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497 Electronics Parkway
Liverpool, NY 13088

November 30, 2022

Mr. Jacky Luo
Project Manager
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7010

Re: *August 2022 Biological Monitoring Sampling Results
Bloody Brook, Onondaga County, New York*

Dear Mr. Luo:

According to the *February 2018 Bloody Brook Site Management Plan (SMP)*, updated in July 2022 (pending New York State Department of Environmental Conservation [NYSDEC] approval), biological monitoring is required to document cadmium concentrations in aquatic biota following completion of the remedial activities on the site. In July 2014, biota samples were collected from within Bloody Brook to evaluate possible cadmium exposure for aquatic receptors prior to the start of remediation activities in the West Branch of Bloody Brook (WBBB) and Bloody Brook from below the confluence of the West and Middle Branches of Bloody Brook (collectively referred to as WBBB). Samples were collected from three general locations in WBBB, including an upper location (between Ontario Place and Cranberry Drive), a middle location (downstream from Floradale Road), and a lower location (upstream from Onondaga Lake Parkway). These locations are shown in Figure 1, enclosed with this letter. The 2014 data, which served as baseline, were provided to NYSDEC in the September 9, 2014 Monthly Progress Report for the Bloody Brook site and were included in Appendix F (Field Sampling Plan [FSP]) of the SMP.

According to the March 2014 Decision Document, biota samples were to be collected two and four years following completion of construction activities from the same locations that were sampled during the 2014 baseline sampling to support an evaluation of the effectiveness of the site remedial program in mitigating potential cadmium impacts in WBBB. In accordance with the Decision Document, the first post-remediation monitoring data were collected on August 13, 2018 using the kick-net method, per the FSP and consistent with the collection methods used during the baseline sampling. The second year of post-remediation monitoring was completed on August 26, 2020. Results for these samples were provided to NYSDEC in letters dated October 31, 2018 and November 04, 2020, respectively.

NYSDEC provided comments on December 11, 2020 on the letter dated November 4, 2020 that summarized results from the August 26, 2020 sampling. The comments required an additional monitoring event due to the lack of samples in the middle channel in 2018, the reduced sample number in the upper channel in 2020, and the increase in cadmium tissue concentrations in the upper channel from 2018 to 2020. This additional sampling event was completed on August 31, 2022, using the same collection methods as the previous years. The results for these samples are discussed below

collectively with the 2014, 2018, and 2020 results and are provided in Table 1, enclosed with this letter.

Whole body crayfish samples were analyzed by Eurofins for total cadmium by USEPA SW846 Method 6020, and the data underwent full third party data validation. Analytical results for the 2014 baseline sampling and the 2018, 2020, and 2022 post-remediation monitoring are summarized in Table 1.

- From the lower location, upstream from Onondaga Lake Parkway, the average concentration decreased between 2014 and 2020, with average baseline concentrations of 0.97 milligrams per kilogram-wet weight (mg/kg-ww) in 2014, and average 2018 and 2020 post-remediation concentrations of 0.14 mg/kg-ww and 0.07 mg/kg-ww, respectively. There was a slight increase for the 2022 average concentration, to 0.10 mg/kg-ww. Despite the increase, the concentrations remained lower than the 2014 baseline samples from this location.
- Although no samples were collected from the middle location (downstream from Floradale Road) in 2018, four of the five proposed samples were collected in 2020 with an average concentration of 0.51 mg/kg-ww, which is lower than the average baseline concentration of 4.0 mg/kg-ww at this location. In 2022, all five proposed samples were collected with an average concentration of 0.80 mg/kg-ww. Despite the slight increase between the 2020 and 2022 sampling, the concentrations remained lower than the 2014 baseline samples from this location.
- From the upper location, between Ontario Place and Cranberry Drive, average cadmium concentrations decreased from 3.4 mg/kg in 2014 to 0.79 mg/kg in 2018 and slightly increased to 1.4 mg/kg-ww in 2020. Despite the increase in average concentration in 2020, which was based on only three samples, the concentrations remained lower than the 2014 baseline samples from this location. In 2022, all five proposed samples were collected with an average concentration of 1.2 mg/kg-ww, which is lower than the previous year and the baseline samples from this location.

