



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

NOV 04 2011

Mr. Christopher Powers
Project Manager
General Services Administration
1500 East Bannister Road
Kansas City, Missouri 64131

Dear Mr. Powers:

The U.S. Environmental Protection Agency has reviewed the June 2011 Utility Tunnel and Sump Limited Removal Activities Report, dated September 26, 2011, for the General Services Administration Bannister Federal Complex, located in Kansas City, Missouri. We are approving this report as written.

If you have any questions, please contact me at (913) 551-7566 or by email at hammerschmidt.ron@epa.gov. If I am not available, please contact Ron King, Technical Lead, at (913) 551-7568.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald F. Hammerschmidt".

Ronald F. Hammerschmidt, Ph.D.
Director
Environmental Services Division

June 2011 Building 4 Crawlspace Limited Removal Activities Report

General Services Administration
Bannister Road
Kansas City, Jackson County, Missouri

September 26, 2011

Terracon Project No. 02107144

Prepared for:

General Services Administration
Kansas City, Missouri

Prepared by:

Terracon Consultants, Inc.
Lenexa, Kansas

Offices Nationwide
Employee-Owned

Established in 1965
terracon.com

Terracon

September 26, 2011



General Services Administration
Heartland Region
1500 East Bannister Rd (6PME)
Kansas City, MO 64131

Attn: Mr. Kevin D Phillips, Computer Integrated Facilities Manager
Phone: 816.926.1140
Email: kevin.phillips@gsa.gov

Re: June 2011 Building 4 Crawlspace Limited Removal Activities Report
Bannister Federal Complex
1500 East Bannister Road
Kansas City, Missouri 64131
Terracon Project Number: 02107144

Dear Mr. Phillips:

Terracon Consultants, Inc. (Terracon) is pleased to submit this report summarizing the limited removal activities for the General Services Administration (GSA) Federal Complex Building 4 Crawlspace located at 1500 East Bannister Road, Kansas City, Missouri. The limited removal activities were conducted on June 16, 2011 through June 18, 2011. Services were performed in general accordance with Terracon's proposal (Proposal Number P02100887) dated September 23, 2010 and with Tetra Tech EM Inc.'s Final Work Plan and Quality Assurance Project Plan for Site Investigation and Limited Removal Action Activities dated September 1, 2010 and the subsequent addendums dated November November 24, 2010 and February 17, 2011.

We appreciate the opportunity to be of service and provide this information as part of the ongoing evaluation work at the Bannister Complex. If you have any questions regarding this report, please call us at 913-492-7777.

Sincerely,
Terracon Consultants, Inc.

Christopher S. Cast
Christopher S. Cast
Staff Environmental Scientist

Cindy A. Baldwin
Cindy A. Baldwin, CIH, LIH
Senior Industrial Hygienist

Gary A. Ganson
Gary A. Ganson, CIH, CSP
Senior Consultant

Wil King
Wil King, P.G. *for:*
Project Geologist

Copies to: Addressee (2)

Terracon Consultants, Inc. 13910 West 96th Terr Lenexa, Kansas 66215
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**JUNE 2011 BUILDING 4 CRAWLSPACE LIMITED REMOVAL ACTIVITIES REPORT
BANNISTER FEDERAL COMPLEX
GENERAL SERVICES ADMINISTRATION
1500 EAST BANNISTER ROAD
KANSAS CITY, MISSOURI 64131**

**TERRACON PROJECT NUMBER: 02107144
September 26, 2011**

A. PROJECT OVERVIEW

The GSA provided Terracon Consultants, Inc. (Terracon) with an Addendum to Final Work Plan and Quality Assurance Project Plan for Site Investigation and Limited Removal Action Activities prepared by Tetra Tech EM, Inc. (Tetra Tech) dated February 21, 2011. The addendum described limited cleanup actions that were to be performed in response to a Preliminary Assessment/Site Investigation (PA/SI) completed by a GSA vendor in 2008. The PA/SI report indicated concentrations of arsenic and lead in a soil sample collected from a stained area in the crawl space of Building 4. The identified arsenic and lead concentrations are at levels above the MDNR's Risk-Based Target Levels (RBTLs) for residential use. The PA/SI report recommended that the soil be removed from the crawl space.

