Letter No. 03-75

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11/21/2003

Utah Department of Environmental Quality
NRD Trustee Dianne Nielson, PhD.
168 North 1950 West
P. O. Box 144810
Salt Lake City, Utah 84114

Dear Trustee Dianne Nielson, PhD.

Thanks for the opportunity to submit comments on the Southwest Jordan Valley Water Project Proposed by Kennecott Copper Corp. and Jordan Valley Water Conservancy District.

We the people and organizations on this letter request and ask that the proposal be rejected for the following reasons and all of the reasons stated in the public record of the hearings held on September 25, 2003 and On September 30, 2003 and October 22, 2003 and ask the comments stated in the public record be attached and incorporated and made part of the record against approving the proposal offered by Kennecott and Jordan Valley Water Conservancy District.

75-1 If the Trustee decides to approve in part or the entire Joint proposal by Kennecott and JVWD. That it be amended to protect the water rights of people in the effected area and that Kennecott and JVWD be required as one of the conditions of approval to pay damage claims or replace the water effected by there mining and leaching operations and lowering of the water tables due to the pump and dump proposal submitted to the trustee. This must one of the conditions of approval or the proposal must be rejected and new proposals considered that correct these inequities in the current proposal. It is my understanding a new proposal has been submitted to the state as of this date and it must be considered before any decision can be made.

75-2 It is the opinion of the undersigned that the Joint proposal doesn't meet the consent decree as it gets no water back to the area affected in the southwest part of Salt Lake County to Public Water Companies that have been affected by the Mining and leaching operations. The Proposed plan and will lower the water tables in that same area already effected by past and on going pollution caused by leaching and mining operations. There has been little or no effort to correct the pollution problems caused by Kennecott leaching and mining operations.

75-3 The Joint Proposal of KCC and JVWD should be rejected until amended and corrected as has been brought to the attention of the Trustee in the public comments. They should not be ignored and at the expense of the public and the water rights holders and public water companies that have been damaged and will be for the next 50 to 500 years.

This proposal is not a model of a pollution clean up for the State of Utah and must be changed and more or work done to correct the problems at the expense of the Company (Kennecott) that caused the pollution by its mining and leaching operations with knowledge of what they were doing.

The comments are from the following people and Water Rights holders and water company s in the Harriman Area.

1. J. Rodney Dannie. Water Rights Holder, Manager of Dannie Water Co and A Public Drinking water Supply Co and as share holder in Harriman Irrigation Co and Harriman Pipe Co Share holder and Share holder in Harriman City Water Co. Also as a director in Harriman Irrigation Co.

Response to Letter No. 03-75

75-1: See the Response to Common Comment No. 10

For Kennecott to receive the maximum amount of reduction under the Letter of Credit it requires that municipal quality water come from the treatment of contaminated water and be delivered via a purveyor to benefit the Affected Area. Both Kennecott and the District worked with the Utah Division of Water Rights to reassign water rights both entities have owned historically and used in the past for the development of either production water or drinking water (respectively). Except for the District's shallow ground water development project, no new well applications were filed to facilitate the proposed extraction activities. Only change applications (for existing water rights) were necessary to provide the amount of water from the two contaminated zones, necessary to meet the requirements of the Consent Decree.

75-2: See the Response to Common Comment No. 10.

The Affected Area is defined in the Consent Decree. The Joint Proposal is designed to provide treated water to the Affected Area. Kennecott has expended over $300 million to begin cleaning up groundwater contamination and to eliminate sources to groundwater contamination. Kennecott with oversight from EPA and the State of Utah has done a significant amount of work to address contamination from leaching and mining operations.

75-3: See the Introduction and the Response to Common Comment No. 10.

Letter No. 03-75 (cont.)

2. Richard P. Dannie Water Rights Holder , well owner, Share Holder in Harriman Pipeline Co and Harriman Irrigation Company and Harriman City Water Co.
3. Boyd Dannie Water Rights Holder and well owner and share holder in the others water Companies listed above and as a tax payer of the state of Utah
4. Joyce Taylor as well owner and share holder in the above water companies
5. Bonnie Parking as a well owner and share holder in the above water companies.

Signed by J. Rodney Dansie / as representative of the above organizations and individuals and water rights and as tax payers of the state of Utah and United States Government.

J. Rodney Dansie / For all listed Above

The following are additional comments regarding the proposed Joint pump and dump program of KCC and JVWD.

75-4 1. If Kennecott and Jordan Valley Water sell 7000 acre feet of water each year for a net amount of $300 / acre feet the Public will contribute approximately $2,100,000 per year times 40 years or $84 Million to clean up Kennecott pollution under the pump and dump plan which amounts to paying Kennecott for 50 plus years of pollution in to the ground water while making a large profit for 50 years of leaching and pollution the ground water. This should not be allowed.

The water in mine area prior to mining operations was clean and could be pumped from wells and used for drinking with out treatment and the cost would be $50 to $75 dollars per acre foot, not the $390. Which it will cost and be paid for by rate payer of Jordan Valley Water Conservancy to remove the pollution cause Kennecott. This should not be allowed to happen.

2. The Ground Water Contamination plums that have called Zone A and Zone B and the effected

Areas are no properly defined and the Herriman Area has been affected and is not included in the maps and show as areas that need to be cleaned up and water put back to the effected areas. The effected area should include Herriman area and area east of the mine and west of Herriman City. This area has been affected and no water is sent back to the area. Public Drinking water companies are in this area and no effort has been made to get water back to these areas and clean up the effected waters sources. Based on this data the Pump and Dump plan doesn't meet the consent decree and no water is replaced to this area affected by Kennecott Leaching operations and dumping of acid.

75-5 3.;Kennecott Copper Should be paying the full cost of there illegal pollution of ground water in the South West part of Salt Lake County and the Joint proposal is shifting the cost to water users and Taxpayers. This should not be allowed to happen by the Trustee/

75-6 5. Jordan Valley Water Conservancy was paid millions of dollars and given water rights from Utah lake and other water rights by Kennecott for there water rights that were damaged and now Jordan Valley Water Conservancy wants to rip off the tax payers and rate payers to help Kennecott clean up there pollution at the expense of rate payers. It is here by requested that Jordan Valley Water Conservancy be required to provide records of all costs associated with the clean up and a legislative audit conducted to determine where the dollars are coming from and who is paying what.

Response to Letter No. 03-75 (cont.)

75-4: See the Response to Common Comment No. 12.

75-5: See the Response to Common Comment No. 12.

75-6: See the Response to Common Comment No. 12.

Letter No. 03-75 (cont.)

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75-6

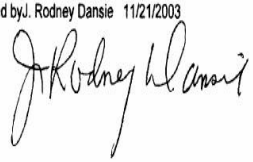
This has not been provide to the public and water rates are being increased each year more than necessary if Kennecott were paying for there pollution.

75-7

6. Jordan Valley Water Dist has been described as a giant organization with no accountability to the Rate payers or to the Utah State Government or anyone else and has unlimited power to raise rates and taxes for there unaccountable operations and increase rates as they please. Where is the accountability and who has control over that organization (No one).

There are may reasons why the proposal should be rejected that are already in the public record by may people and they should all be considered and the proposal be rejected and changed to correct the errors and problems not resolved by the current proposal

Submitted byJ. Rodney Dansie 11/21/2003



Response to Letter No. 03-75 (cont.)

75-7: A board of eight trustees appointed by the Governor to serve four-year terms governs and oversees the JVWCD.

Letter No. 03-76

FRIENDS *of Great Salt Lake*
P.O. Box 2655 • Salt Lake City, UT 84110-2655 • (801) 583-5593 • Fax (801) 581-9003
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November 21, 2003

Dr. Dianne Nielson, Executive Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

Re: Comments on the Proposed Natural Resource Damage (NRD) Claim Settlement for Kennecott Ground Water Contamination

Dear Dr. Nielson:

Thank you for this opportunity to comment on the proposed NRD Claim Settlement Plan. FRIENDS of Great Salt Lake is a nonprofit organization whose mission is to preserve and protect the Great Salt Lake Ecosystem through education, research, and advocacy.

We wish to make the following comments.

The Role of the Trustee

We believe that the role of the Trustee is to act in the interest of the Public Trust Doctrine on behalf of and in protection of its natural resources. These resources include Great Salt Lake and its related wetlands. Consistent with this belief, our analysis is that the Trustee must not harm the resources at issue beyond the requirements of the CERCLA statute.

76-1

We realize that the Trustee's decision on this settlement plan will be precedent setting for both law and policy. To wit, there should be a limit on the Trustee's ability to restore or replace a damaged resource if the replacement causes new environmental harm. By its very nature, the existing Settlement Plan will have some degree of environmental harm. However, it is both the power and the responsibility of the Trustee to minimize that harm in the context of a permissible use of NRD Settlement monies.

It is feasible to think that other alternative technologies exist that do not require a UPDES permit for discharging contaminants from Zone B. In the context of the current proposed plan, we consider the UPDES permit that Jordan Valley Water Conservancy District (JVWCD) has requested from the Division of Water Quality (DWQ) to produce municipal quality drinking water for the Affected Area as a part of the entire clean-up

Response to Letter No. 03-76

76-1: See the Response to Common Comment No. 6, No. 9, and No. 13.

Letter No. 03-76 (cont.)

76-1 project. The Trustee must analyze this permit in conjunction with the other elements of the clean-up. Any analysis of cumulative effects of the proposed Settlement Plan must include the discharge permit.

The Proposed NRD Claim Settlement Plan

76-2 The proposed NRD Claim Settlement Plan is extremely technical and complex. The long term implications of this plan on the ecological environment of the Great Salt Lake Ecosystem and the health and welfare of citizens living along the Wasatch Front are staggering. We believe the public has not had sufficient time to understand the plan's full complexity. Nor do we think that extensions to the public commenting period have been sufficient to the overall scale of the proposal.

76-3 Additionally, FRIENDS requested and has still not received information about the alternatives for discharging contaminants from Zone B and contaminants from the shallow aquifer wells that are part of the Lost Use component. We understand that other alternatives exist but were rejected because of cost. Who rejected these alternatives as too costly and why? A thorough examination of alternatives to discharging contaminants into the Jordan River must be explored with the public so that we can better understand why those alternatives are no longer being considered.

76-1 We therefore suggest that the Trustee deny the existing settlement proposal and propose a moratorium for at least one year to fully address the publics' concerns and questions, and to explore alternatives to discharging contaminants into the Jordan River, and encouraging more water quality data to be collected in the Jordan River, the wetlands of Great Salt Lake and the lake itself. And at the very least, the Trustee should require an Environmental Assessment of the proposed settlement to thoroughly consider what the potential impacts of this plan could be. This would empower the Trustee with additional information to make a more informed decision.

ZONE A and ZONE B

What, if any, is the anticipated increase in metals concentrations from the impoundment (the permitted discharge) as a result of acid plume and sulfate brine discharges to the tailings line?

76-4 What changes were made to KUC's UPDES permit when it was modified a couple of years ago? Were any of the above metals limits modified?

UPDES permit compliance monitoring from the impoundment should be frequent to determine any trends in discharge of excessive levels of metals. Depending on the hydraulic regime of the impoundment, 24-hour composite samples may be more valuable than grab samples. Please discuss. Because this is a CERCLA site, it seems prudent to require more rigorous monitoring of discharges.

Response to Letter No. 03-76 (cont.)

76-2: See the Response to Common Comment No. 1.

76-3: See the Response to Common Comment No. 1, No. 4, No. 5, No. 6, No. 7, and No. 9.

76-4: Many of the foregoing comments address the acid plume. Management of the acid plume is part of the CERCLA remedial response (See the Response to Common Comment No. 5). The Joint Proposal integrates the CERCLA remedial response for the acid plume with the actions required to satisfy the NRD Consent Decree. The Trustee's review of the Joint Proposal is to assure that it satisfies the requirements of the Consent Decree. The RI, FS, Final Remedial Design and Record of Decision contain much of the information sought by the comment.

Manganese removal, whether in the tailings line or with lime addition, is inefficient at the proposed operational pH of 6.7. Levels of manganese discharged in overflow water may be as much as three orders of magnitude higher than the secondary MCL. Effects of manganese on aquatic life are not well-documented. However, in British Columbia for example, ambient water quality guidelines for manganese are established to protect aquatic life. Uncontrolled discharge of manganese is not a good idea.

Is there a mechanism in the UPDES permitting system that can require monitoring for reporting purposes only (not necessarily for enforcement)? If so, by making sure the permit includes:

76-4

+ TCLP metals (which determine if a waste is characteristically toxic) As, Ba, Cd, Cr, Pb, Hg, Se, Ag, and
+ metals which were determined to be "chemicals of concern" in the remedial investigation (Al, As, Cd, Cr, Cu, Fe, Mn, Pb, Ni, Zn), and
+ metals for which treatment processes may be inadequate or inconsistent (manganese and aluminum*, for instance)

a formal mechanism would be in place for regular external review. Not all of these metals are currently listed on the permit.

