

To: Lisa Mah and Colleen Prather
(Agnico Eagle Mines Limited)

Date: February 23, 2024

From: Lorax Environmental Services Ltd.

Project: A667-3

Subject: Information Requests for F-21 Water Quality Predictions: Appendix E

Responses to CIRNAC comment

CR-01	<p>F-21 Water Quality Predictions: Appendix E of the Appendix F-21 Water Management Plan.</p> <p>The amendment application includes an updated Water Quality and Load Balance Model (WQLBM). However, the updated WQLBM does not have figures depicting the water quality predictions, making it challenging to identify emerging water quality trends. This information will have to be provided by the applicant before a determination of the future water quality.</p> <p>Completeness Recommendation:</p> <p>CIRNAC recommends that Agnico Eagle provide a revised WQLBM with appropriate figures to address this gap.</p>
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Appendix E Time Series Water Quality Predictions

Model predictions for TDS, ammonia and arsenic are presented as time-series plots at the main collection ponds and discharge points during Operations (Figure E-1 through Figure E-6). Similarly, time-series plots during mine closure phases are provided for key model nodes and parameters in Figure E-7 through Figure E-27 to illustrate long-term Closure water quality trends. This Appendix E is intended to supplement the water quality model results presented in Section 6 of the “*Water Balance and Water Quality Mode Technical Report*”.

No exceedances of any parameters are predicted in effluent discharged from EWTP during mine Operations.

Ammonia concentrations in the Waterline discharge are predicted to exceed a working ammonia discharge criteria, and treatment options are being investigated; all other constituents are predicted to be less than the metal and diamond mining effluent concentrations.

Among the model nodes presented in the 2024 NWB model update, SP6, WES04, and Lake J1 show Post Closure predictions above generic guidelines for nitrate, ammonia, chloride, arsenic, and selenium. However, it is important to note that the predictions above generic guidelines are

limited in magnitude, and limited in duration (occur either at the start of post-closure or occur decades after mine closure (2104)).

In addition, the Meliadine Mine water balance and water quality forecast is calibrated annually, using operational data, to ultimately inform ongoing operations and eventual closure, and to validate assumptions used in the post-closure water quality predictions. This annual update is required per Water Licence condition Part E, Item 13.

Further, Water Licence condition Part E, Item 11 also requires an update of the Water Management Plan and water balance and water quality forecast prior to closure, which would also address management actions to be implemented, should they be required.

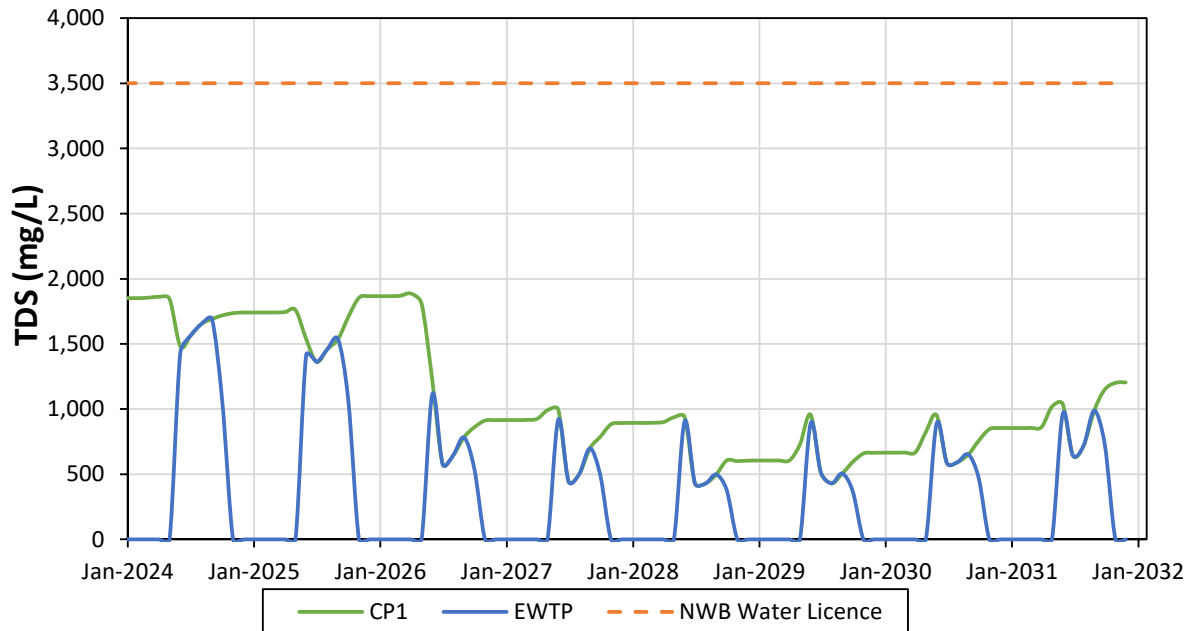


Figure E-1: Projected concentrations of total dissolved solids (TDS) at CP1 and EWTP during Operations (2024-2031) as compared to the NWB Water Licence limit.

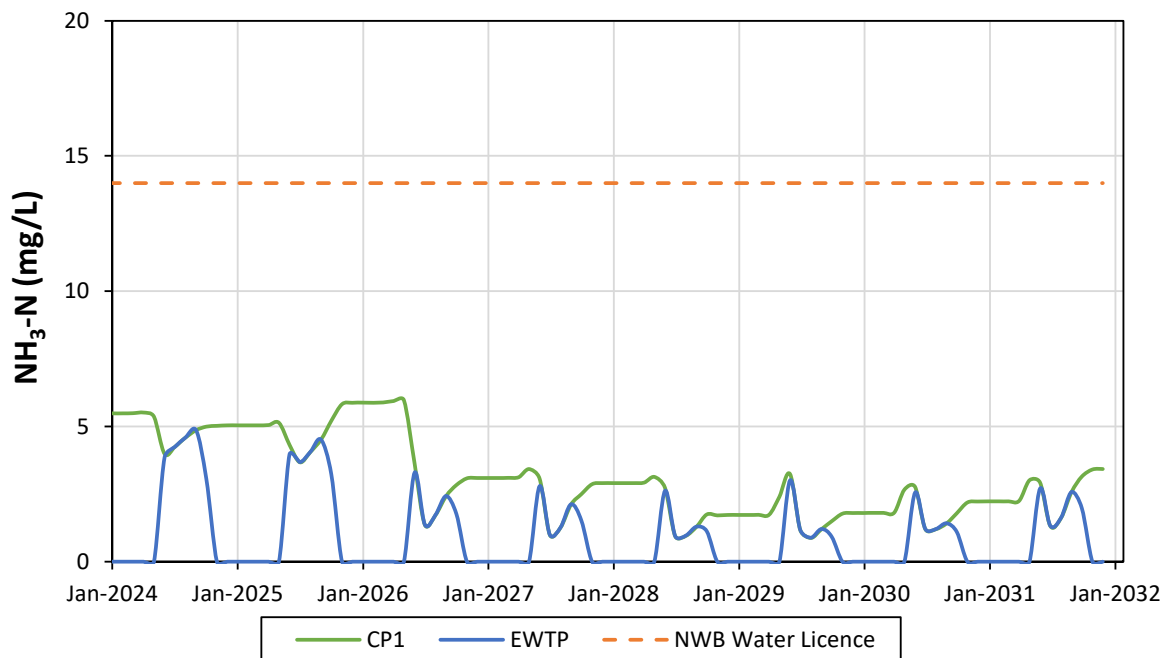


Figure E-2: Projected concentrations of ammonia (NH₃-N) at CP1 and EWTP during Operations (2024-2031) as compared to the NWB Water Licence limit.