Terracon originally proposed in Terracon Proposal No. P02100887 dated September 23, 2010 to utilize hand equipment to remove the previously identified soil impact and debris. Because the PA/SI report did not provide information concerning the exact location of the soil sample, Terracon's proposal included cleanup of a 600-square foot section of the crawl space floor in the area of the chilled water line shutoff (area that appeared to be stained).

During the Building 4 crawlspace air sampling activities on January 7, 2011 through January 9, 2011, Terracon observed suspect asbestos containing materials (ACMs). With the approval of GSA, Terracon collected four samples of loose debris from the floor of the crawlspace to analyze for asbestos. Laboratory analysis of the samples indicated a presence of asbestos in the debris material. The identification of ACM resulted in a modification to the cleanup plan to include removal of asbestos-containing debris from the crawlspace and air sampling to assess for levels of airborne asbestos fibers prior to initiating cleanup, during cleanup, and following cleanup.

B. SCOPE OF SERVICES

The following is an outline of Terracon's proposed scope of services:

Limited Removal Activities

In accordance with the Work Plan and/QAPP and the subsequent addendums, Terracon's provided services are described below. Services were provided in accordance with Terracon's proposal dated May 20, 2011.

Terracon procured W. R. King Contracting (contractor), a certified asbestos abatement contractor to conduct the limited removal activities in the Building 4 Crawlspace. The contractor conducted the limited removal activities according to U.S. Environmental Protection Agency (EPA) and Tetra Tech approved work methods developed by Terracon. Approved methods included the following: the use of a modified containment system placed under negative air pressure to prevent the release of asbestos to other areas of Building 4.

Air sampling was also conducted by Terracon prior to initiating limited removal activities, during limited removal activities, and following limited removal activities. The air samples were analyzed onsite by an analyst using phase contrast microscopy (PCM) following the National Institute for Occupational Safety and Health (NIOSH) Method 7400. In addition to air sampling, Terracon performed a final visual inspection of the crawlspace following limited removal activities performed by W. R. King Contracting.

Limited removal activities procedures were performed in accordance with the Approved Addendum No. 2 to the Final Workplan and Quality Assurance Project Plan for the Site Investigation and Limited Removal Activities completed by Tetra Tech and dated February 17, 2011.

Scope and Report Limitations

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar conditions in the same geographical area during the same time period. Terracon makes no other warranties, either express or implied, regarding the findings, conclusions or recommendations.

These services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal.

The level of effort and associated tasks completed for this assessment were limited to the scope of services outlined in our May 20, 2011 proposal and in accordance with Contract GS-10F-0256K. Terracon did not attempt to identify every potential exposure or hazard present in the client's operation.

The results, findings, and conclusions expressed in this report are based on information reported to Terracon by the client. Many factors such as workload, variations in work material composition, work processes, and weather conditions can affect member exposure concentrations and air monitoring results. The information contained in this report should not be relied upon to represent conditions that existed previously or at a later date. Terracon does not warrant the services of regulatory agencies, laboratories, or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied is made.

This report is prepared for the exclusive use of our client for the specific application to the project discussed and has been prepared in accordance with generally accepted industrial hygiene practices. In the event any changes in nature or location of processes, materials, or other conditions as outlined in this report are observed, the conclusions contained in this report cannot be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing by the industrial hygienist.

C. FIELD ACTIVITIES

C.1 Air Sampling Prior to Initiating Limited Removal Activities

On June 16, 2011, Terracon arrived onsite at Building 4 to conduct an air sampling event prior to initiating limited removal activities.