*Depending on whether tailings or lime is used, aluminum in the overflow may increase fivefold.

Numerous studies point to "high toxic risk" selenium concentrations in the range of 0.002 to 0.005 mg/l for aquatic and bird life. Given the current UPDES permit limits and test results shown in Appendix C, Attachment 3, it is possible that several hundred pounds of selenium per year can be discharged to the lake. Without very efficient mixing, isn't it possible that "high toxic concentrations" could build up within ten years?

a) In what way was the UPDES permitted value of selenium (0.054 mg/l) determined? Were MCLs taken into account? Were concentrations toxic to aquatic life and birds taken into account? Did the allowable selenium level on the permit change when the permit was modified a year or two ago?

b) Describe the recent history (pre-acid plume pumping) of KUC's selenium discharge concentrations for comparison to these new conditions.

c) What is the anticipated "downstream" concentration of selenium at or near the discharge point?

Letter No. 03-76 (cont.)

d) What are the results of Kennecott's prior research on toxic concentrations of selenium to biota? Does the new acid plume overflow cause effluent conditions that exceed those concentrations?

Cadmium levels in the acid plume border on being characteristically hazardous, based on the "average chemistry" of the APW water in the Final Design's Appendix A. Cadmium concentrations in the overflow and in the tailings or lime sludge are not consistently provided in the documents. Is there some ongoing method that will be used to determine whether hazardous sludge is being created, and thus should legally be disposed of elsewhere?

To what does "90% availability" refer in the Final Design documents?

Although NNP and NPR will be measured in the tailings and at the North Splitter Box, isn't there still a possibility that localized areas of the impoundment could experience remobilization of metals or decreases in pH? What would cause this? What long-term monitoring strategy will be used to check localized areas of the impoundment to see if this has occurred? Or is discharge monitoring the only strategy? What remedy would be feasible in a localized area to neutralize acidity if this occurred?

76-4

What is the basis for choosing the acceptable range of NNP and NPR values shown in paragraph. 1.3.2.c. on page 7 of Appendix C in the Final Design? These deviate from the optimal values described earlier in that discussion.

Please discuss the anticipated affect of an earthquake on the tailings impoundment and its ability to retain metals-bearing sludge. Isn't there a better place for this material than close to the lake's edge?

Were any studies conducted on treatment of Zone A sulfate plume RO concentrate in the tailings line? Only a limited amount of data on this brine is available, with no indication of number of samples.

Why was "containment of the acid plume in place" using hydrologic control (i.e., injection wells) ruled out in the feasibility study? It seems Kennecott has ample water rights that may be translated into injectable water, and leaving this acidic stew in the ground might be an improvement to the present design. Would hydrologic containment have met the EPA/State objectives and goals?

Why wasn't technology evaluated during the RI/FS that treated this acid plume as a resource that could be "mined"? If prior evaluations were done, what did they show in terms of treatment effectiveness and recovery of metals?

Response to Letter No. 03-76 (cont.)

Letter No. 03-76 (cont.)

Jordan Valley Water Conservancy District (JVWCD) UPDES Permit

Although the DWQ believes that the UPDES permit that was issued to JVWCD in August 2003 meets all legal requirements set forth by the State, FRIENDS filed a legal request on September 17, 2003, to withdraw the permit. Among our concerns was the lack of baseline data for selenium (Se) and total dissolved solids (TDS) in the Great Salt Lake wetlands. Also the permit was issued prior to the public having a comprehensive understanding of the proposed settlement plan and the part this permit plays in it.

We know, as recently stated by Don Ostler, Director of DWQ, that the permit limits are being reconsidered and water quality samples in the wetlands are currently being collected. Although it's commendable that DWQ is currently gathering more water quality data, the present data is woefully deficient. Not only that but, no macroinvertebrate or sediment samples are being collected. In our analysis, it cannot provide the overall water quality picture necessary for DWQ to fully understand what additional impacts increasing Se and TDS concentrations would mean. We also understand that this newly collected data will be used to help define the revised permit limits for a new UPDES permit. This is a permit that the public will have a new opportunity to comment on.

76-5

Unfortunately, DWQ is missing the point. The point is, before issuing any permit, new or revised, DWQ must publicly acknowledge that long term discharges of Se and TDS in the wetlands of Great Salt Lake could translate into tremendous impacts to the biota of the system. By making a discharge permit decision with practically no data, they are apparently willing to risk significant potential long term harm to the Great Salt Lake wetlands.

In an attempt to allay the publics' concerns about this strategy, DWQ promises a rigorous long term monitoring program. They would use this, if necessary, as a basis for future discharge permit revisions for JVWCD. FRIENDS considers this putting the cart before the horse.

Dr. Bill Adams, Senior Environmental Biologist for Rio Tinto, suggests that monitoring for at least 4 to 5 years would provide a more accurate snapshot of the presence of Se in the Great Salt Lake wetlands. He suggested that macroinvertebrates with long life spans would be the most reliable targets for sampling, especially since birds feed on them.

76-6

A cooperative and concerted effort for water quality monitoring, using standardized testing, standardized organisms, and standardized analysis would be a minimum requirement to successfully determine the presence of Se in the wetlands. Analysis of the data through a reporting system and made readily available to the public would help increase a general understanding about the state of the Great Salt Lake wetlands. And that is a very good thing.

Response to Letter No. 03-76 (cont.)

76-5: See the Response to Common Comment No. 1 and No. 6.

76-6: See the Response to Common Comment No. 6 and No. 9.

It is recognized that future population growth and potential sewage effluent reuse are dynamic issues that may cause changes in the Jordan River and GSL in the future. For that reason, any UPDES permit has a term of only five years, to provide for review of changing conditions and re-evaluation of the permit.

Letter No. 03-76 (cont.)

According to the Great Salt Lake Draft Comprehensive Management Plan (Nov. 3, 1999) Great Salt Lake is a Class 5 water use and water quality decisions for the lake are based on a narrative standard. In general terms, this means that no pollutants (discharges) should be delivered to the lake in amounts that result in concentrations greater than those already present in the lake.

76-7 What are the existing amounts of contaminants in Great Salt Lake? Without these answers, how can DWQ be certain that discharging increased concentrations of Se and TDS into Great Salt Lake does not violate the terms of the narrative standard?

There is a common perception that contaminants such as Se are "locked up" in the brine layer of the lake. What kind of data does DWQ have to support that claim?

What was the value used for Jordan River's background level of selenium in the JVWCD model? On the original permit application, a value of 1.33 ppb was used. Other data indicates 3.5 ppb was used.

76-3 The size of an evaporative lagoon for brine discharge is the factor used to rule this out as an alternate disposal option. The size of lagoon would decrease if a combination of technologies could be used to reduce the amount of metals-bearing brine that requires disposal. Can't metals selectively be removed (chelated?) and if necessary, disposed of elsewhere? If so, the use of smaller evaporative lagoons may be possible.

76-7 Does all the proposed brine discharge (from Phases I and II) result strictly from NRD related water? Please describe the quantity of brine not related to this project. If it exists, why has this unrelated water been included in this NRD project agreement? KUCC will take the brine related to the NRD claim, but undoubtedly not any additional brine.

Does the DWQ have future plans to modify allowable selenium levels in Utah waters? Are they familiar with studies indicating that 5 ppb puts an ecosystem in the "high toxic risk" category? What is their stance on this information?

76-3 We have been told that the reason why contaminants from the shallow aquifer wells cannot be sent back to the tailings impoundment is because of the total organic carbon. Has DWQ done a TOC test to support that argument?

We would like to review all alternatives and costs that JVWCD provided the Trustee in the proposed settlement plan for both Zone B and the shallow aquifer wells.

Cumulative impacts of selenium, whether in Jordan River and associated wetlands, or in Great Salt Lake, are very serious and preventable. All effort should be made to minimize or eliminate selenium added to these fragile, living systems.

Response to Letter No. 03-76 (cont.)

76-7: See the Response to Common Comment No. 1 and No. 6.

Letter No. 03-76 (cont.)

76-1

FRIENDS of Great Salt Lake advocates a watershed approach to the management of Great Salt Lake and its tributaries. We believe that in the case of the proposed NRD Claim Settlement Plan it is the responsibility of the Trustee to thoroughly assess the past, present, and foreseeable impacts this plan will have to Great Salt Lake, its wetlands and to the health and welfare of the citizens living along the Wasatch Front.

We believe that the Trustee, Kennecott Utah Copper and Jordan Valley Water Conservancy District should be able to guarantee the public that by cleaning up one source of contamination, they don't create another.

Sincerely,

Lynn E. de Freitas

Lynn E. de Freitas, President

cc:

Olene Walker, Governor, State of Utah
Karl Kappe, Strategic Planner, Division of Forestry, Fire and State Lands
Henry R. Maddux, Utah Field Supervisor, US Fish and Wildlife Service
Linda Himmelbauer, U.S. Environmental Protection Agency, Water Quality Unit

Response to Letter No. 03-76 (cont.)

Letter No. 03-77

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DAVID B. HARTVIGSEN
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November 21, 2003

Dianne R. Nielson, Executive Director
Utah Department of Environmental Quality
and Natural Resource Damage Trustee
P.O. Box 144810
Salt Lake City, Utah 84114-4810

Via Fax to 801-536-0061 & U.S. Mail

Re: Public Comment on the Proposed Southwest Jordan Valley Ground Water Cleanup Project

Dear Ms. Nielson:

This law firm represents Salt Lake City Suburban Sanitary District No. 1 (the "District"), which is a member and co-owner of the Central Valley Water Reclamation Facility ("Central Valley"), and these comments concerning the Proposed Southwest Jordan Valley Ground Water Cleanup Project (the "Cleanup Project") are being submitted on behalf of the District. These comments are intended to provide the additional information referenced in the District's comments presented at the September 25, 2003 public hearing.

77-1 The Cleanup Project, while reducing the groundwater contamination, will do so at the expense of surface water quality. After reviewing the proposed Cleanup Project, the District has a number of concerns that we believe should be addressed by the Department of Environmental Quality ("DEQ"), Kennecott Utah Copper Corporation ("Kennecott"), and Jordan Valley Water Conservancy District ("Jordan Valley").

77-2 First, the Cleanup Project and the associated discharge permit both assume, and indeed rely upon, a future flow rate in the Jordan River that includes approximately 55 million gallons of water per day ("MGD") discharged from Central Valley. This is not a valid assumption because the District, Central Valley, or some other party will, in the not-too-distant future, begin using the water presently being discharged for irrigation and other secondary water uses. The reuse of that water will eliminate or substantially reduce Central Valley's current discharge into the Jordan River.

77-3 Second, when Kennecott closes down its mining operations, or if the concentrate stream can no longer be discharged to the tailings impoundment, the Cleanup Project proposes discharging the concentrate stream directly into the Great Salt Lake under Kennecott's UPDES permit. The District

Response to Letter No. 03-77

77-1: See the Response to Common Comment No. 6, No. 9, and No. 13.

77-2: See the Response to Common Comment No. 9.

Also, please note that the Division of Water Quality and JVWCD did initiate a program to measure selenium levels in the Jordan River Basin duck clubs and waterfowl habitat areas of the Great Salt Lake South Arm. This monitoring will continue as the duck clubs continue to work with DWQ.

77-3: See the Response to Common Comment No. 6, No. 9, and No. 13.

The State Trustee for Natural Resource Damages and the Department of Environmental Quality recognize the importance of the Great Salt Lake and its associated wetlands. The importance of the Great Salt Lake not only to the many migratory birds that frequent its shores, but to the recreational users that visit the shores each year have weighed significantly into the deliberations on this project proposal.

Letter No. 03-77 (cont.)

77-3 believes that the Great Salt Lake is not an appropriate repository for such wastes, which could ultimately consist of all of the concentrate streams from the Cleanup Project.

77-4 Finally, the Cleanup Project provides an incentive to Jordan Valley to pollute the Jordan River rather than dispose of the pollutants in a more responsible way. Because of these concerns, it is our opinion that the Cleanup Project, as it is currently proposed, is not in the best interest of the public.

