

CAVANAUGH-BILL LAW OFFICES, LLC
Julie Cavanaugh-Bill, NV Bar No. 11533
401 Railroad Street, Suite 307
Elko, NV 89801
(775) 753-4357, julie@cblawoffices.org

BEFORE THE STATE OF NEVADA

STATE ENVIRONMENTAL COMMISSION

In the Matter of:	
Appeal of Water Pollution Control	GREAT BASIN RESOURCE WATCH
Permit No.: NEV 2020104	REPLY BRIEF

1. The Emerman Report was developed as needed

The Nevada Department of Environmental Protection (“NDEP”) and Intervenor Lithium Nevada Corporation (“LNC”) contend that the expert report of Dr. Emerman is untimely. Great Basin Resource Watch (“GBRW”) first raised the need for an independent assessment its comment letter of December 8, 2021 stating:

An independent assessment of the seepage and management of the tailings dump is needed. Commenters cannot comment on the NewFields seepage estimation, since we do not have access to any details. However, based on the Piteau technical memo of September 21, 2021, it appears as though the full range of seepage has not been bounded, and the method of the analysis is lacking the rigor required of a first-of-its-kind tailings dump. (NDEP, Exhibit 3, 80).

In response, NDEP merely stated that, “A third-party review is not required by the regulations...” (NDEP Ex. 3, p80). GBRW informed NDEP on January 27, 2022, that Dr. Emerman had been contacted to analyze the existing tailings documents, which are in the administrative record, and conduct additional seepage estimations. (NDEP Ex. 3, 107-108). Given the inconsistencies that GBRW had discussed in its comment letter of December 8, 2021, it would seem prudent and in the best

interests of the public for NDEP to entertain analysis from an expert on tailings facilities. NDEP refused this offer, thus closing the door to additional information that could be useful.

GBRW was not able to have the expert analysis completed during the comment period due to the timing of technical documents that were yet to be publicly available. Throughout 2021, GBRW had been in contact with NDEP regarding information about the tailings facility and GBRW had asked about technical assessments. GBRW periodically requested updated tailings analysis from NDEP with its first request dated June 14, 2021, in an email to NDEP staff (See Ex. 1: email- 6-14-21-Thacker Pass Tailings analysis and email August 2021 wherein NDEP responds that they were sending an additional technical letter “in the next couple of weeks”). The updated analysis was not made available to GBRW until September 24, 2021. After having reviewed the updated tailings analysis by Piteau (NDEP Ex. 9) GBRW had additional questions regarding management of the tailings and the tailings facility (See Ex. 2: email-11-3-21-Thacker Pass questions). On November 16, 2021, NDEP responded by email (See Ex.3: email-11-16-2021-NDEP-response-Thacker Pass questions) to GBRW’s questions of November 3, 2021, regarding the tailings facility. GBRW still had concerns with these responses, at which time, Dr. Emerman was formally contacted to review the tailings analysis. The 30-day comment period had already started, and there was no way for Dr. Emerman to complete the needed comprehensive analysis; thereby constituting “reasonable cause” for any claimed untimeliness pursuant to NAC 445B.8914(5)¹. Considering that Piteau’s first seepage analysis was dated January 2021 and the revised analysis, requested by NDEP, appeared in September of 2021, 8 months later, it is reasonable to allow for several months for Dr. Emerman to complete his independent review. And, according to the permit:

By 10 July 2022 (within 120 days of the effective date of the Permit), the Permittee shall submit for review and approval an additional sensitivity analysis analyzing the

¹ GBRW will respond more fully to LNC’s recently filed Motion to Strike with regard to the Emerman Report in a separate Response Brief as set by the Commission.

effect of moisture content on seepage rates from the Clay Tailings Storage Facility to specify an allowable operating range for tailings placement.

LNC was given an additional four months to arrange for an additional sensitivity analysis. Accordingly, NDEP seems to have some understanding as to how much time is required for these kinds of technical analyses. Furthermore, critical information on the input parameter that NewFields used in their tailings analysis was not publicly available until November 6, 2021, when it was sent to NDEP staff in an email (See Ex. 4: email-11-8-2021-Tailings SEEPAGE CALCULATION).

GBRW was trying to work with the NDEP to understand the Thacker Pass project by staying in touch with the agency and asking questions about the proposed mine plan and waiting for final technical analysis. Importantly, GBRW assumed that NDEP was analyzing the documents and developing its understanding supported by good science. However, by mid-November of 2021, based on NDEP's response to GBRW's questions of November 3, 2021, GBRW became concerned that NDEP was not evaluating the tailing facility and the environmental consequences adequately. At this time GBRW had come to see the need for an independent expert analysis.

Even Piteau's revised tailings analysis came 8 months after its original analysis in January 2021. GBRW did as best as possible to obtain the expert analysis as soon as possible. The Commissioners should take into account the ability of the public to act on these matters.

2. NDEP and LNC claim Emerman's analysis used unrealistic moisture contents

NDEP and LNC in their Response briefs claim that Dr. Emerman's seepage calculations explore unrealistic tailings moisture contents. This is not a valid critique, since Dr. Emerman was only using the range of allowed moisture content contained in the draft permit and in the NDEP factsheet. If the range of moisture content was not realistic then it should never have been in the draft permit in the first place.

The fact that the draft permit (and factsheet) allowed that, "clay tailings material placed in the structural zone shall not exceed 52 percent ... clay tailings material placed in the non-structural zone

shall not exceed 58 percent,” (Ex. 5 draft permit at pg. 9) shows that neither NDEP nor LNC understood the consequences of these higher levels of moisture content. The optimal moisture content of 46% as determined by NewFields did not appear as the maximum allowed until the final permit and after Dr. Emerman began his analysis. Indeed Dr. Emerman did comment on the problematic nature of the higher water contents, but this is what was allowed in the draft permit and is still in the final NDEP factsheet.

The final permit only temporarily restricts the moisture content of the tailings:

The moisture content of the clay tailings material placed in the structural zone shall not exceed 46 percent until additional seepage analysis is submitted and approved by the Division in accordance with Part 1.B.8

The moisture content of the clay tailings material placed in the non-structural zone shall not exceed 46 percent until additional seepage analysis submitted and approved by the Division in accordance with Part 1.B.8 (NDEP Ex. 2)

Thus, after the additional seepage analysis, which should have been done before the permit was finalized, the 46% cap could be lifted. The additional seepage analysis is to be completed by July 10, 2022. The public interest is best served if the additional analysis is done first, before issuing the final permit. Instead, there could be changes based on the additional analysis that will not be noticed for public review.

3. LNC claims incorrectly that tailings consolidation is not needed

LNC states that “Emerman’s argument that tailings consolidation must have been considered for the seepage estimates to be valid ignores the nature of the materials and their extraordinarily low permeability. It also ignores that tailings will have been compacted as they are placed in the CTFS and will be gradually placed in 12-inch lifts.” The key feature of the calculation, the only feature mentioned in Newfield’s (NDEP, Ex. 5), is that tailings consolidation was taken into account in the calculation. According to NewFields Report (NDEP, Ex. 5):

A seepage calculation was completed which showed a maximum seepage rate of up to 74 gpm could flow to the Reclaim Pond at ultimate facility *buildout as a result of tailings consolidation*” (emphasis added).

Tailings consolidation occurs in nearly all filtered tailings stacks, despite the fact that all filtered tailings stacks are constructed by compacting the filtered tailings in relatively thin lifts. The Pumpkin Hollow copper mine filtered tailings stack as referenced in NDEP’s response to GBRW comments (NDEP Ex. 3, 67) also recognizes the importance of tailings consolidation. The result of tailings consolidation is that the bottom of the stack is nearly always saturated, as a consequence of the reduction in size of the pores.

It is not unusual for the water table (the top of the saturated zone) to rise to one-third to one-half of the height of the filtered tailings stack. For this reason, NewFields (NDEP, Ex. 5) assumed that the height of the water table would be one-half the height of the stack (GBRW, Ex. 4, Fig. 7). LNC has never explained why their clay tailings filter stack (CTFS), which has never previously been constructed or tested at any scale, will behave in a manner completely different from nearly every other filtered tailings stack. LNC further asserts “that for water to seep out, the bottom of the CTFS must be close to saturation which will take years.” (LNC brief 19) The point is irrelevant because, due to tailings consolidation, the bottom of the stack will be saturated or nearly saturated throughout the operating phase of the CTFS.

In addition, to the lack of consideration of tailings consolidation, the essential reason as to why the Emerman Report rejected the results of the report by Piteau is the deep conceptual misunderstanding of unsaturated flow that was stated in the report. According to Piteau (NC NDEP Ex. 9):

Seepage related to the drainage of in-situ water content during the first 1,000 years of emplacement was zero. Water content at the bottom of the CTFS was simulated to slowly increase as a result of unsaturated gravity drainage ... However, pore water along the bottom of the CTFS will remain in tension with clay material until water content reaches field saturation conditions to overcome capillary tension and freely seep into the collection system.

As explained in detail in the subsection Field Capacity in the section Tutorial on Unsaturated Flow in the Emerman Report, gravity is acting on soil water even if the pores are unsaturated. Capillary forces are acting to retain the water within pores, but for volumetric water contents that exceed the field capacity, gravitational forces will dominate over capillary forces. Thus, even an unsaturated soil will drain until the volumetric water content has dropped to the field capacity (Fig. 3 GBRW Ex. 4).

4. Air drying process is unclear and not field tested

NDEP and LNC contend that variation in the tailings moisture content from the filter presses is not important since there will be an air drying process to reduce the moisture content to the needed 46%. The permit application and supporting documents do not detail how this process is to be implemented at the mine site under field conditions for this unique kind of tailings. There are no data on the drying time under the field conditions. The pilot study referred to in the NDEP brief (NDEP, Ex. 7) involved laboratory experiments and there were no details that field conditions were met in the lab analysis. There is nothing that clarified the sample size in the lab experiments, which is the most important part of the methodology. NDEP concludes the following. “In sum, the study demonstrated that optimal moisture content for the clay tailings could be achieved with a combination of filtration and drying.” (NDEP Response, 17) Actually, the only conclusion that should be drawn is that *under the conditions of the laboratory experiments*, some of which were not disclosed, optimal moisture content for the clay tailings could be achieved. Exhibit 13 from LNC very generally outlines the tailings drying procedure with no details on field conditions. Many questions on how the process will proceed in the field are left unanswered:

1. What if the tailings take longer to dry?
2. Are winter conditions taken into account when drying will be much slower?
3. What if the tailings need to be arranged in thinner layers to achieve a reasonable drying time – how will that affect the ability to maintain the planned production rate?
4. What amount of tailings can be accommodated in the zero cell of the CTFS facility?

All of these questions need to be addressed before the permit is issued. The reliance by NDEP on a procedure that has not been clearly and completely analyzed, especially for these unique clay type tailings, for which there is no operational mine knowledge, is not environmentally protective and flies in the face of standard procedure.

