



ONTARIO
RIVERS
ALLIANCE



Izaak Walton
Fly Fishing Club



Trout Unlimited Canada



Greg Clark Chapter

Coalition for the West Credit River (CWCR)

Recommendations for Monitoring and Adaptive Management Plan (AMP) - to be included in the Environmental Compliance Approval (ECA).

Monitoring Protocol:

- Conduct Ontario Streams Assessment Protocol (OSAP) modules for fish community benthic invertebrates and channel geomorphology to standard stations located at least 150 meters upstream of the point of effluent discharge and at least 150 meters downstream of the point of discharge.
- Both stations are to be located outside of the influence of beaver dams.
- OSAP modules for fish community and benthic invertebrates to be conducted annually during the last two weeks of August of each year under similar river flow conditions.
- To measure background river conditions, a water quality monitoring station should be located 150m upstream of point of effluent discharge.
- To detect the downstream influence, the mixing zone is expected to extend 153m from point of effluent discharge, so similar water quality monitoring station should be located 175m downstream of point of discharge.
- To measure effluent discharge in terms of continuous monitoring for all parameters, including effluent temperature, an effluent quality monitoring station should be located close to the point of discharge into the river, but before the diffuser.
- The operator must ensure the monitoring of effluent quality and quantity is compliant with the Fisheries Act and Wastewater Systems Effluent Regulation SOR/2012-139.
- Effluent flow is in real time (l/s).
- Upstream, downstream, and last manhole real-time measurement of the following parameters:
 - Temperature
 - Chloride
 - Dissolved oxygen
 - pH

Probe Maintenance and Calibration:

- Installation, calibration, and maintenance of the in-river probes is an ongoing activity that is best managed by an accredited public agency having previous experience with water quality monitoring in real time. Credit Valley Conservation (CVC) is recommended. CVC already maintains real-time public data for [several water quality monitoring stations](#), and these upstream and downstream water quality monitoring stations should be added to their network.
- The Toronto and Region Conservation Authority also maintain a [number of stations](#) with real time publicly available data - a best practice for Conservation Authorities.
- The effluent quality monitoring station will need to be installed by the proponent and maintained by the wastewater facility operator.

Critical Temperature Condition Triggering Mitigation:

- When effluent temperature exceeds 19°C for 3 hours at the effluent quality monitoring station, an effluent temperature mitigation procedure shall be triggered to effectively return effluent temperature to 19°C within the following 3 hours. The effluent temperature mitigation protocol should be described in the ECA.
- Once effluent temperature exceeds 19°C more than 6 times in a summer, permanent mitigation measures must be implemented in a timely manner to ensure effluent temperature does not continue to exceed the critical threshold.

Critical Effluent Objectives at Discharge Triggering Mitigation:

- The operator must ensure the monitoring of effluent is compliant with the Fisheries Act and Wastewater Systems Effluent Regulation SOR/2012-139.
- Acute lethality testing is to be performed matching the water temperature of the river at time of sampling.
- When effluent exceeds objective parameters mitigation procedures shall be triggered to effectively return effluent conditions to ECA objectives within the following 3 hours. The chemical mitigation procedures should be described in the ECA.
- Once chloride exceeds the objective more than 6 times in a summer, permanent mitigation measures must be implemented in a timely manner to ensure effluent chloride concentration does not continue to exceed the CCME critical threshold.

Parameter	ESR – Stage 1	Objective	Critical Threshold
Oxygen	4 ppm	9.5 ppm (CCME)	6 ppm
Un-ionized Ammonia		0.02 mg/L (PWQO)	
pH	6.5 – 8.5	6.5 – 8.5 (ESR)	<6.5 or 8.5>
Chloride		<120 ppm (CCME)	640 ppm
Phosphorus	0.07 mg/L	0.004 mg/L (ECCC)	

Data Availability:

- To ensure transparency, all data should be made available to the public in real time, as well as all monthly and annual wastewater treatment and sewage bypass reports.

Rationale:

- It is the Coalition's understanding that a 3-degree upstream/downstream temperature differential has been proposed as a "trigger" condition. This is not an appropriate threshold as it is not supported by fisheries research.
- The 2014 BM Ross & Associates Assimilative Capacity Study recommended the Environmental Compliance Approval include a maximum effluent temperature limit of 19°C and a maximum temperature objective of only 17°C, as recommended by MECP.¹
- The difference between 1°C and 4°C is not a concern, but the difference between 19°C and 22°C is substantial and concerning.
- An ideal scenario would be 2 years of pre-development monitoring data to establish background stream characteristics and to troubleshoot the technology being used.

¹ 2014 – Burns Ross West Credit River Assimilative Capacity Study – August 2014, Table 3, Effluent Quality Criteria. P-13/123.