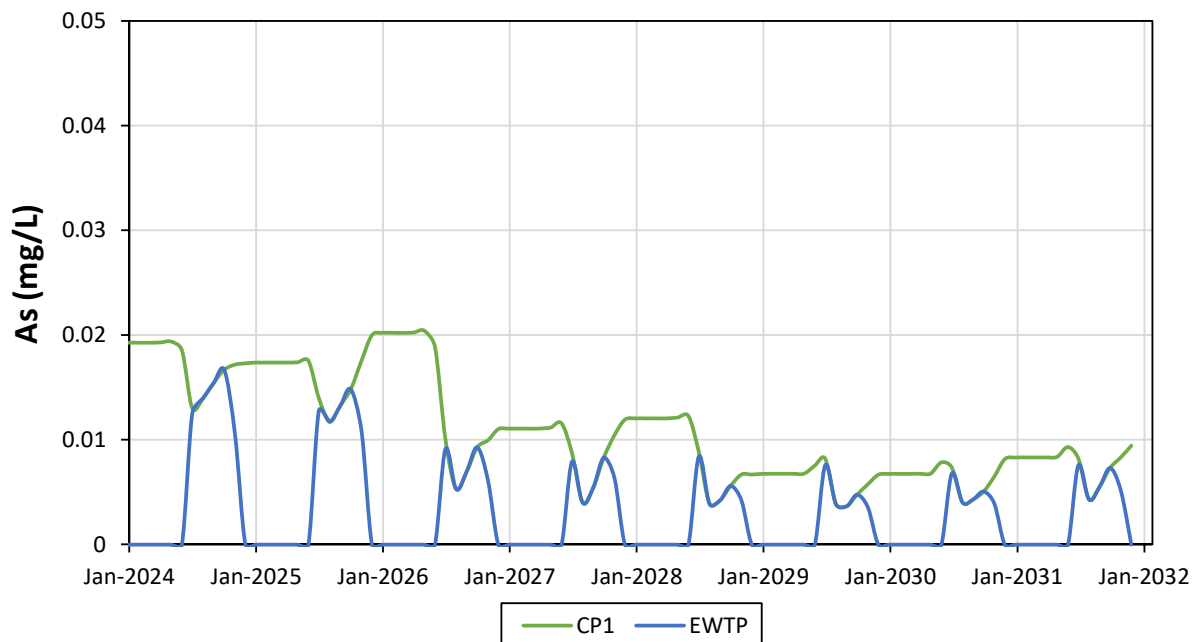


Figure E-3: Projected concentrations of arsenic (As) at CP1 and EWTP during Operations (2024-2031). NWB Water Licence limit of 0.3 mg/L not shown.

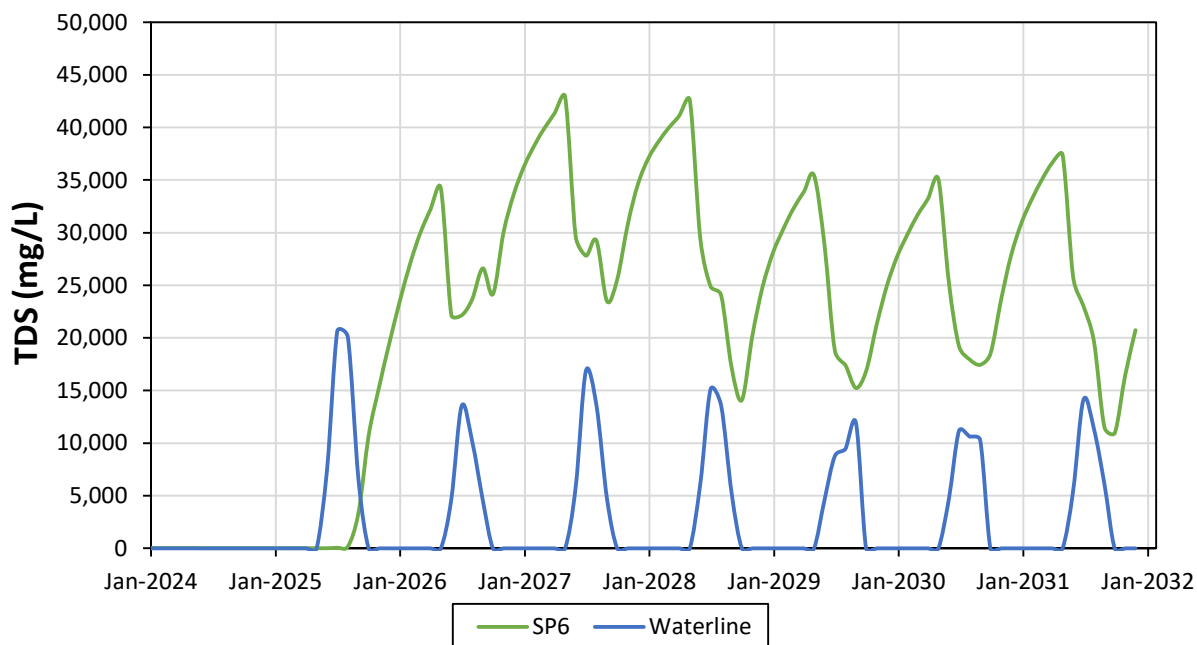


Figure E-4: Projected concentrations of total dissolved solids (TDS) at SP6 and Waterline during Operations (2024-2031).

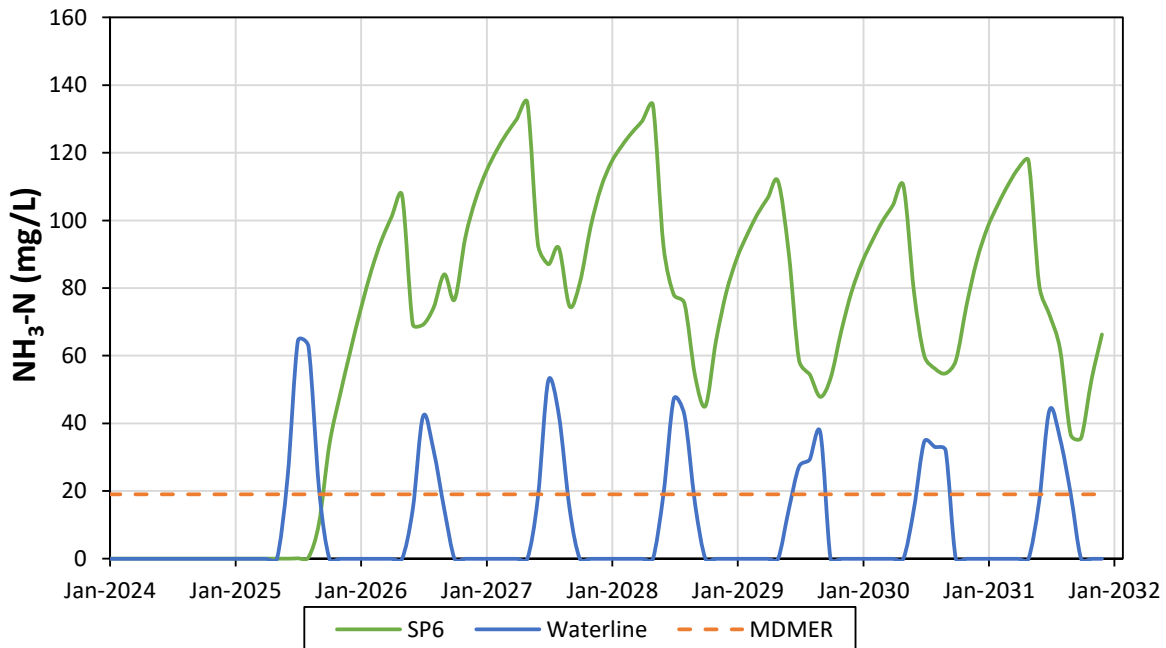


Figure E-5: Projected concentrations of ammonia ($\text{NH}_3\text{-N}$) at SP6 and Waterline during Operations (2024-2031) as compared to the maximum monthly mean effluent concentrations specified in in MDMER (Schedule 4, Table 2).