Air sampling was performed consistent with State of Missouri regulations following the National Institute of Occupational Safety and Health (NIOSH) Method 7400. Area air samples were collected over an approximately 2-hour period starting at approximately 1735 and ending at approximately 1955 hours. The sampling pumps were operated at approximately 9.5 liters per minute (Lpm) to allow for the collection of approximately 1320+ liters of air.

Sampling equipment consisted of high-volume air sampling pumps equipped with Tygon® tubing attached to twenty-five millimeter (mm) open-faced cassettes containing 0.8-micron mixed cellulose ester (MCE) membrane filters (sampling media) and cotton back-up pads. Pumps were placed in the office area located directly above the crawlspace, as described in the addendum dated February 17, 2011. Using aluminum tripods, sampling media was held at an approximate height of 4.5 to 5 feet above the floor, to approximate the breathing zone. The pumps were pre- and post-calibrated using a calibrated rotameter.

Terracon collected two (2) air samples from the office area located directly above the crawlspace. One sample was collected by the crawlspace entry and the second sample was collected on the west side of the office.

The air samples were collected and analyzed by Phase Contrast Microscopy (PCM) in accordance with State of Missouri regulations following the NIOSH method 7400. Results of pre-removal activities air samples were below the State of Missouri and Environmental Protection Agency (EPA) standard of 0.01 fibers per cubic centimeter of air. The PCM Air Sampling Results are attached in Appendix A.

C.2 Limited Removal Activities

On June 17, 2011, at approximately 1700 hours, W. R. King Contracting crewmembers arrived onsite at Building 4 to conduct the limited removal activities associated with the crawlspace located below the southeastern office space.

W. R. King Contracting crew included the following workers: Norm Selby, Russell Stallman, Jimmy Miller, and Scott Rinehart.

After arrival, crewmembers constructed a mini-containment with the following components:

- Six (6) mil poly
- Duct Tape
- Spray Adhesive
- Metal Framing Rods

Crewmembers constructed the mini-containment within the office space located directly above the crawlspace and created a “hallway” from the crawlspace entry to the exterior door located on the east wall in the southeast corner of the office space. The “hallway” was created by attaching the 6-mil poly to the metal framing rods and running it to and across the floor to create a sealed containment area.

Upon completion of the mini-containment “hallway,” crewmembers attached a High Efficiency Particulate Air (HEPA) filtration devise (negative air) to the mini-containment to create negative air pressure inside the mini-containment and crawlspace area. The negative air exhaust was vented outside the building through the double-doors located near the southeast corner of the building.

Crewmembers donned half-face air purifying respirators with HEPA filters and Tyvek® suits prior to entering the mini-containment and crawlspace. Crewmembers started the limited removal activities at approximately 1930 by double-bagging (2, 6-mil poly bags) and removing the bulk materials located within the crawlspace area. Bulk material were removed from the crawlspace and mini-containment area and placed in a covered trailer that was located just outside the entry to the mini-containment. The bulk material waste bags were wet wiped prior to removal and placement in the covered trailer.

After the bulk materials were removed from the crawlspace area the crewmembers wetted the ceiling, walls, and floor of the crawlspace area using Hudson Sprayers in order to scrape the suspect surfacing material and clean all surfaces within the crawlspace area. Using squeegees, brooms, shovels, HEPA wet/dry vacuum, and other hand use materials, crewmembers cleaned the ceiling, walls, and floor of the crawlspace area. Resulting waste was also double-bagged, removed from the crawlspace and mini-containment area and placed into the covered trailer. Waste bags were wet wiped prior to removal and placement in the covered trailer.

Crewmembers exited the crawlspace area and mini-containment at approximately 2245 and indicated that a final cleaning will be needed the following morning prior to a visual and air clearance.

Crewmembers returned to site and re-entered the mini-containment and crawlspace area at approximately 0810 on June 18, 2011 . Crewmembers re-wetted surfaces of the crawlspace area and conducted a final cleaning of the surfaces within the crawlspace area.

