Gray, Jane K - DNR

From: Kathryn Balachandran <kbalachandran@ksinghengineering.com>
Sent: Friday, February 21, 2025 11:12 AM
To: Gray, Jane K - DNR
Cc: Shane LaFave; Que El-Amin (que@scott-crawford.com); Pratap Singh; Angy Singh
Subject: RE: CWC East Block (02-41-263675) - Information Requested
Attachments: 4 - CWC-EB_Round 4_Table 3 w CCV and ICAL.pdf; 1 - CWC-EB_Round 4_Passive Sampler Log.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning, Jane.

Please see our responses to WDNR's information request below (in blue text). The referenced updated Attachments are included with this email.

Please contact us if you have any questions or require additional information.
Best Regards,
~katie

Kathryn Balachandran, Ph.D.
Project Engineer | kbalachandran@ksinghengineering.com
608.467.2005 (p) | 262.821.1174 (f)
www.ksinghengineering.com

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From: Gray, Jane K - DNR <jane.gray@wisconsin.gov>
Sent: Wednesday, February 12, 2025 1:25 PM
To: Pratap Singh <psingh@ksinghengineering.com>
Cc: Angy Singh <angy.singh@ksinghengineering.com>; Shane LaFave <Shane@roerscompanies.com>; Que El-Amin <que@scott-crawford.com>
Subject: CWC East Block (02-41-263675) - Information Requested

Hi Dr. Singh – As I mentioned in my voicemail just now, the DNR has reviewed the *Fourth Round of Commissioning* (Report), submitted on January 20, 2025, for the subject site. The following information is required before the DNR can issue a response letter for the Report:

Continuous Monitoring of Units 1045 and 1050

Page 6 of the Report states, "At no point during the 14-day sampling period did the detected indoor air concentration of TCE for either unit exceed the Method Detection Limit (MDL) of 0.6 µg/m3." However, further in that paragraph, the Report states, "The average and maximum detected TCE concentrations in Unit 1045 were 0.0006384 µg/m3 and 0.3868 µg/m3, respectively. Unit 1050 had an average detected TCE concentration of 0.0000 µg/m3 and a maximum of 0.0000 µg/m3." If the MDL was 0.6 µg/m3, it would not have been possible to accurately measure concentrations below that concentration. Section 6.0 of Attachment A-2 of the Report indicates that a Reporting Limit (RL) of 0.6 µg/m3 was achieved for the CWC testing program. Please clarify what MDL and RL were achieved during continuous monitoring.

> In previous Commissioning Reports, we have highlighted the average and maximum TCE concentrations observed during continuous monitoring. In the 4th Round of Commissioning, we found no significant detection of TCE. After consulting with Hartman Environmental Science (HEG) for confirmation, HEG indicated that their instrument sensitivity was set to 50 Area Counts, leading to an instrument detection limit of 0.21 µg/m^3. However, they noted that 0.6 µg/m^3 is the Minimum Detection Limit (MDL) that can be achieved with 99% confidence. In Attachments A-1 and A-2, "Method Detection Limit" and "Reporting Limit (RL)" are used interchangeably. Ultimately, the continuous monitoring results for 1045 and 1050 showed Non-Detect levels, which marks a significant improvement in the indoor air quality of those units.

Gas Chromatograph Quality Control Analysis

Section 10.0 of Attachment A-2 of the Report describes the procedures for daily analysis of continuing calibration verification (CCV) samples, but the results for CCV samples were not provided in Table 3. Please provide the results for all CCV samples analyzed.

> Please see the attached Table 3, which has been updated with CCV and ICAL results from the 4th Round of Commissioning.

Page 8 of the Report indicates that a multipoint calibration was performed on December 16, 2024, prior to the fourth round of commissioning, on December 20, 2024, prior to the continuous monitoring of Units 1045 and 1050, and again on January 6, 2025, prior to analysis of blower exhaust samples. Section 11.0 of Attachment A-2 of the Report explains that three concentration levels were used to generate the calibration curves, 0.5 part per billion by volume (ppbv), 1.0 ppbv, and 2.0 ppbv. The calibration curves are provided graphically and in table form as Attachment A-3. Please explain what the analytical results in Attachment A-3 represent and why they differ from the concentration of the standard. For example, for the 2.0 ppbv standard analyzed on 12/16/2024, on attachment A-3, the result is reported as 1.8347 ppbv.