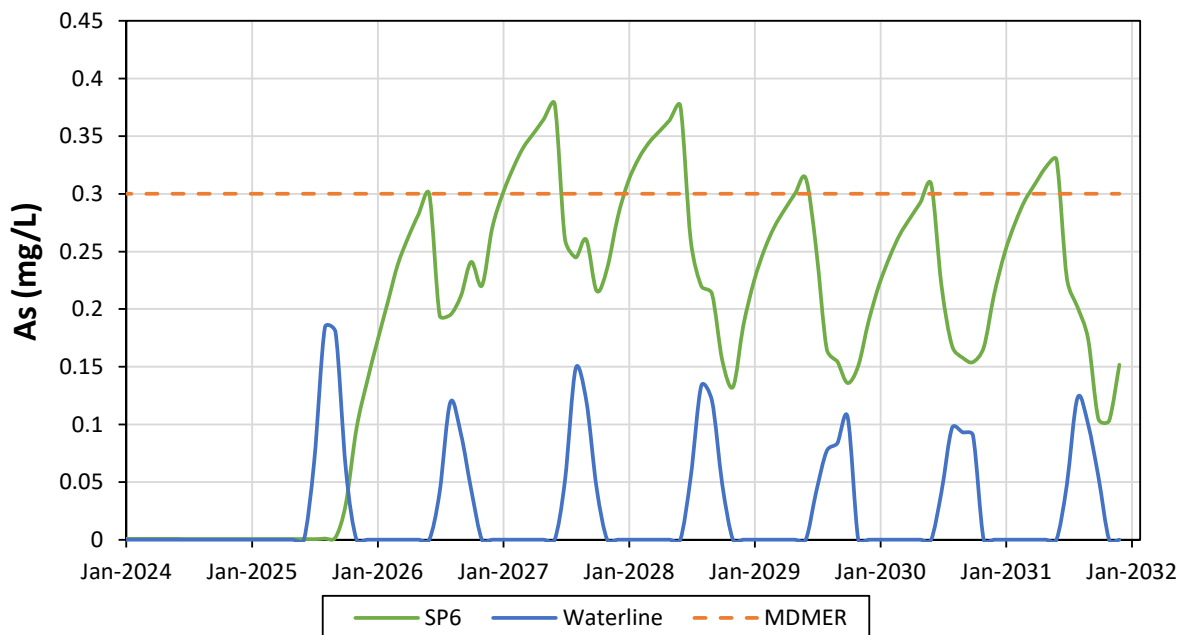


Figure E-6: Projected concentrations of arsenic (As) at SP6 and Waterline during Operations (2024-2031) as compared to the maximum monthly mean effluent concentrations specified in in MDMER (Schedule 4, Table 2).

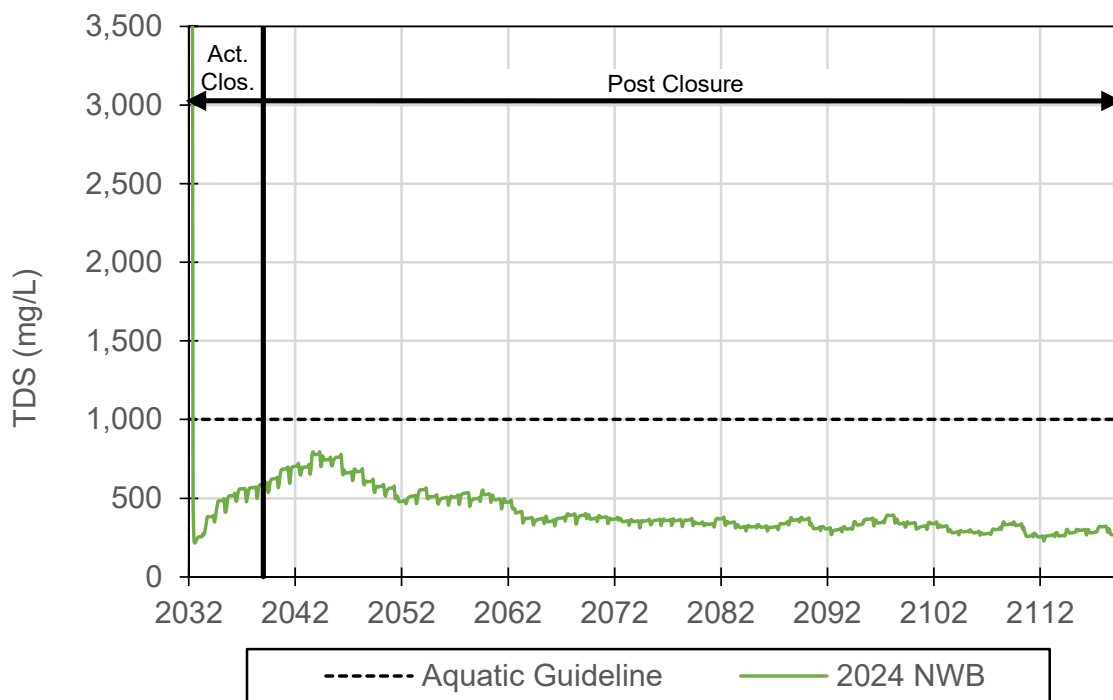


Figure E-7: Projected concentrations of total dissolved solids (TDS) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

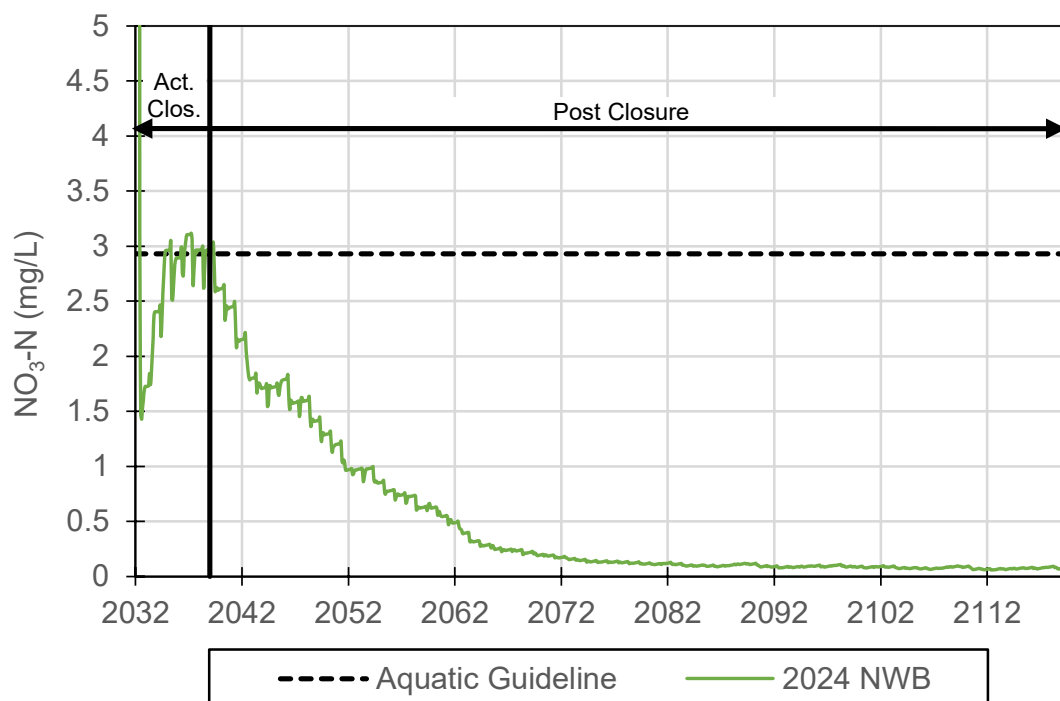


Figure E-8: Projected concentrations of nitrate (NO₃-N) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