The crawlspace and mini-containment area passed a visual clearance by Terracon at approximately 0830 on June 18, 2011.

Crewmembers exited crawlspace and mini-containment area at approximately 0840.

Crewmembers completed the teardown of the mini-containment after Terracon indicated the final clearance air samples were below the State of Missouri and Environmental Protection Agency's (EPA) standard clearance level of 0.01 fibers per cubic centimeter of air. A full description of the air sampling performed after the limited removal activities is provided below in Section C.4.

Crewmembers and Terracon were offsite by 1315 on June 18, 2011.

Terracon has requested information regarding the final disposition of the bagged debris removed from the crawlspace from W.R. King Contracting. At the issuance of this report, Terracon has not received information regarding the final disposition of the bagged debris removed from the crawlspace.

C.3 Air Sampling During Limited Removal Activities

On June 17, 2011, Terracon arrived onsite at Building 4 to conduct an air sampling event outside of the containment area during the limited removal activities to assess the performance of the containment system.

Air sampling was performed consistent with State of Missouri regulations following the NIOSH Method 7400. Area samples were collected after a typical workday over an approximately 3.5-hour period starting at approximately 1930 and ending at approximately 2255 hours. The sampling pumps were operated at approximately 6.0 (Lpm) to allow for the collection of approximately 1200+ liters of air.

Sampling equipment consisted of high-volume air sampling pumps equipped with Tygon® tubing attached to twenty-five mm open-faced cassettes containing 0.8-micron MCE membrane filters and cotton back-up pads. Pumps were placed in the office area located directly above the crawlspace, as described in the addendum dated February 17, 2011 and near the negative air penetration into

Limited Removal Activities – Building 4 Crawlspace

Bannister Federal Complex ■ Kansas City, Missouri

September 26, 2011 ■ Terracon Project Number: 02107144



the containment area. Using aluminum tripods, sampling media was held at an approximate height of 4.5 to 5 feet above grade, to approximate the breathing zone. The pumps were pre- and post-calibrated using a rotameter.

Terracon collected three (3) air samples from the office area located directly above the crawlspace. The first sample was collected by the crawlspace entry, the second sample was collected at the west side of the office, and the third sample was collected by the office entry door near the negative air penetration into the containment area.

The air samples were collected and analyzed by PCM in accordance with State of Missouri regulations following NIOSH method 7400. Results of air samples collected during the limited removal activities were below the State of Missouri and EPA standard of 0.01 fibers per cubic centimeter of air. The PCM Air Sampling Results are attached in Appendix A.

C.4 Air Sampling After Limited Removal Activities (Clearance)

On June 18, 2011, Terracon conducted clearance air sampling after the crawlspace and mini-containment area passed a visual clearance.

Air sampling was performed consistent with State of Missouri regulations following the NIOSH Method 7400. Area samples were collected over an approximately 2.5-hour period starting at approximately 0900 and ending at approximately 1130 hours. The sampling pumps were operated at approximately 9.5 (Lpm) to allow for the collection of approximately 1320+ liters of air.

Sampling equipment consisted of high-volume air sampling pumps equipped with Tygon® tubing attached to twenty-five mm open-faced cassettes containing 0.8-micron MCE membrane filters and cotton back-up pads. Terracon collected four total air samples. Two air samples were collected from the office area located directly above the crawlspace in similar areas to approximate the air sampling conducted prior to the limited removal activities and two air samples were collected from inside the crawlspace area where the limited removal activities occurred. Using aluminum tripods, sampling media was held at an approximate height of 4.5 to 5 feet above grade, to approximate the breathing zone. The pumps were pre- and post-calibrated using a rotameter.

The air samples were collected and analyzed by PCM in accordance with State of Missouri regulations following the NIOSH method 7400. Results of final clearance air samples were below the State of Missouri and EPA standard of 0.01 fibers per cubic centimeter of air. The PCM Air Sampling Results are attached in Appendix A.

