

**DRAFT RESTORATION PLAN AND  
ENVIRONMENTAL ACTION STATEMENT  
(PUBLIC REVIEW DRAFT RP/EAS)**

*FOR THE  
PRESERVATION, RESTORATION AND MANAGEMENT OF THE  
**LAKEPOINT WETLANDS SITE**  
TOOELE COUNTY, UTAH*



*ADDRESSING INJURIES TO MIGRATORY BIRDS AND OTHER  
U.S. DEPARTMENT OF THE INTERIOR TRUST NATURAL RESOURCES*  
*AT*  
**THE KENNECOTT UTAH COPPER CORPORATION  
NORTH ZONE WETLANDS SITE (OU-22)**  
**SALT LAKE COUNTY, UTAH**

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**DOCUMENT TITLE:**

Draft Restoration Plan and Environmental Action Statement for the Preservation, Restoration and Management of the Lakepoint Wetlands Site, Tooele County, Utah  
*(Addressing injuries to migratory birds and other U.S. Department of Interior Trust natural resources at the Kennecott Utah Copper Corporation (KUCC) North Zone Wetlands Site (OU-22), Salt Lake County, Utah.)*

**Date of Publication: January 31, 2008****Lead Federal Trustee:**

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## ACRONYMS AND ABBREVIATIONS

AO	Authorized Official
CAA	Clean Air Act
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOI	Department of the Interior
EA	Environmental Assessment
EAS	Environmental Action Statement
EO	Executive Order
EPA	[United States] Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
FWS	[United States] Fish and Wildlife Service
GSL	Great Salt Lake
ISSR	Inland Sea Shorebird Reserve
KUCC	Kennecott Utah Copper Corporation
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NRD	Natural Resource Damage(s)
NRDA	Natural Resource Damage Assessment
NRDAR	Natural Resource Damage and Restoration
NWP	Nationwide Permit (Under Section 404 of the Clean Water Act)
OSHA	Occupational Safety and Health Agency
ppm	parts per million (milligram per kilogram, milligram per liter)
ppm-dw	parts per million dry weight (relative to biotic tissues)
ROD	Record of Decision
Se	Selenium

## ACRONYMS AND ABBREVIATIONS, continued

T&E	Threatened and Endangered (as designated by Endangered Species Act)
TNC	The Nature Conservancy
UDEQ	Utah Department of Environmental Quality
UDNR	Utah Department of Natural Resources
UDWR	Utah Division of Wildlife Resources
USACOE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
USHPO	Utah State Historical Preservation Office

## GLOSSARY

**Note:** Where applicable, terms that have a regulatory or statutory definition have been noted with the source of the definition. General biological, ecological or toxicological terms have been defined for clarity to the general public but do not necessarily have identified sources for the definitions. Terms used in definitions that have specific meaning within the context of NRDA, and which are defined in this section, are highlighted by italicized, underlined text in the definitions.

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**Assessment area:** means the area or areas within which natural resources have been affected directly or indirectly by the discharge of oil or release of a hazardous substance and that serves as the geographic basis for the injury assessment (*NRDA Definitions, 43CFR § 11.14*).

**Assessment:** (*see Natural Resource Damage Assessment*)

**Authorized Official:** The Federal or State official to whom is delegated the authority to act on behalf of the Federal or State agency designated as trustee, or an official designated by an Indian tribe, pursuant to section 126(d) of CERCLA, to perform a natural resource damage assessment. As used in this document, authorized official is equivalent to the phrase “authorized official or lead authorized official,” as appropriate (*NRDA Definitions, 43CFR § 11.14*).

**Baseline (natural resource value):** means the condition or conditions that would have existed at the assessment area had the discharge of oil or release of the hazardous substance under investigation not occurred (*NRDA Definitions, 43CFR § 11.14*).

**Bioaccumulation:** a process by which a compound is taken up by organisms, but is not readily metabolized and/or excreted, thus accumulating in increasing concentrations in the organism. Plants can take these compounds up from soils or sediments; animals may take them up by consuming plants or other animals that have accumulated the compound, or by direct ingestion of soil, sediments or water containing the compound. Therefore, concentrations of bioaccumulating compounds can build up in exposed organisms to many times the concentration of the surrounding soil, sediment or water.

**Biological Resources:** means those natural resources referred to in section 101(6) of CERCLA as fish and wildlife and other biota. Fish and wildlife include marine and freshwater aquatic and terrestrial species; game, non-game, and commercial species; and threatened, endangered, and State sensitive species.

## GLOSSARY, continued

**Biota:** Living organisms. In the context of CERCLA and NRDA, biota make up the living component of habitat and ecosystems (e.g., soil microorganisms, invertebrates, plants, animals). Other biota encompass shellfish, terrestrial and aquatic plants, and other living organisms not otherwise listed in this definition<sup>1</sup> (*NRDA Definitions, 43CFR § 11.14*).

**Categorical Exclusion (relevant to NEPA):** A category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of those regulations, and for which, therefore, neither an environmental assessment nor an environmental impact statement is required.

**CERCLA (“Superfund”):** The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U.S.C. 9601 *et seq.*, as amended. CERCLA is commonly known as "Superfund."

**Compensatory Restoration:** Any action taken to compensate for *interim losses* of *natural resources* and *services* that occur from the date of the *release* or discovery of the release until *recovery* (defined in the Oil Pollution Act of 1990, 33 U.S.C. 2701-2761, and codified in 15 CFR § 990.30; relevant to NRDA under CERCLA).

**Contaminants of Concern:** Contaminants of concern are that subset of *hazardous substances* or other constituents that have been determined to potentially lead to toxicity and adverse effects in *exposed* organisms, due to a combination of factors such as the concentration or form of the contaminant of concern, exposure routes to the organism, or physiological or other characteristics of the organism that may result in toxicity or adverse effects.

**Damages (of natural resources):** means the amount of money [or other compensation] sought by the *natural resource trustee* as compensation for *injury, destruction* or *loss* of natural resources as set forth in section 107(a) or 111(b) of CERCLA (*NRDA Definitions, 43CFR § 11.14*).

**Destruction:** Means the total and irreversible *loss* of a *natural resource* (*NRDA Definitions, 43CFR § 11.14*).

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<sup>1</sup> Note: This restoration plan is for biological resources under the trusteeship of the United States government that are under the jurisdiction of the U.S. Fish and Wildlife Service; e.g., migratory birds and their supporting habitats.

## GLOSSARY, continued

**Environmental Assessment (EA):** A concise public document prepared pursuant to the NEPA by a Federal agency that serves to briefly provide evidence and analysis for determining whether to prepare an environmental impact statement (EIS ) or a Finding of No Significant Impact. An EA aids in an agency's compliance with the NEPA when no EIS is necessary, and facilitates preparation of an EIS when one is necessary.

**Environmental Impact Statement (EIS):** A detailed written statement prepared pursuant to section 102 (2)(C) of the NEPA regulations. An EIS includes detailed discussions of the need for a proposed action and provides an analysis of the environmental impacts of the the proposed action as well as other potential alternatives to the proposed action, including a "no action" alternative.

**Exposure:** Means that all or part of a natural resource is, or has been, in physical contact with oil or a hazardous substance, or with media containing oil or a hazardous substance (*NRDA Definitions, 43CFR § 11.14*).

**Hazardous substances:** Means a hazardous substance as defined in Section 101(13) of CERCLA. This includes specific chemicals, chemical wastes, and chemical constituents that are hazardous due to physical characteristics and/or chemical properties that render them toxic to humans and/or biota (*NRDA Definitions, 43CFR § 11.14*).

**Hemispheric Shorebird Reserve:** An area that has been designated for protection because it has worldwide significance as habitat for shorebird species. In order to qualify as a Hemispheric Reserve, an area must support at least 250,000 birds or at least 30% of a flyway population of at least one shorebird species. Hemispheric shorebird reserves are part of an intercontinental network of protected sites known formally as the Western Hemisphere Shorebird Reserve Network. The Great Salt Lake is one of only 15 such sites in the Americas (Canada, U.S., Mexico, Central and South America).

**Injury (of natural resources):** means a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil or a release of a hazardous substance, or exposure to a discharge of oil or release of a hazardous substance, or exposure to a product of reactions resulting from the discharge of oil or release of a hazardous substance (*NRDA Definitions, 43CFR § 11.14*).

**Interim Loss (of natural resources):** a loss of a natural resource that occurs from the time that the release of a hazardous substance began (or since the inception of the Natural Resources Damage and Assessment Regulations in 1980, in the case of releases of hazardous substances that began prior to that date) until the time that the response action to the release is completed.

## GLOSSARY, continued

**Lakepoint Property:** Property owned by Kennecott Utah Copper Corporation (KUCC) which was transferred in fee title to The Nature Conservancy (TNC) under the terms of a Consent Decree between KUCC and the Department of Interior (DOI) in partial resolution of a Natural Resource Damage claim brought by DOI for injuries to Trust Resources at KUCC's North Zone Wetlands (see Section 2.1 and Figure 2-1 of the Restoration Plan).

**Lakepoint Wetland:** Wetlands that will be restored/created at the Lakepoint Property under the management of The Nature Conservancy, acting on behalf of the Department of Interior (DOI) and the U.S. Fish and Wildlife Service (the Service), under a series of agreements set forth in a Consent Decree between DOI and Kennecott Utah Copper Corporation in resolution of a DOI's NRDA Claim at the North Zone Wetlands. The Lakepoint Wetlands will be restored according to objectives and management activities presented in this Restoration Plan and managed pursuant to a Management Plan developed by TNC (presented as Attachment 3 to this Restoration Plan).

**Lead Authorized Official:** a Federal or State official authorized to act on behalf of all affected Federal or State agencies acting as trustees where there are multiple agencies, or an official designated by multiple tribes where there are multiple tribes, affected because of coexisting or contiguous natural resources or concurrent jurisdiction (*NRDA Definitions, 43CFR § 11.14*).

**Loss (of natural resources):** means a measurable adverse reduction of a chemical or physical quality or viability of a natural resource (*NRDA Definitions, 43CFR § 11.14*).

**National Environmental Policy Act (NEPA):** An act of congress, codified at 42 U.S.C. 4321 (15 CFR § 990.30) that requires Federal agencies to evaluate the environmental impacts of actions undertaken or funded by those agencies. Depending on the nature of the action, this analysis may be undertaken either as an environmental assessment (EA) or Environmental Impact Statement (EIS).

**National Contingency Plan (NCP):** the National Oil and Hazardous Substances Contingency Plan and revisions promulgated by EPA, pursuant to Section 105 of CERCLA and codified in 40 CFR Part 300 [The NCP outlines the responsibilities and authorities for responding to releases into the environment of hazardous substances and other pollutants and contaminants under the statutory authority of CERCLA and Section 311 of the Clean Water Act] (*NRDA Definitions, 43CFR § 11.14*).

**National Priorities List (NPL):** The list, compiled by EPA pursuant to CERCLA Section 105 (40 CFR Part 300), of uncontrolled hazardous substance releases in the U.S. that are priorities for long-term remedial evaluation and response.

## GLOSSARY, continued

**Natural Resources:** means land, fish, wildlife, biota, air, water, groundwater, drinking water supplies and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States...*[definition of marine resources omitted]*, any State or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe. These natural resources have been categorized into the following five groups: surface water resources, ground water resources, air resources, geologic resources, and biological resources<sup>2</sup> (*NRDA Definitions, 43CFR § 11.14*).

**Natural Resource Damage Assessment (or Assessment):** means the process of collecting, compiling, and analyzing information, statistics, or data through prescribed methodologies to determine *damages* for injuries to natural resources (*NRDA Definitions, 43CFR § 11.14*).

**(Natural Resource) Trustee:** means any Federal natural resources management agency designated in the National Contingency Plan and any State agency designated by the Governor of each State, pursuant to section 107(f)(2)(B) of CERCLA, that may prosecute claims for damages under section 107(f) or 111(b) of CERCLA; or an Indian tribe, that may commence an action under section 126(d) of CERCLA (*NRDA Definitions, 43CFR § 11.14*).

**NRDAR (Natural Resource Damage Assessment and Restoration):** Assessment of injuries to natural resources, and actions needed to restore those resources to the public. This process is governed by regulations under CERCLA, published in the Federal Register (56 FR 19752) and found in the Code of Federal Regulations at 43 CFR 11.

**North Zone Wetlands:** Wetlands located in the North Zone Operational Unit at Kennecott Utah Copper Corporation (KUCC), as defined by the U.S. Environmental Protection Agency (EPA) and KUCC for the purposes of *CERCLA* associated environmental remediation. For the purposes of this Restoration Plan, this area is specifically defined in the Consent Decree between KUCC and the U.S. Fish and Wildlife Service (FWS) settling the FWS' claim of damages pursuant to the Natural Resource Damage Assessment regulations found at 43 CFR 11 and sections 107(a) or 111(b) of CERCLA. These wetlands consist of emergent saline-to-fresh water emergent marshes and shallow ponds, and are located down gradient and adjacent to the KUCC North Zone ore processing and tailings storage facilities and the south shore of the Great Salt Lake (see Section 1.3 of the Restoration Plan and Figure 1-2).

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<sup>2</sup> See Footnote No. 1

## **GLOSSARY, continued**

**Permanent loss (of natural resources):** The *loss* of natural resources (compared to baseline) that cannot be regained following *response* actions taken under CERCLA. That portion of a natural resource that has undergone *destruction* due to the *release* of a *hazardous substance*.

**Primary Restoration :** Any action, including natural *recovery*, that returns *injured natural resources* and *services* to *baseline* (defined in the Oil Pollution Act of 1990, 33 U.S.C. 2701-2761, and codified in 15 CFR § 990.30; relevant to NRDA under CERCLA).

**Record of Decision (ROD):** A public document that explains which cleanup alternative(s) will be used at *National Priority List (NPL)* sites. The ROD is based on information and technical analysis generated during the site investigations and evaluations of remedial alternatives, and consideration of public comments and community concerns.

**Recovery:** means the return of *injured natural resources* and *services* to *baseline* (defined in the Oil Pollution Act of 1990, 33 U.S.C. 2701-2761, and codified in 15 CFR § 990.30; relevant to NRDA under CERCLA, also).

**Recovery period:** means either the longest length of time required to return the *services* of the *injured resource* to their *baseline* condition, or a lesser period of time selected by the *authorized official* (NRDA Definitions, 43CFR § 11.14).

**Release:** means a release of a *hazardous substance* as defined in section 101(22) of CERCLA. Briefly, this includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous substance, with exceptions and conditions specified in section 101(22) of CERCLA (NRDA Definitions, 43CFR § 11.14).

**Remediation:** A measure or solution that stops or substantially reduces a release or threatened *release* of *hazardous substances* that is serious, but does not pose an immediate threat to public health and/or the environment.

**Replacement or Acquisition of the Equivalent:** means the substitution for an *injured resource* with a resource that provides the same or substantially similar *services*, when such substitutions are in addition to any substitutions made or anticipated as part of *response* actions and when such substitutions exceed the level of response actions determined appropriate to the site pursuant to the *NCP* (NRDA Definitions, 43CFR § 11.14).

## **GLOSSARY, continued**

**Response:** means remove, removal, remedy, or remedial actions as those phrases are defined in sections 101(23) and 101(24) or CERCLA (to employ various means of cleanup to reduce concentrations of hazardous substances to levels at which adverse effects attributable to those substances are not expected to occur) (*NRDA Definitions, 43CFR § 11.14*).

**Restoration or rehabilitation:** means actions undertaken to return an injured resource to its baseline condition, as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided, when such actions are in addition to response actions completed or anticipated, and when such actions exceed the level of response actions determined appropriate to the site pursuant to the NCP. Restoration means any action or combination of actions undertaken to restore, rehabilitate, replace or acquire the equivalent of injured natural resources and services. Restoration may include either, or a combination of, primary restoration and/or compensatory restoration (any action taken to compensate for interim losses of natural resources and services that occur from the date of the release or discovery of the release until recovery) (*NRDA Definitions, 43CFR § 11.14*).

