Electronic Transmission

May 23, 2025

Sherry Burt-Kested
Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, NM 88023

RE: Comments Regarding Smelter Tailings Soils Investigation Unit Revised Draft Feasibility Study, Smelter Tailings Soils Investigation Unit (STSIU), Chino AOC

Dear Sherry Burt-Kested:

The Ground Water Quality Bureau (GWQB) of the New Mexico Environment Department (NMED) received the Revised Draft Feasibility Study on February 25, 2025, from Freeport-McMoRan Chino Mines Company (Chino). NMED has reviewed the Study and received comments from stakeholders. The following comments are provided for Chino's revision of the Study.

NMED GWQB Comments:

1. Page 1. (Sec 1.1). In the last bullet point for soils, the note correctly interprets the intent of the PreFS RAC for pCu, but it's unclear why the interpretation is needed. The PreFS RAC is written correctly describing RAC that represent conditions where pCu must be greater than 5 in areas where copper is at concentrations greater than 327 mg/kg. This is equivalent to the PreFS RACs for total metals where the RAC is set at a concentration of the metal that should not be exceeded.

2. Page 19. (Sec 3.1). The windblown tailings areas are shown in Figures 3-2a and 3-2b. Please ensure that the extent of the windblown tailings areas that will be removed from consideration in the AOC and placed into the CCP is up-to-date and accurate. Please provide acreage of the areas to be considered under the CCP on each figure and clearly identify areas within and outside of the CCP acreage that have pCu < 5 and meet the habitat quality parameters (i.e. either good rangeland or good wildlife habitat) that would require the area to be considered for potential remedial action in the FS. Those areas that would have needed to be considered for potential remediation under the FS but are being moved in the CCP should be clearly identified in the figures.

3. Page 20. (Sec 3.1). Please add the following to the last paragraph in the section following the reference to Arcadis 2023. "However, the permanence of the change is unknown beyond the extent of the data collected for the report."

4. Page 22. (Sec 3.1.2). The 2nd sentence notes that removal of the Hurley Mill eliminated the source of acid and copper to STSIU soils. Please rephrase to state that the removal of the mill eliminated a major source since additional sources of copper remain (e.g. windblown tailings).

5. Page 22. (Sec 3.1.3). The reference to Appendix D in the last sentence of the first paragraph should be changed to Section 4 of Appendix D for clarity.

6. Page 24. (Sec 3.2.2). Please add the regression equations used to convert copper concentrations in confirmation samples to a footnote in Table 3-2.

7. Page 25. (Sec 3.2.2). Please show all of the areas referenced in the 2nd full paragraph that begins with "All Thiessen polygons…" on a figure.

8. Page 26. (Sec 3.2.4). The last sentence on the page refers to areas not included for remediation because the white rain improved pCu. This needs more explanation. No areas have been selected for remediation at this point in the process. Is Chino suggesting that they are planning to propose monitoring of soil pCu in areas with pCu > 5? What areas are covered by this monitoring? Is this monitoring discussed in the alternatives analysis?

9. Page 27. (Sec 3.2.4). Please delete the parenthetical "(destroys plants initially)". It adds nothing to the sentence. The destruction of existing habitat is discussed at length in other parts of the document.

10. Page 27. (Sec 3.2.4). Since soil-specific refined PreFS RACs have not yet been fully introduced at this point in the document, please add a sentence or two giving a brief description of them and how they were derived before the sequence of steps where they are used. Cite Appendices C and D as needed.

11. Page 28. (Sec 3.2.4). In the first full paragraph on this page, the text notes that percent cover and richness were samples on 100ft^2 plots. Please verify that this is correct. Richness and cover were measured in randomly selected 1 m^2 areas within larger plots in at least one study that I was involved in.

12. Page 29. (Sec 3.2.4). In the 3rd bullet, the reference from Long et al. (1998) discussing sediment toxicity to amphipods adds little to the Chino data discussion. The soil pCu PEL is not related to the specifics of EPA's definition of sediment benchmarks. Either truncate the paragraph before the quote from Long et al. or add more discussion about how the information from Long et al. (1998) relates to effects to soils at Chino.

13. Page 29. (Sec 3.2.4). Please delete the word "decades" in the 4th bullet.

14. Page 33. (Sec 4.1). In the summary section, please edit the text to say that the primary mechanism to loading of COCs to surface water is likely to be the transport via hill slope runoff.