A. Reliance on Central Valley's Discharge

The District is concerned that the Cleanup Project's planned disposal of the concentrate stream from Zone B into the Jordan River near 2900 South relies heavily on the river's current flow rate at that point, which currently includes 55 MGD of discharge water from Central Valley. This reliance is made manifest by the fact that Jordan Valley plans to run a discharge pipe from the Zone B reverse osmosis (RO) plant at about 8300 South to 2900 South, an additional distance of roughly three miles. This concentrate discharge point is just downstream of Central Valley's discharge point, and just upstream of the point where the Surplus Canal splits off of the Jordan River. In other words, Jordan Valley plans to discharge in the stretch of river that currently has the highest flow. It would, of course, be much less expensive to discharge to the Jordan River at 8300 South, but apparently, the flow is insufficient to dilute the concentrate stream at all places except for the stretch between Central Valley's discharge and the Surplus Canal diversion.

77-2 At first glance, discharging the concentrate stream at the point of highest current flow is an efficient means of contaminant disposal; however, serious doubts about the viability of the plan arise when you consider that Central Valley and the District are actively pursuing options that would significantly reduce or eliminate their effluent discharges into the Jordan River. As noted above, Central Valley discharges roughly 55 MGD (85 cfs) into the Jordan River at about 3000 South. In an effort to conserve water in this period of drought, the District, Central Valley, and others are planning on using the sewage effluent to water golf courses, cemeteries, parks, and other green spaces. Ultimately, the question is not whether or how much water from Central Valley's discharge stream will be reused, but rather how soon will it begin.

As the use of Central Valley's discharge is a virtual certainty, the reduction of flow in the Jordan River would have a significant impact on the viability of the Cleanup Project as proposed. The planned discharge of the Zone B concentrate stream into the Jordan River at 2900 South is especially troublesome when one considers that the critical low flow at that point is only 189.9 cfs. In short, Central Valley's discharge—which will almost certainly be reused rather than discharged—is roughly 45% of the low flow at that point. Because the only stretch of the Jordan River with a high enough flow to legally accept Zone B's discharge is just downstream of Central Valley's discharge, the Proposal to discharge Zone B's concentrate stream into the Jordan River is

Response to Letter No. 03-77 (cont.)

77-4: See the Response to Common Comment No. 6, No. 7, and No. 9.

77-2 not feasible in the long run. DEQ should factor in the elimination of all discharges by Central Valley into the Jordan River before this or any other proposal is approved.

B. Direct Discharge into the Great Salt Lake

The backup contingency for the Cleanup Project relies upon discharging both concentrate streams from the RO treatment plants directly into the Great Salt Lake. The District fears that there would be substantial environmental degradation resulting from this course of action. "After mine closure or at such other time, when operation of the tailings line slurry will cease," the Cleanup Project proposes to "discharge the RO concentrate directly to the Great Salt Lake." (*Proposal to the Utah State NRD Trustee and USEPA CERCLA Remedial Project Manager for a Groundwater Extraction and Treatment Remedial Project in the Southwestern Jordan Valley* ("Proposal"), at page 15.) Therefore, the concentrate stream from Zone A will eventually be discharged directly into the Great Salt Lake.

77-3

Furthermore, under this scenario, there would be no dilution of the concentrate stream. During the life of the mining operations, the concentrations will be somewhat more manageable because the contaminants will be diluted by the much larger flow of the tailings.[1] However, after mine closure, or if the operation of the slurry ceases, the waste stream from the RO plants would be discharged undiluted into the Great Salt Lake. Thus, the Cleanup Project would discharge 1.1 million gallons of concentrate each day into the Great Salt Lake, and its discharge would have the contaminant concentrations noted in Table 1. (*See* Tables 5.6A & 5.6B from the Proposal.)

Table 1

Parameter	Zone A RO Concentrate (Typical)
SO_4	5971 mg/L
TDS	10,317 mg/L
Ph	7.3
Ca	2054 mg/L
As	0.023 mg/L

In addition to the Zone A RO concentrate stream, if Zone B RO concentrate cannot be discharged into the Jordan River, the flow of concentrate directly into the Great Salt Lake would swell to 1.9 million gallons per day. The concentrations would likely be similar to those noted in Table 1. This amount of pollution entering the Great Salt Lake at a single point would almost certainly be detrimental to the environment surrounding that point.

[1] According to the Proposal, the flow of the tailings if roughly 34,500 gallons per minute as compared to 600 gallons per minute for the concentrate stream from the Zone A RO plant.

Letter No. 03-77 (cont.)

77-3

The Proposal seeks to defer consideration of these eventualities until they happen, but the appropriate course of action would be to consider them before final approval of the Proposal, especially considering the provision of the Project Agreement which allows for termination of the Agreement if either party is unable to obtain the permits necessary under the Cleanup Project. (*See* § 13.3 of the Project Agreement.) Furthermore, the Agreement provides for termination if the concentrate cannot be disposed of in the Great Salt Lake or "some other facility." (*See* § 13.4 of the Project Agreement.) Essentially, what the District is requesting is for the parties to provide a plan for some other facility or disposal option in order to ensure that the pollutants are not discharged into the Great Salt Lake.

C. Adverse Incentives to Pollute the Jordan River

77-4

A final concern with the current Cleanup Project is that it is structured so as to give an economic incentive for Jordan Valley to pollute the Jordan River, as opposed to seeking a more environmentally protective solution. Although Kennecott has expressed willingness to accept the concentrate stream from the Zone B RO plant into its tailings slurry system, Jordan Valley would be responsible for the expense of pumping the concentrate uphill to the slurry pipeline. (Project Agreement § 8.2(b).) This alternative, or another alternative of building a total containment lagoon, would certainly be much more expensive than allowing the concentrate to flow downhill to the Jordan River. Thus, financial consideration dictate that Jordan Valley discharge into the Jordan River so long as that option is available. However, as discussed in section A above, this is, in reality, not an option when Central Valley discontinues or significantly reduces its discharges of 55 MGD to the Jordan River. Although this is the most economically viable option for Jordan Valley, it would harm the Jordan River, and all downstream users and natural resources, because there would be insufficient flow to dilute the concentrate stream.

The Cleanup Project, as it is currently proposed, is not in the best interest of the public. The District therefore requests that you consider the above-mentioned concerns before approving this or any other proposal that seeks to dispose concentrates from the groundwater contamination into the Jordan River or the Great Salt Lake.

Sincerely,

David B. Hartvigsen

DBH:st
cc: Ray Child, District General Manager
E. Jay Peck, District Co-counsel

Response to Letter No. 03-77 (cont.)

Letter No. 03-78

November 21, 2003

To: Dianne Neilson
State of Utah Natural Resource
Damage Trustee

From: Paulina F. Flint
10467 Carnation Dr.
Sandy, Utah 84094

Ref:
Protest for the lack of involvement and input from affected agencies on the Southwest Jordan Valley Ground Water Cleanup Project

Dear Dianne Neilson,

78-1 It has come to our attention that today is the deadline for public comment on this very important issue. We have some serious concerns about the absence of input from agencies such as ***Salt Lake County, the Salt Lake County Board of Health, the Jordan River Sub-Basin Committee, and last but not least the Salt Lake County Community Councils.*** There are several issues of concern. These agencies are directly responsible for the public's health safety and welfare. The Salt Lake County Health Department charge is to promote protect and foster community and environmental health. ***The Board of Health oversees*** *issues including but not limited to city clinics,* ***watersheds****, contagious diseases,* ***environmental contamination****, vehicle emissions, tobacco issues, restaurant permits, and dairy standards.* Salt Lake County regulates water via the following ordinances:

322 Subsurface Water; November 18, 1968
614 Protection of Culinary Water; October 31, 1977
615 Water Quality and Protection Control; October 31, 1977
619 Animal Control Watershed; December 5, 1977
682 Individual Water Systems Requiring Approval form the Health Department; September 17, 1979
971 Water Quality Management Planning Within the Flood Control Division Transferring to The Health Department; September 15, 1986
990 Flood Control Storm Drainage and Water Quality; December 24, 1986
1241 Jordan River Sub-Basin Watershed Management Council; June 21, 1993
1264 Jordan River Sub-Basin Watershed Management Council; June 1, 1994
1271 Jordan River Flood Channel Management; July20, 1994
1476 Requiring Fluoridation of Public Utilities; January 30, 2001
1515 Mandated Water Conservation Practice; June 24, 2003

78-1 ***Anyone with this kind of responsibility should be provided the opportunity to be heard.***

78-2 They should have been included in the evaluation process. It is the Salt Lake County residents, which will take the hit if something goes terribly wrong. We are asking that an environmental Impact Mitigation Study be done to study the impact of the dumping into the Jordan River. The aquifer in this valley runs the total width and length of the valley. It also merges with the Jordan River. The bi-product from the cleanup will be reintroduced at the Jordan River to our aquifer. We must have a complete and documented analysis of this process. We can no longer do business with this precious resource in a reactive manor. We must take steps to be proactive and

78-1 prevent further damage to ground water. We have spoken to the agencies listed above and none of them have had

Response to Letter No. 03-78

78-1: See Response to Common Comment No. 1.

Early on EPA and DEQ worked cooperatively with Kennecott to establish a Technical Review Committee (TRC) for the remediation activities in Zone A. We expanded the focus of the TRC group to review project information developed for the Natural Resource Damage settlement. The TRC started to meet during the early 90s to assess the extent of contamination and started to study how best to contain and reduce the contaminant plumes, provide drinking water back to the public in the affected area, and to contend with project impacts.

The TRC was and is comprised of federal, state and local regulators and government representatives, environmental interest groups, academia, and other specialists. The Salt Lake County government was invited to attend these meetings early on, and continues to be represented by the Salt Lake Valley Health Department. The Salt Lake Valley Health Department has been and continues to be a contributing member of the TRC, reviewing project documentation and proposals and providing input where concerns arise. Along with the Health Department, the communities of West Jordan, South Jordan, Riverton, and Herriman have had members of their city councils or city staff attend the TRC meetings in the past.

78-2: See Response to Common Comment No. 1, No. 6, and No. 9.

Letter No. 03-78 (cont.)

78-1 the time to study this enough to be able to give you their positions. It would be a travesty if this process were nc afforded to them on our behalf.

Of further concern is the issue of chemicals leaching into the groundwater and clumping with the existing chemicals thus promulgating the eventual collapse of the aquifer.

78-2 There needs to be further review on the impact of fluoride, nitrates and other chemicals being introduced to the aquifer through recharge. These do not dissipate over time they are cumulative. The other concern, which has been expressed, is the binding affect of these to the existing pollutants in the ground. Salt Lake County is in the process of developing a source protection rule ordinance. These agencies need time to understand the long-tern

78-3 impact on ground water in this valley. We are asking you for a 90-day extension so as the Salt Lake County Health Board, Salt Lake County Council and the Communities can truly know what the future of "Our" drinking water will be. I am submitting to you the enclosed documents as a justification for our request:

Chemical Composition Of Ground Water, Hydrologic Properties Of Basin-Fill Material, And Ground-Water Movement In Salt Lake Valley Utah

Articles from the Tampa Bay The Business Journal October 2003

Article Deseret Morning News October 2003, Steel Workers, activists decry Kennecott proposal; Stamp into the Mayor of Salt Lake County's Office dated November 18, 2003

Salt Lake County Records Management & Archives Series Description

78-3 Please give us the 90 days to get these important partners involved in this critical process
Thank you for your time.

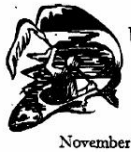
Sincerely,

Paulina F. Flint
Don Patocka,
Members of the White City Community Council
And Water Users of the White City Water Improvement District

Response to Letter No. 03-78 (cont.)

78-3: See Response to Common Comment No.1.

Letter No. 03-79



Utah Rivers Council

801-536-0061
4pages

November 21, 2003

Dr. Dianne Nielson
Director and NRD Trustee
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

via fax and email

Re: Comments on the Natural Resource Damage Claim Proposed Settlement for the Kennecott Ground Water Contamination

Dear Dr. Nielson:

Thank you for the opportunity to comment on the proposed settlement for the Kennecott ground water contamination project. The Utah Rivers Council is a non-profit organization devoted to the project of Utah's rivers and the Great Salt Lake. Our more than 750 members support the conservation, restoration, and protection of Utah's water resources.

The Natural Resource Damage Claim Proposed Settlement for the Kennecott Ground Water Contamination (hereafter, "Proposal") is a complicated issue. The resources it will impact – public health, the Jordan River, and the Great Salt Lake, to name a few – are also complicated. However, for purposes of these comments we will focus on the discharges to the Jordan River and the Great Salt Lake.

79-1 We would like to begin by acknowledging the incredibly complicated and large responsibility you have taken on as Trustee. The cleanup of this enormous pollution problem could be very beneficial to the health and welfare of people in our communities and to the ecosystems dependent on clean water generally. We respect the enormity of the problem, but must express concern about the manner in which the Proposal plans on addressing the problem.