APPENDIX A

PCM AIR SAMPLING RESULTS



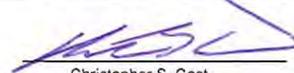
Fiber Count Worksheet

Client Name: General Services Administration
 Client Location: 1500 East Bannister Road
 Project Name: Limited Removal Activities - Building 4 Crawlspace
 Project Location: 1500 East Bannister Road
 Project No: 2107144
 Sample Set No.: 1
 City / State: Kansas City, Missouri
 Collected By: Christopher S. Cast
 City / State: Kansas City, Missouri
 Sample Date: 16-Jun-11

Blank Lab No.	Blank Field No.	Fibers	Fields	Avg. of Field Blanks	Analytical Method:	Filter ECA:															
3	BG-3	0	100		NIOSH 7400 Rev. 3, Issue 2 (8/15/94)	385 mm2															
4	BG-4	0	100	0	Microscope & I.D. No.: Olympus CH-2	Microscope Field Area:	0.00785 mm2														
					Rotameter No. 40																
					Cassette Lot#: 82088																
Lab. Sample No.	Field Sample No.	Type	Location	Activity	Fibers Not<(7)	Fields	Sample Fld.-Blank Fld Avg.	Fibers / mm ²	Flow Rate (L/min)			Sample Time (min)				Vol. (L)	CV*	LOQ (f/cc)	F/cc	Comments	
									Pre-	Post	Ave	24hr	Min	24hr	Min						Total
1	BG-1	1	By Crawlspace Entry - East Side of Office	1	7	100	7	8.9	9.5	9.5	9.5	17	35	19	55	140	1330	0.449	0.0026	0.0026	Actual Result = 3 Fibers
2	BG-2	1	West Side of Office	1	7	100	7	8.9	9.5	9.5	9.5	17	35	19	55	140	1330	0.449	0.0026	0.0026	Actual Result = 2.5 Fibers

Total Samples	Blind Count	<<Enter Lab Sample Number Here	7	100	7	8.9	0.00000	1.87711	9.5	19	180.5	0.449	0.0190	0.0190	Acceptable Variance
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Microscope Adjustments:	Sample Type:	Activity:
- Phase Test	1 OSWA = Outside Work Area	1 BKGD = Background
- Micrometer	2 IWA = Inside Work Area	2 REM = Removal
- Focus on Samples	3 P = Personal	3 CL = Clearance
- Adjust Field Iris	4 STEL = Short Term Exposure Limit	4 PA = Post Abatement
- Adjust Phase Rings	5 HEPEX = HEPA Exhaust	5 GB = Glovebag
	7 NA=PF = Not Analyzed / Pump Failure	6 B/O = Bag Out
	8 NA-OLF = Not Analyzed / Overloaded Filter	7 AMB = Ambient
	9 NA-WDF = Not Analyzed / Water Damaged Filter	8 PREP = Work Site Prep
		9 CU = Clean Up

Analyst:  Date: 17-Jun-11
 Typed Name: Christopher S. Cast
 Reviewed By: Gary A. Ganson Date: 18-Jul-11
 Detection Limit: 7 fibers/mm²
¹ Reanalyze All Samples
² Use 24 hour clock time (Military Time)

AIHA: LAB ID #: 157810



Fiber Count Worksheet

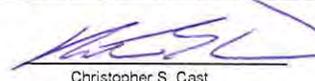
Client Name: General Services Administration
 Client Location: 1500 East Bannister Road City / State: Kansas City, Missouri
 Project Name: Limited Removal Activities - Building 4 Crawspace Collected By: Christopher S. Cast
 Project Location: 1500 East Bannister Road City / State: Kansas City, Missouri
 Project No: 2107144 Sample Date: 18-Jun-11
 Sample Set No.: 3

