



November 09, 2022

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Environment, Climate and Parks
Environmental Stewardship Division
Environmental Compliance and Enforcement
1007 Century Street
Winnipeg, MB R3H 0W4

Attention: James Capotosto, Director

**RE: SEWPCC BIOLOGICAL NUTRIENT REMOVAL AND UPGRADE PROJECT – 2022
QUARTER 3 SUMMARY REPORT – JULY 1 TO SEPTEMBER 30, 2022**

The City of Winnipeg is submitting the 2022 Quarter 3 Summary Report for the South End Water Pollution Control Centre (SEWPCC) Biological Nutrient Removal and Upgrade Project operating under Environmental Act Licence No. 2716RR as required by Manitoba Conservation and Climate Notice of Alteration dated April 14, 2022.

The following summarizes the works conducted on key areas of the upgrade project for the period of July 1 to September 30, 2022.

Area S - Secondary Clarifiers (SC) 1 & 2

Additional rehab has been identified in SC1 which has increased the refurbishment work, with work continuing in SC2. Work involves the concrete refurbishment, installation of new weir baffles, electrical controls, mechanical skimmer and walkway. Several summer storm events resulted in high level flows flooding the work zones causing delays and lost materials. With the increased rehabilitation work and flooding events, the work is expected to be completed and operating by Q4, 2022 with full hand over in Q1, 2023. This is a change from the previously reported hand over date of Q3 2022. This work is not critical path to the licence conditions.

Area S - Secondary Clarifiers 4 & 5, Demonstration Testing

SC 4 and 5 are operating as designed without issue. Handover of SC 4 & 5 to the City has been completed and is under the City operation.

Area G - Grit and Screening Building, Demonstration Testing

The work in Area G is 97% complete for this period. The system is currently in the operating and monitoring stage to confirm performance. A significant number of deficiency items have been remediated. The system has not yet been handed over to the City. Handover is expected in Q3 2022; this is revised from Q1 2022 as final documents, manuals and deficiencies are being completed.

Area G - Raw Sewage Pump #2, Demonstration Testing

The replacement of the raw sewage pump #2 is scheduled for the 2022/2023 low flow period. Currently 10% of the work has been completed and it's on track to be completed in Q1 2023.

Area K - High Rate Clarification (HRC) System, Demonstration Testing

The contractor has started testing checks in preparation of wet testing. The planned completion was September 2022. While preparing for testing, flows were introduced to the channel leading to the HRC at which point leaks were detected in the channel. These issues have delayed demonstration testing, which is now expected to start in November 2022 with full handover to the City revised to end of March 2023 from January 2023. With the commissioning of the BNR system, plant capacity has increased from 100 ML/D to 150 ML/D. However, commissioning of the HRC remains a critical path item required to meet the high flow licence condition of 420 ML/D. The repair work and commissioning will be closely monitored and reported as work progresses.

Area C - Chemical Building Testing

Ongoing testing and deficiency clean up of alarms, set points and equipment communication occurred during this period. Work is estimated at 99% complete; operational handover has been revised to Q4 2022 from Q2 2022 based on documentation handover. The system is operational as demonstration testing has been completed as part of the commissioning and testing of Area R BNR system. The ferric chloride system is being utilized for phosphorous removal as part of the BNR system.

Area R - BNR Demonstration Testing using Chemical Addition for Phosphorus Removal (Licence Conditions)

All three tanks of the BNR were in operation as of July 18, 2022. SEWPCC was converted to a full BNR system on July 27, 2022 with the shutting down of the High Purity Oxygen (HPO) system on July 26. Through this reporting period, the BNR system has been commissioned and is fully operating as designed. Effluent from the plant consistently achieving TN (Total Nitrogen) concentration under 15 mg/L and total phosphorous (TP) below 1 mg/L. TP concentration are being maintained through the use of ferric chloride dosing.

Areas D and T - HPO Tank Conversion to Fermenters and Biofilter, Demonstration Test

The HPO system was fully shut down in July 2022. Work on the HPO Tank conversion to fermenters has started with cleaning and condition assessment of the concrete tanks. The completion date for full biological activity is Q3 2023.

Area U - UV System Upgrades

The contractor is preparing for the upgrades of the UV system in this coming low flow season. All equipment and materials are on site. The plan and process has been approved to proceed.

The Total Phosphorus limit of 1.0 mg/L and Total Nitrogen limit of 15 mg/L in the final effluent are being met.

With the SEWPCC plant converted to a full BNR system, it allowed for the introduction of ferric chloride for chemical trimming of all primary effluent. This, along with the increased biological growth



in the BNR tanks, has allowed the City to achieve final effluent concentrations below 1 mg/L TP and 15 mg/L TN. The laboratory results can be found on the City's web page at the following link.

<https://www.winnipeg.ca/waterandwaste/sewage/compliance.stm#tab-sewpcc>



Area	Contractual Dates	% Previously Reported End of June	% Complete July	% Complete August	% Complete September	Expected Completion	Work Remaining
Secondary Clarifiers 1 & 2	March 20, 2019	55	57	60	70	Q3-2022 Q1 2023	Additional remedial works identified for SC 1&2 work to be completed. High flows resulting from summer storms have limited construction.
Secondary Clarifiers 4 & 5 Demonstration Testing	July 30, 2019	99	99	99	100	Q1 2022	All material submitted and handover to the City completed. Secondary clarifiers 4 & 5 are fully operational and performing as designed under control of the City. Final close out is tied to the plant completion.
Grit and Screening Building Demonstration Testing	August 18, 2019	97	97	97	97	Q1-2022 Q4 2022	System operating but awaiting handover and clean up of deficiencies.
Raw Sewage Pump #2, Demonstration Test	March 20, 2021	10	10	10	10	Q1 2023	Contractor is preparing for the 2022/2023 low flow period.
HRC system, Demonstration Testing	April 6, 2020	93	93	93	93	Q3-2022 Q1 2023	Testing HRC controls. Additional deficiencies from a previous contract were identified and delayed the start of the demonstration wet testing and final completion. Expected completion date revised.
Chemical Building Testing	April 6, 2020	99	99	99	99	Q3-2022 Q4 2022	Completion date deferred as contractor has outstanding manuals, training, and test reports to submit. The facility is functioning as

							commissioned but not handed over to the City.
BNR, Demonstration Test using Chemical for Phosphorus Removal	August 10, 2020	97	98	99	99	Q3 2022 Q4 2022	BNR system is fully operational. Final handover delays may occur due to lagging manuals and test reports.
HPO Tank conversion to Fermenters and Biofilter, Demonstration Testing	July 18, 2021	10	20	25	30	Q3 2023	Decommissioning and cleaning started in August. Conversion to the fermenters has started with the remedial works. Completion date has been corrected to match the February NOA submission.
Substantial Performance	August 29, 2021	74	75	76	76	END Q3 2023	



The City continues to utilize the measures within the contract to push the contractor toward project completion in order to meet the licence requirements.

Should you have any questions on the SEWPCC Biological Nutrient Removal and Upgrade Project, please contact Colin Javra at 204-471-1765 or by email at cjavra@winnipeg.ca.

Sincerely,



Cynthia Wiebe, P. Eng., CAMP
Manager of Engineering Services

Attachment

CJ/dr

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