The available samples collected at the lower, middle, and upper locations indicate the remedy has been effective in mitigating cadmium impacts as can be seen with the cadmium concentrations in the biological samples discussed herein.

If you have any questions, or you would like to discuss the data results, please contact me at (315) 456-1993 or Kelly Lurie at (518) 542-2944.

Sincerely,






Jill Fonte
Environmental Engineer

Enclosure

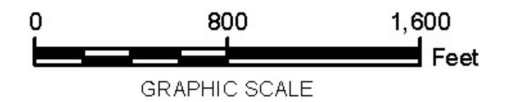
cc (with enclosure): Robert Nunes – USEPA, Region II
Rebecca Quail – NYSDEC
Gary Priscott – NYSDEC, Region 7
Robert R. Tyson, Esq. – Bond, Schoeneck & King
Mark Sergott - NYSDOH

Lisa Letteney – Onondaga County Department of Health
Mary Jo Crance– NYSF&W
Benjamin Yaus, Esq. – Onondaga County Department of Law
Travis Glazier – Onondaga County Office of the Environment
Martin Hennessey– Onondaga County Department of WEP
Nick Paro – Town of Salina Supervisor
Doug Wickman – Town of Salina Engineer
Gary C. White – Village of Liverpool Mayor
Joseph Heath, Esq.
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Scarlett McLaughlin – NYSDOH
Curtis Waterman – HETF



- LEGEND:**
-  APPROXIMATE BIOTA MONITORING SAMPLE LOCATION
 -  BLOODY BROOK
 -  APPROXIMATE SITE BOUNDARY

NOTE:
1. BASE MAP SOURCE: ESRI ARCGIS STREET MAP.



LOCKHEED MARTIN CORPORATION
BIOLOGICAL MONITORING LOCATIONS

WEST BRANCH OF BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
Bio Mon Plan.dwg	---	60572195	10/ 2018	1

Table 1
Analytical Data for Baseline (July 2014), First Year (August 2018), Second Year (2020), and Third Year (2022) Biota Monitoring
Bloody Brook
Onondaga County, New York

Sample Location	Sample Location	2014 Cadmium (mg/kg-ww)	2018 Cadmium (mg/kg-ww)	2020 Cadmium (mg/kg-ww)	2022 Cadmium (mg/kg-ww)
Upper Channel - between Ontario Place and Cranberry Drive	CR-1-01	3.1	0.53	1.2	0.80
	CR-1-02	3.6	0.56	2.3	1.7
	CR-1-03	3.2	1.3	0.84	1.5
	CR-1-04	2.5	0.76		0.83
	CR-1-05	4.4			0.94
	Average	3.4	0.79	1.4	1.2
Middle Channel - downstream from Floradale Road	CR-2-01	4.3	Not sampled	0.47	2.0
	CR-2-02	3.5	Not sampled	0.37	0.26
	CR-2-03	5.2	Not sampled	0.82	0.43
	CR-2-04	3.6	Not sampled	0.36	0.79
	CR-2-05	3.5	Not sampled		0.50
	Average	4.0	No samples	0.51	0.80
Lower Channel-upstream from Onondaga Lake Parkway	CR-3-01	0.97	0.059 J	0.085 J	0.084
	CR-3-02	0.76	0.13	0.088	0.11
	CR-3-03	1.3	0.12	0.069 J	0.094
	CR-3-04	1.5	0.22	0.043 J	0.11
	CR-3-05	0.33	0.18	0.067	0.10
	Average	0.97	0.14	0.070	0.10

Notes:

1. Biota samples were whole body crayfish.
2. Results are reported in wet weight.
3. No crayfish were located in the "middle" sample from 2018.
4. J - estimated value; detected above the method detection limit but below the reporting limit.