Enclosure 1: Provincial Advice Record – Crawford Nickel Project Impact Statement

Please submit the completed form by **January 24, 2025,** via the Registry.[1]

Ministry or Organization Contact Information

Submission Date	January 24, 2025
Ministry/Organization	MECP
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Please see questions and guidance in Tables 1, 2 and 3 attached.

MECP Scott Parker, Technical Support, Northern Region

Name of Ministry / Organization Responder

Surface Water Specialist

Title of Responder

January 24, 2025

Date

[1] All comments should be submitted via the ***Submit a Comment*** feature available on the Project's Canadian Impact Assessment Registry page (Reference 83857). Letters and forms can be uploaded using this feature. If you have any difficulties submitting this way, please contact IAAC at *Crawford@iaac-aeic.gc.ca* for assistance.

Table 1. Views to Inform the Impact Assessment

Table 1 can be used to provide views for IAAC's consideration in the analysis of the Project's federal effects[2,3,4] and preparation of the Impact Assessment Report, considering your ministry's local knowledge and regulatory expertise. Reviewers should consider project context and are encouraged to provide solution-oriented advice even where potential gaps in information are observed.

Comment ID	Refence to Impact Statement	Views to Inform the Impact Assessment
Please identify comments by ministry and number. *e.g.: MNR-01*	*Identify the specific section of the Impact Statement to which your comment applies.*	*Provide views and information for IAAC's consideration in the analysis of adverse federal effects, such as* • *whether the information is technically appropriate to support the conclusions presented, and the proposed mitigation measures are suitable to manage effects, considering regional context;* • *sources of uncertainty in the proponent's analysis that may substantially weaken conclusions, if any;* • *suggestions for provincial operational guidance or standards, including other mitigation and monitoring measures, that are well understood to be effective in the region;* • *relevant provincial legislative frameworks such as licensing, permitting, policies or programs that may provide another means to address adverse effects (describe the environmental outcomes that are typically achieved by the frameworks, how they are achieved, and whether mitigation and monitoring may be required and enforced); and* • *if your ministry has identified any permit or approval that it may not be able to issue to allow the Project to proceed as currently planned, and next steps for resolution of any issues.*
MECP-SW-01	15.2.2.1	Regional hydrologic data from 5 WSC stations including WSC Station 04D004 on the Porcupine River at Hoyle. HEC-HMS models developed for each of the three watersheds. Baseline assessment model calibration was performed to match historical recorded flows from WSC station on the Porcupine River at Hoyle. NOTE: previous MECP SW review comments indicated that the use of this WSC station is not suitable for model calibration. The Porcupine River (at Hoyle) WSC 04MD004 station was discontinued in July 2022 as the water levels and discharges may not be valid due to beaver activity and variable backwater from operation of the OPG dam on Nighthawk Lake. WSC historical discharge remarks states that discharge was "*continuously affected by beaver activity and a control dam at tailings (mine) dump site*." Also, WSC indicates that some or all maximum and/or minimum discharge and daily water levels and discharges were flagged as not valid between 2014 and 2022. Also, WSC Station 04MD004 was relocated 400 metres downstream of the original 1976 location in 2007. Therefore, the use of the WSC Station 04MD004 for pro-rating flow likely does not provide an accurate estimation of natural streamflow characteristics in the proposed receivers. If WSC 04MD004 station on the Porcupine River (Hoyle) was used as part of the data collected from local hydrometric monitoring stations for the generation of station-specific rating curves and hydrographs for Jocko Creek, West Buskegau River, and North Driftwood River, it is likely these results do not provide an accurate estimation of natural streamflow characteristics in the proposed receivers.
MECP-SW-02	15.4.1	Analysis included hydrologic model, water balance model, lab analytical data, water quality modeling, and assimilative capacity assessment. If modelling included data from WSC station on the Porcupine River at Hoyle (WSC 04MD004), the results may not be an accurate estimation of characteristics in the proposed receivers. The Porcupine River (at Hoyle) WSC 04MD004 station was discontinued in July 2022 as the water levels and discharges may not be valid due to beaver activity and variable backwater from operation of the OPG dam on Nighthawk Lake. WSC historical discharge remarks states that discharge was "*continuously affected by beaver activity and a control dam at tailings (mine) dump site*." Also, WSC indicates that some or all maximum and/or minimum discharge and daily water levels and discharges were flagged as not valid between 2014 and 2022. Also, WSC Station 04MD004 was relocated 400 metres downstream of the original 1976 location in 2007. Therefore, the use of the WSC Station 04MD004 for pro-rating flow likely does not provide an accurate estimation of natural streamflow characteristics in the proposed receivers.
MECP-SW-03	15.4.1.1, Appendix B.6	HEC-HMS hydrological modelling of sub-watersheds with a predicted change in daily flow of < 10% were identified for subsequent assessment. The 10% threshold was selected based on case studies including Richter et. al (2011), Acreman and Ferguson (2010), and DFO (2013), which indicate that when flow alterations are within 10% of the natural flow "*a high level of ecological protection is provided*". It is important to note that the DFO's (2013) Ecological Flow Requirements to Support Fisheries in Canada which provides guidance regarding flow in riverine ecosystems recommends a minimum of 20 years of river flow data to establish a statistically robust natural flow regime. This can be accomplished using modelled streamflow data and that these models must be both calibrated and validated. It is important to note that the data used to create and calibrate these models cannot be the same data used to validate the models. The guidance may not be applicable for relatively long-term change (years to decades) in flow/volume in small receivers as is describe in the Impact Statement.
MECP-SW-04	15.4.1.2, Appendix c.4, Appendix K	A list of PoPCs were identified using a variety of test methods. Contact water quality evaluated using GoldSim (Appendix C.4 – Surface Water Resource Assessment) and water quality model (Appendix K – Water Quality Assessment). CORMIX used to estimate near-field mixing model. CORMIX mixing zone estimation limited to 200m from FDP. Beyond 200m, a mass balance assessment was used to determine the extent (distance) of the mixing zone from the FDP, where the parameter concentration(s) decrease below the applicable objective/guideline. Assimilative Capacity Assessment (Appendix C of the Surface Water Resources Assessment - Appendix C.5 of the Impact Statement) – in addition to an effluent treatment assessment of the "limits of reasonable and practicable treatment" used to propose effluent criteria and limits for each PoPC. It is important to note that based on the estimated mixing zone lengths provided in the Impact Statement, the treatment and proposed effluent discharge limits may need to be re-evaluated.