In addition, since the tailings when placed for drying could be well over 46% moisture content there is likelihood of significant seepage even during the drying process, which has not been taken into account in the NewFields or Piteau tailings seepage analyses. This adds further uncertainty that has not been addressed.

5. NDEP and LNC Erroneously claim that the Observational Method (Adaptive Management) is employed.

There is heavy reliance on what the State refers to as an “active management plan,” and NDEP states:

The collected data will either confirm that the systems are performing as designed or will support a decision by NDEP to require LNC to evaluate and propose modifications to its operation and/or design as necessary. (NDEP Response, 2)

It appears as though what NDEP is trying to communicate is a methodology that is correctly known as the “Observational Method” or “Adaptive Management.” However, the process outlined here by NDEP is inconsistent with the Observational Method. The Observational Method requires that all possible adverse observational events have been outlined and preplanned actions are developed for each. The Global Industry Standard on Tailings Management (GISTM) defines the Observational Method as:

a continuous, managed, integrated, process of design, construction control, monitoring and review that enables previously defined modifications to be incorporated during or after construction as appropriate. All of these aspects must be demonstrably robust. The key element of the Observational Method is the proactive assessment at the design stage of every possible unfavorable situation that might be disclosed by the monitoring program and the development of an action plan or mitigative measure to reduce risk in case the unfavorable situation is observed. This element forms the basis of a performance-based risk management approach.(GBRW Exhibit 4, 66)

This is not a “reactive approach” as suggested by NDEP but a methodical and well thought out approach that anticipates all adverse events and what is expected to be observed for each adverse event. The preplanned actions are ready for execution at the point of adverse observations, such as unanticipated seepage from the CTFS.

NDEP and LNC have completely turned this standard Observational Method upside down. This is clear from NDEP’s brief which states:

...it is reasonable to conclude that any increases in seepage flow rates will occur gradually and provide NDEP and LNC time to evaluate and address changing field conditions (NDEP brief, 2-3).

Unlike nearly every other mining project, Lithium Nevada does not appear to have any preplanned actions ready for execution in the event of adverse observations, such as unanticipated seepage from the CTFS, nor does NDEP require them to have such preplanned actions. Instead, there are only intentions to carry out more analyses. According to the response by NDEP to public comments:

If the Division determines the facility is not being operated as designed, additional analysis and permit modifications, if necessary, will be required ... If it becomes apparent through the routine monitoring, reporting and inspections ... that there is a wide range of moisture contents, the model, closure plan, and ET Cell capacity can be updated accordingly ... If it is apparent that more waste rock is being placed than anticipated, revision to stability and seepage analysis will be required. (NDEP, Exhibit 3, 67, 78,79)

Of course, “more analyses” and similar activities do not constitute preplanned actions.

Overall, there is no attention to the Observational Method, which is the basis for nearly every other mining project. Member Companies of the International Council on Mining & Metals (ICMM) are required to fully implement the GISTM by August 2023 . Lithium Nevada is not a Member Company, but it is noteworthy that Association Members include the International Lithium Association (ILiA), the USA-based National Mining Association (NMA), and the USA-based Society for Mining, Metallurgy and Exploration (SME). (GBRW Exhibit 4, 66).

6. LNC misconstrues GBRW's use of the term source.

LNC in their response brief incorrectly states that GBRW assumes that the term “source” in NAC 445A.433.1(b) is referring strictly to the tailings, “GBRW incorrectly suggests that the “source” at issue here is the tailings.” (LNC Response brief, 13) Indeed the source is the tailings facility which according to 445A.433.1(b) “must be designed to minimize releases.” Neutralization of the tailings is an important design feature to minimize releases, since any seepage that does escape the lining system will be of much less toxicity if the tailings are neutralized. It is inevitable that not all of the seepage will be contained by the liner system for all time, and thus neutralization is an important design requirement.

7. LNC misquotes Nevada regulations

LNC claims there is no regulatory requirement that tailings be neutralized or that Lithium Nevada needs to obtain a variance under NAC 445A.430. But LNC mis-quotes the regulation by stating, “[s]pent ore which has been left on leach pads,” where the regulation makes no mention of leach pads per se, but merely “pads”; which may or may not include “leach pads”. The regulation refers only to spent ore, which includes tailings, and which NDEP has accepted.

8. Permit requirements remain unclear

NDEP is conflating the Modified Maximum Dry Density (“MMDD”) with the moisture content of the tailings when there has been no established connection. According to NDEP’s Response brief, page 5, “Clay tailings in the structural zone must be compacted to 95% of Modified Maximum Dry Density (“MMDD”), which is typical for embankment design.” But, the permit says nothing of MMDD and affirms that moisture content cannot exceed 46%. NDEP states the following in reference to the structural zone of the tailings facility.

Based on this analysis, LNC determined that 95% compaction could be achieved in the clay tailings with a dry basis moisture content of 46% + or – 6%. Id. In other words, at least 95% MMDD could be achieved at a moisture content that is anywhere from 40%

on the dry end to 52% on the wet end with 46% representing moisture content required for maximum compaction. (NDEP response, 6)

There is a similar statement regarding the nonstructural zone; both of which are unfounded and technically meaningless.

Based on this statement a *range of moisture content* should be allowed to achieve the 95% of Modified Maximum Dry Density; however, a range of moisture content is not allowed. These statements are confusing and inconsistent and point towards a faulty permitting process. Further confusion arises from the factsheet that accompanies the permit, which does allow for a range of moisture contents. Which is it?

CONCLUSION

In conclusion, based upon the foregoing, Appellant, GBRW respectfully requests that the permit be withdrawn and remanded to the agency to obtain the necessary data and analysis to ensure protection of the waters of the State.



Julie Cavanaugh-Bill, NV Bar No.: 11553
Attorney for Appellant GBRW

EXHIBIT

1

Subject: RE: Thacker Pass Tailings analysis

From: Michelle Griffin <m.griffin@ndep.nv.gov>

Date: 6/14/21, 11:26 AM

To: John Hadder <john@gbw.org>

CC: Robert Kuczynski <rkuczyns@ndep.nv.gov>, Aimee Keys <a.keys@ndep.nv.gov>, Glenn C Miller <glennm@unr.edu>, Karl McCrea <kmccrea@ndep.nv.gov>

Good morning John,

The updated analysis has not been provided by LNC yet. I believe the anticipated submittal of responses may be in the next week or two.

Thank you,

Michelle Griffin, P.E.

Staff Engineer III

Regulation Branch, Bureau of Mining Regulation and Reclamation

Nevada Division of Environmental Protection

Department of Conservation and Natural Resources

901 S. Stewart Street, Suite 4001

Carson City, NV 89701

m.griffin@ndep.nv.gov

775-687-9405

-----Original Message-----

From: John Hadder <john@gbw.org>

Sent: Monday, June 14, 2021 10:57 AM

To: Michelle Griffin <m.griffin@ndep.nv.gov>

Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>; Glenn C Miller <glennm@unr.edu>

Subject: Thacker Pass Tailings analysis

Hello Michelle,

In our online meeting back in May I understood that there was to be an updated tailings analysis. Has that been provided by LNC yet? If so how can I get access to it?

thank you

cheers,

john

John Hadder

Great Basin Resource Watch

P.O. Box 207

Reno, NV 89504

john@gbw.org

775-348-1986

775-345-3575 (f)

www.gbw.org

Subject: RE: Thacker pass correspondence
From: Michelle Griffin <m.griffin@ndep.nv.gov>
Date: 8/30/21, 1:40 PM
To: John Hadder <john@gbw.org>
CC: Robert Kuczynski <rkuczyns@ndep.nv.gov>, Aimee Keys <a.keys@ndep.nv.gov>

Hi John,

Apologies for the delay. We will be sending an additional technical comment letter in the next couple of weeks.

Best,

Michelle Griffin, P.E.
Staff Engineer III
Regulation Branch, Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
m.griffin@ndep.nv.gov
775-687-9405

-----Original Message-----
From: John Hadder <john@gbw.org>
Sent: Monday, August 23, 2021 3:55 PM
To: Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>
Subject: Thacker pass correspondence

Hello Michelle,

Have all of the correspondences regarding Thacker Pass been uploaded to the public document viewer? If not, how can I access those?

cheers,

john

John Hadder
Great Basin Resource Watch
P.O. Box 207
Reno, NV 89504

john@gbw.org
775-348-1986
775-345-3575 (f)

www.gbw.org

EXHIBIT

2

Subject: Thacker Pass questions
From: John Hadder <john@gbw.org>
Date: 11/3/21, 1:54 PM
To: Aimee Keys <a.keys@ndep.nv.gov>, Michelle Griffin <m.griffin@ndep.nv.gov>
CC: Robert Kuczynski <rkuczynski@ndep.nv.gov>, Todd Process <tprocess@ndep.nv.gov>, Todd Suessmith <tsuessmi@ndep.nv.gov>, Karl McCrea <kmccrea@ndep.nv.gov>, Greg Lovato <glovato@ndep.nv.gov>, Houston Kempton <houston@gbw.org>, John Hadder <john@gbw.org>

Hello All,

OK, here are some aspects I would like more clarity on, so maybe we do not need to coordinate a meeting. Indeed i know that you all as do I have full schedules.

1. Michelle, your fact sheet does cite both 20 years and 10 years in connection to when the water table is expected to be reached, which is correct? From page 4 of the FS: "Therefore, the Permit does not authorize mining below the regional water table and restricts mining to 15 feet above the regional water table (4,840 feet amsl) under Part I.G of the Permit. The first 20 years of mining is anticipated to occur above this elevation."

From page 5 of the FS: "During the initial phase of the operation (i.e., during the 10-year period of the initial WPCP), mining will only occur above the groundwater table and only waste rock material will be placed in the dry pit as backfill."

If it is 20 years, then what is the 10 year mine plan about, especially in terms of reclamation?

2. Tailings seepage. On page 11 of the FS – "A seepage calculation was completed which showed a maximum seepage rate of up to 74 gpm could flow to the Reclaim Pond at ultimate facility buildout (expansion requiring Permit modification) as a result of tailings consolidation."

Michelle, can you point to this calculation of 74 gpm? And, this is during operations?

3. Tailing Seepage. On page 11 of the FS – "However, under covered closure conditions, the resulting seepage is 0.01 percent of the Mean Annual Precipitation which translates to a total 0.02 gpm over the facility." It looks like this comes from the technical memo, revised September 21, 2021, "Clay Tailing Filter Stack (CTFS) Unsaturated Flow Modeling Revision 1." However, according to the memo the average thickness of the tailings dump is 190 feet, which is consistent with the full build out. What is the analysis under the constraint of the permit? (above the water table – which seems to be 10 years).

4. Tailings Seepage. Is the agency assuming that seepage will 0.02 gpm at the time of closure and remaining at that rate indefinitely? Does BMRR have data on the seepage rate over time for the full build out and the permitted mine plan?