15. Page 35. (Sec 4.1.1). It should be noted that the benchmarks for the Chiricahua Leopard Frogs (CLF) evaluated in the Lampbright IU ERA were not available at the time of completion of the STSIU ERA. Since those benchmarks are generally lower than those used in the STSIU ERA, there is some uncertainty related to the potential for toxicity to CLF that could be present in the upper reaches of several of the drainages. This should be noted in this section.

16. Page 37. (Sec 4.1.2). In the first paragraphs, stock tanks 15, 26, 29, and 60 are discussed. These all need to be on a figure and a reference to that figure should be included here.

17. Page 47. (Sec. 5.1.14) The bullet list could benefit from distinguishing technologies by applicability to total metals vs. cupric ion activity, since separate alternatives are assembled for these in Section 6.

18. Page 48. (Sec. 5.1.14) Fifth bullet lists Organic Matter as retained, whereas Section 5.1.5 states "Use of organic matter was screened out in this FS because other amendments were more effective (Appendix A)."

19. Table 5-3 lists Organic Matter as retained, whereas Section 5.1.5 states "Use of organic matter was screened out in this FS because other amendments were more effective (Appendix A)."

20. Page 52. (Sec. 6.1) Please describe why some retained technologies were not assembled into alternatives for total metals (e.g., Excavation and Disposal, Ferrihydrite Soil Amendment, etc.)

21. Page 52. (Sec. 6.1) Referenced Table 6-1 lists Lime and/or Organic Material, while organic material was screened out in Section 5.1.5. Please correct.

22. Page 52. (Sec. 6.1.2) The first sentence of the first paragraph would benefit from a re-write for ease of readability.

23. Page 53. (Sec. 6.1.3) For consistency with Section 5, given that two excavation-related technologies were screened, consider renaming the title to Alternative 3: Excavation Reuse and Monitoring.

24. Page 53. (Sec. 6.1.4) Consider revising first sentence to: This alternative is a combination of soil cover placement and long-term maintenance and monitoring. Consider combining the second and third sentences to form: This alternative would include the placement of a clean cover (minimum 6-inches of soil) and revegetating to address all areas needing protection for human health (> 5,000 mg/kg copper) and avian risk (> 1,600 mg/kg copper).

25. Page 53. (Sec. 6.1.5) The section does not specify that the amendment will be with lime. For consistency with Section 5, consider renaming the title to Alternative 5: Soil Lime Amendment/Tilling and Monitoring.

26. Page 53. (Sec. 6.2) The first sentence states that six alternatives have been developed…, however eight alternatives are presented in the section.

27. Page 55. (Sec. 6.3) The first sentence states that five alternatives have been developed…, however six alternatives are presented in the section.

28. Page 55. (Sec. 6.3) Bullet number 4 does not match Section 6.3.4 title. Additionally, the title for Alternative 4 in Table 6-3 does not match the Section 6.3.4 title.

29. Page 57. (Sec. 6.4) The first sentence states that five alternatives have been developed…, however three alternatives are presented in the section.

30. Table 6-3 The title for Alternative 4 does not match the title in the text.

31. Page 58. (Sec. 7) The first sentence states "The remediation alternatives developed in Section 6 are evaluated in this Section." However, not all alternatives were carried forward into the detailed analysis (e.g., five Alternatives were assembled for Soils – Total Metals, but three of them were screened out for the detailed analysis). It would be beneficial for Section 6 to end with a summary of how the Alternatives were refined/screened to reduce the number of alternatives being analyzed in detail in Section 7 (i.e., justify exclusion of Alternatives 3, 4, and 5 from the detailed and comparative analyses).

32. Page 59. (Sec. 7) The second sentence of the first paragraph has D2 in red font.

33. Page 62. (Sec 7.2.1.2). In the 3rd sentence, please change "concentrations do not pose risk to human health" to "concentrations do not pose a clearly unacceptable risk to human health."

34. Page 63. (Sec 7.2.2). In the sentence that begins "Alternative 2 is monitoring…", please add that this alternative is Chino's recommended alternative.