[2] "Federal effects" for this purpose means adverse effects within federal jurisdiction and adverse effects that are direct or incidental to the exercise of a federal power, duty or function (as defined in section 2 of the *Impact Assessment Act*).
[3] IAAC also invites views on effects related to public interest factors (defined in section 63 of the *Impact Assessment Act*) that may inform decision-making, such as positive effects on local economic conditions that contribute to sustainability.
[4] IAAC also invites views on potential effects to species at risk, and how they are typically managed in the region, to inform IAAC's obligations under section 79 of the *Species at Risk Act.*

MECP-SW-05	15.4.2.3.2	Potential increased flow >10% is modelled for Jocko Creek and the West Buskegau River during low flow (7Q20) condition in phase 2 of operations (at year 17) as a result of seepage from the TMF. Note that this would be *fugitive untreated seepage* into these waterbodies that may account for greater than 10% of their 7Q20 flow. Seepage from the TMF appears to have been included in the assimilative capacity assessment and mixing zone assessment. However, I recommend considering the potential effects from untreated fugitive seepage from the TMF on surface water quality in downgradient receivers and potential mitigation measures.
MECP-SW-06	15.4.2.3.4	Table 15.5 summarizes instantaneous flow changes in Jocko Creek, West Buskegau River, and North Driftwood River at watershed model outlets. Table 15.5 shows no flow reduction greater than 10% in any receiver throughout life of mine. However, each mine life phase has at least one receiver that will experience +10% increase in flow (variable number of days). Modelled change (increase) in flow >10% occurs during operation is associated with low flow conditions (7Q20) and as a result of site discharge to the streams (Jocko Creek, West Buskegau River), and during Phase 2 (year 17), due to increased groundwater seepage from the TMF (Jocko Creek). Note that this would be *fugitive untreated seepage* into these waterbodies that may account for greater than 10% of their 7Q20 flow. I recommend considering the potential effects from untreated fugitive seepage from the TMF on surface water quality in downgradient receivers and potential mitigation measures.
MECP-SW-07	15.4.3.3.1	Assimilative capacity assessments were conducted using near-field mixing CORMIX model (Version 12.0) in conjunction with mass balance analyses to determine PoPC concentrations at the point of complete mixing and at “pourpoints” (outlets) of subwatersheds downstream of the FDPs. Section 6.2 mass Balance Assessment (Appendix C.5) Table 6.2 provides beyond-model limit pourpoints used for mass balance assessment of PoPCs to estimate the mixing zone. The pourpoints are stream confluences within both the NDR and WBR. It is important to note that these pourpoints do not necessarily represent the actual location (length) of complete mixing for individual PoPCs. The mixing zone for individual PoPCs is expected to be smaller than these arbitrary downgradient locations.
MECP-SW-08	15.4.3.3.1	The West Buskegau River will receive contact water from Collection Pond 3 at FDP-SP-03. Near-field mixing assessment for the West Buskegau River at FDP-SP-03 (including Project Area associated groundwater seepage) to full mixing was achieved within 23 m of the FDP under normal conditions and 199 m under regulatory conditions. However, FDP-SP-01(receives contact water from Collection Pond 1) enters the WBR downstream of FDP-SP-03, thus the full extent of the mixing zone for FDP-SP-03 becomes the combined discharge from both FDPs. Under normal scenario, the mixing zone was defined by *nitrate* at 166 m downstream of FDP-SP-01. The mixing zone on the WBR under regulatory scenario was predicted to be 40.2 km downstream of FDP-SP-01 for *nitrite* and *total aluminum* and Policy 2 parameters *total iron* and total phosphorus. Discharge from FDP-SP-03 is estimated to be 10,000 m^3/d and the 28,000 m^3/d for FDP-SP-01.
MECP-SW-09	15.4.3.3.1	The North Driftwood River will receive contact water from the TMF-NW and the TMF-NE Collection Ponds at FDP-TMF-SP. Near-field mixing assessment for the North Driftwood River at FDP-TMF-SP (including Project Area associated groundwater seepage) to full mixing was achieved within 30 m of the FDP under normal conditions and regulatory conditions. FDP-SP-02 enters the NDR downstream of FDP-TMF-SP. The full extent of the mixing zone is extended downstream for the combined FDP-TMF-SP and FDP-SP-02 effluent discharge. The full extent of the mixing zone for the combined effluent was predicted to be 87 km downstream of FDP-SP-02 at the confluence of the North Driftwood River and the Abitibi River. The full extent of the mixing zone under normal scenario was predicted to be 3.6 km, controlled by nitrate. Other PoPCs were below regulatory objectives. Discharge from FDP-TMF-SP is estimated to be 56,000 m^3/d and 28,000 m^3/d from FDP-SP-02.
