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BEFORE THE STATE ENGINEER OF THE STATE OF UTAH

In Re: Application 13-3896	:	
(a78499) by Great Salt Lake	:	FIRST AMENDED
Minerals Relative to Waters of Great Salt	:	PROTEST
Lake in Box Elder County	:	

Because the State Engineer has extended the deadline for Protest of this application beyond the initial Protest deadline of July 7, 2009, and because the initial Protest was filed prior to that deadline, this First Amended Protest is necessarily timely.

I. Introduction

FRIENDS of Great Salt Lake, National Audubon Society, Wasatch Audubon Society, Utah Waterfowl Association, Utah Airboat Association, Utah Rivers Council, League of Women Voters of Salt Lake, League of Women Voters of Utah, Utah Chapter of the Sierra Club, and Physicians for a Healthy Environment (collectively "FRIENDS") hereby protest the application number a78499 (water right number 13-3896) made by Great Salt Lake Minerals (Mining Company) to appropriate 353,000 acre feet of water from the Great Salt Lake in Box Elder County, consisting of 336,360 acre feet of water from the North Arm and 16,640 acre feet of water from Bear River Bay.

The local, national and international value of Great Salt Lake, its islands, and its wetlands cannot be overstated. Overall, 257 avian species use the Great Salt Lake ecosystem. Of these, 112 species are exclusively associated with the Lake's varied wetland areas, while 117 species reportedly nest on the Lake's periphery or on its islands. At least 33 species of shorebirds representing 2 to 5 million individuals use Great Salt Lake annually, stopping along routes that take them elsewhere in North, Central or South America. In addition, up to 5 million waterfowl migrate through the Lake each year.

Approximately 30 percent of the waterfowl migrating along the Pacific Flyway depend upon the Great Salt Lake wetlands. For these migrants, the Lake provides a critical food supply, allowing them to restore depleted energy reserves and fuel up for the rest of their migrations, sometimes doubling their body weight before they leave. In recognition of its role in these international flights, Great Salt Lake is designated as **one of only eight** sites with a "hemispheric" designation – as opposed to regional or international designation – of the 40 Western Hemisphere Shorebird Reserve Network sites in the United States.

The importance of Great Salt Lake to the birds of the Americas is borne out by the sheer numbers that depend on its resources, including

- 60 to 80 percent of the world's population of Wilson's phalaropes,
- One of the two largest staging concentrations of eared grebes in North America,
- The world's largest breeding population of white-faced ibis and California gulls,
- Over half of the entire breeding population of snowy plovers west of the Rocky Mountains,
- More than three quarters of the entire western population of tundra swan,
- One of the three largest breeding colonies of American white pelicans, and
- One of the ten largest wintering populations of bald eagle in the lower 48 states.

Not surprisingly, hundreds of thousands of bird watchers comb the shores of Great Salt Lake to be rewarded by incredible views of feeding, flying and nesting birds that journey thousands of miles to gorge on the bounty of our nation's largest inland "sea." The Lake also attracts recreationists enjoying other water-based activities such as sailing, boating, rowing, floating, wading and kayaking. Others hike, ride horseback and mountain bike to enjoy scenery, solitude and wildlife. Great Salt Lake also supports a robust community of waterfowl enthusiasts who not only enjoy hunting but are working to preserve and protect Utah's waterfowl, its unique and rich habitat and its rich heritage.

The North Arm of Great Salt Lake is an area of particular significance to the Lake's ecosystem. Commenting specifically on the Mining Company expansion proposal, the Utah Division of Wildlife Resources (DWR) and the U.S. Fish and Wildlife Service (FWS) noted that the North Arm of Great Salt Lake becomes critical to migratory and other waterbirds during high water years. Exhibits 1 & 2, attached. This is because, during these times, the salinity in the North Arm best supports brine shrimp – an important food source for many of the Lake's birds. *See* DWR Comments at 2-3 (documenting the crucial importance of the North Arm to wildlife during the 1980s and early 1990s); July 19, 2007 Letter from Don Paul to Mr. Styler and Mr. Buehler at 2, Exhibit 3, attached ("During periods when the GSL elevation occurs between 4193' and 4206' above sea level (asl), there are several aquatic bird species that occur at the Lake in continental and hemispheric numbers of importance at the GSL and largely in the Gilbert Bay. These are the Wilson's Phalarope, Red-necked Phalarope, and the Eared Grebe. Some years these populations are in excess of 1,200,000, and 1,300,000 respectively during their seasonal

occurrence at the GSL. At times these numbers of Wilson's Phalaropes and Eared Grebes represent 50 to 70% of the population that occur in the world.");[1] Great Salt Lake Mineral Leasing Plan at 33 ("[D]uring the high water years from 1983 to 1987, there were increase populations of brine shrimp in the north arm as salinity decreased [and] . . . eared grebes followed the brine shrimp into the north arm, abandoning sites along the Antelope Island causeway . . .").

As recognized by the Utah Legislature, the North Arm is of significant importance as a refuge for one of the last remaining populations of the American white pelican, which breeds on Gunnison Island.[2] In addition, the North Arm offers outstanding recreational opportunities. This unique and remote area is enjoyed for its stark beauty, wildlife and bird life and stunning landscapes. That this area is more difficult to access and less frequented than the South Arm does not diminish its significant recreational and aesthetic value. Moreover, although navigation to and from this area is currently impeded by the causeway, there is no reason to believe that this obstruction is permanent[3] and every reason to believe that the demand for access to this area will increase.

