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ENVIRONMENT

Linda Hanefeld
Remediation and Redevelopment Team Supervisor
Wisconsin Department of Natural Resources
South Central Region
3911 Fish Hatchery Rd
Fitchburg WI 53711

Subject:
Bi-Monthly Progress Report, Madison-Kipp Corporation (MKC) Site, 201 Waubesa Street, Madison, Wisconsin.

Date:
August 15, 2012

Contact:
Jennine Trask

Phone:
414.277.6203

Email:
Jennine.Trask@arcadis-us.com

Our ref:
WI001283.0006

Dear Ms. Hanefeld:

On behalf of MKC, this Bi-Monthly Progress Report provides a summary of the activities completed from July 28 through August 10, 2012 at the MKC site located at 201 Waubesa Street in Madison, Wisconsin (site).

Tasks Completed – July 28 through August 10, 2012

The following tasks were completed during the period of July 28 through August 10 2012 and are presented in chronological order.

- Weekly Phase I Soil Vapor Extraction (SVE) system monitoring and blower maintenance was performed by MKC personnel on July 30 and August 6, 2012. Data collected during the weekly and monthly Operation, Maintenance and Monitoring (OM&M) is included in Attachment A. Emissions from the SVE effluent were estimated to determine the need for carbon change-out. The emission tables are also included in Attachment A. A review of the table indicates the emission rates are several orders of magnitude lower than the NR445 Emission Threshold Values and therefore, carbon change-out is not currently scheduled. ARCADIS will continue to monitor the need for carbon change-out.

- Submitted *Results of Air Testing* letter dated July 31, 2012 to the resident at 226 South Marquette Street documenting the indoor air and sub-slab vapor split-sampling results. A copy of the *Results of Air Testing* letter was also provided to WDNR and the Wisconsin Department of Health Services.

- Participated in a conference call with the WDNR to discuss the *Work Plan for Supplemental Polychlorinated Biphenyl Investigation* on July 31, 2012. Received verbal approval from the WDNR during this conference call to initiate the *Work Plan for Supplemental Polychlorinated Biphenyl Investigation* and a request to perform additional residential backyard soil sampling.

- The WDNR issued the *Additional Soil Investigation Requirements* letter dated August 3, 2012 requesting additional residential backyard soil sampling.

- Completed on-site soil sampling in the southwest portion of the site on August 6, 2012.

- Submitted *Results of Air Testing* letter dated August 7, 2012 to the resident at 138 South Marquette Street documenting the indoor air and sub-slab vapor sampling results. A copy of the *Results of Air Testing* letter was also provided to WDNR and the Wisconsin Department of Health Services.

- Initiated investigation activities related to the *Work Plan for Supplemental Polychlorinated Biphenyl Investigation* at the site on August 8, 2012.

Tasks In-Progress

The following tasks are scheduled to be completed between August 11 and August 28, 2012.

- Investigation activities related to the *Work Plan for Supplemental Polychlorinated Biphenyl Investigation* with WDNR verbal approval.

- Investigations activities related to the *Additional Soil Investigation Requirements* letter from the WDNR dated August 3, 2012.

- Perform weekly and monthly Phase I SVE system OM&M activities.

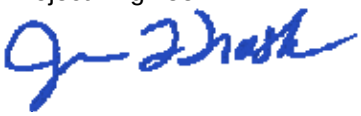
- Complete split sampling of the WDNR indoor and sub-slab vapor sampling, depending on schedule.

- Participate in bi-weekly conference calls with the WDNR.

If you have any questions or require any additional information, please contact us at 414.276.7742.

Sincerely,
ARCADIS U.S., Inc.

Christopher D. Kubacki, PE
Project Engineer



Jennine L. Trask, PE
Project Manager

Attachments:
A SVE System Data Tables

Copies:
David Crass – Michael Best
Bradley Grams & Peter Ramanauskas, EPA Region V (electronic)
Mark Meunier – Madison Kipp
Steve Tinker – Wisconsin Department of Justice (electronic)
Mike Schmoller – WDNR (electronic)

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Attachment A

SVE System Data Tables

Table 1. Phase I SVE System Analytical Data, Madison-Kipp Corporation, Madison, Wisconsin.