MECP-SW-10	Appendix C, Appendix C.4	The Impact Statement provides a description of the fate of seepage from the TMF, Impoundment Facility, and Stockpiles through different mine life components and phases. (Table 4.1, Pg. 9). However, there is no discussion of monitoring and/or mitigation of fugitive seepage in surface water related sections of the Impact Statement. Though this may be discussed in groundwater related sections of the Impact Statement. If not, it is recommended the Impact Statement include discussion regarding potential monitoring and/or mitigation of fugitive seepage from the TMF and other potential identified sources such as the Impoundment facility and Stockpiles. For example, downgradient monitoring wells generally provide the first indication of potential contamination of downgradient surface water receivers. Mitigation discussion may include preventative measures such as impermeable barriers, dewatering wells, perimeter ditching, and/or pump-back systems, etc. It is recommended the surface water section(s) of the Impact Statement that discuss seepage also include discussion regarding potential monitoring and/or mitigation of fugitive seepage from the TMF and other potential identified sources such as the Impoundment facility and Stockpiles. If this is included in another section such as groundwater, that specific section(s) should be identified/referenced in other sections of the Impact Statement (such as surface water) that also discuss site seepage.
MECP-SW-11	Appendix C, Section 5.1	Effluent discharge and water quality – the impact statement indicates that climate change adjusted climate normal discharge from the ponds/effluent treatment plant were used to determine potential effects of *normal* (average) conditions on mixing zone extent, but not for the worst-case regulatory scenario. Note that the assessment should include the worst-case scenario (regulatory) for determining mixing zone extent, since it is the worst-case conditions that are used to develop the mixing zone and effluent criteria and is the most sensitive condition/period in the receiver.
MECP-SW-12	Appendix C, Section 5.2.1.1	Maximum daily concentration of PoPCs expected to be achieved using water treatment were used in the Assimilative Capacity Study to determine the extent of the mixing zone under *regulatory* conditions. Table 5.3 provides the proposed Mine Water Effluent Treated Daily Maximum Concentrations. However, the proposed extent of the mixing zone (for certain PoPCs) is inconsistent with the proposed maximum concentrations used in the ACS. Typically, mixing zones are on the order of meters to several hundred meters from the FDP.
MECP-SW-13	Appendix C, Section 6.1.1	The mixing zone assessment for ultimate receivers indicates that Regulatory scenario model inputs (worst-case scenario) and results are what will be used to propose effluent discharge criteria limits and to establish the extent of the mixing zone for each parameter (PoPCs). Section 6 and Table 6.1 identify CORMIX model input data effluent flow rates that exceed the instream 7Q20 flow rates. Table 6.1 shows three proposed final discharge locations exceed the instream 7Q20 flow under the regulatory scenario It appears that the cumulative impact from both FDP locations along each of the West Buskegau River and The North Driftwood River is addressed in the mixing zone assessment relative to PoPC concentration. However, the downstream cumulative effect of PoPC loading is not discussed. I also note that each FDP effluent discharge flow is compared only to the corresponding instream 7Q20 flow at that specific pourpoint. For example, from Table 6.1, the 7Q20 flow for the regulatory scenario at FDP-TMF-SP (upstream) and FDP-SP-02 (downstream) is 80 L/s and 100 L/s, respectively, and the effluent discharge flow at FDP-TMF-SP (upstream) and FDP-SP-02 (downstream) is 648 L/s and 324 L/s, respectively. Whereas the effluent discharge flow at the downstream FDP (FDP-SP-02) is actually the combination of both FDP-TMF-SP and FDP-SP-02 at 972 L/s. This is repeated for the calculations under the Normal Condition scenario. Under Normal condition scenario, the combined FDP effluent discharges would exceed the Mean Annual Flow (MAF) at the downstream FDP on the North Driftwood River. Based on the information reviewed, the proposed FDP effluent flow rates are inconsistent with provincial requirements for effluent discharge to receiver flow/volume ratios.