5. Tailings Seepage. Based on the technical memo cited in (3) there is a roughly 600 fold increase in the seepage if the precipitation is doubled from the base case. The memo does not state the precipitation for the base case, but the value of 12.2 in/yr was used in the 2019 Water Quality analysis, so I assume its about the same value. There is considerable variation in this from year to year with a value of 15.7 in/yr for 2014, so it is not unreasonable to assert on the order of 30% increase from the base case. It is important to understand what level of seepage could be expected with this more likely to be observed range. In fact, I think the important point here is at what precipitation level does the seepage rate begin climb rapidly – in other words at what precipitation level does the ability of the material to "absorb" water become near zero? Does BMRR know this?

6. Tailings Seepage Water Quality. Does BMRR have data on the water quality of the seepage over time? If so what is it? I think there was only one HCT on the clay tailings that provides some information on the change in concentration over time. Does BMRR have the details on that data? Please provide.

Even given that one test, how representative is that of the water quality drainage profile over time? If BMRR does consider the HCT to be representative, please provide the analysis that shows this. Furthermore, one test is not statically relevant. In general, the number of samples tested across the board appears low.

7. Reclamation Bond Estimate. According to the documents this is based on the mine build out as permitted above the water table. However, BLM has approved the full mine plan. Isn't a long term funding mechanism needed for that?

Let me know if you want to set up a meeting to discuss these. I am still available tomorrow or Friday.

thank you for your time on this.

cheers,

john

On 11/1/21 1:19 PM, Aimee Keys wrote:

Good Afternoon John,

We are open to meeting with GBRW, however NDEP-BMRR staff have done a great deal of work to answer the questions about Thacker Pass that we've received from GBRW and community members, many of which relate directly to the topics you mentioned. I would like to ask that you take a look at the information we've put together and let us know if your questions remain unanswered.

You can find our Q&A sheet for the Project here – https://ndep.nv.gov/uploads/documents/20211022_BMRR_Thacker_Pass_Q_and_A.pdf – this is sourced from the questions we received via email, voicemail, during the public meetings we held in April and May, and from a meeting held with Tribal Leaders in June. The Q&A sheet is linked on NDEP's Thacker Pass webpage: <https://ndep.nv.gov/land/thacker-pass-project>, where we have also posted videos and slides from previous meetings discussing the permitting process and the project itself.

Michelle crafted a very thorough description of the operation of the Clay Tailings Filter Stack (CTFS) in the Draft Fact Sheet linked on the Notice of Proposed Action (pages 10–15) here: <http://ndep.nv.gov/posts/notice-of-proposed-action-bmrr-thacker-pass-project>. Are there specific aspects of operation or closure of the CTFS that you would like to discuss with us that remain unclear?

Regarding mining below the water table, Draft WPCP Parts I.B.5, I.B.7, I.D, II.B, I.G.2, and Draft Fact Sheet page 4 describe how NDEP-BMRR is handling this aspect.

Regarding reclamation bonding, the reclamation plan and cost estimate are both publicly available on the Document Viewer. Again, if you have some items for discussion that are not addressed or questions that arise from your review of our Q&A, the draft permit documents, or the application materials, we are available to discuss.

I am not refusing your request to meet, but asking that you take a look at the materials we have posted with the NOPA and NOI to see if they address the items GBRW would like to discuss, as we have devoted a lot of resources to addressing general and detailed questions on these topics. Feel free to give me a call if you'd like.

Regards,
Aimee

Aimee Keys
Chief
Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
a.keys@ndep.nv.gov
(O) 775-687-9397 | (F) 775-684-5259



From: John Hadder <john@gbrw.org>
Sent: Friday, October 29, 2021 11:56 AM
To: Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>; Todd Process <tprocess@ndep.nv.gov>; Todd Suessmith <tsuessmi@ndep.nv.gov>; Karl McCrea <kmccrea@ndep.nv.gov>
Subject: Re: Thacker Pass document

Hello Michelle,

Are you thinking Tuesday morning or afternoon? Afternoon is better for me, and I will need to check with others. Are there any other days next week?

cheers,

john

On 10/28/21 10:26 AM, Michelle Griffin wrote:

Thank you for that information, John. Sounds like we should have all of the Thacker Pass permitting staff on the call, and in that case Tuesday would work best. Is there a time that day that would work for you?

The public hearing was scheduled for December 1 because we have to provide a 30 day notice for that as well. Although the public comment period would be scheduled to end on November 28, December 1 is when we were able to book a venue for the event and the public comment period was extended to the conclusion of the public hearing.

From: John Hadder <john@gbrw.org>
Sent: Thursday, October 28, 2021 10:02 AM
To: Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>
Subject: Re: Thacker Pass document

Hello Michelle,

Ok, great. Thank you. I want to discuss the tailings facility so GBRW is understanding its operation and closure as you all do at the agency. I would also like to discuss the reclamation bonding.

I see that this permit is now out for public comment. Why is the public hearing at the end of the comment period? It seems it would be better early in the comment period to help clarify aspects of the permit and mining operation so the public can be better informed to make more substantive comments.

cheers,

john

On 10/27/21 7:28 AM, Michelle Griffin wrote:

Good morning John,

The updated geochemical report should be uploaded by the end of the week.

We are available for a call next week. May I ask the nature of your questions to ensure we have the appropriate staff attend?

Michelle Griffin, P.E.
Staff Engineer III
Regulation Branch, Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
m.griffin@ndep.nv.gov
775-687-9405



From: John Hadder [<john@gbw.org>](mailto:john@gbw.org)
Sent: Sunday, October 24, 2021 5:36 PM
To: Michelle Griffin [<m.griffin@ndep.nv.gov>](mailto:m.griffin@ndep.nv.gov)
Cc: Robert Kuczynski [<rkuczyns@ndep.nv.gov>](mailto:rkuczyns@ndep.nv.gov); Aimee Keys [<a.keys@ndep.nv.gov>](mailto:a.keys@ndep.nv.gov)
Subject: Thacker Pass document

Hello Michelle,

I have been reviewing the Sept 24 LNC response so BMRR's Sept 9 letter. I see that I do not have the following document:

SRK, 2020a Baseline Geochemical Characterization Report for the Thacker Pass Project
submitted January 10, 2020. Updated December 8, 2020.

Can you send to me this document, or provide a download link? I also have some questions about the WPCP that you are still working on. Can we set up a call this coming week?

cheers,

john

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John Hadder
Great Basin Resource Watch
P.O. Box 207
Reno, NV 89504

john@gbrw.org
775-348-1986
775-345-3575 (f)

www.gbrw.org

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P.O. Box 207
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Reno, NV 89504

john@gbrw.org
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775-345-3575 (f)

www.gbrw.org

EXHIBIT

3

Subject: RE: Thacker Pass questions
From: Aimee Keys <a.keys@ndep.nv.gov>
Date: 11/16/21, 3:54 PM
To: John Hadder <john@gbwr.org>, Michelle Griffin <m.griffin@ndep.nv.gov>
CC: Robert Kuczynski <rkuczyns@ndep.nv.gov>, Todd Process <tprocess@ndep.nv.gov>, Todd Suessmith <tsuessmi@ndep.nv.gov>, Karl McCrea <kmccrea@ndep.nv.gov>, Greg Lovato <glovato@ndep.nv.gov>, Houston Kempton <houston@gbwr.org>

Hi John,

Please see BMRR's responses to your questions in red text below. Let us know if you'd like to schedule a call to discuss further. We plan to include your questions in the notices for the final decisions, as appropriate for the WPCP or reclamation permit. Thanks again for the thoughtful and detailed questions.

Regards,
Aimee

1. Michelle, your fact sheet does cite both 20 years and 10 years in connection to when the water table is expected to be reached, which is correct? From page 4 of the FS: "Therefore, the Permit does not authorize mining below the regional water table and restricts mining to 15 feet above the regional water table (4,840 feet amsl) under Part I.G of the Permit. The first 20 years of mining is anticipated to occur above this elevation."

From page 5 of the FS: "During the initial phase of the operation (i.e., during the 10-year period of the initial WPCP), mining will only occur above the groundwater table and only waste rock material will be placed in the dry pit as backfill."

If it is 20 years, then what is the 10 year mine plan about, especially in terms of reclamation?

The initial mine plan is for 10 years, and all mining will occur above the 4,840 feet amsl elevation as required by the Permit; however, the Piteau water level memo indicates that really, 20 years of mining can occur above the 4,840-foot elevation.

In terms of reclamation, Phase I includes the disturbance listed in the draft reclamation permit under Phase I. The operator is required to bond for all of Phase I upon permit issuance. Phase I is estimated to span ten years. Whether it takes 10 years or 20 to build out/operate all of Phase I, the permittee must post additional surety before proceeding with further phases. The footnote for Phase I in the Reclamation permit states that "mining will occur above the regional water table and remain above the 4,825 foot amsl elevation consistent with the Water Pollution Control Permit limitation."

2. Tailings seepage. On page 11 of the FS – "A seepage calculation was completed which showed a maximum seepage rate of up to 74 gpm could flow to the Reclaim Pond at ultimate facility buildout (expansion requiring Permit modification) as a result of tailings consolidation."

Michelle, can you point to this calculation of 74 gpm? And, this is during operations?

The calculation was not included in the design report, however it was discussed previously with NewFields and calculated by subtracting the native moisture content of the ore from the optimum moisture content which the tailings material would be stacked. It included several conservative factors including a higher permeability, greater square footage, and using the native moisture content of the ore instead of the residual water content of the soil. This volume of moisture was expected to seep out of the Phase I facility at a uniform and controlled rate of 74 gpm and the calculation was used to size the reclaim pond.

Since this original calculation, a more refined seepage analysis was completed by Piteau which indicates, "moisture content through the CTFS was estimated to take several thousand years to equilibrate and produce any seepage to the underdrain system. No meaningful seepage related to draindown from residual water present in the clay tailings upon stacking is anticipated." Therefore, the design of the Reclaim Pond was acceptable. Any solution collected in the Reclaim Pond during operations will be pumped to the process plant.

3. Tailing Seepage. On page 11 of the FS – "However, under covered closure conditions, the resulting seepage is 0.01 percent of the Mean Annual Precipitation which translates to a total 0.02 gpm over the facility." It looks like this comes from the technical memo, revised September 21, 2021, "Clay Tailing Filter Stack (CTFS) Unsaturated Flow Modeling Revision 1." However, according to the memo the average thickness of the tailings dump is 190 feet, which is consistent with the full build out. What is the analysis under the constraint of the permit? (above the water table – which seems to be 10 years).

The Phase 1 CTFS has a maximum height of 200 feet. At ultimate buildout (the future expansion requiring the submittal of a permit modification), the facility will have a maximum height of 400 feet. The referenced memo correctly analyzes the average height of 190 feet. Therefore, 0.02 gpm is the analysis under the constraints of the Permit.