Well/Boring	Effluent			Influent	Effluent	Influent	Effluent
Sample Date	3/9/2012	3/10/2012	3/11/2012	3/16/2012	3/16/2012	3/23/2012	3/23/2012
1,1-Dichloroethene	<0.15	<0.3	<0.3	<2.1	<0.03	<1.5	<0.045
1,2,4-Trimethylbenzene	<0.26	<0.52	<0.52	<3.6	**0.17 J**	<2.6	**0.079 J**
1,2-Dichloroethane	<0.16	<0.31	<0.31	<2.2	<0.031	<1.6	<0.047
1,3,5-Trimethylbenzene	<0.26	<0.51	<0.51	<3.6	**0.069 J**	<2.6	<0.077
1,4-Dichlorobenzene	<0.22	<0.44	<0.44	<3.1	**0.049 J**	<2.2	<0.066
Benzene	<0.09	<0.18	<0.18	<1.3	**0.71**	<0.9	**0.69**
Chloroethane	<0.08	<0.16	<0.16	<1.1	<0.016	<0.8	<0.024
Chloroform	<0.16	<0.31	<0.31	<2.2	<0.031	<1.6	<0.047
Chloromethane	**5.2**	**0.86 J**	<0.13	<0.91	**0.30 J**	<0.65	**0.65 J**
cis-1,2-Dichloroethene	<0.07	<0.14	<0.14	**78**	**0.5**	**190**	**14**
Dichlorodifluoromethane	<0.19	**0.94 J**	**0.56 J**	<2.6	**0.55**	<1.9	**0.44 J**
Ethylbenzene	<0.11	<0.22	<0.22	<1.5	**0.084 J**	<1.1	<0.033
Methylene Chloride	<0.065	<0.13	<0.13	<0.91	**0.26 J B**	<0.65	**0.50 J**
Styrene	<0.15	<0.3	<0.3	<2.1	<0.03	<1.5	<0.045
Tetrachloroethene	<0.055	<0.11	<0.11	**1500**	**14**	**1900**	**38**
Toluene	**0.23 J**	**0.32 J**	**0.22 J**	<1.3	**0.33**	**1.0 J**	**0.14 J**
Trichloroethene	<0.15	<0.3	<0.3	**76**	**0.2**	**130**	**1.2**
Trichlorofluoromethane	<0.17	<0.34	<0.34	<2.4	**0.21**	<1.7	**0.18 J**
Vinyl chloride	<0.15	**10**	**13**	**16**	**18**	**37**	**33**
Xylene (total)	<0.11	<0.22	<0.22	<1.5	**0.53**	<1.1	**0.17 J**
Xylene, o-	<0.11	<0.22	<0.22	<1.5	**0.17 J**	<1.1	**0.052 J**

Only detected constituents are noted. Constituent concentrations are reported as ppbv.
The system operates with the dilution air valve 50 percent open to maintain system operation within maximum range of blower vacuum.
Influent sampling began on 3/16/12 to evaluate the effectiveness of carbon treatment.
System sampling occurred daily for the first three days of startup, weekly for the next three weeks, and monthly thereafter.

< Constituent not detected above noted laboratory detection limit.
-- Not monitored or sampled.
B Compound was found in the blank and sample.
Bold Constituent detected above laboratory detection limit.
J Constituent concentration is an approximate value.
ppbv Parts per billion by volume.

Table 1. Phase I SVE System Analytical Data, Madison-Kipp Corporation, Madison, Wisconsin.

Well/Boring	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Sample Date	3/30/2012	3/30/2012	4/11/2012	4/11/2012	5/9/2012	5/9/2012	6/14/2012	6/12/2012
1,1-Dichloroethene	<1.5	<0.12	<4	**0.16 J**	<4	<1.2	<5	<1.4
1,2,4-Trimethylbenzene	**5.7 J**	**2.4**	<0.98	<0.021	<4	<1.2	<5	<1.4
1,2-Dichloroethane	<1.6	<0.12	<0.84	<0.018	<4	<1.2	<5	<1.4
1,3,5-Trimethylbenzene	<2.6	**0.69 J**	<0.89	<0.019	<4	<1.2	<5	<1.4
1,4-Dichlorobenzene	<2.2	<0.18	<0.84	<0.018	<4	<1.2	<5	<1.4
Benzene	<0.9	**0.57 J**	**11**	**0.15 J**	<4	<1.2	<5	<1.4
Chloroethane	<0.8	**0.56 J**	<1.5	<0.033	<10	<3	<13	<3.5
Chloroform	<1.6	<0.12	<1.1	**0.037 J**	<4	<1.2	<5	<1.4
Chloromethane	<0.65	**0.87 J**	<1.6	**0.6**	<10	<3	<13	<3.5
cis-1,2-Dichloroethene	**150**	**17**	**240**	**19**	**170**	**230**	**150**	**180**
Dichlorodifluoromethane	<1.9	**0.73 J**	<0.94	**0.47 J**	<10	<3	<13	<3.5
Ethylbenzene	**2.2 J**	**0.66 J**	<0.7	<0.015	<4	<1.2	<5	<1.4
Methylene Chloride	<0.65	**0.62 J**	**2.5 J B**	**0.16 J B**	<10	<3	<13	<3.5
Styrene	<1.5	<0.12	<0.52	<0.011	<4	<1.2	<5	<1.4
Tetrachloroethene	**890**	**98**	**700**	**0.16 J**	**440**	**36**	**580**	<1.4
Toluene	**6.1 J**	**2.7**	**1.2 J**	<0.014	<4	**2**	<5	**2.2**
Trichloroethene	**100**	**4.4**	**110**	**0.061 J**	**80**	**3**	**71**	**8.7**
Trichlorofluoromethane	<1.7	<0.14	<0.98	**0.12 J**	<4	<1.2	<5	<1.4
Vinyl chloride	**34**	**31**	**8.7 J**	**7.6**	<4	**3**	<5	<1.4
Xylene (total)	**10**	**3.5**	<0.75	<0.016	<4	<1.2	<5	**1.4**
Xylene, o-	**3.1 J**	**1.1**	<0.75	<0.016	<4	<1.2	<5	<1.4

Only detected constituents are noted. Constituent concentrations are reported as ppbv.
The system operates with the dilution air valve 50 percent open to maintain system operation within maximum range of blower vacuum.
Influent sampling began on 3/16/12 to evaluate the effectiveness of carbon treatment.
System sampling occurred daily for the first three days of startup, weekly for the next three weeks, and monthly thereafter.

