Fw: MV2023L8-0005: Rowe's HREDP - 2024 June SNP Report

Tyree Mullaney <tyree@mvlwb.com>
Mon 05-Aug-2024 9:11 AM
To:Meg McCluskie <mmccluskie@mvlwb.com>

1 attachments (743 KB)
Rowe's HREDP - 2024 June SNP Report.pdf;

Good morning Meg,

Please post to

MV2023L8-0005
GNWT - INF

Reports and Studies
SNP Report

Thanks

T

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From: Mark Mathews <mmathews@outcomeinc.ca>
Sent: Thursday, July 25, 2024 7:42 AM
To: Tyree Mullaney <tyree@mvlwb.com>
Cc: Don Plenderleith <dplenderleith@outcomeinc.ca>; Kenneth Akerenwi Seh <Kenneth_Akerenwi-Seh@gov.nt.ca>; Jamie Young <jyoung@outcomeinc.ca>
Subject: MV2023L8-0005: Rowe's HREDP - 2024 June SNP Report

IRONSCALES couldn't recognize this email as this is the first time you received an email from this sender mmathews@outcomeinc.ca

Hi Tyree,

Attached is the June SNP report for the project in the tagline above. Your email was the only one I could find on the water license. Please let me know if there is anyone else I should be copying on these reports moving forward.

Thanks,

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Mark Mathews, P.Eng.

Environmental Engineer

Outcome Consultants Inc.

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Surveillance Network Program Report – June 2024

Date: July 25, 2024

To: MVLWB

From: Jamie Young, Outcome Consultants Inc

Copy: Kenneth Akerenwi Seh

This Surveillance Network Program (SNP) Report for June 2024 is being submitted in accordance with the requirements of the Type B Water Licence MV2023L8-0005 issued to the Government of the Northwest Territories – Department of Infrastructure for the Hay River Harbour Remediation Project.

Summary of Activities in June 2024

Dredging commenced on June 9, 2024 and continued to the end of the month. Over that period, sediment was dredged from the area just offshore of the mouth of Hay River (Area A) and from the fingers of Hay River (Area B0) and was placed in the Sediment Deposit Areas 2, 3, and 5. Sediment Deposit Area 3 was used first with dredgate from Area A being placed in the eastern portion of the site. Area A dredgate was found predominantly to be coarse-grained sand and was free draining and stackable. The dredgate from Area B was found to be a mixture of fine and coarse-grained material ranging from sandy loam to loam. Area B dredgate was found to be highly saturated and required containment. Stacking of Area B dredgate was not possible.

Sediment Deposit Area 3 has five monitoring wells. While placing Area A dredgate, it was buttressed around the eastern most monitoring well. The monitoring well will be freed of dredgate once it is removed at a later date (currently anticipated in July of 2024). Area B dredgate

was stacked against jersey barriers following this to improve ease of access when removing material at a later date. It was apparent that due to the viscous liquid nature of the saturated material, some dredgate migrated around the jersey barrier. The monitoring well protection plan was modified to have sand stacked up around the jersey barriers to prevent any flow around them. A sona tube was also placed around the monitoring well.

Sediment Deposit Area 2 has two monitoring wells which were protected with jersey barriers and berms. Sediment Deposit Area 5 has one monitoring well in the containment berm.

While placing material during the month of June, pore water did not drain and accumulate in the defined sumps due to the lack of shaping ability of the material. Generally speaking, the pore water from Area A dredgate simply evaporated and Area B dredgate remained saturated. As a result, the sumps in most of the Sediment Deposit Areas accumulated little to no water. Only in Sediment Deposit Area #3 was Outcome able to collect water samples for lab analysis. Water samples from dredgate from Areas A and BO were collected on June 20, 2024 at Sediment Deposit Area #3. No water that has been collected from the dredgates has been discharged or disposed of.

The following information is provided as required in Schedule 1 of the Water Licence.