4. Tailings Seepage. Is the agency assuming that seepage will 0.02 gpm at the time of closure and remaining at that rate indefinitely? Does BMRR have data on the seepage rate over time for the full build out and the permitted mine plan?

Yes, 0.02 gpm is the draindown rate which would be managed through an evapotranspiration cell in closure; however,

the clay tailings is filtered to near optimal moisture content and therefore unsaturated when placed on the CTFS and not anticipated to produce meaningful seepage. The Piteau report says, "seepage related to the drainage of in-situ water content during the first 1,000 years of emplacement was zero. Water content at the bottom of the CTFS was simulated to slowly increase as a result of unsaturated gravity drainage. However, pore water along the bottom of the CTFS will remain in tension with clay material until water content reaches field saturation conditions to overcome capillary tensor and freely seep into the collection system. The wetting front via infiltration slowly migrated downward to approximately the 20-meter depth during the 1,000-year simulation, confirming that there will be significant time before any infiltration reaches the CTFS bottom. Moisture content through the CTFS was estimated to take several thousand years to equilibrate and produce any seepage to the underdrain system. In practice a minor amount of draindown may occur, due to macro pores, heterogeneity, and stacking irregularities; but it is anticipated to be very small, if measurable at all."

BMRR does not have direct analysis on the seepage rate at full buildout because the expansion requires permit modification. That information would be provided to the Division with that particular modification; however, similar to Phase 1, minimal draindown is anticipated due to the unsaturated clay characteristics of the material.

5. Tailings Seepage. Based on the technical memo cited in (3) there is a roughly 600-fold increase in the seepage if the precipitation is doubled from the base case. The memo does not state the precipitation for the base case, but the value of 12.2 in/yr was used in the 2019 Water Quality analysis, so I assume its about the same value. There is considerable variation in this from year to year with a value of 15.7 in/yr for 2014, so it is not unreasonable to assert on the order of 30% increase from the base case. It is important to understand what level of seepage could be expected with this more likely to be observed range. In fact, I think the important point here is at what precipitation level does the seepage rate begin climb rapidly – in other words at what precipitation level does the ability of the material to "absorb" water become near zero? Does BMRR know this?

You are correct that 12.2 in/year Mean Annual Precipitation rate was used in the base case scenario. The referenced memo includes a sensitivity analysis where the precipitation was doubled across the entire facility (24.4 in/year). The result of this sensitivity analysis estimated 12.7 gpm of seepage. This sensitivity captures the 15.7 in/year that was observed in 2014.

The level of precipitation needed to cause the seepage rate to climb rapidly was not analyzed as a sensitivity analysis which doubles the precipitation rate is a very conservative analysis.

6. Tailings Seepage Water Quality. Does BMRR have data on the water quality of the seepage over time? If so what is it? I think there was only one HCT on the clay tailings that provides some information on the change in concentration over time. Does BMRR have the details on that data? Please provide.

Even given that one test, how representative is that of the water quality drainage profile over time? If BMRR does consider the HCT to be representative, please provide the analysis that shows this. Furthermore, one test is not statically relevant. In general, the number of samples tested across the board appears low.

HCT data is provided in Appendix D of the Geochemical Report.

A total of six samples of clay tailings, four samples of neutralization solids, and one sample representative of sulfate salts were collected for the tailings characterization program. After completing multi-element analysis, acid base accounting, NAG pH, and MWMP analysis, two samples were selected for kinetic testing: one on the clay tailings and one on neutralized tailings material. The general conclusion for the "CLAY TAILINGS" (which represents the majority of the material to be placed on the facility) is that acidity and sulfate release are related to the presence of residual sulfuric acid, rather than the oxidation of sulfide. The clay tailings sample generated acidic leachate in the short term due to the presence of residual sulfuric acid; however, it was expected that this sample would not continue to generate acidic leachate in the long term due to the low pyritic sulfur content. This makes sense because the ore prior to processing is not acid generating. Throughout the test, pH increases (from 1.6 to 3.4) and metal concentrations decreased as the material is "rinsed" or "flushed" with meteoric water. Therefore, the geochemical nature of the material is expected to improve over time.

This conclusion was confirmed by termination testing which enables the geochemical properties to be determined alongside the evolution of the leachate during the HCT. The neutralization solids and clay tailings samples underwent geochemical characterization before and after the humidity cell test work. This included ABA and multi-element assay on the initial (pre-leach) and the residual (post-leach) HCT materials. Mineralogical analysis (XRD, SEM, petrography) was also completed.

The neutralization solids maintained a circum-neutral paste pH ranging between 8.1 and 7.9 s.u. consistent with the neutral conditions seen during the HCT. The clay tailings was predicted to be PAG in the short-term but not maintain acid generating potential in the long-term. The clay tailings HCT reported an increasing pH trend throughout the duration of the HCT and this was also reflected in the pre- and post-paste pH results (1.5 to 4.4 s.u.). Pyritic sulfur concentrations were low (ranging between 0.005 and 0.02 wt%) reflecting the prediction that neither samples would likely be acid generating in the long-term.

7. Reclamation Bond Estimate. According to the documents this is based on the mine build out as permitted above the water table. However, BLM has approved the full mine plan. Isn't a long term funding mechanism needed for that?

Draft Reclamation Permit 0415 contains the Life-of Mine disturbance acreage amount and also the initial phase or Phase 1 disturbance amount. While both agencies have permitted or authorized the Life-of-Mine disturbance, Lithium Nevada has proposed operating and bonding the project in phases. During the Initial Phase (up to 10 years) mining is restricted to occur only above the regional water table level or the 4,825 amsl elevation. This is a Water Pollution Control permit limitation. The text of the PoO has been revised to clearly state in several sections this mining limitation. As a result, consideration of a Long Term Trust for pit water treatment is not required during Phase 1.

If a long term funding mechanism becomes necessary in the future, because this project is on public land, BLM would be the lead agency in developing trust requirements and documents. The MOU between the agencies allows for BMRR's

Reclamation Branch to participate in determining mitigation costs but the process would be initiated by BLM.

Aimee Keys
Chief
Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
a.keys@ndep.nv.gov
(O) 775-687-9397 | (F) 775-684-5259



From: John Hadder <john@gbwr.org>
Sent: Wednesday, November 10, 2021 1:43 PM
To: Aimee Keys <a.keys@ndep.nv.gov>; Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Todd Process <tprocess@ndep.nv.gov>; Todd Suessmith <tsuessmi@ndep.nv.gov>; Karl McCrea <kmccrea@ndep.nv.gov>; Greg Lovato <glovato@ndep.nv.gov>; Houston Kempton <houston@gbwr.org>
Subject: Re: Thacker Pass questions

Hello Aimee,

Yes GBRW recognizes Veterans Day also. I understand and will for something next week. I will be at the Air Division hearing on the 18th and maybe unavailable on the 17th as well.

cheers,

john

On 11/10/21 11:38 AM, Aimee Keys wrote:

Hi John, we are working on answers to these questions but we have a delay with the Veterans Day holiday tomorrow and staff schedules so will not be able to get these back to you this week, it will be next. My apologies for the delay.

Aimee

Aimee Keys
Chief
Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
a.keys@ndep.nv.gov
(O) 775-687-9397 | (F) 775-684-5259



From: Aimee Keys
Sent: Thursday, November 4, 2021 12:10 PM
To: John Hadder <john@gbwr.org>; Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Todd Process <tprocess@ndep.nv.gov>; Todd Suessmith <tsuessmi@ndep.nv.gov>; Karl McCrea <kmccrea@ndep.nv.gov>; Greg Lovato <glovato@ndep.nv.gov>; Houston Kempton <houston@gbwr.org>
Subject: RE: Thacker Pass questions

Hi John,

Thanks for the thoughtful and detailed questions, we appreciate it. We'll respond via email next week; in some cases we might need to hold a call to ensure that we understand each other and that we've addressed the questions appropriately.

Aimee

Aimee Keys
Chief
Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
a.keys@ndep.nv.gov
(O) 775-687-9397 | (F) 775-684-5259



From: John Hadder <john@gbwr.org>
Sent: Wednesday, November 3, 2021 1:54 PM
To: Aimee Keys <a.keys@ndep.nv.gov>; Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczynski@ndep.nv.gov>; Todd Process <tprocess@ndep.nv.gov>; Todd Suessmith <tsuessmi@ndep.nv.gov>; Karl McCrea <kmccrea@ndep.nv.gov>; Greg Lovato <glovato@ndep.nv.gov>; Houston Kempton <houston@gbwr.org>; John Hadder <john@gbwr.org>
Subject: Thacker Pass questions

Hello All,

OK, here are some aspects I would like more clarity on, so maybe we do not need to coordinate a meeting. Indeed i know that you all as do I have full schedules.

1. Michelle, your fact sheet does cite both 20 years and 10 years in connection to when the water table is expected to be reached, which is correct? From page 4 of the FS: "Therefore, the Permit does not authorize mining below the regional water table and restricts mining to 15 feet above the regional water table (4,840 feet amsl) under Part I.G of the Permit. The first 20 years of mining is anticipated to occur above this elevation."

From page 5 of the FS: "During the initial phase of the operation (i.e., during the 10-year period of the initial WPCP), mining will only occur above the groundwater table and only waste rock material will be placed in the dry pit as backfill."

If it is 20 years, then what is the 10 year mine plan about, especially in terms of reclamation?

2. Tailings seepage. On page 11 of the FS – "A seepage calculation was completed which showed a maximum seepage rate of up to 74 gpm could flow to the Reclaim Pond at ultimate facility buildout (expansion requiring Permit modification) as a result of tailings consolidation."

Michelle, can you point to this calculation of 74 gpm? And, this is during operations?

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the full build out and the permitted mine plan?

5. Tailings Seepage. Based on the technical memo cited in (3) there is a roughly 600 fold increase in the seepage if the precipitation is doubled from the base case. The memo does not state the precipitation for the base case, but the value of 12.2 in/yr was used in the 2019 Water Quality analysis, so I assume its about the same value. There is considerable variation in this from year to year with a value of 15.7 in/yr for 2014, so it is not unreasonable to assert on the order of 30% increase from the base case. It is important to understand what level of seepage could be expected with this more likely to be observed range. In fact, I think the important point here is at what precipitation level does the seepage rate begin climb rapidly – in other words at what precipitation level does the ability of the material to "absorb" water become near zero? Does BMRR know this?

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7. Reclamation Bond Estimate. According to the documents this is based on the mine build out as permitted above the water table. However, BLM has approved the full mine plan. Isn't a long term funding mechanism needed for that?

Let me know if you want to set up a meeting to discuss these. I am still available tomorrow or Friday.

thank you for your time on this.

cheers,

john

On 11/1/21 1:19 PM, Aimee Keys wrote:

Good Afternoon John,

We are open to meeting with GBRW, however NDEP-BMRR staff have done a great deal of work to answer the questions about Thacker Pass that we've received from GBRW and community members, many of which relate directly to the topics you mentioned. I would like to ask that you take a look at the information we've put together and let us know if your questions remain unanswered.

