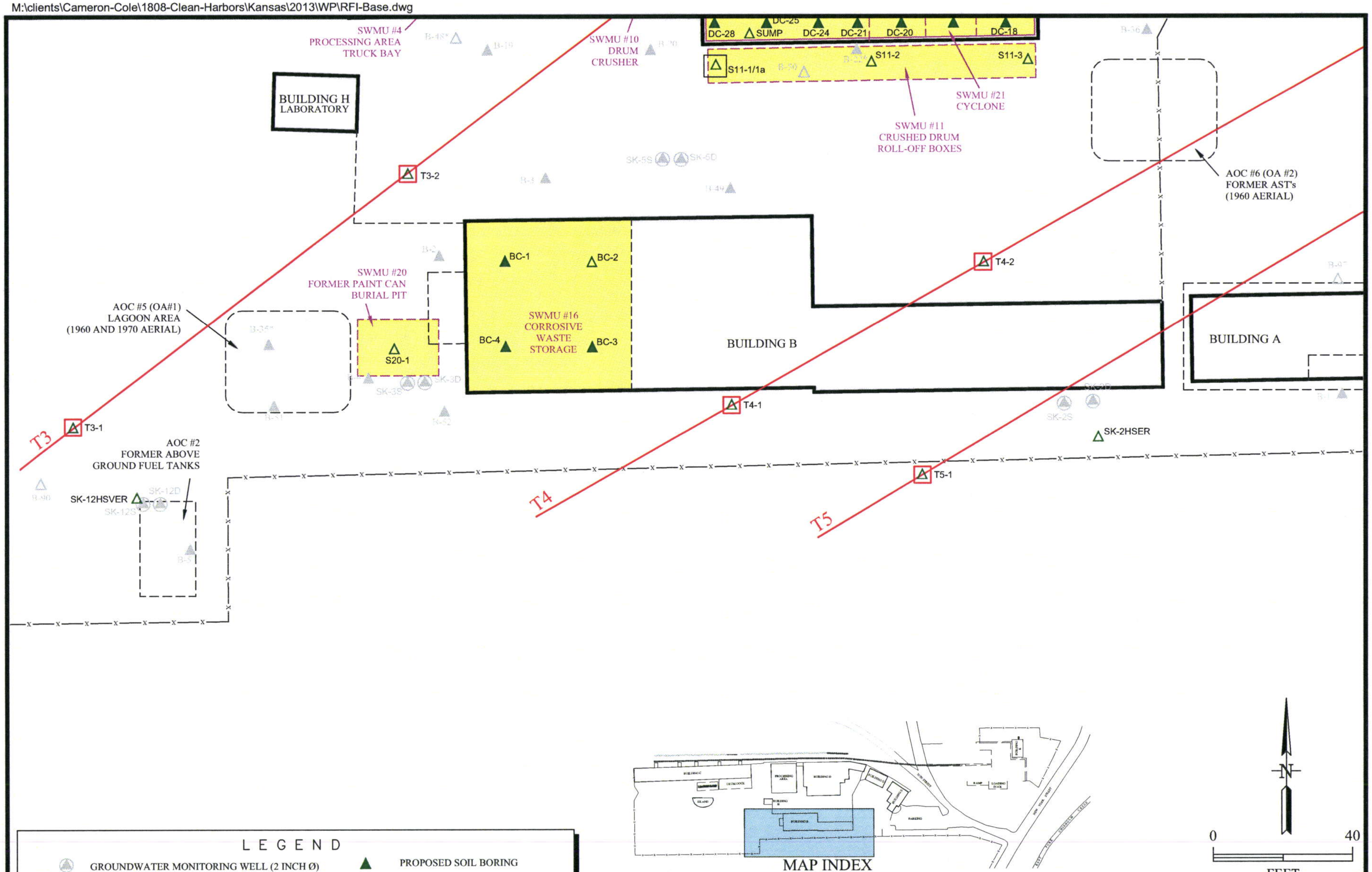

LEGEND

(symbol)	GROUNDWATER MONITORING WELL (2 INCH Ø)	(symbol)	PROPOSED SOIL BORING
(symbol)	GEOPROBE MONITORING WELL (1 INCH Ø)	(symbol)	PROPOSED SOIL BORING & GROUNDWATER SAMPLE
(symbol)	HISTORICAL GEOPROBE SOIL BORING LOCATION	(symbol)	PROPOSED AIR SAMPLE LOCATION
(symbol)	HISTORICAL GEOPROBE SOIL BORING (GEOPROBE WATER SAMPLE ALSO COLLECTED)	(symbol)	PROPOSED TRANSECT LOCATION