Blank Lab No.	Blank Field No.	Fibers	Fields	Avg. of Field Blanks	Analytical Method: NIOSH 7400 Rev. 3, Issue 2 (8/15/94)	Filter ECA: 385 mm2
5	CL-5	0	100		Microscope & LD. No.: Olympus CH-2	Microscope Field Area: 0.00785 mm2
6	CL-6	0	100	0	Rotameter No. 40	
					Cassette Lot#: 82088	

Lab. Sample No.	Field Sample No.	Type	Location	Activity	Fibers Not<(7)	Fields	Sample fld.- Blank fld Avg.	Fibers / mm ²	Flow Rate (L/min)			Sample Time (min)				Vol. (L)	CV*	LOQ (f/cc)	F/cc	Comments	
									Pre-	Post	Ave	24hr	Min	24hr	Min						Total
1	CL-1	1	By Crawspace Entry - East Side of Office	3	7	100	7	8.9	9.5	9.5	9.5	8	52	11	12	140	1330	0.449	0.0026	0.0026	Actual Result = 4 Fibers
2	CL-2	1	West Side of Office	3	7	100	7	8.9	9.5	9.5	9.5	8	52	11	12	140	1330	0.449	0.0026	0.0026	Actual Result = 3 Fibers
3	CL-3	2	In Crawspace - North End	3	7.5	100	7.5	9.6	9.5	9.5	9.5	9	12	11	32	140	1330	0.442	0.0026	0.0028	
4	CL-4	2	In Crawspace - South End	3	9	100	9	11.5	9.5	9.5	9.5	9	13	11	33	140	1330	0.421	0.0026	0.0033	

Total Samples	Blind Count	<<Enter Lab Sample Number Here	7	100	7	8.9	0.39983	1.93586	9.5	11	104.5	0.434	0.0328	0.0328	Acceptable Variance
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Microscope Adjustments:	Sample Type:	Activity:
- Phase Test	1 OSWA = Outside Work Area	1 BKGD = Background
- Micrometer	2 IWA = Inside Work Area	2 REM = Removal
- Focus on Samples	3 P = Personal	3 CL = Clearance
- Adjust Field Iris	4 STEL = Short Term Exposure Limit	4 PA = Post Abatement
- Adjust Phase Rings	5 HEPEX = HEPA Exhaust	5 GB = Glovebag
	6	6 B/O = Bag Out
	7 NA=PF = Not Analyzed / Pump Failure	7 AMB = Ambient
	8 NA-OLF = Not Analyzed / Overloaded Filter	8 PREP = Work Site Prep
	9 NA-WDF = Not Analyzed / Water Damaged Filter	9 CU = Clean Up

Analyst:  Date: 18-Jun-11
 Typed Name: Christopher S. Cast
 Reviewed By: Gary A. Ganson Date: 18-Jul-11
 Detection Limit: 7 fibers/mm²
¹ Reanalyze All Samples
^{24hr} Use 24 hour clock time (Military Time)

AIHA: LAB ID #: 157810

APPENDIX B

PHOTOGRAPHIC DOCUMENTATION

<p>PHOTO #1</p> <p>View of Background Sample Collected by Crawlspace Entry</p> <p>Sample BG-1</p>	
<p>PHOTO #2</p> <p>View of Background Sample Collected on West Side of Office Area</p> <p>Sample BG-2</p>	
<p>PHOTO #3</p> <p>View of W. R. King Contracting Crew Preparing Poly Hallway Leading to Crawlspace Entry</p>	

PHOTO #4

View of W. R. King Contracting Crew Preparing Poly Hallway Leading to Crawlspace Entry



PHOTO #5

View of Poly Hallway After Prepared by W.R. King Contracting Crew



PHOTO #6

View of Negative Air Machine Attached to Poly Hallway Leading to Crawlspace



PHOTO #7

View of Negative Air Exhaust Discharging in the Southern Parking Lot Associated with the Building.



