Rio Tinto

Kennecott Utah Copper
PO Box 6001
Magna, Utah 84044-6001
801-569-7128 (o)
801-569-7192 (f)

August 20, 2008

VIA E-MAIL AND FACSIMILIE

Utah Division of Water Quality
Dr. William Moellmer
Cannon Health Building
288 North 1460 West
Salt Lake City UT 84116-3231

Subject: Proposed Water Quality Standards - Comments on R317-2

Dear Dr. Moellmer:

Rio Tinto Kennecott Utah Copper (Rio Tinto) appreciates the opportunity to comment on the July 15, 2008 proposed revisions to Utah's water quality standards. Rio Tinto commends the Division of Water Quality (DWQ) for its diligence in pursuing a transparent, very public process for developing the proposed changes as part of this latest triennial review. Rio Tinto recognizes DWQ's determination to involve stakeholder representatives in assessing water quality standards rulemaking issues and supports the involvement of the "Water Quality Standards Workgroup" (Workgroup) in the early stages of water quality standards-related issue identification and analysis. While Rio Tinto has identified general comments on aspects of the triennial review as considered by that Workgroup, these comments primarily focus on the other very public, well-documented process associated with the development of the proposed site-specific selenium standard for the Gilbert Bay region of Great Salt Lake.

Rio Tinto fully supports and urges that the Water Quality Board (Board) adopt the proposed standard of 12.5 mg/kg dry wt. in bird eggs as recommended by a majority of both the Great Salt Lake Water Quality Science Panel and Steering Committee members. Rio Tinto requests, however, that the standard be adopted without the referenced footnote 14 (Table 2.14.2), i.e., the assessment methodology. Unlike all the other aspects of this rulemaking package, the assessment methodology was developed without adequate public scrutiny and comment and is fundamentally at odds with the process that culminated in the proposed site-specific standard. These comments are further outlined below.

1. The Water Quality Board Should Adopt the Science-Based, Defensible Site-Specific Selenium Standard of 12.5 mg/kg (dry wt. bird eggs) for the Gilbert Bay Region of Great Salt Lake (Proposed Selenium Standard in Table 2.14.2).

DWQ is proposing the referenced site-specific standard as the result of an unprecedented process combining extensive technical review of issues related to potential standard development with broad stakeholder involvement. DWQ relied on the formidable expertise of a Science Panel which included nationally-noted selenium experts and relied on a well-versed Steering Committee with members representing a wide spectrum of interests in Great Salt Lake. The myriad links from DWQ's webpage to public meetings, technical documents

Rio Tinto

and rulemaking-related information denote the thoroughness and transparency of the site-specific selenium standard development process and the robust documentation that supports the same.

The multi-year, resource-intensive effort clarified that the Great Salt Lake ecosystem is healthy and unimpaired by selenium. The process also resulted in the recommended standard supported by a majority of scientists and stakeholders studying the issue. Correspondingly, Rio Tinto believes the proposed site-specific standard is the most appropriate, defensible standard for Gilbert Bay for a number of reasons including:

(1) its consistency with the Environmental Protection Agency's (EPA) framework for the derivation of national and site specific water quality criteria developed pursuant to section 304(a) of the federal Clean Water Act; and

(2) the extensive technical foundation demonstrating its adequacy to protect bird populations utilizing Great Salt Lake.

Rio Tinto believes a site-specific standard is necessary and appropriate for Great Salt Lake because of the differences in aquatic organisms in the lake when compared to the national data set and circumstances relied on to develop currently effective national freshwater and marine selenium criteria. Rio Tinto also supports the implementation of a water quality standard that not only protects aquatic species, but also the wildlife that depend on the lake's aquatic organisms for food.

Rio Tinto recognizes that there are those that may advocate for a more "conservative" standard. In addition to noting that it is not the purpose of a site-specific criterion to change the intended level of protection of the aquatic life in the lake (see EPA's Water Quality Handbook, (1994 Second Edition) at Section 3.7, p. 3-38), Rio Tinto believes that the imposition of standards without a solid foundation in science undermines the entire water quality standards program and ignores the purpose of a triennial review, i.e., providing a routine period for reassessing relevant data and making changes to any standards, as supported by that data.

