WESTERN RESOURCE
ADVOCATES

December 13, 2011

Dana Dean
Associate Director of Mining
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84116

Re: Protest of Decision to Approve Amendment of Great Salt Lake Minerals Corporation's Notice of Intent for Permit # M/057/002

Ms. Dean:

Pursuant to Utah Admin. Code R647-4-116(2) and on behalf of FRIENDS of Great Salt Lake (FRIENDS), we hereby submit a written protest of the Division of Oil, Gas & Mining's (DOGM) decision to approve Great Salt Lake Minerals Corporation's (GSLM) amendment of the Notice of Intention (NOI) for its consolidated mine plan associated with permit # M/057/002. Although FRIENDS agrees in principle with GSLM's plan to improve the efficiency of its operations within the company's existing footprint, the reclamation plan for the mining company's operations must be updated and enhanced to reflect: 1) the devastating impact that the plan's salt removal component would have on the water quality of Bear River Bay and Willard Spur; 2) the unpermitted alterations to the exterior dike walls carried out by GSLM and how those alterations affect the ability of the company to reclaim its Bear River Bay operations; and, 3) the significant alterations that GSLM will make to its dikes in the name of these greater efficiencies. It is therefore incumbent on DOGM to require the company to submit an adequate reclamation plan that actually accounts for the current and planned condition of GSLM's facilities and operations and that requires the company to post sufficient surety to cover the costs of that reclamation plan should the company abandon its operations.

The Organization

FRIENDS of Great Salt Lake has, as its mission, the preservation and protection of the Great Salt Lake ecosystem and seeks to increase public awareness and appreciation of the lake through education, research, and advocacy. The organization has long been involved in the protection and restoration of Great Salt Lake and its ecosystems, advocating for ways in which the public may enjoy these resources by fishing, birdwatching, boating, photographing, hiking and studying these natural areas. On behalf of its members, FRIENDS of Great Salt Lake frequently participates in agency processes related to the management of the lake, including taking part in scoping and submitting comments on the development of the Great Salt Lake Comprehensive Management Plan, submitting comments to the Sovereign Lands Advisory Committee, appealing a proposed permit for the Jordan Valley Water Conservancy District allowing discharge into the Jordan River, appealing a proposed permit for Kennecott Copper

Corporation allowing discharge into Great Salt Lake, commenting on the Division of Water Quality's (DWQ) proposed 303(d) Lists and 305(b) Reports and making comments to DWQ on proposed changes in the description of the beneficial uses of Great Salt Lake and in other aspects of Utah's Water Quality Standards. FRIENDS considers this participation to be critical to its mission and to be valuable as a means of influencing the administration of the lake and of protecting and preserving the lake ecosystem and opportunities for recreation that depend on the health of that ecosystem.

FRIENDS of Great Salt Lake has staff and members who regularly use and enjoy and will continue to use and enjoy Great Salt Lake for bird-watching, boating, photographing, hiking and studying natural areas. Indeed, these members use and will use in the future the exact areas affected by the reclamation plan. FRIENDS, its staff and its members are harmed and will be harmed by DOGM's approval of the NOI. They will be harmed because DOGM failed to carry out its common law, statutory and regulatory obligations relative to the Utah Mined Land Reclamation Act, and because the improper reclamation procedures allowing approval of this NOI will significantly impair their use and enjoyment of the Lake by harming water quality, fish and wildlife habitat, aquatic beauty, and recreation and their ability to enjoy and participate in these activities.

Background

On September 27, 2011, FRIENDS submitted a letter to DOGM outlining its concerns over the impacts of what GSLM has dubbed "Phase II" of its expansion plan: the lining of the exterior or lakeside dikes in at least Bear River Bay with a concrete/bentonite cutoff wall. The Phase II expansion was announced by GSLM as a way of increasing the efficiency of its operations and decreasing its water usage. A copy of that letter is attached as Exhibit A and is hereby incorporated into this protest by reference. In the September 27 letter, FRIENDS detailed the inadequacies of the proposed Reclamation Plan. Specifically, FRIENDS noted that the reclamation plan did not account for the: 1) Phase II process; 2) rip-rap armoring on the exterior walls of the GSLM dikes; and, 3) extensive network of interior dikes within GSLM's operation.

On November 10, 2011, GSLM submitted to DOGM a proposed amendment to the NOI associated with its consolidated mine plan for permit # M/057/002. The focus of the proposed amendment was the Phase II improvements. As part of the proposed amendment, GSLM included documentation claiming that the cement bentonite grout used in the Phase II process is inert and is of the same approximate compressive strength of the existing dike material. Additional records from an engineering firm supporting this assertion were also attached to the proposed amendment. To support its contention, GSLM included a statement from the engineering firm that the compressive strength of the cutoff walls was in the range of 5 to 20 psi. In addition, the proposed amendment claimed that, because the Phase II walls had compressive strength similar to the surrounding dike materials, "removal of the inert [Phase II walls] will occur contemporaneously with removal of surrounding dike materials when exposed to wave action. Thus the [Phase II walls] will not outlast the existing dike structure. Therefore, the existing reclamation plan for pond dikes remains sufficient and effective for [the Phase II wall] dikes." Appendix 9 at unnumbered 2.

On November 15, 2011, DOGM approved the combined M/057/002 NOI, thereby approving the Phase II upgrades, along with the proposed reclamation plan.

Request for Relief

The current reclamation plan describing the actions required to address GSLM's dike structures is quite brief. It reads:

> The reclamation of the solar mining portion of the permit will require breaching of dikes surrounding the pond every mile to allow water to dissolve any naturally precipitated materials left after the operation ceases….GSL will negotiate with the State Division of Wildlife Resources on the possibility of the leaving [sic] ponds in certain areas to create bird refuges. If this is not amenable with the State, GSL will break the dikes at certain points to remove the salt deposits. All dikes and roads will remain in place, and wave action over time will wash-out and level the dikes.

Approved NOI at 19. For a number of reasons, the reclamation plan as it now stands is both ineffective and obsolete and therefore legally insufficient.

A. As Designed, the Reclamation Plan Would Result in the Destruction of the Bear River Bay and Willard Spur Ecosystems.

GSLM extracts various salts from Great Salt Lake by pumping brine from the Lake and removing the water from the brine through a solar evaporation process. As water evaporates, the salts precipitate out of the brine mix and settle on the floor of the network of Great Salt Lake Minerals' ponds. This process consistently produces more salt each year than the company can use. This is evidenced by the fact that the company flushes approximately 4.5 million tons of excess salt each year from its ponds back into the Lake. Despite this effort to flush these ponds, significant amounts of salts and other compounds remain on the pond floors, accumulating year after year. When GSLM ceases operations, whether or not the Division of Wildlife Resources accepts these ponds as bird refuges – as the current reclamation plan suggests – or the State requires the company to remove its dikes from Bear River Bay, there will be many millions of tons of salts remaining in its evaporation ponds that will have to be removed as part of the reclamation process.

The reclamation plan discusses the removal of residual process salts from GSLM's processing areas in two ways. The plan states both that the dikes will be breached every mile to allow water to dissolve the salts left from GSLM's operations, and also states that GSLM will "break the dikes at certain points to remove the salt deposits." *Id*. In either case, the proposed method is both noticeably lacking in detail and would, as currently designed, result in a rapid release of huge amounts of residual process salts into the most sensitive, biologically active and fresh water portion of Great Salt Lake – the Bear River Bay and Willard Spur. Such a rapid, uncontrolled flushing of these salts into the Lake in the vicinity of GSLM's Bear River Bay operations would cause widespread and long-term destruction of these ecosystems. This is unacceptable and fails to meet the legal requirements of reclamation.

First, the plan fails to acknowledge as a concern, much less address, how the reclamation plan will allow the return of salts to the Lake in a way that would prevent water quality impairment or damage to the fragile ecosystem of Bear River Bay and Willard Spur. To understand the nature of the Bear River Bay ecosystem immediately adjacent to GSLM's Bear River Bay operation, the U.S. Army Corps of Engineers recently conducted, as part of the Environmental Impact Statement process associated with GSLM's proposed expansion, an analysis of the area directly west of GSLM's dikes. As a result of that analysis, the Corps designated the entire area a Special Aquatic Site because it is almost completely covered by submerged aquatic vegetation – an essential food source for waterfowl that inhabit this part of the Lake. Similarly, the Utah Division of Wildlife Resources, *see* Exhibit B, and U.S Fish and Wildlife Service, *see* Exhibit C, have repeatedly stated that this area of Bear River Bay and Willard Spur is of critical importance to millions of resident and migrating birds and the aquatic organisms on which they feed.

Likewise, the Utah Division of Water Quality has characterized the Willard Spur wetlands, the area to the immediate north of GSLM's mining complex, as "reference-quality" wetlands and is currently undergoing a multi-year study on the appropriate degree of protection necessary to preserve this critical habitat. It is also important to note that the Bear River National Wildlife Refuge is located directly north of GSLM's dikes, in the open waters of the Spur.

As currently designed, the reclamation plan appears to call for the instantaneous breaching of the dike walls within GSLM's Bear River Bay facilities, allowing the uncontrolled release of tens or perhaps hundreds of millions of tons of salt into Bear River Bay and Willard Spur. In violation of R647-4-109, the record is devoid of any analysis of the destruction this would cause, and in violation of R647-4-110(4), the reclamation plan fails to account for the proper disposition of these excess salts. Instead, in its reclamation plan, GSLM states that "no deleterious material is produced at this site." *Id*. This statement is without foundation in the record. DOGM regulations define "deleterious material" as "waste or introduced materials exposed by mining operations to air, water, weather or microbiological processes, which would likely produce chemical or physical conditions in the soils or water that are detrimental to the biota or hydrologic systems." R647-1-106. Clearly, the excess salts would be extremely detrimental to the sensitive Bear River Bay and Willard Spur ecosystems. DOGM must, therefore, acknowledge that these deleterious materials exist and must ensure that the reclamation plan requires that these excess salts be "safely removed from the site or left in an isolated or neutralized condition such that adverse environmental effects are eliminated or controlled." R647-4-111(4).