		The potential extent of the mixing zones is unclear based on the information presented and therefore the extent of potential impacts is unclear. The information as presented appears to be inconsistent with provincial requirements for sewage discharges. If the EA is ultimately approved and the project proceeds to the provincial permitting stage, receiver-based effluent limits that are protective of the environment will need to be developed in accordance with Procedure B-1-5, consistent with the ministry's PWQOs or other provincially accepted applicable criteria. Based on the presented information, it appears the proponent is considering discharge scenarios where discharge rates/volumes may exceed receiver flows, which likely poses an unacceptably high risk of impact to the receiver(s). It is recommended that Crawford Nickel develop (model) discharge parameters/requirements, such as minimum instream flows or minimum discharge to receiver flow ratios, to minimize potential impacts.
MECP-SW-14	Appendix C, Section 6.2	An assimilative capacity assessment was conducted using near-field mixing CORMIX model (Version 12.0) in conjunction with mass balance analyses to determine PoPC concentrations at the point of complete mixing and at "pourpoints" (outlets) of subwatersheds downstream of the FDPs. Section 6.2 Mass Balance Assessment (Appendix C.5) Table 6.2 provides beyond-model limit pourpoints used for mass balance assessment of PoPCs to estimate the mixing zone. The pourpoints are stream confluences within both the North Driftwood River and the West Buskegau River. Note that these pourpoints are arbitrary locations within each watershed and do no not necessarily correspond to the actual maximum mixing zone length (may be smaller depending on the PoPC).
MECP-SW-15	Appendix C, Section 7.1	Section 7.1 (CORMIX – Mixing Zones) Table 7.1 shows the distance to the point of full mixing for each of the FDPs. Where effluent discharge was estimated to be higher than the receiver flow, the distance to full mixing calculation was not applicable in CORMIX, thus 30 m was used as an estimate for the length to the point of full mixing. Recommend providing an explanation of the methodology/reason for selecting 30 m as the default distance to full mixing. Also, 30 m is referred to as a *conservative* estimate, however, even under the average Normal Condition scenario, the distance to full mixing was predicted to be 166 to 199 m in the West Buskegau River and 185 m in the North Driftwood River. It is important to note that the use of the mass balance/pourpoints to estimate PoPC concentrations to estimate the length of the mixing zone does not necessarily represent the actual distance downstream of the FDPs required for most PoPCs to meet the applicable regulatory criteria or background concentrations. For example, in Section 7.2.1.1.1, the report indicates that Point WB-D, the confluence of the WBR and the Frederick House River 40.2 km downstream of the FDP, is the end of the mixing zone for nitrate, fluoride, arsenic, boron, chromium III and IV, total cobalt, copper, nickel, selenium, uranium, vanadium, and zinc and even farther downstream for nitrite. Similarly, several PoPCs discharged into the North Driftwood River do not meet applicable criteria or background for 87 km (the confluence of the North Driftwood River and the Abitibi River). Despite the fact these mixing zone estimates are "worst-case scenarios" and the actual mixing zones may be substantially smaller, these extremely long mixing zones are inconsistent with provincial requirements. Ministry Procedure B-1-5 (1994) Policy 5 states that: *Mixing zones should be as small as possible and not interfere with beneficial uses*, and *Mixing zones are not to be used as an alternative to reasonable and practical treatment*. In general, it is my experience that most mine effluent mixing zones range from near-instantaneous mixing to several hundred meters downstream of the FDP.