Likewise, Bear River Bay and the Willard Spur are of outstanding value for both recreation and wildlife habitat. Here there is a fishery that persists when the lake elevation is higher than 4,200 feet above sea level of vital importance to pisciverus birds. The avian community at Willard Spur is exceptionally complex. With its species richness, diversity and overall abundance, this area continually provides one of the most magnificent displays of bird life on the lake.

Recognizing these values, DWR has underscored the tremendous ecological importance of the lease parcels the applicant proposes to develop:

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[1] Mr. Paul also states: "This was the case in the high lake years of the 1980s (1983 to 1988). The migratory populations of Phalaropes and Eared Grebes were totally reliant upon Gunnison Bay for the food and energy reserves needed to complete their annual winter migrations which sometimes exceed 2,000 miles. Much of the foraging of these species took place along the west shorelines of promontory point, around Gunnison Island and west toward the Hogup Mountains (the ostensible GSL Minerals diking and ponding site), (DWR SLO files). Exhibit 3 at 2.

[2] Utah Code Ann. § 23-21a-2 ("The legislature of the state of Utah recognizes that the number of breeding sites of the American white pelican has been reduced from in excess of 50 prior to 1932 to only seven major sites in 1976 as a result of the removal of water barriers around breeding sites, loss of food supply, and **human disturbance of nesting colonies.** The legislature of the state of Utah further recognizes that Gunnison Island in the Great Salt Lake, one of the seven remaining pelican rookeries in North America, produces over 20% of the world's population of the American white pelican, and is the only remaining major pelican rookery that does not have refuge status. It is hereby declared to be the policy of the state of Utah that areas that will support certain threatened life forms shall be preserved for their benefit and for the benefit and enjoyment of present and future generations of people.") (emphasis added)

[3] The causeway has stood only since 1959, when it replaced a trestle built in 1902.

> These lands . . . are valued by DWR for periods when lake level falls below 4200' in Bear River Bay. DWR is particularly interested in lands which are north and northwest of the existing dikes . . . because of bulrush colonies in this area that are important to colony nesting birds and as forage for birds. Also, at lower lake levels, this is the low point of the channel and is important as an area where the water creates a natural lake within the bay.

IMC Kalium/DWR Memo, August 28, 1998, Exhibit 4 at 3. Moreover, this area of the Lake receives high levels of recreational use, is appreciated for its scenic beauty by many, and is critical to navigation of the Lake. Bear River Bay and Willard Spur enjoy a high number of days of recreational use. Air boat operators and others access this area though a public access site and two guiding services also operate in the area. There are at least two private duck clubs that are located along the shore of this area.

The Mining Company application seeks to appropriate an extraordinary volume of water from Great Salt Lake. 353,000 acre feet alone totals almost as much water as flows from the Jordan River into the Lake each year. Particularly when combined with existing approved appropriations from the Lake, the proposed withdrawal will unlawfully interfere with Great Salt Lake sovereign land values, will unreasonably affect public recreation and the natural stream environment, will prove detrimental to the public welfare and will seek to withdraw water from a fully appropriated source. The Great Salt Lake ecosystem and the recreational and navigational values it supports simply cannot absorb an appropriation of this magnitude, especially in light of the existing cumulative demands on this internationally significant waterbody. As such, the application should be rejected.

II. Protesting Parties

Each of the protesting parties has long been involved in the protection and restoration of the Great Salt Lake and its ecosystems, and advocates for opportunities for its members and the public to enjoy these resources by fishing, bird-watching, boating, photographing, hiking and studying these natural areas and/or the ecosystems they support. As such, these protesting organization, are "persons interested" for the purposes of Utah Code Ann. § 73-3-7 (1995). *See Bonham v. Morgan*, 788 P.2d 497, 502 (1989) ("[s]ection 73-3-7 permits 'any person,' not just a water user or an owner of vested rights, to protest the granting of an application under title 73"). The organizations protest this application because of the threat it poses to the aquatic life, wildlife, wetlands, water quality, air quality, and recreational opportunities provided by Great Salt Lake and by virtue of the status of their staffs and members as beneficiaries of the Public Trust.

III. The Mining Company Expansion Proposal

Mining Company currently operates about 47,000 acres of evaporative ponds in the northern part of Great Salt Lake; 25,000 acres of ponds in the North Arm and 22,000 acres of ponds in Bear River Bay. North Arm brine is transported to Bear River Bay via the 21-mile Behrens Trench, taking a week to make the journey.

In 2007, Mining Company proposed expanding their operations by 33,000 acres. The proposed expansion would have consisted of an 18,000-acre pond adjacent to Gunnison Island, a 7,000-acre pond in the southern end of Clyman Bay and an 8,000 pond in Bear River Bay. While the lease for the 8,000 acre Bear River Bay portion was purportedly already approved by the Division of Forestry, Fires and State Lands prior to the proposal, the necessary leases for the 25,000 acres of ponds in the North Arm were also approved by the Division in July, 2007. Subsequent to that approval, the Army Corps of Engineers began the Environmental Impact Statement process associated with the 404 permit for the entire 33,000 acres.

Subsequent to approval of the required leases by the Division but prior to approval by the Corps of Engineers, Mining Company expanded that proposal to 91,000 acres – of which 80,000 acres fall within the confines of the Lake. The new proposal is in place of, rather than supplementing, the 2007 proposal. Of the 91,000 acres 83,000 acres would be located in the North Arm and 8,000 acres would be added to the northeast portion of Mining Company's current Bear River Bay facilities.