As currently written, the reclamation plan allows for the release of huge quantities of salt, likely contaminated with heavy metals, into an area of the Lake that is comprised almost entirely of fresh water, killing the vegetation on which millions water birds depend and otherwise resulting in widespread destruction. Moreover, the source of the salts that remain in the mining company's ponds is the highly saline North Arm of the Lake, in which particularly high concentrations of mercury have been monitored. To allow huge quantities of salts and heavy metals to be washed into Bear River Bay and the Willard Spur would result in a high

concentration of salinity in an area adapted to much fresher conditions. Plainly, a proposal that allows such environmental destruction is not a reclamation plan that complies with either the Utah Mined Land Reclamation Act or DOGM regulations and therefore is legally inadequate. Additionally, because the end result would constitute a clear violation of water quality standards for these segments of the Lake, it is unlawful for DOGM to endorse such a scheme. In order to prevent such an outcome, DOGM must ensure that the reclamation plan outlines how the disposal of these residual salts will be carefully controlled in a manner that complies with the law and that avoids the type of widespread destruction that would result from the current plan.

At a minimum, DOGM must ensure the reclamation plan does not constitute a violation of water quality standards or otherwise wreak havoc on the Bear River Bay ecosystem. In order to accomplish those ends, DOGM must consult with DWQ , the Division of Wildlife Resources and the U.S. Fish and Wildlife Service and derive a reclamation plan that protects water quality and other ecosystem values and that receives approval from these agencies. Absent these actions, it is arbitrary and capricious and otherwise a violation of the law for DOGM to approve the current reclamation plan.

Second, setting aside for the moment the associated water quality impacts, the current plan fails to account for the 90 or more inner ponds that exist within the outer dikes of the Bear River Bay mining complex. Among a myriad of issues left hanging are:

- Whether the plan requires the mining company to pierce holes in all of those dike walls, or just the outer walls.
- Whether the breaching of the dike walls will occur all at once, or in stages.
- How the company plans to facilitate the flow of water throughout these ponds to ensure that all of the salts are dissolved and returned to the Lake.

Third, there is no indication that the company has provided **any** bonding to ensure that these actions are properly carried out pursuant to R647-4-113. Any meaningful plan designed to address the return of residual salts from 90 plus ponds spread over approximately 22,000 acres in Bear River Bay and a comparable amount of acreage in Clyman Bay, and that addresses the concerns outlined above, will require a substantial effort that will be very expensive to implement. To this end, it is unlawful for DOGM to approve of this reclamation plan unless an amount of surety sufficient to properly reclaim the area of GSLM's operations, as outlined in a sufficiently detailed reclamation plan, to an appropriate post-mining use.

B. The Reclamation Plan Does Not Adequately Provide for Removal of the Network of GSLM's Dikes, Primarily Because GSLM has Taken a Series of Unpermitted Actions that Render the Plan Unworkable.

GSLM has taken a series of actions outside of the bounds of their approved permit that render the approved reclamation plan for the removal of the company's dikes ineffective and

obsolete.[1] Specifically, over the years, GSLM has armored the exterior walls of their outer-most dikes with rip-rap – essentially concrete and rock – to protect against erosion from wave action. This armoring constitutes a violation of GSLM's permit and is not accounted for in the approved reclamation plan. In fact, these unpermitted actions have created a situation that necessarily makes the reclamation plan outdated and unworkable. It is untenable for the company, on the one hand, to take a series of actions specifically designed to protect its dikes against wave action while, on the other hand, to claim that the wave action that it has armored against will be sufficient to reclaim those very same dikes.

Additionally, there is nothing in the record that supports the contention that wave action is sufficient to reclaim the GSLM system of dikes. Even assuming, for the sake of argument, that wave action were sufficient to reclaim the exterior dike walls, there is nothing in the reclamation plan or the record that addresses the removal of the vast network of interior dike walls.

Given GSLM unpermitted installation of rip-rap on the exterior dike walls, and assuming that DOGM is justified in approving the reclamation of GSLM's network of dikes by wave action, an essential first step of a viable reclamation plan must specifically call for removal of the existing rip-rap. Similarly, a legally adequate plan must address, in detail, the reclamation of the hundreds of miles of interior dike within GSLM's mining complex. As it currently stands, DOGM cannot approve of GSLM's reclamation plan because it fails to conform with the requirements of R647-4-110 to return the area of mining operations to its appropriate post-mining use. Again, even assuming that it would be proper for DOGM to approve of GSLM's plan regarding removal of their dike walls, it will first be necessary to account for the removal of rip-rap and then to deal with the inner dikes. This would constitute a substantial undertaking and will be very expensive to accomplish. Therefore, at a minimum, DOGM cannot approve of this reclamation plan unless and until the plan conforms with the requirements of R647-4-110 and unless an amount of surety sufficient to properly reclaim the area of GSLM's operations, pursuant to R647-4-113, is in place.

C. The Reclamation Plan Does Not Adequately Account for the Subsurface Impacts of the Phase II Walls.

The November 10, 2011 NOI amendment submitted by GSLM shows an extension of the Phase II walls to 30 or 40 feet below the surface of the Lake. Nowhere does the NOI describe the possible impact of this proposal. Specifically, the NOI fails to even mention, much less examine the impact of these barrier walls on subsurface water circulation within the confines of the Lake. It is well documented that a very active ground water system exists beneath the surface of the Lake and it is improper for DOGM to assume that these actions will not negatively affect ground water resources. Additionally, the reclamation plan does not require removal of those portions of the walls. Under the current proposal, those walls will remain indefinitely, as

[1] It should also be noted that GSLM began installation of the Phase II walls without first obtaining a permit to do so. The company claims that it thought it had informal permission to proceed.

the plan fails to account for their removal and the walls themselves are below the surface of the lakebed and therefore protected from wave action.

At a minimum, DOGM must require the company to determine the impacts of the subterranean walls on ground water pursuant to R647-4-100(1). Further, DOGM must also require the company to obtain a ground water permit, or permit-by-rule determination DWQ, addressing the impacts on ground water quality of these actions. Again, it is unlawful for DOGM to approve of such a reclamation plan unless it conforms to the requirements of R647-4-110, and unless an amount of surety sufficient to properly reclaim the area of GSLM's operations, pursuant to R647-4-113, is in place.

D. The Reclamation Plan Fails to Adequately Account for the Impacts to Water Quality on the Lake Because of the Dissolution of the Phase II Walls

Finally, the November 10 NOI amendment asserts that the Phase II wall material is inert; implying that dissolution of the walls will not negatively impact the water quality of the Lake. However, the company offers no proof for such an assertion, and there is no basis in the record that allows DOGM to accept such a statement. At a minimum, DOGM must require the company to determine the impacts of the proposed project to ground water pursuant to R647-4-100(1). Further, DOGM must also require the company to obtain a determination from DWQ that this action will not have a detrimental impact on the water quality of Great Salt Lake.

Conclusion

The current reclamation plan is a half-hearted, pro-forma effort which has been necessarily made obsolete and legally insufficient because of intervening unpermitted actions by GSLM and because of the impact that executing the current plan would have to the fragile Bear River Bay and Willard Spur ecosystems. The reclamation plan in no way conforms with the Utah Mined Land Reclamation Act or DOGM regulations, and it is arbitrary and capricious and otherwise unlawful for the agency to approve the plan in its current form. Under the circumstances, it was improper for DOGM to approve GSLM's NOI.

We thank you for your attention to this matter and for all that you do to protect Utah's precious lands.

Yours,

ROB DUBUC
JORO WALKER
Attorneys for FRIENDS of Great Salt Lake

Exhibit A

WESTERN RESOURCE
ADVOCATES

September 27, 2011

Paul Baker
Minerals Program Manager
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Large Mine Permit Consolidation: Great Salt Lake Minerals Corporation Permit M/057/002

Mr. Baker:

I write this letter on behalf of FRIENDS of Great Salt Lake (FRIENDS) regarding concerns with the proposed Consolidation Permit for Great Salt Lake Minerals Corporation (GSLM). In general, we applaud the Division of Oil, Gas & Mining's (DOGM) attempt to become more efficient by consolidating multiple GSLM permits into a single permit. However, it appears that the company is attempting to use this effort to make a substantial change to the character of its operations without proper review and without implementing sufficient reclamation measures.

Specifically, I refer to what GSLM has dubbed Phase II of its expansion plan: the lining of the outer walls of the company's Bear River Bay outer dikes with a concrete/bentonite cutoff wall. The Phase II expansion was announced by GSLM as a way of increasing the efficiency of its operation and decreasing the amount of water it uses. In principle, FRIENDS supports the company's effort to increase its efficiency as a means of increasing its production within its current footprint rather than expanding its operation within the confines of Great Salt Lake. However, the proposal as outlined does not address – in any way, let alone adequately – the company's legal obligation to reclaim the lakebed of Bear River Bay. *See* Utah Admin. Code R647-4-110 & 113. Additionally, FRIENDS is concerned that DOGM will not subject approval of the Phase II expansion to public notice and comment pursuant to R647-4-116. Our concern is that DOGM will instead choose to classify GSLM's proposal as an amendment – an insignificant change – to its existing permit under the terms of R647-4-119. We address each of these issues in turn below.