> On 12/20/2024, the CCV sample result was outside the acceptable range of ±30% set for the 2.0 ppbv standard. Therefore, per the Standard Operating Procedures (SOPs) for the instrument, a new calibration curve was generated. In Attachment A-3, the column labeled "ppbv" is giving the reported value of the calibration standard analyzed *based upon the prior calibration curve*. This column should have listed the actual concentrations of the standard injected (0.5 ppbv, 1.0 ppbv, 2.0 ppbv), not the result based upon the prior calibration curve.

Passive Samplers Deployment and Retrieval Log

On February 5, 2025, an updated Attachment B was provided, which included the "Local Air Flow Rate" measured prior to fan deployment. These results are provided in centimeters per second (cm/s). The air flow measured during sampling is provided in feet per minute (fpm). Please provide a revised Attachment B that portrays these results using consistent units, preferably cm/s.

> Local Air Flow Rates prior to fan deployment were measured with an anemometer that reported in units of centimeters per second (cm/s). During fan deployment for passive sampling, Local Air Velocities were measured with an anemometer that reported in units of feet per minute (fpm). Please see the attached

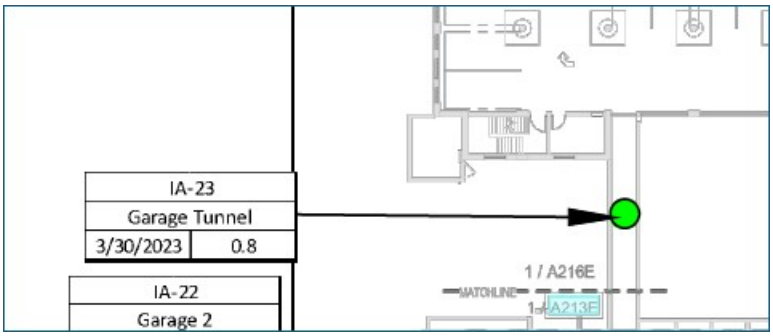
Attachment B, which has been updated to reflect Air Flow Rates and Velocities in units of cm/s as well as fpm.

Central Courtyard Tunnel

CWC's *Response to WDNR Review of Site Investigation Report*, dated March 1, 2022, indicates that the tunnel beneath the central courtyard has been sealed from the south end and was proposed to be used for maintenance supplies to be accessed from the northern end of the tunnel, which opens to the ventilated underground parking garage. During the DNR's site visit on February 4, 2025, K. Singh staff was not aware of the status or location of this tunnel. The March 1, 2022, report indicates that indoor air sampling in this tunnel would occur as a part of the commissioning process. Clarify whether this tunnel is still accessible from its northern end, what it is or will be used for, and whether any indoor air data was collected from this tunnel during commissioning. Provide the indoor air data from this tunnel if it is available. If it is not available and if the tunnel is accessible and will be used by CWC staff, then collect an indoor air sample from the tunnel to confirm that the indoor air is below the vapor action levels (VALs). You may choose to first screen the location using the portable GC unit on-site to help determine if any additional sampling is necessary in this location.

The tunnel was closed at the south end during early stages of construction and is no longer used as a route of travel between buildings. The tunnel is not in use, and it is inaccessible behind a locked door on the north end. Testing from Stairwell 7 Room 1089 immediately adjacent and the NW garage show no indoor air risks in this area.

Testing was previously performed in March 2023, and no VAL exceedances were noted in the tunnel. See below.



Northern Mechanical Room

The *Indoor Air Quality Test Results for December 4 – December 13, 2024*, submitted to the DNR on January 3, 2025, indicates that sealing efforts were performed in the Northern Mechanical Room after GC indoor air data identified vapor action level exceedances for TCE on December 12, 2024. Follow-up indoor air sampling at this location using the GC unit and passive samplers did not identify any VAL exceedances. Provide additional information on the sealing efforts that were taken in this room and a timeline for when the sump in this room will be permanently sealed.

