July 30th, 2024

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Re: Follow-up Report Spill #2024-217 – Release of 1.5m³ of Sewage at the Meliadine Gold Mine

On June 6th, 2024, the Nunavut Spill Line was notified by Agnico Eagle personnel via email (spills@gov.nt.ca) of a spill of approximately 1.5m³ of sewage at the Meliadine Gold Mine site (spill location coordinates: 63° 2'23" N, 92° 13'33.47" W). This follow-up report provides supplemental information based on the results of the incident assessment and is being provided in accordance with:

- Nunavut Water Board License 2AM-MEL1631 Water License, part H, item 8c.

Description of Incident

On June 6th, 2024, at approximately 04:30, an estimated 1.5m³ of sewage was spilled onto the industrial pad of the Sewage Treatment Plant (STP). An electrical relay failure in a pump system modified the normal sequencing of three valves, allowing these valves to be actuated in the wrong position. This caused treated effluent to be transported back into the aerobic tanks while they were receiving raw sewage for treatment, exceeding the aerobic tank capacity and resulting in an overflow from aerobic tank #2.

No water bodies were affected by the spill. The closest water body, Lake G2, is approximately 350 meters northwest, as seen in Figure 1.

Figure 1: Location of the sewage spill and proximity to water bodies.

Response and Remediation

Upon discovery of the spill, the STP operator notified their supervisor and manually closed the valve between the treated effluent tank and aerobic tank #2. The operator then lowered the aerobic tank #2 level with a vacuum truck to prevent further overflow. Instrumentation was called to replace the faulty electrical relay. Once the spill was under control, a vacuum truck was dispatched to collect the free-standing liquid inside and outside the STP. Additionally, the ground surface was excavated, and the recovered material was transported to Landfarm A in accordance with the Spill Contingency Plan.

Root Cause and Corrective Measures

An incident assessment was conducted soon after the incident occurred to determine the root cause and contributing factors. The assessment concluded with the following:

- The STP operator observed the aerobic tanks levels increasing throughout the day of the 5th. Following de-sludging to lower the tank levels, no physical validation was done to confirm the STP was running in normal mode. The Human-Machine Interface (HMI) indicated that the system was running as normal, but with the faulty electrical relay, the valves were in the wrong position.
- Multiple high and high/high alarms were sent to STP's PLC from 13:10 to 18:16 on the 5th, but alarms sent after 16:40 were not acknowledged due to a lack of staff on night shift. At the time of the spill, there was no established night shift operator position or support staff with sufficient knowledge of the system.
- The existing procedures and checklists were inadequate for the available supporting staff.
- Alarms sent to the Energy and Infrastructure (E&I) Supervisor's radio do not include high levels on specific equipment like aerobic tanks. Only general alarms are sent to the Supervisor's radio. No specific alarms are sent to STP operator's radio during night shift as well.

The following corrective and preventative actions have been implemented to address the root cause and to reduce the likelihood of reoccurrence:

- Implemented on June 2nd, a designated radio number for the E&I Supervisor on duty (day and night shifts) has been established.
- Implemented on June 11th, a detailed set of general operating procedures and an STP start-up checklist is implemented to ensure a thorough verification process prior to the commencement of the STP operation, including the HMI verification and a physical tour of the plant to validate what the HMI is showing.
- Implemented on June 19th:
    - training sessions for STP and EWTP operators (for night shift coverage) from an experienced operator will be ongoing daily to build capacity on site.

  - a daily end-of-day meeting with the STP operators, the E&I supervisors (day and night shifts), the experienced STP operator, and the Environment department personnel to review and validate operational metrics, action items, and allow the supervisors to be updated on the STP operational status.
  - a revised checklist is now filled out by the STP operator to be reviewed at the end-of-day meeting.
- E&I are investigating the options for the STP operators and for the E&I supervisors to receive critical alarms on their radios.
- Training is being provided to the E&I night shift supervisors to recognize and prioritize alarms from the STP.

Should you have any questions or require further information, please do not hesitate to contact the undersigned.

AGNICO EAGLE

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Appendix – Photos

Photos 1: Sewage spill location.

Photos 2: Sewage spill location post remediation.