A Tabular Summaries of all data and information generated under the SNP for the month being reported

The results of water samples from dredgates A and B have been compared to the CCME Water Quality Guideline Protection Freshwater Aquatic Life (short and long-term exposure criteria), and are attached in Appendix A.

In summary the water that drained from dredgate from Area A had the following exceedances:

- Dissolved Manganese (concentration 0.87 mg/L compared to 0.26 for short-term exposure
- Total Iron (concentration 5.3 mg/L compared to 0.3 mg/L for long-term exposure
- Total Lead (concentration 0.096 mg/L compared to 0.004 mg/L for long-term exposure
- Total Manganese (concentration 0.98 mg/L compared to 0.26 mg/L for short-term exposure

The water that drained from dredgate from Area B had the following exceedances:

- Total Arsenic (concentration 0.0066 mg/L compared to 0.005 mg/L for long-term exposure
- Total Iron (concentration 7.0 mg/L compared to 0.3 mg/L for long-term exposure
- Total Manganese (concentration 0.4 mg/L compared to 0.26 mg/L for short-term exposure

B Information regarding the calibration and status of the meters and device

The calibration date and information for the field instrument is provided in Appendix B

C The coordinates of all SNP sites

The monitoring sites were in Sediment Deposit Area 3

Sump location for dredgate A:

- 568659.68 m E
- 6747441.41 m N

Sump location for dredgate B:

- 568688.84 m E
- 6747476.40 m N

D A tabular summary of cumulative water use

There was no water used.

E Tabular summaries of all data and information generated under the Supplementary Measurement Requirements referred to in Part C

There were no supplementary measurements referred to in Part C of the Water Licence

Appendix A

Interpreted Analytica Data from Sumps in Sediment Deposit Area 3

Emergency Dredging Project, Hay River, NT
Water Quality Monitoring

Bureau Veritas Job Number: C446253
Report Date: 2024/06/27

OUTCOME CONSULTANTS INC.
Client Project #: 2024 HREDP

SUMP WATER SAMPLING FROM SEDIMENT DEPOSIT AREA 3

		Water from Dredgate from Area B	Water from Dredgate from Area A		CCME Water Quality Guideline Protection Freshwater Aquatic Life: Short-Term Exposure	CCME Water Quality Guideline Protection Freshwater Aquatic Life: Long-Term Exposure
Bureau Veritas ID		CPV790	CPV791			
Sampling Date		2024/06/20 13:20	2024/06/20 13:15			
COC Number		C#728221-02-01	C#728221-02-01			
		HR24-SU03-(06-20)01B	**HR24-SU03-(06-20)01A**			
Ext. Pet. Hydrocarbon	**UNITS**					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10			
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10			
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20			
Volatiles						
Benzene	ug/L	<0.40	<0.40			370
Toluene	ug/L	<0.40	<0.40			2
Ethylbenzene	ug/L	<0.40	<0.40			90
m & p-Xylene	ug/L	<0.80	<0.80			
o-Xylene	ug/L	<0.40	<0.40			
Xylenes (Total)	ug/L	<0.89	<0.89			
F1 (C6-C10) - BTEX	ug/L	<100	<100			
F1 (C6-C10)	ug/L	<100	<100			
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	99	99			
4-Bromofluorobenzene (sur.)	%	96	97			
D4-1,2-Dichloroethane (sur.)	%	92	91			
O-TERPHENYL (sur.)	%	101	102			
Bureau Veritas ID		CPV790	CPV791			
Sampling Date		2024/06/20 13:20	2024/06/20 13:15			
COC Number		C#728221-02-01	C#728221-02-01			
		HR24-SU03-(06-20)01B	**HR24-SU03-(06-20)01A**			
Calculated Parameters	**UNITS**					
Anion Sum	meq/L	13	8.9			
Cation Sum	meq/L	13	8.8			
Hardness (CaCO3)	mg/L	540	390			
Ion Balance (% Difference)	%	0.92	0.91			
Nitrate (N)	mg/L	0.20	0.29		550	13
Nitrate (NO3)	mg/L	0.91	1.3			
Nitrite (NO2)	mg/L	0.22	0.11			
Elements						
Dissolved Cadmium (Cd)	ug/L	0.023	0.023			
Field Parameters						
Conductivity	uS/cm	1100	800			
pH	pH	8.27	8.01			6.5 to 9.0
Anions						
Alkalinity (PP as CaCO3)	mg/L	<1.0	<1.0			
Alkalinity (Total as CaCO3)	mg/L	500	270			
Bicarbonate (HCO3)	mg/L	610	330			
Carbonate (CO3)	mg/L	<1.0	<1.0			
Hydroxide (OH)	mg/L	<1.0	<1.0			
Chloride (Cl)	mg/L	21	16		640	120
Sulphate (SO4)	mg/L	100	150			
Nutrients						
Nitrite (N)	mg/L	0.066	0.034			
Nitrate plus Nitrite (N)	mg/L	0.27	0.32			