**Services:** means the physical and biological functions performed by [a *natural resource*] including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource (*defined in the Oil Pollution Act of 1990, 33 U.S.C. 2701-2761, and codified in 15 CFR § 990.30; relevant to NRDA under CERCLA, also*).

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## EXECUTIVE SUMMARY

This Draft Restoration Plan and Environmental Action Statement (Draft RP/EAS) was prepared in compliance with the Natural Resource Damage, Assessment and Restoration (NRDAR) provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U.S.C. 9601 *et seq.*, and the National Environmental Policy Act (NEPA) (42 U.S.C. 4321, *et seq.*) to address restoration of natural resources held in trust by the U. S. Fish and Wildlife Service (the Service), acting on behalf of the U.S. Department of Interior (DOI), alleged to have been injured by the release of hazardous substances (as defined by CERCLA and other regulations) associated with industrial operations by Kennecott Utah Copper Corporation (KUCC) at the “North Zone Wetlands” on the south shore of the Great Salt Lake in Salt Lake County, Utah.

The purpose of restoration, as outlined in this Draft RP/EAS, is to make the environment and public whole for injuries to natural resources and natural resource services alleged by the Service to have occurred at the North Zone Wetlands by compensating for the losses of these resources and services by the acquisition, restoration, management, and protection into perpetuity of natural resources of a similar type and magnitude at the Lakepoint Wetlands, a property owned by KUCC, located approximately 10-15 miles west of the North Zone Wetlands.

This Draft RP/EAS was developed by the Service, acting as the Trustee for DOI Natural Resources, as part of a cooperative settlement of the DOI’s claim against KUCC for the alleged injuries to natural resources. The parties were joined as a neutral third party in this process by The Nature Conservancy (TNC), a non-profit 501(c)(3) organization whose mission is to “preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive” (TNC website, [www.nature.org](http://www.nature.org)). The negotiated settlement of the natural resources damage claim against KUCC by DOI is set forth in a Consent Decree between KUCC and the U.S. Department of Justice (DOJ), representing the Service and DOI, lodged in the U.S. District Court for the State of Utah, to which this Draft RP/EAS is attached.

The restoration actions negotiated between the parties, and described in this Draft RP/EAS, are summarized as follows:

- KUCC will transfer title to 616 acres of property near Lakepoint, in Tooele County, Utah (the Lakepoint Property) to TNC for the purpose of management and improvement of natural resources, chiefly migratory shorebirds and waterfowl and their habitats. To assure that the property has sufficient water to sustain these resources, KUCC will also transfer water rights to TNC for 1 cubic foot per second of water from the Factory Springs/Factory Creek watershed, also in Tooele County, Utah. Additionally, KUCC will also provide an endowment to

TNC in the amount of \$175,000 for the purposes of long-term management of the property.

- KUCC will, within the time frame cooperatively negotiated between the parties, and presented within this Draft RP/EAS, complete specified construction activities on the property that will increase natural resource values of the Lakepoint Property, and/or increase the ability to manage these resources. These activities include construction of a pipeline to supply water from Factory Creek to the Lakepoint Property, and construction/repair of water conveyance channels, culverts and other improvements for water management on the property.
- TNC will, through a Memorandum of Agreement (MOA) with the Service, manage the Lakepoint Wetlands (as it will be known following restoration construction activities) for perpetuity for the primary benefit of Trust natural resources of the Service, chiefly migratory shorebirds and waterfowl, and their habitats. The property may be used and/or managed by TNC for other species and purposes as well, as long as these are consistent with the objectives of both this Draft RP/EAS and TNC's Management Plan for the Lakepoint Wetland, included with this Draft RP/EAS as Attachment 3.

The Draft RP/EAS also fulfills the Service's and DOI's obligations under the NEPA, which is to evaluate the potential environmental impacts of the proposed actions. As detailed in Section 1.5.1 of the Draft RP/EAS, based on their analysis, the Service determined that the proposed actions are categorically exempt from the NEPA. The reasoning behind this, and documentation of the decision-making process, is detailed in Section 1.5.1 and Attachment 2 of the Draft RP/EAS.

The Draft RP/EAS also includes information on how the public can provide comments on the proposed restoration activities. This Draft RP/EAS, along with its attachments, is itself an attachment to the Consent Decree negotiated between the Service and KUCC. Public notice of the availability of the Consent Decree for a 30-day public review and comment period will be published by the Department of Justice in the Federal Register; a 30-day public comment period for this Draft Restoration Plan will run concurrently with the public comment period for the Consent Decree. The Federal Register Notice will include information about how the public can obtain copies of the Consent Decree and its attachments (including this Draft Restoration Plan) for review. Other locations where the Draft RP/EAS and accessory documents can be reviewed, and methods of providing comment, are presented in Section 1.6.1 of this Draft Restoration Plan.

## 1.0 Introduction to the Restoration Plan

This restoration plan documents the actions taken and to be taken by the Department of the Interior (DOI) and the U.S. Fish and Wildlife Service (the Service), acting as Trustees, and Kennecott Utah Copper Corporation (KUCC), acting as the responsible party to resolve a natural resource damage (NRD) claim asserted under provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 by the DOI and the Service for injuries to natural resources held in trust by the DOI and the Service.

Section 1 documents the circumstances underlying the need for restoration of Natural resources, including an introduction to the regulatory responsibilities of natural resource Trustees, the history of operations and evidence of natural resource injuries near KUCC's smelter facility in Salt Lake County, Utah that led to the natural resource damage claim by the Trustees. Section 1 also summarizes the actions that were agreed upon by the Trustees and KUCC in a legal settlement of this claim (included with the Restoration Plan as Attachment 1). Section 1 also describes the relationship of these restoration actions to other Federal laws, policies and Presidential Executive Orders, as well as how public and other Federal and State regulatory agencies play a role in the restoration planning process by public and agency comment.

Because this Restoration Plan is being undertaken by a federal "action agency" (the DOI), it is subject to the requirements of the National Environmental Policy Act (NEPA). It is also the policy of the DOI to coordinate NRDAR restoration planning and implementation with the requirements of the NEPA. In this case, NEPA evaluation has occurred concurrently with restoration planning, and the Restoration Plan also fulfills NEPA documentation requirements. The outcome of this evaluation was that the actions described in this Restoration Plan are categorically exempt from NEPA (e.g., there is no need for further analysis under either an Environmental Assessment [EA] or Environmental Impact Statement [EIS]) because they fall under certain exceptions described in the DOI Departmental Manual (DM) Section 516. The relevant NEPA requirements and exceptions, and the coordination of NEPA analysis and restoration planning are described in Section 1.5.1. Documentation of the decision-making process is provided in Attachment 2 to this Restoration Plan.

Section 2 of the Restoration Plan describes the Restoration Actions agreed upon by the Trustees and KUCC in the Settlement, including the transfer of land and water rights at the Lakepoint Wetland area in Tooele County, about six miles west of KUCC's smelter facility to a third-party nongovernmental conservation organization, The Nature Conservancy (TNC); and the accomplishment of certain restoration actions by KUCC, including water conveyance improvements at the Lakepoint Wetland, and the funding of an endowment for TNC to provide for management of the restored lands according to TNC's Management Plan (included with this Restoration Plan as Attachment 3).

Section 3 of the Restoration Plan details how the Restoration and Management actions at the Lakepoint Wetland will be monitored and evaluated to determine if and how the natural resources that are the subject of this Restoration Plan are being restored. Section 3 includes a description of the performance criteria that will be used to assess restoration success, and guidelines and schedules for the development of monitoring plans and procedures, as well as anticipated schedules for periodic reports and management meetings between TNC, the Trustees, and if desired, KUCG and the Public.

Other Sections of this Restoration Plan include Section 4, a list of the people involved in the preparation of this plan, and Section 5, a list of Federal, State, local, and tribal agencies consulted during the preparation of this plan. Other Attachments to this Restoration Plan include Attachment 4, which will (in the final version of this document) include copies of letters and correspondence to agencies and the public inviting public comment, and Attachment 5, which will (in the final version of this document) include copies of public comments received and the Trustees' response to those comments.

### **1.1 Trustee Responsibilities under CERCLA**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as "Superfund," provides for the assessment of damages and restoration of natural resources lost or injured by releases of hazardous substances. Cleanup of CERCLA sites (also referred to as "remediation") eliminates or reduces the potential for future contamination, but may not restore or bring back natural resources that were injured by past releases of contamination. Designated Federal and State agencies can act on behalf of the public as "trustees" in restoring injured natural resources. The CERCLA Natural Resource Damage Assessment (NRDA) Regulations appear in 43 CFR Part 11.

The Secretary of the Interior is one of the officials designated to act on behalf of the public for Federally-protected natural resources. For this case, The U.S. Fish and Wildlife Service (FWS, or Service) has been designated to represent the DOI as the Federal trustee for, among other things, migratory birds, federally-listed threatened and endangered species, and their habitats. State natural resource trustees are designated by the Governor of each State. Natural resource trustees may determine injuries to natural resources and obtain damages. *Injury* is a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a *natural resource* resulting either directly or indirectly from *exposure* to a discharge of oil or a *release* of a *hazardous substance*, or *exposure* to a discharge of oil or release of a hazardous substance, or *exposure* to a product of reactions resulting from the discharge of oil or release of a hazardous substance. *Damages* means the amount of money [or other compensation] sought by the *natural resource trustee* as compensation for *injury*, *destruction* or *loss* of natural resources as set forth in section 107(a) or 111(b) of CERCLA.

Damages recovered under the CERCLA NRDA provisions can only be used for the restoration of injured natural resources. "Restoration" is defined under the NRDA

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regulations as “any action or combination of actions undertaken to restore, rehabilitate, replace or acquire the equivalent of injured natural resources and services” (43CFR § 11.14). Although not officially defined as DOI policy, implicit within the language of this definition is an order of preferred restoration alternatives, starting with on-site restoration of natural resources where possible, but extending to acquisition of equivalent natural resources that are similar to those that were injured. Restoration may include either, or a combination of, primary restoration and/or compensatory restoration (any action taken to compensate for interim losses of natural resources and services that occur from the date of the release or discovery of the release until recovery) (NRDA Definitions, 43CFR § 11.14). In the case of the KUCC North Zone Wetlands, while primary restoration was a component of the remedial actions described in the CERCLA Record of Decision (ROD) (discussed further in Section 1.3.2), the actions detailed in this Restoration Plan fall primarily in the category of compensatory, off-site restoration.

## **1.2 Summary of Settlement**

This Restoration Plan details actions that will be implemented at the Lakepoint property, presently owned by KUCC and located northwest of the town of Tooele, in Tooele County, Utah. These actions are being undertaken in order to restore and replace natural resources that the Service identified as injured within the area known as the North Zone Wetlands, located just north of the KUCC copper smelting facility, approximately six miles east of the Lakepoint property. The North Zone Wetlands are currently owned by KUCC and contain hazardous substances resulting from releases associated at least in part with the operation of copper processing facilities. A natural resource damages claim for injuries to trust resources was developed by the Service on behalf of the DOI, which is the Federal Trustee for protected migratory bird species and their habitats (“trust resources”). DOI and KUCC agreed to work cooperatively to resolve the Service’s claim for injury and damages at the North Zone Wetlands and to identify restoration needs and opportunities. As an outcome of that cooperative effort, DOI and KUCC have negotiated a Consent Decree (CD) to be lodged contemporaneously with finalization of this Restoration Plan.

Under the terms of the Consent Decree, KUCC will transfer the Lakepoint property in fee title along with necessary water rights, and will establish an endowment fund for use by TNC to be used for future management and long-term restoration. In a Memorandum of Agreement (MOA) between TNC and DOI which will be executed contemporaneously with the CD between KUCC and DOI, TNC, for itself and its successors and assigns, has committed to manage the Lakepoint Wetland to benefit trust resources into perpetuity, with land uses restricted to those that will primarily benefit those resources. The MOA between TNC and DOI further specifies that TNC will implement certain long-term restoration actions and will manage the restored wetlands at the Lakepoint property according to the goals, objectives and methods identified in Section 2 of this Restoration Plan and in TNC’s Management Plan for the Lakepoint Wetlands (included with this document as Attachment 3). While TNC will hold and manage the Lakepoint Wetland independent of the DOI or the Service, under

the terms of the MOA they will provide monitoring data and report periodically to the Service as specified in this Restoration Plan (Section 3) and TNC's Management Plan (Attachment 3). Specifics of the property and water rights transfers, and rights and responsibilities of the various parties to the CD, MOA and other documents associated with this settlement can be found in these documents, which will be made available at repositories of public records identified in Section 1.6.1 of this Restoration Plan, and also online at:

<http://mountain-prairie.fws.gov/nrda/LakepointWetlands.htm>.

### **1.3 Operational History, On-Site Remediation and Injury to Trust Resources**

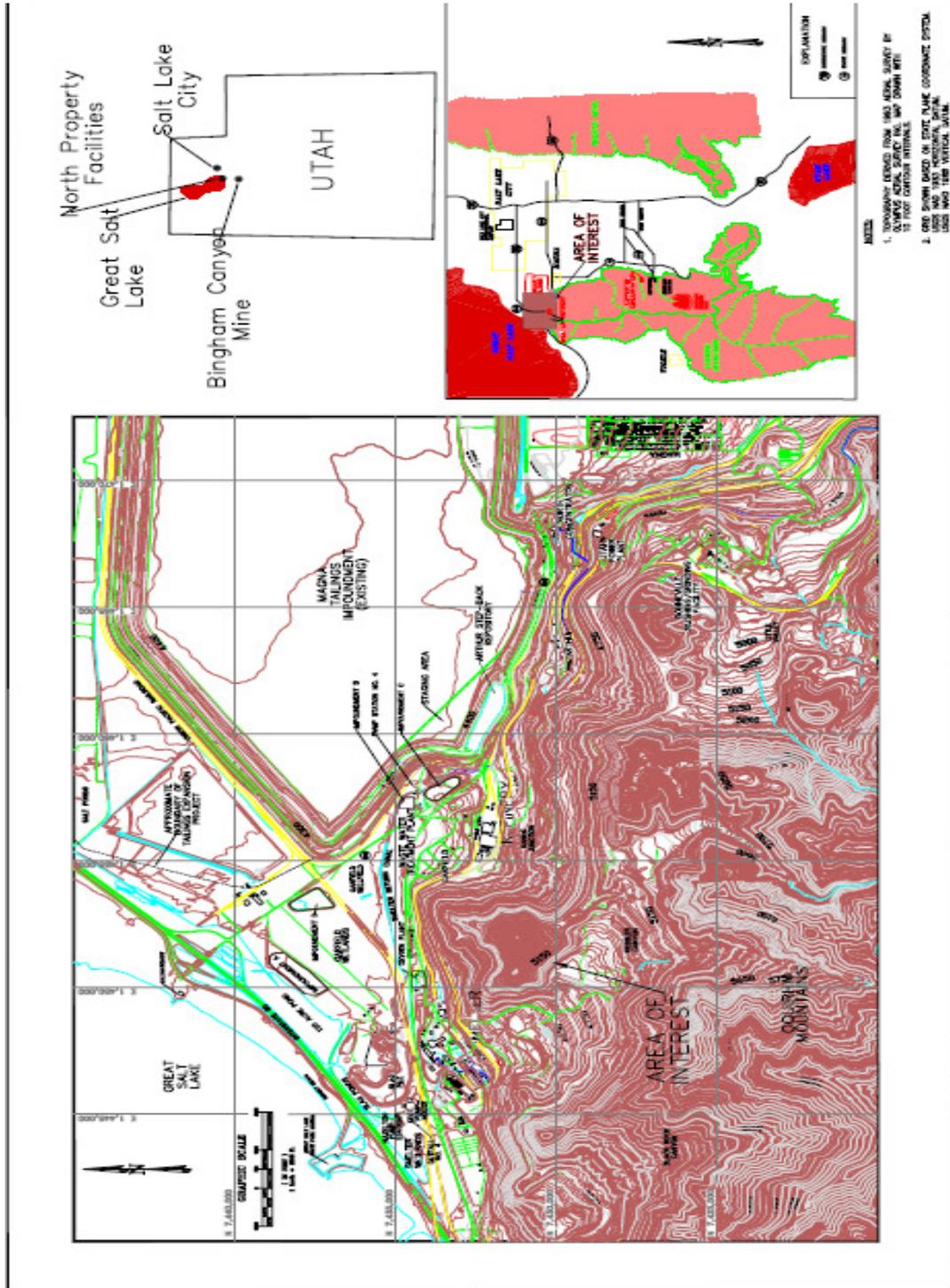
This section provides a brief history of the operations at KUCC's "North End" facilities, including the Smelter and Refinery, the releases of hazardous substances defined under CERCLA that led to an agreement between KUCC and the U.S. Environmental Protection Agency (EPA) that designated and stipulated remediation of the North Zone area impacted by these releases, a description of how these releases impacted wetlands within the North Zone (the "North Zone Wetlands"), and what actions were taken by KUCC to remediate these releases. Section 1.3.3 provides information on the injuries to trust resources that formed the basis of DOI's NRD claim.