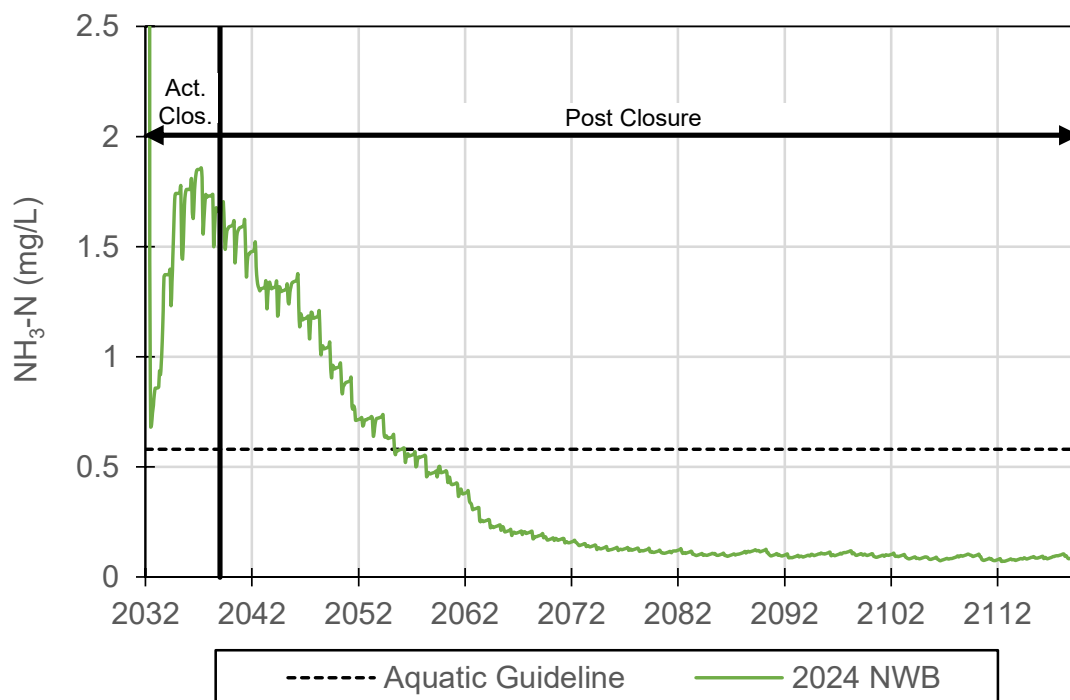


Figure E-9: Projected concentrations of ammonia ($\text{NH}_3\text{-N}$) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

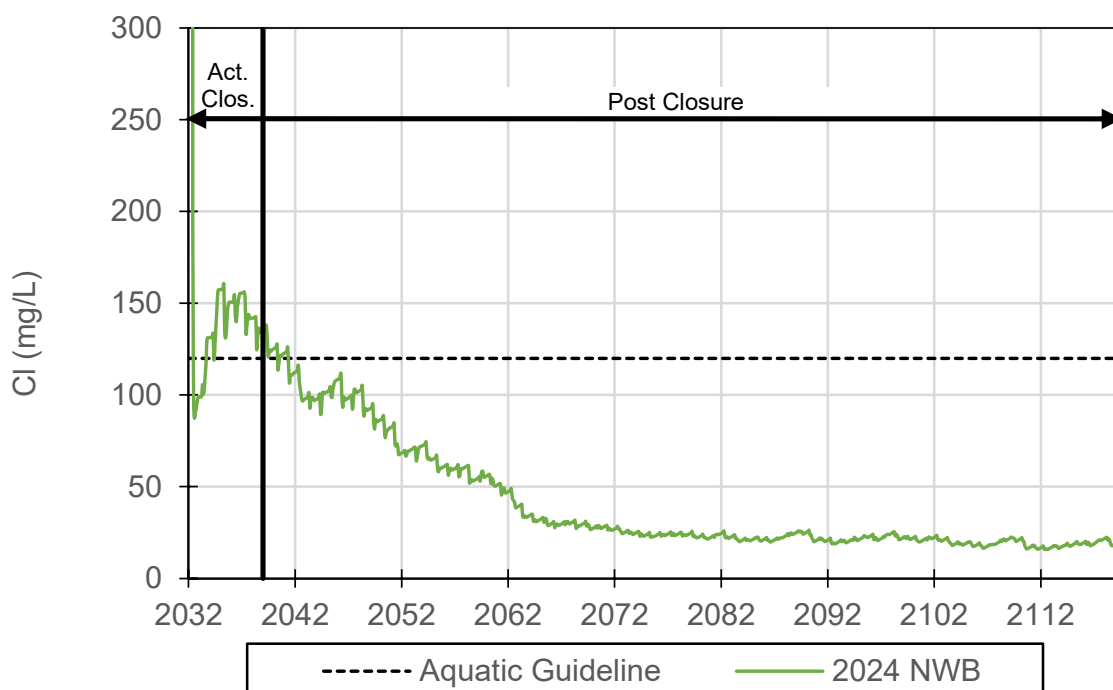


Figure E-10: Projected concentrations of chloride (Cl) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

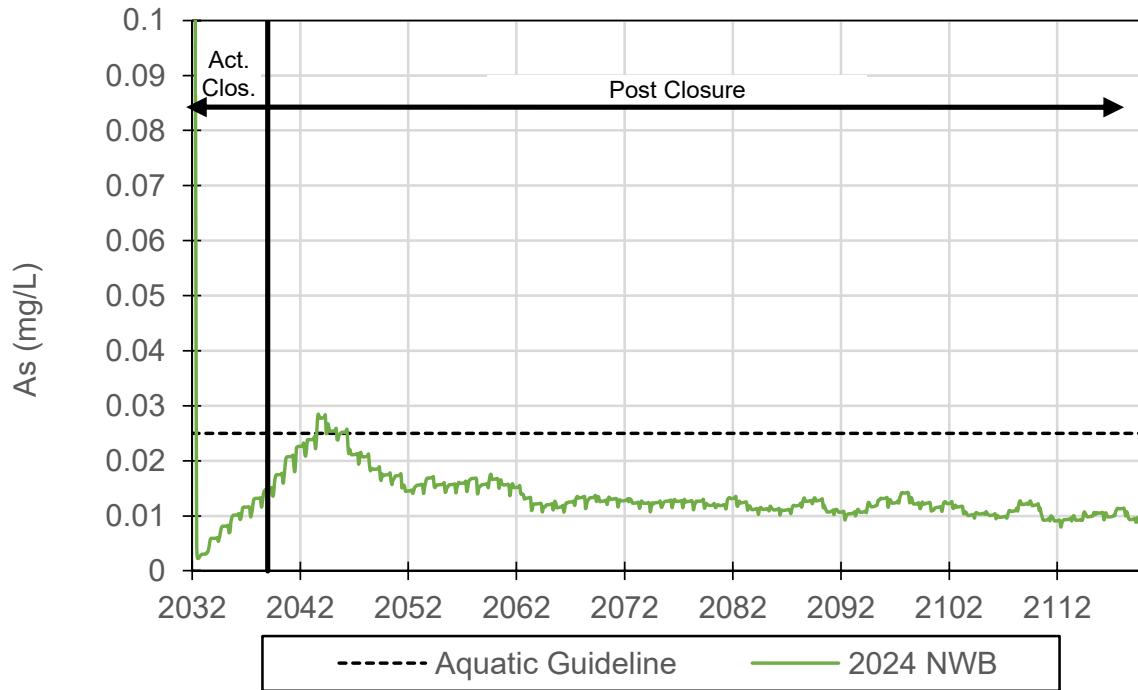


Figure E-11: Projected concentrations of arsenic (As) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