UTAH • 150 South 600 East, Suite 2AB • Salt Lake City, UT 84102 • 801.487.9911 • Email:utah@westernresources.org
COLORADO • 2260 Baseline Road, Suite 200 • Boulder, CO 80302 • 303.444.1188 • Fax: 303.786.8054 • Email: info@westernresources.org
www.westernresourceadvocates.org

Obligation to Protect Public Trust Resources

As you no doubt are aware, the bed of Great Salt Lake is sovereign land held in trust for the people of Utah under the Public Trust Doctrine. The State of Utah and each of its executive agencies have unique obligations to protect sovereign lands, such as the bed of Great Salt Lake, and the Public Trust values they support. Under Article XX § 1 of the Utah Constitution, sovereign lands are held in public trust.[1] The Utah Supreme Court has interpreted the Public Trust Doctrine, which sets forth federal and state law with regard to sovereign lands, as follows: "The essence of this doctrine is that navigable waters should not be given without restriction to private parties and should be preserved for the general public for uses such as commerce, navigation, and fishing." *Colman v. Utah State Land Board*, 795 P.2d 622, 635 (Utah 1990) (*citing Illinois Central R.R. Co. v. Illinois*, 146 U.S. 387, 13 S.Ct. 110 (1892) as "the controlling case" on the Public Trust). The Utah Supreme Court later elaborated that "[t]he 'public trust' doctrine . . . protects the ecological integrity of public lands and their public recreational uses for the benefit of the public at large." *National Parks and Conservation Ass'n v. Board of State Lands*, 869 P.2d 909, 919 (Utah 1993) (*citing*, *Colman*, 795 P.2d at 635-36).

Illinois Central characterized the Public Trust Doctrine as:

> a title held in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein, freed from the obstruction or interference of private parties. The interest of the people in the navigation of the waters and in commerce over them may be improved in many instances by the erection of wharves, docks, and piers therein, for which purpose the state may grant parcels of the submerged lands; and, so long as their disposition is made for such purpose, no valid objections can be made to the grants. It is grants of parcels of lands under navigable waters that may afford foundation for wharves, piers, docks, and other structures in aid of commerce, and grants of parcels which, being occupied, do not substantially impair the public interest in the lands and waters remaining, that are chiefly considered and sustained in the adjudged cases as a valid exercise of legislative power consistently with the trust to the public upon which such lands are held by the state.

Illinois Central R.R. Co. v. Illinois, 146 U.S. at 452; 13 S.Ct. at 118.

[1] This constitutional provision states: "All lands of the State that have been, or may hereafter be granted to the State by Congress, and all lands acquired by gift, grant or devise, from any person or corporation, or that may otherwise be acquired, are hereby accepted, and, except as provided in Section 2 of this Article, are declared to be the public lands of the State; and shall be held in trust for the people, to be disposed of as may be provided by law, for the respective purposes for which they have been or may be granted, donated, devised or otherwise acquired."

Case law in the states has uniformly required that state-owned submerged lands be alienated or encumbered only for public purposes. *See Kootenai Envtl. Alliance, Inc. v. Panhandle Yacht Club, Inc.*, 105 Idaho 622, 671 P.2d 1085, 1089 (1983) (grant of public trust property must be made in the "aid of navigation, commerce, or other trust purposes."); *Morse v. Oregon Division of State Lands*, 285 Or. 197, 590 P.2d 709 (1979) (fill may be for non-water-related purposes so long as public need for project outweighs interference with traditional trust purposes); *State v. Public Service Commission*, 275 Wis. 112, 81 N.W.2d 71, 73-74 (1957) ("In [upholding a grant of an interest in submerged lands], we attach importance to these facts: (1) Public bodies will control the use of the area. (2) The area will be devoted to public purposes and open to the public .... (4) No one of the public uses of the lake ... will be destroyed or greatly impaired. (5) The disappointment of those members of the public who may desire to boat, fish or swim in the area to be filled is negligible when compared with the greater convenience to be afforded those members of the public who use the city park."); *City of Berkeley v. Superior Court of Alameda County*, 26 Cal.3d 515, 162 Cal.Rptr. 327, 606 P.2d 362, 373 (1980) ("[The] principle we apply is that the interests of the public are paramount in property that is still physically adaptable for trust uses ...."); *see generally The Public Trust Doctrine in Natural Resources Law and Management: A Symposium*, 14 U.C.Davis L.Rev. 181 (1980).

The Utah agency directly responsible for overseeing the protection of the bed of Great Salt Lake as a Public Trust resource is the Division of Forestry, Fires & State Lands (DFFSL). Utah statute, which must be interpreted as consistent with Utah case law, provides that DFFSL "may exchange, sell, or lease sovereign lands **but only in the quantities and for the purposes as serve the public interest and do not interfere with the public trust**." Utah Code Ann. § 65A-10-1(1) (emphasis added). The DFFSL regulation interpreting this provision states:

> The state of Utah recognizes and declares that the beds of navigable waters within the state are owned by the state and are among the basic resources of the state, and that there exists, and has existed since statehood, a public trust over and upon the beds of these waters. It is also recognized that the public health, interest, safety, and welfare require that all uses on, beneath or above the beds of navigable lakes and streams of the state be regulated, so that the protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality will be given due consideration and balanced against the navigational or economic necessity or justification for, or benefit to be derived from, any proposed use.

Utah Admin. Code R652-2-200.

These provisions, understood in the context of the mandates laid down by the Utah Supreme Court, require first and foremost that sovereign lands and the values they embody – navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality – must be protected and cannot be interfered with. *E.g. NPCA v. Board of State Lands*, 869 P.2d at 919 ("The 'public trust' doctrine . . . protects the ecological integrity of public lands and their public recreational uses for the benefit of the public at

large."); Utah Code Ann. § 65A-10-1(1) (sovereign lands may be leased "only in the quantities and for the purposes as serve the public interest and do not interfere with the public trust."). Alienation of or encumbrances on sovereign lands are only appropriate if they directly serve public purposes that enhance or aid public trust values – navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality. *Illinois Central R.R. Co. v. Illinois*, 146 U.S. at 452; 13 S.Ct. at 118.

Inadequacy of Reclamation Plan for Phase II Improvements

The proposal by GSLM to install miles of concrete/bentonite cutoff walls in its Phase II expansion – without adequate reclamation – constitutes a clear violation of the Public Trust Doctrine because a failure to remove GSLM's dikes within a reasonable timeframe after mining ceases will significantly interfere with Trust values. Although the Reclamation Plan contained within the Consolidated Permit specifically calls for the return of the diked area within Bear River Bay to natural lakebed, there is nothing in the Consolidated Permit that provides for removal of the cutoff walls. *See* Consolidated Permit at 22, http://linux1.ogm.utah.gov/WebStuff/wwwroot/minerals/mineralsfilesbypermit.php?M0570002. There is no description in the Consolidated Permit outlining how the company proposes to remove the cutoff walls, and no evidence that financial surety of any amount has been determined, approved or obtained to address removal of the walls.

As it currently stands, the Reclamation Plan calls for breaching the dikes "at certain points to remove the salt deposits" and allowing wave action over time to wash-out and level the dikes. *Id*. However, although GSLM describes the cutoff walls as "thin," *id*. at 6, they are, in fact, 20" thick. *See* October 14, 2010 Meeting Notes, http://linux1.ogm.utah.gov/WebStuff/wwwroot/minerals/mineralsfilesbypermit.php?M0570002. Certainly it is unreasonable to presume that wave action alone will wash-out and level miles of concrete walls nearly 2' thick. Pursuant to Utah Admin. Code R647-4-110 & 113, DOGM must ensure that GSLM fulfills its legal obligation to reclaim its footprint in Bear River Bay. Allowing these walls to remain in place and not providing for adequate reclamation would clearly interfere with all of the Public Trust values DFFSL is required to protect: navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality. In order to correct this, DOGM must ensure that GSLM outlines an adequate plan for removing 100% of the Phase II cutoff walls and that the company has sufficient financial surety in place to provide for their removal should GSLM cease operations. This reclamation must occur within a specific, pre-approved timeframe and not – as the Reclamation Plan suggests – at some indefinite point in time after mining ceases. By allowing the continued existence of miles of concrete lined dikes in Bear River Bay, DOGM would be allowing the Public Trust values of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality to be impaired and would be in violation of the Utah Mined Land Reclamation Act and its own regulations.

Inadequacy of Reclamation Plan as Currently Proposed

In addition to failing to address the Phase II design change, the Reclamation Plan as written is inadequate to reclaim the dikes as they currently exist, and DOGM is obligated to correct that deficiency. As noted above, the current Reclamation Plan calls for leaving all dikes in place and allowing wave action to wash-out and level the dikes. However, the reality is that GSLM has, over the years, installed extensive rip-rap on the exterior of their outer dikes specifically to protect against the erosive effects of wave action. The Reclamation Plan, as written, does not encompass this design change. In order to account for GSLM's installation of rip-rap on the exterior dike walls within Bear River Bay, DOGM must require GSLM to submit a Reclamation Plan that outlines how GSLM intends to remove this rip-rap to allow wave action to reclaim the dike walls when the time comes. DOGM must also ensure that sufficient financial surety is in place to accomplish this reclamation.

The current Reclamation Plan also does not account for the existence of the extensive network of interior dikes within GSLM's operation. GSLM has approximately 90 ponds located within GSLM's Bear River Bay operations, and in some cases there are up to a dozen individual dikes between the outer dike wall and the shoreline. With the design of GSLM's operations as they now exist, it is unreasonable for DOGM to assume that wave action will reclaim the entire extent of the network of dikes within Bear River Bay within anything approaching a reasonable timeframe. DOGM must therefore require GSLM to submit something more than a passive Reclamation Plan that describes how the company intends to remove the network of existing interior walls, and DOGM must ensure that sufficient financial surety is in place to accomplish this reclamation.