To support this expansion, Mining Company has also applied for 336,360 additional acre feet of water rights taken from the North Arm and 16,640 acre feet of water taken from Bear River Bay. Currently, Mining Company holds 156,000 acre feet of consumptive water rights within the Lake as well as 67,000 acre feet of water rights in Bear River Bay.

Because the railroad causeway substantially reduces the interchange between the South and the North Arms, the withdrawals of water from the North Arm proposed by Mining Company will have a disproportionate impact on that portion of the Lake. This is especially true at lower Lake levels, when the effectiveness of the causeway breach is minimized. Adding to the impact is the purported lack of recurring maintenance of the two culverts by the railroad. As a result, and absent the effects of the proposed evaporation reservoirs, the withdrawal of this water from the North Arm will have an enormous and uneven effect on that portion of the Lake because of the North Arm's hydrologic isolation from the rest of the Lake.

In addition, Mining Company has proposed adding 91,000 acres of evaporation reservoirs, the majority of which will fall outside of the natural boundary of the Lake at normal water levels. As a result, the company's proposal artificially expands the surface area of the Lake and, thus, will result in an increase in the natural rate of evaporation. The combined impact of the detrimental and disproportionate impact of this withdrawal on the North Arm because of its hydrologic isolation and the increased rate of evaporation as a result of the evaporation reservoirs will clearly result in an unreasonable effect on the natural environment of the Lake in violation of Utah Code Ann. § 73-3-8(1)(b)(i). For this reason, the State Engineer is required pursuant to Utah Code Ann. § 73-3-8(1)(b)(ii) to deny Mining Company's application.

IV. Legal Framework

A. Section 73-3-8(1) of the Utah Code

The State Engineer is obligated, on the basis of "information in his [or her] possession obtained either by his [or her] own investigation or otherwise," to withhold approval of an application that may "unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare" until she or he investigates the matter fully. Utah Code Ann. § 73-3-8(1)(b)(i) (2007). Furthermore, if the evidence suggests that the application "does not meet the requirements of this section" – if it unreasonably affects public recreation or the natural stream environment, or proves detrimental to the public welfare – the application "shall be rejected." *Id.* § 73-3-8(1)(b)(ii).

These provisions put the burden of persuasion on the applicant throughout the application process to prove to the State Engineer that no harm will result from the change in water use. *Searle v. Milburn Irrigation Company*, 2006 UT 16, ¶ 53 133 P.3d 382, 395. In *Searle*, the Utah Supreme Court determined that an applicant bears the burden of establishing that a requested change in water use meets the criteria of section 73-3-8(1)(a).[4] *Id*. Specifically, the applicant must persuade the State Engineer that there is no reason to believe that the change in use will fail to satisfy the five section (1)(a) factors. 2006 UT 16, ¶¶ 45, 53, 57. This is true even if the application is unopposed. Id. at ¶ 57. If the applicant cannot meet this burden, or if a protestor produces evidence that undermines the reasonableness of the applicant's "no reason to believe" assertions, the application must be rejected. *Id*. at ¶ 56.[5]

However, unlike section 73-3-8(1)(a), section 73-3-8(1)(b)(i) places an additional duty on the State Engineer to investigate potential adverse impacts to the Lake environment, recreation and the public interest. Pursuant to this duty, if the State Engineer has reason to believe that an application may prove detrimental to recreation, the aquatic environment or the public welfare, he [or she] has a duty to withhold approval of the application until he [or she] has undertaken an independent investigation of the matter. Utah Code Ann. § 73-3-8(1)(b)(i). If, based on this investigation, the State Engineer concludes that the applied for use would, in fact, have such a detrimental impact, he [or she] is **required** to reject the application. Utah Code Ann. §§ 73-3-8(1)(b)(i) & (ii).

Finally, sections 73-3-8(1)(a)(i), (iii) and (iv) require that the application be

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[4] Indeed, the Supreme Court made this determination although section 73-3-8(1)(a) states that "it shall be the duty" of the State Engineer to approve an application that meets the five enumerated factors.

[5] The Utah Supreme Court has also confirmed that the State Engineer's consideration of the public interest trumps any determination of whether unappropriated waters are available. *Tanner v. Bacon*, 136 P.2d 957, 962 (Utah 1943) ("[O]ur statutes expressly provide that the State Engineer shall reject applications under specified conditions, in the interest of the public welfare, even though all of the waters of the stream covered by the application have not been appropriated.").

granted only if "there is unappropriated water in the proposed source," the proposal "is physically and economically feasible . . . [and] would not prove detrimental to the public welfare" and "the applicant has the financial ability to complete the proposed works." Again, the applicant has the burden of establishing it meets these requirements.

B. The Public Trust Doctrine

In making determinations regarding water rights applications affecting Great Salt Lake, the State Engineer must abide by the Public Trust Doctrine, which requires the State of Utah to hold sovereign lands in trust for the benefit of the public. For purposes of sovereignty, and in fact, Great Salt Lake is a navigable water. *Utah v. United States*, 403 U.S. 9, 10 (1971). When Utah was admitted to the Union, the state succeeded to the United States' title to the beds of all navigable waters within its boundaries, including Great Salt Lake, under the equal footing doctrine. *Id.* at 9-10; see *United States v. Alaska*, 521 U.S. 1, 5 (1997) ("Ownership of submerged lands – which carries with it the power to control navigation, fishing, and other public uses of water – is an essential attribute of sovereignty.").[6]