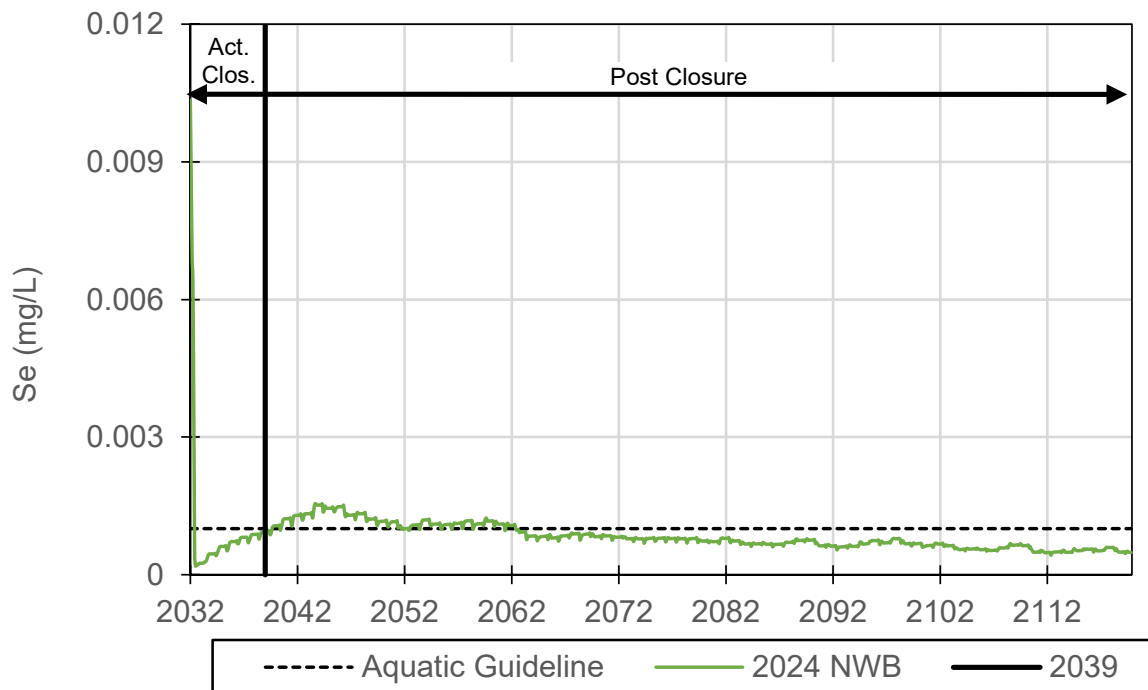


Figure E-12: Projected concentrations of selenium (Se) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

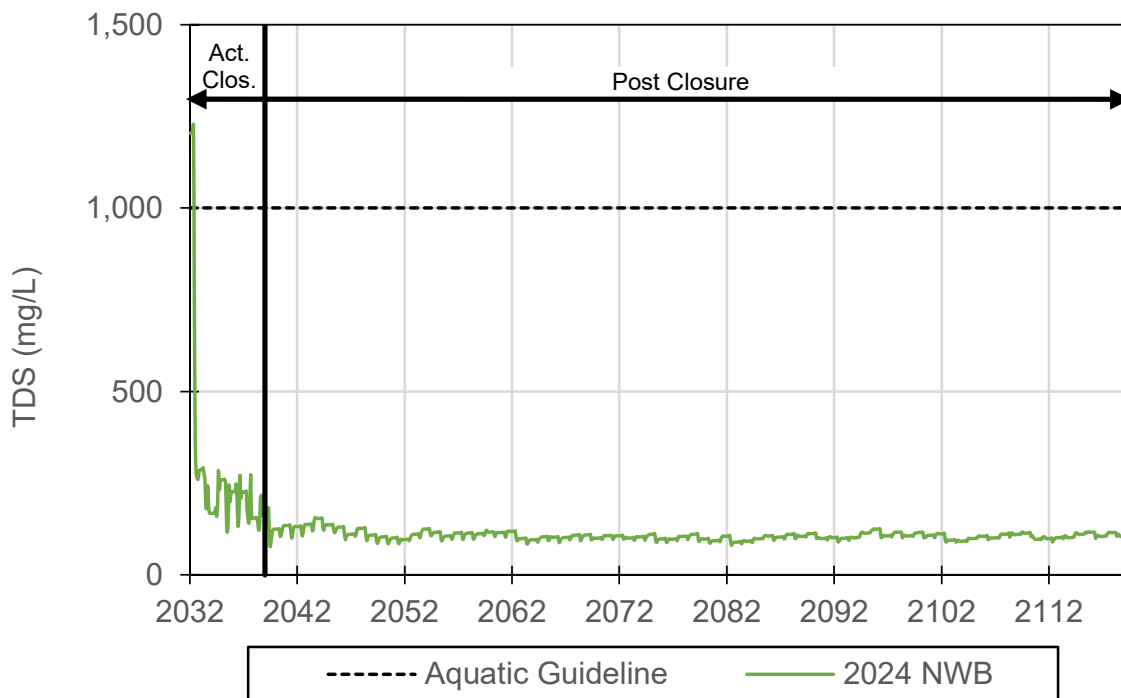


Figure E-13: Projected concentrations of total dissolved solids (TDS) at CP1 during Active Closure (2032-2038) and Post Closure (2039 onwards).

