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May 12, 2020

Ms. Paula Wilson
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706

Submitted via email: paula.wilson@deq.idaho.gov

Re: DEQ Negotiated Rulemaking – Ore Processing by Cyanidation
Docket No. 58-0113-1901 (Negotiated Rule Draft No. 6)

Dear Ms. Wilson:

The Idaho Mining Association (IMA) provides the following general and specific comments to the subject Rule Draft No. 6.

GENERAL COMMENTS

The negotiated rulemaking process for Idaho's rules governing ore processing by cyanidation has been lengthy and exhaustive. Over the last year and a half it is clear that all parties at the negotiation table want a successful rulemaking outcome that protects the waters and resources of Idaho, establishes a framework that is responsive to modern best practices and provides businesses and regulators alike with a consistent and predictable process. We remain hopeful that we can resolve the remaining areas of disagreement with IDEQ on the subject draft rule prior to submission to the Board.

Throughout the rulemaking process, IMA has maintained that minimum design standards for cyanidation facilities should be attainable and be based on proven performance standards utilized in the industry. To fully modernize Idaho's cyanidation rules, IMA continues to encourage IDEQ to focus on the performance of facility designs as a system, rather than minimum design criteria for individual components of an overall design. However, IDEQ has regularly selected the strictest prescriptive standard from other states' regulations for each component of a facility design rather than focusing on the effectiveness of a facility's design to protect the environment. This approach is not reflective of best practice across the industry nor is such an approach in keeping with either Idaho Code §§ 39-107D or 39-118A.

SPECIFIC COMMENTS

Hydraulic Head Requirement for Tailings. (Section 204)

As we noted in our May 1, 2020 letter, recent research confirms many of the comments IMA has provided on geo-composite liner systems, particularly for tailings storage facilities (TSFs). For fine-grained tailings, IDEQ's proposed numeric hydraulic head criteria implies that a continuous gravel over-liner drain is required throughout a TSF; yet, research shows such a layer is counterproductive to the real goal of a liner system – minimizing short- and long-term fluid loss from the facility.

Dr. Rowe's 2017 lecture, and several related recent papers by him and others, based on extensive long-term laboratory and field-scale testing and research, support several key conclusions relating to liner systems, and the necessity of considering the unique characteristics of tailings facilities. The following is synthesized from the papers previously provided, as they relate to TSF liner systems, hydraulic head, and over-liner drains, and supplements and expands on material presented in the May 1 letter:

1. In reference to the common practice of developing tailings facility regulations similar to landfill regulations, Joshi et al (2016) state "there are significant differences between landfills and TSFs…Presently, these differences generally are not being correctly considered in the design of lined tailings facilities. In addition, there are unique properties of the geomembrane/tailings systems which have not been adequately researched or quantified."
2. Liner wrinkles promote interconnection of leaks and increase leakage rates, and installation of over-liner gravel drains increases liner damage while allowing continued leakage in interconnected wrinkle networks (Joshi et al 2016; Rowe 2017).
3. Tailings particles infill punctures, wrinkles, and tears (Garlanger et al; Rowe et al 2017), self-healing leaks, leading to low and declining leakage rates with increased applied vertical stress when tailings are directly above the liner (Joshi et al 2016). In combination with the low permeability of the tailings mass this reduces leakage rates substantially, even at higher heads (~14:20 in Rowe 2017 video), than would occur for free-draining material (Municipal Solid Waste (MSW), crushed ore, or a drainage layer) overlying the liner.
4. Because installation of a high-permeability over-liner material (gravel, etc.) increases the likelihood of additional liner damage as noted in 2, and circumvents the self-healing processes identified in 3, while interconnecting leaks, such drainage layers represent an environmental liability (Joshi & McLeod 2018; Rowe et al 2017). From Joshi & McLeod (2018), "The research confirms that the practice, in many jurisdictions, of *requiring a "drainage" layer over the liner*, with the objective of reducing the head on the liner, is *counterproductive in that it provides a path for leakage from the overlying consolidating*

tailings." And "If a drainage layer is required for regulatory reasons, one must recognize that *installation of a drainage layer in contact with the geomembrane will provide easier access for fluids to migrate to the geomembrane hole, thereby increasing the leakage rate. Consequently, the practice of placing drains over geomembrane liners for tailings is* ***not considered by the authors to be good practice***."