These sovereign lands are afforded special status and shielded by the Public Trust Doctrine, which "protects the ecological integrity of public lands and their public recreational uses for the benefit of the public at large." *National Parks and Cons. Ass'n v. Bd. of State Lands*, 869 P.2d 909, 919 (Utah 1993). *See Illinois Cent. R.R. v. Illinois*, 146 U.S. 387, 455-56 (1892) (holding Public Trust Doctrine prevented Illinois legislature from divesting bed of Lake Michigan to private railroad); *see also, e.g., Marks v. Whitney*, 491 P.2d 374 (Cal. 1971); *National Audubon Soc. v. Superior Court*, 658 P.2d 709 (Cal. 1983); *Wade v. Kramer*, 459 N.E.2d 1025 (Ill. 1984); *Save Ourselves, Inc. v. Louisiana Envtl. Control Comm'n*, 452 So.2d 1154 (La. 1984); *Orion Corp. v. Washington*, 747 P.2d 1062 (Wash. 1987); *United States v. State Water Res. Control Bd.*, 182 Cal. App. 3d 82, 227 Cal. Rptr. 161 (1986). Under the Utah Constitution, at statehood the state accepted sovereign lands, including the bed of Great Salt Lake, "to be held in trust for the people . . . for the respective purposes for which they have been or may be granted." Utah Const. art. XX, § 1.

In accordance with the Public Trust Doctrine, the Utah legislature has directed the Division of Forestry, Fire and State Lands, the agency deemed responsible for managing sovereign land values for the benefit of the public, to administer all uses of sovereign lands in a way that "serve[s] the public interest ***and*** **do[es] not interfere with the public trust**." Utah Code Ann. § 65A-10-1 (2008) (emphasis added). Based on these principles, the Division's own rule recognizes "a public trust over and upon the beds" of the state's navigable waters, including Great Salt Lake. Utah Admin. Rule R652-2-200 (1991). The rule further mandates that the Division must manage these "basic resources of the state"

[6] *See also* 43 U.S.C. §§ 1301 *et seq.* (2008) ("Submerged Lands Act"). With passage of the Submerged Lands Act in 1953, Congress "'confirmed' and 'established' states' equal footing rights to and interest in 'lands beneath navigable waters within the boundaries of the respective States.'" *United States v. Alaska*, 521 U.S. at 5-6 (quoting 43 U.S.C. § 1311(a)).

for the "**protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality**." *Id*. (emphasis added).[7]

Therefore, management of Great Salt Lake is decidedly **not** governed by a multiple-use sustained yield principle, Utah Code Ann. § 65A-2-1 (1994), but instead by the noninterference requirement found in Utah Code Ann. § 65A-10-1 (2008). Accordingly, the Division has rejected the notion that the Lake is management pursuant to a multiple-use mandate, acknowledging

> [t]here is no question that the [D]ivision's implementation of the multiple-use sustained yield statue is subject to consistency with public trust obligations. All possible uses under a multiple-use framework are not necessarily protected uses under the Public Trust Doctrine. Any private uses of sovereign lands must yield to the criterion to avoid substantial impairment of protected public uses.

Great Salt Lake Comprehensive Management Plan and Decision Document at ROD, unnumbered 4.[8] Of course this is true – the statutory requirement that the Division administer all uses of sovereign lands in a way that "serve[s] the public interest and **do[es] not interfere with the public trust**," Utah Code Ann. § 65A-10-1 (2008) (emphasis added), necessarily trumps any rule promulgated by the Division.

While the legislature has explicitly directed the Division to carry out the Public Trust Doctrine, the underlying principle applies equally to all agencies of the State whose management activities and decision making impact public trust values – the Utah Constitution requires all agencies of the State to ensure that sovereign lands are held for the people of Utah so that public trust values are conserved and private uses of sovereign lands do not interfere with this conservation. Utah Const. art. XX, § 1.

Finally, the Division has made clear that it relies on the State Engineer to protect public trust resources when considering water rights applications. In response to the concern that the Departments of Water Rights and Water Resources failed to consider impacts to the Lake when considering water right applications, the Division states that in addition to other factors, the State Engineer "must consider" in approving or rejecting an

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[7] Rule 652-2-200 does suggest, somewhat problematically, a weighing of Public Trust values with economic values, such that an economic justification could trump protection of public trust resources. *See* Utah Admin. Code r. 652-2-200 (Public Trust values "balanced against the navigational or economic necessity or justification for, or benefit to be derived from, any proposed use"). However, such a reading of the rule would conflict with the Public Trust Doctrine generally and with § 65A-10-1 specifically. The latter commands that **no** use of sovereign lands may "interfere with the public trust." Utah Code Ann. § 65A-10-1. Under the plain language of the statute, any Rule R652-2-200 balancing must comply with § 65A-10-1 and ultimately ensure non-interference with and protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality.

[8] Available at http://www.ffsl.utah.gov/SovLands/gsl.php ("CMP").

application are "the public welfare, public recreation and the natural stream environment." Great Salt Lake Comprehensive Management Plan and Decision Document at 54. Therefore, the Division assured the commenting public that, in the context of water rights applications that impact Great Salt Lake, the State Engineer would abide by the Public Trust Doctrine and would safeguard sovereign resources held in trust by the State for its citizenry.

V. The Application Should be Rejected.

Already the State Engineer has approved water withdrawals from Great Salt Lake on an enormous scale. In addition, pending water appropriations seek to appropriate huge volumes of water from the Lake. Indeed, Mining Company itself currently has the authority to take 230 cfs, or 156,000 acre feet, from Lake each year. The proposal to draw down the Lake by an additional 353,000 acre feet cannot be sustained. The plan will have significant adverse effects on Public Trust values, the stream environment, and recreation, will be detrimental to the public interest and will seek to divert water from an already fully appropriated waterbody and therefore must be rejected.