DOGM Needs to Provide Adequate Notice and Comment Opportunity

As part of its approval process, DOGM must provide adequate notice and comment opportunity. In the past, the threshold issue has been how DOGM applied the provisions of R647-4-119 and specifically whether the Division deemed a proposed change in an existing permit as "insignificant." If it was, the change would be classified as an amendment to an existing plan and public notice and comment would not be provided for. Given the potential impact of the Phase II changes, it would be improper for DOGM to classify the installation of concrete/bentonite cutoff walls as insignificant and process the proposal as an amendment to GSLM's existing permit. The proposed Phase II cutoff walls, and the reclamation issues associated with removal of those walls, deserve public scrutiny. This is particularly true given the impact to the Public Trust resources of this proposal. The beneficiaries of the Public Trust – the citizens of Utah – deserve an opportunity to comment on this change in GSLM's permit.

Additionally, we encourage DOGM to consult with other State agencies regarding the provisions of the Consolidated Permit, and especially the impact of the Phase II proposal on the Public Trust resources. As currently proposed, and without proper reclamation, the existence of the cutoff walls within Bear River Bay will have serious implications to all Public Trust values in Bear River Bay, and agencies such as DFFSL

and the Division of Water Quality – just to name two – should be given an opportunity to comment on this proposal.

Yours,

ROB DUBUC
JORO WALKER
Attorneys for FRIENDS

Exhibit B

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

JAMES F. KARPOWITZ
Division Director

June 30, 2009

Mr. Kelly Beck
Public Lands Policy Coordination
Office of the Governor
5110 State Office Building
Salt Lake City, Utah 84114-1107

Subject: RDCC #10516 Army Corps of Engineers Great Salt Lake Minerals Solar Evaporation Ponds Expansion Project, New Scoping Notice for EIS

Dear Mr. Beck:

The Utah Division of Wildlife Resources (UDWR) has reviewed the Army Corps of Engineers (ACOE) public notice for the Great Salt Lake Minerals (GSLM) Solar Evaporation Ponds Expansion Project within the North Arm and Bear River Bay area of the Great Salt Lake (GSL). UDWR previously commented upon an earlier version of this project which encompassed a smaller acreage within the North Arm of the GSL. The current project has expanded from the original 33,000 acres to 80,000 acres of evaporation ponds. Many of the comments provided below are similar to those we provide in November 2007, with additional observations and concerns on the newly proposed expansion areas.

General comments on GSL salinity, habitat and ecology

The GSL is of hemispheric importance to migratory waterbirds (waterfowl, shorebirds and wading birds), and many species use the GSL as nesting, feeding and staging areas. At times, millions of birds may be found on the GSL and the surrounding wetland/upland habitat complexes. Since the GSL is a dynamic system, with lake elevation changing seasonally and annually, the abundance and location of habitats continually change over time. These seasonal changes create a diversity and continuity of available habitats, such that wildlife will travel around the GSL to find those habitats that supply their needs. It is because of this habitat diversity that the GSL has become critically important to wildlife, with the lake at times supporting over 50% of the worldwide populations of some avian species.

The potential impacts to waters and habitats within the lake and surrounding the lake environment must be evaluated in the context of the current lake elevation levels. Dikes for evaporation ponds effectively constrain the waters of the GSL and reduce the extent of the lake's natural littoral zone, which provides the optimum shorebird habitat. In many areas, the natural shore of the GSL slopes gradually from the shore into the water, thus, creating expansive shallow water environments. The shoreline is dynamic and fluctuates as a response to evaporation rates and the inflow, or lack of inflow, of water into the GSL. Diking eliminates the natural shore by creating a very small, rocky littoral zone that deepens rapidly near the shore, benefiting only a few aquatic birds. UDWR recommends the Environmental Impact Statement (EIS) evaluate how the

1594 West North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

UTAH DNR WILDLIFE RESOURCES

presence of the proposed evaporation ponds may eliminate a significant portion of mudflat and shoreline habitat, thus, effecting resident and migratory waterfowl. UDWR recommends the EIS analyze the potential impact of a loss of habitat and habitat fragmentation will have on resident and migratory waterbird populations?

At low lake levels, the salinity concentration in the North Arm of the GSL increases beyond what wildlife and invertebrates can tolerate; an environment similar to evaporations ponds. Approximately 43% of the GSL is currently composed of developed evaporation ponds and areas with high salinities within the North Arm, which are unsuitable habitats for birds. This is a significant portion of the current total lake and pond surface area and underscores the tremendous value of the remaining available habitats. The creation of additional ponds, especially in the fresh water and brackish water habitats of Bear River Bay, would remove even more habitat from availability to wildlife.

The presence of selenium and mercury is a serious concern as it has been found within the GSL and surrounding wetlands. Within the last 3 years, the Utah Department of Health has issued a food consumption advisory due to high levels of mercury in three waterfowl species (northern shoveler, common goldeneye and cinnamon teal). These contaminants may enter the food web more quickly from project construction and flushing of brines/salts from the ponds. UDWR is concerned that these contaminants may enter the water column and move up through the food chain (algae, brine flies, brine shrimp, and birds). We recommend the EIS consider how construction, operation and maintenance of the evaporation ponds could affect contaminants in the GSL. At a minimum, we recommend a rigorous operation protocol that will monitor contaminant levels near areas of physical lake disturbances.

Wildlife Concerns associated with Clyman Bay

The construction process and proximity of the project to Gunnison Island is likely to disrupt nesting birds. The island supports American white pelican, California gull, peregrine falcon, and the great blue heron. Currently there is a one-mile buffer surrounding the island to minimize disturbance. This buffer was intended to provide security for nesting birds on the island from boats or airplanes. The buffer does not take into account the construction or operation of features with noise or lighting exposure, or permanent structures, such as dikes or platforms, which may increase the likelihood of disruption to nesting colonial species. The current dikes in Clyman Bay are approximately four miles away from the island and the proposed dikes would be approximately two miles away. The proximity of newly constructed dikes may provide predators, as well as human trespassers, easier access to Gunnison Island. Pelicans are known to be highly susceptible to any disturbance and will, at times, totally abandon nesting sites as recorded on Hat Island (in the South Arm of the GSL) in the 1960's when pelicans completely left that island due to human disturbances. Gunnison Island is the third largest breeding colony for American white pelicans in North America. The security and protection of this habitat is of great importance to the species. UDWR recommends that the proposed placement of dikes be evaluated in the context of low GSL water elevations which could provide de-facto "travel corridors" for predators to Gunnison Island.

Brine flies are the predominant food item for most migratory shorebirds that visit the GSL. During their life cycle, the flies must anchor to bioherms or stromatolites that form on the lake floor.

These calcium carbonate structures appear to be essential to the reproductive life cycle of brine flies and are important to the brine shrimp population. At certain times of the year, brine shrimp sustain themselves by feeding on or near these productive structures. The structures are also essential to what is possibly the largest inland U.S. concentration of wintering common goldeneye. Bioherms are only found in a few areas of the GSL and they have been found within the area of the proposed Dolphin Island South Pond. The project area of Clyman Bay, if diked as an evaporation pond, will likely lose it's bioherm structures. UDWR recommend the bioherms in both the North and South Dolphin Island Ponds be mapped to avoid directly or indirectly impacting the bioherms. The lake bottom of Bear River Bay should also be mapped to determine if bioherms may be impacted by proposed evaporation ponds.

Wildlife concerns associated with Bear River Bay and Willard Spur

The south end of Bear River Bay, where an expansion pond is planned, is extensively used by Canada geese and is recognized as an important molting area within the Pacific Flyway. Molting areas are typically characterized as large remote areas that are disturbance and predator free, and consequently can be sensitive to increased activity. Canada geese are also long lived and have high site fidelity for breeding, wintering and molting. Due to the established nature of Canada geese, and the rarity of suitable areas for molting on the GSL, UDWR is not confident that the values of the affected area can be replaced or mitigated if lost due to the potential disturbances from this project.

UDWR data indicates that at lake elevations below 4,200 feet, there is a correlation of declining goose numbers (breeding and molting) with declining lake elevation. This may mean that goose use of Bear River Bay may become particularly sensitive to the amount of surface water available during dryer cycles, and any conversion of the limited amount of flooded area could affect the goose population. Between 1997 and 2001, and again between 2004 and 2006, UDWR conducted waterbird surveys throughout the GSL to gain an understanding of where waterbird species were located during different times of the year and in conjunction with varying water elevations. We strongly urge the ACOE to utilize this data when analyzing all of the project alternatives within the EIS.

General Comments on New Scoping Information

The recent information packet provided for review included aerial survey flight data of Bear River Bay. The graphs were difficult to read and did not appear complete. The maps of Shorebirds 2007 and 2008 and Waterbirds 2007 and 2008 do not include late spring/early fall months which would include shorebirds and waterbirds migrating during these months. During prior meetings and conversations with the project proponent, BioWest Consultants and the U.S. Army Corps of Engineers, UDWR personnel requested that flights should continue during the late summer, fall and winter months to capture bird use during these critical time periods. UDWR has documented shorebirds migrating through the area in late summer, and ducks and waterbird species utilize Bear River Bay during the fall and winter months. We encourage the ACOE to document all seasons of waterbird use to provide a better understanding of year-round avian use of Bear River Bay.

The Behrens Trench is now proposed for "Efficiency Enhancement" which would include dredging to create a deeper and wider trench within the North Arm of the GSL. A pipeline to carry the brines may be inserted into the trench to reduce dilution losses of potassium. The trench excavation may likely necessitate depositing spoil piles adjacent to the trench. As stated above, bioherms have been

found within the North Arm area and may be impacted by the proposed dikes. We recommend that the Behrens Trench area, including any areas that would support equipment or contain spoil piles, be surveyed for the presence of bioherms. When bioherms are located, UDWR recommends that efforts be undertaken to avoid negative impacts.

Specific Comments

In addition to the aforementioned statements, UDWR requests the following habitat and wildlife questions and concerns be addressed within the EIS:

- What are the potential long-term impacts to water quality and salinities associated with the removal of salts from the GSL? What are the long-term impacts to water quality and salinities associated with the flushing of salts from the ponds in "pulses" into Bear River Bay and with "moving" the salts from Clyman Bay to Bear River Bay? What will be the impacts to algae, wildlife, brine shrimp populations and each Bay's ecology?