MECP-SW-16	Appendix C.5, Section 5.1.1.1, 5.2.1.1.1	The Impact Statement discussed two options for management of domestic on-site sewage: Sewage treatment plant and/or in-ground conventional septic system. Section 5.1.1.1 and 5.2.1.1.1 indicate that domestic sewage will be treated in a package sewage treatment system prior to discharge to a "receiver" or to a sedimentation pond where it will undergo additional treatment prior to discharge via a FDP. It is recommended that the Impact Statement identify where on-site domestic sewage will be managed. Table 5.4 shows proposed maximum daily and mean monthly treatment limits for the sewage STP. If domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that a discussion of estimated sewage volume and potential water quantity and quality impacts/limitations in the receiver are addressed in the Impact Statement. Also, if domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that the cumulative impact of this domestic sewage effluent and the final effluent discharge are evaluated.
MECP-SW-17	Appendix B.6	Climate change scenarios were modelled to characterize future climate conditions at the site. Regional relationships for low flows were developed using both 7Q10 and 7Q20. Ministry Policy B-1-5 states that for continuous point source discharges, the low flow statistic $7Q_{20}$ is to be used as the basic design flow for the receiving stream. The use of the $7Q_{10}$ statistic instead of the $7Q_{20}$ statistic would underestimate the potential impacts on the receiver and would not represent the worst-case scenario. Therefore, the derivations of predicted water quality and mixing zone characteristics do not provide the information necessary for the ministry to accurately assess the potential impacts from the Project on the proposed receivers.
MECP-SW-18	Appendix B.6, Surface Water Resources Baseline Report	The hydrologic model (HEC-HMS) for each of the three watersheds was developed and calibrated using prorated flows from WSC station 04MD004 on the Porcupine River at Hoyle. As previously discussed, the Porcupine River (at Hoyle) WSC 04MD004 station was discontinued in July 2022 as the water levels and discharges may not be valid due to beaver activity and variable backwater from operation of the OPG dam on Nighthawk Lake. WSC historical discharge remarks states that discharge was "*continuously affected by beaver activity and a control dam at tailings (mine) dump site*." Also, WSC indicates that some or all maximum and/or minimum discharge and daily water levels and discharges were flagged as not valid between 2014 and 2022. Also, WSC Station 04MD004 was relocated 400 metres downstream of the original 1976 location in 2007. Therefore, the use of the WSC Station 04MD004 for pro-rating flow likely does not provide an accurate estimation of natural streamflow characteristics in the proposed receivers.
MECP-SW-19	Section 14.4.2.3.1, 14.4.2.3.2, 14.4.2.3.3	Groundwater flow into the open pit is predicted to impact surface water features, including Jocko Creek, West Buskegau River and North Driftwood River during all phases of mine life. The predicted 1 m drawdown cone around the open pit extends approximately 3.2 to 7.3 km. the residual effects on surface water features are characterized as adverse, long-term, continuous, and irreversible. It is recommended that the residual environmental impact of groundwater drawdown on surface water features and surface water ecology be discussed in the Impact Statement. It is also recommended that potential mitigation measures are evaluated and discussed in the Impact Statement.
MECP-SW-20	Appendix B.8.1 Section 4,2,4	The total estimated area of fish habitat that will be directly affected by the project footprint is 147 ha in the North Driftwood River, West Buskegau River, and Jocko Creek watersheds. Appendix B.8.1 indicates that the Mattagami River from Lower Sturgeon Dam downstream to the yellow Falls Dam is included in the Regional Study Area. However, Appendix B.8.1 (and elsewhere within the Impact Statement) also indicates that the Mattagami River is no longer considered an alternative for mine site effluent discharge. The alternatives assessment indicates the two primary reasons that the Mattagami

