EXHIBIT 13

NEWFIELDS TECHNICAL MEMORANDUM
(OCTOBER 21, 2021)

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TECHNICAL MEMORANDUM
(385-TM-14-CTFS Liner System)

To:	**Ted Grandy** **VP of Legal and Regulatory Affairs** **Lithium Nevada Corporation**
From:	**Matt Haley, P.E.**
Reviewed:	**Paul Kaplan, P.E.**
Project:	**Thacker Pass Project**
Project No:	**475.385.000**
Subject:	**Clay Tailings Filter Stack Liner System**
Date:	**October 21, 2021**

1. INTRODUCTION

This Technical Memorandum (TM) is provided to highlight key design considerations related to the Clay Tailings Filter Stack (CTFS). The applicable regulatory context is also provided as a frame of reference. We understand Nevada Division of Environmental Protection - Bureau of Mining Regulation and Reclamation (NDEP-BMRR) is familiar with the design features and this TM is provided as reference.

2. DESIGN OVERVIEW

The CTFS was designed to store filtered clay tailings and salt which are byproducts of the lithium extraction process. The base of the CTFS consists of a compacted six inch thick layer of liner bedding material which consists primarily of fine grained soils overlain by an 80-mil thick HDPE geomembrane. The liner bedding will provide a relatively fine-grained prepared surface suitable to place the geomembrane. A two-foot thick overliner layer will be placed over the geomembrane to protect the liner during tailings placement and to serve as a drainage layer/hydraulic relief. A network of perforated pipes are located at the base of the overliner layer on top of the geomembrane at regular intervals to promote drainage.

The clay tailings are produced using a pressure filtration process and the salts formed from crystallizers are produced in centrifuges. The materials that will be placed in the CTFS contain residual moisture but are not saturated. Both materials are in a solid form when conveyed from the process plant to the temporary stockpile area in the southwestern corner of the CTFS. From the stockpile the filtered tailings and salts will be loaded into haul trucks and transported to either the structural or non-structural zone of the CTFS. The clay tailings will be placed in the structural or non-structural zone and the salts will be placed in the non-structural zone.

The clay tailings in the structural zone will be placed in thin lifts and if necessary scarified and air dried to within the target moisture range. Drying time will vary and will be dependent on the season and the weather. Nevada is an arid state with evaporation at the site exceeding precipitation in every month of the year. Once the moisture content range is achieved the material will be compacted and the next lift will be placed. The clay tailings or salts placed in the non-structural zone will also be placed in thin lifts and if necessary scarified and air dried to within the target moisture range. Once the moisture content range is achieved the materials will be compacted and the next lift will be placed. The compaction specification for the structural zone is currently 95 percent and the non-structural zone is 85 percent of the maximum dry density as determined by ASTM D1557. Based on testing of remolded samples, the permeability of the compacted tailings will be in the range of 10^{-6} to 10^{-7} cm/sec.

The end result will be a large stack of low permeability clay tailings material placed on a geomembrane which is generally accepted to have an intact permeability of 10^{-11} cm/sec. No process solution will be discharged on the stack.

The overliner material will be several orders of magnitude more permeable than the tailings and therefore, any underflow or drainage from the stack will be readily evacuated from the system and will gravity flow to the double lined and leak detected collection pond. Head on the geomembrane liner beneath the stack will be minimal to zero. Since the clay tailings and salt mixture will have a very low hydraulic conductivity, stormwater is expected to runoff or evaporate from the surface. With minimal hydraulic head on the lining system, seepage to the environment would be expected to be negligible.

3. INFILTRATION DATA/ PITEAU CONCLUSIONS

Piteau Associates USA, Ltd. (Piteau) completed an unsaturated flow model simulating a two-foot thick soil cover over the low permeability clay tailings material for the base case and sensitivity analysis were also completed. The referenced memorandum (*Piteau, 2021. Technical Memorandum (TM 21-01) Clay Tailing Filter Stack (CTFS) Unsaturated Flow Modeling Revision 1. Prepared by Piteau Associates USA Ltd., dated January 26, 2021. Revised September 21, 2021*) has been provided to the NDEP-BMRR.

According to Piteau (Piteau, 2021) using a permeability (k) value that is higher than the tailings permeability testing indicates (Base case = 1.2×10^{-6} cm/s), the resulting seepage was 0.01 percent of the Mean Annual Precipitation (MAP) which translates to a total 0.02 gpm seepage rate for the entire 16,400,000 square foot stack area. The CTFS reclaim pond is sized to handle a conservative 15 gpm seepage rate once it is converted to an ET Cell during final closure.

The reclaim pond can handle all anticipated infiltration scenarios as explained in the Piteau technical memorandum.

4. TAILINGS DRYING

The filtered tailings may, in some cases, require drying after placement and before being compacted in the CTFS. Drying soils is a common practice for earthworks operations and occurs year-round in northern Nevada. Road construction operations routinely reduce the moisture content of overly wet soils without the use of mechanical elements such as heating or blowing units. Scarification and turning over materials to allow for the evaporation of excess moisture is a typical earthmoving process. In general, structural tailings will be managed when the weather allows for placement and compaction and non-structural tailings will be placed when the weather does not allow for structural tailings placement or on an as needed basis.

Filtered tailings that need to be dried will be spread in a thin layer using a dozer or grader. The material will be scarified using the tines on a grader or by a plow or disc that is pulled by a dozer or tractor or other appropriate means and methods. See **Figure 1** for an example of tailings scarification on another filtered tailings operation. Scarification loosens the soil and increases the surface area so water can be evaporated from the sun and wind. During warmer times of the year, the addition of water may be needed to facilitate compaction. Water will be applied to haul roads as needed to mitigate dust.