You can find our Q&A sheet for the Project here – https://ndep.nv.gov/uploads/documents/20211022_BMRR_Thacker_Pass_Q_and_A.pdf – this is sourced from the questions we received via email, voicemail, during the public meetings we held in April and May, and from a meeting held with Tribal Leaders in June. The Q&A sheet is linked on NDEP's Thacker Pass webpage: <https://ndep.nv.gov/land/thacker-pass-project>, where we have also posted videos and slides from previous meetings discussing the permitting process and the project itself.

Michelle crafted a very thorough description of the operation of the Clay Tailings Filter Stack (CTFS) in the Draft Fact Sheet linked on the Notice of Proposed Action (pages 10–15) here: <http://ndep.nv.gov/posts/notice-of-proposed-action-bmrr-thacker-pass-project>. Are there specific aspects of operation or closure of the CTFS that you would like to discuss with us that remain unclear?

Regarding mining below the water table, Draft WPCP Parts I.B.5, I.B.7, I.D, II.B, I.G.2, and Draft Fact Sheet page 4 describe how NDEP-BMRR is handling this aspect.

Regarding reclamation bonding, the reclamation plan and cost estimate are both publicly available on the Document Viewer. Again, if you have some items for discussion that are not addressed or questions that arise from your review of our Q&A, the draft permit documents, or the application materials, we are available to discuss.

I am not refusing your request to meet, but asking that you take a look at the materials we have posted with the NOPA and NOI to see if they address the items GBRW would like to discuss, as we have devoted a lot of resources to addressing general and detailed questions on these topics. Feel free to give me a call if you'd like.

Regards,
Aimee

Aimee Keys
Chief
Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
a.keys@ndep.nv.gov
(O) 775-687-9397 | (F) 775-684-5259



From: John Hadder [<john@gbwrw.org>](mailto:john@gbwrw.org)
Sent: Friday, October 29, 2021 11:56 AM
To: Michelle Griffin [<m.griffin@ndep.nv.gov>](mailto:m.griffin@ndep.nv.gov)
Cc: Robert Kuczynski [<rkuczynski@ndep.nv.gov>](mailto:rkuczynski@ndep.nv.gov); Aimee Keys [<a.keys@ndep.nv.gov>](mailto:a.keys@ndep.nv.gov); Todd Process [<tprocess@ndep.nv.gov>](mailto:tprocess@ndep.nv.gov); Todd Suessmith [<tsuessmi@ndep.nv.gov>](mailto:tsuessmi@ndep.nv.gov); Karl McCrea [<kmccrea@ndep.nv.gov>](mailto:kmccrea@ndep.nv.gov)
Subject: Re: Thacker Pass document

Hello Michelle,

Are you thinking Tuesday morning or afternoon? Afternoon is better for me, and I will need to check with others. Are there any other days next week?

cheers,
john

On 10/28/21 10:26 AM, Michelle Griffin wrote:

Thank you for that information, John. Sounds like we should have all of the Thacker Pass permitting staff on the call, and in that case Tuesday would work best. Is there a time that day that would work for you?

The public hearing was scheduled for December 1 because we have to provide a 30 day notice for that as well. Although the public comment period would be scheduled to end on November 28, December 1 is when we were able to book a venue for the event and the public comment period was extended to the conclusion of the public hearing.

From: John Hadder <john@gbw.org>
Sent: Thursday, October 28, 2021 10:02 AM
To: Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>
Subject: Re: Thacker Pass document

Hello Michelle,

Ok, great. Thank you. I want to discuss the tailings facility so GBRW is understanding its operation and closure as you all do at the agency. I would also like to discuss the reclamation bonding.

I see that this permit is now out for public comment. Why is the public hearing at the end of the comment period? It seems it would be better early in the comment period to help clarify aspects of the permit and mining operation so the public can be better informed to make more substantive comments.

cheers,

john

On 10/27/21 7:28 AM, Michelle Griffin wrote:

Good morning John,

The updated geochemical report should be uploaded by the end of the week.

We are available for a call next week. May I ask the nature of your questions to ensure we have the appropriate staff attend?

Michelle Griffin, P.E.
Staff Engineer III
Regulation Branch, Bureau of Mining Regulation and Reclamation
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
m.griffin@ndep.nv.gov
775-687-9405



From: John Hadder <john@gbw.org>
Sent: Sunday, October 24, 2021 5:36 PM
To: Michelle Griffin <m.griffin@ndep.nv.gov>
Cc: Robert Kuczynski <rkuczyns@ndep.nv.gov>; Aimee Keys <a.keys@ndep.nv.gov>
Subject: Thacker Pass document

Hello Michelle,

I have been reviewing the Sept 24 LNC response so BMRR's Sept 9 letter. I see that I do not have the following document:

SRK, 2020a Baseline Geochemical Characterization Report for the Thacker Pass Project
submitted January 10, 2020. Updated December 8, 2020.

Can you send to me this document, or provide a download link? I also

have some questions about the WPCP that you are still working on. Can we set up a call this coming week?

cheers,

john

John Hadder
Great Basin Resource Watch
P.O. Box 207
Reno, NV 89504

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775-345-3575 (f)

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775-348-1986
775-345-3575 (f)

www.gbrw.org

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Reno, NV 89504

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775-348-1986
775-345-3575 (f)

www.gbrw.org

EXHIBIT

4

From: [Jennifer Schonlau](#)
 To: [Michelle Griffin](#)
 Subject: Seepage Calculation
 Date: Monday, November 8, 2021 3:57:26 PM

Hi Michelle,

Please see information below from NewFields regarding the seepage calculation in the EDR. Let me know if you have any questions.

Thank you!

The 74 gpm seepage calculation estimate was a preliminary estimate completed in June 2019 to conservatively size the CTFS reclaim pond to provide flexibility during operations not closure. This was before Piteau performed the infiltration modeling. The calculation is based on the assumption that the difference of water content between native ore in the pit and the CTFS stack would seep out from the facility in just 109 years. In reality it will take thousands or millions of years to reach the original moisture content with the low permeability tailings material. The seepage water volume at 74gpm for 7 days is 746,900 gallons or 3% of the total storage capacity of the pond at freeboard. If we use the latest Piteau modeled infiltration rate of 0.02 gpm then the seepage water volume after 7 days is 700 gallons or 0.003% of the total storage capacity of the pond at freeboard.

The calculation for the seepage calculation is below.

**Thacker Pass
10-Year Clay Tailings Filter Stack Average Seepage Rate**

Description	Value	Unit	Comment
Initial Tailings moisture content (wet basis)	32.9%	%	Mw/(Mw+Ms)
Initial Tailings moisture content (dry basis)	49.1	%	Mw/(Ms)
Final Tailings moisture content (wet basis)	16	%	ore natural moisture content (worst case)
Final Tailings moisture content (dry basis)	19.0	%	calc
Approximate tailings dry density	70	lbs/ft3	Estimated from lab compaction curves
Approximate tailings wet density	104.3	lbs/ft3	calc
Approximate tailings wet density	1.41	tons/cy	calc
10-year CTFS volume	75,000,000	CY	From volume calculation based on LNC production
10-year CTFS volume	2,025,000,000	ft3	calc
Total Wet Tailings Tonnes for first 10 years	94,735,472	wet tonnes	Provided by LNC
Total Mass of Dry Solids	63,552,290	dry tonnes	Provided by LNC
Total Mass of Water in CTFS	31,183,182	tonnes	calc
Estimated Mass of Residual Water in CTFS	15,157,676	tonnes	calc
Estimated Mass of Seepage Water that will drain away to reach Steady State moisture content	16,025,506	tonnes	calc
Estimated Mass of Seepage Water that will drain away to reach Steady State moisture content	35,320,216,282	lbs	calc
Estimated Mass of Seepage Water that will drain away to reach Steady State moisture content	566,029,107	ft3	calc
Estimated Mass of Seepage Water that will drain away to reach Steady State moisture content	4,233,897,721	gallons	calc
Area of 10-year CTFS	18,000,000	ft2	Approximate 10-year pad area
Average Height of CTFS	113	ft	Volume of pad divided by the area
Permeability of CTFS	0.000001	cm/sec	NewFields Lab Testing
Time for water to travel average height of heap	57,150,000	minutes	calc
Estimated average seepage flow rate	74	gpm	calc
Completed by Matt Haley on June 26, 2019			

Input
Output

The calculation for the Reclaim Pond #1 sizing is below:

**Thacker Pass
Clay Tailings Filter Stack
Reclaim Pond #1 Sizing**

Process Solution Storage Requirement		
Average Underdrain Flow Rate due to Seepage	74	gpm
Average Underdrain Flow Rate due to Seepage	106,700	gal/day

Required Draindown Storage Time	7	days
Total Process Solution Storage Requirement	746,900	gal

Precipitation Inputs		
Design Storm, P - 100 year/24 hour storm	2.48	in

Phase 1 - Stormwater Runoff Estimate - 100 year/24 hour storm						
Pad Area Description	Area, A (ft ²)	Curve Number	S Value (in)	Initial Abstraction, I _a (in)	Runoff, Q (in)	Runoff (gal)
			1000/CN-10	0.2 x S	$Q = (P - I_a)^2 / ((P - I_a) + S)$	$Q_{gal} = Q \times A \times 7.4805/12$
Filtered Tailings Area ¹	14,000,000	94	0.64	0.13	1.85	16,147,820
Exposed Liner	4,000,000	100	0.00	0.00	2.48	6,183,880
Direct Precipitation on Pond	250,000	-	-	-	2.48	386,500
Total Stormwater Runoff						22,718,200

Required Pond Capacity at Freeboard	23,465,100	gal
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EXHIBIT

5

STATE OF NEVADA
Department of Conservation and Natural Resources
Division of Environmental Protection
Bureau of Mining Regulation and Reclamation

Water Pollution Control Permit

Permittee: **Lithium Nevada Corp.
Thacker Pass Project
5310 Kietzke Lane, Suite 200
Reno, NV 89511**

Permit Number: **NEV2020104**
Review Type/Year/Revision: **New Permit 2021, Revision 00**

Pursuant to Nevada Revised Statutes (NRS) 445A.300 through 445A.730, inclusive, and regulations promulgated thereunder by the State Environmental Commission and implemented by the Division of Environmental Protection (the Division), this Permit authorizes the Permittee to construct, operate, and close the **Thacker Pass Project**, in accordance with the limitations, requirements, and other conditions set forth in this Permit. The Permittee is authorized to process up to **7,640,000 tons** of ore per year.

The facility is located in Humboldt County, within Sections 1 and 12, Township 44 North (T44N), Range 34 East (R34E); Sections 2-17, T44N, R35E; and sections 7, 8, 14-23, and 29, T44N, R36E, Mount Diablo Baseline and Meridian, approximately 20 miles northwest of the town of Oroville, Nevada.