(symbol)	RAILROAD	(symbol)	CLAY LENS SAMPLE
(symbol)	FENCE	(symbol)	SWMU LOCATIONS

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FIGURE 8

INVESTIGATION AREA
SOUTH-CENTRAL PORTION OF FACILITY
CLEAN HARBORS KANSAS, LLC

SCALE:	DATE:	PROJECT NO.
1" = 40'	8/26/13	1808

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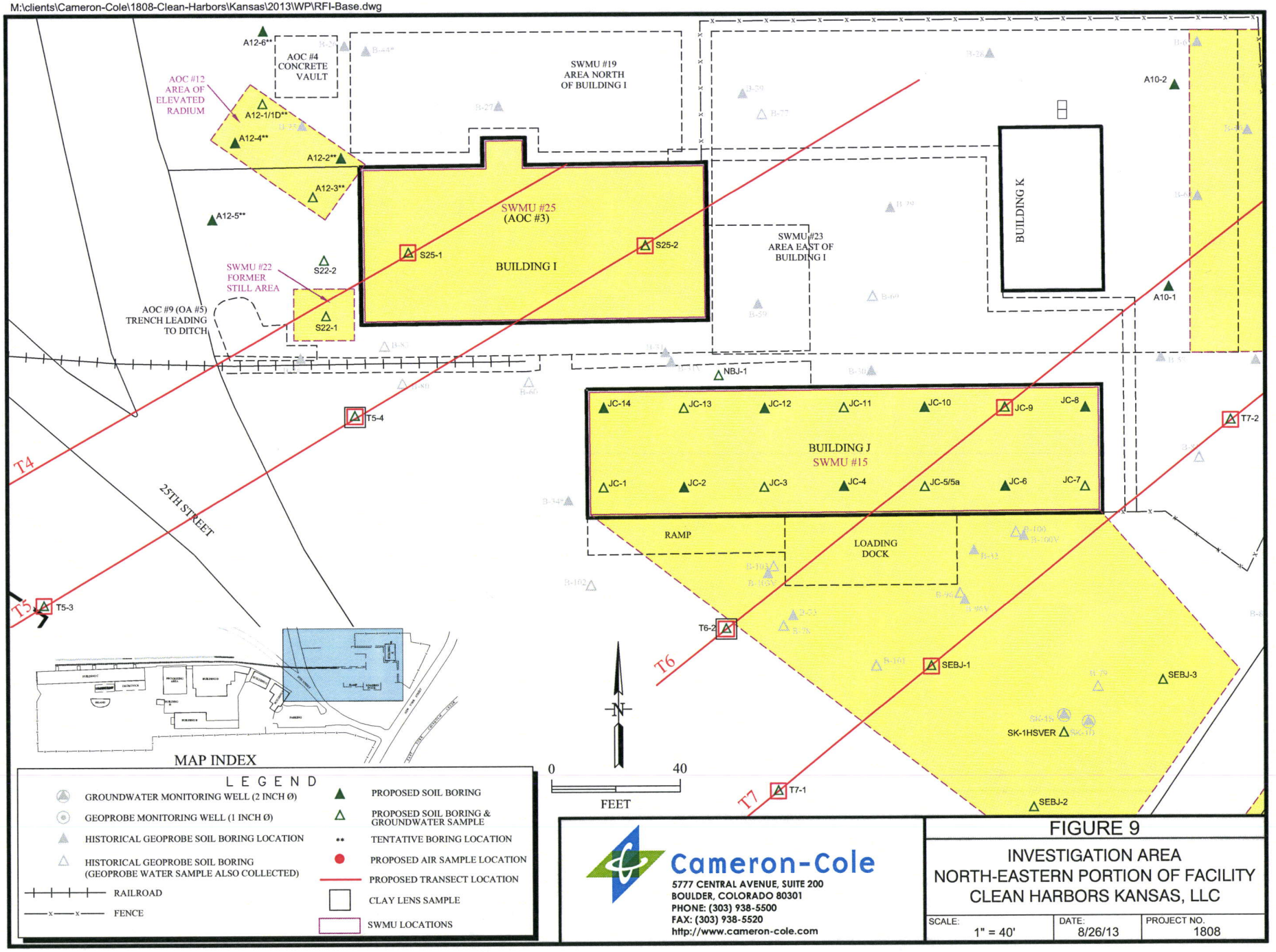