Rio Tinto believes that the multiple layers of conservative assumptions that are inherent in the proposed tissue-based standard should eliminate any uncertainty regarding the protective nature of the proposal. These assumptions include, but are not limited to:

(1) a determination to protect reproduction, the most sensitive avian ecological endpoint;

(2) reliance on laboratory studies of the mallard duck, a species very sensitive to selenium, as a surrogate measure for other less sensitive bird species, e.g., stilts and avocets, using Great Salt Lake;

(3) the fact that the selenium toxicity curve for the mallard duck (that resulted in the proposed 12.5 mg/kg tissue-based standard) is based on laboratory feeding studies that generally show effects at lower concentrations than observed in the field; and

(4) development of a standard based on potential effects to 10% chick hatchability, i.e., the EC10, whereas the other effects thresholds for state water quality standards are based on the EC20, as determined by EPA in its development of the corresponding national criteria. Science Panel members recognized that the EC10-

Rio Tinto

based proposal is further supported given that it is nearly identical to the no observed effects concentration determined in a laboratory study.

In short, an overwhelming majority of scientists and stakeholders (including EPA) support the multi-year process that culminated in the recommended and currently proposed site-specific selenium standard. While there are always other, more conservative standards that can be identified, the scientific evidence does not support those standards. The Board should consider the years of research and study inherent in the DWQ standard development process and adopt the proposed tissue-based selenium standard of 12.5 mg/kg.

2. The Division of Water Quality Should Not Alter the Proposed Standard in Response to the Brine Shrimp Industry: The Proposed Standard is Wholly Protective of the Brine Shrimp Industry's Salable Product

Rio Tinto acknowledges that the Board has received previous comment from the Great Salt Lake brine shrimp industry advocating a selenium standard for Great Salt Lake that is lower than that proposed in current rule. Rio Tinto recognizes the importance of the Great Salt Lake brine shrimp industry as both a contributor to the state's economy and an important component of the world's food supply, and believes water quality rules should protect this beneficial use of the lake. Rio Tinto asserts, however, that the proposed selenium standard is fully protective of the brine shrimp industry's product. In this regard, the industry has indicated that in order to meet market requirements, brine shrimp cysts should not exceed 5.7 mg/kg. Rio Tinto calculates, using a ratio and transfer factor derived by the Science Panel, that an egg standard of 12.5 mg/kg translates to an effective brine shrimp cyst concentration limit of 4.4 mg/kg.[1] Rio Tinto believes, therefore, that the referenced egg standard of 12.5 mg/kg is, in fact, consistent with the brine shrimp protection limits sought by the industry; these facts further support the Board's adoption of the proposed standard.

3. The Water Quality Board Should Not Adopt An Assessment Methodology As Part of the Site-Specific Selenium Standard (Footnote 14 of Table 2.14.2).

Rio Tinto concurs with the recommendations of the Science Panel (and the suggestions of others including the brine shrimp industry) that the DWQ develop a soundly crafted, tiered approach to monitoring, assessment, and management. Rio Tinto maintains, however, that while the site-specific standard recommendation took years and immense resources to develop, the assessment methodology has not been subject to the same level of public scrutiny and, by comparison, exhibits certain fundamental flaws a few of which are further described below.

Rio Tinto recognizes the very good news agreed upon by the various stakeholder groups, including those that do not support the proposed site-specific selenium standard. Despite years and years of natural and anthropogenic loading of selenium, "[c]oncentrations of selenium measured in Great Salt Lake water and in eggs of birds nesting on the Lake are low and are within appropriate ranges (i.e., not toxic, not deficient)." See Steering Committee Position Paper of representatives of US Fish and Wildlife Service, US Geological Survey, Utah Division of Wildlife Resources, The Nature Conservancy and Great Salt Lake Alliance at 2. That uniform and comforting conclusion illustrates that unstudied reactions in the form of an assessment methodology are particularly unwarranted. Rio Tinto recognizes and supports

[1] Assuming a transfer factor from brine shrimp to shore birds of 1.6, and a ratio of selenium in adult brine shrimp to cysts of 0.56: 12.5 mg/kg / 1.6 x 0.56 = 4.4 mg/kg.