The Permittee must comply with all terms and conditions of this Permit and all applicable statutes and regulations.

This Permit is based on the assumption that the information submitted in the application of 2 April 2020, as modified by subsequent approved amendments, is accurate and that the facility has been constructed and is being operated as specified in the application. The Permittee must inform the Division of any deviation from, or changes in, the information in the application, which may affect the ability of the Permittee to comply with applicable regulations or Permit conditions.

This Permit is effective as of **Day Month Year**, and shall remain in effect until **Day-1 Month Year**, unless modified, suspended, or revoked.

Signed this _____ day of **Month 2021**.

Aimee Keys
Chief, Bureau of Mining Regulation and Reclamation

I. Specific Facility Conditions and Limitations

A. In accordance with operating plans and facility design plans reviewed and approved by the Division the Permittee shall:

1. Construct, operate, and close the facility in accordance with those plans;
2. Contain within the fluid management system all process fluids including all meteoric waters which enter the system as a result of the 25-year, 24-hour storm event; and
3. Not release or discharge any process or non-process contaminants from the fluid management system.

B. Schedule of Compliance:

1. By DD Month YYYY (within 120 days of the effective date of the Permit), the Permittee shall submit for review and approval updated operating plans, pursuant to Nevada Administrative Code (NAC) 445A.398 and 445A.427, which are revised, as warranted, to reflect the requirements in this Permit and any associated as-built reports.
2. By DD Month YYYY (within XX days of the effective date of the Permit), the Permittee shall submit the final location, design, and installation schedule for a groundwater monitoring well downgradient of the West Waste Rock Storage Facility (WWRSF). After Division approval, the well shall be installed, and at least three quarters of monitoring data collected, prior to commissioning the WWRSF component. Within 30 days after the well is completed, an as-built report shall be submitted pursuant to NAC 445A.427.
3. Thirty days prior to initiation of operations, the Permittee shall submit to the Division a written notice of intention to begin operation pursuant to Nevada Administrative Code (NAC) 445A.426
4. Thirty days prior to initiation of operations, the Permittee shall schedule a reasonable time for the Division to conduct a facility inspection to ascertain compliance of the constructed facility with the approved design and Permit.
5. Prior to the initiation of mining, the Permittee shall submit locations and designs for at least two piezometers to the Division for approval to verify water levels below the west pit. Prior to abandoning these initial piezometers to proceed mining east, the Permittee shall submit locations and designs for the installation of two additional piezometers for Division approval.
6. The subsurface conditions beneath the proposed sulfuric acid plant (SAP) shall be confirmed prior to construction. If the geotechnical program results in a modification to the design or location of the SAP, a permit modification and corresponding fee may be required for submittal and approval by the Division.
7. Prior to mining below the water table, the Permittee shall submit for Division review and approval, a groundwater model which evaluates the impacts and demonstrates waters of the State will not be degraded. A Permit modification

and corresponding fee may be required for submittal and approval by the Division.

The schedule of compliance items above are not considered completed until approved in writing by the Division.

C. The fluid management system covered by this Permit consists of the following process components:

1. The clay tailings filter stack facility (CTFS) with solution collection pipes lined with 80-mil high density polyethylene (HDPE);
2. Leak detection system for the CTFS, solution collection area, and collection ditch;
3. Double-lined reclaim pond with a leakage collection and recovery system;
4. Two waste rock storage facilities, coarse gangue stockpile, and run-of-mine stockpile each with a compacted clay subbase, and runoff ponds lined with 80-mil HDPE;
5. Transfer pipes, valves, and pumps used in conveyance, control, or detection of process fluids between process components; and
6. Sulfuric acid plant and process plant, including, but not limited to, all tanks, basins, sumps, pumps, and piping necessary to interconnect the components within the buildings.

D. Monitoring Requirements:

<u>Identification</u>	<u>Parameter</u>	<u>Frequency</u>
1. <u>Water Supply</u> QRPW-01, QRPW-02, PH-1	Profile I ⁽¹⁾ and Radionuclides ⁽²⁾	Annually, if used during the year
2. <u>West Pit:</u> PZ-1, PZ-2	Pit floor elevation, Presence of Water ⁽¹²⁾ and Profile I ⁽¹⁾ and Radionuclides ⁽²⁾ ; Water elevation (ft amsl)	Monthly, if present; Monthly
3. <u>Clay Tailings Filter Stack Leak Detection</u> LDP; LD-00, LD-01, LD-02, LD-03, LD-04, LD-05-06	Average daily flow (gpd); Presence of solution, if flow is present at LDP	Weekly ⁽³⁾ (once commissioned)

<u>Identification</u>	<u>Parameter</u>	<u>Frequency</u>
4. <u>Pond Leak Detection (sump capacity)</u> CTFS Reclaim Pond (RP-LD) (1,583 gal)	Average daily accumulation (gpd)	Weekly ⁽³⁾ (once commissioned)
5. <u>Piezometer Measurements</u> CTFS: <i>Structural Zone:</i> (PZ02, PZ03, PZ05, PZ06, PZ11, PZ12) <i>Non-Structural Zone:</i> (PZ01, PZ04, PZ07, PZ08, PZ09, PZ10) <i>CTFS Perimeter</i> (CTFS-01, CTFS-02, CTFS-03, CTFS-04, CTFS-05, CTFS-06, CTFS-07, CTFS-08)	Hydraulic head (feet)	Weekly
6. <u>Pond Solution</u> Reclaim Pond (RP) WWRSF Pond (WP) EWRSF Pond (EP) CGS Pond (CP)	Profile I ⁽¹⁾ and Radionuclides ⁽²⁾ , and flow (gpm)	Quarterly (once commissioned)
7. <u>Mined Materials</u> Waste Rock (WR) Coarse Gangue (CG) Ore Stockpile (OS); Clay Tailings (CT) Sulfate Salts (SS)	MWMP ⁽⁴⁾ -Profile I ⁽¹⁾ and Radionuclides ⁽²⁾ and ANP/AGP ⁽⁵⁾⁽⁶⁾ ; MWMP ⁽⁴⁾ - Profile I ⁽¹⁾ and Radionuclides ⁽²⁾ , and ANP/AGP ⁽⁵⁾⁽⁶⁾ ; Geotechnical Moisture Content and percent compaction (ASTM D1557), and final placement location	Quarterly; Quarterly; Monthly

<u>Identification</u>	<u>Parameter</u>	<u>Frequency</u>
8. <u>Site Monitoring Wells</u> <i>Upgradient:</i> MW 18-04 <i>WWRSF:</i> MW 18-03, MW-02 <i>West Pit:</i> MW 18-01, WSH-11 <i>Quinn Valley:</i> WSH-13, WSH-14 <i>EWRSF:</i> MW-08 <i>CGS:</i> WSH-03 <i>CTFS:</i> MW 21-01, MW21-02, MW 18-02, MW 21-03	Profile I ⁽¹⁾ and Radionuclides ⁽²⁾ , water and collar elevation (feet AMSL)	Quarterly (once Commissioned)
9. <u>Surface Water Monitoring</u> Upper Thacker Creek Lower Thacker Creek SP-02 (tributary to Crowley Creek) Crowley Creek upgradient of confluence: (CC-U) Crowley Creek downgradient of confluence: (CC-D)	Surface Water Profile ⁽⁹⁾ and Radionuclides ⁽²⁾ , flow (gpm)	Quarterly, when flowing
10. <u>Weather Station Facility</u> Ambient Conditions	Ambient temperature, (min/max), relative humidity (%), wind speed (mph), wind direction (azimuth degree), total precipitation (inches), solar irradiance (W/m ²), and SWE (inches)	Daily

The Permittee may request a reduction of the monitoring frequency after four quarters of complete monitoring based on justification other than cost. Such reductions may be considered modifications to the Permit and require payment of modification fees.

Abbreviations and Definitions:

AMSL = above mean sea level; ANP/AGP = Acid Neutralizing Potential:Acid Generation Potential ratio; ASTM = American Society for Testing and Materials; CaCO₃ = calcium carbonate; DO = dissolved oxygen; e = the base of the natural logarithm with approximate value of 2.718; Eh = chemical reduction potential; EPA

If Uranium is >0.03 mg/L in solution or is known or suspected to be $\geq 0.05\%$ in ore, the Permittee should contact the Nevada Department of Health and Human Services - Radiation Control Program to discuss characterization and associated Permitting or licensing requirements.

- (3) The sump must be inspected and evacuated on a more frequent basis than weekly if the fluid level is above the top of the sump or the invert of any pipe which discharges into the sump, whichever level is lower, or if the potential exists to exceed the sump capacity. Records are required documenting volume, date, and time of extraction to show that sumps are maintained in this condition.
- (4) The Meteoric Water Mobility Procedure (MWMP) shall be performed by a Nevada-approved laboratory, in accordance with ASTM Method E 2242-13 (or the most current method).
- (5) When static testing⁽⁶⁾ characterization of Mined Materials shows the potential for acid generation as set forth in the current version of the Division guidance document "Waste Rock, Overburden, and Ore Evaluation," the Permittee shall, as applicable, notify the Division in writing and initiate kinetic testing⁽⁷⁾ within 10 days.

If the kinetic test results indicate acid generation conditions exist, the Permittee shall submit in writing, within 30 days, the methods proposed for providing containment of these materials and the anticipated impact this acid generation potential may have on final stabilization of all components affected as defined in Nevada Administrative Code (NAC) 445A.359.