- How will the expansion pond project affect water circulation patterns within Bear River Bay? How will changes in these circulation patterns affect vegetation, invertebrate populations, salinity and wildlife?

- Juvenile pelicans may confuse the proposed ponds with a potential forage site and become weakened and trapped within them until they succumb to the elements. This has occurred at the U.S. Magnesium site along the south shore of the GSL. How will the proponent prevent these events from reoccurring at the new evaporation ponds?

- Snowy plover are known to use mudflat habitats similar to those habitats found along the western shoreline of the GSL for nesting. Constructed dikes and filling of ponds may eliminate springs within the leased area that provide critical wildlife water sources and potential nesting habitat for snowy plovers. UDWR recommends complete surveys since it is unclear whether the entire newly proposed project area has been appropriately surveyed for snowy plover.

- Due to insufficient data in the remote area around Clyman Bay, it is unknown whether the presence of permanent ponds on the western shoreline may impact other wildlife species, such as small mammals and raptors. We recommend surveys be conducted to assess the bird and mammal populations present in the upland habitat around Clyman Bay and adjacent to the western shoreline.

- Gunnison Bay is currently open for oil and gas leasing, along with mineral extraction leasing. The cumulative impacts of existing and proposed potential oil and gas wells, in addition to the existing and proposed mineral leasing by GSLM, should be evaluated to ascertain the cumulative impacts to wildlife, lake salinities, water flow and overall North Arm ecology.

- The removal of salts from the North Arm should be evaluated to ascertain potential changes to salinities over time and throughout various water elevations. UDWR is concerned over the potential impacts to wildlife and/or the brine shrimp population from long-term and permanent

changes in salinities of the North Arm area. Will brine shrimp populations or the harvest of brine shrimp eggs be impacted by salinity fluctuations?

- The presence of the evaporation ponds will likely eliminate a large portion of mudflat and shoreline habitat. There will be a reduced area available for emergent marsh or mudflat habitats depending upon lake elevation. What impacts will this have on resident and migratory waterbirds reliant upon these habitats?

- How will this loss of habitat affect resident and migratory waterbirds during different water elevations? How will these potential losses be mitigated?

- UDWR is concerned with a potential reduction of Bear River Bay and Willard Spur waters, as well as a change in water circulation from dike placement. How will this affect the use of the area by fish populations and subsequently the birds that prey upon fish?

- The "islands" of submergent vegetation in GSL, frequently used by resident and migratory waterfowl, may also be affected with dike placement. How will the "islands" change through time due to water flow and circulation changes? How might wildlife be affected by these changes?

- What may be the impacts to vegetation communities, that provide forage to migratory birds during different times of the year? For example, Sago pondweed is important to many tundra swans in autumn and alkali bulrush seeds are important to common goldeneye in winter. How will these vegetation communities, along with other vegetation communities found in Bear River Bay, be affected by the proposed diking?

- Will the increase in dikes create additional habitat for nesting gulls which may, in turn, prey upon other nesting birds?

- Will brine shrimp populations be impacted by salinity fluctuations or an increase in salts/contaminant levels created from the flushing of ponds or changes in water circulation patterns?

- The West Bear River Bay and the Willard Spur areas, in combination, provide extensive values to migratory game birds that use adjacent areas including the Bear River Refuge, private hunting clubs, Harold Crane Wildlife Management Area (WMA) and, to a lesser extent, Ogden Bay WMA, Public Shooting Grounds WMA and Salt Creek WMA. How will the reduced acreage of fresh water in the bay affect opportunities for waterfowl hunters directly in this area and on the above referenced lands? Will a potential loss of habitat used as rest areas or fall habitat for waterfowl contribute to premature migration and reduce hunting opportunities?

Concluding Comments

UDWR is concerned that the long term impacts of this proposed project may contribute to irrevocable ecosystem alterations of the GSL. The entire GSL and its surrounding wetlands are a finite resource and this project has the potential for direct, indirect and cumulative negative effects on its unique ecosystem. Not all possible impacts of projects can be foreseen and appropriately mitigated before a project is fully realized. UDWR strongly recommends a monitoring program with safe-guards to track changes in the salinity and lake elevation from pumping brines for this project. Research and years of monitoring of the GSL have demonstrated how the affects of small changes in the GSL's physiochemistry can cause profound shifts in brine shrimp production which, in turn, affects waterbird populations. The most critical times to monitor would be during low water years and seasons of drought. With assistance from local experts on GSL ecosystems and hydrologic dynamics, it may be possible to determine normal ranges of values for salinity and lake elevations. A significant shift away from the normal ranges should trigger a slowing or ceasing of the pumping of brines out of the lake until levels return to normal ranges.

We appreciate the opportunity to comment on this development proposal. If you have additional questions, please contact Pam Kramer (801) 476-2775 in our Ogden office, or John Luft (801) 537-3342 in our Salt Lake office.

Sincerely,

James F. Karpowitz
Director

JFK/clb/pk

Exhibit C

United States Department of the Interior
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

In Reply Refer To
FWS/R6
ES/UT
7-FA-0186

May 1, 2007

Resource Development Coordinating Committee
Governor's Office of Planning and Budget
5110 State Office Building
Salt Lake City, Utah 84114

RE: Mineral Lease, near Clyman Bay (Gunnison Bay), Great Salt Lake

Dear Resource Development Coordinating Committee Members:

The U.S. Fish and Wildlife Service (USFWS) has reviewed your notice describing the Great Salt Lake Minerals Potassium Sulfate Expansion Project (Project) and its associated lease nomination. The nomination received by Division of Forestry, Fire, and State Lands (Division) and now being reviewed by the Resource Development Coordinating Committee (RDCC) requests the lease of 23,088 acres in the bed of the north arm (Gunnison Bay) of the Great Salt Lake (GSL). GSL Minerals' intent of leasing this land is to expand its solar evaporation operations for mineral extraction of brines from lake waters. The proposal involves the construction of dikes, feed channels, and pump stations similar to operations GSL Minerals currently has in Clyman Bay and in Bear River Bay. The Division and RDCC are currently seeking comments and stipulations appropriate for leasing this area.

The USFWS has been participating in development and review of the Project since December 2006 when an environmental permitting meeting and field trip was held with personnel from US Army Corps of Engineers (Corps), Utah Division of Wildlife Resources (UDWR), GSL Minerals and their consultant, BIO-WEST, Inc. During the meetings and field trip the USFWS discussed the resource issues and concerns that we believe need to be addressed in the environmental reviews for the Project. Based on our earlier comments and our review of the subject notice, we provide the following response for your consideration. Our comments are made pursuant to our authorities under the Endangered Species Act of 1973, as amended, the Migratory Bird Treaty Act, the Clean Water Act, and the Bald and Golden Eagle Protection Act. These comments reflect the potential for environmental impacts resulting from issuance of a new lease and future Project operations.

As you are aware, the lease request in Clyman Bay of 23,088 acres is part of a larger project that...

Exhibit E – 2

proposes to add an additional 8,000 acres of evaporation ponds in Bear River Bay. Due to permitting requirements under the Clean Water Act, GSL Minerals has been working with the Corps and UDWR to assess effects of this expansion and to determine what mitigation may be necessary, if any. BIO-WEST, Inc. is currently assessing fish and wildlife data that are currently available via state and federal agencies, and they are also conducting bird use surveys from the shores of Clyman and Gunnison bays and by helicopter for Bear River Bay. Existing and new fish and wildlife use data will be analyzed in a NEPA document that will likely cover the entire project. Hence, a substantial amount of biological information will be compiled to assess the effects of the proposed Project. Because the evaporation pond expansion in Clyman, Gunnison, and Bear River bays has been designed and originally presented as a single project, USFWS requests that the entire Project be evaluated by RDCC and the Division to determine its effects on the GSL ecosystem prior to a lease being granted. The remainder of this correspondence details the resource areas that should be included in an evaluation.

Water Quality

During preliminary project meeting discussions, GSL Minerals agreed to conduct some limited water quality sampling to obtain information regarding the status of their current discharges to Bear River Bay. We have reviewed these data as presented in the Water Quality Monitoring Report for GSL Minerals (four page report from BIO-WEST, Inc.) and have the following comments. First, we appreciate GSL Minerals' efforts to collect and analyze water for mercury and selenium, which are two elements of concern for the GSL. Both mercury and selenium bioaccumulate in living organisms at much higher concentrations than measured in water, and results from recent scientific studies suggest elevated concentrations of mercury are present in GSL and may be taken up by waterfowl and other birds. Also, the State of Utah is developing a numeric water quality standard for selenium for the GSL. The concern with the flushing of brines from GSL Minerals' solar ponds is that mercury and selenium may be concentrated in the remaining brines and flushed back to Bear River Bay and GSL in a plume. Due to their interactions in the environment, these elements are readily incorporated and efficiently recycled in the food web so even a short-term pulse will have lasting affects. Based on the available data collected by BIO-WEST, Inc, selenium concentrations in water were below the freshwater water quality standard of 5 parts per billion; however, the detection limit for mercury (0.2 ppb) was sixteen times higher than the freshwater water quality standard of 0.012 ppb. Recent USGS sampling has found mercury in the South Arm to be as high as 0.1 ppb which is considered elevated, yet it is still half the detection limit here. Based on these observations, our recommendations for additional pre-lease sampling and long term monitoring include: 1) lowering the detection limit for mercury to the freshwater water quality standard of 0.012 ppb; 2) collecting samples within the first few days of flushing rather than the last few days; and 3) sampling effluent from ponds in Gunnison Bay if they are flushed. If unacceptably high levels of contaminants are detected, lease stipulation should specify avoidance, minimization, and mitigation measures with additional monitoring.