	Chapter 3 – Section 3.9 Chapter 5 – 5.3.10.3	River is no longer considered a viable final effluent discharge location is the dewatering of the site area watersheds and the potential impact to lake sturgeon habitat in the Mattagami River downstream of the FDP.

Please insert additional rows as necessary.

Table 2. Missing Information in Relation to the Tailored Impact Statement Guidelines

Table 2 should be used to identify missing or unclear information from the Impact Statement that is **both** 1) required by the Tailored Impact Statement Guidelines **and** 2) required to formulate ministry views to inform the impact assessment.

Deficiency ID	Reference to Impact Statement	Reference to Tailored Impact Statement Guidelines	Description of Deficiency (Context and Rationale)	Advice for Resolving Deficiency
Please identify deficiencies by ministry and number. *e.g.: MNR-02*	*Identify the specific section of the Impact Statement where information is deficient.*	*Identify the specific section of the Tailored Impact Statement Guidelines where a requirement has not been satisfied.*	*Provide a brief description of the deficiency, including a rationale for why the information does not meet the requirements of the Tailored Impact Statement Guidelines and how the missing could inform the impact assessment.*	*Provide a clear and precise description of the missing information that would resolve the issue. Optionally provide other commitments the proponent can make to respond, such as:* • *offsetting or mitigation to compensate for uncertainty in baseline;* • *follow-up to verify the accuracy of predictions and effectiveness of mitigation;* • *applicable guides, standards and thresholds the proponent intends to meet; and* • *measures the proponent intends to take to comply with other legislative frameworks that provide a means to address effects.*
MECP-SW-21	15.2.2.1, 15.4.1		Regional hydrologic data from 5 WSC stations including WSC Station 04D004 on the Porcupine River at Hoyle. HEC-HMS models developed for each of the three watersheds. Baseline assessment model calibration was performed to match historical recorded flows from WSC station on the Porcupine River at Hoyle. NOTE: previous MECP SW review comments indicated that the use of this WSC station is not suitable for model calibration. The Porcupine River (at Hoyle) WSC 04MD004 station was discontinued in July 2022 as the water levels and discharges may not be valid due to beaver activity and variable backwater from operation of the OPG dam on Nighthawk Lake. WSC historical discharge remarks states that discharge was "*continuously affected by beaver activity and a control dam at tailings (mine) dump site*." Also, WSC indicates that some or all maximum and/or minimum discharge and daily water levels and discharges were flagged as not valid between 2014 and 2022. Also, WSC Station 04MD004 was relocated 400 metres downstream of the original 1976 location in 2007. Therefore, the use of the WSC Station 04MD004 for pro-rating flow likely does not provide an accurate estimation of natural streamflow characteristics in the proposed receivers. If WSC 04MD004 station on the porcupine River (Hoyle) was used as part of the data collected from local hydrometric monitoring stations for the generation of station-specific rating curves and hydrographs for Jocko Creek, West Buskegau River, and North Driftwood River, it is likely these results do not provide an accurate estimation of natural streamflow characteristics in the proposed receivers. Analysis included hydrologic model, water balance model, lab analytical data, water quality modeling, and assimilative capacity assessment. If modelling including data from WSC station on the Porcupine River at Hoyle. (WSC 04MD004), the results may not be an accurate estimation of characteristics in the proposed receivers. Therefore, the use of the WSC Station 04MD004 for pro-rating flow likely does not provide an accurate estimation of natural streamflow characteristics in the proposed receivers.	It is recommended that the proponent reevaluate the HEC-HMS modelling and any modelling that included streamflow data from WSC 04MD004, such as the assimilative capacity assessment, water balance, and estimation of the mixing zone.
MECP-SW-22	15.4.2.1	15.4.2.1	The Impact Statement indicates that during open pit-full phase, once the open pit reaches its discharge elevation of 272.5 masl (spillway elevation), the open	Identify the receiver the open pit will passively discharge to following pit filling at closure.