Specifically, according to the Division, there are currently 11 perfected water rights to divert water directly from the lake totaling 362,306 acre feet a year. Great Salt Lake Comprehensive Management Plan Resource Document (Resource Document) at 13.[9] This use is consumptive. *Id.* The State Engineer has approved applications to appropriate an additional 444,562 acre feet of water per year from the Lake, also for consumptive use. *Id.* Finally, pending before the State Engineer are applications for 657,565 acre feet, largely if not completely for consumptive use, above and beyond Mining Company's current application for 353,000 acre feet of water. *Id*. Thus, appropriators are now entitled to consume a total of 806,868 acre feet of water from the lake each year – only slightly less than enters the Lake each year from **both** the Jordan and Weber rivers. *Id*. at 10. When the amount of water requested in pending applications is considered, the total water demands on the Lake reaches 1,464,433 acre feet a year – more water than flows from the Bear River into Great Salt Lake each year. In this context, Mining Company requests an additional 353,000 acre feet. This pending application would raise demands on Great Salt Lake water to 1,817,433 acre feet per year – 76% of the water that enters the Lake each year from all sources. If the Mining Company application is approved, appropriators would be entitled to siphon off 1.2 million acre feet of water from the Lake each year.

Despite these demands on Lake waters, the State of Utah has never assessed the impacts of these significant water withdrawals on the Great Salt Lake – its navigation, fish and wildlife habitat, aquatic beauty, public recreation, air quality and water quality. Nor has the State Engineer determined the impact of these withdrawals on the stream environment or the public interest. Until meaningful review is made of the cumulative impacts of not only Mining Company's water withdrawals from in and around Great Salt Lake, but also all approved and pending applications for water, no new appropriations should be approved. Based on the current record, there is every reason to believe the

[9] Available at http://www.ffsl.utah.gov/SovLands/gsl.php ("Resource Guide")

proposed changes in water use will be contrary to the public interest and will significantly and adversely impact the Great Salt Lake ecosystem and recreational values, and otherwise adversely affect the public welfare.

This protest will address the adverse impacts that the additional water appropriations of the applied-for magnitude will have on the Great Salt Lake relevant to the stream environment, public recreation, and the public welfare.

Impacts to the Stream Environment

According to the Division, studies that attempt to define the impacts of human activity on Lake levels suggest that "with 100,000 acre feet of annual depletion in the basin, the average level of the lake would be approximately one foot lower." Resource Document at 8. Importantly, the "effect of this depletion on the lake elevation is greatest at low lake levels." *Id*. The Division also suggests that the impacts of this type of diversion would be decreased if some of the diverted water were returned to the Lake. *Id.* Mining Company's present application calls for the consumptive use of 353,000 acre feet of water that will not be returned to the lake. Assuming that the Resource Document is correct, the impact to the Lake from this application alone could result in a 3.5 foot elevation drop in the average level of the lake.[10] Moreover, this impact on Lake levels will likely effect the North Arm more significantly that the rest of the Lake, particularly at lower Lake levels, thereby multiplying adverse consequences on the Public Trust and other resource values in that area of the Lake.

Finally, of the 806,868 acre feet of water that can already be appropriated from Great Salt Lake, only 95,000 to 180,000 acre feet are currently being withdrawn. Resource Document at 13. This means that under existing water rights, 627,000 to 712,000 **additional** acre feet of water can be withdrawn from the Lake – on top of what is typically being diverted. *Id.* Therefore, current lake levels are already subject to significant drops **before** the consequences of the proposed 353,000 appropriation are felt.

Thus, all indications are that the proposed water diversion will have significant adverse effects on Lake levels, and therefore on Public Trust values, as well as the stream environment and the public interest. At the very least, given the enormity of Mining Company's proposed consumptive use of Lake water, a much more thorough evaluation is needed of the whole range of possible impacts on the North Arm and other parts of the

[10] The Resource Document analysis is based on a 100,000 acre foot depletion from the Great Salt Lake Basin – not necessarily from the Lake itself. However, there is nothing about the analysis that would suggest that the effects would be any different given a withdrawal directly from the Lake. It is also true that because the evaporation reservoirs occupy the shore of Great Salt Lake, the impacts on lake level of a 100,000 acre foot deplete may not be as significant. However, there is no question that proposed depletion will lower lake levels.

Lake under a full range of potential Lake levels over the lengthy proposed project period of 50 years.[11]

Impacts to Wildlife and Wildlife Management Areas on the Lake

The Great Salt Lake Ecosystems "have been recognized nationally, hemispherically and globally for their importance as a vital line in a migration corridor for waterbirds…" and have "…also been designated as a Hemispheric Reserve of the Western Hemispheric Shorebird Reserve Network (WHSRN) and are being considered for nomination by the Ramsar Convention on Wetlands of International Significance for Listing." Resource Document at 60. The proposed appropriation promises to have unreasonable adverse impacts on wildlife and the associated recreational opportunities, particularly when considered cumulatively with other water demands on the Lake. At the very least, impact to wildlife areas and wetlands should be considered in terms of the impact from the water diversion itself as well as the total proposed project associated with the requested water diversion, which includes the construction of dikes on an additional 8,000 acres of shoreline in the Bear River Bay, and approximately 83,000 acres of land in Gunnison Bay, most of which will impact shoreline. A discussion of the impacts to the wildlife areas as a result of the expansion follows.