Rio Tinto

the view that ongoing monitoring of the lake will allow regulators and the public to closely track the water quality of the lake enabling timely responses to any changing data trends. In contrast and as further identified below, Rio Tinto believes the proposed management responses in the proposed assessment methodology do not achieve that objective.

De Facto Second Standard. One of the most concerning aspects of the assessment methodology is that it would, as drafted, propose a cap on point source discharges at 60% of the standard regardless of causal determination that the point sources are the source of increase. (This could be interpreted to include point source discharges to tributaries feeding the lake.) Such an approach is virtually unprecedented in the state and nationally. While the Science Panel spent three years to assess an appropriate range for the standard, this de facto "second" standard has not received the evaluation it should. For example, the proposed cap would inflexibly mandate controls at the end-of-pipe and could preclude reliance on trading or other more effective mechanisms for controlling constituent loading to the lake (if those mechanisms are ever needed). It is also possible that establishing such a cap could have antibacksliding implications. There may be circumstances (including trading) where an expansion, process change or other discharge-related impact could warrant relaxation from the "cap." These issues surely require further consideration before formal adoption into rule or guidance.

Potentially More Stringent Application of Antidegradation. Utah's Water Quality Act prohibits the state from promulgating rules that are more stringent that those established by federal regulation (and addressing the same circumstances) unless specifically justified in a written finding that is subject to notice and comment. See, e.g., UCA 19-5-105. The extension of the antidegradation program to cap loading at some percentage of the established site-specific water quality standard could be viewed as the promulgation of a rule that is unlawfully more stringent than required by the federal program. While there has always been an overarching consensus that the antidegradation program is designed to protect the assimilative capacity of high quality waters, the relationship between the contemplated cap and the "no more stringent than" requirements in Utah may require further consideration.

Unfounded Arbitrary Thresholds for Action. The trigger levels in the proposed assessment methodology have neither a technical basis nor a tie to other water quality regulations. The prescribed regulatory actions, based on these arbitrary trigger levels, do not preserve the flexibility DWQ has and must maintain to best ensure protection of the lake. If the actions contemplated under the proposed assessment methodology are triggered at some future date, conditions at the lake or our understanding of selenium are likely to be different from today, thus demanding flexibility in implementation. While there is a clear case for a site-specific selenium standard, the currently contemplated "one size fits all" trigger levels for implementation fail to incorporate any justification for the corresponding regulatory actions.

Inconsistencies and Lack of Correlation Between Directed Actions. The fact that the assessment methodology itself is being included as part of the rule is inconsistent with the State's approach to antidegradation. The threshold and conditions for triggering a Level II antidegradation review under the methodology stray from the antidegradation requirements and thresholds being considered by the Board as part of the other aspects of this rulemaking. It is unclear what, if any, basis exists for the inconsistencies in program implementation. Additionally, the contemplated implementation methodology does not incorporate feedback from the Level II review into any aspect of follow-up decision making. The notion of a "cap" without an assessment of the changes identified as practicable by a Level II review and justified as effective by a corresponding ecosystem study makes no sense.

Economic Assessment. The assessment methodology, as currently proposed, could potentially end run the considerations and balanced decision-making mandated by a Level II review. The Level II review requirements under the antidegradation program direct careful consideration of economic issues. The contemplated cap is, on the other hand, not formulated with any such considerations. The path forward for evaluating discharge conditions may be better assessed based on the analysis prepared for the appropriately conducted Level II reviews coupled with corresponding ecosystem studies and not through an arbitrary and potentially very costly "cap."