Figure 1 – Scarifying Tailings for Drying

Adjusting the moisture content of soils up (adding water) or down (turning over the materials and allowing them to air dry) so they are amenable to compaction is performed on virtually every single earthmoving operation globally. The placement of filtered tailings is no different than any other mass earthworks project. The specifications for the placement and compaction of filtered tailings are similar, and in some cases less demanding, than other mass earthworks project (whether leach pad, tailings facility, commercial building, housing project, roadway, pipeline, etc.). This customary practice has been applied at other dry stack facilities where we have worked.

Table 1 presents precipitation and evaporation data for the project site. Weather data indicates that evaporation exceeds precipitation in every month for the project site. On an annualized basis, evaporation exceeds precipitation by a factor of 5.8.

Table 1 – Site Precipitation and Evaporation

DESCRIPTION	CLIMATOLOGICAL VALUES
AVERAGE MONTHLY PRECIPITATION DATA	
Month	**Average Site Precipitation, 2011-2017 (in)**
January	1.27
February	1.14
March	1.17
April	1.47
May	1.58
June	1.16
July	0.32
August	0.34
September	0.58
October	0.99
November	1.10
December	1.18
Total	12.30
AVERAGE MONTHLY EVAPORATION DATA	
Month	**Average Site Pan Evaporation (in)**
January	1.48
February	2.13
March	3.87
April	5.64
May	7.41
June	10.36
July	12.89
August	11.40
September	7.73
October	4.54
November	2.30
December	1.27
Total	71.02
The data presented is from the Climate Analysis Memo by ERC which is included in the NewFields Engineering Design Report Appendix E.3.13 located in Attachment J of the Water Pollution Control Permit.	

5. REGULATORY CRITERIA FOR LINING SYSTEMS

The CTFS is a tailings storage facility that does not impound fluids. The lining system design for the CTFS is compliant with NAC 445A.437, Minimum Design Criteria: Tailings Impoundments and actually exceeds the minimum criteria as written in the Regulation.

The criteria for heap leach pads (NAC 445A.434) does not apply to the CTFS because there is no beneficiation process occurring on the CTFS and there is no active leaching being performed on the CTFS.

The CTFS has been designed to exceed the Tailings Impoundment Regulatory criteria set forth in NAC 445A.437. A brief summary of the Regulation and the reasoning for the design are as follows:

NAC 445A.437 Minimum design criteria: Tailings impoundments. (NRS 445A.425, 445A.465)

1. A tailings impoundment must utilize a system of containment equivalent to:

(a) Twelve inches of recompacted native, imported, or amended soils which have an in place recompacted coefficient of permeability of no more than 1 x 10^{-6} cm/sec; or –

Commentary: The CTFS design exceeds the minimum containment criteria for tailings with the use of an 80-mil HDPE geomembrane over the entire surface of the facility. Intact HDPE geomembrane has an industry accepted permeability of 1 x 10^{-11} cm/sec as acknowledged in NAC 445A.438 Part 2. Intact geomembrane is 100,000 times less permeable than the minimum permeability requirement stated in NAC 445A.437.

(b) Competent bedrock or other geologic formations underlying the site which has been demonstrated to provide a degree of containment equivalent to paragraph (a).

Commentary: This is not applicable. However, the site is in an old volcanic basin where low permeability layers of clay and ash were deposited prior to the formation of the alluvial surface.

2. An alternate level of containment may be required by the Department for all of the tailings impoundment or for a portion thereof after considering the following factors:

(a) The anticipated characteristics of the material to be deposited;

Commentary: The tailings will have minor residual acid after the neutralization process. The permeability of the tailings is very low and will be in the range of 10^{-6} or 10^{-7}cm/sec and will be placed as an unsaturated, compacted filter cake. Minimal to zero seepage is expected from the stack.

(b) The characteristics of the soil and geology of the site;

Commentary: The CTFS area is in an old volcanic basin where low permeability layers of clay and ash were deposited prior to the formation of the alluvial surface.

(c) The degree to which the hydraulic head on the impoundment liner is minimized;

Commentary: The overliner and integrated piping network are several orders of magnitude more permeable than the overlying clay tailings. Any fluids reporting to the overliner will be rapidly removed from the system. Head on the lining system should be minimal to zero (no flow condition).

(d) The extent and methods used for recycling or detoxifying fluids;

Commentary: All tailings will go through a neutralization and filtration process before being placed and compacted in the CTFS. The CTFS is not designed to impound or store fluids.

(e) Pond area and volume; -

Commentary: The CTFS does not impound or store free water. Therefore, there is no supernatant pool or pond on the tailings surface.

(f) The depth from the surface to all groundwater; and –

Commentary: The groundwater elevation varies across the facility and based on borings was encountered at 60 feet (in one boring) to in excess of 100 feet below the CTFS. The overliner and drainage pipe network installed on the geomembrane will rapidly remove any precipitation runoff. This reduces any potential hydraulic head on the geomembrane to be minimum to zero. Additionally leak detection systems are incorporated in the design of the CTFS in areas where head could be present (i.e. collection channels and ponds).

(g) The methods employed in depositing the impounded material.

Commentary: Clay tailings will be placed and compacted in the facility to form a landform of low permeability earthen materials.

6. CONCLUSION

The CTFS design was developed by experienced senior professional engineers with many years of design and field construction experience in northern Nevada. The design is protective of the environment and exceeds the minimum criteria of the applicable portions of the Regulations. Any additional stipulations or requirements to the design would add no additional calculable improvement and would not be a prudent use of natural resources or capital.

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