More salts are removed annually from the Great Salt Lake than are added by inflows and natural processes. Furthermore, some salts are harvested disproportionately to their concentration in the

lake and to their ability to be replenished. We recommend the long-term effects of this proposed Project, in conjunction with existing mineral operations throughout the lake (i.e., cumulative effects), be evaluated to assess the impact on salt concentrations and proportions of minerals in the lake and how changes in these might affect the lake and its biotic community (e.g., algae, brine shrimp, brine flies, and birds).

As we understand the proposed Project, flushing of the northern-most expanded solar evaporation ponds in Bear River Bay would occur directly into Bear River Bay near the Willard Spur. This would likely increase the salinity within the Bay and may adversely affect macrophytes, invertebrates and fish, and indirectly affect waterfowl and piscivorous birds by decreasing food availability. We recommend that prior to granting any new lease, the impact of adding these brines on the water quality in the Bay be modeled. The model should evaluate a range of scenarios with an emphasis on average and less than average runoff years and also evaluate the effects during multiple successive years of drought.

Migratory Birds

The Great Salt Lake provides a robust habitat for migratory birds that is unique in the intermountain area. Site specific data for avian usage of Gunnison Bay is fairly limited aside from information regarding the American white pelican and other birds that nest on the bay's islands (Dolphin, Cub, and Gunnison). The limited information that does exist indicates that Clyman Bay and the western shore of Gunnison Bay have the potential to provide foraging and nesting habitat for shorebirds including the snowy plover and the American avocet. In addition, Gunnison Island is one of the premier breeding colonies for American white pelican in North America. Because of this, in 1977 the Utah State Legislature passed the Pelican Management Act which directs the protection and management of GSL pelican populations and provides for the protection of Gunnison Island specifically for pelicans. Any environmental analysis should consider impacts to the breeding colony of pelicans on Gunnison Island and to other shorebirds along the shoreline and at springs and wetlands within Clyman and Gunnison bays. Furthermore, if lake levels rise like they did in the mid-1980's, the south arm of the GSL may become too fresh to support large populations of brine shrimp; subsequently, salinities in the north arm may decline to levels that would support large numbers of brine shrimp which would attract large numbers of birds. The analysis of evaporation pond expansion in Clyman and Gunnison bays should consider how migratory birds would be affected under this scenario.

Bear River Bay is highly important to waterbirds. The area is used by Canada geese for molting with more than 10,000 counted during some years in the late 1990's. The Bay provides aquatic habitat for a fishery similar to that of the Bear River and thus provides forage for several species of picivorous birds. The area is also important foraging and resting habitat for other waterfowl due to the fresh water, aquatic macrophytes, and other aquatic biota that exist in the bay.

Any lease granted for evaporation pond expansion should be based on an analysis that specifically evaluates Project effects to all migratory bird species, including those listed above. The analysis should provide a plan for long term monitoring of avian resources relative to

potential project impacts as well as a mitigation plan for potential project impacts to migratory birds. For example, it should evaluate noise and visual effects from project activities, habitat reduction and fragmentation, and whether habitat enhancement efforts may minimize displacement impacts for some species. Habitat impacts for species on the Service's 2002 list of Birds of Conservation Concern (BCC) and Partners in Flight Priority Species should be evaluated as part of the analysis. The BCC List identifies those migratory and non-migratory avian species that, without additional conservation actions, are likely to become candidates for listing under the ESA. To help meet responsibilities under Executive Order 13186, lease stipulation should include provisions which: recommend ground-disturbing activities occur outside critical breeding seasons for migratory birds; minimize temporary and long-term habitat losses; and require mitigation for unavoidable habitat losses, particularly at the field development stage. Mitigation should include the option for offsite, in-kind habitat compensation.

Habitat Fragmentation and Disturbance

The analysis should identify the amount, location, and timeframe of temporary disturbance as well as permanent facilities that could result from the proposed action. Displacement of wildlife across a large area during critical times, such as breeding, could prove a significant impact. If wildlife are displaced, it is likely that the area to which they move is inhabited by other wildlife or disturbed by other ongoing activities. Depending on the season and species, displacement could lead to nest abandonment, inter- and intra-specific competition, reproductive failure, and possible mortality. American white pelican are known to be highly susceptible to human related disturbance. In addition, the cumulative effects of other projects in the area may limit the availability of alternative sites for displaced wildlife.

Aquatic Habitat

Because the Great Salt Lake and the Bear River Bay inflow area contain significant wetlands and littoral and riparian areas, we recommend lease stipulations be developed to avoid any wetland losses in accordance with Section 404 of the Clean Water Act, Executive Order 11990 (wetland protection) and Executive Order 11988 (floodplain management) as well as the goal of "no net loss of wetlands." Riparian and littoral areas are some of the most productive wildlife habitat types in North America. Riparian and littoral vegetation plays an important role in protecting streams and lakes, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian and littoral areas should be avoided. Unavoidable impacts should be fully mitigated.

Any lease granted for evaporation pond expansion should be based on an analysis of the effects to fish and wildlife and their habitat which result from Project development and current mineral extraction activities on the lake including the operations of GSL Minerals Corporation and other operations such as US Magnesium and Morton Salt, etc. In particular this analysis should be done relative to impacts on algae and brine shrimp lakewide, and for aquatic macrophytes, fish and other aquatic biota in Bear River Bay.

Cumulative Impacts

The combined, incremental effects of human activity, referred to as cumulative impacts, have the potential to pose a serious threat to the GSL environment. While they may be insignificant individually, cumulative impacts accumulate over time and space, from one or more sources, and can result in the degradation of important resources. Because of this, cumulative impacts analysis should be done prior to any lease being granted. The cumulative impacts discussion should, at a minimum, include evaluations within the region of influence of the proposal for: potential for additional fish and wildlife impacts due to energy development including oil and gas in the GSL; impacts from increased habitat fragmentation; displacement of wildlife; and cumulative effects of lake level changes on project affected resources.

Conclusion

Based on the proceeding information, USFWS requests that the Clyman Bay lease be held in abeyance until RDCC and the Division can collect information necessary to properly analyze the effects of expanding GSL Minerals' evaporation ponds as well as how long-term operations in Clyman, Gunnison, and Bear River bays would affect fish and wildlife and their habitat.

Once full Project analysis has been completed, lease stipulations should include a declaration of baseline environmental conditions for fish and wildlife and their habitat including bird usage and aquatic biota present in Clyman, Gunnison, and Bear River Bays. Lease stipulations should further specify a monitoring plan that will assess short-term and long-term impacts associated with evaporation pond expansion and GSL Minerals operations. The monitoring plan should include impact thresholds that trigger corresponding mitigation measures. For example, impact thresholds may include a decrease in the nesting population of American white pelicans in Gunnison Bay or a decrease in the molting populations of Canada geese in Bear River Bay. Examples of corresponding mitigation measures include removal of nearby dikes, a reduction in operational activities during specific times of the year, and/or a change in flushing water discharge points (i.e. from Bear River Bay to the vicinity of Ogden Bay).

We appreciate the opportunity to provide these comments. In the future, as this project progresses, USFWS would appreciate information on upcoming field visits and interagency coordination. If you need further assistance, please contact Paul Abate, Ecologist, or Nathan Darnall, Ecologist (Environmental Contaminants) at the letterhead address or (801) 975-3330 ext. 130 or 137, respectively.

Sincerely,

Larry Crist
Utah Field Supervisor

cc: √Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

July 7, 2009

In Reply Refer To
FWS/R6
ES/UT
65411-2007-FA-0186

Kent L. Jones, P.E., State Engineer
Utah Division of Water Rights
1594 West North Temple, Suite 220
PO Box 146300
Salt Lake City, Utah 84114-6300

RE: Water Rights Application for Great Salt Lake Minerals, Water Right 13-3896, Application No. A78499

The U.S. Fish and Wildlife Service (Service) protests the referenced water right application due to significant environmental concerns. We recommend the State Engineer deny the application pending further analysis of the environmental consequences of withdrawing 353,000 acre-feet of water from the Great Salt Lake (GSL) and until a conservation pool in the GSL is established.

Great Salt Lake Minerals produces potassium sulfate fertilizer through the evaporation of GSL water in large solar ponds. Current operations include 21,000 acres of solar ponds on west shore of Gunnison Bay and an additional 22,000 acres of solar ponds in Bear River Bay. The company has proposed the creation of 80,000+ additional acres of solar ponds at the GSL to meet growing worldwide fertilizer demand. The purpose of the water rights application is to provide brine from the GSL to the solar ponds in the proposed expansion.

Pursuant to our authorities under the Migratory Bird Treaty Act (16 U.S.C.§ 703), the Fish and Wildlife Coordination Act (16 U.S.C.§ 661), and the Fish and Wildlife Act of 1956 (16 U.S.C. §§ 742a – 742j), we have identified significant environmental issues that should be addressed relative to wildlife resources for this project. Our comments are intended to ensure that impacts to wildlife resources and their habitats are adequately avoided and minimized and that mitigation needs are fully met.

The GSL ecosystem is an irreplaceable and immitigable resource due to its location, size, and ecological features. It is the fourth largest terminal lake in the world (Arnow and Stephens 1990). Located approximately midway through an avian migration route between northern Canada and South America and located between the arid desert to the west and rugged mountains

to the east, the GSL and its associated wetlands become a vital bird staging area in an otherwise arid region. The importance of the GSL ecosystem to wildlife on a national and international level is well documented.

The GSL is part of the Western Hemispheric Shorebird Reserve Network (WHSRN), a distinction afforded to only five areas in the lower 48 states (Manomet 2007). To meet requirements of the WHSRN, an area must support more than 20,000 shorebirds, or 5% of a flyway population. The GSL ecosystem easily exceeds the WHSRN standards, with impressive numbers of Wilson's phalarope (500,000; largest staging concentration in the world), red-necked phalarope (240,000), American avocet (250,000; exceeds any other wetland in the Pacific flyway), black-necked stilt (65,000; exceeds any other wetland in the Pacific flyway), and marbled godwit (30,000; the only staging area in the interior USA) (UDWR 2009).