- (6) Acid Neutralizing Potential/Acid Generating Potential (ANP/AGP, also known as static testing or acid-base accounting) shall be performed by a Nevada-approved laboratory, using a LECO-type analysis, with full sulfur speciation, in accordance with the most current update of the Nevada Modified Sobek Procedure.
- (7) Kinetic testing (humidity cell testing) shall be performed by a Nevada-approved laboratory, in accordance with ASTM Method D 5744-18 Option 'A' (or the most current approved method); tests shall be run for a minimum of 20 weeks and for a longer duration if warranted or recommended by the analytical laboratory or required by the Division; samples shall be collected weekly (all weeks) and measurements shall be recorded for redox potential, pH, specific conductance ($\mu\text{S}/\text{cm}$), acidity and/or alkalinity (as deemed appropriate by the laboratory), sulfate, iron (total, plus ferric and ferrous speciation if total iron > 0.6 mg/L and pH < 5 SU), and dissolved calcium and magnesium; weekly filtered extracts per the method will be digested and analyzed for total recoverable concentrations during week 0, 1, 2, 4, 8, 12, 16, and 20; 4-week extracts thereafter (i.e., week 24, 28, 32, etc.) shall be analyzed by a Nevada-certified analytical laboratory for Profile I⁽¹⁾ parameters, and specific conductance ($\mu\text{S}/\text{cm}$) and acidity and/or alkalinity shall be recorded as recommended by the analytical laboratory; final results reported shall

2. Mining below the 4,840 feet above mean sea level elevation, which is 15 feet above the pre-mining regional water table. Water levels shall be confirmed with at least two additional piezometers installed 2 years in advance of mining into the following panel.
3. The daily accumulation or flow exceeding 150 gallons per day averaged over the quarter in the leak detection sump identified in Part I.D.4.
4. The daily accumulation or flow exceeding 50 gallons per day averaged over the year in the leak detection sump identified in Part I.D.4.
5. Failure to meet a Schedule of Compliance date or requirement.
6. The storage of solution in a single-lined pond for more than 20 consecutive days for any single event.
7. Except as otherwise allowed by this Permit, a minimum 2-foot freeboard shall be maintained in all ponds.
8. Tailings material may not be removed from the tailings impoundment, except with prior written authorization from the Division.
9. The Clay Tailings Filter Stack Facility, as measured vertically from the top of the synthetic liner for any point on the pad, constructed in excess of a maximum permitted elevation of 200 feet over minimum 80-mil thickness HDPE synthetic liner.
10. Ponding of solution on the CTFS.
11. The moisture content of the clay tailings material placed in the structural zone shall not exceed 52 percent.
12. The moisture content of the clay tailings material placed in the non-structural zone shall not exceed 58 percent.
13. The facility shall not degrade waters of the State to the extent that applicable water quality standards or reference values, and background concentrations, are exceeded.
14. The following surface water quality standards apply to Quinn River, East and South Forks and its tributaries, including Crowley Creek and Thacker Creek, in accordance with NAC 445A.1236 and 445A.1312:

<u>Parameter</u>	<u>Standard or Standard Calculation Equation^(c)</u> (µg/L, except as noted)
Alkalinity (as CaCO ₃)	≥ 20 mg/L
Ammonia, Total (as N)	mg/L per NAC 445A.118 ^(c)
Antimony, Total	146
Arsenic, Dissolved ^(a)	10
Barium, Total	2.0 mg/L

<u>Parameter</u>	<u>Standard or Standard Calculation Equation^(c)</u> (µg/L, except as noted)
Beryllium, Total	0
Boron, Total	750
Cadmium, Dissolved ^{(a)(b)}	$(1.101672 - \{\ln(\text{hardness})(0.041838)\}) * e^{(0.7409 \{\ln(\text{hardness})\} - 4.719)}$
Calcium	Measure and report (as mg/L calcium) for hardness determination
Chloride	400 mg/L
Chromium, Total	100
Chromium (III), Dissolved ^{(a)(b)}	$(0.860) * e^{(0.8190 \{\ln(\text{hardness})\} + 0.6848)}$
Chromium (VI), Dissolved ^(a)	11
Copper, Dissolved ^{(a)(b)}	$(0.960) * e^{(0.8545 \{\ln(\text{hardness})\} - 1.702)}$
Cyanide, Free ^(a)	5.2
Dissolved Oxygen	≥ 6.0 mg/L
Fluoride	1.0 mg/L
Hardness ^(b)	Calculate and report (as mg/L CaCO ₃)
Iron, Total ^(a)	1.0 mg/L
Lead, Dissolved ^{(a)(b)}	$(1.46203 - \{\ln(\text{hardness})(0.145712)\}) * e^{(1.273 \{\ln(\text{hardness})\} - 4.705)}$
Manganese, Total	200
Magnesium	Measure and report (as mg/L magnesium) for hardness determination
Mercury, Dissolved ^(a)	0.77
Molybdenum, Total ^(a)	1.65 mg/L
Nickel, Dissolved ^{(a)(b)}	$(0.997) * e^{(0.8460 \{\ln(\text{hardness})\} + 0.0584)}$
Nitrate + Nitrite (as N)	10 mg/L
pH	6.5 – 9.0 SU
Phosphorus, Total (as P)	100
Selenium, Total ^(a)	5.0
Silver, Dissolved ^{(a)(b)}	$(0.85) * e^{(1.72 \{\ln(\text{hardness})\} - 6.59)}$
Sulfate	500 mg/L
Sulfide, Total (as un-dissociated hydrogen sulfide) ^(a)	2.0
Thallium, Total	13
Total Dissolved Solids	500 mg/L

Parameter	Standard or Standard Calculation Equation^(c) (µg/L, except as noted)
Zinc, Dissolved ^{(a),(b)}	$(0.986) * e^{(0.8473 \{ \ln(\text{hardness}) \} + 0.884)}$

- (a) The standard may be exceeded once every three years per NAC 445A.1236.
- (b) For calculated aquatic life standards, hardness (as mg/L CaCO₃) is determined via the equation in Part I.D., Footnote (11). See Part I.D. Abbreviations for reference. Include all calculated standards with each monitoring report, as applicable.
- (c) For a complete list of applicable surface water standards, refer to NAC 445A.118, 445A.121, 445A.122, 445A.1236, and 445A.1312.

Exceedances of these limitations may be Permit violations and shall be reported as specified in Part II.B.4.

- H. The facility shall maintain automated or manual calibrated rain and snow gauge(s), which shall be monitored at least daily to record precipitation (inches of water, including snow water equivalent). A written and/or electronic record of precipitation data, and any other weather data required in Part I.D, shall be maintained on site and shall be submitted to the Division upon request, with each Permit renewal application, and pursuant to Parts II.B.1 and II.B.2, as applicable, in a Division-approved electronic format.
- I. The Permittee shall inspect all control devices, systems, and facilities weekly, and during (when possible) and after major storm events. These inspections are performed to detect evidence of:
 - 1. Deterioration, malfunction, or improper operation of control or monitoring systems;
 - 2. Sudden changes in the data from any monitoring device;
 - 3. The presence of liquids in leak detection systems; and
 - 4. Severe erosion or other signs of deterioration in dikes, diversions, closure covers, or other containment devices.
- J. Prior to initiating permanent closure activities at the facility, or at any process component or other source within the facility, the Permittee must have an approved final plan for permanent closure.
- K. The Permittee shall remit an annual review and services fee in accordance with NAC 445A.232 starting July 1 after the effective date of this Permit and every year thereafter until the Permit is terminated or the facility has received final closure certification from the Division.
- L. The Permittee shall not dispose of or treat Petroleum-Contaminated Soil (PCS) on the mine site without first obtaining from the Division approval of a PCS Management Plan.

M. When performing dust suppression activities, the Permittee shall use best management practices and appropriate selection of water source and additives to prevent degradation of waters of the State. If a dust suppressant exceeds a water quality standard and the corresponding natural background water concentration in the area where dust suppression will occur, the Permittee shall demonstrate no potential to degrade waters of the State.

N. Continuing Investigations:

1. The Permittee shall submit to the Division for review and approval an updated waste rock management plan (WRMP) with each Permit renewal and with any application to modify the Permit that could affect the WRMP. A revised WRMP must also be approved prior to initiating mining or in-pit backfill activities not previously approved. The WRMP must include representative characterization data for all anticipated waste rock and overburden in accordance with the current version of the Division guidance document "Waste Rock, Overburden, and Ore Evaluation," in addition to a detailed description of how, when, and where the materials will be managed and monitored, and appropriate controls to eliminate any potential to degrade waters of the State, if applicable. Approval may require modification of the Permit and payment of modification fees.
2. Revised stability analyses and interim as-built reports for the CTFS shall be submitted for Division review and approval on an annual basis.
3. The Permittee shall initiate and continue neutralization studies of tailings material prior to its filtration and stacking on the CTFS. Neutralization studies may include but are not limited to rinsing, chemical and/or physical alteration of the tailings material. The Permittee will submit annual progress reports to the Division for review and evaluation and will also include the potential short-term and long-term impacts of the neutralization methods on CTFS stability. Any neutralization methodology selected by the Permittee for implementation at the facility will require the submittal of detailed engineering designs and fee to modify the Permit.

II. General Facility Conditions and Limitations

A. General Requirements

1. The Permittee shall achieve compliance with the conditions, limitations, and requirements of the Permit upon commencement of each relevant activity. The Administrator may, upon the request of the Permittee and after public notice (if required), revise or modify a Schedule of Compliance in an issued Permit if he or she determines good and valid cause (such as an act of God, a labor strike, materials shortage, or other event over which Permittee has little or no control) exists for such revision.
2. The Permittee shall at all times maintain in good working order and operate as efficiently as possible, all devices, facilities, and systems installed or used by

the Permittee to achieve compliance with the terms and conditions of this Permit.

3. Whenever the Permittee becomes aware that he or she failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application or in any report to the Administrator, the Permittee shall promptly submit such facts or correct information. Any inaccuracies found in this information may be grounds for revocation or modification of this Permit and appropriate enforcement action.

B. Reporting Requirements

1. The Permittee shall submit quarterly reports, in both hard copy and a Division-approved electronic format, which are due to the Division on or before the 28th day of the month following the quarter and must contain the following:
 - a. Monitoring results from the leak detection sumps, pipes, or piezometers identified in Parts I.D.3, I.D.4, and I.D.5, reported on Nevada Division of Environmental Protection (NDEP) Form 0590 or equivalent;
 - b. Presence of water in the west pit identified in Part I.D.2;
 - c. Analytical results of the solution collected from monitoring locations identified in Parts I.D.6, I.D.8, and I.D.9, reported on NDEP Form 0190 or equivalent;
 - d. Water and collar elevations for site monitoring wells and pit piezometers identified in Parts I.D.2, and I.D.8;
 - e. Analytical results of the MWMP-Profile I-R and ANP/AGP testing for the materials identified in Part I.D.7, reported on NDEP Form 0190 or equivalent;
 - f. The moisture content and compaction information identified in Part I.D.7;
 - g. A record of releases, and the remedial actions taken in accordance with the approved Emergency Response Plan on NDEP Form 0490 or equivalent; and
 - h. For any kinetic test initiated, continued, or terminated with Division approval during the quarter, provide a brief report of the test status and an evaluation of the results to date, which shall include all analytical data generated from the date testing was initiated through the reporting quarter.

Facilities which have not initiated mining or construction, must submit a quarterly report identifying the status of mining or construction. Subsequent to any noncompliance or any facility expansion which provides increased capacity, the Division may require an accelerated monitoring frequency.

