

**Resolution Copper Project and Land Exchange
Environmental Impact Statement**

USDA Forest Service
Tonto National Forest
Arizona

September 23, 2020

Process Memorandum to File

Post-DEIS Assessment of Reclamation and Closure Plans

This document is deliberative and is prepared by the third-party contractor in compliance with the National Environmental Policy Act and other laws, regulations, and policies to document ongoing process and analysis steps. This document does not take the place of any Line Officer's decision space related to this project.

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Purpose of Process Memorandum

The draft environmental impact statement (DEIS) for the Resolution Copper Project and Land Exchange (project) was released in August 2019 and included an analysis of conceptual reclamation plans for the project, specifically:

- The Resolution Copper General Plan of Operations (see Section 6 specifically) (Resolution Copper Mining, LLC [Resolution Copper 2016]).
- The design documents for the tailings storage alternatives:
 - Alternative 2 – Near West Proposed Action (Klohn Crippen Berger Ltd. 2018a)¹
 - Alternative 3 – Near West Ultrathickened (Klohn Crippen Berger Ltd. 2018b)
 - Alternative 4 – Silver King (Klohn Crippen Berger Ltd. 2018c)
 - Alternative 5 – Peg Leg (Golder Associates Inc. 2018)
 - Alternative 6 – Skunk Camp (Klohn Crippen Berger Ltd. 2018d)

Additional reclamation plans were received from Resolution Copper after the DEIS. The purpose of this process memorandum (memo) is to summarize the documents received and the process used to evaluate those documents for sufficiency.

Key Process Steps

Discussions about revised reclamation and closure plans started after receipt of public comments. These meetings were directly in response to the inclusion of a required mitigation measure in the DEIS for preparation of a detailed reclamation plan for the Preferred Alternative (Appendix J, mitigation measures FS-226).

Key process steps include:

- October 30, 2019. A meeting was held to discuss soil and vegetation field survey methodologies, and to discuss growth media to be used during reclamation (Project Record #0003567). This included a presentation from Klohn Crippen Berger Ltd. (KCB) on the proposed Skunk Camp reclamation plan approach. One key difference disclosed at this meeting from the closure plans for Skunk Camp as they appear in the DEIS, is the change from discharging post-closure stormwater into the Mineral Creek watershed, instead keeping it within the Dripping Spring Wash watershed (where the tailings storage facility lies in its entirety).
- November 27, 2019. Details of the Skunk Camp tailings storage facility (TSF) reclamation plan approach were submitted by KCB (KCB Consultants Ltd. 2019; Project Record #0003715).

¹ Note that in Klohn Crippen Berger Ltd. 2018a, Alternative 2 was titled “Alternative 3A”.

- March 5, 2020. A meeting was held to discuss the status of soil and vegetation field surveys, and reclamation plan development (Project Record #0003811). KCB provided an update on the reclamation plan development for Skunk Camp.
- June 10, 2020. A reclamation plan specific to the Preferred Alternative tailings storage facility was submitted by KCB (KCB Consultants Ltd. 2020; Project Record #0004206). This document expanded substantially on the conceptual reclamation plans reviewed for the DEIS, including detail on the goals of the reclamation, the future desired conditions, the methodologies to be used, and the timing of activities.
- June 26, 2020. A draft reclamation plan for the Preferred Alternative was submitted by Tetra Tech (Tetra Tech 2020; Project Record #0003879). This reclamation plan covers all mine facilities and includes substantial details on anticipated methodologies and techniques to be used for revegetation.

Following receipt of the two reclamation plans in June 2020, the NEPA team proceeded to review and assess these documents for sufficiency for the final EIS (FEIS) analysis. Review steps are documented in the next section.

Review of Resolution Copper Reclamation Plans

Review of Tailings Storage Facility Reclamation Plan

Two separate reviews of the reclamation plans were conducted by the NEPA team: one specific to tailings, and one for the overall project with a focus on revegetation potential. Tailings engineers and specialists with BGC Engineering USA Inc. (BGC Engineering) conducted an assessment of the KCB Skunk Camp tailings storage facility reclamation plan. This review focused on a series of specific questions regarding the plan. Importantly, because this plan is specific to the Preferred Alternative tailings storage facility, which ultimately will be on private land and not under the jurisdiction of the U.S. Forest Service – Tonto National Forest, the review was not focused on whether the plan would be acceptable to support a U.S. Forest Service final mine plan of operation and bonding process; rather, the review focused on analysis questions included in the DEIS and raised during the NEPA process. Specific questions were:

- Are the stated post-closure objectives reasonable, and is the overall closure concept generally consistent with best industry practice?
- Are potential post-closure failure modes adequately incorporated in the plan?
- Does the post-closure surface water management plan seem reasonable to be able to meet the post-closure objectives?
- Do proposed erosion protection measures appear sufficient to meet the post-closure objectives?
- Is the design and modeling of the closure cover acceptable and reasonable as compared with industry practice and guidelines?