35. Page 64. (Sec 7.2.2). In the last paragraph of the section, please add "If selected by NMED, a monitoring work plan…"

36. Page 65. (Sec 7.3.1.1). The detailed information discussed in the bullet points under the protection of Human Health and the Environment should be moved to Section 7.3.1.2, Alternative 2. The areas where pCu may fall between the average PEL calculated using all three habitat conditions vs. the average PEL calculated using the higher of the rangeland and wildlife PELs may be good candidates for selection under the monitoring alternative.

37. Page 65. (Sec 7.3.1.1). The No Action alternative cannot, by definition, be protective of human health and the environment based on the data from the Site. The STSIU ERA indicated that there were likely to be unacceptable risks to vegetation as it functions as habitat. Moving this discussion to Alternative 2 is preferred.

38. Page 65. (Sec 7.3.1.1). In the last sentence of the OAT score not included in the PEL calculation bullet. Please change "would better represent" to "may better represent". It is not certain that the lower PELs for the soils would represent a better overall improvement of wildlife habitat.

39. Page 65. (Sec 7.3.1.1). The text in the Grazing Impacts bullet point that follows the references to Schafer and Associates (1999a) and Bestelmeyer (2004) needs to be removed or rephrased. As currently written, it appears that the analysis is incomplete. Chino can propose additional reference areas to help the analysis. Otherwise, statements like this are confusing to the reader and serve little purpose beyond the extensive discussion of uncertainties already presented.

40. Page 67. (Sec 7.3.1.2). Monitoring is not protective of human health. While there may be some protectiveness of monitoring to the environment over destructive remediation, monitoring in and of itself is not protective.

41. Page 79. (Sec 7.3.2). Please change the 3rd sentence, to 'Lower PELs by soil type could be technically justifiable in areas where the protectiveness of the PreFS RAC is uncertain, particularly for flat rocky soils with pCu between 4.6 and 4.98.

42. Page 82. (Sec 7.4.1.1). Please delete "with monitoring or other actions" from the end of the first sentence in the compliance with ARARs section. Monitoring and other actions are not no action and these alternatives are discussed in later alternatives.

43. Page 92. (Sec 7.5.1.3). Under the Protection of Human Health and the Environment section, the text notes that improvements were made in 2023 to the basin feeding Stock Tank 06. It then notes that it is expected that water quality will continue to improve. Since it's been over a year since the improvements, are there any data available to help support this? This comment also applies to the Long- and Short-Term Effectiveness subsections.

44. Figure 3-13. Please add a way to identify those areas that have pCu between the soil-specific PreFS RACs and the mean PEL for wildlife and rangeland endpoints. This could also be shown in a new figure.

45. App D. Page 9. (Sec 5.2). The first sentence is confusing as written. Please rewrite to clarify what is meant by the 200-m transect "extending beyond (OAT score)."

46. App D. Page 15. (Sec 6.2.1). In the 1st sentence of the 3rd paragraph, please define concentrations and weights of the samples as C_i and W_i. Those abbreviations are used in Section 6.2.2 but are not defined there.

47. App D. Page 16. (Sec 6.2.1). The text discusses the benefits of using natural neighbors but does not discuss the limitations versus the other techniques that were considered. Please add a discussion of the limitations.

48. App D. Page 16. (Sec 6.2.3). The 2nd sentence states that the concentrations of pCu on the site range from… pCu is not a measure of concentration. Please correct.

49. App D. Page 16. (Sec 6.2.3). What additional sampling was conducted to ensure that most of the values obtained for the FS within this range meet the desired confidence limit. Where are these data presented, and did they meet the desired confidence level?

50. App D. Page 24. (Sec 9.2). The last sentence of the section should be updated to "Therefore, the decision to remediate areas with pCu < 5 will be based in part on consideration of the current rangeland condition and wildlife habitat quality."

51. Attachment A of Appendix D. Page 1 (Sec 1). The last sentence of the 2nd paragraph should be changed to state that: "Not all areas of the STSIU that **fail to** meet the Pre-FS RAC…"

52. Attachment A of Appendix D. There is a partial figure that shows the legend of the Geologic Map of Hurley… between Figures 3 and 4. It's purpose is unclear.

