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Mr. Jason Gipson
U.S. Army Corps of Engineers
Sacramento District
533 West 2600 South, Suite 150
Bountiful, UT 84010

RE: Supplemental comments for the Great Salt Lake Minerals Corporation Solar Evaporation Pond Expansion Project Environmental Impact Statement

Dear Mr. Gipson,

On November 14, 2008, U.S. Environmental Protection Agency (EPA) staff, Rich Sumner, Regional Liaison for EPA's Wetlands Program, met with Mr. Blaise Chanson of BIO-WEST, Inc., EIS Project Manager, to discuss the preparation of the Great Salk Lake Minerals Corporation Solar Evaporation Pond Expansion Project Environmental Impact Statement (EIS). The goal of the meeting was to discuss the development of a technical approach for evaluating the impacts to aquatic resources attributed to the proposed expansion of evaporation ponds within the North Arm and Bear River Bay areas of the Great Salt Lake. The technical approach is being developed in response to the EIS Project Scoping Comments generated by the project's Interagency Team.

An outcome of this meeting was a shared understanding of several factors that EPA will use to evaluate the efficacy of the impact assessment approach used in the Draft EIS. The following provides a summary of three of those factors: compliance with EPA's Clean Water Act, Section 404(b)(1) Guidelines; compliance with the federal Compensatory Mitigation Rule; and cumulative impacts analysis.

Compliance with EPA Section 404(b) (1) Guidelines

The technical rigor of the impact assessment approach used in the Draft EIS needs to be sufficiently robust for EPA to evaluate whether (a) the proponent-preferred project alternative overcomes the presumption against the discharge of fill into a special aquatic site and (b) the project will not cause significant degradation to the environment.

The need for a rigorous evaluation of potentially harmful impacts to the environment is based on risks described by the Interagency Team in their project scoping comments. Many of those comments focus on the threats of water quality degradation and habitat loss in the project areas. Those threats pose a risk to aquatic life use, and in particular aquatic dependent wildlife, within the broader geographical area. Avian use of the area is considered to be of national and international importance.

Our initial review of project scoping comments lead EPA to a strong presumption against the discharge of fill material into special aquatic sites identified within the project area. Our presumption is supported by EPA's Section 404(b)(1) Guidelines. To overcome that presumption, the project proponent must quantitatively demonstrate that an alternative, practical source for their product (potassium sulfate) does not exist in the market place.

In addition, the project proponent must demonstrate, with known certainty, that the proposed discharge of fill material and associated project operations will not cause significant environmental degradation. A standard for that type of impact analysis is the use of calibrated predictive models. The EPA assumes that both a water quality and a hydrologic model will be used in analysis, and that they will be linked to an avian habitat use model. For example, a water quality model should be used to evaluate risk posed by the possible suspension/discharge of selenium and mercury into the aquatic environment during solar pond construction and operation. The model also can take into account a likely increase in nutrient loading caused by future urbanization in the watersheds that discharge into Bear River Bay. A hydrologic model should be used to evaluate change in water movement and availability within the affected ecosystems as caused by solar pond placement and operation. An avian model should be used to predict impacts to aquatic birds based on direct habitat loss within a landscape context as well as habitat degradation caused by change in water quality and availability.

EPA's review of the Draft EIS will focus on how well project impact models are calibrated using recently acquired empirical data. Review also will consider whether a project-applicable avian model should be validated using data from other areas of the Great Salt Lake (e.g., Farmington Bay). All assumptions within the models that drive their predictive algorithms will need to be made explicit.

Compliance with the Corps of Engineers/EPA Federal Mitigation Rule

EPA's preliminary analysis of project impacts suggests that that the project as proposed will cause significant degradation of aquatic resources of the Great Salt Lake. Our prediction is based on past projects in the Great Salt Lake basin, the professional judgment of EPA staff and takes into consideration scoping comments received to date on the project. Given this situation, a discussion of compensatory mitigation becomes relevant to project scoping.

EPA's review of compensatory mitigation proposals is guided by the recent federal Compensatory Mitigation Rule (Rule). Based on the Rule, we will apply the following concepts when reviewing mitigation proposals linked to the proposed project:

(1) Watershed approach.

EPA's analysis of compensatory mitigation will be structured around the concept of "wetland landscape profiles (profile)." A profile is an accounting of an area's aquatic resource in terms of the abundance, distribution and condition of its classified ecosystem components (e.g., lacustrine mudflats, fringe/slope wetlands, playa, and impoundment wetlands). In other words, a profile is used to account for more than just the acreage of aquatic resources in an area. Ecological theory suggests that maintenance of all profile components is needed to sustain local wetland functions and ensure delivery of valued ecosystem services, including support of avian habitat.

