Environmental Effects Monitoring (EEM) Cycle

The Environmental Effects Monitoring (EEM) cycle is essential for ensuring compliance with the Metal and Diamond Mining Effluent Regulations (MDMER). Each step from study design to interpretive reporting helps identify potential environmental effects and supports adaptive management. Understanding the EEM cycle is key to maintaining regulatory compliance and demonstrating environmental responsibility.

Possible Monitoring Paths

Once the MDMER are triggered, an EEM study design must be submitted within 12 months. The study assesses for potential effects to fish populations, benthic invertebrate community, and/or fish tissue mercury and selenium concentrations downstream of mine discharges. While EEM technical guidance provides directions on the methods to apply, design and implementation involve a nuanced understanding of local habitat and biota, requiring a tailored, site-specific approach for every study. Scientists evaluate what the best methods available are to ensure robust data is collected to present scientifically defensible results and conclusions.

When effects are observed, the cause of these effects need to be investigated (Investigation of Cause; IOC). Our experts have implemented IOC studies for numerous clients, investigating causes related to elevated metal concentrations in effluent, historical impacts, the influence of effluent on productivity, population dynamics, natural variability, and more.

Routine Monitoring

Site Characterization and Monitoring Summary

MDMER Trigger

Within 12 Months

EEM Study Design

Submit Design 6 Months Pre-Implementation

Field Implementation

Interpretive Reporting

Effects Observed

Reports Due 36 Months After MDMER Trigger and Every 3 Years Thereafter

Site Monitoring Data

IOC Monitoring

Site Characterization and Monitoring Summary

EEM Study Design with IOC Methods

Submit Design 6 Months Pre-Implementation

Identify the cause of the effect?

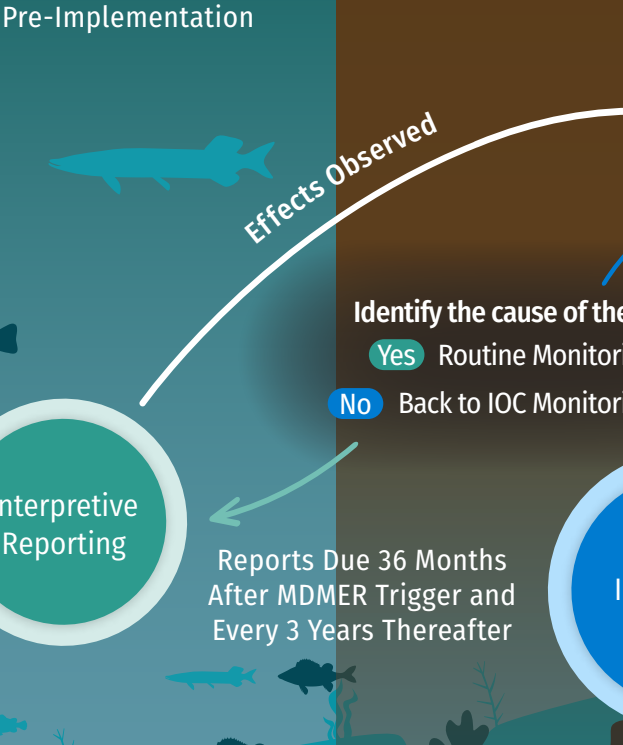
Yes Routine Monitoring Path

No Back to IOC Monitoring Path

Field Implementation with Additional Sampling

IOC Interpretive Reporting

Site Monitoring Data



Baseline Sampling

The collection of baseline data at EEM sampling areas can help identify pre-existing, natural variability, which can prevent the identification of 'effects' that are not mine-related.

Final EEM Study

At closure, one final EEM study is required, to be initiated after written notice has been provided to the Minister of Environment.

EEM studies are completed on a 36-month cycle during operations to monitor for potential effects to the receiving environment, and investigate effects if required.

Producing a quality EEM report requires robust data collection and analysis, integration of site and field data, and interpretation based on a comprehensive evaluation of overall conditions. Our scientists go above and beyond the minimum reporting requirements, producing detailed interpretive reports that clearly outline the results and provide integrated conclusions. This has resulted in favourable feedback from clients and regulators.

Minnow Environmental, A Trinity Consultants Canada Team, has been conducting EEM studies for clients for over twenty years. With an understanding of the regulations, a commitment to put in the effort required to collect robust data, attention to detail, and a thorough process of data evaluation and interpretive reporting, clients can trust that EEM studies completed by Minnow will meet and exceed the requirements of the MDMER, while being conducted in a cost-effective manner.

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