- ***Bear River Bay***

The Mining Company application to appropriate includes a proposal to withdraw 16,640 acre feet directly from Bear River Bay – the most important and most threatened area of the Lake for wildlife. Moreover, according to the Division, the impact of the entire Mining Company proposal, as well as other approved water rights, will be felt in this internationally significant ecosystem. As noted above, the Division of Wildlife Resources (DWR) considers the areas of Bear River Bay subject to application as having "tremendous value to wildlife, specifically birds." Exhibit 4. With regard to some of the particular parcels slated for diking as evaporation ponds, the agency states:

> DWR also identified lands of important wildlife value in Sections 16, 17 and 18, Township 7 North, Range 4 West. These lands were not included in the lease exchange but are valued by DWR for periods when lake level falls below 4200' in Bear River Bay.[12] DWR is particularly interested in lands which are north and

[11] For example, the Division states that "when the lake level drops, the surface area diminishes and the salinity increases." *Id.* Assuming that the Lake level drops with a diversion of this magnitude, the already high saline level in the North Arm will become increasingly saline, and areas of sediment that would otherwise be covered in water will be converted into exposed mudflat surfaces, and would very likely impact the fragile ecosystems found throughout the Lake. The State Engineer must also consider the hydrological impact on the wetlands surrounding the Lake prior to approving this application.

[12] As of July 2, 2009 the lake elevation was 4194.7 feet, according to the United States Geological Survey's gauge located near Saline, Utah. The level has been below 4198 feet for at least the last three years.

> northwest of the existing dikes of IMC Kalium because of bulrush colonies in this area that are important to colony nesting birds and as forage for birds. Also, at lower lake levels, this is the low point of the channel and is important as an area where the water creates a natural "lake" within the bay.

Id. at 3. Plainly, DWR anticipates that changes to the water quality, hydrology and other ecosystem values of Great Salt Lake will have adverse impacts on the stream environment, the public interest, recreation and the use of huge amounts of water from Bear River Bay will threaten Public Trust values. Indeed, these statements show that the proposed application will interfere with and significantly impair the Public Trust.

Other statements echo that Bear River Bay is of critical importance to waterbirds. As the Department of Natural Resources has confirmed:

> Bear River Bay is the freshest region and receives the largest volume of riverine inflow. Its near-surface salinity is similar to that of the Bear River. This system is bounded on the north and east by state, federal, and private wetlands; on the south by industry; and to the west by the Promontory Mountains. This bay is fresh enough to support a community of submergent hydrophytes including sago pondweed (Potamogeton pectinatus) and widgeon grass (Ruppia maritima). There are significant islands of emergent wetlands here, especially in the east part of the bay in the Willard Spur. . . . An ecological element of vital importance to pisciverus birds in this area is the fishery that persists when the lake elevation is higher than 4,200 feet (1,280.2 m) above sea level. The avian community at Willard Spur is exceptionally complex. With its species richness, diversity and overall abundance, this area continually provides one of the most magnificent displays of bird life on the lake. Although the smallest region on the lake, it makes an exceptional contribution to the lake's avian population.[13]

Because of the importance of this water body to wildlife habitat, particularly close examination of the impacts of the proposed expansion on ecosystem values must be undertaken.

The Great Salt Lake Waterbird Survey, conducted from 1997 to 2001, confirms the conclusions reached by the Division of Wildlife Resources. This survey was undertaken in 12 different areas of the total Bear River Bay complex, including the Bear River National Wildlife Refuge, Public Shooting Grounds, and Bear River Club. The surveys occurred numerous times from early spring through fall during these five years. The survey underscores the importance of Bear River Bay to waterbirds.

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[13] *Avian Ecology of Great Salt Lake*, by Tom Aldrich and Don Paul from Great Salt Lake: An Overview of Change, edited by J. Wallace Gwynn, Ph.D., Special Publication of the Utah Department of Natural Resources, 2002.

As noted above, Bear River Bay is of critical importance to Canada geese, huge numbers of which use the area of molting. DWR has conducted aerial surveys of Canada Geese in June in the open water of Bear River Bay since 1972. The highest count was 11,893 in 1998. The impacts to these molting geese due to an expansion of the mineral ponds in Bear River Bay are not known. Of concern are the reduction in habitat and the potential decrease in available wet areas, particularly in lower water years. This reduction in habitat could result from water quality impacts due to increased evaporation and reduced circulation as anticipated by the application.

In addition, as DWR made plain, this area is important at low water levels because it creates a natural lake within the bay. IMC Kalium/DWR Memo, August 28, 1998 at 3. The effects of the proposed water appropriation on water quality, together with the effects of current development, will be significant. Specifically, circulation of fresh water, so critical to the Great Salt Lake ecosystem, will be impeded, especially during low water years. Since the open water of Willard Spur is an extremely valuable area for water birds the potential adverse impacts are certain and must be fully explored, based on flow patterns during low as well as high water years.

- ***Gunnison Island***

The Division also recognizes the importance of Gunnison Island as one of the largest nesting colonies of White Pelicans in North America. Resource Guide at 70; Utah Code Ann. § 23-21a-2. The Pelicans choose this site because it is remote and provides security from predators and a nearby source of food at Bear River Bay. Resource Document at 70. California Gulls are also known to nest on "islands in the lake and on dikes or causeways that transect the lake." *Id*. The Lake elevation drop resulting from the diversion of an additional 353,000 acre-feet of water from the North Arm will expose dry passageways. This would be an alteration of the natural stream environment because the islands would not longer be islands. In addition, pelicans and gulls would likely be forced from their breeding areas, irrevocably losing the isolation and security offered by Gunnison Island.