#### **1.3.1 Operational History**

KUCC operates a large open pit copper mine, mill, and concentrator situated on the east side of the Oquirrh Mountains, west of the Salt Lake Valley, in Salt Lake County (Figure 1-1). After crushing and concentrating at the Copperton Concentrator facility, the concentrate is slurried to the northern end of the Oquirrh Range for processing at the Smelter and Refinery. These facilities are located on a strip of land between the northern end of the Oquirrh mountains and the south shore of the Great Salt Lake (Figure 1-2), and are referred to by KUCC as the "North End" of the entire KUCC facility.

Under the current operational status of the KUCC facility, crushed concentrated ore is slurried from the Copperton Concentrator facility (located on the southern end of the Oquirrh mountains) to the Smelter, where it is processed to produce anodes that are 99 percent copper. The anodes are then refined to 99.9 percent pure copper cathodes at the Refinery facility adjacent to the smelter.. Byproducts, including gold and silver, are recovered during the refining process and produced at the Precious Metals facility located adjacent to the Refinery. Inert tailings remaining after the initial ore processing step are slurried to the Tailings Impoundment east of the smelter facility (Figure 1-1). Prior to 1999, crushing and concentrating operations also were conducted at the Bonneville Crusher and the North Concentrator. The North End crushing and concentrator facilities were shut down in 1999. Releases of hazardous substances associated with the refining and smelting activities resulted in contamination of ground water, surface water, and freshwater wetland sediments. These releases, which covered a large area of the KUCC North End facilities, were designated by the EPA and

Figure 1-1



Vicinity Map for Kennecott Utah Copper Corporation (KUCC) Facility and North Zone Wetland

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KUCC as the “North Zone” CERCLA site. Contaminants of concern at the North Zone include selenium, copper, arsenic, lead, zinc, and cadmium. Selenium and arsenic entered groundwater underlying the North End processing facilities, and were transported down gradient, emerging in groundwater seeps and artesian springs that supply wetlands located between the processing facilities and the south shore of the Great Salt Lake. Habitats for migratory birds and other wildlife (including freshwater marshes, riparian areas and freshwater ponds) have been affected by these releases to varying degrees. A major focus of remedial activities in the North Zone CERCLA site (see following section) has been the identification, delineation and control of contaminant source areas, and where necessary, down gradient contaminant release/discharge areas.

### **1.3.2 On-Site Remediation**

The EPA became involved in environmental cleanup activities at KUCC in 1991. The Kennecott North and South Zone sites were proposed for the Superfund National Priorities List in January 1994. In 1995, KUCC, EPA and the State of Utah signed a Memorandum of Understanding, under which KUCC agreed to a voluntary cleanup of the sites under EPA oversight. In return, EPA agreed to defer listing the Kennecott sites on the National Priorities List. The remedial approach for the sites was formulated in stages, with early removal actions to reduce higher-level risks, and longer term phased cleanups to address less severe, but more persistent or pervasive contamination issues. Initial cleanup actions in the North Zone focused on removal of surface contamination found during modernization of the smelter and refinery in 1994-1996. A Record of Decision<sup>3</sup> (ROD) for the Kennecott North Zone was signed by EPA in 2002.

Beyond initial cleanup of source areas, the longer-term phases of cleanup at the North Zone have focused on the remediation of waste-water treatment-plant sludge ponds, wetlands, other affected soil sites, and groundwater. Included among these were two areas of wetland habitat in the North Zone referred to in remedial investigation and cleanup documents as sludge ponds. “Sludge Pond A” was filled prior to December 11, 1980 (the date after which CERCLA regulations took effect) and “Sludge Pond D” was mitigated under Section 404 of the Clean Water Act. The sludge in these ponds was a by-product of the treatment of processing waters from the refinery and smelter, and contained high levels of lead, arsenic and selenium. The initial remediation efforts in the North Zone, completed in 2001, included excavating the sludge pond materials and transporting it to a CERCLA permitted repository located on KUCC property.

Longer-term remedial efforts in the North Zone have focused on “plumes” of contaminated groundwater, including groundwater that has been released into the North Zone Wetlands. Contamination of groundwater in this area originated from releases of hazardous substances into groundwater underlying the Smelter and Refinery processing areas. Groundwater in this area travels down gradient towards the north,

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<sup>3</sup> See Glossary section for definition. The ROD for the KUCC North Zone Wetland was signed by the EPA following review by a variety of stakeholder entities including the Service.

and is forced to the surface by local geologic and hydrologic conditions, discharging as springs and seeps within the wetlands. Releases to soil and groundwater identified during remedial investigations included loss of electrolyte from an unlined electrolyte holding pond near the precious metal building, and losses of acid from the smelting operations. As part of KUCC's cleanup effort, contaminated soils in these source areas were removed to a depth of several feet and the areas capped; monitoring wells were also installed to ensure that these contamination sources are controlled. Groundwater treatment methods for the contaminant plume are currently being evaluated for feasibility and effectiveness, but in general, the remedy involves 1) in-situ treatment of groundwater by injection of selenium-reducing microbes into the aquifer; 2) collection and management of contaminated spring and well water; and 3) groundwater monitoring. KUCC is currently preparing a Remedial Design for Remedial Action (RDRA) for the selected remedy. At present, contaminated groundwater water recovered from the area is being added into the facility's process water system to be used in mining operations. An alternative treatment solution which can be used if needed when mining operations cease is still being evaluated.

### **1.3.3 Injury to Trust Resources**

Selenium is present in the North Zone groundwater plume at elevated concentrations, and is a primary constituent of concern to the USFWS. Information collected by KUCC, the EPA and others in support of site characterization, remedial site investigation, ecological risk assessment and other activities at the North Zone wetlands documented that DOI trust resources (i.e., migratory birds and their supporting habitats) were being exposed to concentrations of metals, including selenium, a hazardous substance associated with mining operations at KUCC that were comparable to concentrations that had been documented to cause injury to migratory birds at other sites in the United States. Other metals (e.g., arsenic, cadmium, lead, copper) were also identified in RSI documents as posing a risk to DOI trust resources, but the Service determined that the concentrations of selenium were such that this metal was the "driver" for the Service's concerns at the North Zone Wetlands.

The DOI's trust resource species of concern at the North Zone Wetlands include wetland-dependent shorebirds such as American avocets (*Recurvirostra americana*) and Black-necked stilts (*Himantopus mexicanus*) and waterfowl such as mallard (*Anas platyrhynchos*), cinnamon teal (*Anas cyanoptera*), and northern shoveler (*Anas clypeata*). These species are at particular risk of exposure and potential consequent adverse effects because they use habitats found in the North Zone Wetlands both during the breeding season and as migratory stopover habitat. Birds are attracted to these habitats because the shallow ponds in the wetland appear to provide food, nesting resources, and a safe rest area on migratory stopovers. Selenium found in groundwater, surface water, sediments and dietary items during the RSI were present at concentrations presumed to cause injury (loss of habitat and reduced reproductive productivity) to birds using the wetlands. In addition to wetland dependent species, predatory birds such as the bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*) also occur at the North Zone Wetlands, and could potentially have

been exposed to contaminants by consuming birds from the wetlands which had taken up contaminants from the site through the food chain.

The function and significance of the North Zone wetlands is increased by the fact that it is part of the complex of freshwater wetlands bordering the Great Salt Lake, which form a relatively small, but highly productive part of the much larger Great Salt Lake ecosystem. The lake is of local, regional, and international importance, and has been listed as a "Hemispheric Shorebird Reserve," one of only 15 such sites in the Americas (Canada, U.S., Mexico, Central and South America). The Great Salt Lake has been designated for this protection because it has worldwide significance as habitat for several shorebird and other waterfowl species including American avocet, black-necked stilt, Wilson's phalarope (*Phalaropus tricolor*) and eared grebe (*Podiceps nigricollis*), supporting at least 30% of the total flyway population of these species at some point in their annual breeding and migration cycle. Birds make significant use of the abundance of brine shrimp that occur on the Great Salt Lake during the late summer and early fall to fuel themselves for successful migration to their destinations. In addition to the Lake itself, birds also make use of the wetlands on the shores of the Lake (including those in the North Zone area) for nesting, feeding and resting during migration.

Although the North Zone wetlands are contaminated with a variety of constituents, selenium has been the primary contaminant of concern with regard to trust resources. Selenium is a trace metal that is a required nutrient at very low concentrations; however, the Service has identified it as a source of injury to DOI's trust resources because of its tendency to accumulate to toxic concentrations in water/sediment associated food chains, and because reproductive success in some bird species is particularly sensitive to selenium toxicity<sup>4,5</sup>. Selenium imported into sediments in the North Zone wetlands via contaminated groundwater and other sources can be taken up and bioaccumulated in plants, invertebrates and fish in the shallow wetlands and ponds. These organisms can then be consumed by waterfowl, shorebirds and other wetland-dependent birds. Birds can also be exposed to selenium in sediments and soils via direct ingestion while feeding on plants or invertebrates in these substrates. Although limited sampling of birds and eggs at the North Zone wetlands did not demonstrate direct effects on embryo development or nesting success, it is recognized that levels of selenium in some samples of avian dietary items (e.g., algae, aquatic insects) and bird eggs were high enough to potentially cause effects. Birds are highly sensitive to selenium contamination, with relatively low concentrations in the diet leading to reproductive failure, including alterations in egg-laying and malformation and death of chick embryos<sup>5</sup>.

The Service considered chemical analytical data, ecological risk assessments, biological surveys and other lines of evidence in evaluating injuries to Trust natural

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<sup>4</sup> Heinz, G.H., 1996. "Selenium in Birds," in: *Environmental Contaminants in Wildlife*, Beyer, W.N, G.H. Heinz, A.W. Redmon-Norwood, eds. CRC Press, Boca Raton, FL; pp 447-458.;

<sup>5</sup> Ohlendorf, H.M., 2003. "Ecotoxicology of Selenium," in: *Handbook of Ecotoxicology*, Second Edition, Hoffman, D.J., et al., eds. CRC Press, Boca Raton, FL; pp 465-491.

resources at the North Zone Wetlands. Selenium concentrations in many of the eggs collected by KUCC in the North Zone wetlands for ecological risk assessments exceeded toxicity-based benchmarks for adverse reproductive effects in birds, including teratogenic effects (congenital deformations) and embryo mortality. In egg samples where dietary items (aquatic macroinvertebrates) had been collected in locations in close proximity to where the eggs were collected, there was a high correspondence between elevated selenium concentrations in eggs and elevated selenium concentrations in the corresponding aquatic macroinvertebrate samples, indicating that dietary uptake was a plausible mechanism for the elevated selenium concentrations observed in the eggs.

Based on this information and other factors, the Service evaluated what would be necessary to restore, replace or acquire Trust resources equivalent to those injured in the North Zone. This evaluation considered residual injury to avian populations and their supporting habitats. The Service also concluded there is an increment of natural resource injury associated with the habitats that are being remediated and restored on-site at the North Zone wetlands. Typically, wetlands and other habitats that are restored do not achieve full ecological services for some period of time. The Service considers these lost services as an interim lost use, and were also taken into consideration in the DOI's assessment of injury and losses at the North Zone wetlands. These losses were not fully quantified as part of the development of the cooperative resolution of potential NRDA claims between the DOI and KUCC; however, their identity and magnitude of impact were considered in developing the restoration alternatives that were evaluated and that are presented in this Restoration Plan. The Service believes that the restoration presented in this document is appropriate for the losses for which the DOI determined to have occurred to its trust resources.

#### **1.4 Purpose and Goals of Restoration**

The purpose of Restoration as described in this Plan is to return migratory bird and waterfowl populations (Trust natural resources) injured at the KUCC North Zone Wetlands to a state where they can provide ecological and social services at the same level as occurred before hazardous substances were released (i.e., "baseline"; see Glossary for definition). There are a variety of potential means to accomplish this, including rehabilitation of the natural resources at the site of the injury (known as primary restoration), or replacement or acquisition of equivalent resources that provide the same services as the injured resource (known as compensatory restoration). Restoration projects can be designed to accomplish one or both of these goals, generally depending on the type of natural resource injury involved, and the availability of restoration opportunities. In general, restoration projects are evaluated on their ability to restore, rehabilitate or replace (e.g., through acquisition) natural resources similar to those that were injured (known as "in-kind" restoration); when these opportunities may not be available, restoration, rehabilitation or replacement of other natural resources (known as "out-of-kind" restoration) may be considered.

The response actions at the North Zone Wetlands that are being performed pursuant to the ROD signed by the EPA will eventually result in the recovery of a certain

level of natural resource services; however, the Service does not anticipate that natural resources at the North Zone Wetlands will recover to “baseline” levels (defined in 43CFR § 11.14 as levels of service that existed, or would exist if the release of hazardous substances had not occurred) even when remediation is completed. This baseline level, while not quantified, is considered by Service biologists to be a function of the areas (extents) of various wetland habitat types at the North Zone Wetlands, the food sources and other habitat attributes associated with those habitat types, and of primary importance to the DOI and the FWS, the occurrence and productivity (e.g., nesting success and success in rearing young) of migratory birds and waterfowl that would be associated with these habitat types and areas in a baseline condition. Accordingly, the primary goal of natural resource restoration as addressed in the CD and in this Restoration Plan is to acquire and/or restore in-kind natural resources in the vicinity of the loss (e.g., the south shore of the Great Salt Lake). The success of this action in restoring natural resources lost at the North Zone Wetlands will be primarily determined by evaluating changes in the natural resource characteristics described above (i.e., habitat types and areas, and avian productivity) compared to a pre-restoration “baseline” condition at the site selected for restoration (see Section 3, Monitoring Program and Performance Standards).

A strategy to accomplish these restoration goals has been negotiated between KUCC and DOI. This strategy, jointly agreed upon, consists of:

- 1) Acquisition of land and water in the vicinity of the North Zone Wetlands that will support natural resources of a type and quantity (i.e., in-kind) that the Service determined to be injured or permanently lost due to releases of hazardous substances at the North Zone Wetlands;
- 2) Completion of habitat enhancement activities on the acquired land that will proportionally increase the natural resource value for the benefit of DOI trust resources;
- 3) Management, preservation and protection of acquired land in perpetuity to ensure restoration of natural resources the Service determined to be impacted at the North Zone Wetlands.