< Constituent not detected above noted laboratory detection limit.
-- Not monitored or sampled.
B Compound was found in the blank and sample.
Bold Constituent detected above laboratory detection limit.
J Constituent concentration is an approximate value.
ppbv Parts per billion by volume.

Table 1. Phase I SVE System Analytical Data, Madison-Kipp Corporation, Madison, Wisconsin.

Well/Boring	Influent	Effluent
Sample Date	7/10/2012	7/10/2012
1,1-Dichloroethene	<7.3	<0.4
1,2,4-Trimethylbenzene	<7.3	**2**
1,2-Dichloroethane	<7.3	**1.2**
1,3,5-Trimethylbenzene	<7.3	**0.62**
1,4-Dichlorobenzene	<7.3	**1.5**
Benzene	<7.3	**0.41**
Chloroethane	<18	<1
Chloroform	<7.3	**0.67**
Chloromethane	<18	**1.1**
cis-1,2-Dichloroethene	**190**	**65**
Dichlorodifluoromethane	<18	<1
Ethylbenzene	<7.3	**1.1**
Methylene Chloride	<18	**1.4**
Styrene	<7.3	**0.84**
Tetrachloroethene	**650**	<0.4
Toluene	<7.3	**12**
Trichloroethene	**96**	**3.4**
Trichlorofluoromethane	<7.3	<0.4
Vinyl chloride	<7.3	**2.4**
Xylene (total)	<7.3	**4.1**
Xylene, o-	<7.3	**1.1**

Only detected constituents are noted. Constituent concentrations are reported as ppbv.
The system operates with the dilution air valve 50 percent open to maintain system operation within maximum range of blower vacuum.
Influent sampling began on 3/16/12 to evaluate the effectiveness of carbon treatment.
System sampling occurred daily for the first three days of startup, weekly for the next three weeks, and monthly thereafter.

<	Constituent not detected above noted laboratory detection limit.
--	Not monitored or sampled.
B	Compound was found in the blank and sample.
Bold	Constituent detected above laboratory detection limit.
J	Constituent concentration is an approximate value.
ppbv	Parts per billion by volume.

Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-1	3/9/12	-6.5	-88.4	20	109.7[1]
SVE-1	3/9/12	-5.5	-74.8	30	47.4[2]
SVE-1	3/10/12	-6	-81.6	30	27.3
SVE-1	3/11/12	-6	-81.6	30	25.1
SVE-1	3/16/12	-5.5	-74.8	20	15.9
SVE-1	3/23/12	-6	-81.6	25	--
SVE-1	3/23/12	-6	-81.6	25	13.5
SVE-1	3/29/12[3]	-3	-40.8	20	--
SVE-1	3/29/12[4]	-4	-54.4	30	--
SVE-1	3/30/12	-5	-68.0	25	14.8
SVE-1	4/11/12	-5	-68.0	25	14.1
SVE-1	4/16/12	-5	-68.0	25	--
SVE-1	4/23/12	-5	-68.0	100	--
SVE-1	4/30/12	-5	-68.0	30	--
SVE-1	5/7/12	-5	-68.0	10	--
SVE-1	5/9/12	-5	-68.0	30	4.3
SVE-1	5/14/12	-5	-68.0	30	--
SVE-1	5/21/12	-5	-68.0	10	--
SVE-1	5/30/12	-4	-54.4	20	--
SVE-1	6/4/12	-5	-68.0	30	--
SVE-1	6/11/12	-5	-68.0	30	--
SVE-1	6/12/12	-4.5	-61.2	28	6
SVE-1	6/14/12	-3.5	-47.6	22	--
SVE-1	6/18/12	-2	-27.2	20	--
SVE-1	6/25/12	-2	-27.2	10	--
SVE-1	7/2/12	-2	-27.2	20	--
SVE-1	7/9/12	-2	-27.2	20	--
SVE-1	7/10/12	-2	-27.2	18	12.6
SVE-1	7/16/12	-2	-27.2	20	--
SVE-1	7/23/12	-2	-27.2	20	--
SVE-1	7/30/12	-2	-27.2	20	--
SVE-1	8/6/12	-2	-27.2	20	--
SVE-2	3/9/12	-3	-40.8	40	105.8[1]
SVE-2	3/9/12	-4	-54.4	60	11.5[2]
SVE-2	3/10/12	-3.5	-47.6	55	10.3
SVE-2	3/11/12	-3.5	-47.6	50	8.2
SVE-2	3/16/12	-3.5	-47.6	50	5.3
SVE-2	3/23/12	-3.25	-44.2	40	--
SVE-2	3/23/12	-3.25	-44.2	40	6.1
SVE-2	3/29/12[3]	-1.5	-20.4	25	--
SVE-2	3/29/12[4]	-2.5	-34.0	37	--
SVE-2	3/30/12	-3	-40.8	40	6.9
SVE-2	4/11/12	-2.5	-34.0	35	6.3
SVE-2	4/16/12	-2.5	-34.0	40	--
SVE-2	4/23/12	-2.5	-34.0	120	--
SVE-2	4/30/12	-3	-40.8	40	--

Footnotes on Page 7.

Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-2	5/7/12	-2.5	-34.0	30	--
SVE-2	5/9/12	-3	-40.8	35	2.6
SVE-2	5/14/12	-3	-40.8	50	--
SVE-2	5/21/12	-2.5	-34.0	45	--
SVE-2	5/30/12	-2.5	-34.0	40	--
SVE-2	6/4/12	-3	-40.8	45	--
SVE-2	6/11/12	-2.5	-34.0	45	--
SVE-2	6/12/12	-2.5	-34.0	40	6.6
SVE-2	6/14/12	-3.5	-47.6	25	--
SVE-2	6/18/12	-1	-13.6	20	--
SVE-2	6/25/12	-1	-13.6	20	--
SVE-2	7/2/12	<1[5]	NM	20	--
SVE-2	7/9/12	-1	-13.6	20	--
SVE-2	7/10/12	-1	-13.6	20	8.8
SVE-2	7/16/12	<1[5]	NM	10	--
SVE-2	7/23/12	<1[5]	NM	20	--
SVE-2	7/30/12	-1	-13.6	10	--
SVE-2	8/6/12	<1[5]	NM	20	--
SVE-3	3/9/12	-2.25	-30.6	60	85.3[1]
SVE-3	3/9/12	-3	-40.8	85	5.92[2]
SVE-3	3/10/12	-2.5	-34.0	80	6.1
SVE-3	3/11/12	-2.5	-34.0	75	4.5
SVE-3	3/16/12	-2.5	-34.0	60	1.6
SVE-3	3/23/12	-3	-40.8	60	--
SVE-3	3/23/12	-3	-40.8	60	4.4
SVE-3	3/29/12[3]	-2	-27.2	30	--
SVE-3	3/29/12[4]	-2.5	-34.0	50	--
SVE-3	3/30/12	-4	-54.4	50	6.1
SVE-3	4/11/12	-3	-40.8	50	4.9
SVE-3	4/16/12	-2.5	-34.0	50	--
SVE-3	4/23/12	-2.5	-34.0	140	--
SVE-3	4/30/12	-2.6	-35.3	50	--
SVE-3	5/7/12	-3	-40.8	50	--
SVE-3	5/9/12	-3	-40.8	40	5.9
SVE-3	5/14/12	-3	-40.8	50	--
SVE-3	5/21/12	-3	-40.8	50	--
SVE-3	5/30/12	-3.5	-47.6	50	--
SVE-3	6/4/12	-3	-40.8	50	--
SVE-3	6/11/12	-2.5	-34.0	50	--
SVE-3	6/12/12	-2.25	-30.6	50	9.3
SVE-3	6/14/12	-2	-27.2	40	--
SVE-3	6/18/12	-1	-13.6	20	--
SVE-3	6/25/12	-1	-13.6	25	--
SVE-3	7/2/12	-1	-13.6	20	--
SVE-3	7/9/12	-1	-13.6	20	--
SVE-3	7/10/12	-1	-13.6	21	7.6

Footnotes on Page 7.

Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-3	7/16/12	-1	-13.6	20	--
SVE-3	7/23/12	<1[5]	NM	20	--
SVE-3	7/30/12	-1	-13.6	20	--
SVE-3	8/6/12	<1[5]	NM	25	--
SVE-4	3/9/12	-6.5	-88.4	32.5	105.1[1]
SVE-4	3/9/12	-6.5	-88.4	32	5.1[2]
SVE-4	3/10/12	-6.5	-88.4	30	2.1
SVE-4	3/11/12	-6.5	-88.4	28	5.2
SVE-4	3/16/12	-7	-95.2	28	3.1
SVE-4	3/23/12	-8	-108.8	27	--
SVE-4	3/23/12	-7	-95.2	27	9.7
SVE-4	3/29/12[3]	-3.5	-47.6	25	--
SVE-4	3/29/12[4]	-4.5	-61.2	30	--
SVE-4	3/30/12	-7	-95.2	25	10.3
SVE-4	4/11/12	-4	-54.4	20	10
SVE-4	4/16/12	-7.5	-102.0	17	--
SVE-4	4/23/12	-7.5	-102.0	20	--
SVE-4	4/30/12	-7.6	-103.3	27	--
SVE-4	5/7/12	-7	-95.2	18	--
SVE-4	5/9/12	-7	-95.2	18	9.4
SVE-4	5/14/12	-7	-95.2	20	--
SVE-4	5/21/12	-7	-95.2	30	--
SVE-4	5/30/12	-7	-95.2	33	--
SVE-4	6/4/12	-7	-95.2	30	--
SVE-4	6/11/12	-7	-95.2	30	--
SVE-4	6/12/12	-7	-95.2	23	8.3
SVE-4	6/14/12	-5.75	-78.2	23	--
SVE-4	6/18/12	-4	-54.4	17	--
SVE-4	6/25/12	-4	-54.4	18	--
SVE-4	7/2/12	-4	-54.4	18	--
SVE-4	7/9/12	-4	-54.4	20	--
SVE-4	7/10/12	-4.2	-57.1	22	9.8
SVE -4	7/16/12	-5	-68.0	20	--
SVE-4	7/23/12	-4	-54.4	18	--
SVE-4	7/30/12	-4	-54.4	18	--
SVE-4	8/6/12	-4	-54.4	18	--
SVE-5	3/9/12	-6.5	-88.4	35	47.2[1]
SVE-5	3/9/12	-6.5	-88.4	34	15.0[2]
SVE-5	3/9/12	-0.49	-6.7	0	--
SVE-5	3/10/12	-6.5	-88.4	33	10.8
SVE-5	3/11/12	-6.5	-88.4	32	3.6
SVE-5	3/16/12	-6	-81.6	34	2.9
SVE-5	3/23/12	-7	-95.2	32	--
SVE-5	3/23/12	-6	-81.6	32	3

Footnotes on Page 7.

Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-5	3/29/12[3]	-4.5	-61.2	30	--
SVE-5	3/29/12[4]	-5.5	-74.8	37	--
SVE-5	3/30/12	-7	-95.2	35	2.8
SVE-5	4/11/12	-6	-81.6	27	3.3
SVE-5	4/16/12	-6	-81.6	27	--
SVE-5	4/23/12	-6	-81.6	25	--
SVE-5	4/30/12	-7	-95.2	38	--
SVE-5	5/7/12	-6	-81.6	26	--
SVE-5	5/9/12	-6	-81.6	27	1
SVE-5	5/14/12	-6	-81.6	27	--
SVE-5	5/21/12	-6	-81.6	28	--
SVE-5	5/30/12	-6	-81.6	38	--
SVE-5	6/4/12	-6	-81.6	35	--
SVE-5	6/11/12	-6	-81.6	35	--
SVE-5	6/12/12	-5.25	-71.4	30	3.6
SVE-5	6/14/12	-5	-68.0	29	--
SVE-5	6/18/12	-4	-54.4	22	--
SVE-5	6/25/12	-4	-54.4	22	--
SVE-5	7/2/12	-4	-54.4	22	--
SVE-5	7/9/12	-4	-54.4	22	--
SVE-5	7/10/12	-3.2	-43.5	30	5.3
SVE-5	7/16/12	-4	-54.4	25	--
SVE-5	7/23/12	-4	-54.4	20	--
SVE-5	7/30/12	-5	-68.0	15	--
SVE-5	8/6/12	-4	-54.4	20	--
SVE-6	3/9/12	-8.5	-115.6	19	37.5[1]
SVE-6	3/9/12	-8	-108.8	19	3.7[2]
SVE-6	3/10/12	-8	-108.8	20	1.3
SVE-6	3/11/12	-8	-108.8	20	2.8
SVE-6	3/16/12	-7.5	-102.0	16	1.9
SVE-6	3/23/12	-9	-122.4	--	--
SVE-6	3/23/12	-9	-122.4	17	2.2
SVE-6	3/29/12[3]	-6	-81.6	23	--
SVE-6	3/29/12[4]	-7	-95.2	24	--
SVE-6	3/30/12	-9	-122.4	17	2
SVE-6	4/11/12	-7	-95.2	17	2.3
SVE-6	4/16/12	-8	-108.8	5	--
SVE-6	4/23/12	-7.5	-102.0	19	--
SVE-6	4/30/12	-9	-122.4	25	--
SVE-6	5/7/12	-6	-81.6	18	--
SVE-6	5/9/12	-6	-81.6	13	0.5
SVE-6	5/14/12	-7	-95.2	15	--
SVE-6	5/21/12	-7	-95.2	25	--
SVE-6	5/30/12	-7	-95.2	24	--
SVE-6	6/4/12	-7	-95.2	20	--

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Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-6	6/11/12	-7	-95.2	20	--
SVE-6	6/17/12	-5	-68.0	15	--
SVE-6	6/23/12	-6	-81.6	15	--
SVE-6	6/12/12	-6.75	-91.8	16	3.1
SVE-6	6/12/12	-6	-81.6	15	
SVE-6	6/12/12	-6	-81.6	16	
SVE-6	6/14/12	-6	-81.6	19	--
SVE-6	6/18/12	-5	-68.0	15	--
SVE-6	6/25/12	-5	-68.0	15	--
SVE-6	7/2/12	-5	-68.0	15	--
SVE-6	7/9/12	-5	-68.0	15	--
SVE-6	7/10/12	-4.6	-62.6	21	3.9
SVE-6	7/16/12	-5	-68.0	15	--
SVE-6	7/23/12	-5	-68.0	15	--
SVE-6	7/30/12	-5	-68.0	13	--
SVE-6	8/6/12	-5	-68.0	12	--
SVE-7	3/9/12	-6	-81.6	40	96.2[1]
SVE-7	3/9/12	-5.5	-74.8	30	11.8[2]
SVE-7	3/10/12	-5.5	-74.8	30	10.5
SVE-7	3/11/12	-5.25	-71.4	30	7.3
SVE-7	3/16/12	-5.5	-74.8	30	3.6
SVE-7	3/23/12	-6	-81.6	35	--
SVE-7	3/23/12	-6	-81.6	35	3.4
SVE-7	3/29/12[3]	-3.5	-47.6	20	--
SVE-7	3/29/12[4]	-4	-54.4	30	--
SVE-7	3/30/12	-5	-68.0	30	3
SVE-7	4/11/12	-4	-54.4	25	7
SVE-7	4/16/12	-5	-68.0	25	--
SVE-7	4/23/12	-5	-68.0	120	--
SVE-7	4/30/12	-5	-68.0	30	--
SVE-7	5/7/12	-5	-68.0	25	--
SVE-7	5/9/12	-5	-68.0	30	0.6
SVE-7	5/14/12	-5	-68.0	30	--
SVE-7	5/21/12	-5	-68.0	40	--
SVE-7	5/30/12	-4	-54.4	30	--
SVE-7	6/4/12	-5	-68.0	40	--
SVE-7	6/11/12	-4	-54.4	40	--
SVE-7	6/12/12	-4.5	-61.2	35	4
SVE-7	6/14/12	-3.5	-47.6	25	--
SVE-7	6/18/12	-2.5	-34.0	20	--
SVE-7	6/25/12	-2	-27.2	15	--
SVE-7	7/2/12	-2	-27.2	20	--
SVE-7	7/9/12	-1	-27.2	20	--
SVE-7	7/10/12	-2.4	-32.4	16	4.9
SVE-7	7/16/12	-1	-13.6	10	--