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FIGURE 9

INVESTIGATION AREA NORTH-EASTERN PORTION OF FACILITY CLEAN HARBORS KANSAS, LLC

SCALE:	DATE:	PROJECT NO.
1" = 40'	8/26/13	1808

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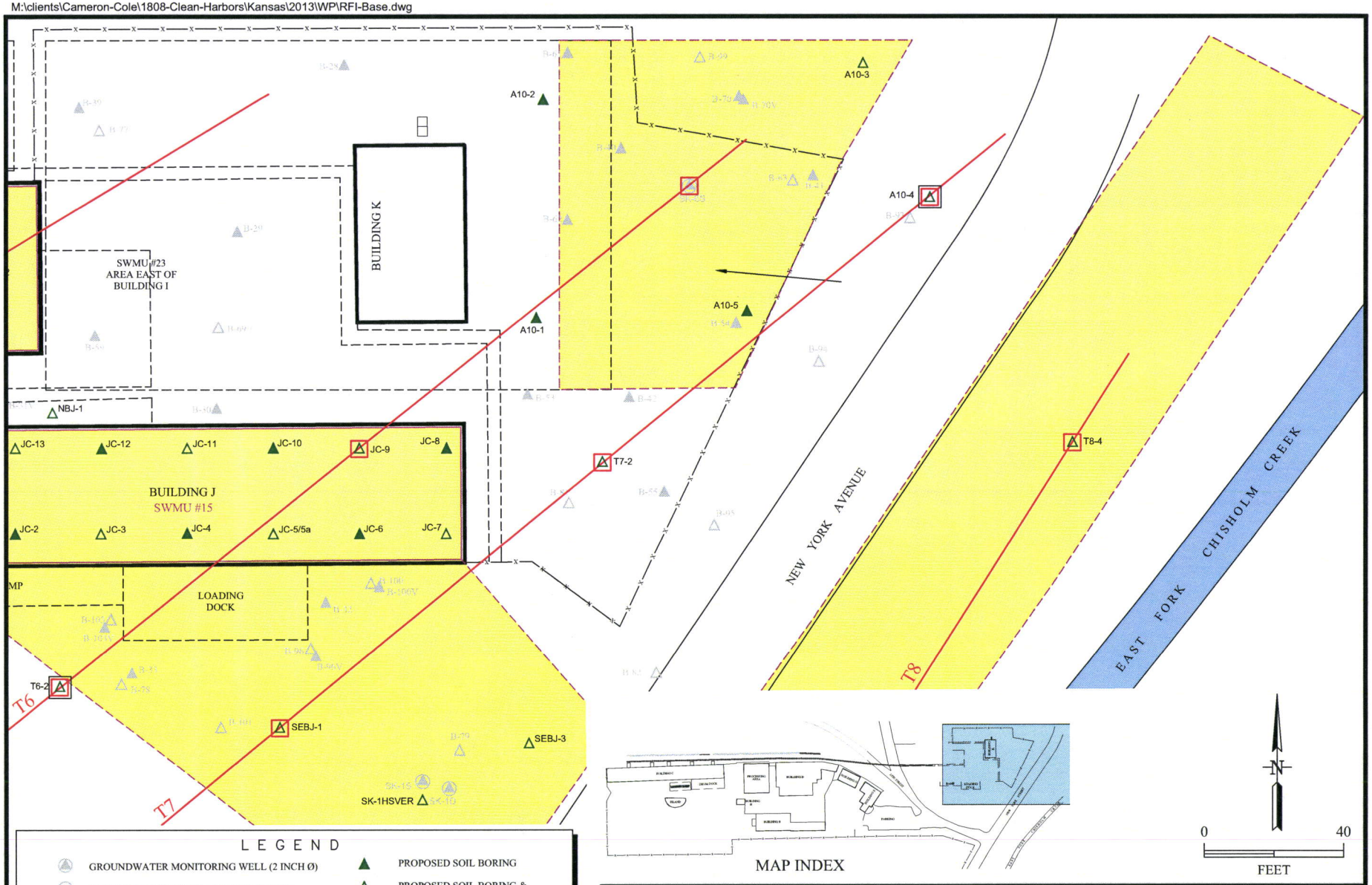