Alternatives not explored nor shared adequately with the public

79-2 We find the Proposal woefully inadequate when it comes to evaluating alternatives to the one proposed by Kennecott Utah Copper (KUC) and the Jordan Valley Water Conservancy District (JVWCD) (here after, "proponents") – particularly in the discussion of the proposed discharges to the Jordan River and to the mine's tailing impoundment. For example, the Proposal states that the Jordan River discharge could be dischatged to the impoundment rather than the river, but no explanation is given as to the pros and cons of each discharge point or to the rationale for the proposal to discharge to the river. When asked for a rationale in a public meeting, the proponents stated that cost was the issue. However, we are provide with no information about the costs associated with the two alternatives (or any other factors or alternatives), and so the public is crippled when it comes to commenting on the Proposal before us.

1055 East 2100 South, Suite 207 • Salt Lake City, Utah 84106 • Phone (801) 486-4776 • Fax (801) 466-0334

Response to Letter No. 03-79

79-1: See Response to Common Comment No. 3.

79-2: See Response to Common Comment No. 1 and No. 6.

Letter No. 03-79 (cont.)

79-2 In the larger view, we are presented with no information about alternatives to a wet discharge altogether (for example, could the Reverse Osmosis (RO) generated waste be dried and disposed of like other solid waste?) or alternative, additional methods of treatment for the RO wastewater that might reduce the concentration of pollutants further before discharge.

We request that the final decision on this proposal be delayed until alternatives, particularly on methods of disposal for the RO treatment waste, are thoroughly evaluated by the public and independent experts.

Jordan River discharge does not meet Clean Water Act water quality standards

Despite repeated claims by Department of Environmental Quality (DEQ) staff at public meetings that the proposed Jordan River discharge will meet all standards, we can find no mention of an antidegradation review in the UPDES permit or statement of basis for this discharge.

79-3 As you are aware, federal law requires Clean Water Act water quality standards to contain all of three elements: designated or beneficial use, water quality criteria (numeric or narrative), and antidegradation provisions. The Proposal and DEQ staff presentations at public meetings make it clear that the proposed discharge will use up a substantial portion of the Jordan River's "assimilative capacity" of selenium and TDS. The proposed discharge will then admittedly degrade water quality. Yet, the permit and statement of basis contain none of the required antidegradation analysis information. Although the antidegradation provisions do not mean that no degradation is ever allowed, they do mean that degradation cannot be allowed without an antidegradation analysis investigating alternatives, the social and economic need for degradation, etc. Therefore without the analysis, the proposed discharge and the permit do not meet Clean Water Act water quality standards.

It is also unclear if the discharge meets water quality criteria more broadly. For example, although DEQ staff explain that the solubility factor will "never" be achieved for selenium in downstream wetlands and the Lake, dissolved selenium is still a concern. Plants, macroinvertebrates, and even waterfowl may uptake dissolved selenium directly, harming aquatic life. Discharges must not harm beneficial uses, even in the absence of a water quality criterion. As far as we can tell from the information provided, this issue has not been properly investigated by DEQ.

We have recently heard that the UPDES permit for the Jordan River discharge will be revamped and sent out for another round of public comment. We strongly support the redrafting of the permit and the associated public comment period. From the information presented in the proposal, we do not believe the discharge to the Jordan River is necessary in order for the project to move forward.

79-2 A final decision on this proposal must be delayed until the UPDES permit for the Jordan River discharge is rewritten and a thorough antidegradation analysis for both the river and the downstream Great Salt Lake wetlands is conducted. The project as envisioned in the Proposal must not move forward until the effects of pollutants, including selenium – both dissolved in the water column and as a solid – in a system as the unique as the Great Salt Lake and its associated wetlands are understood and water quality criteria are established.

79-4 Effects of Jordan River discharge on Great Salt Lake dismissed without basis

As mentioned earlier, the Great Salt Lake does not have water quality criteria for the pollutants of concern. DEQ staff stressed the "unique" nature of the Great Salt Lake at public hearings and

Response to Letter No. 03-79 (cont.)

79-3: See Response to Common Comment No. 1, No. 6 and No. 9.

79-4: See Response to Common Comment No. 9.

Letter No. 03-79 (cont.)

defended the lack of criteria as due to the need for specialized science to understand the effect of pollutants in the Lake system. Yet at that same time, we are asked to accept the discharge of selenium, TDS and other pollutants into this system and any concerns were dismissed by DEQ staff as without basis since the discharge would "meet standards." This appears to be a contradiction – the science either exists or does not exist to explain what the impact of these pollutants will be.

79-4

We can not use a lack of data to justify not setting any safety standards and then use the same lack of data to justify allowing any discharge. If we don't know enough to set standards, we don't know enough to decide if a discharge should be allowed (i.e. is safe for the Lake system). Otherwise, this is like offering a drug that as not yet been approved for human use and telling the public that it is safe for them to take as much as they like, since there are no standards saying how much is too much.

The Proposal with its associated discharges must not move forward until this conflict is addressed.

Tailing impoundment discharge after mine closure not sufficiently addressed

The proposal states the after mine closure (currently estimated to be between 2015 and 2030) or "…prior to that time if for any reason the concentrate stream cannot be managed within the tailings disposal system…" (page 17) the Zone A treatment plan concentrate waste (and perhaps the Zone B waste depending on final decisions on discharge points), will be directly discharged into the Great Salt Lake.

Although this option is described as taking place under KUC's existing UPDES permit, this could not possibly be the case. The current permit allows for discharges during special circumstances, not an on-going direct discharge of the sort contemplated in the Proposal. It would appear we are being asked to sign off on this Proposal based on a vague idea that sometime in the (near) future, we will

79-5

find a way to safely discharge this type of waste into the Great Salt Lake – the same Great Salt Lake that currently has no official water quality criteria established for the pollutants of concern.

The Proposal is meant to cover a 40 year plan for remediation, yet here we are asked to accept a waste management plan that covers between 12 and 27 years, and then basically tosses in the towel.

We are also concerned about the blanket language allowing for a direct discharge "…if for any reason the concentrate stream cannot be managed within the tailings disposal system…". The Proposal offers no explanation of what the reasons for management problems might be, how likely those are to occur, and what the public process would be in the case of a change to direct discharge. It is unclear if this statement simply addresses an upset and bypass situation or a contemplates a set of circumstances when the system would be switched entirely to direct discharge.

The Proposal cannot be approved without a greatly expanded explanation of how the waste stream to the mine tailings impoundment will be dealt with after mine closure.

Summary

In summary, we request that the final decision on this proposal be delayed until alternatives,

79-2

particularly related to the disposal of the RO treatment waste, are thoroughly evaluated by the public and independent experts. In addition, a final decision on this proposal must be delayed until the UPDES permit for the Jordan River discharge is rewritten and a thorough antidegradation analysis for both the river and the downstream Great Salt Lake wetlands is conducted. The project as

Response to Letter No. 03-79 (cont.)

79-5: See Response to Common Comment No. 5.

In terms of the proposed disposal alternative for the Zone A waste streams (RO concentrate and acid core water), the Technical Review Committee (TRC) determined that the acid core water could be neutralized by the current mill tailings material and both waste streams could be disposed of in the North Expansion Impoundment (current proposed plan). The TRC also made a determination on how to handle the disposal of the two waste streams in the future when the mine is not in operations.

The TRC recognized that setting a definitive plan for the future disposal of treatment concentrates was not advisable because disposal technologies and regulatory standards could change over time. However, the development of a worst-case contingency plan was determined to be worthwhile. As part of the remedial design activities under the CERCLA program, Kennecott was directed to develop a preliminary and conceptual post-closure water management plan to memorialize how post-closure water could be disposed of properly. The alternative that was reviewed and investigated through pilot studies and ultimately selected as the chosen alternative for the contingency plan was a lime treatment facility. This facility would produce two waste products, (1) a water stream that could potentially be discharged under the State of Utah's UPDES permit program (based upon current information), and (2) a solid sludge material which would require disposal in an appropriate containment facility.

The TRC, EPA and DEQ determined that Kennecott would have to initiate this plan if mine closure occurred rapidly and the use of the tailings circuit or direct discharge to the Great Salt Lake were not feasible. EPA and DEQ also determined that Kennecott could continue to investigate and revise their contingency plan during the life of the project and provide updates to EPA and DEQ during future five-year review investigations, which are required for CERCLA cleanup projects where contaminated media remains to be addressed.

The feasibility of lime treatment is reported in the document entitled, *Preliminary Conceptual Post-Closure Water Management Plan for Kennecott Utah Copper Corporation*, dated December 19, 2002. This plan

Letter No. 03-79 (cont.)

79-2

envisioned in the Proposal must not move forward until the effects of components such as selenium – both dissolved in the water column and as a solid – in a system as the unique as the Great Salt Lake and its associated wetlands are understood and water quality criteria are established. Lastly, the Proposal cannot be approved without a greatly expanded explanation of how waste stream will be dealt with after mine closure – estimated in the Proposal to be between 12 and 27 years in the future.

If you have any questions about these comments or the issues they raise, feel free to contact me at 801-486-4776. Thank you for your consideration.

Sincerely,

Merritt Frey
Executive Director

Response to Letter No. 03-79 (cont.)

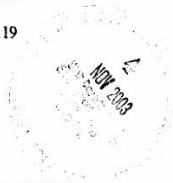
79-5 (cont.): is attached as Appendix A of the document entitled *Kennecott Utah Copper Corporation Final Design For Remedial Action at South Facilities Groundwater*, dated December 2002. Both documents are available on the project website, http://www.deq.utah.gov/issues/nrd/index.htm.

The TRC, EPA and DEQ will continue to review alternative disposal suggestions when presented by Kennecott and will revise (if needed) the disposal plan when the time is appropriate.

Letter No. 03-80

Richard N. Gilbert, Vice President
Irvine Ranch & Petroleum Co., Inc
d.b.a. Ambassador Duck Club
4071 Minuet Court
West Valley City, UT 84119

November 21, 2003



Dianne Nielson, Executive Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

Subject: Opposing Jordan Valley Water Conservancy District (JVWCD) & Kennecott Utah Copper Corp. (KUCC) proposal to discharge selenium and salts into the Jordan River System.

Dianne Nielson;

Attached is a copy of the Fall 2003 **BIRDSCAPES** a publication by the U.S. Fish and wildlife Service, Division of Bird Habitat Conservation. The featured article **"A National Environmental Treasure",** refer to page 2, describes the tremendous work that has been done to restore the Great Salt Lake Wetlands. The Ambassador Duck Club is a partner in the NACWA Grant and many of the photos were taken on the Ambassador property. The photo of Senator Orrin Hatch was taken on the Ambassador while he and Interior Secretary Gail Norton made the Intermountain West Joint Venture Great Blue Heron award presentation and talked to the partners and media about the importance of restoring and maintaining healthy Great Salt Lake Wetlands.

After the Great Salt Lake flooding in the 1980's these wetland were devoid of vegetation, only black mud and saltwater depressions covered the area below an elevation of 4212' and in some areas up to 4217'. With the assistance of the NACWA grant the areas were restored as they exist today. It took years to flush the salts from the lakes and we now have a good vegetation gradient across the property. There are cattail and hard stem bulrush on the east side, alkali and three square bulrushes in the center and pickle weed where the water enters the GSL, assuming the water did not completely evaporate in the wetland.

The Ambassador consists of over 2800 acres with more than 1500 acres as wetlands. The water from the Jordan River system enters our property and flows over three and one half miles to the GSL. The Totally Dissolved Solids dumped into the Jordan River do not stay in solution they drop out as the water evaporates and are deposited in the wetlands. The additional salts will destroy the vegetation necessary for the diverse ecosystem and the selenium will eventually destroy the wildlife.

80-1

The Great Salt Lake Wetlands are "A National Environmental Treasure" and a designated Western Hemispheric Shorebird Reserve. Is it worth the risk to damage or destroy these Wetlands and the GSL to save KUCC and JVWCD water users some money? We strongly suggest that all dump water from both Zone A and Zone B be placed in the existing KUCC tailings ponds.

Respectfully;

Richard N. Gilbert, Vice President
Irvine Ranch & Petroleum Co. Inc.

Response to Letter No. 03-80

80-1: See Response to Common Comment No. 6 and No. 9.

Letter No. 03-81

Utah Waters [redacted]

Improving communication and expertise on water issues among Utah outdoor groups.... United advocacy in reforming water law and policy for the protection of wildlife and sustainable ecosystems...