## **1.5 Compliance with Other Authorities**

Although this Restoration Plan is written in accordance with DOI policies and CERCLA NRDA regulations, the actions anticipated under this plan are subject to a variety of other Federal environmental regulations and Presidential Executive Orders (EOs). Current DOI guidance requires the integration of environmental review into restoration planning pursuant to the National Environmental Policy Act (NEPA). NEPA review requires:

- 1) A determination of the appropriate level of environmental analysis for the project, ranging from a determination of categorical exclusion (for projects meeting the assumptions and conditions of such an exclusion) to an Environmental Impact Statement (in cases where activities having major environmental effects and implications are contemplated); and

- 2) if analysis is required, comparison of a range of action alternatives to accomplish the goals (“purpose and need”) of the project, including a “no action alternative.”

Section 1.5.1 contains information regarding the level of NEPA analysis required for the actions proposed under this Restoration Plan; the following sub-sections evaluate the impacts that the proposed actions could have to other components of the physical environment and human environment (i.e., cultural, social and economic impacts).

### **1.5.1 National Environmental Policy Act**

The Service has determined that this Draft Plan and the proposed action described herein are categorically excluded (see glossary) from the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) in accordance with the DOI’s Departmental Manual (DM) at DM 6 §516. This determination is based on the conclusion that the proposed actions represent a resource management action where:

- 1) “the construction of new, or the addition of, small structures or improvements, including structures and improvements for the restoration of wetland, riparian, instream, or native habitats, which result in no or only minor changes in the use of the affected local area (including the construction of small water control structures) (516 DM 8.5 B(3));” and
- 2) “Natural resource damage assessment restoration plans, prepared under sections 107, 111, and 122(j) of the CERCLA... when only minor or negligible change in the use of the affected areas is planned.” (516 DM 8.5 B(11))

Attachment 2 to this plan contains the text of 516 DM 8.5 with the relevant exclusions highlighted, and other NEPA compliance documentation including a categorical exclusion checklist and verification form (FWS Form 3-2185), and an Environmental Action Statement (EAS), which provides written justification for the categorical exclusion.

Based on this determination, no other alternatives (including the no-action alternative) were formally identified and analyzed for environmental impact during the development of this Restoration Plan. However, during the planning process, several alternatives for various aspects of the project, such as water sources and land and water management alternatives were considered by the parties to the Settlement (DOI, FWS, KUCC and TNC). However, the actions presented in this Restoration Plan were selected as being the most effective, sustainable, and/or cost-efficient for the purposes of accomplishing the objectives of the restoration of natural resources in this case.

### **1.5.2 Other Relevant Environmental Regulations**

In addition to the NEPA, federally-linked actions such as the proposed restoration actions at the Lakepoint property must conform to all other relevant laws, and relevant Executive Orders (EOs) issued by the Executive Branch of the Federal government. These laws and orders include other environmental regulations, management and coordination laws, human health and worker safety laws, and cultural regulations.

These authorities and the actions or consultations that have been performed to conform to them are presented below, grouped by general area of applicability.

### **1.5.2.1 Clean Air Act**

The Clean Air Act Amendments of 1990 (CAA), 42 USC 13101 *et seq.* directs the EPA to set limits on air emissions from both regulated and unregulated sources to ensure basic protection of human health and the environment. Restoration actions at the Lakepoint property will involve basic construction techniques and equipment and will involve a relatively small area of impact (less than 5 acres in total disturbed area). These actions are not anticipated to generate air quality concerns other than an occasional need for dust control (e.g., while installing/modifying ditches, canals or culverts). Construction techniques such as excavation and grading will be expected to be conducted in accordance with any requirements regarding dust control or other fugitive emission sources. Entities (e.g., KUCC) or contractors performing construction activities at the site will be expected to maintain compliance with any applicable CAA requirements, such as emissions requirements on heavy construction equipment.

### **1.5.2.2 Clean Water Act**

The Clean Water Act (CWA), 33 USC 11 *et seq.* is the principal law governing pollution control and water quality of the nation's waterways. The CWA also addresses the function and water quality of wetlands under Section 404. This body of regulations authorizes permit programs for the disposal of dredged or fill material into statutorily defined navigable waterways (including most wetlands), and is administered by the US Army Corps of Engineers (USACOE).

Some restoration activities planned for the Lakepoint Property might fall under the scope of Section 404 of the CWA, such as upgrades or modifications to existing ditches and culverts on the property. It is not anticipated that any of these activities will require an individual 404 permit (e.g., dredging/filling of natural stream channels, re-directing or re-routing of water in natural stream channels); instead the relatively minor hydrologic modifications that are planned at the Lakepoint Property are expected to be within the scope of Nationwide Permit 27 (NWP27). This permit is applicable to stream and wetland restoration activities involving the enhancement, creation and restoration of tidal and non-tidal stream, wetlands, riparian areas, and open water areas.

In addition to wetland permitting, and depending on the final design of the conveyance system that transports supplemental water to the Lakepoint Property, additional permitting may be required to authorize changes in diversion points on existing streams and canals. These permits are administered by the Utah Department of Natural Resources Office of the State Engineer, but are certified by the Utah Department of Environmental Quality under Section 401 of the CWA.

Per agreements outlined in the CD, KUCC will have the responsibility of contacting the USACOE and/or the State of Utah to supply necessary documentation and obtain required permits for these activities at the Lakepoint Property.

### **1.5.2.3 Endangered Species, Migratory Birds and Eagles**

The Endangered Species Act (ESA), 16 USC 1531, *et seq.*, 50 CFR Parts 17, 222, and 224, directs all federal agencies to conserve threatened and endangered (T&E) species and their habitats, and encourages such agencies to utilize their authority to further these purposes. Section 7 of the ESA requires that federal agencies consult with USFWS to minimize the effects of their actions on endangered and threatened species. Although USFWS is the lead Federal action agency in the proposed restoration at the Lakepoint property, these consultation requirements are still applicable.

A list of endangered and threatened species for Tooele County was requested and obtained (see correspondence, Attachment 4) to assess the possibility of adverse impacts to T&E species at the Lakepoint property. Other than occasional transient individuals, no federally listed or proposed T&E species are known to exist at the Lakepoint property. In addition, no habitat in the project area is currently designated or proposed as “critical habitat” for any T&E species in accordance with provisions of the ESA. Therefore, no Biological Assessment or further Section 7 consultation under the ESA is required with the Service. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

The Migratory Bird Treaty Act (MBTA), 16 USC 715 *et seq.*, and EO 13186, Migratory Bird Protection, provide for the protection of migratory birds. These regulations do not specifically protect the habitats of these birds, but may be used to consider time-of-year restrictions for remedial activities on sites where it is likely migratory birds may be nesting and/or to stipulate maintenance schedules that would avoid the nesting seasons of migratory birds. The Management Plan incorporates these timing restrictions.

Because one of the primary management goals for the Lakepoint Wetland is to provide nesting habitat for migratory birds, construction and maintenance activities will be scheduled in such a way as to minimize impacts to migratory birds, including nesting seasons and migratory stop-over periods. Migratory bird specialists within the Service’s Utah Field Office were consulted about ways to accomplish this during the development of this Restoration Plan; consultation will also occur as necessary in the future as part of the involvement of the Service in the implementation of the Restoration Plan and also in TNC’s ongoing management of the Lakepoint Wetlands, as directed in their Management Plan (Attachment 3).

The Bald Eagle and Golden Eagle Protection Act specifically provides for the protection of these raptors. Their requirements regarding restrictions on time of year and other protections are similar to those outlined in the MBTA. As discussed above, no eagles currently nest on, or utilize the Lakepoint property; however, if this were to change in the future, management activities at the site would be scheduled and conducted to avoid impacts to these birds.

#### **1.5.2.4 Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA), 16 USC 661, *et seq.*, states that wildlife conservation shall receive equal consideration with other features of water-resource development. The FWCA requires Federal permitting and licensing agencies to consult with Federal natural resource Trustee agencies including USFWS, National Marine Fisheries Service (NMFS), and the National Oceanic and Atmospheric Administration (NOAA) and with state wildlife agencies before permitting any activity that in any way modifies any body of water in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat.

The USFWS is the lead Federal agency, and Natural Resource Trustee for this Restoration Plan, and no permits (e.g., CWA Section 404 permits; see Section 1.5.1.1) are anticipated to be needed to complete the actions called for in the Plan. Therefore, the FWCA does not specifically apply to this project. However, in the course of developing the plan, the Service has consulted internally with biologists who normally review plans from other agencies. In addition, the Public Comment Draft versions of this Restoration Plan will be made available to these biologists and to the Utah Division of Wildlife Resources during the public comment period.

#### **1.5.2.5 Executive Order 11990 Protection of Wetlands**

Executive Order 11990 (40 CFR 6392 (a) and Appendix A) requires federal agencies to avoid the adverse impacts associated with the destruction or loss of wetlands, to avoid new construction in wetlands if alternatives exist, and to develop mitigative measure if adverse impacts are unavoidable.

The activities proposed in this Restoration Plan are in compliance with and fully address the intent of this Executive Order.

### **1.5.3 American Indian Tribes**

The Lakepoint property that is the subject of this Restoration Plan consists of about 600 acres of land located adjacent to the south shore of the Great Salt Lake. This area has historically been a resource to people living near the lake, including Native American Indian tribes. Ancestors of at least three currently existing tribes used areas of the Great Salt Lake shore that may have included the Lakepoint property: the Western Shoshone, the Utes, and the Goshutes. The Skull Valley Goshute Band is currently located about 40-50 miles southwest of the property, in Skull Valley.

While the Lakepoint property is privately owned land that is not within any native American reservation boundaries, there are several laws relating to American Indian tribes that could potentially be relevant based on possible historic use of the site by ancestors of these Native Americans. These laws and orders include the American Indian Religious Freedom Act; the Native American Graves Protection and Repatriation Act; EO 13175, Consultation and Coordination with Indian Tribal Governments, and EO 13007, Indian Sacred Sites. In fulfillment of the requirements of these regulations and guidance, the Western Shoshone, Goshute, and Skull Valley Goshute tribes will be

consulted as part of the public comment process following finalization of the Consent Decree between DOI and KUCC. This consultation will be undertaken to determine if there are any cultural concerns about the Lakepoint property relative to their tribal history. Correspondence to and from the tribes regarding this inquiry will be included as part of the public record and the final Restoration Plan.

#### **1.5.4 Cultural and Historic Resources**

In addition to potential Native American historic use, the Lakepoint property has also been evaluated for the potential that historic structures or other culturally significant uses associated with settlement by European pioneers or other groups might exist on the property. The laws associated with these uses are the Archaeologic Resources Protection Act, and the National Historic Preservation Act. These acts require federal action agencies to consult with State Historical Preservation Offices to determine if a project area has, or is likely to have culturally significant resources, and if the proposed project may potentially impact those resources. In fulfillment of this requirement, the Service will provide Utah State Historical Preservation Office (USHPO) with maps and a description of the proposed restoration project following finalization of the Consent Decree between DOI and KUCC for their determination as to the presence or knowledge of known historic or pre-historic data, sites, or relics that may be lost or impacted by the proposed project. Correspondence to and from the USHPO regarding this finding inquiry will be included as part of the public record and the final Restoration Plan.

#### **1.5.5 Environmental Justice, Human Health and Worker Protection**

##### ***1.5.5.1 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations; Executive Order 12948, Amendment to Executive Order 12898.***

Executive Orders 12898 and 12948 require each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. The Trustee has concluded that there are no low income or ethnic minority communities that would be adversely affected by the proposed restoration activities. The project will be implemented on land that is currently owned by KUCC and is in an area where there are no residences within a ½ mile radius. To the extent that the Lakepoint Wetland will be a community resource (e.g., limited educational and conservation outreach opportunities), this resource will be equally available to all communities in a manner consistent with the Management Plan.

##### ***1.5.5.2 Occupational Safety and Health Act***

The Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration (OSHA) within the Department of Labor and encouraged employers and employees to reduce workplace hazards and to implement safety and health programs. OSHA standards may require conditions, or the adoption or use of one or more practices, means, methods or processes reasonably necessary and

appropriate to protect workers on the job. Where OSHA has not promulgated specific standards, employers are responsible for following the Act's general duty clause, which states that each employer "shall furnish a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." Crews conducting restoration work at the Lakepoint property are anticipated to be employed by KUCC, TNC, or their contractors, and specific worker health and safety requirements related to those activities (e.g., excavation, construction, operation of other equipment, conduct around water, etc.) are the responsibility of those employers. The Service is committed to a safe workplace and supports and expects that those employers will have an adequate OSHA program in place for the activities that they will be conducting.

## **1.6 Coordination with Interested Parties and the Public**

This Restoration Plan was developed pursuant to a negotiated settlement of the DOI's NRD claim between the U.S. Fish and Wildlife Service and KUCC. The Nature Conservancy was also involved in the development of this plan as the independent third party that will be responsible for the implementation of restoration and subsequent management of the property. KUCC's involvement in the development and implementation of this plan has been and will be substantial including designation of the property to be restored, implementation of certain property improvements for restoration prior to land transfer (e.g., water conveyance structures, fencing, etc.), transfer of water rights and points of diversion, and certain other in-kind contributions.

Because of the nature of the development of this Restoration Plan as a negotiated settlement, the public, including other state and federal agencies, has not been involved in the development and coordination of this plan in the development stages. The State of Utah did not participate in settlement negotiations leading to the consent decree and this restoration plan. However, coordination with the public and state and federal agencies will be conducted as part of the public comment process that will occur once the settlement is lodged.

### **1.6.1 Public Notification**

As required by CERCLA, this restoration plan and the actions outlined shall not be finalized or implemented until after adequate public notice and opportunity for hearing and consideration of all public comment. Once the Consent Decree has been lodged with the United States District Court for the District of Utah, a Notice of Availability for the Consent Decree, including a Draft version of this Restoration Plan as an attachment to the Consent Decree, will be published in the Federal Register. Notice will be published as well in local newspapers for Salt Lake and Tooele Counties (the Salt Lake Tribune, the Deseret News, and the Tooele Transcript-Bulletin). This notice will open a 30-day public comment period for the Consent Decree and for the Draft Restoration Plan, including all attachments to both the Consent Decree and the Draft Restoration Plan. Copies of the Consent Decree, the Draft Restoration Plan, and all attachments will also be available for review during office hours at the following locations:

- Salt Lake County Library-- Magna Branch, 8339 West 3500 South, Magna, 84044 (telephone: 801-944-7626)
- J. Willard Marriott Library, University of Utah, 295 S 1500 E, Salt Lake City, UT 84112 (telephone: 801-581-6273 or fax: 801-585-3464).
- U.S. Fish and Wildlife Service, Salt Lake City Ecological Services Field Office, 2369 W. Orton Circle, Suite 50, Salt Lake City, UT 84119 (telephone (801) 975-3330; fax: (801)975-3331)

In addition, the Draft Plan and supporting documents will be made available on the internet at:

<http://mountain-prairie.fws.gov/nrda/LakepointWetlands.htm>.

### **1.6.2 Potentially Responsible Party Involvement**

Although KUCC, the Responsible Party for the North Zone Wetlands, has not admitted any liability in this matter, they have been extensively involved in the development of this Restoration Plan as part of a negotiated resolution of the claims of DOI. KUCC will continue to be involved with implementation of initial restoration actions, including the transfer of property and water rights to TNC, application for changes in Place-of-Use and Nature-of-Use or any other water rights associated issues, and design and construction of waterway improvements (canals, head gates, control structures, etc) that will facilitate the delivery of water to the Lakepoint property. These actions are further described in Section 2.3.2. In addition, KUCC has developed significant expertise in the restoration and management of wetlands on the south shore of the Great Salt Lake, notably the Inland Sea Shorebird Reserve (ISSR), an 2500-acre landholding located approximately 11 miles northeast of the Lakepoint property and 6.5 miles northwest of the North Zone Wetland area. The ISSR was developed in 1999 primarily as mitigation and as a mitigation bank for wetlands regulated under Section 404 of the Clean Water Act. Land managers at the ISSR have been actively involved in the conservation of shorebirds and Great Salt Lake ecosystems, and work closely with other land managers on the South Shore of the Great Salt Lake, including the Utah Department of Natural Resources' Division of Wildlife Resources (UDWR), privately held duck clubs, other private land owners, the Audubon Society, and TNC. It is anticipated that KUCC and its affiliates will continue to be involved in this arena as long as the company is operating in the region, and that management of the Lakepoint Wetland will benefit from KUCC's continued involvement and expertise.