The following information on bird use of habitats on GSL should be considered in reviewing the water rights application:

1) The diversion of 353,000 acre-feet of water from the GSL could significantly reduce brine shrimp and brine fly numbers in Gilbert Bay and reduce available avian habitat.

- Many avian species rely heavily on the brine shrimp and brine flies produced in the saline, open waters of the GSL including Wilson's phalarope and eared grebe (Jehl 1988), numerous species of waterfowl (Vest et al. 2008) and migrating shorebirds (UDWR 2009). Decreasing lake levels as a result of the proposed diversion, could lead to a decrease in brine shrimp and brine fly densities due to increasing salinity levels, negatively affecting food availability for migrating birds dependent on this resource.

- Loss of available forage can negatively impact migratory bird populations through a decrease in body condition and poor reproductive success. Many of the waterfowl and shorebirds that stop at the GSL are re-fueling for migration and increasing body fat which they carry to their breeding grounds. The amount of body fat directly affects reproductive success.

- Eared grebe, snowy plover, long-billed curlew, and marbled godwit are all listed on the Service's 2008 list of Birds of Conservation Concern (BCC). The BCC identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (USFWS 2008). The BCC is intended to stimulate collaborative and proactive conservation actions among Federal, State, Tribal, and private partners. We hope that, by focusing attention on these highest-priority species, the BCC will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby contributing to healthy avian populations and communities. A reduction in food availability affecting avian migration and/or reproductive success would run counter to our efforts under the BCC.

- A further reduction in lake levels would reduce the remaining wildlife habitat and could influence food availability, disease outbreaks, and predation. Concentrating populations into fewer areas raises the risk of population crashes or possible extinction due to catastrophic events such as disease outbreaks, unusual weather and predation.

2) The diversion of 353,000 acre-feet of water from the GSL could significantly increase the vulnerability of the American white pelican colony on Gunnison Island.

- The GSL hosts the largest breeding population of American white pelicans in the United States west of the Continental Divide (King and Anderson 2005). Gunnison Island is one of the premier breeding locations in the world and was set aside by the Utah State Legislature in 1977 through the Pelican Management Act to protect the GSL pelican population and to protect and manage Gunnison Island specifically for pelicans.

- Recent colony failures at Chase Lake National Wildlife Refuge due to disturbance from predators and the fact that young pelicans are susceptible to West Nile Virus (Sovada 2009) make the colony at GSL vitally important for this species. It also appears that disease-related die-offs have increased in recent years while at the same time the population of pelicans in the western U.S. has declined (Rocke et al. 2005). Due to its isolated location in Gunnison Bay, predator access to Gunnison Island is rare, and mosquitoes with West Nile Virus are less likely to arrive at the island.

- At a lake surface elevation of 4193.7 feet, Gunnison Island is almost connected to the mainland by a land bridge (USACOE 2009). A further reduction in lake elevation would allow predators, such as the coyote, almost unhindered access to the colony, perhaps causing catastrophic abandonment of eggs and young, potentially affecting the worldwide population and conservation status of the species.

3) The diversion of 353,000 acre-feet of water from the GSL could reduce migratory bird habitat in Bear River Bay.

- Bear River Bay is just one of several Bays on the GSL that hosts hundreds of thousands of breeding, feeding, migrating and staging migratory birds every year. Bear River Bay is considered crucial to bird conservation at the western hemisphere level as recognized by the WHSRN. The area is also recognized as an Important Bird Area in North America by the National Audubon Society. These special designations are assigned only after extensive and rigorous documentation and review by conservation professionals. In addition, the role of the GSL, and lands within Bear River Bay in particular, figured prominently in devising conservation plans and associated actions for several species and species groups such as the Intermountain West Waterbird Conservation Plan (Ivey and Herziger, 2006) and the Marbled Godwit Conservation Plan (Melcher et al., 2006).

- The saline waters and freshwater marshes of the GSL comprise one of the most critical breeding and staging sites for colonial waterbirds, waterfowl and shorebirds in the Intermountain West (IMW). Oring et al. (2000) stated "the Great Salt Lake stands out as probably the most important inland shorebird site in North America." Shuford et al. (2002) found that in the fall, 78% of the IMW region's black necked-stilt and American avocet, 77% of willet, 62% of whimbrel, 87% of long-billed curlew, 86% of the marbled godwits, and 39% of the dowitchers were concentrated at the GSL. Shuford's study also found that the GSL was the most important location for northbound migrant shorebirds in the spring.

- Bear River Migratory Bird Refuge is also located in Bear River Bay. The 74,000 acres of the Refuge are lands specifically set aside for wildlife conservation. The Refuge hosts 1% of the continental breeding population of American avocet, 2% of the continental breeding population of black-necked stilt, the largest breeding colony of white-faced ibis in the world (about 18,000), 30% of the western population of tundra swans, 25% of the continental population of marbled godwit during migration, 3% of the continental population of long-billed dowitcher during migration and 2% of the continental breeding population of Franklin's gull. Each of these species is considered a priority for conservation at the continental, regional, and refuge level due to declining populations or having breeding and migration habitat restricted to the IMW. These species may also spend considerable time utilizing habitats outside the Refuge boundary in Bear River Bay, especially Willard Spur.

- The GSL acts as the largest inland staging area for marbled godwit in North America (Melcher et al. 2006). Paul and Manning (2002) found that greater than 90% of the marbled godwit using the GSL were concentrated in Bear River Bay. The peak count of godwits from Bear River Bay of 43,000 in 2000 is the equivalent of 25% of the global population.

- During most years, large numbers of migratory birds, including green-winged teal and Canada geese use Bear River Bay on an annual basis. The Bay also provides valuable habitat during certain years for other bird species such as eared grebe and western grebe (Don Paul, personal communication).

- Water diversions from GSL might reduce water levels in Bear River Bay under certain conditions, affecting this crucial site for a diverse suite of avian species and habitat needs.

Saline lakes worldwide have been negatively affected by water diversions, mining, pollution, introduction of exotic species and other anthropogenic disturbances (Williams 2002). These activities and stressors have changed the character of saline lakes, altered limnology, reduced biodiversity and irreversibly degraded the values (e.g., ecological, economic, recreational, aesthetic, cultural and scientific) of saline lakes (*ibid*). For example, water diversions from the Aral Sea have dramatically altered the lake's ecology, affected water chemistry, reduced fish populations, eliminated the commercial fishing industry, altered the region's climate, and

reduced crop yields and created severe air quality due to wind dispersal of salt-laden sediments from exposed mudflats (NASA 2001, Aladin et al. 2008). Water diversions for domestic and agricultural use and the industrial pumping of lake brines along the shoreline have dried the southern basin of the Dead Sea, exposing mudflats and affecting infrastructure (Gavrieli 2008).

Without careful and considered management of the GSL, we are concerned that similar or related effects recorded at other saline lakes may occur here, including significant environmental degradation and reduction in avian habitat, species abundance and diversity. Impacts to recreation, agriculture, human health and tourism might also ensue. Therefore, we recommend a thorough evaluation of water-level changes, lake-wide impacts, and biological effects before granting this application for 353,000 acre-feet of water annually from the Great Salt Lake, especially when the surface elevation of the lake is below 4200 feet. Without this and future evaluations, all "unappropriated water in the Great Salt Lake" could arguably be removed, resulting in significant impacts to current biological, recreational and commercial uses.

The level of the lake is dynamic and varies within and between years. Existing models, while largely untested, predict up to a 1-foot drop in lake elevation for every 100,000 acre-foot removed (presentation given at American Water Resources Association conference). However, lake levels are influenced by precipitation, inter-basin transfers, and diversions for domestic, agricultural and industrial uses. This application, if granted, would not be the only influence on lake elevation and should, therefore, be evaluated in context of the entire watershed. To assist in this endeavor, we recommend the development of a conservation pool that would provide a safety-net for the preservation of existing uses. The conservation pool would be particularly valuable during drought cycles and would protect the lake from over-allocation and from over-use throughout the entire watershed, not just at the "end of pipe" users.

Again, we recommend the application be held in abeyance until environmental studies and/or a thorough analysis is completed. We also recommend a conservation pool be established in the GSL to protect existing uses. Without these safeguards, this and future water diversions, if approved, could result in significant environmental consequences, including the need to list additional species as threatened or endangered.

We appreciate the opportunity to provide these comments to protest the water rights application. If you need further assistance, please contact Nathan Darnall, Ecologist and Migratory Bird Coordinator, at the letterhead address or (801) 975-3330 ext. 137.

Sincerely,

Larry Crist
Utah Field Supervisor

cc: Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

UDWR – Northern Region (Attn: Pam Kramer)
EPA – Denver (Attn: Dick Clark)
FWS - Bear River MBR (Attn: Bob Barrett)
FWS – Division of Water Resources (Attn: Megan Estep, Chief)
FWS – Division of Migratory Birds (Attn: Jim Dubovsky, Chief)

LITERATURE CITED

Aladin, N.V., I.S. Plotnikov, P. Micklin and T. Ballatore. 2008. The Aral Sea: water level, salinity and long-term changes in biological communities of an endangered ecosystem - past, present and future. In: Oren, A, D. Naftz, P. Palacios and W.A. Wurtsbaugh (eds). Saline Lakes Around the World: Unique Systems with Unique Values. Natural Resources and Environmental Issues, volume XV. S.J. and Jessie E. Quinney Natural Resources Research Library, Logan, Utah.

Arnow, T. and D. Stephens. 1990. Hydrologic characteristics of the Great Salt Lake, Utah: 1847-1986. U.S. Geological Survey Water-Supply Paper 2332. Salt Lake City, UT 32 pp.