- ***Locomotive Springs Waterfowl Management Area***

Additionally, further water withdrawal from the North Arm promises to have significant adverse impact on the Locomotive Springs Waterfowl Management Area located on the north side of the Great Salt Lake, as well as other freshwater springs along the shores of Gunnison Bay and elsewhere. According to the Division, this waterfowl management area, used by local waterfowl hunters, campers, fishermen and bird watchers, is a spring-supported area that provides an oasis for wildlife. Resource Document at 83-84. The habitat types in this area are open water, mudflats, marsh and uplands. *Id*. Although the Division identifies the flow from the springs as the most crucial issue facing the Management area, the removal of an additional 353,000 acre-feet of water from the North Arm will likely upset the balance of habitat in this area by reducing the amount of water that reaches the shoreline in the area resulting in an expansion of mud flats. The conversion of once brackish-water habitat, which fosters diverse groups of plants, invertebrates and bountiful feeding grounds, to an ecosystem sparsely populated with

saline-tolerant plant varieties suggests a significant and adverse impact. *See* Resource Document at 83.

Water use of this magnitude, along with the proposed change in points of diversion and points of discharge will likely adversely impact wildlife and habitat. Any impact to wildlife habitat caused by water use is likely to be exacerbated by low water levels. Moreover, to the extent water loss, changes in hydrology and adverse effects on water quality will adversely affect water birds and wildlife, as well as scenic values, the public recreation that depends upon these values will be adversely impacted.

- ***Other Potential Impacts to Wildlife***

In addition to the habitat loss that will result from the increased drawdown of the Lake, the noise generated during the construction and operation of the new facilities, particularly on the north side of the Lake will almost certainly be unreasonable. Of specific concern is the impact on the Gunnison Island rookery from noise associated with large construction equipment and continuous pump operation. Additionally, the dikes that are proposed in association with the application will reduce the amount of natural habitat available for wildlife, which will cause more birds to be concentrated in less acreage, and the competition for the remaining food and habitat will increase.

Impacts to Water Quality

The proposed appropriation will adversely impact water quality. The drawdown will concentrate pollutants, result in significant discharges and interfere with the natural ebb and flow of the Lake, as well as the mixing of the Lake's waters. In addition to appropriating water, the proposed application necessitates the construction of 91,000 acres of dikes. The construction and operation of these facilities will adversely affect water quality. Pumps, underwater canals, water intake points and discharge points will also impact water quality. The effects of the planned appropriation, together with the effects of current development, are unreasonable, and at a minimum, must be investigated.

Mineral salts extraction changes the chemistry of the waters of Great Salt Lake, at the very least, on a local level. These changes – including the effects of withdrawals of relatively fresh water, the discharge of millions of tons of salts, as well as the increased concentrations of some minerals and decreased concentrations of others – and the impacts these changes may have on the biota of the lake, must be analyzed. In addition, more salts are extracted from the lake every year than are added by river inflows; therefore, the long-term extraction of minerals – which is likely to change the chemistry and ultimately the character of the lake – should be evaluated.

The expansion proposal will also greatly increase the ongoing shift of minerals between Gunnison Bay and Bear River Bay. A full understanding of these possible shifts in minerals and their almost certain adverse impacts to the various bays should be developed, including an examination of whether the withdrawal and consumption of water will concentrate mercury or selenium in the receiving waters and in the waters from which the minerals and water are being removed.

Reductions from climate change, drought and low water will further exacerbate the water quality impacts of the appropriation. In addition, as the population of the Wasatch Front increases, there will be more demand for fresh water, likely resulting in less water reaching Great Salt Lake.

Impacts to Air Quality

The air quality around the proposed project areas will likely be adversely impacted with the approval of the application. In order to beneficially use the water that is being requested, Mining Company proposes to construct 91,000 acres of evaporation ponds. During the construction, large volumes of sediment will be moved around the shore of the lake with significant impacts on air quality, including areas that are not currently in compliance with the National Ambient Air Quality Standards (NAAQS) for fine particulate matter and ground level ozone.

Additionally, the proposed expansion includes the construction of a pump house. The pump house will be equipped with turbine engines that will facilitate the movement of the water from the lake to the evaporation ponds. The engines will presumably result in further degradation of air quality due to fuel combustion.

Dust from the exposed lakebed could have negative health impacts to humans and wildlife. The Utah Division of Air Quality conducted a 2 year study in 2005 and 2006 of wind-blown dust particles from the exposed Great Salt Lake shoreline. After six consecutive years of drought left nearly 70,000 acres of exposed shoreline, Dr. Dianne Nielson, Executive Director of UDEQ, stated "there is a lot of chemistry in the lake that we don't have a good handle on."[14]

In a 2008 article in High Country News about the Salton Sea, impacts to humans, wildlife, and agriculture were considered if the Salton Sea is allowed to dry up without treatment.[15] In addition to the significant loss of wetlands along the Pacific Flyway used by millions of birds, a study conducted by the Pacific Institute concluded that if the Sea were allowed to dry without treatment, it would generate 17 tons of unhealthy dust a day and that winds pebbled with salty sand would sicken asthmatics, children and the elderly.

A further study of like conditions noted that increased exposure of the lakebed of the Aral Sea, due to depletion of its tributaries, has caused major dust

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[14] Utah Division of Environmental Quality, Air Study Give Insight of Dust from Great Salt Lake, DEQ Newsletter (May 2006), available at: http://www.deq.utah.gov/Newsletter/2006/May/AirStudy.htm (please note: if the reader experiences difficulty obtaining this document, FRIENDS will provide either a hard or an electronic copy of this article).