5. Higher tensile strain equates to reduced liner longevity, in addition to any immediate damage associated with gravel placement. Key factors increasing tensile strain include wrinkling and presence of coarse material (e.g., gravel) in contact with the liner. Avoiding or minimizing these factors increases longevity (Rowe 2017; Ewais & Rowe, unpublished). This is particularly important for a TSF as opposed to a heap leach facility, as the TSF liner system must function for a much longer period of time (into post-closure) whereas a heap has a finite life and its liner is most critical during operations when solutions containing high cyanide concentrations are present. For a TSF where longer timespans are considered, long-term liner performance becomes the overriding concern and should not be sacrificed to meet an arbitrary head criterion not directly correlated to leakage rate.
6. A systems approach is essential for evaluation of the subgrade – liner – stored material system, rather than considering component properties in isolation. A regulatory criterion that forces use of a drain layer above the liner compromises the short- and long-term performance of the liner system, leading to greater leakage rates. While no individual GCL, clay, geomembrane, or tailings layer will be perfectly impermeable, the presence of more than one low-permeability layer in contact with another creates an effective system with low probability of a leak in one layer coinciding with a leak in another.

To ensure the new Rule addresses these concerns and reflects best practice while allowing for future developments, section 204.01 b should be stricken in its entirety, and section 204.02 c should be revised to read "The degree to which excess pore pressure within the tailings mass is reduced concurrent to or following tailings deposition, so long as any pore pressure reduction measures do not compromise liner integrity or the longevity of the liner system performance."

Permit Application (Section 100.03.r)

IMA appreciates IDEQ's recognition at the last rulemaking meeting that at the application stage engineer-stamped plans and specifications for the facility are necessarily somewhat preliminary and will be refined upon submission of "complete and accurate plans and specifications depicting the actual construction" as required in Idaho Code § 39-118A(1). This is particularly the case for cyanidation facilities that will be constructed over multiple years. IMA suggests referencing the preliminary nature of plans and specifications at the application stage in this section. Additionally, we have the following specific comments on the section:

- 100.03 r. xiii. Manufacturers' specifications and warranties for all materials that will or may come in contact with process water.

Manufacturers' specifications and warranties for much of the ore processing materials would not typically be available until near the end of construction, not for the permit application. Moreover, can IDEQ define the materials that this requirement applies to, i.e., does IDEQ require manufacturers' specifications and warranties for every piece of pipe, pump, valve, vessel, liner, shaft, impeller, screen, hopper, cyclone, grinding media, reagent, and instrumentation in the ore processing plant?
We recommend that IDEQ remove this requirement from this section where it is practically infeasible, and that it be included in the Final Construction Report (500.02). We further recommend that it only apply to major equipment as "all materials" is an overly exhaustive requirement.

- 100.03 r. xviii. The identity and qualifications of person(s) directly responsible for supervising construction and providing project quality assurance/quality control.
  It is reasonable to expect that the Construction Manager would be known at the permit application stage, but there will be many quality assurance/quality control (QA/QC) teams involved in construction of a CN facility, and many will not be known until later in construction.
  We recommend that IDEQ strike the word "providing" from this sentence to identify the person(s) responsible for supervising the QA/QC, not the person(s) providing the QA/QC.

Cost Recovery Agreement (Section 100.04)

IMA does not object to the concept of a cost recovery agreement, however as noted in our prior comments, the scope of cost recovery in this section goes far beyond the Legislature's authorization to IDEQ to "require a reasonable fee for processing permit applications" in Idaho Code § 39-118A.

At the last rulemaking meeting we learned that IDEQ was not relying upon Idaho Code § 39-118A to support the scope of cost recovery but rather relying upon Idaho Code § 39-119. We are unaware of IDEQ ever taking the position that Idaho Code § 39-119 supplements or expands another legislative authorization limiting fees for specific activities. We think this creates a precedent that goes far beyond this rulemaking and may impact many other industries beyond the mining industry as it calls into question the scope of IDEQ's authority to assess fees in all other applicable statutes.

To avoid unnecessary controversy around this provision, IMA believes it must be confined to only IDEQ costs of processing the permit applications as directed by the Legislature in Idaho Code § 39-118A. Also, we question how IDEQ is interpreting Idaho Code § 39-119 in this rulemaking. If the authority to assess fees in this section is as broad as IDEQ now claims, what would be the point of the Legislature limiting the assessment of fees for specific actions in Idaho Code § 39-118A (or for that matter, the other numerous statutory provisions authorizing IDEQ to assess fees)? Finally, even if Idaho Code § 39-119 supposedly supplements the scope of IDEQ's

authority to assess fees in Idaho Code § 39-118A, (which we very much doubt was the intent of the Legislature), the statute only authorizes such fees based on "standards" approved by the Board. An open-ended cost recovery agreement to be worked out later, is far from the "standards" specified in Idaho Code § 39-119. We urge IDEQ to limit cost recovery to only those fees specified in Idaho Code § 39-118A.