### **1.6.3 The Nature Conservancy Involvement**

The Nature Conservancy (TNC) is the other major party involved in this Restoration Plan. The Nature Conservancy is a 501c(3) non-profit organization whose mission is to "preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive<sup>6</sup>."

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<sup>6</sup> TNC Mission Statement, quoted from [www.nature.org/aboutus/](http://www.nature.org/aboutus/)

Under the terms of a Memorandum of Agreement (MOA) negotiated between the Service and TNC, and following completion of restoration activities that will be performed by KUCC (with the input of TNC), TNC will:

- implement their Management Plan (Attachment 3 to this Restoration Plan);
- establish and maintain an endowment for the implementation of provisions of this Restoration Plan for which TNC is responsible, as well as provisions of their Management Plan, using funds provided by KUCC for that purpose under the terms of the settlement of NRD claims between KUCC and the Service;
- Oversee restoration implementation, and monitoring, use of endowment funds, and other information relevant to restoration and management of the restored Lakepoint Wetland. This oversight will include updates to the Service in the form of agreed-upon periodic reporting and meetings.

#### **1.6.4 Administrative Record**

An administrative record for the NRDAR Restoration Process (including the Restoration Plan) will be maintained at the U.S. Fish and Wildlife Service, Salt Lake City Ecological Services Field Office, 2369 W. Orton Circle, Suite 50, Salt Lake City, UT 84119 (telephone (801) 975-3330; fax: (801)975-3331). Pertinent public documents relating to the restoration will be available for public review, by appointment, during normal business hours at the above address. These documents will be cataloged and an index will be available by contacting the FWS Utah Field Office.

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## 2.0 Proposed Restoration Action

### 2.1 *Criteria for Identifying and Selecting the Proposed Action*

As explained in Section 1.4, the goal for restoration of natural resources injured at the KUCC North Zone wetland is to restore and/or improve in-kind natural resources in the vicinity of the loss (e.g., the south shore of the Great Salt Lake). Therefore, the primary criteria for the selection of the proposed action were:

- Similarity of habitats, natural resources and services to those that occurred at the site under baseline conditions;
- Proximity to the South Shore of the Great Salt Lake, and functional connection with the hydrology, soils, plant communities and avian communities that comprise the Great Salt Lake freshwater wetland ecosystem
- Possibility of wetland enhancement or creation such that the magnitude or quantity of in-kind natural resources injured at the North Zone wetland could be made whole

Secondary selection criteria included a variety of legal and pragmatic considerations, such as the availability and legal status of property, the existence of a willing seller, the likelihood and type of development expected on adjacent properties, the feasibility and expense of modifications that would be required to restore and replace natural resources similar to those lost at the KUCC North Zone, the technical and financial sustainability of restoration efforts over time, and the existence and willingness of a third party to receive the lands for future management and protection in perpetuity.

Through cooperative negotiations with KUCC, a suitable property currently owned by KUCC was identified that met these criteria. This property (“the Lakepoint property”) is located approximately six miles west-southwest of the North Zone Wetlands, and is directly adjacent to the south shore of the Great Salt Lake. During negotiations, other options for restoration were explored, including but not limited to on-site (KUCC North Zone) restoration, off-site restoration at other properties, both on the Great Salt Lake shoreline and at other locations, and contributions or participation in other wetland restoration and preservation efforts, such as mitigation banks.

The NEPA process was followed in the development of this plan. Moreover, by evaluating the nature and scope of the actions contemplated for restoration (see Section 1.5) it was determined that actions associated with the restoration plan can be categorically excluded from NEPA analysis.

The Lakepoint property was selected for restoration because it was it was determined and agreed-upon by the Service, KUCC and TNC that the property was a viable location for restoration activities that would yield an increase in natural resources of a type and magnitude similar to those injured at the North Zone wetland, at an expense and level of effort that was consistent with the Service’s claim for natural resource damages at the North Zone. It is the judgment of the Service that the

restoration actions described below will result in restoration that will compensate the public for losses incurred at the North Zone wetlands.

## **2.2 Description, Protection and Present Conditions at the Lakepoint Property**

The Lakepoint property is located on the south shore of the Great Salt Lake, approximately three miles north-west of Tooele, Utah, and approximately six miles west of the KUCC North Zone Wetlands (Figure 2-1). Prior to its selection as a site for restoration (ca. 2003), the property had been leased by KUCC for cattle grazing and ponds on the property were managed by duck hunting clubs that leased hunting rights during the fall. Land use in the area of the Lakepoint property is currently primarily agricultural (grazing); however at this time, eastern Tooele County is experiencing very high growth rates because of its proximity to the Salt Lake City metropolitan area. The Lakepoint property is accessed via a frontage road originating at the Tooele interchange on Interstate Highway I-80; this location and freeway access makes it fairly likely that upland portions of the property could be developed in the future.

The Lakepoint property is essentially flat with a slight north-northwest down sloping gradient towards the lake to the north. At present, approximately 70% of the property is upland, dominated primarily by saltgrass (*Distichlis spicata*), with a few other grasses present. Sub-shrubs, including greasewood (*Sarcobatus vermiculatus*), rabbit brush (*Chrysothamnus* spp.) and others are present, especially in the southeastern quadrant of the property. Presently (i.e., prior to restoration) about 30% of the property is wetland, oriented along the two branching watercourses of Mill Creek that flow through the property. These wetlands consist of a variety of types, including seasonally flooded wet meadows, emergent marsh, and open water ponds, and are vegetated primarily with saltgrass and halophytic forbs such as pickleweed (*Salicornia* spp.) and ink weed (*Suaeda* spp.). There are some open playa areas with hypersaline soils and essentially no vegetation; these are restricted primarily to the northern border of the property nearest to the Great Salt Lake shore. Irrigation and drainage ditches bordering the property on the north and west are edged by tamarisk (*Tamarix* spp.) and common reed (*Phragmites* spp.).

At present, the Lakepoint property is used by a variety of migratory bird species similar to those that occur at the North Zone wetlands, including American avocet, stilt, and killdeer (*Charadrius vociferous*); waterfowl such as mallard, blue-wing teal, northern shoveler and others. In addition, grassland songbirds including western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*) and Savannah sparrow (*Passerculus sandwichensis*) use the upland areas of the property. Other wetland dependent bird species that occur on the Lakepoint property are relatively rare on the North Zone Wetlands. These include long-billed curlews (*Numenius americanus*), which use upland areas, and snowy plover (*Charadrius alexandrinus*), which feed and nest on the salt playas on the north and west margins of the property. Raptors, including northern harriers (*Circus cyaneus*), American kestrels (*Falco sparverius*) and red tail hawk (*Buteo jamaicensis*) can be seen hunting for small mammals or songbirds

Figure 2-1



## Lakepoint Wetland Property and Nearby Hydrologic Features

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on the property; the peregrine falcon occurs in the Great Salt Lake ecosystem, and may pursue shorebirds, waterfowl and other species on the property.

### **2.3 Proposed Restoration Actions**

The desired future conditions at the restored Lakepoint Wetland are listed as management objectives in TNC's Management Plan, which is attached to this Restoration Plan (Attachment 3). These objectives include:

- 1) Maintaining high quality shorebird habitat;
- 2) Improving lower-quality shorebird habitat via water manipulations, vegetation treatments and other management measures;
- 3) Providing habitat for other native wildlife species including songbirds, raptors and mammals;
- 4) Maintaining and managing water, sediment and soil quality in habitats on the property;
- 5) Providing limited public access and educational opportunities consistent with the primary habitat uses of the property; and
- 6) Operating the Lakepoint Wetland in a manner that is compatible with land use on surrounding properties to the extent possible given the primary management objectives of the property.

It is the goal of the Service to ensure that these objectives are maintained into perpetuity.

In order to meet the objectives described above at the Lakepoint Wetland, a variety of restoration activities are needed both to improve the amount and quality of natural resources that can be supported by the property, and to ensure that these resources are maintained in a sustainable manner into the future. The following sections summarize the management and restoration actions that are needed to accomplish these goals.

#### **2.3.1 Land Transfer**

Under the terms of the Consent Decree, KUCC has agreed to convey the Lakepoint property to TNC. Additional terms of this conveyance, such as documentation concerning the value of the property, up-to-date environmental surveys, and title searches were provided to the Service during negotiations with KUCC and are described in the Consent Decree and its attachments.

#### **2.3.2 Restoration Activities**

The Lakepoint property was selected for perpetual protection and restoration because it contains natural resource qualities similar to those found at the KUCC North

Zone wetlands, such as the existence of a permanent water source, proximity to the Great Salt Lake and suitable soils and terrain to support avian species similar to those that formerly used the North Zone (i.e., in-kind replacement value). In addition to these, the Lakepoint property also has the potential for active restoration steps to increase the property's productivity and value relative to avian populations (e.g., in-kind restoration) using relatively simple and sustainable restoration activities. These restoration steps will increase the natural resource value of the parcel to a level that compensates for the natural resources injured at the North Zone wetlands.

Restoration at the Lakepoint property can be divided into two phases, initial restoration and longer-term restoration and management. Initial restoration steps will be completed by KUCC as part of the terms of the Consent Decree, with the input of both the Service and TNC (see Table 2-1). These initial restoration activities include:

- 1) Setting aside for perpetuity a suitable tract of land;
- 2) Securing and supplying to the property a reliable supply of adequate quality water;
- 3) Eliminating land uses that are inconsistent with the intended purpose of migratory bird and waterfowl habitat preservation and enhancement. KUCC initiated these steps in 2003 by terminating grazing and hunting leases, and removing cattle from the property.
- 4) Building and/or improving structures to convey water to the property and to distribute it as needed, and/or performing minor earthwork to improve drainage and create areas of standing water;
- 5) Performing any needed initial weed control and seeding; and
- 6) Upgrading and/or improving existing fencing and signage to improve site security and provide needed interpretive or other information to the public.

Longer-term restoration and management of the Lakepoint Wetland will primarily be accomplished by TNC with input and feedback from the Service. This phase of restoration will take the form of "adaptive management" where evaluations of present conditions and the response of the site to previous treatments and activities are used to inform decision-making, with the goal of maximizing natural resource benefits and responding to changing biotic and abiotic conditions at the property. TNC will communicate and coordinate with the Service in this process through reporting and periodic meetings.

The following sections provide additional detail about the activities that will be undertaken during initial restoration at the Lakepoint property; these activities are also summarized in Table 2-1.

**Table 2-1 Summary of Initial Restoration Actions at Lakepoint property**

<b>ACTION</b>	<b>RESPONSIBILITY</b>
<b>1. Land Transfer</b>	
a) Appraisal	TNC/KUCC
b) Phase I Environmental (Pre-Acquisition) Site Assessment	KUCC
c) Legal- title cleanup and transfer, recording, etc.	KUCC
<b>2. Water Diversion from Factory Creek Springs</b>	
a) Legal (water rights, point of diversion permit, etc)	KUCC
b) Engineering design (incl. surveying, etc.)	KUCC, in consultation with TNC and FWS
c) Construction and Construction Oversight	KUCC / TNC as to construction oversight
<b>3. Water Control Structures and Habitat Features on Lakepoint Property</b>	
a) Legal (water rights, necessary permits)	KUCC
b) Structural design	
i) Conceptual Design <sup>7</sup>	TNC, in consultation with FWS and KUCC
ii) Engineering Design (incl. surveying, etc)	KUCC
c) Construction and Construction Oversight	KUCC with field input from TNC, FWS
<b>4. Other Actions</b>	
a) Fencing and Signage	KUCC with input from TNC, FWS
b) initial seeding and/or weed control	KUCC with input from TNC, FWS
c) Removal of unwanted structures & debris	KUCC with input from TNC, FWS
d) Roads- grading & gravel on main access road; removal/reclamation of unwanted roadways	KUCC with input from TNC, FWS

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<sup>7</sup> Anticipated elements: upgrade/realign/construct 2-3 distribution ditches, construct 1-2 water retention dikes, construct 6-7 total water control points, excavate/re-contour 1-2 ponds, construct 1-2 nesting islands, limited additional upland excavation/construction (e.g., road grading or removal, excavation of burrowing owl nesting boxes)

### 2.3.2.1 Water Sources and Selection of Water Source for the Lakepoint Property

Water is currently supplied to the Lakepoint property primarily from the Mill Creek Pond via the Mill Creek drainage. The pond originates from springs near the Benson Mill near Stansbury Park, Utah, about 3-4 miles south of the property (Figure 2-1). Water from the Mill Pond flows north for a short distance before entering a water diversion structure (the “A-Frame”), from which water can be diverted by other water users for irrigation, and KUCC can divert water into a 36” aqueduct that connects with the Factory Springs area (discussed below). Water not diverted out of the A-Frame continues northward down the Mill Creek drainage, which splits into two branches (an east and west channel) about a mile downstream of the A-Frame, and is carried in two culverts underneath Interstate Highway I-80, before entering the Lakepoint Property on its southern boundary. At present, water from a second source in the area, Factory Springs, can also flow onto the Lakepoint Property. This occurs primarily in the spring, when excess flows from the spring spill over a retention dam, drain north then west along the south side of I-80, and then commingle with flows in the eastern Mill Creek Channel before flowing under I-80 and onto the Lakepoint Property.

Under the terms of the Consent Decree, KUCC has agreed to provide TNC with water to the Lakepoint property such that the first cubic foot per second (cfs) of water from Factory Springs will be diverted to the property year-round. This amount was determined to be adequate based on the anticipated restored aquatic habitat area on the property, and TNC’s knowledge of water needs for Great Salt Lake south shore wetlands based on other habitat areas they manage in the Great Salt Lake ecosystem.

Three potential sources of water were evaluated to provide this water right. The first was water from the Mill Pond, for which KUCC has water rights, along with other water users. The second source of water evaluated was that from Cassidy Springs. This water originates at a spring complex approximately 5 miles west of the A-Frame; it flows eastward in the “Six-Mile Canal” before joining other flows at the A-Frame (Figure 2-1). KUCC owns all rights to this water; at present it is directed from the A-Frame to the Smelter Facility via the Factory Springs aqueduct. However, at present, rights to water in the Mill Pond and A-Frame are shared among several users, including KUCC. Other water users’ rights are primarily for irrigation; KUCC has process water rights as well. Because of the variety of water rights holders and water users, the amount of water flowing out of the A-Frame (the control point for the Mill Pond, Cassidy Springs, and the Mill Creek channel) can vary considerably in terms of volume throughout the year, and KUCC has somewhat limited control over this. In addition, because water upstream of the A-frame may include irrigation return flows from other water-users, there is no way that KUCC can control or guarantee the quality of water.

The third water source that was evaluated was Factory Creek, originating at Factory Springs (Figure 2-1). Factory Creek has a perennial flow, and has historically sustained flows exceeding 5 cfs, including through a recent 5-year drought (about 1999-2004); based on these records it is anticipated that these flows will continue at this capacity into the future. Additionally, all of the flow of Factory Creek is owned and controlled by KUCC. Based on these factors, KUCC selected Factory Creek as the

most suitable source from which water could reliably be provided to the Lakepoint Property. Water from this source would be supplied to the property via a 12-inch pipeline that would enter the southeast corner of the property.

The water right to the first cfs of the flow from Factory Creek will be transferred by KUCC to TNC. However, if a prolonged drought or changes in groundwater extraction by non-Kennecott entities causes total discharge from Factory Springs to decrease below 1 cfs, diversion of water to the Lakepoint property would only be equivalent to the water available from the Factory Springs source. The specifics and limitations if such conditions occur are described in detail in the property transfer agreement between KUCC and TNC, which is included with the Consent Decree in Attachment 1.