LEGEND

- GROUNDWATER MONITORING WELL (2 INCH Ø)
- GEOPROBE MONITORING WELL (1 INCH Ø)
- HISTORICAL GEOPROBE SOIL BORING LOCATION
- HISTORICAL GEOPROBE SOIL BORING (GEOPROBE WATER SAMPLE ALSO COLLECTED)
- RAILROAD
- FENCE
- PROPOSED SOIL BORING
- PROPOSED SOIL BORING & GROUNDWATER SAMPLE
- PROPOSED AIR SAMPLE LOCATION
- PROPOSED TRANSECT LOCATION
- CLAY LENS SAMPLE
- SWMU LOCATIONS

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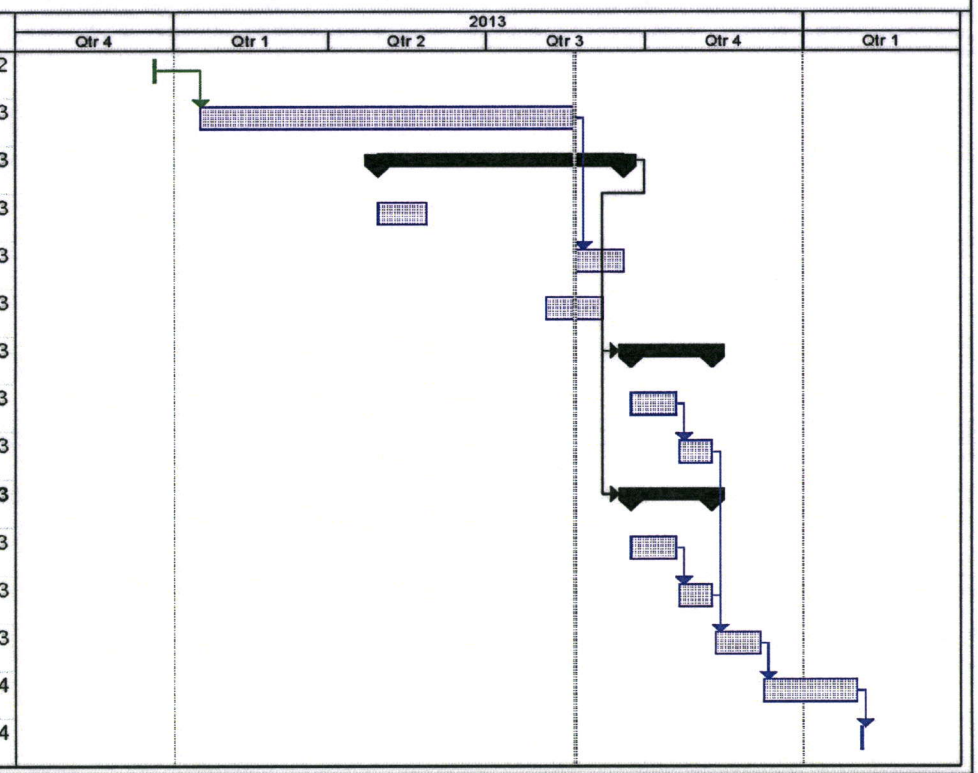
FIGURE 10