Inappropriate Unilateral Focus. As drafted, the assessment methodology calls for a Level II antidegradation review for all new and existing UPDES permits if 40% of the standard is reached. A fundamental concern with this response is that it would focus solely on the ability of the discharger to reduce or eliminate loading, rather than examine the causes of an upward trend in the receiving water body. Moreover, as drafted, the intensive and expensive Level II review would be required at permit renewal even if the renewal does not include changes in the permit that would increase loading. The approach suggested in the currently drafted assessment methodology would, therefore, be an inadequate (and unjustified) initial response to increasing selenium levels in the lake. *See* comments at 5 illustrating inconsistency between proposed permit renewal requirements under assessment methodology as compared to proposed state-wide antidegradation program.

In summary, Rio Tinto recommends that the assessment methodology be remanded to DWQ staff for further review and implemented as guidance rather than in rule. Water quality standards are subject to revision at least every three years. While the existing lake data all uniformly establish that selenium conditions are currently favorable and support the designated beneficial uses for Great Salt Lake, there will be ongoing assessment of those conditions. As data are gathered and assessed, changes to a tiered monitoring and response plan may be warranted.[2] Incorporation of such a plan in a site-specific implementation guidance (subject to a separate public review process outside of a water quality standard rulemaking) will ensure that the plan incorporates effective adaptive management principles and can evolve with changing conditions.

4. Rio Tinto Recommends that the Water Quality Board Adopt the Segmented Use Classifications for Great Salt Lake.

DWQ has proposed segmenting Great Salt Lake into five different use designations. See Proposed Utah Admin. R317-2-6.5 and R317-2-13.11. The use classifications would be more specifically targeted to the actual ecology of the different regions of the lake (distinguishing between open water below 4208 feet, transitional wetlands at or below 4208 feet and open water above 4208 feet). Rio Tinto supports the concept and believes the Board should adopt the proposed classification clarifications.

[2] One important data gathering exercise recommended by the Science Panel (and supported by Rio Tinto, the brine shrimp industry and other Steering Committee members) relates to brine shrimp monitoring to improve the information regarding the transfer of selenium to brine shrimp (currently extrapolated from data in brine flies). Rio Tinto acknowledges that a robust brine shrimp monitoring program is essential and believes this information will further confirm there is no current impairment in the lake. To the extent new information becomes available, targeted, science-based responses (including potential standards changes as part of triennial reviews) can be developed based on that data. Any establishment of regulatory response actions related to brine shrimp monitoring information would, at this juncture, be premature and requires further scientific evaluation and public comment.

Rio Tinto

5. Rio Tinto Concurs with the Proposed Rulemaking Provision Exempting UPDES Permit Renewals From Antidegradation Level II Reviews.

DWQ has proposed numerous changes to the thresholds for triggering an Antidegradation Level II Review. See generally Proposed Utah Admin. R317-2-3.5. In contrast to the Level II Review requirements in the above-referenced selenium assessment methodology, DWQ's proposed state-wide program would retain an existing exemption for activities that do not lower water quality (e.g., where a UPDES permit is being renewed and the proposed concentration value and loading are equal to or less than existing concentrations and loads). See Proposed Utah Admin. R317-2-3.5.b. Rio Tinto supports DWQ's determination to retain this exemption, consistent with similar provisions adopted under many other water quality standards programs in other States. Rio Tinto believes the proposed rule reflects a reasonable balance; existing permittees should not be mandated to conduct extensive discharge alternatives and economic and social importance analyses on permitted, ongoing operations.[3] While aspects of these types of assessments are routine and ongoing as part of most existing operations, the Antidegradation Level II review is most effective for addressing upfront operational planning.

Thank you again for the opportunity to comment on this rulemaking package. Please direct any associated questions or comments to me.

Regards,

Kelly L. Payne, P.G.
Principal Advisor, Closure & Remediation

[3] Kennecott recognizes that the rule changes include certain "off ramps" from a Level II review for discharges that utilize minimal, identified amounts of a receiving water's remaining assimilative capacity. Kennecott further acknowledges that the rule changes are properly intended to minimize pollution "creep," i.e., inadvertent pollution trends in waters whose quality is better than the applicable water quality standard. Kennecott recommends, however, that in implementing these rule changes, if finalized, DWQ carefully track the effectiveness of the Level II Reviews as compared to the economic consequences of requiring the same and when balanced with the overall increased workloads for DWQ.