			pit will discharge water passively to the environment, however, the specific receiver (West Buskegau and North Driftwood) is not indicated.	
MECP-SW-23	Appendix C, Appendix C.4		The Impact Statement provides a description of the fate of seepage from the TMF, Impoundment Facility, and Stockpiles through different mine life components and phases. (Table 4.1, Pg. 9). However, there is no discussion of monitoring and/or mitigation of fugitive seepage in surface water related sections of the Impact Statement. Though this may be discussed in groundwater related sections of the Impact Statement. If not, it is recommended the Impact Statement include discussion regarding potential monitoring and/or mitigation of fugitive seepage from the TMF and other potential identified sources such as the Impoundment facility and Stockpiles. For example, downgradient monitoring wells generally provide the first indication of potential contamination of downgradient surface water receivers. Mitigation discussion may include preventative measures such as impermeable barriers, dewatering wells, perimeter ditching, and/or pump-back systems, etc.	It is recommended the surface water section(s) of the Impact Statement that discuss seepage also include discussion regarding potential monitoring and/or mitigation of fugitive seepage from the TMF and other potential identified sources such as the Impoundment facility and Stockpiles. If this is included in another section such as groundwater, that specific section should be identified in other sections of the Impact Statement that also discuss site seepage.
MECP-SW-24	Appendix C, Section 5.1		Effluent discharge and water quality – the impact statement indicates that climate change adjusted climate normal discharge from the ponds/effluent treatment plant were used to determine potential effects of *normal* (average) conditions on mixing zone extent, but not for the worst-case regulatory scenario. Note that the assessment should include the worst-case scenario (regulatory) for determining mixing zone extent, since it is the worst-case conditions that are used to develop the mixing zone and effluent criteria and is the most sensitive condition/period in the receiver.	
MECP-SW-25	Appendix C, Section 7.1		Section 7.1 (CORMIX – Mixing Zones) Table 7.1 shows the distance to the point of full mixing for each of the FDPs. Where effluent discharge was estimated to be higher than the receiver flow, the distance to full mixing calculation was not applicable in CORMIX, thus 30 m was used as an estimate for the length to the point of full mixing. Also, 30 m is referred to as a *conservative* estimate, however, even under the average Normal Condition scenario, the distance to full mixing was predicted to be 166 to 199 m in the West Buskegau River and 185 m in the North Driftwood River.	Recommend providing an explanation of the methodology/reason for selecting 30 m as the default distance to full mixing.
MECP-SW-26	Appendix B.5, Section 2.3.2, Section 14.1.1.1.2		The Impact Statement references the use of Brownfield O.Reg. 153/04 Aquatic Protection Values (APVs) for potential off-site groundwater water (seepage) impacts to surface water. Since this is a new/greenfield development the use of O.Reg. 153/04 APVs is not applicable for developing criteria for assessment of groundwater discharges to surface water.	Recommend re-evaluating using applicable criteria such as PWQOs and CWQG-FAL or other ministry accepted criteria for assessment of groundwater discharge to surface water. Downgradient monitoring wells generally provide the first indication of potential off-site groundwater impacts to adjacent surface water receivers.
MECP-SW-27	Appendix C.5 Chapter 5 – 5.3.11		The Impact Statement indicates there will be no permanent deposition of waste on-site. Although it is very early in site development, it is recommended that the Impact Statement identify how and where on-site non-hazardous and hazardous waste will be temporarily accommodated prior to off-site removal.	It is recommended that the Impact Statement identify how and where on-site non-hazardous and hazardous waste will be temporarily accommodated prior to off-site removal.
MECP-SW-28	Appendix C.5, Section 5.1.1.1, 5.2.1.1.1 Chapter 3 – Section 3.3.7.1 and 3.8.2.3		The Impact Statement discussed two options for management of domestic on-site sewage: Sewage treatment plant and/or in-ground conventional septic system. Section 5.1.1.1 and 5.2.1.1.1 indicate that domestic sewage will be treated in a package sewage treatment system prior to discharge to a "receiver" or to a sedimentation pond where it will undergo additional treatment prior to discharge via a FDP. Table 5.4 shows proposed maximum daily and mean monthly treatment limits for the sewage STP. If domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that a discussion of	It is recommended that the Impact Statement identify where on-site domestic sewage will be managed. If domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that a discussion of estimated sewage volume and potential water quantity and quality impacts/limitations in the receiver are addressed in the Impact Statement. Also, if domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that the cumulative impact of this domestic sewage effluent and the final effluent discharge is evaluated.