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Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-7	7/23/12	-1	-13.6	20	--
SVE-7	7/30/12	-1	-13.6	20	--
SVE-7	8/6/12	-2	-27.2	20	--
SVE-8	3/9/12	-7	-95.2	30	34.2[1]
SVE-8	3/9/12	-7	-95.2	30	7.2[2]
SVE-8	3/10/12	-7	-95.2	31	4.3
SVE-8	3/11/12	-6.5	-88.4	33	6.7
SVE-8	3/16/12	-6.5	-88.4	32	2.4
SVE-8	3/23/12	-7	-95.2	35	--
SVE-8	3/23/12	-7	-95.2	35	2.5
SVE-8	3/29/12[3]	-5	-68.0	29	--
SVE-8	3/29/12[4]	-5.5	-74.8	35	--
SVE-8	3/30/12	-6	-81.6	37	2.9
SVE-8	4/11/12	-6	-81.6	27	2
SVE-8	4/16/12	-6	-81.6	25	--
SVE-8	4/23/12	-6	-81.6	25	--
SVE-8	4/30/12	-6	-81.6	40	--
SVE-8	5/7/12	-6	-81.6	25	--
SVE-8	5/9/12	-6	-81.6	27	0.5
SVE-8	5/14/12	-6	-81.6	27	--
SVE-8	5/21/12	-6	-81.6	38	--
SVE-8	5/30/12	-6	-81.6	38	--
SVE-8	6/4/12	-7	-95.2	35	--
SVE-8	6/11/12	-6	-81.6	35	--
SVE-8	6/12/12	-5.5	-74.8	28	3.4
SVE-8	6/14/12	-5	-68.0	27	--
SVE-8	6/18/12	-3	-40.8	18	--
SVE-8	6/25/12	-4	-54.4	20	--
SVE-8	7/2/12	-4	-54.4	18	--
SVE-8	7/9/12	-4	-54.4	20	--
SVE-8	7/10/12	-3.9	-53.0	24	4.3
SVE-8	7/16/12	-4	-54.4	22	--
SVE-8	7/23/12	-4	-54.4	20	--
SVE-8	7/30/12	-4	-54.4	20	--
SVE-8	8/6/12	-4	-54.4	18	--
SVE-9	3/9/12	-9.5	-129.2	13	196.1[1]
SVE-9	3/9/12	-9	-122.4	15	172.1[2]
SVE-9	3/10/12	-9	-122.4	15	144.5
SVE-9	3/11/12	-9	-122.4	15	131.2
SVE-9	3/16/12	-9	-122.4	15	26.3
SVE-9	3/23/12	-9.5	-129.2	17	--
SVE-9	3/23/12	-10	-136.0	17	29.7
SVE-9	3/29/12[3]	-7	-95.2	13	--
SVE-9	3/29/12[4]	-8.5	-115.6	17	--

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Table 2. Extraction Well Manifold Monitoring Data, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

		System Manifold			
Well ID	Date	Vacuum (in Hg)	Vacuum (in H_20)	Flow Rate (cfm)	VOCs (ppm)
SVE-9	3/30/12	-9	-122.4	17	30.6
SVE-9	4/11/12	-8.5	-115.6	13	5
SVE-9	4/16/12	-9	-122.4	7	--
SVE-9	4/23/12	-9	-122.4	4	--
SVE-9	4/30/12	-9	-122.4	22	--
SVE-9	5/7/12	-9	-122.4	8	--
SVE-9	5/9/12	-8	-108.8	13	4.3
SVE-9	5/14/12	-8	-108.8	10	--
SVE-9	5/21/12	-8	-108.8	25	--
SVE-9	5/30/12	-8	-108.8	25	--
SVE-9	6/4/12	-8	-108.8	22	--
SVE-9	6/11/12	-8	-108.8	22	--
SVE-9	6/12/12	-8	-108.8	18	6.9
SVE-9	6/14/12	-7.25	-98.6	17	--
SVE-9	6/18/12	-6	-81.6	12	--
SVE-9	6/25/12	-6	-81.6	14	--
SVE-9	7/2/12	-6	-81.6	12	--
SVE-9	7/9/12	-6	-81.6	15	--
SVE-9	7/10/12	-5.5	-74.8	17	12
SVE-9	7/16/12	-6	-81.6	15	--
SVE-9	7/23/12	-6	-81.6	15	--
SVE-9	7/30/12	-6	-81.6	13	--
SVE-9	8/6/12	-6	-81.6	12	--

Start system at 1:15 pm on March 9, 2012.
Vacuum measured with inline vacuum gauge in units of in Hg. Vacuum converted to in H_2O for comparison.
Extraction well flow rate measured with inline air flow meter.
VOCs measured with a PID (calibrated to 100 ppm isobutylene).