In addition to this provided water source, water that is presently supplied to the Lakepoint Property as described above may continue flowing onto the property, resulting in flows greater than 1 cfs to the property. However, there is no guarantee or certainty to the quantity and duration of these flows because water management changes by KUCC or others may decrease or increase these excess water flows at any time (in fact, this is why KUCC elected to provide water from the Factory Springs source). TNC may elect to apply for rights to this water in order to secure the ability to divert these excess flows for wetland restoration on the Lakepoint property. However, from the standpoint of NRDA restoration on the Lakepoint Property, FWS and KUCC have agreed that the 1 cfs provided by KUCC in the Consent Decree is adequate to ensure that restoration goals at the property will be met.

#### 2.3.2.2 Water Conveyance

Under the terms of the Consent Decree, KUCC will construct a pipeline to deliver water from Factory Creek to the Lakepoint Property. This will involve the placement of a 12-inch high density polyethylene pipeline within a 16-inch boring underneath the interstate, terminating on the southeast corner of the property. Water delivered to this point, which is at the highest elevation on the property, will be routed and used where needed for restoration activities, with field construction design jointly performed by KUCC and TNC, and construction activities carried out by KUCC.

A planned valve and diversion structure for the pipeline will be located at the water delivery point on the Lakepoint property to allow the restoration property managers (TNC) to control the amount and destination of water without having to gain access to other properties off-site of the restoration property. However, this water delivery mechanism will necessitate the granting of a perpetual easement by KUCC to TNC for access to and maintenance of the pipeline on lands owned by KUCC upstream (southeast) of the Lakepoint property (i.e., between the Factory Creek pipeline origin point and the Lakepoint property). Under the terms of the Consent Decree and Transfer Agreement, the endowment provided by KUCC includes funding to cover anticipated long-term pipeline maintenance costs. KUCC will endeavor to design the pipeline route so that it avoids existing wetlands. However, as discussed in Section 1.4.1.2, if Section 404 or Stream Alteration Permits are needed in order to work in

wetlands, KUCC will work with the USACOE and/or the State of Utah Department of Water Quality to obtain any necessary permits.

Because the present Mill Creek channel alignments will not be modified, water that flows into these alignments will continue to be able to report to the Lakepoint property when the water is available. This water will then be in addition to the water provided by the pipeline from Factory Creek.

Downstream of the water delivery point, KUCC will construct or improve currently existing water diversion structures. The goal of these improvements will be to improve the ability of TNC's wetland manager to direct water throughout the parcel as needed. This will involve building or upgrading currently existing channels to distribute water to the Mill Creek Channel alignments and to the eastern portions of the property, upgrading three presently existing culverts that allow water to pass under the access road running through the property, construction or expansion of a dike upstream of the "Borrow Pond" to increase the acreage of ponded water upstream of the dike, and upgrade/reconstruction of the presently existing outflow structure (at the downgradient end of the Borrow Pond) both to ensure that it can handle anticipated flows, and to locate it at the topographic bottom of the pond so it can be drained if required (Figure 2-2).

The surveying and engineering work required to design this diversion and delivery system has not been completed, but under the terms of the Consent Decree KUCC will provide and/or finance this work. However, the Service, KUCC, and TNC will work cooperatively to design these features. TNC, as the final property holder and manager, will operate the water management structures on the Property on a day-to-day basis.

#### 2.3.2.3 Habitat Management

Once KUCC's construction and restoration activities have been completed in accordance with this Restoration Plan, and administrative (property and water rights) and water distribution and management activities have been completed, TNC will assume responsibility for long-term management of the Lakepoint Wetland. This will be conducted according to the goals, objectives, strategies and activities identified in TNC's "Restoration and Management Plan for the Lakepoint Wetland" (the Management Plan), attached to this Restoration Plan (Attachment 3). Further specifics of the relationship that the Service will have with TNC with respect to management of the Lakepoint Wetland are described in a Memorandum of Agreement (MOA) which is attached to the Consent Decree.

The primary habitat management objectives identified in TNC's Management Plan for the Lakepoint Wetland (Attachment 3) are as follows: 1) maintaining and improving habitats for shorebirds, waterfowl and other wetland dependent avian species, including protection of existing nesting habitat and the expansion of nesting

Figure 2-2

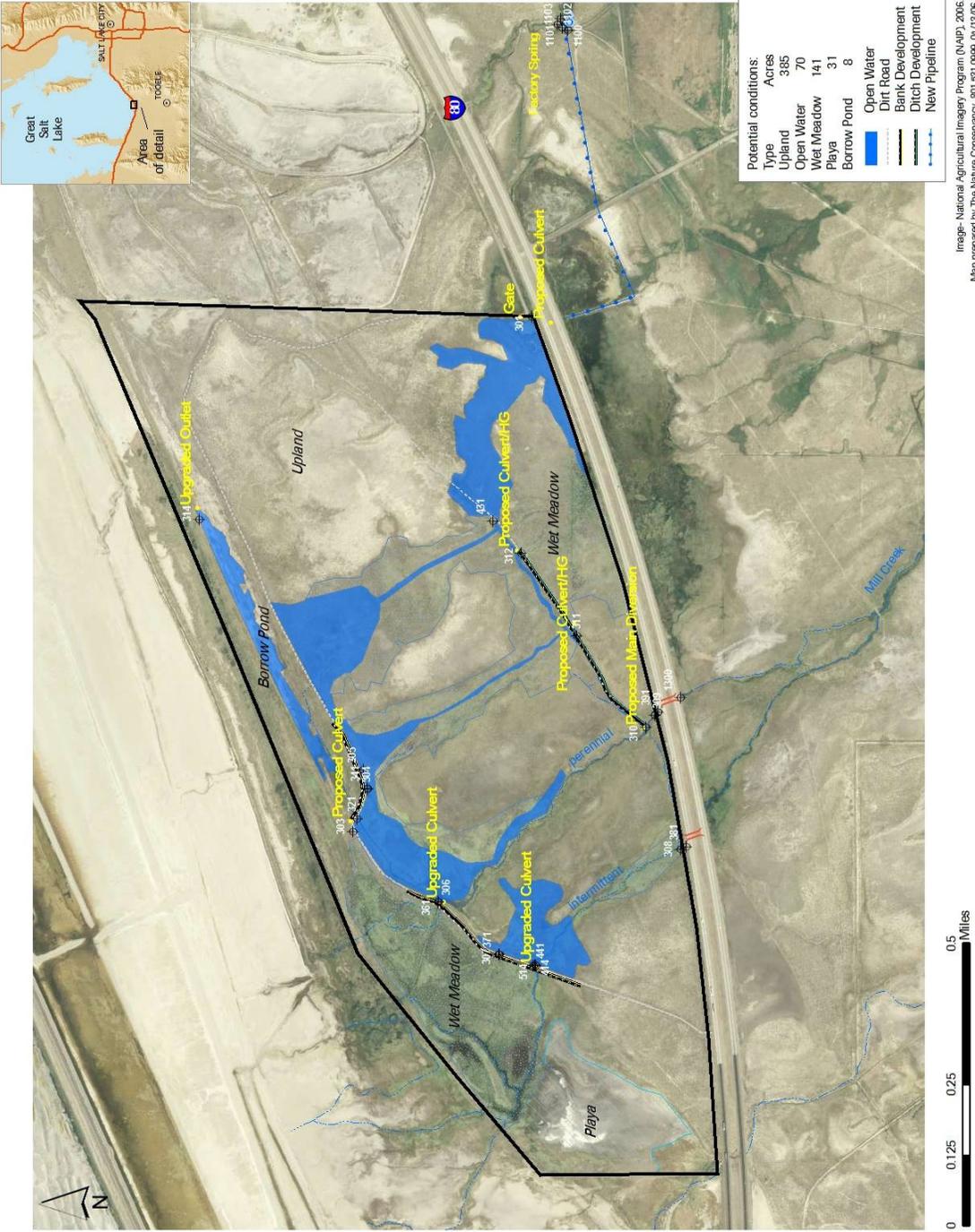


Image - National Agricultural Imagery Program (NAIP), 2006  
 Map prepared by The Nature Conservancy, 801.631.0888, Oct 15/06

Map of Lakepoint property showing planned location of restoration-related water control features and structures

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habitat through increase in area of ponded water; 2) maintaining and improving habitat for other avian, mammalian and other wildlife species that may also occur on the property; and 3) managing water quality on the property to support the uses described above.

A secondary habitat management objective for the Lakepoint Wetland is the provision and management of the area as a public resource, with use subject to limitations that support the primary management goals of the area, such as closure of the property during nesting seasons, closure of more sensitive areas such as nesting or resting areas, and closure to uses such as hunting. Opportunities for public education are anticipated under this use, such as through the use of interpretive signage or kiosks, guided tours and visits, and research or educational outreach activities.

As the Lakepoint Wetland is adjacent to other private and public properties, and may be included in other entities' management plans (e.g., mosquito control programs managed by local governmental agencies), it is also an objective of the TNC to manage habitats in such a way to maintain "good neighbor" relations with these entities, and to work to integrate these activities with habitat management at the property. Specific strategies and activities that can be undertaken to accomplish these habitat management goals are identified in TNC's Management Plan. However, an "adaptive management" approach will be used to adapt these strategies and activities as needed, as this has proved to be the most effective way to "fine-tune" habitat restoration and management at other projects across the country.

#### 2.3.2.4 Water Quality Management

One of the significant factors in the design and management of restoration of the Lakepoint property is a concern for the maintenance of adequate water quality to support the use of the property as nesting and feeding habitat for shorebirds and other Service trust resource species. Besides water quantity, another concern of the FWS is the accumulation, buildup and/or bioaccumulation of salts and metals (specifically selenium) at the Lakepoint property. Because natural resource injuries at the KUCC North Zone Wetlands were centered on adverse impacts from selenium, special attention was paid to this possibility while evaluating the restoration potential of the Lakepoint property. Water, soil and sediment samples were collected and evaluated for selenium in areas of the property that are either currently ponded wetland habitat, or might be converted to ponded habitat during restoration. Water sources, including Factory Creek, Mill Creek upstream of the property, and water from Cassidy Spring and the Six Mile canal were also analyzed. The results of these analyses indicate that water samples from the source areas, and on the property, contain in some cases more than the 2 micrograms per liter ( $\mu\text{g/L}$ ) total selenium considered unequivocally safe by the Service, but in all cases less than 5 micrograms per liter ( $\mu\text{g/L}$ ), the current Utah and EPA Chronic Criteria for the protection of aquatic life. Selenium concentrations in sediments and soils in upland areas that might be converted to aquatic habitat following restoration range from 2 to 6 milligrams per kilogram ( $\text{mg/kg}$ ) selenium. Based on knowledge of the land use history of the site and the surrounding area, these concentrations appear to represent local geologic and hydrologic background conditions. As such, the Service has judged that that the water quality and sediments at

the site are suitable for restoration, and that water management such as those described in this Restoration Plan may optimize habitat restoration and enhancement.

While selenium concentrations in water and soils at the Lakepoint property appear to be representative of background, there were some cases where they approached the 5 µg/L benchmark, and based on experiences at other restoration sites in Utah and the western United States, Service scientists believe that water resources on the property should be managed to minimize the accumulation of selenium in wetland biota (avian food sources). This may be accomplished by strategies such as periodically allowing ponds to dry during the summer, flushing them in the fall, and drawing them down in the winter. Drying ponds and wetlands may stimulate the biomethylation and oxidation of selenium, with flushing intended to remove the re-dissolved selenium from the system. Other management strategies may include designing ponds so that they can be drained and managed independently; and if necessary, minimizing the residence time of water in ponds (e.g., “flow-through” ponds) during summer and fall. Initial and post-restoration (e.g., for five years after restoration activities have been completed) monitoring, including chemical analysis of water and sediments for selenium (see Section 3.1.3), will be used to determine actual trends in selenium accumulation. If warranted by monitoring results, water management strategies for the wetland may be adjusted to address adverse accumulation of selenium.

### **2.3.3 Long Term Management**

TNC will implement long term management of the Lakepoint Property (i.e., beyond the 5-10 years of management, monitoring and reporting discussed in Section 3 below) according to the goals, objectives and management activities presented by TNC in their Management Plan for the Lakepoint Wetland (Attachment 3). It is expected that this document may be revised and adapted during the initial restoration and management period discussed in Section 3, and when the property is completely turned over to TNC (i.e., there are no more reporting requirements between TNC and the Service), that the Management Plan, along with this Restoration Plan, will form the basis for long-term management of the Service’s Trust natural resources at the site into perpetuity.

In addition to TNC’s Management Plan, a notice of the Consent Decree contained within the title to the property transferred from KUCC to TNC, the nature of use designation in the water right transferred from KUCC to TNC, a Memorandum of Agreement (MOA) between TNC and the Service (all attachments to the Consent Decree between KUCC and the Service), and TNC’s commitment (under the MOA) to obtain an easement on the property, all constitute protective legal mechanisms that will limit uses of the Lakepoint Property that are inconsistent with this Restoration Plan or other documents. If, in the future, it becomes necessary for TNC to alter their use or management of the property, conditions and procedures contained within those documents will become the primary guidance for that process.

Another similar topic is the area of dispute resolution. It is anticipated that, under foreseeable circumstances, this will be addressed as a part of the meetings and reports that are discussed in the Section 3 (Monitoring and Reporting) below. However, if disputes cannot be resolved within this setting, the documents referred to above, especially the MOA between TNC and the Service, will become the controlling documents for that process.

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### 3.0 Monitoring Program and Performance Criteria

The primary objective of the NRDAR program is to restore natural resources that have been injured by releases of hazardous wastes. A fundamental part of that process involves linking restoration to the injury—i.e., have the natural resource losses caused by the injury been restored by the restoration action. In the case of this restoration plan, the link is between injuries to shorebird and waterfowl species and their supporting habitats that the Service believes occurred at the KUCC North Zone Wetlands (Section 1.3.3), and restoration of those natural resources at the Lakepoint Property (Section 2). However, there is a need for some sort of measure to be associated with that goal in order to be able to assess whether the goal is being achieved. Ideally, these measures should also give managers enough information to determine what might be happening if the goal does not appear to be getting met, in order to make management changes to achieve the goals if possible. This evaluation requires two elements: monitoring-- the evaluation of specific measurements that are closely associated with the goal (i.e., the restoration of the injured natural resources), and performance criteria—a “yardstick” that is used to indicate if the goal is being met or not.

At the Lakepoint wetland, the measure that the Service has selected to indicate whether restoration is being achieved will be the trend in productivity of waterfowl and shorebirds at the site—i.e., how many individual birds of these species are successfully raised (to independence and dispersal). Trends in productivity at the Lakepoint wetland will be compared to a “baseline”<sup>8</sup> that will be established during pre-restoration monitoring (described further in Section 3.1.2). Avian productivity monitoring will therefore be the one required element of monitoring to be performed by the site manager, TNC. However, the Service anticipates that TNC will also perform other monitoring as outlined in their Management Plan for the wetland (Attachment 3), based on monitoring they carry out at other wetlands they manage in Utah. This additional monitoring has several benefits. First is to provide information during the restoration process regarding the response of bird populations to the changes at the site, which then allows managers to adjust activities to improve benefits to the natural resources-- i.e., “adaptive management.” Secondly, ongoing monitoring at a site with an established “baseline” can often detect changes that may eventually become adverse (e.g., affect productivity) early in the process—such as an increase in predation, or a lack of food productivity or availability). Finally, the information provided by monitoring adds to the body of information and science that can be used to restore and manage natural resources at other sites.