PHOTO #8

View of Southern Portion of Crawlspace Prior to Limited Removal Activities



PHOTO #9

View of Southeast Corner of Crawlspace Prior to Limited Removal Activities



PHOTO #10

View of Southwestern Tunnel Area Associated with Crawlspace Prior to Limited Removal Activities



PHOTO #11

View of Area Near Stairs Leading to Northern Portion of Crawlspace Prior to Limited Removal Activities



PHOTO #12

View of Northern Portion of Crawlspace Prior to Limited Removal Activities



PHOTO #13

View of Debris Collection Trailer Parked to Southeast of Building 4



PHOTO #14

View of Air Sample Collected Near Crawlspace Entry During Limited Removal Activities



PHOTO #15

View of Air Sample Collected on West Side of Office Area During Limited Removal Activities



PHOTO #16

View of Air Sample Collected in South Hallway Near Negative Air Machine During Limited Removal Activities



PHOTO #17

View of Clearance Air Sample Collected on North End of Crawlspace After Limited Removal Activities



PHOTO #18

View of Clearance Air Sample Collected on South End of Crawlspace After Limited Removal Activities



PHOTO #19

View of Southern Portion of Crawlspace After Limited Activities



PHOTO #20

View of Southeast Corner of Crawlspace After Limited Removal Activities



PHOTO #21

View of Southwestern Tunnel Area Associated with Crawlspace After Limited Removal Activities



PHOTO #22

View of Area Near Stairs Leading to Northern Portion of Crawlspace After Limited Removal Activities



PHOTO #23

View of Northern Portion of Crawlspace After Limited Removal Activities



APPENDIX C

FIELD NOTES

PROJECT: GSA Building 4 Crawlspace Cleanup

Page 1 of 4

JOB NO. 02107144

Date 6-16-11

Comp. By CSC

CHECKED BY: _____

- Terracon arrived onsite at ~ 1715
 - Rob Monnig with Tetra Tech + Ron King with EPA already onsite upon Terracon arrival
- Discussed background sampling procedures with Rob + Ron prior to sample set-up
- Set up two high-volume pumps with two PCM cassettes in the office area of Building 4 with the crawlspace entry hatch

◦ Samples discussed below

Sample #	Pump #	Pc-Flow	Pst-Flow	Time On	Time Off	Avg Flow	Total Mins	Total Volume	Sample Description
BG-1	R7425	9.5 L/min	9.5 L/min	1735	1955	9.5 L/min	140	1330 L	By Crawlspace Entry - East Side of Office
BG-2	R7414	9.5 L/min	9.5 L/min	1735	1955	9.5 L/min	140	1330 L	West Side of Office

- Validity checks at 1835 + 1935
 - samples running + in same position
- Pulled samples and pumps as described above at 1955
- Terracon offsite at 2015

PROJECT: GSA Building 4 Crawlspace Cleanup

Page 2 of 4

JOB NO. 02107144

Date 6-17-11

Comp. By CSE

CHECKED BY: _____

- Terracon prepped air samples from 6-16-11 (background) for PCM analysis at ~ 1030 - ~ 1100
- Terracon read/analyzed samples from ~ 1100 - ~ 1200
- Sample results shown below

SAMPLE #	Fibers/Fields	Fibers/mm ²	Fibers/cc
BG-1	3/100	—	0.0026
BG-2	2.5/100	—	0.0026
BG-3	0/100	—	—
BG-4	0/100	—	—

- Terracon onsite at ~ 1700
 - WR King Contracting + Ron w/ EPA already onsite
- Crew decided to create a tunnel with poly from crawlspace entry to exterior door on east side of building
- Crew started set up at 1720 + Rob w/ TetraTech arrived
- Crew decided to use a negative air machine to pump cool office air into the crawlspace while ~~air~~ + a second negative air exhausting out double doors on southeast corner of building
- crew completed with setup of hallway + negative air at ~ 1850 → took break + got something to eat