November 21, 2003

SENT VIA FAX AND REGULAR MAIL

Dr. Dianne Nielson, Executive Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

Re: Comments on the Natural Resource Damage Claim Proposed Settlement for the Kennecott Ground Water Contamination

Dear Dr. Nielson:

We appreciate the opportunity to comment on the proposed settlement for the Kennecott ground water contamination. Utah Waters is a non-profit conservation organization that brings together groups and individuals in a joint effort to protect Utah's valuable natural water resources and to reform water policy and management. Given the international importance of the Great Salt Lake, as well as the 40-year timeframe, we regard this settlement as ecologically critical and precedent-setting for water policy.

81-1 To begin, we want to echo a complaint you have heard from many others - namely, that the public comment period, even including the much-appreciated extension, is woefully short for a project of this size and complexity. A number of problems have already arisen because of this inadequacy. First, members of our organization, and undoubtedly other citizen activists as well, would, given the time, have commented on technical aspects of this proposal such as Clean Water Act compliance. Some citizens and groups have had the time and expertise to make such evaluations, and we consider many of their concerns and criticisms to be of merit. Unfortunately, our organization has not had the resources to make independent evaluations and we think other groups and individuals are similarly frustrated.

Inevitably, this narrow time frame for public involvement suggests an attempt to bypass the public and that the settlement has been designed for the convenience of KUC and JVWCD at the expense of the environment and other public values. A more lengthy, inclusive public process would help allay such suspicions.

81-2 Another drawback to the limited public involvement period is the lack of time to suggest and evaluate alternatives. The current alternative is obviously complex and suited to the needs of the KUC and JVWCD, its primary proponents. Unfortunately, the public needs more time to consider whether other alternatives exist for the disposal of this pollution, alternatives that may be less suitable to KUC but more protective of other values and interests.

81-3 A different criticism we would make is that the proposal allows the JVWCD to excessively clean the culinary water and dump unwarranted amounts of contaminants in the Jordan River. We do not feel it is necessary to purify the sulfate-laden water beyond what is acceptable for public health merely because JVWCD's customers are spoiled with water

Response to Letter No. 03-81

81-1: See Response to Common Comment No. 1.

81-2: See Response to Common Comment No. 1, No. 6 and No. 7.

81-3: The treated water quality included in the Joint Proposal is important to JVWCD. JVWCD provides wholesale water service, in most cases as supplemental water-to-water sources available to its member agencies. Many of those member agencies operate wells of marginal quality. The JVWCD member agencies rely upon a high quality water supply to blend with their marginal supplies for regulatory and aesthetic purposes.

Letter No. 03-81 (cont.)

Letter to Dr. Dianne Nielson, page two

81-3 supplies that are more pristine than needed.

81-4 We strongly suggest that the state of Utah is ill-prepared to make a 40-year commitment to this type of pollution dumping. It may be possible at the present time to say that this project meets the federal standards of the Clean Water Act, although we think additional scientific study is necessary. However, it is apparent that projected population increases and industrial development will bring additional pollutants into the closed Great Salt Lake basin, and additional water development will likely reduce the dilution flows in the Jordan River that make the present proposal feasible. As demonstrated by the degradation of East Canyon creek, the Division of Water Quality has almost no ability to control water quantity when minimum flows are necessary to maintain the mass balance requirements of discharge permits. Our organization views this as a serious deficiency in the governance of Utah's water resources that casts a cloud over this proposal and many others. This deficiency must be resolved or the project's promise to protect the public's water is a promise it cannot make. Moreover, we do not regard it as sufficient to say that the permit will be reviewed every five years. We think it is highly unlikely that your department will have the political clout to take this water supply away from JVWCD customers in the event that changing water quality parameters render the permit in violation.

81-5 In summary, we request that approval of this project be delayed pending a more thorough public evaluation and review of possible alternatives by individuals and entities not financially involved.

Sincerely,

Darrell H. Mensel

Darrell H. Mensel
Coordinator, Utah Waters

cc: Governor Olene Walker
Rep. Brent Goodfellow

Response to Letter No. 03-81 (cont.)

81-4: See Response to Common Comment No. 9 and No. 13.

81-5: See Response to Common Comment No. 1 and No. 6.

Letter No. 03-82

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

The Nature Conservancy of Utah
559 East South Temple
Salt Lake City, UT 84102

tel [801] 531.0999
fax [801] 531.1003
nature.org

Dr. Dianne Nielson, Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, UT 84114-4840

Dear Dr. Nielson:

The Nature Conservancy is submitting the following comments for public record in regard to Kennecott Utah Copper's groundwater remediation project. We appreciate the many opportunities that you and Kennecott have provided to discuss this project in more detail and especially thank Doug Bacon, John Cherry and Dr. Bill Adams for the time they spent with us.

82-1 Based upon more than twenty years of experience with wetlands conservation at the Great Salt Lake, and being the owner/manager of a major wetland preserve in Farmington Bay, The Nature Conservancy has strong concerns and questions about the project, particularly the method of disposal of concentrates from the groundwater remediation project.

82-2 As you will read below, most of our concerns stem from the fact that we just do not know how best to proceed with decision-making because there has never been a comprehensive and independent study of the whole Great Salt Lake system and no solid scientific determination of what key contaminant thresholds are important for proper system functioning. Absent such study, it is impossible to set anything other than arbitrary standards for the system. Certainly, our growing need to identify clean water sources and to protect the natural environment of the Great Salt Lake for human as well as wildlife values dictate that the State of Utah take immediate steps to put in place a comprehensive management and monitoring plan for the entire lake system. The Nature Conservancy would be a strong advocate in all arenas for the design and funding of such an effort.

Our concerns include:

82-1 ➢ The absence of recognition of the incalculable importance of the Great Salt Lake system to wildlife and the people of Utah. The Jordan River, its diversions and delta are critical to the health of the Great Salt Lake wetlands and the lake's

Response to Letter No. 03-82

82-1: See Response to Common Comment No. 1, No. 6 and No. 9.

82-2: See Response to Common Comment No. 9.

Letter No. 03-82 (cont.)

82-1 hemispherically-renowned numbers of migratory birds. These values demand that decisions we make will not impair the lake system. We now seem to be willing to downgrade this irreplaceable water body by accepting near-threshold pollution levels, approaching wildlife harm and mortality.

82-3
- The lack of an assessment program to evaluate in advance the propensity for materials to accumulate in these types of depositional environments. We are concerned that the current criteria have not been fully and properly studied from a system perspective; thus leading to our further concern regarding the application of such current criteria to Kennecott's remediation project in the absence of established system wide numerical standards. The state has not definitively answered the question as to the current possible pollution status of Farmington Bay – a question that should be answered before additional pollutants are added. In the absence of a system-wide assessment program, we do not believe that there is enough margin for error (.4ppb) to allow and account for probable dynamic river and lake changes over time.

82-4
- The lack of a scientifically-credible, peer-reviewed monitoring program to determine cumulative effects on the Great Salt Lake's water, wetland vegetation and wildlife. The design of such a program should be a joint effort of all potentially-affected parties. All Jordan River water does not end up in the lake, but also on agricultural lands, in mitigation banks, private wetlands. Specifically, we are concerned that monitoring only the water in the system may overlook critical effects to aquatic organisms, wetland vegetation, and millions of migratory birds. We are not sure that concentrates will be irrevocably "bound" by saline conditions or by just residing in the constantly-changing, dynamic lake system. It does not appear that a scientifically-credible monitoring plan is in place to test the theory that contaminants will be bioremediated or permanently sequestered by the lake.

82-5
- Who is ultimately responsible and liable if contamination problems occur during the 40+-year time period?

82-6
- Is this permit consistent with other state agency directives concerning management of the lake? (Does it conflict, for instance, with brine shrimp industry goals/policy or wildlife management directives?)

82-1
- The absence of numeric standards for the lake itself will contribute to continued controversy over questions of discharge of contaminants and other materials.

Response to Letter No. 03-82 (cont.)

82-3: See Response to Common Comment No. 9.

82-4: See Response to Common Comment No.9.

82-5: See Response to Common Comment No. 12.

82-6: See Response to Common Comment No. 9.

Letter No. 03-82 (cont.)

Our Recommendations

- ❑ Re-explore (with Kennecott and JVWCD) other alternatives to discharging into the Jordan River because of the potential risks to freshwater wetlands in the Jordan River Basin and to Farmington Bay of the Great Salt Lake
- ❑ Complete ongoing water quality study of Farmington Bay before adding additional contaminants.

82-7

- ❑ Design and implement a credible strategy that will result in the identification and adoption of numeric water quality standards for the lake body itself.
- ❑ Conduct an ecological risk assessment and conduct the necessary bioassays as an approach to answering the basic questions necessary for numerical water quality standards. Provide clear and measurable standards that are protective of the environment. The concentration of Selenium and other contaminants should be measured by the maximum concentration anywhere in the water body to which it contributes – not just the point of discharge.
- ❑ Establish a greater margin of error within the standards for protection of this dynamic environment.

82-8

- ❑ Clearly establish who will conduct (and pay for) monitoring, and establish the scope and scientific-credibility of the monitoring project. Such monitoring should include cumulative impacts to aquatic organisms, wetland vegetation and wildlife itself in the Jordan River and the Great Salt Lake as well as the agricultural lands, mitigation banks, duck clubs and preserved areas which also use the affected water. The monitoring time should be extended past the time of the pumping and disposing operation.

82-5

- ❑ Clearly establish who is accepting the environmental liability throughout the 40-year project period and beyond.

82-8

- ❑ Design and implement a more thorough method for handling mining wastes such as storage of such wastes in a secure containment facility to prevent future occurrences of contamination events.
- ❑ Confirm that the issuance of this permit does not conflict with the purpose and directives of other state agencies and resolve such conflicts to the extent such conflicts exist.

Response to Letter No. 03-82 (cont.)

82-7: See Response to Common Comment No. 6, No. 7 and No. 9.

82-8: See Response to Common Comment No. 1 and No. 6.

Letter No. 03-82 (cont.)

82-8

- Establish a state Great Salt Lake Ecosystem management entity - a body that would have the authority to coordinate all aspects of state responsibility for the lake as a whole system. This entity should be supported by adequate scientific information and consider management decisions in context with all other factors affecting the health of the Great Salt Lake.

82-9

I have attached as Exhibit 1 additional material supporting The Nature Conservancy of Utah's position on the important issues raised by the Kennecott discharge permit proposal. We look forward to continuing to discuss this important issue with you and key players in the coming months.

Again, thank you for the opportunity to comment on the project.

Sincerely,

John W. Milliken
Board Chair
The Nature Conservancy of Utah

Response to Letter No. 03-82 (cont.)

82-9: Comment is noted and the materials have been provided to DWQ.

Exhibit 1

I. Importance of the "Discharge Area" – Jordan River, Great Salt Lake, Wetlands and Wildlife

As you know, the environment encompassing all of the elements we collectively call the "Great Salt Lake"–wetlands, riparian systems, tremendously productive food resources that are beautifully timed to meet the demands of phenomenal populations of migratory and resident birds–has become increasingly important to us as a human population and community living in this landscape. The Great Salt Lake is arguably Utah's most important and diverse natural resource and "world class" in its importance to avian life. As we learn more about the complexity and irreplaceability of the lake, we are impressed with the magnitude of benefits to humans and wildlife when the lake's various ecosystems are properly functioning.

Integral to this landscape is the Jordan River and its delta. The Jordan River plays an important part in our environmental health, community enrichment and connectivity to the larger landscape. The river and its delta are habitat linkage for migratory birds moving through the valley and to the Great Salt Lake (Norvell, 1997). The State Water Plan for the Jordan River Basin clearly recognizes its outstanding qualities:

"The Jordan is reported to have been an excellent fishery in the early years following the first settlement of the valley. Since that time, the forest has been cut, the river channeled, the water polluted, the oxbows and wetlands filled, and much of the wildlife displaced. A considerable amount of pollution resulted from mining operations in both the Wasatch Front canyons and the Oquirrh Mountains. These mining activities have affected Jordan River quality since before the turn of the century and were at a peak from the early to middle part of this century... *Even though the Jordan River has been abused, it remains the backbone of the Salt Lake Valley's wildlife habitat resource. Recent efforts to preserve wetlands and riparian areas and to improve water quality bode well for wildlife (italics added).* The Jordan River Delta, a mosaic of marshes, ponds, wet meadows, and uplands along with privately and state developed wetlands, is a significant habitat resource."

Shared efforts to protect and restore Great Salt Lake ecosystems are receiving a great deal of community support. The decades-long effort to preserve the remaining wetlands on the lake has been shared by federal, state and private entities – with much success. Together, partners have protected thousands of acres of additional important wetland and upland habitat in Farmington Bay and elsewhere on the lake's eastern shore.