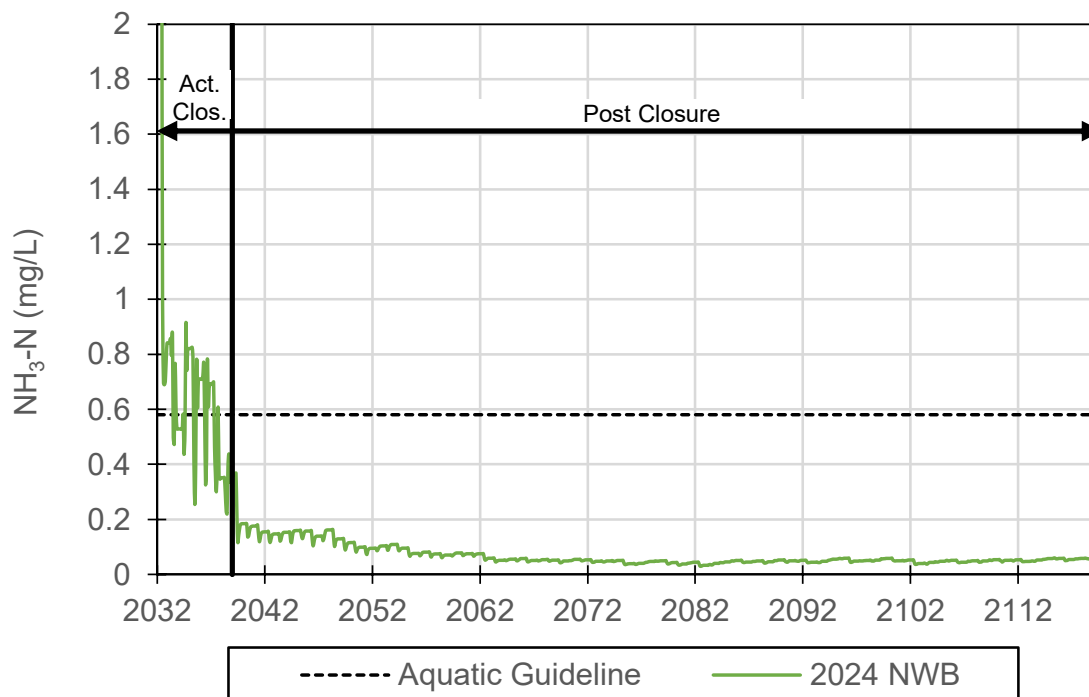


Figure E-14: Projected concentrations of ammonia ($\text{NH}_3\text{-N}$) at CP1 during Active Closure (2032-2038) and Post Closure (2039 onwards).

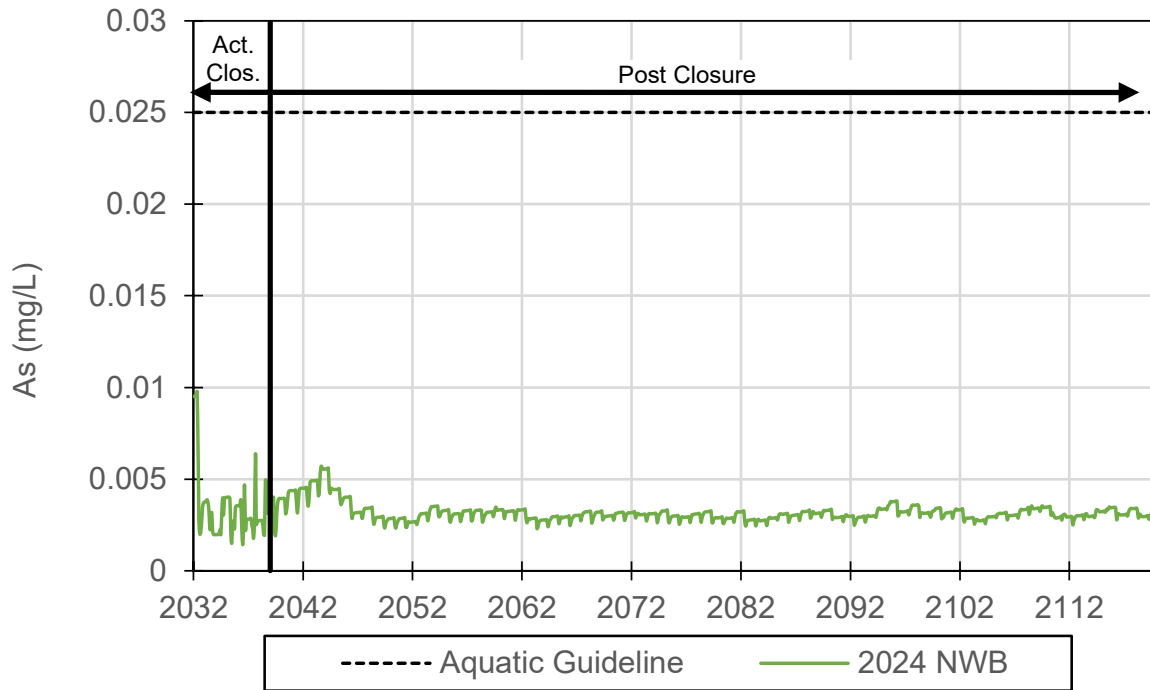


Figure E-15: Projected concentrations of arsenic (As) at CP1 during Active Closure (2032-2038) and Post Closure (2039 onwards).

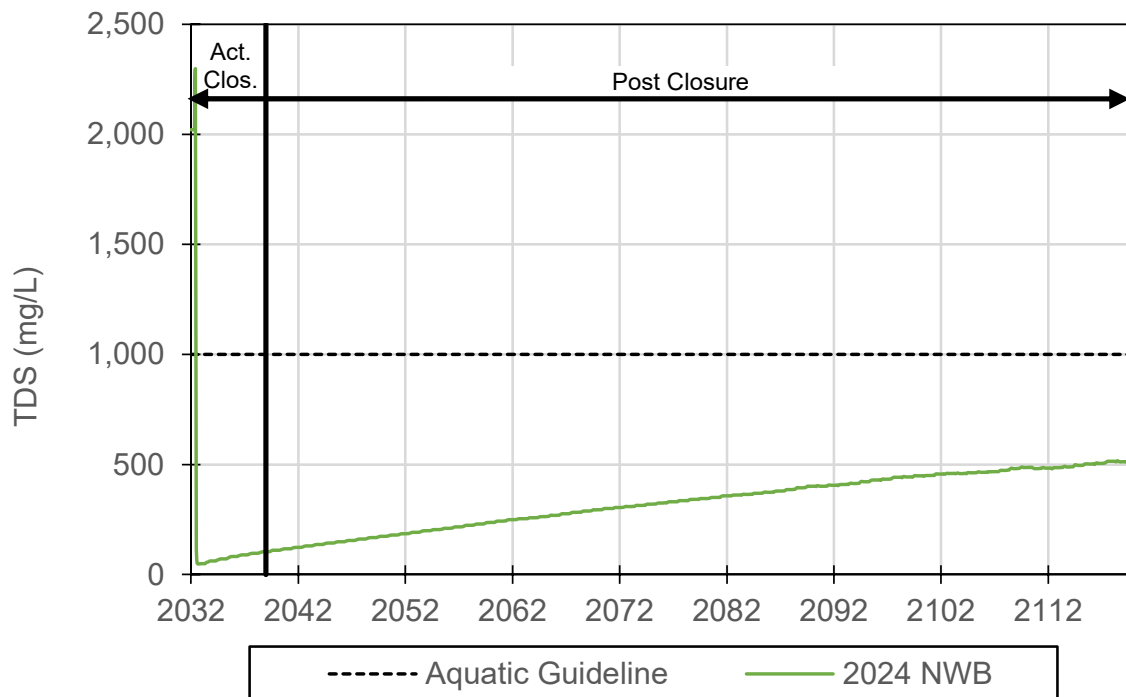


Figure E-16: Projected concentrations of total dissolved solids (TDS) at WES04 during Active Closure (2032-2038) and Post Closure (2039 onwards).