Process Water Storage Sizing Criteria (Section 200.03)

IMA suggests that the text read "At a minimum, a cyanidation facility shall be designed to contain the maximum expected normal operating water balance and the volume of run-on and run-off associated with a climatic event that has a frequency of occurrence of one (1) year in one hundred (100) years or one percent (1%)" have appended the words "*annual exceedance probability."* to clarify that the "one percent" is equivalent to a 100-year design event, rather than one percent exceedance during the life of a facility, and have "*average*" inserted before "frequency" to avoid the implication that such events occur at regularly-spaced intervals.

Permit Conditions (Section 500.02)

IMA has three comments regarding the construction report referenced in this section.

First, manufacturer certification of proper installation of a liner system should not be required as a manufacturer's representative will not be present on site for installation. Certification of proper installation should be addressed in the QA/QC plan by the QA/QC contractor. (This same comment applies to certification by the manufacturer of an equivalent soil layer in Section 200.04.iii.e)., which is also redundant with similar text added to 500.02).

Second, this section conditions commencement of operation on IDEQ approval of a construction report and stipulates that IDEQ can issue a "notice of rejection" and require "corrective actions" presumably prohibiting the commencement of operations. This section also appears to require IDEQ approval of plans and specifications during "each critical phase of facility development." Approval of a construction report or approval of each phase of construction by IDEQ is not a condition of operation in Idaho Code § 39-118A and therefore it should not be in the Rule. Under statute, it is required that the operator submit complete and accurate plans and specifications depicting actual construction in compliance with plans and specifications previously approved by IDEQ. Even if IDEQ believes it has authority to "reject" as built construction plans in a permit condition, some standard needs to be specified in the rule (and any permit) under what condition IDEQ can reject construction plans and specifications. IDEQ should not be able to second guess how a facility is constructed after a permit is issued.

Third, while IMA does not support IDEQ's proposal to potentially reject as-builts and prevent operation of a facility that was constructed in substantial compliance with previously approved plans, the concept of review at "each critical phase of facility development" should remain in the Rule such that advanced engineering plans and specifications of later phases are not required for

IDEQ approval prior to breaking ground on the first phase of a multi-phased project. For example, a water treatment plant required at closure (10+ years later) need not be designed and approved under the Cyanidation permit prior to breaking ground on, or operating, a mill and TSF, and water treatment is subject to potentially overlapping IPDES permitting in any event. Similarly, for deposits with oxide ore at surface and sulfides at depth, a years-later planned transition from oxide heap leaching to sulfide milling and vat leaching need not be subject to the same level of engineering as the early-phase heap leaching facilities.

Permanent Closure (Section 500.10.)

IMA appreciates the removal of IDEQ from the approval of a permanent closure plan (PCP) as that function belongs to the Idaho Department of Lands (IDL). However, the section still specifies that IDEQ may "evaluate permanent closure based on different performance standards" than IDL. It is unclear what is intended by this reference. If the intent is that IDEQ can change the PCP approved by IDL and incorporated into the IDEQ Permit, we believe that is not appropriate and exceeds IDEQ's authority. We would recommend deleting this last sentence or provide an explanation of what is intended here at the upcoming rulemaking meeting.

Permanent Closure Report (Sections 501 and 502)

As discussed in our last comment letter, we do not believe it is appropriate for two separate state agencies to approve a permanent closure report. IDL is the agency charged with approval of a PCP and release of financial assurance upon closure as specified in the Mined Land Reclamation Act. IDEQ's role in evaluating a PCP and whether closure has been achieved should be as a consulting agency to IDL, as envisioned in the Mined Land Reclamation Act. We would recommend that IDEQ and IDL establish a MOA between the agencies setting forth their roles related to permanent closure. We understand from comments at the last rulemaking meeting that IDEQ believes it has authority to require the submission and approval of a permanent closure report based on IDL Rules. However, one state agency cannot authorize or provide powers to another state agency via administrative rule. In any event, it is clear under IDL rules that IDEQ is a consulting agency to IDL and does not share their authority. Accordingly, we again request IDEQ to strike reference to a permanent closure report in the subject sections.

We look forward to working with IDEQ to finalize this rule in the coming months consistent with our comments herein.

Sincerely,

Benjamin J. Davenport