Sealing efforts in the North Mechanical Room (NMR) prior to the 4th Round of Commissioning included caulking cracks in the walls as well as installing vapor barrier on the sumps. Permanent sealing of the walls and sumps in the NMR will be completed by the first week of March 2025. Documentation of this sealing will be submitted separately to WDNR upon completion as an addendum to the RADR.

The above-requested information can be submitted to the DNR via email or as a standalone submittal to the DNR's RR electronic submittal portal. Please do not hesitate to reach out with any questions you might have. Thank you for your continued work on this project.

Best, Jane

Jane Gray
she/her/hers
Hydrogeologist Program Coordinator – West Central Region
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
Phone: (414) 435-8021
jane.gray@wisconsin.gov

dnr.wi.gov
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Table 3. Discrete Sampling - GC Testing - Level 1
Commissioning Round 4
Community Within the Corridor - East Block

No.	Date	Name	Location	Time	Temperature (°F)	TCE Reading ($\mu g/m^3$)	Notes
---	12/19/24	---	CCV sample (2.0 ppbv)	11:50	68	1.5 ppbv	Because the result is within ±30% of the previously set 2.0 ppbv standard, continuing calibration verification is successful.
1	12/19/24	IA-NMR	N Mech. Room	12:09	65	0.97	Door opened and closed
2	12/19/24	IA-1055-SH	1055 Women's Lockers (shower)	12:18	65	< 0.6	Main door opened and closed Toilets flushed Sink run
3	12/19/24	IA-1055	1055 Women's Lockers	12:35	65	< 0.6	Main door opened and closed Toilets flushed Sink run
4	12/19/24	IA-1054-NE	1054 Fitness	12:43	68	0.95	Main doors opened and closed
5	12/19/24	IA-1054-C1	1054 Fitness (column)	12:59	68	< 0.6	Main doors opened and closed
6	12/19/24	IA-1054	1054 Fitness	13:08	68	< 0.6	Main doors opened and closed
7	12/19/24	IA-1053-C1	1053 Men's Lockers (column)	13:27	65	< 0.6	Main door opened and closed Toilets flushed Sink run
8	12/19/24	IA-1053	1053 Men's Lockers	13:35	65	< 0.6	Main door opened and closed Toilets flushed Sink run
9	12/19/24	IA-1053-SH	1053 Men's Lockers (shower)	13:45	65	< 0.6	Main door opened and closed Toilets flushed Sink run
10	12/19/24	IA-1052	1052 Mechanical	13:53	65	< 0.6	Main door opened and closed
11	12/19/24	IA-1052-C2	1052 Mechanical (column)	14:01	65	< 0.6	Main door opened and closed
12	12/19/24	IA-1051	Unit 1051	14:09	68	0.80	Main door opened and closed Bedroom fan ON
13	12/19/24	IA-1051-BR	Unit 1051 (bedroom)	14:20	68	< 0.6	Main door opened and closed Bedroom fan ON
14	12/19/24	IA-1051-BA	Unit 1051 (bathroom)	14:28	68	< 0.6	Main door opened and closed Bedroom fan ON
15	12/19/24	IA-1049	1049 Storage	14:36	65	< 0.6	Main door opened and closed
16	12/19/24	IA-1049-C1	1049 Storage (column)	14:53	65	< 0.6	Main door opened and closed
17	12/19/24	IA-1048-C1	1048 Laundry (column)	15:01	65	< 0.6	Main door opened and closed
18	12/19/24	IA-1048	1048 Laundry	15:09	65	< 0.6	Main door opened and closed
19	12/19/24	IA-1050-BA	Unit 1050 (bathroom)	15:17	70	< 0.6	Main door opened and closed Bedroom fan ON
20	12/19/24	IA-1050-C1	Unit 1050 (column)	15:27	70	< 0.6	Main door opened and closed Bedroom fan ON
21	12/19/24	IA-1050-BR	Unit 1050 (bedroom)	15:35	70	< 0.6	Main door opened and closed Bedroom fan ON
22	12/19/24	IA-1050	Unit 1050	15:43	70	< 0.6	Main door opened and closed Bedroom fan ON
23	12/19/24	IA-1045-BR	Unit 1045 (bedroom)	15:52	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run

Table 3. Discrete Sampling - GC Testing - Level 1
Commissioning Round 4
Community Within the Corridor - East Block