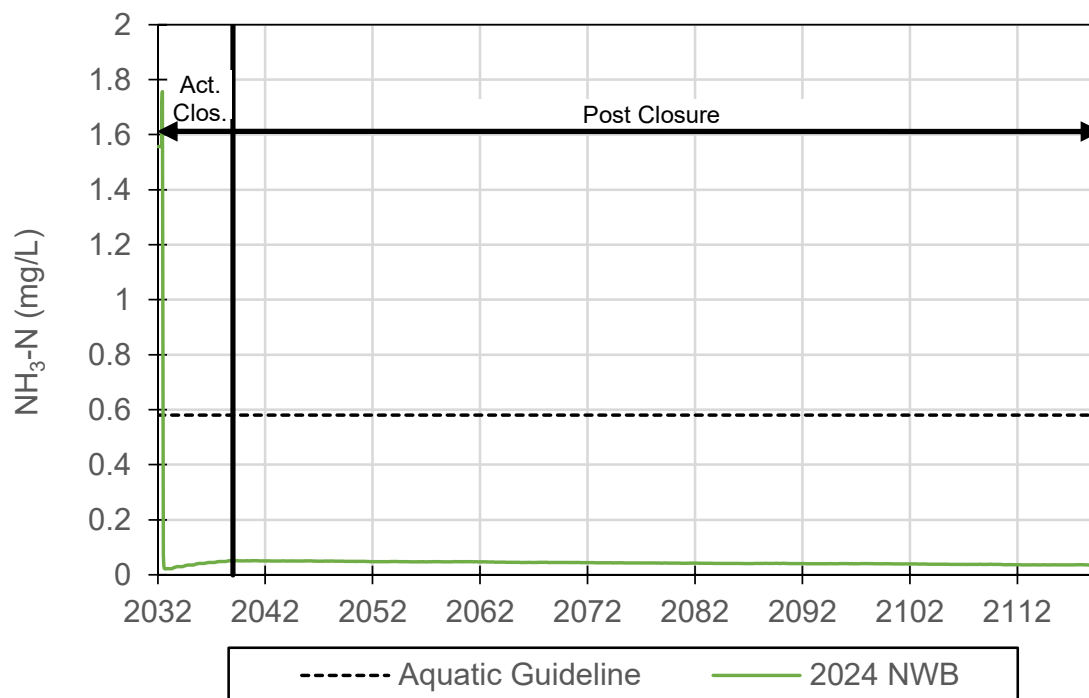


Figure E-17: Projected concentrations of ammonia ($\text{NH}_3\text{-N}$) at WES04 during Active Closure (2032-2038) and Post Closure (2039 onwards).

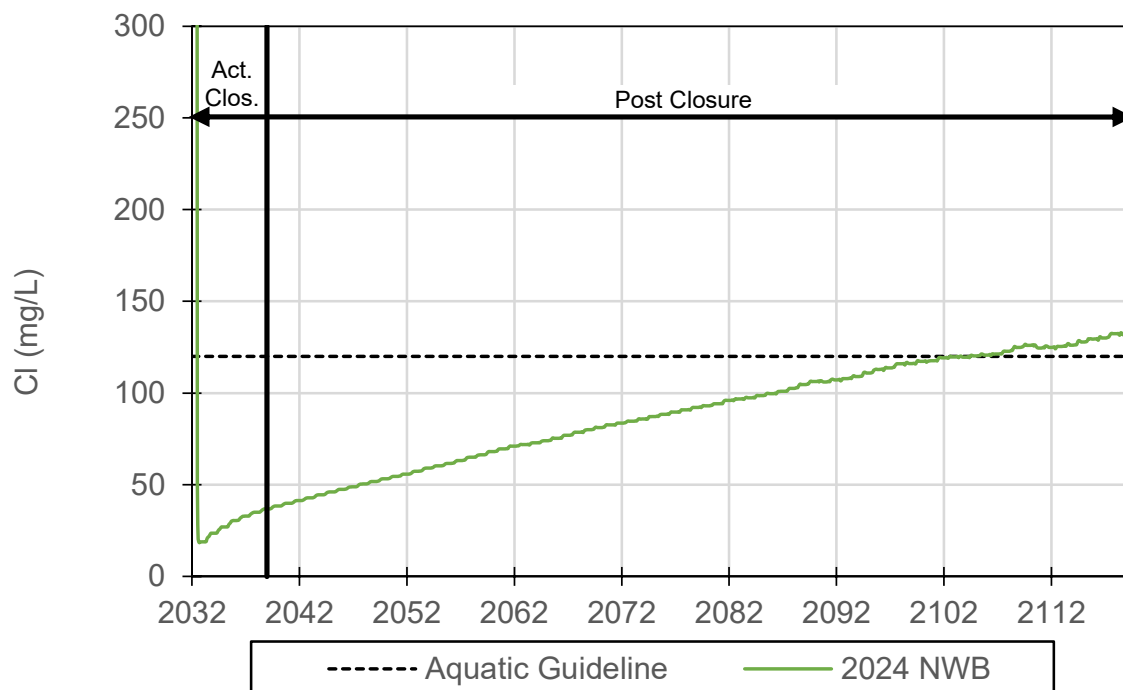


Figure E-18: Projected concentrations of chloride (Cl) at WES04 during Active Closure (2032-2038) and Post Closure (2039 onwards).

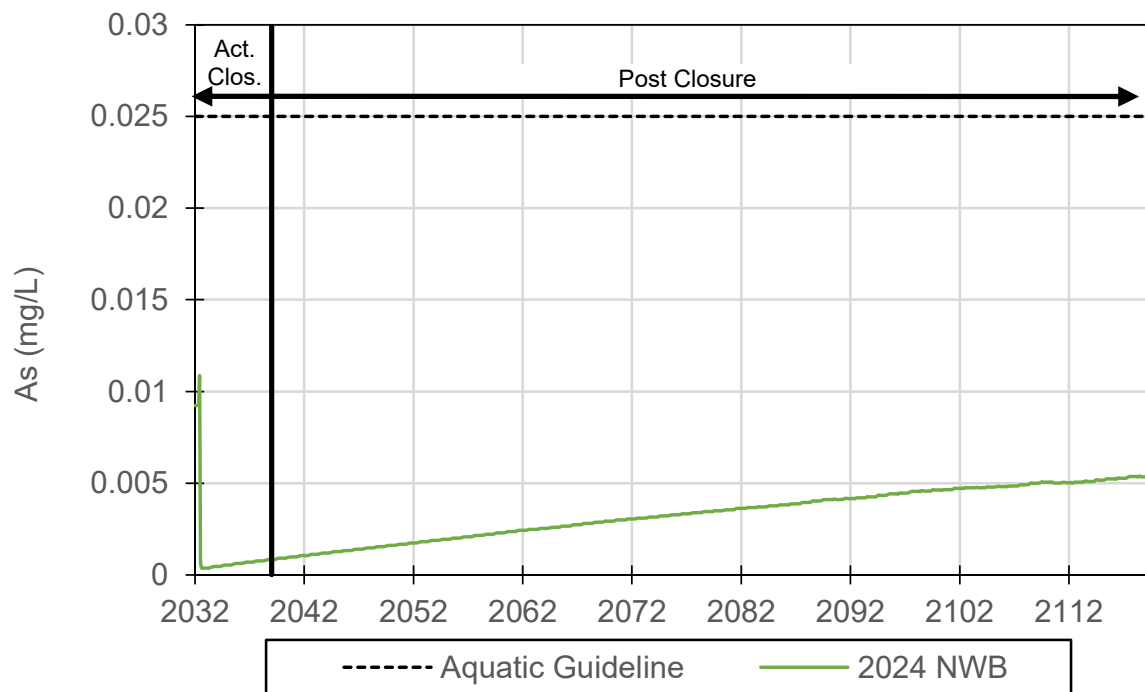


Figure E-19: Projected concentrations of arsenic (As) at WES04 during Active Closure (2032-2038) and Post Closure (2039 onwards).