As more restoration projects have been initiated, implemented and completed across the United States, it has also become apparent that performance criteria are

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<sup>8</sup> This baseline will not be absolutely defined, but will be relative to, and evaluated prior to, major restoration construction activities that will commence once the Consent Decree, Restoration Plan, and other documents are finalized. This monitoring will not be able to capture or quantify any changes or improvements in natural resource values that may have occurred when KUCC implemented the initial restoration activities on the property in 2003, that is, removing grazing cattle from the property and terminating waterfowl hunting leases on the property.

helpful in allowing all involved parties to determine whether or not they are “finished” with the tasks of restoration, as well as whether the restoration effort has been “successful.” These criteria may be framed in qualitative or quantitative terms depending on what is involved with the restoration, but should be clear-cut and understandable to all parties and to the public. In the case of the Lakepoint Wetland, performance criteria can be separated into restoration activities (largely the responsibility of KUCC) and management activities (largely the responsibility of TNC). Performance criteria for KUCC’s restoration activities will primarily involve completion by agreed-upon dates. For site management, the productivity of shorebirds and waterfowl (i.e., success of young birds reaching independence and dispersing from the site) will be the main performance criterion that will be used to determine if natural resources are being restored.

The monitoring plan and performance criteria that have been developed for the Lakepoint wetlands are intended to provide information needed to assess initial and ongoing restoration success with a level of effort that is within the cost and effort capabilities of the parties to perform. Monitoring is also intended to proceed far enough into the future to determine whether or not it is likely that the natural resources that are the focus of restoration are being protected into perpetuity, which is one of the goals of the DOI NRDAR program. Although it is impossible to assure that a particular site or management practice will protect natural resources forever, the post-restoration monitoring period should be long enough to incorporate variability in ecologically significant factors such as temperature, rainfall, avian productivity, etc. This will give land managers and the Service enough information to predict whether the site’s productivity and function will remain constant throughout the life of the project, assuming management goals and practices remain. Because of the differing reasons for monitoring in the initial- and post restoration phases, the monitoring plan is also designed in phases, with more intense monitoring at the outset of restoration (while “adaptive management” is most needed), and more routine, lower effort long-term monitoring after the site and management methods have stabilized.

### **3.1 Lakepoint Property Monitoring Components**

Ongoing monitoring at the Lakepoint Property will primarily be the responsibility of TNC, and will focus on measuring performance against the restoration objectives set out in their Management Plan (Attachment 3). For the most part, these objectives involve improving and managing the site in order to increase nesting habitat, and therefore productivity, of shorebirds, waterfowl and other avian species that use GSL wetland habitats. Therefore, monitoring activities will be focused on comparing avian community characteristics against these management activities. Other management objectives reflect general goals for the site that are consistent with the need for restoration projects to serve as a source of education and outreach to scientists, land managers and the public, and for them to operate within the overall needs of the community within which they are located. These do not require specific monitoring, but rather should be noted in the periodic reports that will be required to document restoration. The following sections discuss monitoring measures, performance criteria and reporting requirements linked to these objectives.

### 3.1.1 Habitat Monitoring

Beyond the activities that will be completed by KUCC, restoration activities within the first 5-year “post-restoration” period at the site will involve habitat manipulations intended to increase the acreage of high-value Great Salt Lake shoreline avian habitat; that is, pond, wetland, playa, and other areas that can be used for nesting and foraging as well as other uses. As discussed in TNC’s management plan for the site, the overall goals of habitat improvement and management at the site are to:

- 1) provide increased nesting areas for shorebirds, waterfowl, and other species of interest;
- 2) Identify areas that are not being used much by birds but that could be improved by promoting the development of ponds, playas or wetlands, and make those improvements;
- 3) Identify areas where undesirable species (e.g., *Phragmites* or canary reed grass, white-top (*Cardaria draba*), etc.) exist or may be encroaching, and carry out measures to prevent this;
- 4) Promote a diverse mix of habitats that will provide for the diverse needs of a wider range of avian species (but with primary emphasis on shorebirds and waterfowl); and,
- 5) Manage these areas to increase their use by birds over time as the habitats mature and diversify.

Methods and objectives to achieve these goals are discussed in TNC’s management plan, and the monitoring components described below are linked to, and will serve to evaluate the performance of the site against those goals. Performance will be evaluated by tracking changes in these components against the initial condition of the site before restoration activities are undertaken, and by evaluating trends in shorebird and waterfowl productivity in the context of these habitat changes. Habitat monitoring components will include:

#### **Baseline Monitoring (Year 1, or prior to restoration actions by KUCC)**

TNC will establish baseline monitoring points, transects and/or photographic documentation (photo points, aerial photography) that will allow for the delineation and mapping of existing habitat conditions at the time that TNC assumes responsibility for the property. Specific methods used to provide this information will be proposed to the Service by TNC and will be agreed upon in initial management meetings. Mapping of baseline water resources and locations (as built by KUCC, see Section 2.3.2) will be part of this effort. Components of baseline habitat monitoring should include:

- Habitat Mapping- TNC will generate a vegetation and/or habitat classification map as part of the initial (baseline) monitoring effort during the first year they take title to the Lakepoint Property, and ideally prior to the initiation of KUCC’s

restoration construction activities. This map will provide an initial snapshot of vegetative conditions at the property, so should also be generated at an optimal time of year in which to make good determinations of vegetation type.

Designation of habitat types and areas (e.g., seasonally inundated saltgrass marsh, playa, riparian channel, upland scrub/shrub grassland, etc) will be up to TNC, but should be related to avian use of the site for nesting, feeding, etc.

- Characterization of vegetative habitat types and diversity- including information about dominant vegetation species, and avian species most closely associated with these areas and their use(s) of the areas. Although the Lakepoint Wetland is not being managed with the primary goal of vegetation species diversity, increased habitat diversity (and measures of this diversity) is consistent with the goal of providing habitat for an increased diversity of avian species.
- Planned habitat improvements- TNC will generate maps or descriptions of areas where improvements are planned- such as ponds or expanded wetland areas (possibly in cooperation with KUCC, as they design and construct the water features discussed in Section 2.3), construction of nesting islands, etc.
- Exotic/Invasive vegetation- Baseline habitat mapping should also identify areas where exotic or invasive vegetation currently exists and is slated for removal or treatment.

### **Post-Restoration Monitoring (Years 2-5)**

Habitat monitoring in the first five years after restoration will primarily be focused on tracking changes and trends in habitat conditions from baseline consequent to changes in water and vegetation management. Monitoring methods used during baseline monitoring (transects, photo-points, etc) will be repeated throughout this period to detect and track changes in habitat conditions. It is also expected that TNC and the Service will be able to determine the measures that are the most useful for informing adaptive management decisions. As the post-restoration period draws to a close, TNC and the Service will decide which measures will be retained for a reduced level-of-effort ongoing monitoring program. If TNC institutes new habitat restoration or management practices in the post-restoration period, closer monitoring of these projects may be called for; it is expected that this would be discussed and decided upon in management meetings between TNC and the Service. If TNC independently conducts research consistent with restoration goals on the property, or allows others such as academic or governmental researchers to do so, the Service would be provided with reports or other information that arises out of these activities as part of the required monitoring reporting discussed below in Section 3.2.

#### **3.1.2 Avian Monitoring**

As discussed above, productivity of shorebirds and waterfowl at the Lakepoint Wetland is the clearest measure of whether or not habitat restoration at the site is compensating for the natural resource injuries that are the basis of this action. However, other characteristics of avian use at the site are also important from a

management perspective, including occurrence of different species throughout different times of year at the site, and use of habitats on the property by these species throughout the year. Similar to habitat monitoring and performance assessment, initial conditions will be used to the extent possible as the standard for comparison to gauge changes and hoped-for increases in avian productivity and use of the Lakepoint Wetland. Again similar to the habitat monitoring program, baseline monitoring will be followed by four years of relatively intensive post-restoration monitoring to track changes in avian use and productivity, with the most informative parameters retained in a less intensive long-term monitoring program that is designed to detect adverse changes soon enough to make management adaptations if possible. Ideally, avian “baseline” monitoring will include a full year (i.e., spring migratory and breeding periods, summer and fall migratory periods) of data collected before water improvements are constructed (i.e., construction of pipeline, canals, culverts, etc) and implemented (e.g., filling ponds with water). This will increase the probability that increases in avian use of the site following restoration actions can be detected. Avian monitoring measures will include:

### **Avian Productivity-**

Productivity is a measure of the young birds that are successfully reared at a site and that survive long enough to join the breeding population and produce more chicks. Exact determination of this characteristic can be very difficult and time-consuming because of factors such as weather, predation, and events that occur once young leave the area of concern. There are quantitative methods, such as the Mayfield nesting success index that can determine productivity with a relatively high degree of certainty, however these require the collection of large amounts of data, which can be labor intensive, as well as having the potential to adversely impact nesting success by the monitoring activity itself (e.g., by attracting predators to nests while locating and counting eggs in them). These methods are generally more appropriate when making decisions about larger areas, or when comparing productivity at different areas or consequent to different management manipulations. Because none of these are the case at the Lakepoint Wetland, the intent of productivity monitoring is to determine, with a reasonable level of effort, a) about how many young of shorebird and waterfowl species are produced per year at the property, b) whether there is a positive trend in productivity associated with implementation and maturation of water management and habitat changes, and c) to detect potential declines in productivity in order to determine if they may be associated with site management activities, and if so, to attempt to correct these activities. As with habitat monitoring, it is hoped that productivity monitoring activities will be refined and reduced during the five-year post-restoration period to a lower-effort long term program that will continue to provide information about avian productivity at the site until ecological conditions at the site appear to have stabilized and the site becomes more self-sustaining.

Productivity of shorebird species can be assessed by counting nests and eggs during the incubation period because they are relatively visible (e.g., nests are typically located in bare areas with high visibility, with adults luring predators- or surveyors- away with distracting displays); young can later be counted relatively easily because they leave the nest soon after hatching and because they are typically in open habitat. Nest

locations and surveys for waterfowl may be more difficult because nests are often concealed in tall vegetation; it is typically easier to conduct brood counts once the young are on the water with their parents. In either case, counts of young birds should be conducted periodically before fledging in order to determine if overall productivity is being impacted by predation or other factors; it is anticipated that enough experience can be gained in the 5-year post-restoration period to develop a lower level-of-effort monitoring program based on ideal counting locations and times.

Methods used by TNC to assess shorebird and waterfowl productivity should be qualitative or semi-quantitative methods that are generally accepted by professional wildlife managers. While it is understood that avian productivity may be difficult to quantify using survey methods, particularly for shorebirds (where nesting birds have little nest fidelity, and precocious chicks can leave the nest and travel a considerable distance from it after hatching), TNC should develop a survey program that will allow a reasonably certain estimate of productivity at the Lakepoint Wetland, and survey methodology and timing should be consistent enough from year-to-year to allow for between-year comparisons and a longer-term assessment of trends in productivity. Surveys should be conducted often enough throughout the nesting season to detect potential adverse factors such as predation or weather-related loss, and ideally should be able to provide information on the relative ratio of young fledged to those hatched. Additional information, such as the number of nests initiated, may be valuable to site managers, and if collected, should be reported, but will not be required by FWS.

### **Avian Population and Area Use Surveys**

In addition to nest and brood counts, it is anticipated that TNC will also conduct the routine avian monitoring that it performs on other properties it manages, as reflected in their Management Plan (Attachment 3). The purpose of this monitoring is to characterize the avian species that use the Lakepoint Wetland at different times of the year in order to identify potential opportunities for habitat improvements that may benefit species of concern, and to help in the general understanding of population and occurrence trends for birds in the Great Salt Lake ecosystem. A variety of methods are used for avian censuses, including strip transect counts (where all birds observed within a given distance from a transect line such as a road or shoreline are counted), and point counts (where all birds observed within set amount of time and within a given radius of a point are counted). Counts may be conducted at various times of the year to record different species and different uses (breeding, migratory stop-overs, etc.) As described in TNC's Management Plan, census data will be recorded in the context of habitat areas—e.g., types and numbers of birds nesting, feeding, etc., by specific habitat types. Use monitoring will be focused on the shorebird and waterfowl species that are central to restoration efforts on the property, however, presence and use by other bird species should also be noted. Use by other species of conservation concern (e.g., raptors, threatened/endangered species, etc.) should also be noted for inclusion in management planning if compatible with management for shorebirds and waterfowl.

Avian surveys are measures of occurrence (whether or not a particular species occurs on the site) or relative abundance (i.e., which species are the most abundant at the site at different times of the year) but do not measure production, which is, as

discussed above, the key factor in determining whether the injured natural resources that are the concern of this plan are being restored. For this reason, the choice of avian census methods and timing will be up to TNC, with documentation supplied to the Service in periodic monitoring and management reports. During the initial 5-year post-restoration period, censuses ideally will be scheduled to measure species occurrence and use in:

- Winter (year-round resident and wintering species);
- Spring (migratory transients and nesting species);
- Summer (focused on productivity surveys as described above, but also to record occurrence of year-round and early migratory transients); and
- Late summer/fall (year-round residents and fall transients)

The timing and number of surveys will be proposed by TNC based on the approach they select to measure these endpoints and on their familiarity with the GSL ecosystem.

Monitoring reports from these activities will be supplied to the Service on a periodic basis as discussed below in Section 3.2.

## **Predation**

Based on experience gained by TNC, KUCC and others at similar managed habitat areas (e.g., TNC's Layton Marsh Preserve, KUCC's Inland Sea Shorebird Reserve, etc.), predation, either by mammals (e.g., red fox, coyote) or other birds (e.g., raven, raptors) can be a possible factor in overall avian productivity at the Lakepoint Wetlands. If this is observed, or suspected to be a contributor to productivity declines on the site, monitoring data may be needed to establish the extent to which predation is having an impact, and therefore, which management strategies may be needed or desired to offset predation. This is an example of an issue that would be appropriate for discussion and resolution between TNC and the Service in the reporting and meeting process discussed in Section 3.2.

### **3.1.3 Water, Sediment and Soil Monitoring**

**Chemical Monitoring-** As discussed in Section 1.3.3, the bioaccumulation of selenium was one of the chief mechanisms of injury to trust resources at the KUCC North Zone wetlands; and as discussed in Section 2.3.2.4, background concentrations of selenium in water at the site may be close to levels of concern to the Service. Past experience with management of waterfowl and shorebird habitat in similar conditions has indicated that it is important to monitor selenium concentrations as new aquatic habitat is created in order to ensure that this or other elements of concern (e.g., salts, iron) are not increasing in either sediments or water. As part of restoration monitoring for the Lakepoint Wetland, the Service will collect and analyze samples of water and sediment at the property. A minimum of one pair of water and sediment samples will be collected at least five locations once per year in the first three years after water management

changes are implemented; the number of locations may be cut back for the following two years based on results of previous years' sampling. Samples will be collected in the late summer when evaporation, water use and vegetation growth are at their peak; analytical results and their interpretation will be provided to TNC in a timely manner for discussion at periodic management meetings. The need for additional sampling locations, parameters and/or matrices (e.g., aquatic macroinvertebrates) may be decided by FWS and TNC during these meetings, however, the costs of additional sampling are not included in the endowment provided by KUCC. The anticipated number and type of samples involved in this effort are summarized in Table 3-1.

Water samples will be collected using standard methods for surface water sampling (samples collected from non-stagnant waters, about 2/3 of the distance from the bottom of the stream or pool) into bottles containing a small amount of acid to preserve the samples (prevent subsequent biological or chemical action from changing the relative concentration or form of selenium) and placed on ice for transport to the analytical laboratory. Sediment samples will be collected as composites (from several locations in the pond or area to be sampled) from surface sediments in areas where aquatic macroinvertebrates (one of the primary food items for shorebirds and some waterfowl) may be found. Sediment samples will be collected into chemically clean jars and stored on ice for transport to the analytical laboratory. Samples will be analyzed for selenium at a FWS contract laboratory, or at another laboratory that is approved by the Service.