INVESTIGATION AREA
NORTH-EASTERN PORTION OF FACILTIY
CLEAN HARBORS KANSAS, LLC

SCALE:	DATE:	PROJECT NO.
1" = 40'	8/26/13	1808

ID	Task Name	Duration	Start	Finish
1	**Submittal of RFI Supplemental Phase IV Work Plan to KDHE**	1 day	12/21/2012	12/21/2012
2	**Review, Repsonse to Comments, and Approval of RFI Work Plan**	31 wks	1/17/2013	8/21/2013
3	**Investigation Prep**	102 days	4/30/2013	9/18/2013
4	Contractor Selection	4 wks	4/30/2013	5/27/2013
5	Equipment Procurement	4 wks	8/22/2013	9/18/2013
6	Verificaton of KDHE Radiological Survey	5 wks	8/5/2013	9/6/2013
7	**Facility Investigation**	35 days	9/23/2013	11/8/2013
8	Boring Advancement	4 wks	9/23/2013	10/18/2013
9	Laboratory Analysis	3 wks	10/21/2013	11/8/2013
10	**RCRA Closure Investigation**	**35 days**	**9/23/2013**	**11/8/2013**
11	Boring Advancement	4 wks	9/23/2013	10/18/2013
12	Laboratory Analysis	3 wks	10/21/2013	11/8/2013
13	**Data Analysis**	4 wks	11/11/2013	12/6/2013
14	**RFI Reporting**	8 wks	12/9/2013	1/31/2014
15	**Recommendations for Monitoring Well Locations**	1 day	2/3/2014	2/3/2014



Cameron-Cole
5777 CENTRAL AVENUE, SUITE 200
BOULDER, COLORADO 80301
PHONE: (303) 938-5500 FAX: (303) 938-5520
http://www.cameron-cole.com

FIGURE 14

RFI WORK PLAN IMPLEMENTATION SCHEDULE
Clean Harbor Facility
Wichita, Kansas

SCALE:	DATE:	PROJECT:
Graph	8/21/13	1808

Phase IV RCRA Facility Investigation
Quality Assurance Project Plan

Prepared for:
Clean Harbors Kansas (Wichita), Inc.
2549 New York Avenue, Wichita, Kansas
EPA Identification No KSD007246846

Prepared by:
Cameron-Cole, LLC

May 3, 2013

This quality assurance project plan (QAPP) has been prepared to ensure that environmental and related data collected, compiled, and/or generated for this project are complete, accurate, and of the type, quantity, and quality required for their intended use.

Approvals:

08/29/2013

Mike Stephenson
Senior Technical Advisor
Cameron-Cole

Date

08/29/2013

Anthony Carmeli
Field Supervisor
Cameron-Cole

Date

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Approvals:

Mike Stephenson Digitally signed by Mike Stephenson DN: cn=Mike Stephenson, o=Cameron-Cole LLC, ou, email=mstephenson@cameron-cole.com, c=US Date: 2013.08.27 10:12:38 -07'00'

Mike Stephenson
Senior Technical Advisor
Cameron-Cole

Date

Anthony Carmeli Digitally signed by Anthony Carmeli DN: cn=Anthony Carmeli, o=Cameron-Cole, LLC, ou, email=tcarmeli@cameron-cole.com, c=US Date: 2013.08.27 09:38:36 -06'00'

Anthony Carmeli
Field Supervisor
Cameron-Cole

Date

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Approvals:

Marty Smith — Aug 29, 2013

Marty Smith
Senior Project Manager
Director, Corrective Actions and Discontinued Operations
Clean Harbors

Date

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May 3, 2013

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Approvals:

Martin L Smith Digitally signed by Martin L Smith
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Date: 2013.08.27 12:49:43 -05'00'

Marty Smith
Senior Project Manager
Director, Corrective Actions and Discontinued Operations
Clean Harbors

Date