Emergency Dredging Project, Hay River, NT

Water Quality Monitoring

		Water from Dredgate from Area B	Water from Dredgate from Area A		Short-Term Exposure	Long-Term Exposure
Dissolved Metals (Lab Filtered Elements)						
Dissolved Aluminum (Al)	mg/L	0.0072	0.0040			5
Dissolved Antimony (Sb)	mg/L	<0.00060	<0.00060			
Dissolved Arsenic (As)	mg/L	0.0026	0.0014			5
Dissolved Barium (Ba)	mg/L	0.16	0.16			
Dissolved Beryllium (Be)	mg/L	<0.0010	<0.0010			
Dissolved Boron (B)	mg/L	0.11	0.073		29	1.5
Dissolved Calcium (Ca)	mg/L	130	110			
Dissolved Chromium (Cr)	mg/L	0.0018	<0.0010			
Dissolved Cobalt (Co)	mg/L	0.0018	0.0012			
Dissolved Copper (Cu)	mg/L	0.0036	0.0016			2.57
Dissolved Iron (Fe)	mg/L	0.31	<0.060			300
Dissolved Lead (Pb)	mg/L	0.00077	<0.00020			0.004
Dissolved Lithium (Li)	mg/L	0.039	0.038			
Dissolved Magnesium (Mg)	mg/L	55	28			
Dissolved Manganese (Mn)	mg/L	0.17	0.87		0.26	
Dissolved Molybdenum (Mo)	mg/L	0.017	0.0051			73
Dissolved Nickel (Ni)	mg/L	0.0068	0.0036			0.1
Dissolved Phosphorus (P)	mg/L	<0.10	<0.10			
Dissolved Potassium (K)	mg/L	14	5.8			
Dissolved Selenium (Se)	mg/L	0.00099	0.00047			1
Dissolved Silicon (Si)	mg/L	9.4	2.9			
Dissolved Silver (Ag)	mg/L	<0.00010	<0.00010			0.25
Dissolved Sodium (Na)	mg/L	40	20			
Dissolved Strontium (Sr)	mg/L	0.46	0.39			
Dissolved Sulphur (S)	mg/L	36	42			
Dissolved Thallium (Tl)	mg/L	<0.00020	<0.00020			0.8
Dissolved Tin (Sn)	mg/L	<0.0010	<0.0010			
Dissolved Titanium (Ti)	mg/L	0.0014	<0.0010			
Dissolved Uranium (U)	mg/L	0.0088	0.0044		33	15
Dissolved Vanadium (V)	mg/L	0.0011	<0.0010			
Dissolved Zinc (Zn)	mg/L	<0.0030	<0.0030		equation(1)	equation(1)
REGULATED METALS (CCME/AT1) - TOTAL						
Bureau Veritas ID		CPV790	CPV791			
Sampling Date		2024/06/20 13:20	2024/06/20 13:15			
COC Number		C#728221-02-01	C#728221-02-01			
	UNITS	**HR24-SU03-(06-20)01B**	**HR24-SU03-(06-20)01A**			
Elements						
Total Cadmium (Cd)	ug/L	0.11	0.17		7.7	0.37
Total Aluminum (Al)	mg/L	0.72	1.4			5
Total Antimony (Sb)	mg/L	0.00065	<0.00060			
Total Arsenic (As)	mg/L	0.0066	0.0047			0.005
Total Barium (Ba)	mg/L	0.18	0.20			
Total Beryllium (Be)	mg/L	<0.0010	<0.0010			
Total Boron (B)	mg/L	0.087	0.077		29	1.5
Total Calcium (Ca)	mg/L	110	110			
Total Chromium (Cr)	mg/L	0.0036	0.0028			
Total Cobalt (Co)	mg/L	0.0031	0.0041			
Total Copper (Cu)	mg/L	0.0058	0.0060			2.57
Total Iron (Fe)	mg/L	7.0	5.3			0.3
Total Lead (Pb)	mg/L	0.0022	0.0096			0.004
Total Lithium (Li)	mg/L	0.054	0.036			
Total Magnesium (Mg)	mg/L	48	27			
Total Manganese (Mn)	mg/L	0.40	0.98		0.26	
Total Molybdenum (Mo)	mg/L	0.017	0.0054			0.073
Total Nickel (Ni)	mg/L	0.011	0.011			0.1
Total Phosphorus (P)	mg/L	0.16	0.14			
Total Potassium (K)	mg/L	12	5.7			
Total Selenium (Se)	mg/L	0.0010	0.00061			0.001
Total Silicon (Si)	mg/L	9.6	5.6			
Total Silver (Ag)	mg/L	<0.00010	<0.00010			0.00025
Total Sodium (Na)	mg/L	35	21			
Total Strontium (Sr)	mg/L	0.40	0.39			
Total Sulphur (S)	mg/L	30	46			
Total Thallium (Tl)	mg/L	<0.00020	<0.00020			0.0008
Total Tin (Sn)	mg/L	<0.0010	<0.0010			
Total Titanium (Ti)	mg/L	0.014	0.026			
Total Uranium (U)	mg/L	0.0093	0.0046		0.033	0.015
Total Vanadium (V)	mg/L	0.0055	0.0057			