In Farmington Bay alone, land investment by TNC and partners totals over $12 million and has resulted in the establishment of the Great Salt Lake Shorelands Preserve - roughly 3,000 acres and nearly 12 shoreline miles of wetlands and uplands. The Nature Conservancy's recently-completed Visitors Facilities will be a recreational and educational focal point for Utahns for many years to come. We care very much about

protecting the natural lake system, our property and investment from future contamination.

The multiple values of the Great Salt Lake – spectacular numbers of birds and wildlife, productive extraction industries, recreational opportunities for Utahns – demand that we make decisions that will not impair the lake system.

II. Accumulation of Wastes, Assumption of Bioremediation and Dilution of Liability

A. "Where do the concentrates go?"

A primary concern is the issue of disposal of concentrated wastes, including metals—particularly selenium—into the Jordan River from the groundwater remediation project. We are alarmed that one area of pollution would be remediated and placed in another uncontained area, possibly jeopardizing the water and wetland environments of the Jordan River and Great Salt Lake. Kennecott and DEQ do not appear to be violating any specific laws in this project, but the material is being translocated into a sensitive natural area rather than being contained in a purposeful, secure facility.

The lake environment is a classic example of dynamic processes. Lake levels, wetlands, population dynamics of organisms and salinity levels are never constants in this environment. The fate of the metals cannot be predicted to simply be "in the Lake body" or "bound by highly saline conditions". There is a high degree of spatial heterogeneity of sediments and water chemistry in this site.

Because materials transported by rivers must ultimately come to rest, it can be expected that residual deposits of wastes will remain in place in the bed sediments of the Jordan River, moving along in entrained sediments in the river channel, in wetlands, on the depositional plain of the Jordan River Delta and along the variable lake shores. These sediments are further subject to movement – dispersal and concentration- during erosive events of high lake stages (Foote, 1991). This is a very dynamic system--salinity levels, lake levels, erosion and deposition, wetland types and locations, and on and on.

Accumulation of contaminants and pulses of their release, in response to various episodes of erosion, sediment transfer and re-deposition, are to be expected. It is highly probable that the continual placement of concentrates from the permeate facilities over a 40+-year timeframe into the Great Salt Lake wetlands will, at some future time, exceed water quality criteria for the protection of aquatic organisms.

In addition to the possibility of contaminants moving within the dynamic lake system, especially during episodes of high lake level (the 1980's for example), what happens

at extremely low lake levels (conditions today)? As Farmington Bay has receded, it has exposed and dried huge areas of formerly water-covered lakebed. These areas are now vulnerable to movement of lakebed materials through a little-studied mechanism – wind. Could contaminants residing at lake bed levels that are periodically exposed move by wind to adjacent wetland habitat areas? To metropolitan areas of the Wasatch Front?

Beyond aquatic organisms, we remain concerned about "other" places contaminants may accumulate. We would like to see a recognition by the state that there may be unknown possible health effects on wildlife and wetland vegetation. As stated earlier, we are concerned that contaminants might also be accumulating in wetland vegetation, wildlife and even the organisms residing in the lake body itself.

The concentrates may not be irrevocably "bound" by saline conditions or by just residing in the constantly-changing, dynamic lake system. Monitoring only the water in the system may overlook critical cumulative effects to aquatic organisms, wetland vegetation, and millions of migratory birds.

B. "It's diluted, it's meeting standards now...and, besides, it's in the lake."

If there is any belief, stated or implied, that the wetlands or Great Salt Lake brine is going to have a remedial effect upon the waste load put into the Jordan River from this project, then it is necessary to establish where, how and at what level selenium remediation is really occurring.

Even beginning with the assumption that the environment will take care of it—either by brine or wetland biogeochemical processes, one is lead to the need for a closer examination of the problem and outlining a formal, scientifically credible monitoring plan. An ecological risk assessment is an approach to answering these questions and provides something that can be measured (Lemly, et al., 2002).

A strong case can be made that not all the contaminated water actually does end up in the lake. The Jordan River is extensively diverted – for duck clubs, nature reserves, mitigation sites approved by the federal government for Salt Lake City and other private entities, and for agricultural use on the south shore. In low water years especially, a certain amount of Jordan River water never reaches the lake – but is put to beneficial use on agricultural and recreational lands. Whatever the water is carrying is and will be deposited at these sites with little or no scientifically-adequate monitoring.

It is our recommendation that the fate of the concentrates be actively pursued by DEQ with the studies necessary to inform the eventual process of developing numerical standards. No scientifically-credible monitoring plan is in place to test the theory that contaminants will be bioremediated or permanently sequestered by the

Letter No. 03-82 (cont.)

lake. All Jordan River water does not end up in the lake, but on agricultural lands, in mitigation banks, private wetlands – where it will concentrate annually due to evaporation. There appears to be no comprehensive monitoring is planned.

C. "If it's meeting standards today, who's monitoring accumulated levels and who's liable for possible damages within the 40-year timeframe?"

From the materials presented, we found it difficult to track the duration, scope and quality of a monitoring program, and pinpoint who is ultimately responsible for the fate of the concentrates. Who is legally liable if areas of the Jordan River, wetland areas and wildlife, or the lake body itself need to be remediated during or after the 40+ years of discharge. Ecological liabilities and responsibility for toxic hazards are not clearly addressed. If ultimately required, clean-up costs for systems as expansive as the Great Salt Lake's would be painfully expensive.

Monitoring is needed to look at timing, sources, concentrations, what the microbial remediation activity is doing to levels of selenium and other materials. Monitoring is needed to understand how selenium cycles to other forms and accumulates in the environment, and to evaluate the threat it may pose to fish and wildlife before deciding whether to proceed further. It's tenuous to assume the material disappears and is no longer biologically available. And monitoring only for water quality and not vegetation and wildlife impacts may miss a key cumulative result of the discharge. The lack of monitoring for this project is indicative of the lack of monitoring for the entire lake as to cumulative impacts of contaminant/pollution discharges from all inflow sources.

Who is ultimately responsible and liable if contamination problems occur during the 40+-year time period? Monitoring is a key element to assure environmental damage does not occur and/or is stopped once if damage is detected.

III. Water Quality Standards

The Utah Department of Natural Resources' Management Plan for the Great Salt Lake (under the authority of the Division of Forestry, Fire and State Lands) publicly states that: "The general policy is that, to the extent feasible, no pollutants (discharges) should be delivered to the lake in amounts that result in concentrations greater than those already present in the lake." Is this permit consistent with that directive?

Even assuming the discharge does meet current standards, the waste dilution point at 2600 South is not the endpoint of the metals or the end-effect on the environment. We are close to surpassing the concentration thresholds with this project's discharge levels. 4.6 parts per billion is currently being applied as the standard to protect

Response to Letter No. 03-82 (cont.)

wildlife. The expected discharge is around 4.2 ppb. This is not an adequate margin of error in such a dynamic environment.

We have concerns and questions about "loading up the standards" on the Jordan River so closely to the threshold, considering the 40+-year timespan of the project. Looking ahead from this point in time until the end the project, we need to ask ourselves what the development patterns and water use will be in this 40-year project period? The Jordan River is not the only tributary to the lake – what loads of contaminants are the other tributaries carrying in the Weber, Bear and Ogden rivers? What about the sewer district loads up and down the Wasatch Front?

The issue of water re-use on the Jordan River has already been broached. Will water re-use cause a further concentration of wastes? What happens in the future if there are extremely low flows in the Jordan River? Will 2600 South sufficiently dilute the concentrates? Has the project considered the effects of the stated amount of discharged sulfate (22,000 tons of salts per year for 40 years) under various water-level scenarios?

The Farmington Bay Water Quality Working Group has not made any determinations on the impairment of beneficial uses in this embayment of the GSL. The study to determine if the bay is already polluted is currently underway. It makes sense that DWQ should not allow additional pollutants to be discharged into Farmington Bay of the Great Salt Lake until this study is completed.

Is this permit consistent with other state agency directives? There is not enough margin for error (.4ppb) to allow and account for probable dynamic river and lake changes over time. The state has not definitively answered the question as to the current possible pollution level of Farmington Bay – a question that should be answered before additional pollutants are added.

IV. Changed Public Perceptions – Community Standards

There is an embedded issue in the public reaction to this project. Though the discharges are legal under the current level of dilution and with the current discharge criteria, it doesn't fit the *community standards* for the Great Salt Lake environment.

We are part of a larger community which recognizes the value of the natural areas affected by this project. Because our community has spent a significant amount of funds, along with significant professional and volunteer effort to protect these areas, we are very concerned about the outcome of this project as well as the long-term implications of what we will allow to be discharged into the Great Salt Lake.

We now seem to be willing to downgrade this irreplaceable waterbody by accepting near-threshold pollution levels, approaching wildlife harm and mortality. In addition

to the public recreational and business/industry uses that have continued for 150 years, the public has found a greatly-increased appreciation in the last several decades for the wildlife and open space qualities of the lake and its tributaries.

V. Numeric Standards – Hasn't the Time Come?

A recurring theme in the discussion of this particular discharge proposal has been that no direct evidence has been presented that this discharge permit will cause harm or exceed acceptable limits of pollution within the river and lake. It is implied that the burden of proof for harm/no harm rests with the public, not the agencies who manage this resource for the public. **Without the existence of clear numeric standards for protecting lake water quality, it is not possible to tell if this permit (or any other permit) is causing any harm or exceeding safe levels. It is also not possible to say that the permit is not causing harm.** It's clear that the current "narrative" standards are not adequate to inform and assure the public that its resource is being protected rather than abused.

Though the state, through various agencies, is clearly responsible for managing the lake's tributaries and water, subsurface and significant adjacent wetlands and uplands, no state agency has stepped up to the challenge of tackling the difficult-but-necessary task of establishing clear numeric water quality standards for the Great Salt Lake , the state's premiere natural resource. Indeed, because issues overlap a number of different state agencies, there may even be conflicting decisions about the lake's future made within our single state structure.

Maintaining the health of the lake is a public trust responsibility the state carries for all citizens. We believe that it is time for the state to take concrete steps toward understanding our unique lake system, and, following appropriate scientific analysis, set clear, measurable numeric guidelines for its long term preservation. Until standards are in place, the public and the conservation community can probably be expected to recommend that the state err on the side of caution – and to oppose proposals that may have serious consequences for the lake's many public use and natural values.

The responsibility to gain the knowledge necessary to set scientifically credible numeric standards for the lake rests with the state, not its citizens or industries, and we encourage the state to clarify responsibilities within its own agencies and begin the process of setting numeric standards that will help to resolve conflict over future issues such as this. The Nature Conservancy would be a willing partner in this effort and would gladly help obtain whatever support we can for this key task.

VI. Beyond Numeric Standards - Lake Ecosystem Management

This proposal points out the inadequacy of "piecemeal" management of the Great Salt Lake system - the parceling out to different agencies responsibility for key lake functions (water quality, water quantity, wildlife, habitat management, extraction, etc.) The fact that DWQ is responsible for tracking discharge effects only on the water itself, is more than a minor dysfunction, as the discharge effects will ripple through the rest of the lake system without whole-picture coordination or analysis.

There are examples throughout the country where state and other agencies have decided that whole-system management of large-scale lake and waterbody ecosystems makes sense - and have then gone on to create the necessary management structures to accomplish their goals. We strongly urge the state to begin a process of analysis of an "ecosystem" approach to management of the entire Great Salt Lake system - and to move in the direction of creating a lake-wide governing entity that has the scientific information and the whole-system authority and vision to put proposals such as this in truly appropriate context.

The Great Salt Lake is more than the sum of its various management "parts". It is an international natural treasure that deserves to be studied and managed at the scale at which it operates - a rich, complex and interconnected large-scale lake system.

Letter No. 03-82 (cont.)

Selected References

Foote, A.L. 1991. Great Salt Lake Flooding: Destruction and Reestablishment of Wetland Vegetation. A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Wildlife Ecology. Utah State University, Logan, Utah.

Giddings, E.M., M.I. Hornberger and H.K. Hadley. 2001. Trace-Metal Concentrations in Sediment and Water and Health of Aquatic Macroinvertebrate Communities of Streams Near Park City, Summit County, Utah. U.S. Geological Survey, Water-Resources Investigations Report 01-4213. National Water-Quality Assessment Program.

Lemly, A. D. and H. M. Ohlendorf. 2002. Regulatory Implications of Using Constructed Wetlands to Treat Selenium-Laden Wastewater. Ecotoxicology and Environmental Safety no. 52, pp. 46-56.

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State Water Plan, Jordan River Basin (Salt Lake County) Public Review Draft, October, 1996. Prepared by State Water Plan Coordinating Committee (DNR, DEQ, DAG, GOPB, ETC)

Response to Letter No. 03-82 (cont.)

Letter No. 03-82 (cont.)