2. The Permittee shall submit an annual report, in both hard copy and a Division-approved electronic format, by February 28th of each year, for the preceding calendar year, which contains the following:

- a. Annual neutralization study progress report and interim as-built report for the CTFS, including but not limited to chimney drain placement, tailings moisture contents, and compaction QA/QC, and a revised stability analysis incorporating data collected within the year;
 - b. Analytical results of water quality samples collected from water supply wells identified in Part I.D.1, reported on NDEP Form 0190 or equivalent;
 - c. A synopsis of releases on NDEP Form 0390 or equivalent;
 - d. A brief summary of site operations, including the number of tons of ore processed during the year, construction and expansion activities, and major problems with the fluid management system;
 - e. A table of total monthly precipitation amounts and other weather data, as applicable, recorded in accordance with Parts I.D.10 and I.H, reported for either a five-year history previous to the date of submittal or the history since initial Permit issuance, whichever is shorter;
 - f. An updated version of the facility monitoring and sampling procedures and protocols, as applicable;
 - g. An updated evaluation of the closure plans, as applicable, using specific characterization data for each process component with respect to achieving stabilization; and
 - h. Graphs of leak detection flow rates, pH, total dissolved solids (TDS), sulfate, chloride, nitrate + nitrite (as N), fluoride, zinc, and arsenic concentrations (as applicable), versus time for all fluid sampling points. These graphs shall display either a five-year history previous to the date of submittal or the history since initial Permit issuance, whichever is shorter. Additional parameters may be required by the Division if deemed necessary.
3. Release Reporting Requirements: The following applies to facilities with an approved Emergency Response Plan. If a site does not have an approved Emergency Response Plan, then all releases must be reported as per NAC 445A.347 or NAC 445A.3473, as appropriate.
- a. A release of any quantity of hazardous substance, as defined at NAC 445A.3454, to surface water, or that threatens a vulnerable resource, as defined at NAC 445A.3459, must be reported to the Division as soon as practicable after knowledge of the release, and after the Permittee notifies any emergency response agencies, if required, and initiates any action required to prevent or abate any imminent danger to the environment or the health or safety of persons. An oral report shall be made by telephone to (888) 331-6337, and a written report shall be provided within 10 days in accordance with Part II.B.4.b.
 - b. A release of a hazardous substance in a quantity equal to or greater than that which is required to be reported to the National Response Center pursuant

to 40 Code of Federal Regulations (CFR) Part 302 must be reported as required by NAC 445A.3473 and Part II.B.3.a.

- c. A release of a non-petroleum hazardous substance not subject to Parts II.B.3.a. or II.B.3.b., released to soil or other surfaces of land, and the total quantity is equal to or exceeds 500 gallons or 4,000 pounds, or that is discovered in or on groundwater in any quantity, shall be reported to the Division no later than 5:00 P.M. of the first working day after knowledge of the release. An oral report shall be made by telephone to (888) 331-6337, and a written report shall be provided within 10 days in accordance with Part II.B.4.b. Smaller releases, with total quantity greater than 25 gallons or 200 pounds and less than 500 gallons or 4,000 pounds, released to soil or other surfaces of land, or discovered in at least 3 cubic yards of soil, shall be reported quarterly on NDEP Form 0390 or equivalent.
 - d. Petroleum Products and Coolants: If a release is subject to Parts II.B.3.a. or II.B.3.b., report as specified in Part II.B.3.a. Otherwise, if a release of any quantity is discovered on or in groundwater, or if the total quantity is equal to or greater than 100 gallons released to soil or other surfaces of land, report as specified in Part II.B.3.c. Smaller releases, with total quantity greater than 25 gallons but less than 100 gallons, released to soil or other surfaces of land, or if discovered in at least 3 cubic yards of soil, shall be reported quarterly on NDEP Form 0390 or equivalent.
4. The Permittee shall report to the Administrator any noncompliance with the Permit.
- a. Each such event shall be reported orally by telephone to (775) 687-9400, not later than 5:00 P.M. of the next regular work day from the time the Permittee has knowledge of the circumstances. This report shall include the following:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident, condition, or circumstance;
 - iv. If reportable hazardous substances were released, identify material and report total gallons and quantity of contaminant;
 - v. Human and animal mortality or injury;
 - vi. An assessment of actual or potential hazard to human health and the environment outside the facility; and
 - vii. If applicable, the estimated quantity of material that will be disposed and the disposal location.
 - b. A written summary shall be provided within 10 days of the time the Permittee makes the oral report. The written summary shall contain:
 - i. A description of the incident and its cause;

- ii. The periods of the incident (including exact dates and times);
 - iii. If reportable hazardous substances were released, the steps taken and planned to complete, as soon as reasonably practicable, an assessment of the extent and magnitude of the contamination pursuant to NAC 445A.2269;
 - iv. Whether the cause and its consequences have been corrected, and if not, the anticipated time each is expected to continue; and
 - v. The steps taken or planned to reduce, eliminate, and prevent recurrence of the event.
- c. The Permittee shall take all available and reasonable actions, including more frequent and enhanced monitoring to:
- i. Determine the effect and extent of each incident;
 - ii. Minimize any potential impact to the waters of the State arising from each incident;
 - iii. Minimize the effect of each incident upon domestic animals and all wildlife; and
 - iv. Minimize the endangerment of the public health and safety which arises from each incident.
- d. If required by the Division, the Permittee shall submit, as soon as reasonably practicable, a final written report summarizing any related actions, assessments, or evaluations not included in the report required in Part II.B.4.b, and including any other information necessary to determine and minimize the potential for degradation of waters of the State and the impact to human health and the environment. Submittal of the final report does not relieve the Permittee from any additional actions, assessments, or evaluations that may be required by the Division.

C. Administrative Requirements

1. A valid Permit must be maintained until permanent closure and post-closure monitoring are complete. Therefore, unless permanent closure and post-closure monitoring have been completed and termination of the Permit has been approved in writing by the Division, the Permittee shall apply for Permit renewal not later than 120 days before the Permit expires.
2. Except as required by NAC 445A.419 for a Permit transfer, the Permittee shall submit current Permit contact information described in paragraphs (a) through (c) of subsection 2 of NAC 445A.394 within 30 days after any change in previously submitted information.
3. All reports and other information requested by the Administrator shall be signed and certified as required by NAC 445A.231.
4. All reports required by this Permit, including, but not limited to, monitoring reports, corrective action reports, and as-built reports, as applicable, and all

applications for Permit modifications and renewals, shall be submitted in both hard copy and a Division-approved electronic format.

5. The Permittee shall submit any new or updated Universal Transverse Mercator (UTM) location data for all monitoring points specified in Part I.D, expressed in meters and decimals of a meter, using the Nevada Coordinate System of 1983 (also known as the North American Datum of 1983 or NAD83, ref NRS 327.005), with each Permit renewal, as-built report, and monitoring plan update, as applicable. Data shall be submitted electronically to the Division in Excel format.
6. When ordered consistent with Nevada Statutes, the Permittee shall furnish any relevant information in order to determine whether cause exists for modifying, revoking and reissuing, or permanently revoking this Permit, or to determine compliance with this Permit.
7. The Permittee shall maintain a copy of, and all modifications to, the current Permit at the permitted facilities at all times.
8. The Permittee is required to retain during operation, closure, and post-closure monitoring, all records of monitoring activities and analytical results, including all original strip chart or data logger recordings for continuous monitoring instrumentation, and all calibration and maintenance records. This period of retention must be extended during the course of any unresolved litigation.
9. The provisions of this Permit are severable. If any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit, shall not thereby be affected.
10. The Permittee is authorized to manage fluids and solid wastes in accordance with the conditions of this Permit. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of Federal, State, or local law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under the Water Pollution Control Statutes for releases or discharges from facilities or units not regulated by this Permit. NRS 445A.675 provides that any person who violates a Permit condition is subject to administrative or judicial action provided in NRS 445A.690 through 445A.705.

D. Division Authority

The Permittee shall allow authorized representatives of the Division, at reasonable times, and upon the presentation of credentials to:

1. Enter the premises of the Permittee where a regulated activity is conducted or where records are kept per the conditions of this Permit;
2. Have access to and copy any record that must be kept per the conditions of this Permit;

3. Inspect and photograph any facilities, equipment (including monitoring and control equipment), practices, or operations regulated by this Permit; and
4. Sample or monitor for any substance or parameter at any location for the purposes of assuring Permit and regulatory compliance.

E. Sampling and Analysis Requirements

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. For each measurement or sample taken pursuant to the conditions of this Permit, the Permittee shall record the following information:
 - a. The exact place, date, and time of the inspection, observation, measurement, or sampling, and
 - b. The person(s) who inspected, observed, measured, or sampled.
3. Samples must be taken, preserved, and labeled according to Division approved methods.
4. Standard environmental monitoring chain of custody procedures must be followed.
5. Samples shall be analyzed by a laboratory certified or approved by the State of Nevada, as applicable for the method(s) being performed. The Permittee must identify in all required reports the certified and approved laboratories used to perform the analyses, laboratory reference numbers, and sample dates, and for the electronic version of each report only, include all associated laboratory analytical reports, including test results, test methods, chain-of-custody forms, and quality assurance/quality control documentation.
6. The accuracy of analytical results, unless otherwise specified, shall be expressed in mg/L and be reliable to at least two significant digits. The analytical methods used must have a practical quantitation limit (PQL) equal to or less than one-half the reference value for Profile I and Surface Water Profile parameters. Laboratories shall report the lowest reasonable PQL based on in-house method detection limit studies. Samples for Profile I parameters shall be filtered and analyzed for the dissolved fraction, unless otherwise required by the Division; samples for Surface Water Profile parameters shall be analyzed in accordance with NAC 445A.1236 and other applicable surface water regulations. Unless otherwise approved by the Division, analytical results that are less than the PQL shall be reported quantitatively by listing the PQL value preceded by the "<" symbol.

F. Permit Modification Requirements

1. Any material modification, as defined at NAC 445A.365, plan to construct a new process component, or proposed change to Permit requirements must be reported to the Division by submittal of an application for a Permit modification, or if such changes are in conformance with the existing Permit, by submittal of a written notice of the changes. The Permit modification

application must comply with NAC 445A.391 through 445A.399, 445A.410, 445A.414, 445A.415, 445A.416, 445A.417, 445A.440, and 445A.442, as applicable. The construction or modification shall not commence, nor shall a change to the Permit be effective, until written Division approval is obtained.

2. Prior to the commencement of mining activities at any site within the State which is owned or operated by the Permittee but not identified and characterized in a previously submitted application or report, the Permittee shall submit to the Division a report which identifies the locations of the proposed mine areas and waste disposal sites, and characterizes the potential of mined materials and areas to release pollutants. Prior to development of these areas the Division shall determine if any of these new sources will be classified as process components and require engineered containment as well as Permit modification.
3. The Permittee shall notify the Division in writing at least 30 days before the introduction of process solution into a new process component or into an existing process component that has been materially modified, or of the intent to commence active operation of that process component. Before introducing process solution or commencing active operation, the Permittee shall obtain written authorization from the Division.
4. The Permittee must obtain a written determination from the Administrator of any planned process component construction or material modification, or any proposed change to Permit requirements, as to whether it is considered a Permit modification, and if so, what type.
5. The Permittee must give advance notice to the Administrator of any planned changes or activities which are not material modifications in the permitted facility that may result in noncompliance with Permit requirements.

Prepared by: Michelle Griffin
Date: 27 October 2021

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