Emergency Dredging Project, Hay River, NT

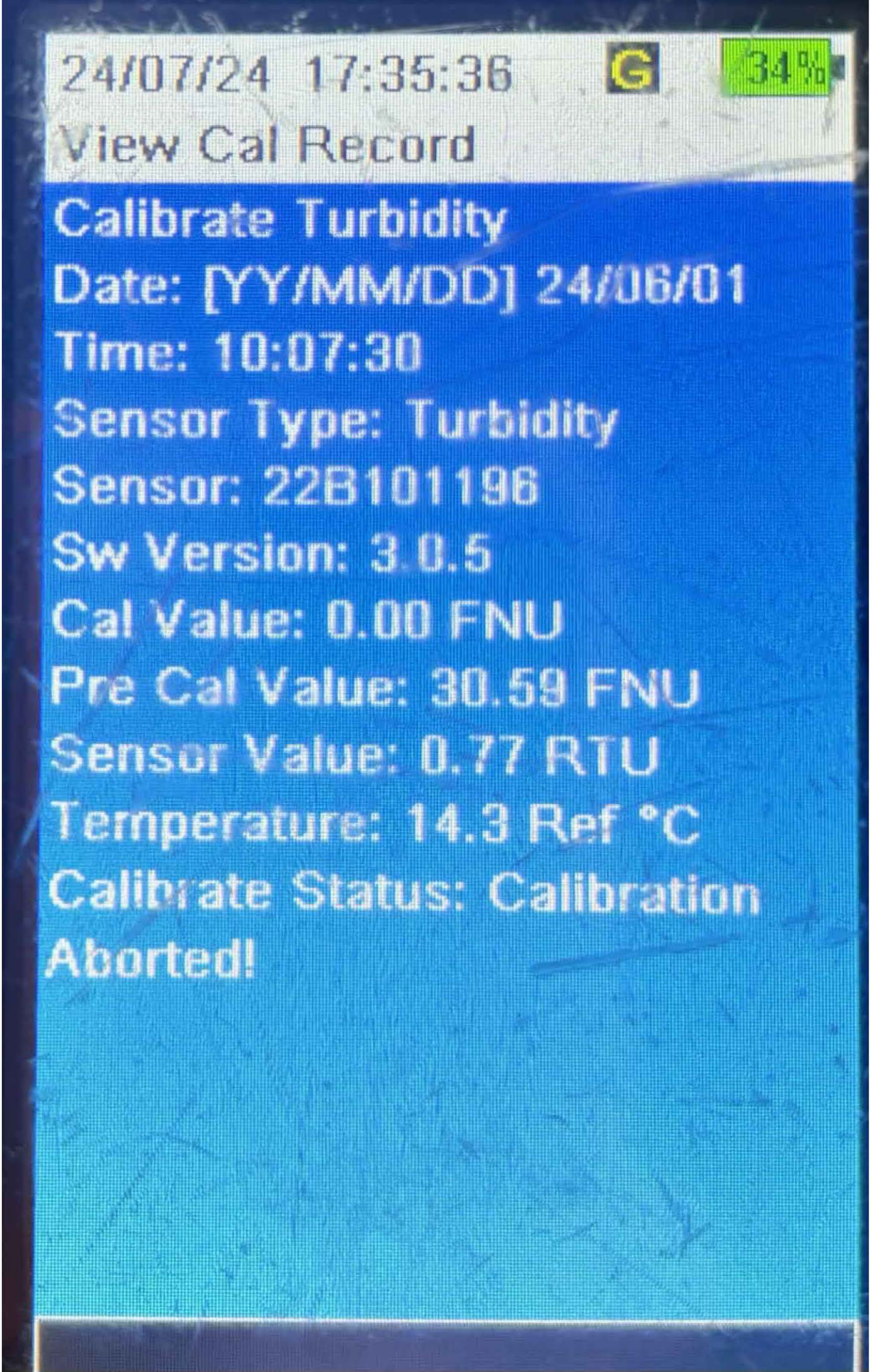
Water Quality Monitoring

		Water from Dredgate from Area B	Water from Dredgate from Area A		Short-Term Exposure	Long-Term Exposure
Total Zinc (Zn)	mg/L	0.041	0.058		equation(1)	equation(1)
RESULTS OF CHEMICAL ANALYSES OF WATER						
Bureau Veritas ID		CPV790	CPV791			
Sampling Date		2024/06/20 13:20	2024/06/20 13:15			
COC Number		C#728221-02-01	C#728221-02-01			
	UNITS	**HR24-SU03-(06-20)01B**	**HR24-SU03-(06-20)01A**			
Misc. Inorganics						
Total Dissolved Solids	mg/L	730	540			
Total Suspended Solids	mg/L	100	180 (1)			

Exceedance for CCME WQGL Short or Long Term

Appendix B

Calibration Information from Field Multimeter


24/07/24 17:35:36
G
34 %
View Cal Record
Calibrate Turbidity
Date: [YY/MM/DD] 24/06/01
Time: 10:07:30
Sensor Type: Turbidity
Sensor: 22B101196
Sw Version: 3.0.5
Cal Value: 0.00 FNU
Pre Cal Value: 30.59 FNU
Sensor Value: 0.77 RTU
Temperature: 14.3 Ref °C
Calibrate Status: Calibration
Aborted!