Cc:

Board and Staff
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Response to Letter No. 03-82 (cont.)

Letter No. 03-82 (cont.)

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Response to Letter No. 03-82 (cont.)

Letter No. 03-82 (cont.)

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Response to Letter No. 03-82 (cont.)

Letter No. 03-83

November 21, 2003

Dr. Dianne R. Neilson
NRD Trustee
Utah Dept of Environmental Quality
PO Box 144810
Salt Lake City, UT 84111-4810

Dear Dr. Neilson,

The Utah Wetlands Foundation, a Utah non-profit organization, exists to provide support to projects which sustain and enhance the remaining wetlands in Utah. As such, we focus in large part on the wetlands surrounding the Great Salt Lake. Many of our contributors are duck hunters who have a vested interest in sustaining waterfowl populations in the fresh water wetlands and impounded ponds adjacent to Farmington Bay of Great Salt Lake.

83-1 We are writing to express our concern regarding the approval of a permit authorizing Jordan Valley Water Conservancy District to discharge pollutants into the Jordan River (Permit # UT002551 issued August 18, 2003). We understand that the permit requires monitoring of pollutant concentration (selenium and total dissolved solids) at the point of discharge into the Jordan River and that concentrations are not expected to exceed standards at that point. The pollutants ultimately flow to wetlands and Farmington Bay of Great Salt Lake.

83-2 Our major concern relates to the long term effects of 40 or more years of discharge of the pollutants into the Jordan River, the wetlands and duck clubs and finally into the terminal Great Salt Lake. There are no stated plans to monitor levels in these areas beyond the point of discharge. The bioaccumulation of selenium and its devastating effects have been documented at Kesterson Wildlife Refuge in California. Elevated selenium levels may already be present in impounded fresh water wetlands supplied by the Jordan River.

Although no numeric standards exist for Great Salt Lake, the narrative standard for Water Quality states "no pollutants should be delivered to the lake in amounts that result in concentrations greater than those already present in the lake" [1]. How can you allow 146 lbs of selenium and 22,000 tons of salts to be discharged per year x 40 years and not expect to increase the concentrations of the pollutants in the lake?

[1] Page 47, Water Quality Management for Great Salt Lake. Great Salt Lake Comprehensive Management Plan Resource Document, May 1, 2000.

UTAH WETLANDS FOUNDATION
136 SOUTH MAIN STREET, SUITE 418
SALT LAKE CITY, UTAH 84101
PHONE (801) 364-2045

Response to Letter No. 03-83

83-1: See Response to Common Comment No. 6.

83-2: See Response to Common Comment No. 9.

Letter No. 03-83 (cont.)

83-3 We would encourage the Division of Environmental Quality and NRD Trustee to reevaluate alternatives to pollutant discharge into the Jordan River, take more time to measure selenium levels in the Jordan River Basin duck clubs and Farmington Bay and at the very least to have a monitoring plan in place for these areas prior to final permit approval.

83-4 Finally, this issue again raises concern that numeric standards should be developed for the lake and that management decisions regarding pollutant discharge into the Great Salt Lake watershed should be guided by accountability towards sustaining a healthy Great Salt Lake ecosystem.

Sincerely,

Maunsel B. Pearce
President, Utah Wetlands Foundation

cc Don Ostler, Executive Secretary, Utah Water Quality Board
Bob Morgan, Director, Dept of Natural Resources
Kevin Conway, Director, Division of Wildlife Resources
Karl Kappe, Division of Forestry, Fire, & State Lands

Response to Letter No. 03-83 (cont.)

83-3: See Response to Common Comment No. 9.

Also, please note that the Division of Water Quality and JVWCD have initiated a program for measuring selenium levels in the Jordan River Basin duck clubs and waterfowl habitat areas of the Great Salt Lake South Arm.

83-4: See Response to Common Comment No. 6 and No. 7.

Letter No. 03-84

HEAL Utah
Healthy Environment ALliance of Utah
68 S. Main St, Suite 400 Salt Lake City, Utah 84101 (801) 355-5055

November 21, 2003

Dianne R. Nielson, NRD Trustee
Utah Department of Environmental Quality
P.O. Box 144810
Salt Lake City, UT 84114-4810

RE: Kennecott Utah Copper Corporation Ground Water Contamination
Critique, Natural Resource Damage Claim Proposed Settlement

Dear Dr. Nielson:

The Healthy Environment Alliance of Utah (HEAL Utah) appreciates the opportunity to submit our comments on the proposed settlement for the Kennecott Utah Copper Corporation Ground Water Contamination Cleanup Project. As you may know, HEAL Utah and our affiliate, Families Against Incinerator Risk (FAIR) have long been interested in the public health and safety impacts of toxic emissions here in Utah.

84-1

In light of the cumulative environmental impacts that KUCC's operations along with those of MagCorp, the Bingham Pit, the Magna Tailings Impoundment and other polluting industries in the vicinity have, it is extremely important that this cleanup effort do the utmost to extract and treat Kennecott's contamination properly. It is our hope that these comments provide additional and useful insight in this endeavor.

Please do not hesitate to contact our office should you have any questions or require further information on our comments at (801)355-5055.

Respectfully submitted,

Vanessa R. Pierce
HEAL Utah

Working to Protect the Public from the Risks of Transporting, Storing, and Disposing of Nuclear and Toxic Wastes

Response to Letter No. 03-84

84-1: See Response to Common Comment No. 6 and No. 9.

Letter No. 03-84 (cont.)

84-2

Issue: Metals Removal Proposal is Inadequate

Concerns / Questions:

- The proposal to treat the metal contaminants through neutralization in the tailings line breaches scientific wisdom and is wrong-headed, as was illustrated by the failure of the Shepherd Mille study of 1997.
- Arguments that the acid in the gravity-fed tailings pipeline will neutralize metals are abjectly unscientific. If metals are fed into the pipeline at the top, they will come out at the bottom – they do not magically disappear.
- We strongly recommend employing nanofliltration for the treatment of the acid/ metals plume as was originally recommended in the Record of Decision (Dec. 2000).

84-3

Issue: Zone A acid/ metals plume concentrate storage plan is ill-advised

Concerns/ Questions:

- There are a number of concerns regarding the Magna Tailings Impoundment and the North Tailings Impoundment that suggest they are inadequate as toxic metal repositories.
  - Unlined lagoons are considered a major cause of the contamination that Kennecott is currently cleaning up. It is troubling, then, that the Magna Tailings Impoundment lagoon is also unlined. What actions will be taken to ensure that this lagoon will not leach contaminates into the surrounding environment?
  - The location of the impoundment is known to experience gusty winds. Have concerns about toxic metals becoming airborne and being distributed through the environment and / or food chain causing human and wildlife exposures been considered?
  - Changes in hydrology near the North Tailings Impoundment could jeopardize the integrity of the impoundment. Have studies been conducted to ensure the impoundment could withstand sustained high-velocity winds, flooding, and wave run-up?
  - Seismic activity is not uncommon in Utah. What impact might an earthquake have on the structural integrity of the tailings impoundments? Is there danger that seismic damage to the impoundments could cause toxic materials to mix into the Great Salt Lake? What impacts might seismic activity have on the plumes?

84-4

Issue: Zone B and Jordan River sulfate plume treatment

Concerns/ Questions:

- The settlement allows for the concentrates of the sulfate plume to be discharged into the Jordan River, which may have serious consequences for the ecology of the River.
  - One compound of particular concern in this proposal is Selenium, which is known to cause irreversible damage to wildlife. The discharge permit will allow 48.5 µg/L of Selenium – just 1.5 µg/L short of the 50 µg/L drinking water standard, at one outfall point, and 5 µg/L at the other. These permit levels fly in the face of current scientific wisdom suggesting discharges in excess of 2 µg/L have particularly devastating impacts on wildlife (*Source: US Dept of the Interior, U.S.*

Response to Letter No. 03-84 (cont.)

84-2: See Response to Common Comment No. 5.

The decision to neutralize acidic groundwater in the tailings line is based on years of studies documented in Appendix A of the South Facilities Remedial Design. Kennecott also has tested this technology for a short period of time at full scale to demonstrate the scientific, technical and economic viability of this process. Fundamentally, acidic water must be neutralized before it can be reused or discharged. Employing nanofiltration does not solve this problem.

84-3: See Response to Common Comment No. 7.

Additionally, prior to State Engineer approval in the mid-1990's for the construction of the North Tailings Impoundment, numerous studies were conducted addressing site, geotechnical, engineering and environmental considerations. These studies included assessing the impacts of flooding and wave run-up on the North Tailings Impoundment such that the design of the embankment incorporates these concerns.

84-4: See Response to Common Comment No. 6, No. 7 and No. 9.

Letter No. 03-84 (cont.)

Fish and Wildlife Service letter from Henry Maddux to Don Ostler, DEQ, Div. of Water regarding UPDES Permit UT002551 for JVWCD dated 8/15/03).

84-4
- Ultimately the discharge permit for Total Dissolved Solids (TDS) is dangerously close to the River's total maximum daily load (TMDL), and we agree with the US Fish and Wildlife Service recommendation that the limit for TDS be lowered to a level truly protective of life.

Issue: Toxic concentrates from Zones A and B would be discharged directly into the Great Salt Lake.

Concerns / Questions:

84-1
- These toxic metals, including aluminum, arsenic, cadmium and selenium will inevitably impact the flora and fauna of the Great Salt Lake, yet there has been no ecological study or risk assessment to evaluate the safety and wisdom of this proposal. We strongly recommend that the settlement include enlisting a third-party to conduct such an environmental assessment.
- It is important to note that the discharge of Kennecott's contaminants into the Great Salt Lake does not occur in a vacuum; but rather, KUCC is one of many polluters in the area, and the cumulative impact of industrial activity in the GSL vicinity must be accounted for in predicting and evaluating the impact that the discharge of Kennecott's toxic waste.
- The Great Salt Lake attracts a number of migratory birds every year, many of which are protected by the Migratory Bird Act of 1918. In spite of the importance of the GSL for waterfowl and fish, the proposal would allow for the discharge of Selenium into the lake, which, as aforementioned, has particularly deleterious effects on wildlife at levels as low as 2 µg/L.
- One of the commercial uses for the Great Salt Lake is the production of brine shrimp for prawn-feed. Has there been an investigation to the possibility some of the toxic materials from the tailings line discharge could bioaccumulate in the brine shrimp, making its way up trophic levels, eventually causing human exposure and public health risks? What measures, if any, will be taken to off-set any economic ramifications this problem may cause for brine shrimp producers?
- In summary, there is a clear need for a study on the biological and ecological impacts that this discharge permit, in conjunction with existing environmental contaminants in the area, would have on the GSL biota before it is issued. Of particular concern are DNA anomalies, reproductive impacts, bioaccumulation of toxins, and other long-term effects that may occur as a result of the discharge of toxic metals into this unique ecosystem.

Issue: Toxic waste disposal

Concerns / Questions

84-5
- It is extremely ironic that the proposed settlement calls for the extraction of toxic waste from Zones A and B, only to allow for those same toxins to be reintroduced into the environment in unlined areas like the Magna Impoundment, in the Jordan River, a source of drinking water, or in a delicate and unique ecosystem like the Great Salt Lake.
- Ultimately these toxic concentrates need to be disposed of safely and responsibly, and we wonder why a RCRA approved landfill is not being used to try and keep these materials

Response to Letter No. 03-84 (cont.)

84-5: See Response to Common Comment No. 7 and No. 9.

Letter No. 03-84 (cont.)

84-5 isolated from the environment. How will the current proposal prevent further harm to public health and the environment?

Issue: Kennecott must not be permitted to externalize the social and environmental costs of their production process

Concerns/ Questions:

84-6 It is our understanding that under the NRD settlement agreement, KUCC will fund all operational, maintenance, and replacement expenses with monies currently in the ILC. During the first five years, the Trustee will release 15% of the $48.1 million, but at the end of that period KUCC will receive the balance from the fund. Our concern is that Kennecott may not have an incentive to continue treating the groundwater after the balance of money has been given to them.

- Instead, Kennecott should provide a long-term trust fund controlled by the state that would ensure that taxpayers would not end up footing the bill for the remediation of Kennecott's groundwater contamination.
- Kennecott made the decision to improperly treat the hazardous byproducts of their business, therefore the company must bear full fiscal responsibility for the clean-up of their mess, and they must not be allowed to force taxpayers to shoulder the burden should KUCC attempt to shirk this responsibility.