[15] See *Terry Greene Sterling,* The People of the Sea: California's Salton Sea could dry up and die, or be fixed and developed. Either way, its renegades, recluses, ruffians and retirees will lose*, HIGH COUNTRY NEWS, March 3, 2008.* Exhibit 5, attached.

events that have had a significant, negative impact on agriculture, domestic animals and humans.[16] Given these studies and the acknowledgement that the dust from the lakebed contains a toxic mix of pollutants, it is imperative that an analysis be performed on the effects of a further, artificial drawdown of the lake level in the North Arm. This is especially important given the fact that Weber County as a non-compliance area for air quality.

Finally, USGS studies have shown high levels of contaminants in the sediment of the lake. See Reconstructing Historical Changes in the Environmental Health of Watershed by Using Sediment Cores from Lakes and Reservoirs in Salt Lake Valley, Utah (December 2000). As water levels are reduced and lake bed exposed and dried, contaminants that were once contained under water will become airborne and adversely impact the air quality.

Impacts to Public Recreation, Navigation, and Public Access

In addition to the direct and indirect impacts to the natural stream environment and local ecosystems, the removal of 353,000 acre-feet of water will have a substantial impact on public recreation. The Great Salt Lake, its shorelines, and larger islands provide local and out-of-town visitors with waterfowl hunting, fishing, camping, boating, hiking, horseback riding, mountain biking and wildlife viewing opportunities year-round. Lower Lake levels, increased diking and industrialization will further impede navigation and access from one part of the lake to the other – access which is already significantly impaired by existing development and water withdrawals. The overall decrease in Lake elevation may also render the existing marinas and boat ramps useless, causing a substantial decrease in recreational boating opportunities.

Impacts to navigation and public access will be exacerbated by low water as lake volume decreases and the shoreline shrinks. Water depletion, as well as the industrialization and destruction of the Great Salt Lake Ecosystem will further concentrate usage in non-developed areas, further impacting wildlife habitat in these areas, as reducing associated recreational opportunities. Water depletion and the facilities proposed to use this water will modify the natural setting, converting it into a non-usable, industrial zone. Thus, the impact of the proposed expansion on the aquatic beauty of Great Salt Lake is extensive, and the impacts on public recreation from this destruction will be significant.

Cumulative Impacts

The impact of this application and the appropriation of an additional 353,000 acre feet of water from the Great Salt Lake to evaporation ponds cannot be considered as if it existed in a vacuum; rather the impact of the application and additional development must be considered as a part of a greater whole. As established above, existing approved and pending water rights applications already promise to compromise the Lake's Public Trust

[16] *See* Philip Micklin, The Aral Sea Disaster, Annual Review of Earth Planet Science 35:47-72 (2007) (finding that the population downwind from dust/salt storms of the dry lakebed have been negatively impacted). Exhibit 6, attached.

values, as well as the stream environment and the public interest. At a minimum, the cumulative impacts of the application on wildlife, habitat, water quality, air quality recreation and public access should be considered together with the effects of approved water uses, pending water rights applications, the planned development, proposed actions as well as the existing industrial and commercial uses of the lake.

VI. The Application Does Not Meet Various Section 73-3-8(1)(a) Factors.

As indicated above, section 73-3-8(1)(a)(i), (ii), (iii), (iv), and (v) require that the application be granted only if "there is unappropriated water in the proposed source," the proposal "is physically and economically feasible . . . [and] would not prove detrimental to the public welfare" and "the applicant has the financial ability to complete the proposed works." Again, the applicant has the burden of establishing it meets these requirements.

Mining Company has in no way met its obligations under this section. Initially, Great Salt Lake is fully appropriated as indicated by the significant existing demands on the water in the Lake, as well as by further pending applications to appropriate. This, when combined with the significant existing and planned industrial development of Great Salt Lake and occupation of its shores and habitat confirm that no addition water may be withdrawn from the Lake.

Similarly, the application does not provide any information about the financial capability of the company to carry out the proposed project and should be rejected on that basis. The applicant has also failed to show that the proposed use of the water is physically or economically feasible or that it will not prove detrimental to the public welfare.

Finally, Mining Company is currently entitled to 156,000 acre-feet of water per year appropriated for use in their industrial process, and is using about half of that. If they are not using all of their allocated rights, it would appear that the Mineral Company is speculating about their additional water needs without fully utilizing those that it has available.

VII. Hearing

FRIENDS requests a hearing on the Great Salt Lake Minerals Application. Due to the enormity of the proposed application and the complexity of the decision before the State Engineer, FRIENDS respectfully requests at least 30 day notice prior to that hearing. At the same time, FRIENDS asks that the hearing be held in Salt Lake City, where relevant documents, agencies personnel and experts are located.

VIII. Relief Requested

Wherefore, FRIENDS respectfully requests that the State Engineer reject the Mining Company Application. Mining Company has failed to meet its burden of convincing the State Engineer that its application is appropriate. In any case, the likely adverse impacts

of the appropriation require additional analysis before such an application can be considered.

Respectfully submitted July 8, 2009,

/s/

JORO WALKER
Attorney for Protestants

Certificate of Service

On July 8, 2009 I served this Protest on:

Kent Jones
State Engineer
PO Box 146300
Salt Lake City, Utah 84114-6300

Via Hand Delivery

and

Great Salt Lake Minerals Corporation
765 North 10500 West
Ogden UT 84404

Via US Mail

/s/
JORO WALKER