Comments Received from the New Mexico Environment Department Surface Water Quality Bureau:

General Comment 1: Relevant State and Federal Water Quality Regulations - The STISU is located within the 12-digit Hydrologic Unit Code 130302020401 named "Headwaters Lampbright Draw." Surface Waters of the State (SWOTS) include but are not limited to Perennial and intermittent watercourses within the Smelter Tailing Soils Investigation Unit lands at the Chino mines company listed in 20.6.4.808 NMAC, "*the mainstem of Lampbright draw, beginning at the confluence of Lampbright Draw with Rustler canyon, all tributaries that originate west of Lampbright draw to the intersection of Lampbright draw with U.S. 180, and all tributaries of Whitewater creek that originate east of Whitewater creek from the confluence of Whitewater creek with Bayard canyon downstream to the intersection of Whitewater creek with U.S. 180*". These perennial and intermittent SWOTS support designated uses specified in 20.6.4.808 NMAC including warmwater aquatic life, livestock watering, wildlife habitat and primary contact. SWOTS also include Ephemeral Watercourses listed in 20.6.4.809 NMAC, "*Ephemeral watercourses within smelter tailing soils investigation unit lands at the Chino mines company, limited to Chino mines property subwatershed drainage A and tributaries thereof, Chino mines property subwatershed drainage B and tributaries thereof (excluding the northwest tributary containing Ash spring and the Chiricahua leopard frog critical habitat transect); Chino mines property subwatershed drainage C and tributaries thereof (excluding reaches containing Bolton spring, the Chiricahua leopard frog critical habitat transect and all reaches in subwatershed C that are upstream of the Chiricahua leopard frog critical habitat); subwatershed drainage D and tributaries thereof (drainages D-1, D-2 and D-3, excluding the southeast tributary in drainage D1 that contains Brown spring) and subwatershed drainage E and all tributaries thereof (drainages E-1, E-2 and E-3)*". These ephemeral SWOTS have designated uses specified in 20.6.4.809 NMAC including limited aquatic life, livestock watering, wildlife habitat and secondary contact. Use-specific numeric criteria for water quality standard attainment are summarized in 20.6.4.900 NMAC. The attached STSIU Surface Waters Map, CHINO MINES SITE- SPECIFIC COOPER CRITERIA MAP, Exhibit A, shows SWOTS under 20.6.4.808 NMAC and 20.6.4.809 NMAC within the Smelter Tailing Soils Investigation Unit Lands at the Chino Mines Company.

The Chino Mine previously had National Pollutant Discharge Elimination System (NPDES) coverage under the Multi-Sector General Permit #NMR053259. The STSIU does not require NPDES permitting per a waters of the United States (WOTUS) jurisdictional determination from the US Army Corps of Engineers on May 27, 2020. The surface waters at this site are defined in General Criteria 20.6.4.13 NMAC, 20.6.4.808 NMAC, 20.6.4.809 NMAC, and 20.6.4.98 NMAC.

General Comment 2: The Chino Mine is required to report all unpermitted discharges and spills immediately after learning of such a discharge, and no more than 24 hours after the unpermitted

discharge or spill) to the NMED as required by the New Mexico Water Quality Control Commission regulations (20.6.2.1203 NMAC). The minimum information required to be reported can be found at 20.6.2.1203.A.(1) NMAC. For non-emergencies during normal business hours, call 505- 428-2500. For non-emergencies after hours, call 866-428-6535 or 505-428-6535 (voice mail, twenty-four hours a day). For emergencies only, call 505-827-9329 twenty-four hours a day (NM Dept of Public Safety). For spills that reach a SWOTS, including ephemeral streams, also report via email at SWQ.reporting@env.nm.gov.

Specific Comments:

SWQB-1. Page 38. (Sec 4.2). The section states, "Only acute criteria are applicable to (1) ephemeral drainages listed in Tables 4-1 and 4-5 and (2) stock tanks, which are fed by ephemeral drainages shown in Table 4-3 and 4-7 (see NMAC 20.6.4.808 – 809). NMED confirms that using acute criteria in ephemeral drainages is acceptable.

SWQB-2. Page 38. (Sec 4.2) The Nature and Extent of Contamination section says, "Aluminum, cadmium and copper exceeded acute criteria for ephemeral drainages, and only copper and aluminum exceeded acute criteria for non-ephemeral drainages. For stock tanks, aluminum, copper and lead exceeded chronic criteria and aluminum and copper exceeded acute criteria. Aluminum, however, is not sourced from historical emissions (SRK 2008b) and is not discussed further." Please provide additional information from the previous reports to support the exclusion of aluminum from the FS.