For purposes of the Draft EIS, a "wetland landscape profile" should be developed for the Bear River Bay and adjacent wetlands. Another profile should be developed for the Gunnison Bay/ Clyman Bay area. Compensatory mitigation proposals can then be evaluated relative to the profiles. We can evaluate and determine whether the overall project can be developed in a way that does not degrade an area's wetland landscape profile (i.e., achieve "no net loss" in wetland quality and quantity).

(2) Consideration of "difficult to replace" aquatic systems.

The proposed project will cause a direct loss of lacustrine mudflats and an associated degradation of the wetland landscape profile for the broader project area. A replacement of lost and/or degraded lacustrine mudflat is not likely practical given the project setting. In the alternative, compensatory mitigation could possibly take the form of an in-kind rehabilitation, enhancement or preservation of other at-risk components of the areas' wetland landscape profiles. "In-kind" is defined in this situation as being compatible with an area's wetland landscape profile. For example, impacted lacustrine mudflat could possibly be mitigated through the restoration and protection of large wetland parcels within the shore lands in proximity to the project areas. The Legacy Nature Preserve (Utah Department of Transportation's mitigation project) is an example of the scope of activity that might be needed to prevent significant degradation from implementation of the project as proposed.

Another mitigation strategy that should be considered relative to the "difficult to replace." issue is adaptive management. Specifically, the EPA will consider whether the Draft EIS properly describes the practicability of phased project development. For example, the progression of evaporation pond construction can be tied to results from a mitigation effectiveness monitoring program. If monitoring results reveal that impacts from a phase of work exceed mitigation offsets, or cause other unintended consequences, then the authorization of subsequent planned work would be suspended or revoked.

(3) Clarification of aquatic resource function. condition and use.

EPA will rely on two ecological assumptions in its review of project alternatives. project impacts and any proposed compensatory mitigation. Our first assumption is that the project areas are in relative good ecological condition based on observed avian use. In other words, the aquatic areas are functioning at levels typically needed to support avian use. Our second assumption is that the occurrence of birds in the project areas is episodic. Occurrence is based on natural fluctuations in water quality and quantity that occur annually and over broader periods of time (i.e., changing Great Salt Lake level elevations). The proper characterization of such avian use requires that bird occurrence (avian habitat availability) be assessed for optimal Great Salt Lake water elevations at the project locations. Optimal bird occurrence (avian use) can be reported by avian class and by species of special concern. The frequency in avian occurrence also should be reported using an appropriate predictive model.

Impact and mitigation evaluation should then be based on a clear articulation of how bird occurrence relates to avian use and the overall aquatic resource condition. Impact and mitigation evaluation also should take into account the full complement of best management practices needed to manage avian predation (e.g., protection of Gunnison Island nesting colonies) and secure desired aquatic resource conditions.

Cumulative Impacts Analysis

The November 28. 2007 comment letter from the Utah Resource Development Coordinating Committee underscores the need for the EIS to analyze the cumulative impacts of the proposed project. The State recommends the analysis take into account the past 40 years of mineral extraction activity in the project areas. In addition. EPA recommends that the EIS take into account the environmental impacts to the project areas caused by future urbanization within the counties adjacent to Bear River Bay.

For example. an analysis of the effects of urbanization in the Farmington Bay area can be used to predict future environmental conditions in Bear River Bay and associated shore lands. The forecast of future conditions should be based on a plan-trend scenario scaled relative to observed urban build-out trends and conditions in the Farmington Bay region. Future build-out conditions for the counties bounding the project area can be based on existing general growth projections for the Wasatch Front. The cumulative impacts analysis should also explore how past and present urbanization in the Farmington Bay area has placed local avian use at risk from habitat loss and degradation. Local habitat loss in Farmington Bay increases the significance of the future remaining habitat in Bear River Bay and to a lesser extent Gunnison Bay/Clyman Bay.

In addition, the cumulative impacts analysis should explore the placement of the proposed project and its associated impacts in context with "plan trend" future environment conditions. The future aquatic environment will be at risk from increased nutrient loading into Bear River Bay and from development pressures to fill most higher elevation wetlands (e.g., above 4212' lake elevation). The potential risks associated with the building of a Bear River Dam and Diversion Project also should be acknowledged, as well as potential oil and gas development in

Gunnison Bay. The results of the cumulative impacts analysis can be described in terms of how the proposed project and its operation will impact the current wetland landscape profile as well as how it will impact a projected future wetland landscape profile.

The EPA remains committed to assisting the Corps in producing an EIS that includes an impact assessment approach based on the best available science. Please contact Dick Clark with any questions you may have about these supplemental technical comments. Mr. Clark can be reached at (303) 312-6748.

Sincerely,

Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and
Remediation

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