**Flow Monitoring-** It is expected that TNC will want to measure inflows and outflows of water at the Lakepoint Wetland as a normal part of water management on the site. These measures should include measurement of incoming flow from the Factory Creek pipeline to insure that the agreed-upon amount (1 cfs) is entering the property, and to identify upstream issues (e.g., pipeline blockage) in a timely manner. In addition, it is expected that a seasonably variable amount of water will be entering the property from the east and west channels of Mill Creek. This may be a relatively large quantity in the spring, but may be minimal in late summer and fall. During restoration implementation and within the initial post-restoration (5-year) period, TNC should conduct flow measurements from early spring to late fall in order to characterize the amount of water that is typically available during that period. These measurements will not require a high degree of precision, and could be aided by the installation of weirs or staff-gauges if desired. TNC should propose a measuring method to FWS as part of the final monitoring plan for the property; in addition, FWS may collect flow measurements as part of water quality measurements.

Measurement of the outflow from the project area (at the outlet located in the "Borrow Pond" in the northeastern corner of the property) will help to determine the amount of water lost to evaporation and used by wetland plants and soils ("consumptive use"), as well as to understand the water budget of the property. These measurements can be aided by the installation of a weir and staff-gauge at the outlet during its construction by KUCC.

**Table 3-1**

**Planned Post-Restoration Sampling for Selenium in Sediment and Water at the Lakepoint Wetland**

<b>Year</b>	<b>Locations</b>	<b>Planned Number of Samples</b>
<b>1</b>	1) Inlet Pond (water coming onto property) (S, W) 2) East Millcreek Branch, Intermediate Pond (S,W) 3) West Millcreek Branch, Intermediate Pond (S, W) 4) "New" Pond (S,W) 5) Borrow Pond and Outlet flow (S, W) <i>(anticipated to be "initial phase of restoration" sampling)</i>	10 (5 sediment, 5 water)
<b>2</b>	Locations 1-5, sediment and water	10 (5 each water & sediment)
<b>3</b>	Locations 1-5, sediment and water	10 (5 each water & sediment)
<b>4</b>	Based on results of Year 1-3 sampling, locations 2 and 3 may be omitted	6 (3 each water & sediment)
<b>5</b>	Based on results of Year 1-4 sampling, locations 1, 2, 3 may be omitted	4 (2 each water & sediment)
<b>6-on</b>	Will be evaluated based on Year 1-5 results	---

### **3.1.4 Other Monitoring**

TNC may elect to conduct other monitoring or measurement programs at the Lakepoint Wetland at their discretion, as long as its purposes and/or methods are consistent with the goals of natural resource restoration as discussed in this plan and consistent with the management objectives that TNC has laid out in their Management Plan (Attachment 3). The Service should be notified of this type of activity prior to its initiation (particularly if it is the first time that type of activity has been conducted on the site), either in the context of periodic reports or meetings, or separately if necessitated by the timing of the monitoring project. If such monitoring is conducted the Service requests to be informed of the results of that monitoring, either separately or in regularly scheduled reports or meetings; and to receive copies of any literature (e.g., scientific publications, etc.) generated from that monitoring.

### **3.2 Reporting Requirements and Schedule**

As discussed in Sections 3.1 and 3.2, habitat, avian productivity and avian use monitoring will be conducted at the Lakepoint Wetland to determine the effectiveness of habitat manipulations in restoring natural resources lost at the KUCC North Zone

wetlands, and to fine-tune management activities to maximize the use and productivity of the area for shorebirds, waterfowl and other bird species. Monitoring and management assessment reports from TNC, as well as periodic management meetings between TNC and the Service will be used to document and discuss these changes. Monitoring and management reports will be used both to evaluate and/or demonstrate that natural resource restoration is being accomplished at the site, and perhaps more importantly, to add to the body of knowledge regarding natural resource restoration and management in general and specifically within the Great Salt Lake ecosystem. These reports and meetings will also be essential in the process of “adaptive management”, which basically consists of applying best professional judgment to site-specific observations to determine the best course of action to maintain or improve natural resource values at the site.

Monitoring measures and reporting requirements will be greater in the first years after water management structures are installed and habitat improvements are implemented, with lesser requirements as these features mature and as habitat management procedures are optimized for the site. However, since one of the concerns of DOI is that restoration projects be managed for DOI trust resources “into perpetuity”, there is some requirement for minimal monitoring and maintenance for a period of time long enough to be able to speak with some assurance about this. Based on these conditions and requirements, a proposed restoration, monitoring, reporting and meeting schedule is summarized in Table 3-2. This schedule will be finalized by the Service and TNC within the first year of restoration implementation.

### **3.3 Restoration Schedule**

The final schedule for restoration activities will be negotiated between the Service, KUCC, and TNC. Depending on when the Consent Decree and other documents are finalized, it is expected that KUCC will complete its initial restoration obligations within six to twelve months from that date. As discussed in Section 3.2 above, TNC should perform at least one iteration of pre-restoration habitat mapping and monitoring prior to the initiation and/or completion of KUCC’s restoration activities, so that pre-restoration baseline conditions are documented. Depending on timing, baseline avian productivity monitoring and censuses should also be conducted before restoration activities are completed. Table 3-3 presents a general list of initial restoration steps and a “months out” time-table; these will be finalized to an anticipated construction schedule based on discussion and consensus between the DOI, KUCC and TNC.

**TABLE 3-2**

**Monitoring and Reporting Schedule for Years 0-5 of Restoration Activity at Lakepoint Wetland, Tooele County, Utah**

<b>YEAR</b>	<b>RESTORATION CONSTRUCTION (KUCC)</b>	<b>MONITORING (TNC)</b>	<b>REPORTING (TNC)</b>	<b>MEETINGS (FWS &amp; TNC)</b>
<b>0-1</b>	<ul style="list-style-type: none"> <li>• Fulfillment of CD obligations</li> <li>• Finalization of Construction Design, construction schedule</li> <li>• Construction of pipeline and water delivery and distribution features at Lakepoint</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-restoration habitat mapping</li> <li>• Decision (with FWS) on census and productivity monitoring methods, timetable</li> <li>• Pre-restoration avian census and use surveys<sup>9</sup></li> <li>• Pre-restoration shorebird and waterfowl productivity surveys<sup>10</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Pre-restoration annual report- baseline census and productivity monitoring, habitat mapping, proposed habitat management and monitoring program for years 2-5</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings with FWS to discuss construction scheduling (KUCC), monitoring methods and timetable (TNC) (Year 0)</li> <li>• Quarterly management meetings during restoration construction and baseline monitoring</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>• Completion &amp; fine-tuning of any remaining restoration construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Avian census and habitat use (4x/year)<sup>10</sup></li> <li>• Shorebird/waterfowl productivity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• First post-restoration annual report- comparisons with baseline, identification of management issues</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly management meetings</li> </ul>
<b>3</b>	No further requirements if restoration obligations are complete	<ul style="list-style-type: none"> <li>• Avian census and habitat use (4x/year)</li> <li>• Shorebird/waterfowl productivity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Second post-restoration annual report- comparisons with baseline, trends, management issues</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly management meetings (frequency may be decreased if agreed by FWS and TNC)</li> </ul>

<sup>9</sup> Number and timing of meetings to be agreed upon by TNC and FWS, and will depend on when legal and administrative requirements of the restoration planning process are completed, and when construction activities are scheduled to begin and to be completed by KUCC.

<sup>10</sup> See Section 3.1.2

**TABLE 3-2, *continued***

**Monitoring and Reporting Schedule for Years 0-5 of Restoration Activity at Lakepoint Wetland, Tooele County, Utah**

<b>YEAR</b>	<b>RESTORATION CONSTRUCTION (KUCC)</b>	<b>MONITORING (TNC)</b>	<b>REPORTING (TNC)</b>	<b>MEETINGS (FWS &amp; TNC)</b>
<b>4</b>		<ul style="list-style-type: none"> <li>• Avian census and habitat use (frequency may be decreased if agreed by FWS and TNC)</li> <li>• Shorebird/waterfowl productivity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Third post-restoration annual report- comparisons with baseline, trends, identification of management issues</li> </ul>	<ul style="list-style-type: none"> <li>• Semi-annual (pre-season &amp; post-season) management meetings</li> </ul>
<b>5</b>		<ul style="list-style-type: none"> <li>• Avian census and habitat use (frequency may be decreased if agreed by FWS and TNC)</li> <li>• Shorebird/waterfowl productivity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Fourth post-restoration annual report- comparisons with baseline, trends, identification of management issues</li> </ul>	<ul style="list-style-type: none"> <li>• Semi-annual (pre-season &amp; post-season) management meetings</li> </ul>
<b>6-10</b>		<ul style="list-style-type: none"> <li>• Decreased level-of-effort shorebird/waterfowl productivity monitoring (as agreed by FWS &amp; TNC)</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased level-of-effort summary reporting— significant events or changes from previous conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Semi-annual or annual management meetings as agreed by FWS &amp; TNC</li> </ul>
<b>10-20</b>		<ul style="list-style-type: none"> <li>• Monitoring based on TNC’s standard management practices, with input from FWS</li> </ul>	<ul style="list-style-type: none"> <li>• Summary reports- content as agreed by FWS &amp; TNC</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings scheduled if needed by FWS or TNC</li> </ul>

Note: Beyond Years 0-1, planning years will begin in the early winter, with pre-season management meetings conducted in the January-March time-frame, and post-season management meeting to be conducted in the November-December timeframe.

**Table 3-3**

**Timetable for Initial Restoration and Baseline Monitoring Activities (Preliminary<sup>1</sup>),  
Lakepoint Wetland, Tooele County, Utah.  
(Page 1 of 2)**

<b>Activity</b>	<b>Responsible Party</b>	<b>Completion Timeframe (months after execution of CD)</b>
<b><i>Legal/ Coordination/Design</i></b>		
Meet to discuss/finalize timetable, coordinate activities	FWS, KUCC, TNC	1 month
Land Transfer Activities (see Table 2-1)	KUCC	2 months
Endowment Funding, other financial issues	KUCC	see timeframes specified in CD
Water Improvements- Legal, Permitting, Design	KUCC with input from FWS, TNC	3 months
<b><i>Restoration Construction</i></b>		
Water Improvements- Construction- Pipeline from source to property	KUCC	first available construction season
Water Improvements- Culvert/channel/pond modifications	KUCC with input from FWS, TNC	1 year
Other Land Improvement Actions- fencing, debris removal, etc (see Table 2-1)	KUCC	6 months
<b><i>Baseline Monitoring</i></b>		
Meet to discuss/finalize monitoring plan, field schedule, reporting schedule	TNC, FWS	3 months (initial meeting within 30 days)
Baseline habitat monitoring, mapping	TNC	6 months (first suitable season)
Baseline avian census	TNC	as agreed in monitoring plan
Baseline productivity monitoring	TNC	6 months (first available season)
Baseline water/sediment monitoring/analysis	FWS	6 months (before water improvements implemented)

**Table 3-3, continued**

**Timetable for Initial Restoration and Baseline Monitoring Activities (Preliminary<sup>1</sup>),**

**Lakepoint Wetland, Tooele County, Utah.**

*(Page 2 of 2)*

<b>Activity</b>	<b>Responsible Party</b>	<b>Completion Timeframe (months after execution of CD)</b>
<b>Management Meetings/ Reporting</b>		
First-year management meetings	TNC, FWS, KUCC	As determined/needed by FWS, TNC, KUCC
Water/ Sediment quality data and interpretation	FWS	8 months (or as agreed by TNC and FWS)
Baseline Monitoring and Management Report	TNC	10 months (or as agreed by TNC and FWS)
Completion Assessment	FWS	12 months
Planning for Year 2 activities	FWS, TNC, KUCC <sup>2</sup>	12 months
<b>Post-Restoration Monitoring &amp; Management (Years 2-5)</b>		
Proposed Post-Restoration Habitat and Avian monitoring Plan (yearly updates)	TNC	February of years 2-5
Habitat and Avian monitoring	TNC	As determined by TNC, FWS
Water/ sediment quality monitoring	FWS	As determined by TNC, FWS
Management Meetings	FWS, TNC	As determined by TNC, FWS
Water/ Sediment quality data and interpretation	FWS	As determined by TNC, FWS
Ongoing Annual Monitoring and Management Reports	TNC	As determined by TNC, FWS
Planning for subsequent year	TNC, FWS	As determined by TNC, FWS
Water delivery/distribution system implementation issues	KUCC (as notified by TNC and/or FWS)	As decided by parties

1) More specific dates will be added to this table following Public Comment and finalization of the Consent Decree, this Restoration Plan, and other associated documents.

2) KUCC will remain involved with Restoration at this point if necessary- based on status of completion of their obligated Restoration Activities (outlined in Table 2-1), and their discretion.

## **4.0 List of Preparers and Reviewers**

Christine Cline, USFWS Utah Field Office (primary author)

Bruce Waddell, USFWS Utah Field Office

Seth Willey, USFWS Mountain Prairie Regional Office (Region 6)

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Chris Brown, The Nature Conservancy

Elizabeth Kitchens, The Nature Conservancy

Gen Green, The Nature Conservancy

Kelly Payne, Kennecott Utah Copper Corporation

Anne Neville, Kennecott Utah Copper Corporation

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## 5.0 List of Agencies, Organizations and Parties Consulted for Information

### Utah State Historical Preservation Office

Jim Dykman, State Preservation Officer  
Utah State Presevation Office  
300 Rio Grande  
Salt Lake City, UT 84101

### Confederated Tribes of the Goshute

Amos Murphy, Chairman Goshute Business Council P.O.Box 6104 Ibapah, UT 84034 (435) 234-1138 FAX (435) 234-1162	Buck Douglas Natural Resources Commission P.O.Box 6104 Ibapah, UT 84034 (435) 234-1138 FAX (435) 234-1162
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### Skull Valley Band of Goshute

Leon Bear, Chairman  
Skull Valley Band of Goshute Indians  
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Salt Lake City, UT 84115-4443  
(801) 484-4422

### Northwestern Band of Shoshoni Nation of Utah (Washakie)

Gwen Davis, Chairperson Northwestern Band of Shoshoni Indians 862 South Main Street, #6 Brigham City, UT 84302 (435) 734-2286 FAX: (435) 734-0424	Bruce Parry, Executive Director 862 South Main Street, #6 Brigham City, UT 84302 435) 734-2286 FAX: (435) 734-0424 nwbandshoind@favorites.com
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### Ute Indian Tribe

Uintah & Ouray Business Committee  
PO Box 190, Ft  
Duchesne, UT 84026,  
Chair: Maxine Natchess

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## **6.0 ATTACHMENTS**

### **ATTACHMENT 1**

**Consent Decree (including Exhibits- except for Restoration Plan)**

### **ATTACHMENT 2**

**NEPA Categorical Exclusion Documentation**

### **ATTACHMENT 3**

**TNC Management Plan for the Lakepoint Wetlands**

### **ATTACHMENT 4**

**Letters and Correspondence**

### **ATTACHMENT 5**

**Public Comment and Response (won't be in Draft RP)**

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## **ATTACHMENT 1**

### **Consent Decree (including Exhibits except for Restoration Plan)**

**see separate document:**

filename

**posted to FWS website,**

<http://mountain-prairie.fws.gov/nrda/LakepointWetlands.htm>.

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## **ATTACHMENT 2**

### **NEPA Categorical Exclusion Documentation**

**see separate document:**

UTFO\_KUCC NRDA\_Resto Plan Att-2\_NEPA CatEx Doc.pdf

**posted to FWS website,**

<http://mountain-prairie.fws.gov/nrda/LakepointWetlands.htm>

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**ATTACHMENT 3**

**TNC Management Plan**

**see separate document:**

filename

**posted to FWS website,**

**<http://mountain-prairie.fws.gov/nrda/LakepointWetlands.htm>**

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## **ATTACHMENT 4**

**Letters and Correspondence with Consulting Agencies  
(to be added when 30-day Public Comment period is complete)**

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## **ATTACHMENT 5**

**Public Comment and Agency Response**  
**(to be added when 30-day Public Comment period is complete)**

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