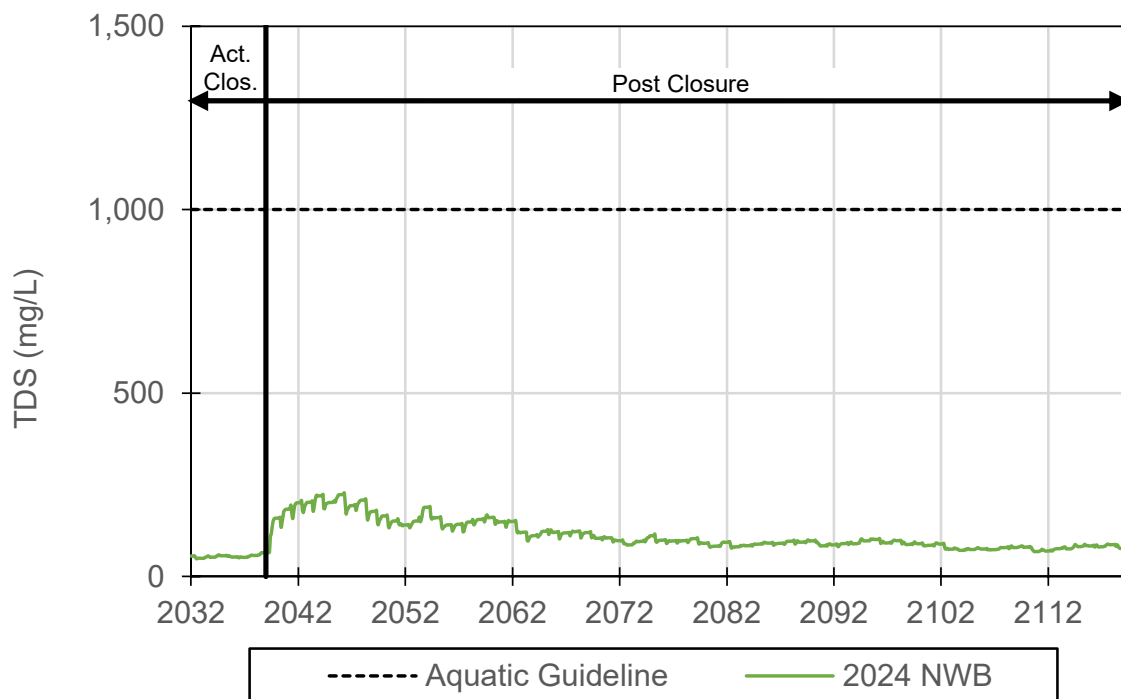


Figure E-20: Projected concentrations of total dissolved solids (TDS) at Lake J1 during Active Closure (2032-2038) and Post Closure (2039 onwards).

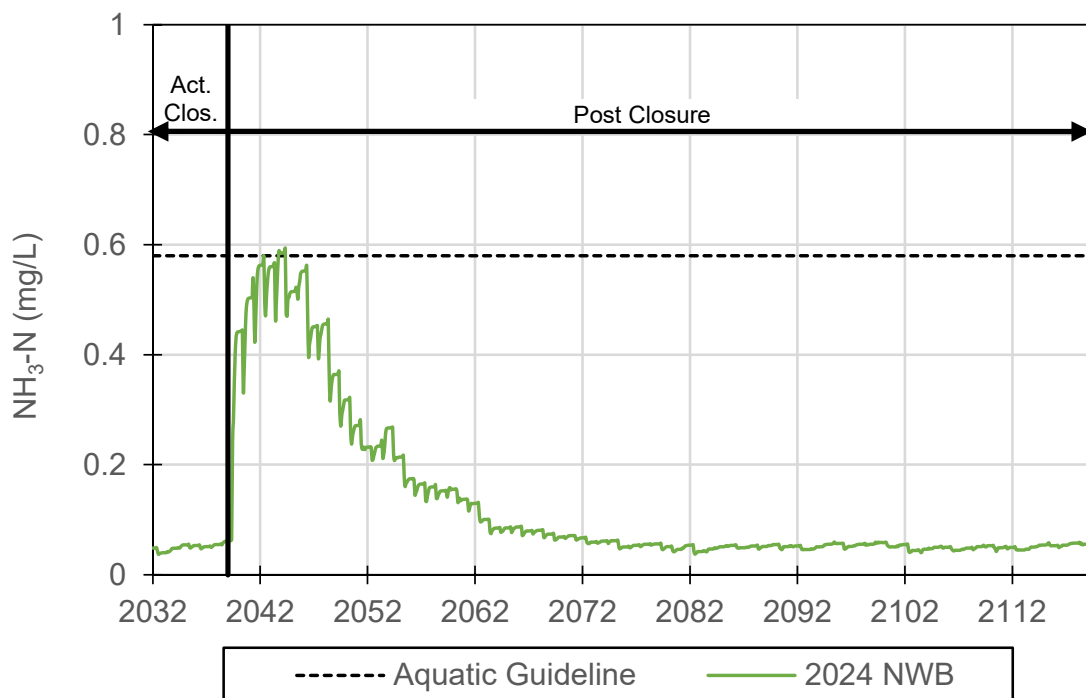


Figure E-21: Projected concentrations of ammonia ($\text{NH}_3\text{-N}$) at Lake J1 during Active Closure (2032-2038) and Post Closure (2039 onwards).

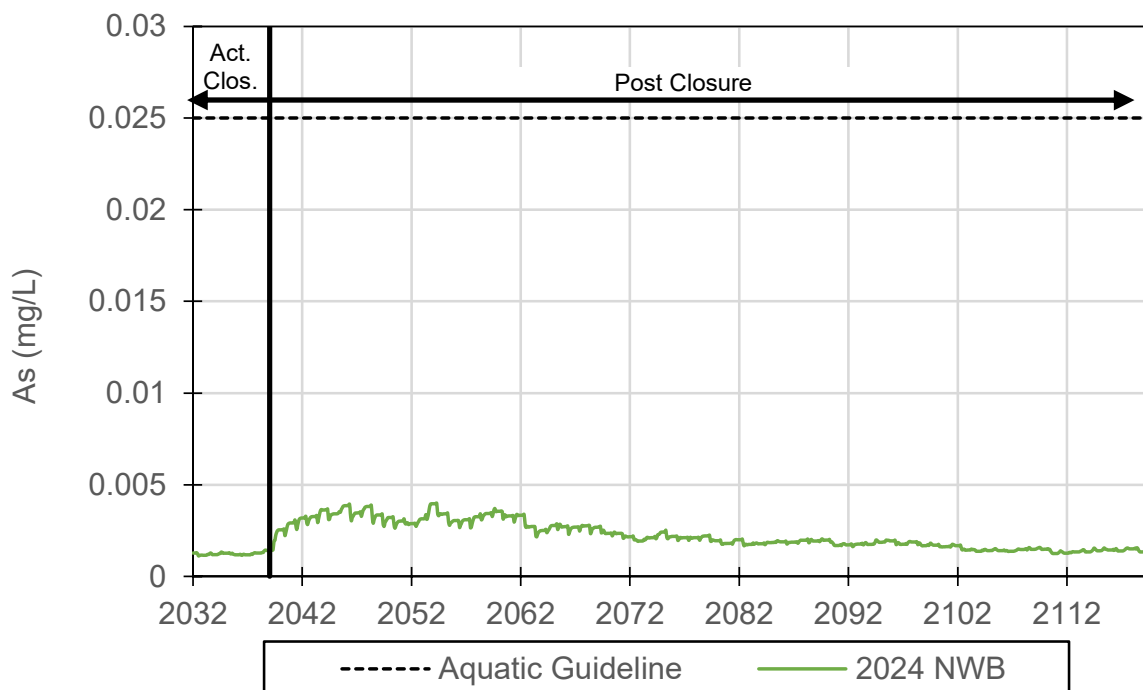


Figure E-22: Projected concentrations of arsenic (As) at Lake J1 during Active Closure (2032-2038) and Post Closure (2039 onwards).