			estimated sewage volume and potential water quantity and quality impacts/limitations in the receiver are addressed in the Impact Statement. Also, if domestic sewage is treated using a STP and discharged directly to a receiver, it is recommended that the cumulative impact of this domestic sewage effluent and the final effluent discharge is evaluated.	
MECP-SW-29	Section 14.4.2.3.1, 14.4.2.3.2, 14.4.2.3.3 Appendix I		Groundwater flow into the open pit is predicted to impact surface water features, including Jocko Creek, West Buskegau River and North Driftwood River during all phases of Mine life. The predicted 1 m drawdown cone around the open pit extends approximately 3.2 to 7.3 km. the residual effects on surface water features are characterized as adverse, long-term, continuous, and irreversible. Note: Open Pit filling to spillway discharge elevation is estimated to take 117 years post closure (mine life year 159).	It is recommended that the residual environmental impact of groundwater drawdown on surface water features and surface water ecology be discussed in the Impact Statement. It is also recommended that potential mitigation measures are evaluated and discussed in the Impact Statement.

Please insert additional rows as necessary.

Table 3. Advice to the Proponent to Support Regulatory Efficiency

Table 3 can be used to inform future or concurrent provincial regulatory processes for the Project, to support regulatory efficiency.

Advice ID	Refence to Impact Statement	Provincial Permit or Licence	Advice to the Proponent to Support Permitting Efficiency
Please identify advice by ministry and number. e.g.: MNR-03	*Identify the section of the Impact Statement to which your comment applies.*	*List the potential approval or relevant legislative framework*	• *Describe information needed to determine if the provincial approval is required.* • *Identify if the Impact Statement could be sufficient to complete the permitting process. If not, briefly describe what is needed next.* • *Advise how the Proponent can coordinate regulatory requirements with the remainder of the impact assessment process to streamline approvals.* • *Describe environmental outcomes of the regulatory framework and how they are achieved such as regulations or enforceable conditions.* • *Identify any permit or approval that your ministry may not be able to issue to allow the Project to proceed as currently planned, and next steps to resolve issues.*
MECP-SW-30	Appendix E	Surface water related project commitments include: • Develop and implement a site-wide water management plan. • Stormwater management designed to manage the 1 in 100-year storm return event. • Seepage collection ditching to intercept shallow groundwater seepage from the TMF, Impoundment Facility, and Ore Stockpiles. • Water discharges to the North Driftwood River and West Buskegau River will be *balanced to the extent feasible* to maintain watercourse flows. • Treated effluent will meet regulatory criteria including required through MECP ECA	Each commitment included in Appendix E is a high-level acknowledgement of requirements necessary throughout life of mine and during each phase of mine development. Each commitment will require specific information not necessarily included within the Impact Statement and/or potentially updates or revisions to already provide information to complete the permitting process.

		(developed through ACS), in addition to MDMER regulations prior to discharge to the environment. • Develop and implement a ML/ARD management plan.	

Please insert additional rows as necessary.