SWQB-3. Figures 4-2, 4-3, and 4-4 exclude SWOTS identified in 20.6.4.808 and 20.6.4.809 NMAC and the STSIU Surface Waters Map, CHINO MINES SITE-SPECIFIC COOPER CRITERIA MAP, Exhibit A, (included below) SWOTS within the Smelter Tailing Soils Investigation Unit Lands at the Chino Mines Company. Please revise Figures 4-2, 4-3, and 4- 4 to include all SWOTS or provide a discussion of why they are excluded.

SWQB-4. App E. P3-3 (Sec 3). The 2nd sentence states, "*Additionally, as described in Section 2 of the FS, Arcadis conducted an expedited Use Attainability Analysis (UAA) based on NMED Surface Water Quality Board's (SWQB's) Hydrology Protocol and established revised drainage classifications (Arcadis, 2012)*" The referenced description is not in Section 2, please add it to this Section. Also, please correct Surface Water Quality Board to Surface Water Quality Bureau.

SWQB-5. App E. P3-3 (Sec 3). The last sentence states, "*Standard Operating Procedures (SOPs) have been developed as part of the QAPP and are incorporated by reference in this Report.*" Please include the SOPs and QAPP in Appendix E or other appendices to this report.

SWQB-6. App E. P3-3 (Sec 1). The title of the document is Surface Water Runoff Quality and Duration Report. The third objective states, "Define the duration of flow and presence of water to support classification of drainage channels in the STSIU (i.e., perennial, intermittent, or ephemeral)." However, in the next to last paragraph on page 3-3 it states that "Because these data were already reported through the UAA process, the water level and water duration monitoring data are not discussed further in this Report." Regardless of whether water level and duration of water presence was discussed elsewhere, it should be at a minimum summarized here, so the reader can understand how long water is present and what types of criteria are appropriate for comparison to evaluate the water quality conditions present. A new table should be presented in Section 2 and referenced with the last sentence in that section to provide a sufficient summary of the hydrologic conditions for each drainage and

provide additional information for drainages labeled as non-ephemeral. Please provide table or discussion on results of HP UAA utilizing the attached STSIU Surface Waters Map, CHINO MINES SITE-SPECIFIC COOPER CRITERIA MAP - Exhibit A, or equivalent map that shows 20.6.4.808 and 20.6.4.809 NMAC SWOTS within the Smelter Tailing Soils Investigation Unit Lands at the Chino Mines Company.

SWQB-7. App E. P3-4 (Sec 3). The DQO provided in this section provides an explicit decision and criteria to be evaluated which was not done. The comparison of storm water sample COC concentrations to appropriate criteria or adjusted criteria using WERs should be done based on the drainage type and exposure potential. In addition, the assessment of the quality of surface water is the first objective listed in Section 4. The uncertainties of factors affecting concentrations that may exceed those criteria should be discussed and put into context of receiving water surface water concentrations and how those storm waters may or may not affect perennial systems or intermittent systems with perennial pools.

SWQB-8. App E. P3-8 (Sec 5.1). In the last paragraph of Section 5.1, except for aluminum, comparisons to criteria would be to dissolved metal fractions. Although sediments were entrained and collected by the samplers, the dissolved metal fraction should provide a reasonable estimate of COCs dissolved in storm water to evaluate how runoff may influence downgradient waterbodies. Please provide these comparisons.

SWQB-9. App E. P3-8 (Sec 5.1). The last sentence states, "*The current site conceptual model for STSIU surface water is described in Section 4.1 of the FS."* For clarity, please revise sentence to read, "The Surface Water Conceptual Site Model for STSIU is found in Section 4.1 of the main body of the FS.

SWQB-10. App E. Table 1. Please define what the bolded values represent since there is no note describing this. It looks like these are values greater than criteria, but that is not clear.

SWQB-11. App E. General Comment. The dates on the footers of each page need to be updated.

SWQB-12. App E. Figure 1. Please: i. Spell check for Lampbright stockpile; ii. Add named streams inside STSIU Boundary for reference; and iii. Describe and label what the blue line represents in the Legend.

If you have any questions, please contact me at (505) 372-8545.

Sincerely,

David W Mercer

David W. Mercer, Chino AOC Project Manager
Mining Environmental Compliance Section
Ground Water Quality Bureau

DM

cc: Erica Almance, USEPA (via email)
Joe Fox, NMED (via email)
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