1	Vacuum measured at well head at 12:55 pm.
2	Vacuum measured at well head at 5:30 pm.
3	System restarted with make-up air value open 100 percent to reduce backpressure on blower.
4	Make-up air valve closed to 50 percent open to continue operation of system consistent with previous settings.
5	Vacuum measured at well head indicates influence is still being achieved at this well.
<1	Vacuum reading below minimum gauge reading of 1 inch of mercury. Vacuum gauge replaced on 8/1/12 so vacuum readings below 1 inch of mercury can be gauged.
--	Not monitored.
cfm	Cubic feet per minute.
in Hg	Inches of mercury.
in H_2O	Inches of water column.
NM	Not measurable.
PID	Photoionization detector.
ppm	Parts per million.
VOCs	Volatile organic compounds reported as isobutylene.

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Table 3. Estimate of Post-Carbon Emissions, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

Date	Total VOC Concentration [1]	System Flow Rate	Emission Rate [2]
	µg/m^3	cfm	lb/hr
3/9/2012 [3]	16.03	450	--
3/10/2012	43.89	450	7.39E-05
3/11/2012	47.07	450	7.93E-05
3/16/2012	154.42	450	2.60E-04
3/23/2012	418.29	450	7.05E-04
3/30/2012 [4]	887.68	450	1.50E-03
4/11/2012	101.77	450	1.71E-04
5/9/2012	1,250.95	450	2.11E-03
6/12/2012	775.20	450	1.31E-03
7/10/2012	400.50	450	6.75E-04
		Average Emission Rate =	**7.63E-04** **lb/hr**
		NR 445 Emission Threshold =	**5.7** **lb/hr**

[1] Total VOC concentration was based on the sum of all detected analyte concentrations in post-carbon effluent samples for dates shown. When compounds are not detected above the laboratory reporting limit, emissions are calculated using 1/2 the reporting limit.

[2] Emission rates were determined using the following equation:

$$\text{Emission Rate} = \text{Conc.} * \text{Flow Rate} * 60 \text{ min/hr} * (1 \text{ m}^3/35.31 \text{ ft}^3) * (1 \text{ lb}/4.54\text{x}10^8 \text{ µg})$$

[3] Phase I SVE system began operation on 3/9/12.

[4] System was shut down between 3/24/12 and 3/29/12.

cfm	Cubic feet per minute.
lb/hr	Pounds per hour.
µg/m^3	Micrograms per cubic meter.
VOC	Volatile organic compound.

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Table 4. Estimate of Post-Carbon Emissions of cis-1,2-Dichloroethene, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

Date	Total cis-1,2-DCE Concentration [1]	System Flow Rate	Emission Rate [2]	Percent of NR 445 Emission Threshold [5]
	µg/m^3	cfm	lb/hr	%
3/9/2012 [3]	0.14	450	--	--
3/10/2012	0.28	450	4.72E-07	2.84E-07
3/11/2012	0.28	450	4.72E-07	2.84E-07
3/16/2012	2.0	450	3.37E-06	2.03E-06
3/23/2012	57	450	9.60E-05	5.78E-05
3/30/2012 [4]	69	450	1.16E-04	7.00E-05
4/11/2012	75	450	1.26E-04	7.61E-05
5/9/2012	930	450	1.57E-03	9.44E-04
6/12/2012	720	450	1.21E-03	7.31E-04
7/10/2012	260	450	4.38E-04	2.64E-04
		Average Emission Rate =	**3.96E-04**	**lb/hr**
		NR 445 Emission Threshold =	**166**	**lb/hr**

[1] VOC concentration was based on the detected analyte concentration in post-carbon effluent samples for dates shown. When compound was not detected above the laboratory reporting limit, emissions were calculated using 1/2 the reporting limit.

[2] Emission rates were determined using the following equation:

Emission Rate = Conc. * Flow Rate * 60 min/hr * (1 m^3/35.31 ft^3) * (1 lb/4.54x10^8 µg)

[3] Phase I SVE system began operation on 3/9/12.

[4] System was shut down between 3/24/12 and 3/29/12.

[5] Post-carbon emissions presented as a percentage of the threshold level using the following equation:

Percent of Threshold = (Emission rate / NR 445 Emission Threshold) * 100

cfm	Cubic feet per minute.
lb/hr	Pounds per hour.
µg/m^3	Micrograms per cubic meter.
cis-1,2-DCE	cis-1,2-Dichloroethene

ARCADIS

Table 5. Estimate of Post-Carbon Emissions of Tetrachloroethene, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