Gavrieli, I. 2009. The negative water balance of the Dead Sea; its impact and the future of the lake. In: Oren, A, D. Naftz, P. Palacios and W.A. Wurtsbaugh (eds). Saline Lakes Around the World: Unique Systems with Unique Values. Natural Resources and Environmental Issues, volume XV. S.J. and Jessie E. Quinney Natural Resources Research Library, Logan, Utah.

Ivey, G., and C. Herziger. 2006. Intermountain West Waterbird Conservation Plan, Version 1.2. A plan associated with the Waterbird Conservation for the Americas Initiative. Published by U.S. Fish and Wildlife Service Pacific Region, Portland, OR.

Jehl, J. R., Jr. 1988. Biology of the eared grebe and Wilson's phalarope in the nonbreeding season: a study of adaptations to saline lakes. Studies in Avian Biology 12:1-79.

King, D. T., & Anderson, D. W. 2005. Recent population status of the American white pelican: a continental perspective. Waterbirds , 28 (Special Publication 1): 48-54.

Manomet Center for Conservation Science. (Great Salt Lake Western Hemisphere Shorebird Reserve Network Site [Web Page]. URL http://www.manomet.org/WHSRN/viewsite-new.php?id=36 [2007, September 14].

Melcher, C., A. Farmer, and G. Fernandez. 2006. Conservation Plan for the Marbled Godwit Version 1.1. Manomet Center for Conservation Sciences, Manomet, MA.

National Aeronautic and Space Administration. 2001. The Shrinking Aral Sea [Web Page]. URL http://earthobservatory.nasa.gov/IOTD/view.php?id=1396 [2009, July 7].

Oring, L.W., L. Neel, and K.E. Oring. 2000. Intermountain West Regional Shorebird Plan, U.S. Shorebird Conservation Plan, V. 1.0. Manomet Center for Conservation Sciences, Manomet, MA.

Rocke, T., K. Converse, C. Meteyer, and B. McLean. 2005. The impact of disease in American white pelican in North America. Waterbirds 28 (Special Publication 1):87-94.

Shuford, W.D., G.W. Page, and L.E. Stenzel. 2002. Patterns of distribution and abundance of migratory shorebirds in the Intermountain West of the United States. Western Birds 33:134-174.

Sovada, M. 2009. Disease, climate change and predators threaten breeding populations of American White Pelicans. Presentation at Weber State University.

U.S. Army Corps of Engineers. 2009. Lake elevation satellite imagery. Supplemental material for Public Notice SPK-2007-00121.

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at http://www.fws.gov/migratorybirds]

Utah Division of Wildlife Resources. 2008. Great Salt Lake's importance to birds. [Web Page]. URL http://wildlife.utah.gov/gsl/waterbirdsurvey/RPT07Importance.htm#Anchor-Table-33869. [2009, January 20].

Vest, J. L., M. R. Conover, C. Perschon, J. Luft, and J. O. Hall. 2009. Trace Element Concentrations in Wintering Waterfowl from the Great Salt Lake, Utah. Archives of Environmental Contamination and Toxicology 56(2):302-316.

Williams, W. D. 2002. Environmental threats to salt lakes and the likely status of inland saline ecosystems in 2025. Environmental Conservation 29(2):154-167.

PROJECT FILE

United States Department of the Interior

FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

SURNAME

NO

January 7, 2009

In Reply Refer To
FWS/R6
ES/UT
65411-2007-FA-0186

Carolyn Wright, RDCC Coordinator
Governor's Office of Planning and Budget
5110 State Office Building
Salt Lake City, Utah 84114

RE: Mineral Lease near Dolphin Island, Great Salt Lake (Number 10073)

Dear Ms. Wright,

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced notice describing the Great Salt Lake Minerals lease nomination near Dolphin Island. The lease nomination has four elements including a new mineral lease in Gunnison Bay of 37,083 acres, the relinquishment of undeveloped leased acreage around Promontory Point and Bear River Bay of 30,181 acres, the creation of an easement for an existing canal, and an amendment to realign the Behren's Trench easement. The intent of leasing this land is to expand solar evaporation operations for mineral extraction of brines from the water of the Great Salt Lake. The eventual project will involve the construction of dikes, feed channels and pump stations, similar in nature but larger in scope to the existing improvements on the adjacent lease.

This letter transmits Service comments in response to the Division of Forestry Fire and States Lands and the Resource Development Coordinating Committee (RDCC) request for comments and stipulations that may be appropriate for leasing the tract in Gunnison Bay. Our comments are made pursuant to our authorities under the Fish and Wildlife Coordination Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. The Service also provides technical and biological information for use in the NEPA review process (42 U.S.C. 4332). Through these efforts, the Service seeks to ensure that impacts to fish and wildlife resources are adequately described, avoided and minimized to the extent possible, and that mitigation needs are met. Our comments reflect the potential for environmental impacts resulting from issuance of a new lease and future project operations.

The Service has been a participating agency with the Army Corps of Engineers (Corps) in development and review of an Environmental Impact Statement (EIS) for a proposal to expand Great Salt Lake Minerals' operations by 23,088 acres in Clyman Bay and an additional 8,000 acres of evaporation ponds in Bear River Bay. The current lease nomination does not mention the proposed expansion; however, one of the potential alternatives in the EIS may be the addition of new leases in Gunnison Bay in exchange for leases in Bear River Bay. This possible alternative has not been finalized in the EIS process or reviewed by the Service, but we believe that the current lease nomination near Dolphin Island is a step towards this possible alternative. And while the current lease nomination includes the relinquishment of leases near Promontory Point and in Bear River Bay, the original 8,000 acres slated for expansion in Bear River Bay are not included as part of the exchange. We provided comments to the Corps (letter dated December 17, 2007) describing the remarkable value of Bear River Bay for migratory birds and we believe this area is extremely important for wildlife. The proposed relinquished acres have important wildlife values but are 6,902 acres fewer than the new leases that would be acquired near Dolphin Island. The Service recommends the 8,000 acres in Bear River Bay also be relinquished, which would eliminate many of the wildlife concerns with the existing proposal in Bear River Bay and would ensure the long-term conservation of migratory birds in the area.

Consultants for Great Salt Lake Minerals are assessing wildlife data that are available via state and federal agencies and are also conducting bird use surveys from the shores of Clyman and Gunnison bays and by helicopter for Bear River Bay. Existing and new wildlife use data will be analyzed in a NEPA document that will likely cover the project area. While a substantial amount of biological information will be compiled to assess the effects of the original proposed project, wildlife data will also be needed for the new leases near Dolphin Island. Site specific data for avian usage of Gunnison Bay is fairly limited aside from information regarding the American white pelican and other birds that nest on the bay's islands (Dolphin, Cub, and Gunnison). The limited information that does exist indicates that the western shore of Gunnison Bay has the potential to provide foraging and nesting habitat for shorebirds including the snowy plover and the American avocet and that there are wetland habitats (e.g., springs and seeps) along the shoreline. The analysis of evaporation pond expansion in Gunnison Bay (in aggregate) should consider how migratory birds and their habitats would be affected. With the proposed lease, a large proportion of the western shoreline would be converted to evaporation ponds. While there may be fewer wetlands on the western shore of the lake, the combined leases (existing and all new leases) may result in a substantial loss of the total wetlands on the western shore. The Service recommends that the Division of Forestry, Fire, and State Lands fully evaluate existing resources of concern (including migratory birds and their habitats) within the proposed lease area and analyze the potential effects to these resources from the proposed action.

The proposed mineral lease near Dolphin Island is more than five miles from Gunnison Island, one of the premier breeding colonies for American white pelican in North America. However, any environmental analysis should consider the entire project area and consider impacts to the breeding colony of pelicans on Gunnison Island and to other shorebirds along the shoreline and at springs and wetlands within Clyman, Gunnison and Bear River bays.

The combined, incremental effects of human activity, referred to as cumulative impacts, have the potential to pose a serious threat to the Great Salt Lake environment. While impacts may be

insignificant individually, impacts accumulate over time and space, from one or more sources, and can result in the degradation of important resources. Because of this, we recommend a cumulative impacts analysis be done prior to any lease being granted. The cumulative impacts discussion should, at a minimum, include evaluations within the region of influence of the proposal for: potential for additional fish and wildlife impacts due to energy development including oil and gas in the Great Salt Lake; impacts from increased habitat fragmentation; displacement of wildlife; and cumulative effects of lake level changes on project-affected resources.

We appreciate the opportunity to provide these comments. If you need further assistance, please contact Nathan Darnall, Ecologist and Migratory Bird Coordinator, at the letterhead address or (801) 975-3330 ext.137.

Sincerely,

ORIGINAL SIGNED

Larry Crist
Utah Field Supervisor

cc: Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

Jason Gipson
Chief, Utah Regulatory Office
Army Corps of Engineers
533 West 2600 South, Suite 150
Bountiful, Utah 84010

bcc: Project File
Reading File

ND/jm:1/7/09
File:
Z:\Darnall\GSL Minerals Leases Dec 2008.doc

insignificant individually, impacts accumulate over time and space, from one or more sources, and can result in the degradation of important resources. Because of this, we recommend a cumulative impacts analysis be done prior to any lease being granted. The cumulative impacts discussion should, at a minimum, include evaluations within the region of influence of the proposal for: potential for additional fish and wildlife impacts due to energy development including oil and gas in the Great Salt Lake; impacts from increased habitat fragmentation; displacement of wildlife; and cumulative effects of lake level changes on project-affected resources.

We appreciate the opportunity to provide these comments. If you need further assistance, please contact Nathan Darnall, Ecologist and Migratory Bird Coordinator, at the letterhead address or (801) 975-3330 ext.137.

Sincerely,

Larry Crist
Utah Field Supervisor

cc: Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

Jason Gipson
Chief, Utah Regulatory Office
Army Corps of Engineers
533 West 2600 South, Suite 150
Bountiful, Utah 84010