No.	Date	Name	Location	Time	Temperature (°F)	TCE Reading ($\mu g/m^3$)	Notes
24	12/19/24	IA-1045-BA	Unit 1045 (bathroom)	16:00	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
25	12/19/24	IA-1045	Unit 1045	16:08	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
26	12/19/24	IA-1045-C1	Unit 1045 (column)	16:26	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
---	12/20/24	---	ICAL sample (2.0 ppbv)	10:36	65	6.0155 ppbv	Because the result is outside ±30% of the previously set 2.0 ppbv standard, a new ICAL must be generated. Area counts for new 2.0 ppbv standard: 2165
---	12/20/24	---	ICAL sample (1.0 ppbv)	10:50	65	4.6349 ppbv	Area counts for new 1.0 ppbv standard: 958
---	12/20/24	---	ICAL sample (0.5 ppbv)	11:00	65	2.4882 ppbv	Area counts for new 0.5 ppbv standard: 651
27	12/20/24	IA-1044-BA	Unit 1044 (bathroom)	11:23	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
28	12/20/24	IA-1044-C1	Unit 1044 (column)	11:31	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
29	12/20/24	IA-1044-C2	Unit 1044 (column)	11:39	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
30	12/20/24	IA-1044	Unit 1044	11:47	68	0.72	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
31	12/20/24	IA-1043-C1	Unit 1043 (column)	11:55	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Sink run Shower run
32	12/20/24	IA-1043-BA	Unit 1043 (bathroom)	12:05	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Sink run Shower run
33	12/20/24	IA-1043	Unit 1043	12:13	68	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Sink run Shower run

Table 3. Discrete Sampling - GC Testing - Level 1
Commissioning Round 4
Community Within the Corridor - East Block

No.	Date	Name	Location	Time	Temperature (°F)	TCE Reading ($\mu g/m^3$)	Notes
34	12/20/24	IA-1042-BR	Unit 1042 (bedroom)	12:35	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
35	12/20/24	IA-1042-BA	Unit 1042 (bathroom)	12:55	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
36	12/20/24	IA-1042	Unit 1042	13:03	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
37	12/20/24	IA-1041-BR	Unit 1041 (bedroom)	13:14	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
38	12/20/24	IA-1041-BA	Unit 1041 (bathroom)	13:22	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run
39	12/20/24	IA-1041	Unit 1041	13:30	70	< 0.6	Main door opened and closed Bedroom fan ON Toilet flushed Shower run

NOTES:

All measurements collected with the HVAC system operational

"ppbv" = parts per billion by volume

A reading of "< 0.6" = less than detection limit

Attachment B. Passive Samplers Deployment and Retrieval Log - Level 1

Commissioning Round 4

Community Within the Corridor - East Block

No.	Sampler Name	Sampler Location	Local Air Flow Rate* (cm/s)	Local Air Flow Rate* (fpm)	Date Deployed	Time Deployed (hh:mm)	Sampler Height (inches)	Room Temp (°F)	Local Air Velocity** (fpm)	Local Air Velocity** (cm/s)	Notes	Date Retrieved	Time Retrieved (hh:mm)	Sampler Height (inches)	Room Temp (°F)	Local Air Velocity** (fpm)	Local Air Velocity** (cm/s)	Sampler Label ID
1	EB-01-AA	1043 Living Room	3	6	12/20/2024	13:57	60	68	83	42	• small desk fan deployed • fan height = 56"	1/3/2025	15:11	60	70	66	34	XO954
2	EB-01-AA2	1043 N Bedroom	15	30	12/20/2024	14:52	56	68	105	53	ceiling fan ON	1/3/2025	15:15	56	70	41	21	XO939
3	EB-01-AT	1043 S Bathroom	3	6	12/20/2024	14:55	59	68	76	39	• small desk fan deployed • fan height = 52"	1/3/2025	15:17	59	70	43	22	XO938
4	EB-01-AB	Unit 1041 Living Room	NM†	NM†	12/20/2024	15:01	58	70	30	15	• small desk fan deployed • fan height = 53"	1/3/2025	15:22	58	70	28	14	XO937
5	EB-01-M2	Unit 1042 Living Room	NM†	NM†	12/20/2024	15:06	60	70	65	33	• small desk fan deployed • fan height = 53"	1/3/2025	15:28	60	70	39	20	XO936
6	EB-01-Z	1044 S Bedroom	3	6	12/20/2024	15:10	56	68	104	53	ceiling fan ON	1/3/2025	15:33	56	70	51	26	XO935
7	EB-01-Z2	1044 Living Room	3	6	12/20/2024	15:13	58	68	119	60	• small desk fan deployed • fan height = 53"	1/3/2025	15:35	58	70	77	39	XO934
8	EB-01-Y	Unit 1045	3	6	12/20/2024	15:19	58	68	80	41	• small desk fan deployed • fan height = 53"	1/3/2025	15:38	58	70	121	61	TW480
9	EB-01-AS	1045 NW Wall	3	6	12/20/2024	15:21	59	68	120	61	• small desk fan deployed • fan height = 55"	1/3/2025	15:40	59	70	84	43	TW479
10	EB-01-X	1050 Bedroom	3	6	12/20/2024	15:25	58	61	42	21	ceiling fan ON	1/3/2025	15:43	58	61	29	15	TW478
11	EB-01-AR	1050 Bathroom	20	39	12/20/2024	15:28	59	61	188	96	• small desk fan deployed • fan height = 64"	1/3/2025	15:45	59	61	23	12	TW477
12	EB-01-AL2	1048 Laundry E	3	6	12/20/2024	15:34	60	67	49	25	• small desk fan deployed • fan height = 71"	1/3/2025	15:48	60	65	48	24	TW476
13	EB-01-AL	1048 Laundry W	3	6	12/20/2024	15:37	61	67	77	39	• small desk fan deployed • fan height = 78"	1/3/2025	15:50	61	65	38	19	TW475
14	EB-01-AJ2	1049 Storage W	3	6	12/20/2024	15:42	57	67	145	74	standing fan ON	1/3/2025	15:53	57	65	74	38	TW474
15	EB-01-AJ	1049 Storage E	3	6	12/20/2024	15:44	56	67	35	18	• small desk fan deployed • fan height = 66"	1/3/2025	15:54	56	65	35	18	TW646
16	EB-01-W	1051 Living Room	3	6	12/20/2024	15:47	60	68	39	20	• small desk fan deployed • fan height = 72"	1/3/2025	15:57	60	70	27	14	TW645
17	EB-01-W2	1051 Bedroom	20	39	12/20/2024	15:50	61	68	69	35	ceiling fan ON	1/3/2025	15:59	61	70	25	13	TW644
18	EB-01-AU	1052 Mechanical	2	4	12/20/2024	15:53	60	71	103	52	• small desk fan deployed • fan height = 56"	1/3/2025	16:01	60	65	94	48	TW643
19	EB-01-AX	1053 Men's Lockers	3	6	12/20/2024	15:57	60	70	66	34	• small desk fan deployed • fan height = 55"	1/3/2025	16:04	60	65	80	41	TW642
20	EB-01-AV	1054 Fitness N	3	6	12/20/2024	16:03	63	68	47	24	• small desk fan deployed • fan height = 50"	1/3/2025	16:07	63	66	68	35	TW641
21	EB-01-AV2	1054 Fitness S	2	4	12/20/2024	16:05	60	68	52	26	• small desk fan deployed • fan height = 55"	1/3/2025	16:09	60	66	60	30	TW640
22	EB-01-I	1055 Women's Lockers	3	6	12/20/2024	16:09	59	72	63	32	• small desk fan deployed • fan height = 53"	1/3/2025	16:11	59	67	56	28	TW639
23	EB-01-A	N Mechanical Room	3	6	12/20/2024	16:14	58	66	48	24	• small desk fan deployed • fan height = 58"	1/3/2025	16:37	58	63	26	13	TW638
24	OA-01-A	Outside, N of Ramp	variable	variable	12/20/2024	16:21	58	27	23	12	---	1/3/2025	16:42	58	18	85	43	TW637

NOTES:

*Prior to fan deployment

**After fan deployment

†NM = not measured

WDNR-requested velocity range: 0.1 to 10 m/s

0.1 m/s = 10 cm/s = 20 fpm

1 m/s = 100 cm/s = 200 fpm

10 m/s = 1,000 cm/s = 2,000 fpm