Date	Total PCE Concentration [1]	System Flow Rate	Emission Rate [2]	Percent of NR 445 Emission Threshold [5]
	µg/m^3	cfm	lb/hr	%
3/9/2012 [3]	0.19	450	--	--
3/10/2012	0.38	450	6.32E-07	1.78E-06
3/11/2012	0.38	450	6.32E-07	1.78E-06
3/16/2012	93	450	1.57E-04	4.42E-04
3/23/2012	260	450	4.38E-04	1.24E-03
3/30/2012 [4]	660	450	1.11E-03	3.14E-03
4/11/2012	1.1	450	1.85E-06	5.23E-06
5/9/2012	240	450	4.04E-04	1.14E-03
6/12/2012	9.4	450	1.58E-05	4.47E-05
7/10/2012	2.7	450	4.55E-06	1.28E-05
		Average Emission Rate =	**2.37E-04**	**lb/hr**
		NR 445 Emission Threshold =	**35.4**	**lb/hr**

[1] VOC concentration was based on the detected analyte concentration in post-carbon effluent samples for dates shown. When compound was not detected above the laboratory reporting limit, emissions were calculated using 1/2 the reporting limit.

[2] Emission rates were determined using the following equation:

Emission Rate = Conc. * Flow Rate * 60 min/hr * (1 m^3/35.31 ft^3) * (1 lb/4.54x10^8 µg)

[3] Phase I SVE system began operation on 3/9/12.

[4] System was shut down between 3/24/12 and 3/29/12.

[5] Post-carbon emissions presented as a percentage of the threshold level using the following equation:

Percent of Threshold = (Emission rate / NR 445 Emission Threshold) * 100

cfm	Cubic feet per minute.
lb/hr	Pounds per hour.
µg/m^3	Micrograms per cubic meter.
PCE	Tetrachloroethene.

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Table 6. Estimate of Post-Carbon Emissions of Trichloroethene, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

Date	Total TCE Concentration [1]	System Flow Rate	Emission Rate [2]	Percent of NR 445 Emission Threshold [5]
	µg/m^3	cfm	lb/hr	%
3/9/2012 [3]	0.41	450	--	--
3/10/2012	0.80	450	1.35E-06	2.40E-06
3/11/2012	0.80	450	1.35E-06	2.40E-06
3/16/2012	1.1	450	1.85E-06	3.30E-06
3/23/2012	6.5	450	1.09E-05	1.95E-05
3/30/2012 [4]	24	450	4.04E-05	7.21E-05
4/11/2012	0.3	450	5.56E-07	9.91E-07
5/9/2012	16	450	2.69E-05	4.80E-05
6/12/2012	47	450	7.92E-05	1.41E-04
7/10/2012	19	450	3.20E-05	5.70E-05
		Average Emission Rate =	**2.16E-05**	**lb/hr**
		NR 445 Emission Threshold =	**56.1**	**lb/hr**

[1] VOC concentration was based on the detected analyte concentration in post-carbon effluent samples for dates shown. When compound was not detected above the laboratory reporting limit, emissions were calculated using 1/2 the reporting limit.

[2] Emission rates were determined using the following equation:

Emission Rate = Conc. * Flow Rate * 60 min/hr * (1 m^3/35.31 ft^3) * (1 lb/4.54x10^8 µg)

[3] Phase I SVE system began operation on 3/9/12.

[4] System was shut down between 3/24/12 and 3/29/12.

[5] Post-carbon emissions presented as a percentage of the threshold level using the following equation:

Percent of Threshold = (Emission rate / NR 445 Emission Threshold) * 100

cfm	Cubic feet per minute.
lb/hr	Pounds per hour.
µg/m^3	Micrograms per cubic meter.
TCE	Trichloroethene.

ARCADIS

Table 7. Estimate of Post-Carbon Emissions of Vinyl Chloride, Phase I SVE System, Madison-Kipp Corporation, Madison, Wisconsin.

Date	Total VC Concentration [1]	System Flow Rate	Emission Rate [2]	Percent of NR 445 Emission Threshold [5]
	µg/m^3	cfm	lb/yr	%
3/9/2012 [3]	0.19	450	--	--
3/10/2012	27	450	0.398	0.05
3/11/2012	34	450	0.502	0.06
3/16/2012	45	450	0.664	0.08
3/23/2012	84	450	1.239	0.15
3/30/2012 [4]	79	450	1.166	0.14
4/11/2012	19	450	0.280	0.03
5/9/2012	7.7	450	0.114	0.01
6/12/2012	3.5	450	0.052	0.01
7/10/2012	6.0	450	0.089	0.01
		Average Emission Rate =	**0.500**	**lb/yr**
		NR 445 Emission Threshold =	**830**	**lb/yr**

[1] VOC concentration was based on the detected analyte concentration in post-carbon effluent samples for dates shown. When compound was not detected above the laboratory reporting limit, emissions were calculated using 1/2 the reporting limit.

[2] Emission rates were determined using the following equation:

Emission Rate = Conc. * Flow Rate * 60 min/hr * (1 m^3/35.31 ft^3) * (1 lb/4.54x10^8 µg) * 24 hr/day * 365 days/yr

[3] Phase I SVE system began operation on 3/9/12.

[4] System was shut down between 3/24/12 and 3/29/12.

[5] Post-carbon emissions presented as a percentage of the threshold level using the following equation:

Percent of Threshold = (Emission rate / NR 445 Emission Threshold) * 100

cfm	Cubic feet per minute.
lb/yr	Pounds per year.
lb/hr	Pounds per hour.
µg/m^3	Micrograms per cubic meter.
VC	Vinyl Chloride.