- Is there sufficient information to reasonably assume that the closure cover will perform as planned?
- Are post-closure settlement concerns adequately addressed?
- Is the Temporary Shutdown Plan sufficient as compared with industry practice, guidelines, and regulatory requirements?
- Does the plan provide reasonable assurance that enough reclamation material will be available to fulfill the reclamation cover needs?
- Is the overall reclamation schedule realistic, and is there reasonable assurance that it can be met?

BGC Engineering submitted a review memo with their assessment of these questions (BGC Engineering 2020; Project Record #0004211). Their review generally found the reclamation plan to be acceptable, but noted a number of clarifications or improvements that would benefit the process.

In response to this memo, on September 1, the Tonto National Forest submitted a data request to Resolution Copper (Project Record #0004210). Seven specific data requests were made:

RCL-1. Clarification of slight inconsistencies in post-mine land use.

RCL-2. Additional details of two specific post-closure failure modes that were discussed during the February 2020 Failure Modes and Effects Analysis (FMEA) workshop.

RCL-3. Additional clarifications on information throughout the document.

RCL-4. Clarification that passive treatment through wetlands could be an option for tailings seepage.

RCL-5. Clarification of when post-closure monitoring details would be explicitly described and committed to.

RCL-6. Assessment of post-closure impacts related to removal of the grout curtain.

RCL-7. Clarification of schedule for periodic updates of the reclamation and closure plants.

On September 10, 2020, Resolution Copper submitted responses to these items (Project Record #0004208, Resolution Copper 2020):

- The response for items RCL-3, RCL-5, and RCL-7 indicated that changes would be considered and made during later revisions of the plan, particularly during the regulatory process for the Aquifer Protection Permit (APP) under the jurisdiction of the Arizona Department of Environmental Quality (ADEQ).
- With respect to RCL-1, additional clarification was provided on post-closure land uses, generally indicating that they would be determined at a later date.

- With respect to RCL-2, additional clarification was provided on the likelihood of these two post-closure failure modes occurring, and the future actions that could be taken to monitor the tailings storage facility for adverse conditions, to be developed during the APP process under the jurisdiction of ADEQ.
- With respect to RCL-4, clarification was provided about the likely problems with passive treatment wetlands, but also an indication that other passive treatment options would be considered as appropriate.
- With respect to RCL-6, Resolution Copper provided analysis that indicated there would likely be no noticeable impact on groundwater quality downstream when the grout curtain was removed (based on modeling with and without the curtain).

Review of Revegetation Plans and Supporting Data

Aside from the review of the tailings storage facility reclamation plan, the NEPA team also undertook evaluation of the overall reclamation plans and the suitability to support the FEIS analysis (Epstein 2020a). This review summarized the pertinent aspects of the plan with respect to the FEIS and concluded that the data provided were sufficient to support the expanded analysis of revegetation, closure covers, growth media, and reclamation success that were anticipated to be included in the FEIS in response to public comments.

A separate review was undertaken to evaluate the effectiveness of using Gila Conglomerate as the growth media in the final closure of the tailings storage facility (Epstein 2020b). This review concluded that reclamation success had been demonstrated using Gila Conglomerate at other locations, and that it was likely effective as a growth media, though amendments may be required due to low organic matter and nutrient availability.

Conclusions

Sufficient information was provided by Resolution Copper and their contractors to satisfy the requirement in the DEIS (FS-226) for detailed reclamation plans for the Preferred Alternative. Review of the documents submitted found them sufficient for the purpose of analysis in the FEIS, and that the plans and methodologies would likely be effective and appropriate.

Future refinement of reclamation and closure plans is also anticipated during upcoming permitting with ADEQ, which will lead to further improvements and clarifications.

References

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