Issue: Public participation

Concerns/ Questions:

84-7

- Because of the magnitude this cleanup project – both in terms of the environmental health consequences - and the voluminous documents to review - it is our belief that more publicity of this effort is warranted, and that there should be a greater effort to engage the public in this process. Specifically, we see a need for:
  - Regularly scheduled public meetings to report on the progress of the project
  - Opportunities for stakeholders to share information, including problems private well owners and other residents may be experiencing in relation to the project
  - Occasions for public involvement at various stages of the project

We appreciate the magnitude and complexity of this undertaking. However after Kennecott's unsuccessful attempts to contain and treat waste byproducts thus far, we feel that it is extremely important this cleanup effort is executed properly. It is our belief that addressing the concerns we have raised will significantly improve the cleanup effort.

Sincerely,

Vanessa R. Pierce
HEAL Utah

Response to Letter No. 03-84 (cont.)

84-6: See Response to Common Comment No. 12.

84-7: See Response to Common Comment No. 1.

Letter No. 03-85

GREAT SALT LAKE AUDUBON

November 21, 2003

Dianne R. Nielson
Utah Natural Resource Damage Trustee
Utah Department of Environmental Quality
P.O. Box 144810
Salt Lake City, Utah 84114-4810

NOV 2003

Re: Natural Resource Damage Cleanup Plan

Dear Ms. Nielson:

Great Salt Lake Audubon is writing to comment on the proposed cleanup plan for the Natural Resource Damage Consent Decree. Great Salt Lake Audubon is opposed to the cleanup plan because of the portion related to the treatment of zone B waters and discharges of reverse osmosis byproducts into the Jordan River and Great Salt Lake.

85-1

Our organization believes that the discharge permit, which has already been approved, is flawed and should be reviewed and denied. We believe that the calculated highest concentrations of TDS does not necessarily correlate to estimated lowest in-stream flows. In addition, we think that the discharge permittee has provided contradictory information regarding the hydrologic function of the shallow groundwater aquifer and its connection to the Jordan River channel. Furthermore, GSLA is concerned that concentrations of Selenium will accumulate in the riparian wetlands of the Jordan River and in the wetlands surrounding the south shores of Great Salt Lake and will cause harm to fish and avian wildlife. And finally, we are not satisfied with the permittee's presentation of alternative processes and technologies that might exist, despite increasing project costs, that could allow for the treatment of the contaminated waters in zone A and B, but avoid creating byproducts that require discharge into the Jordan River and Great Salt Lake.

85-2

In public meetings, Jordan Valley Water Conservancy District has claimed that there is not a significant hydrologic connection between the Jordan River and the shallow groundwater aquifer. They have made this claim to support a claim that pumping the shallow aquifer will not have negative effects on the adjacent riparian wetlands of the river corridor. In contrast, the water district claims that background concentrations of Selenium that exist in the Jordan River are supplied from shallow groundwater aquifer communication with the Jordan River, and that discharging the concentrated Selenium is only replacing the natural occurrence of that constituent. Obviously, either the shallow aquifer supplies water to the river channel or it doesn't. GSLA believes that verification of shallow groundwater

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Response to Letter No. 03-85

85-1: See Response to Common Comment No. 6 and No. 9.

85-2: See Response to Common Comment No. 1 and No. 6.

The claim made in the first two sentences of this comment involves a summary conclusion with which JVWCD does not agree and of which the Trustee has no knowledge. Although there is substantial evidence that the shallow aquifer is an accretionary source of selenium and other dissolved constituents entering the Jordan River, this issue is not of current concern in light of JVWCD's action in withdrawing its UPDES permit for discharge to the Jordan River.

Letter No. 03-85 (cont.)

85-2 communication with the Jordan River, and subsequent accretion of natural levels of Selenium needs to be verified to avoid allowing extraordinary levels of Selenium into the river system.

85-3 From testimony received by the Legislative Management Committee on November 18th, 2003, alternative technologies apparently exist that may eliminate the need to discharge treatment byproducts into the Jordan River and Great Salt Lake at all. This leads us to think that the permittee and project partners have not conducted enough research into alternatives to reverse osmosis treatment. In addition, we are not convinced that organic compounds cannot be removed from the zone B water, which would allow the byproducts to be stored in the Kennecott settling pond along with zone A waters. The project partners should be required to do better studies into this alternative, despite the chance that doing so may incur increased costs.

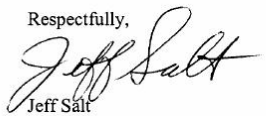
85-4 We were surprised and disappointed that monitoring of wetland areas around Great Salt Lake has not been started until just recently. We would expect that baseline data should have been required before application for a discharge permit. Based on this serious omission, we urge the trustee to place a hold on the approved permit and require that the modified permit also be held up until reliable data from the wetlands be collected and presented for public review.

85-5 As we forecast water use into the future and into the time frame of the cleanup project, 40 years, it seems reasonable to assume that demand for water will increase and that sources of water entering the Jordan River will be depleted, thus lowering the in-stream flows and volumes, which will affect the calculations of Selenium concentration in the Jordan River. One such source that will likely be depleted during the life of the project is sewer treatment plant effluent. We anticipate that sewer treatment plants will be recycling their effluent before too long, and that the cleanup plan has not sufficiently taken this consumptive use into consideration, nor has the state calculated this loss when approving the discharge permit.

85-1 Based on these fairly simple concerns, Great Salt Lake Audubon urges the trustee to require further review and studies by the project partners before the cleanup plan is approved. Secondary to this request is our recommendation that the

85-6 modified permit be denied and postponed until further review and studies are conducted. Finally, GSLA recommends that more public involvement be provided wherever possible.

Respectfully,



Jeff Salt
Executive Director

Response to Letter No. 03-85 (cont.)

85-3: See Response to Common Comment No. 6 and No. 7.

85-4: See Response to Common Comment No. 6 and No. 9.

85-5: See Response to Common Comment No. 9.

Also, please note that the Division of Water Quality and JVWCD have initiated a program for measuring selenium levels in the Jordan River Basin duck clubs and waterfowl habitat areas of the Great Salt Lake South Arm.

85-6: See Response to Common Comment No. 1.

Letter No. 03-86

WESTSIDE DUCK CLUBS
ASSOCIATION

November 21, 2003

Dianne Nielson, Executive Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

Dear Ms. Nielson,

As my previous letter (enclosed) indicated, I am the president of the West Side Duck Club Association comprised of seven clubs owning over 7500 acres of wetlands on the south end of the Great Salt Lake.

While many of the comments regarding the Jordan Valley Conservancy District / Kennecott Utah Copper Corporation proposal have dealt with the problems associated with selenium, of equal concern (if not greater in the short term) is the impact 22,000 tons of salt each year will have on the plant life, fish, fresh water shrimp, snails and other animal life that rely on fresh water.

For example, the Ambassador Duck Club ecosystem varies greatly from the south east corner where the water enters the club to the northwest corner where nothing grows (a distance of three and one half miles). The concentration of salts increases dramatically and the types of plant and animal life changes from essentially fresh water where cattail, white bass, carp, catfish thrive to salt grass and pickle weed then nothing. 86-1

I understand Kennecott has indicated the duck clubs are not concerned about the salts. I am not sure who they talked to but we are! Over time this could potentially destroy the plant and animal life as happened in the 80's when the lake flooded. It has taken us years and several hundred thousand dollars to flush the salts from our ponds to promote the growth of beneficial plant and animal life.

It is inconceivable to me that the system would allow someone to despose of their unwanted salt by simply tossing it over the fence onto an other persons lawn (imagine what would happen to the lawn). If the dumping of salts into the Jordan river causes the death of the marshes located on our private property, who will pay to clean up the problem.

We urge you to seriously consider other alternatives that will not destroy our private property. 86-2

Sincerely,

Richard D West

Richard D. West President West Side Duck Club Asssociation

Response to Letter No. 03-86

86-1: Kennecott uses adaptive management techniques to increase salts in their Inland Sea Shorebird Reserve (ISSR) ponds to control phragmites. The ISSR management objectives are to increase shorebird habitat (shallow salty ponds and mudflats.) It is understood that the duck clubs management objectives and administration are different from that of the ISSR.

86-2: See Response to Common Comment No. 6 and No. 9.

Letter No. 03-86 (cont.)

WESTSIDE DUCK CLUBS
ASSOCIATION

October 14, 2003

Dianne Nielson, Executive Director
Utah Department of Environmental Quality
168 North 1950 West
Salt Lake City, Utah 84114

Dear Ms. Nielson,

As the President of the West Side Duck Club Association comprised of seven clubs (500 members owning over 7500 acres), I wish to express our concern and opposition to the Jordan Valley Conservancy District and Kennecott Utah Copper Corporation proposal to discharge selenium, salts and other contaminants into the Jordan River. It does not make sense to simply move the pollution from point A to point B. It is still pollution causing damage to the environment and our property which happens to be point B. While average daily discharges may be within acceptable limits in the River according to Richard Bay, the river is just the pipeline to the Great Salt Lake marshes (a terminal basin) where all the pollutants will end up potentially causing a similar disaster to that which occurred at the Kesterson National Wildlife Refuge located in California.

86-3

The Great Salt Lake ecosystem is unique in the world and not only provides food and rest to millions of migrating waterfowl and shore birds each year but also acts a filtering system to water entering the lake, creates oxygen, and provides a home to countless species of wildlife. It would be a crime to threaten or destroy this vital ecosystem because of a failure to fully investigate the long term impact and potential alternatives of the Jordan Valley Conservancy District / Kennecott Utah Copper Corporation proposal.

We would strongly suggest that before approval is given, a study to determine the long term cumulative impact over the life of the project of dumping 22,000 tons of salts and 146 pounds of selenium a year into the Great Salt Lake (a terminal basin) be conducted and that other options of disposal be considered that would avoid polluting the Jordan River and Great Salt Lake Marshes. It would also be important to factor in how the addition of these pollutants to the river will impact other users of Jordan River water and drainage system such as Salt Lake City and Utah Power and light.

Sincerely,

Richard D. West
President, West Side Duck club Association

cc. Senator Orrin Hatch
Governor Michael Leavitt
Mayor Rocky Anderson

Response to Letter No. 03-86 (cont.)

86-3: See responses provided to Comment Letter No. 03-18

Letter No. 03-87

Harrison Duck Club

C/O David F. Hinds
379 North 900 East
Kaysville, UT 84037

Ms. Dianne R. Nielson
Executive Director, Department of Environmental Quality, State of Utah
168 North 1950 West
Salt Lake City, UT 84116

RE: Jordan Valley Water Conservancy District/Kennecott Utah Copper Corp. Salt Lake County Groundwater Contamination Cleanup

Dear Ms. Dianne R. Nielson,

It has come to our attention that your agency is considering a proposal to clean groundwater contaminates from the southern portion of Salt Lake County by "dumping" Selenium and salts into the Jordan River flow emptying into the ecosystem of the Great Salt Lake southern wetlands. We vehemently oppose this shortsighted proposition.

87-1 The State of Utah in conjunction with Kennecott Copper should be applauded for efforts to clean the long-standing groundwater contaminates, but discharging a known poisonous compound into the Jordan River is simply unacceptable. First and foremost, no baseline study has been

87-2 performed on the Jordan River drainage and Great Salt Lake Wetlands ecosystem. Second, an environmental evaluation study has not been performed to analyze the anticipated effects of the discharging or to explore other alternatives such as disposal wells or piping the contaminated effluents into existing disposal/evaporation ponds.

87-3 Granted, the current emission standards for Selenium would not be breached by the proposal but let us be clear, no one has even attempted to examine the long-term effects of 146 pounds of Selenium and 22,000 tons of salts that will be discharged annually upon this fragile ecosystem.

What legacy are we sacrificing now? I can cite hundreds of examples of the failure of a governing body to look into the future. Here are but a few. One needs only to look west to the environmental disaster created in California by simply allowing farmers to discharge effluents into the Salton Sea. No one anticipated that Wasatch Chemical Company toxins would in time be the cause of health problems. Look too at the short-sightedness which led to the long-term effects of the tailings in Midvale, Utah a problem that was only solved after millions of dollars were spent through the federal RECRA program (Superfund).

87-3 This proposal looks to reverse years of positive environmental advances by increasing pollution levels within the Jordan River by 11% for Selenium and 28% additional salts. What legacy is served by discharging a known poisonous, semi-metallic compound that accumulates in various flora into an already fragile ecosystem?

87-2 Once again, on behalf of the Harrison Duck Club, which takes in 1320 acres and has 100 members, our owners, members and affiliates, I ask the DEQ to reconsider its position and oppose the introduction of Selenium and salts into the Jordan River.

Very Sincerely,

David F. Hinds

Response to Letter No. 03-87

87-1: See Response to Common Comment No. 3.

87-2: See Response to Common Comment No. 1, No. 6 and No. 9.

87-3: See Response to Common Comment No. 9.