- Terracon set up pumps between 1850 - 1935 as shown below

Sample #	Pump #	Pre-Flow	Post-Flow	Time on	Time off	Avg Flow	Total Mins	Total Volume	Sample Description
DW-1	3994	6.0 L/min	6.0 L/min	1930	2235	6.0	205	1230 L	By Crawlspace Entry
DW-2	R4388	6.0 L/min	6.0 L/min	1930	2255	6.0	205	1230 L	West Side of Office
DW-3	R7425	6.0 L/min	6.0 L/min	1935	2206	6.0	201	1206 L	By Negative Air Hookup Office Entry Door

- Crew includes Norm Selby, Russell Stallman, Jimmy ^{Miller} ~~Holton~~, Scott Rinehart
- Crew started cleanup at 1940 → Norm stayed out of containment
- crew ~~started~~ had bags of debris coming from crawlspace at ~ 2040
- crew completed with removal except final cleaning at ~ 2250
- Offsite at ~ 2300

PROJECT: GSA Building 4 Crawlspace Cleanup

Page 3 of 4

JOB NO. 02107144

Date 6-18-11

Comp. By CSE

CHECKED BY: _____

- Terracon onsite at ~0745

- Set up samples as noted below

Sample #	Pump #	Pre-Flow L/min	Post-Flow L/min	Time on	Time off	Avg Flow	Total Mins	Total Vol (L)	Sample Description
DW-6	3994	6.0	6.0	0747	0848	6.0	61	366	By Crawlspace Entry
DW-7	R4388	6.0	6.0	0747	0848	6.0	61	366	West Side of Office
DW-8	R7425	6.0	6.0	0749	0854	6.0	65	390	By Neg Air Hookup - Office Entry

- Crew back onsite at ~0800

• Willard + Scott Rinehart + Russell Stallman
King

- crew into crawlspace for cleanup at ~0810

- Terracon analyzed 6-17-11 samples → results shown below

SAMPLE #	FIBERS/FIELDS	FIBERS/mm ²	FIBERS/cc
DW-1	10 / 100	12.7	0.0040
DW-2	13 / 100	13	0.0052
DW-3	4 / 100	—	0.0028
DW-4	0 / 100	—	—
DW-5	0 / 100	—	—

- crew completed with final clean at ~0830 → passed visual by Terracon

• crew to wipe down poly hallway prior to Terracon running clearance samples

- Clearance Samples set up as follows

Sample #	Pump #	Pre-Flow L/min	Post-Flow L/min	Time On	Time Off	Avg Flow L/min	Total Mins	Total Vol	Description
CL-1	3994	9.5	9.5	0852	1112	9.5	140	1330	By Crawlspace Entry
CL-2	R4388	9.5	9.5	0852	1112	9.5	140	1330	West Side of Office
CL-3	R7425	9.5	9.5	0912	1132	9.5	140	1330	In Crawlspace North End
CL-4	R7414	9.5	9.5	0913	1133	9.5	140	1330	In Crawlspace South End
CL-5	—	—	—	—	—	—	—	—	Blank
CL-6	—	—	—	—	—	—	—	—	Blank

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CHECKED BY: _____

- Clearance samples analyzed + results shown below

SAMPLE #	FIBERS/FIELD	FIBERS/MM ²	FIBERS/CC
CL-1	4/100	—	0.0026
CL-2	3/100	—	0.0026
CL-3	7.5/100	9.6	0.0028
CL-4	9/100	11.5	0.0033
CL-5	0/100	—	—
CL-6	0/100	—	—

- Samples passed clearance level of 0.01 fibers/cc
- Terracon contacted Willard King with WR King Contracting, Rob Monrig with Tetra Tech, Wil King with Terracon, and Kevin Phillips with GSA and indicated clearance visual + air samples passed
- Crew returned at ~1220 to tear down
- Terracon + WR King Contracting offsite at ~1315

